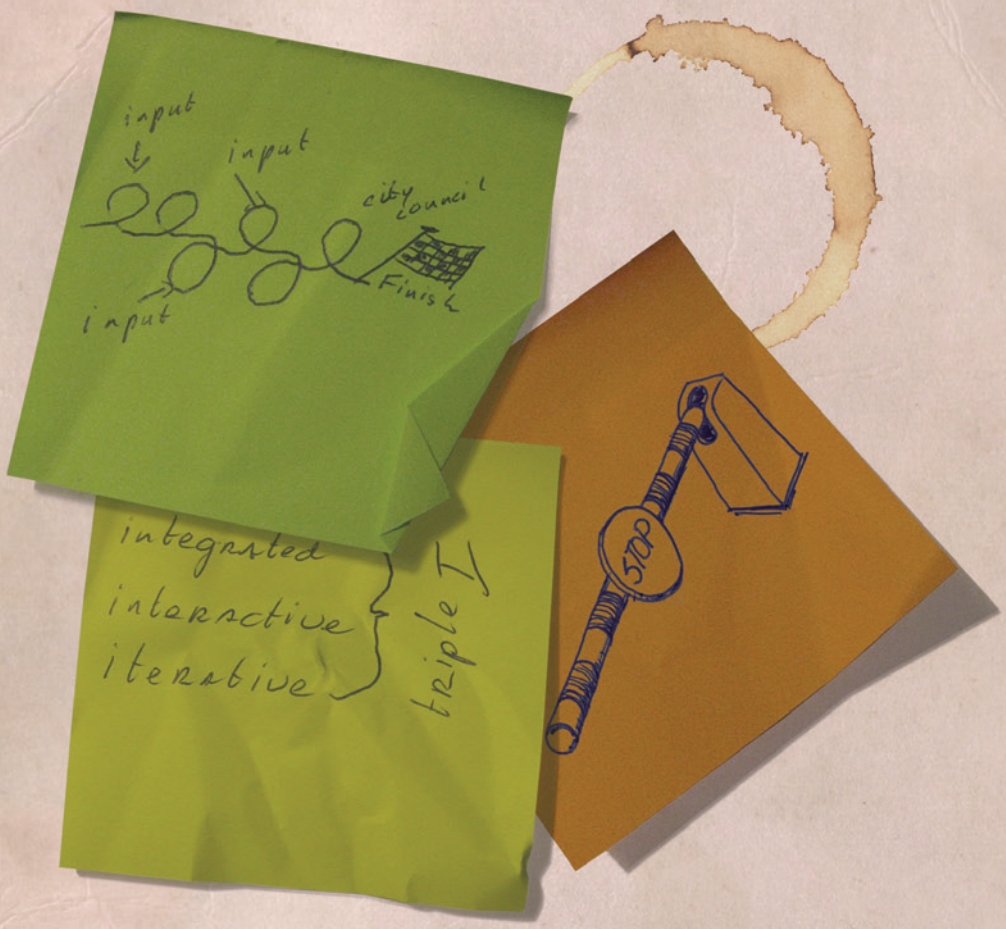
Knowledge in process



Joyce de Goede

Knowledge in process

A study about evidence-based local health policy

Joyce de Goede

Colofon

The research for this thesis was performed at the Academic Collaborative Center for Public Health Brabant: the department of Tranzo, Tilburg School of Social and Behavioral Sciences, Tilburg University, Tilburg, the Regional Public Health Service (GGD) Hart voor Brabant, 's-Hertogenbosch, the Regional Public health Service (GGD) West-Brabant, Breda, and the National Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands.

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A study about evidence-based local health policy

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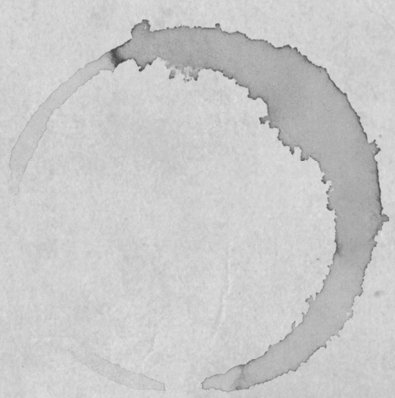
Deze “buku pienter” is voor mijn ouders
omdat ze mij geleerd hebben om te doen wat ik leuk vind
en daar in te volharden.

Contents

1. Introduction



Introduction

In the daily practice of applied epidemiological research, it is never certain whether and how research results end up in policy and decision making processes. The following story illustrates an unfortunate personal experience of the author, working as a Regional Public Health Service epidemiologist in the local public health field:

In 2002, I conducted a local study for a municipality in our public health region. Together with a colleague from the Regional Public Health Service, we received an assignment of the local administration to explore the need for service and information centers for the elderly in the different villages within the municipality. The study was conducted in collaboration with the local organization for community work for the elderly. The director of this organization was very helpful and enthusiastic. Before the study started, we had several discussions with the local health official, a civil servant from the Local Administration. It was an interesting study to undertake. We conducted a survey; in each village, we held substantial information briefings for the elderly in which we explained the possibilities of these information centers. Subsequently we asked the participants to fill in a questionnaire in order to gather more explicit information about their expectations about such a center. One of the results of the survey was that approximately 10% of the elderly was directly in need of a service and information center and 65% would appreciate a center being opened in the (near) future.

When I presented these results to members of the municipal city council, halfway through my presentation, I was abruptly interrupted by the alderman. He concluded that there was no need for these service and information centers (based on the 10% result) and I was asked to leave the meeting without the possibility to finish the presentation. A few weeks later, we received a formal complaint by the same alderman. He stated that the study did not meet the expectations of the municipality and that they did not want to pay for the study.

Later, I found out what had happened. The alderman was new and the centers were a political priority of the former alderman. The research results did not fit his purposes; with his specific interpretation of the results, the new alderman removed the issue from the political agenda at the expense of Regional Public Health Service.

The story above is just an example. However, it is not uncommon for other epidemiologists working for a Regional Public Health Service (RPHS) to have similar experiences to a range of extents. These types of experiences have led within the professional group of RPHS epidemiologists to the fundamental question about the added value of epidemiological research for local policy decision making.

In 1989, the Dutch government introduced the Public Health Preventive Measures Act (Wet Collectieve Preventie, WCPV) [1]. The act aimed to decentralize the responsibility for collective prevention from the national authority to the municipalities. Such decentralization was considered necessary to reduce the gap between authorities and the public in order to provide better services. In 1996, public health researchers saw the development of local health memoranda as an important possibility to improve public health [2]. Until that time, many local authorities limited their responsibilities on collective prevention to the management and control of the RPHS, and missed the opportunity to develop local health policy addressing the specific local health problems. However, local health policy became an important issue in the Public Health field in the Netherlands, especially since 2003 when, by means of the Public Health Preventive Measures Act (nowadays the Public Health Act (WPG) [3]), municipalities became legally responsible for drawing up a Local Health Policy memorandum every four years [1]. Following the WPG it is required that local health policy should be based on epidemiological analyzes and is therefore a strong incentive for the development of evidence based local health policy. As defined by Sackett, evidence based health policy asks for the deliberate and explicit use of the best available evidence during the policy decision making process [4]. Also, this act legitimizes the existence of epidemiological research produced by RPHSs. The epidemiologists perform local public health assessments and report the results to the Local Authorities. With the story above in mind one could wonder whether epidemiological research is really used in the process of local health policy development and what actually happens with the available knowledge in the course of that process.

Background of the study

In total, 28 RPHSs are active in the Netherlands, covering all 418 municipalities and more than sixteen million residents. Each RPHS is required to employ at least one epidemiologist to carry out epidemiological research. One of the tasks is monitoring the health status of and preventable risk factors within the population. In these assessments, special health monitors with a four year cycle are developed for children (0-11 years), youth (12-18 years), adults (19-64 years) and the elderly (65 years or older) [5]. To overcome the differences between the regional and local assessments in data collection and topic selection the national association of RPHS, epidemiologists develops national standards for local survey questions to improve the collection of comparative data nationwide [6]. A recent policy document of the national association states that RPHS epidemiologists should contribute to public health by conducting epidemiological research and advice on priorities for policy and management. Therefore, they should work together with other disciplines within the RPHS, such as local health policy-advisors who support municipalities with the development of local health policy [5].

In the practical setting of RPHS epidemiology a growing attention for the influence of RPHS epidemiological research on local health policy has developed. In professional health and society journals, the discussion about the feasibility of

evidence-based health policy revived, raising the question of how and in which degree epidemiological research actually contributes to local policy development [7, 8]. For many RPHS epidemiologists, the national Public Health Status and Forecast report (PHSF) of the National Institute of Public Health and the Environment (RIVM) serves as a benchmark public health report. The reports and accompanying websites [9] are internationally recognized as one of the best practice models for health reporting at national level [10, 11]. The Collaborative Center for Public Health Brabant[1] has developed a regional version of the National Public Health Status and Forecast Report. The purpose of these reports is to supply information on the local and regional health situation to support municipal health policy development [12]. In 2008, the RPHS region Gelre-IJssel developed a practical instrument to align the needs of municipalities and the response of RPHS epidemiology, which was commissioned by the Dutch Ministry of Health, Welfare and Sports. This practical instrument constitutes a procedure to optimize the communication between the municipalities and RPHS epidemiology in order to enhance clarification of the research questions and usability of the research outcomes [13].

Although the examples above show that there is much attention for the topic of epidemiological research utilization in local public health practice, a systematic, scientific description of this issue is still lacking. It is also not known what actually does work to improve research utilization in this specific situation of local health policy. In recent years several Dutch studies on the issue of research utilization by policy makers have been employed. For example, the study of Gorissen examines the use of scientific information in the development of Youth Health Care policy [14], and Keijsers, et al. [15] have conducted a study, in which impeding and promoting factors of research use by national policy makers in the Ministry of Public Health, Welfare and Sport (VWS) are identified. In 2007, Bekker wrote a dissertation on the role of Health Impact Assessments in policy development [16] and the processing of recommendations from the advisory council by the Dutch public administration has been studied [17]. In addition, Van Egmond et.al. studied the influence of the PHSF reports on national health policy and the mechanisms behind it [18].

However, we cannot assert whether all these studies are applicable to local situations because local health policy development has its own mechanisms and actors [19]. Therefore it is important to learn more about what happens in the practice of local health policy and find out what role epidemiological research play during local policy processes. This thesis contributes to this knowledge.

[1] This Center is a collaboration between The Dutch National Institute for Public Health and the Environment, Tranzo University Tilburg, and the Regional Public Health Services of three regions, Hart voor Brabant, West-Brabant and Brabant Zuidoost.

Objective and research questions

The aim of this study was to acquire insight into how, to which degree and under what conditions scientific, in particular epidemiological, research on public health at local level can contribute to and support the development of local health policy. We defined three research questions:

1. Which factors and actors contribute to the development of local health policy?
2. How and to what degree does epidemiological research have impact on the development of local health policy?
3. How can the process of epidemiologic research utilization be optimized in the development of local health policy?

Place of this study in the nexus triangle between research, practice and policy

In 2005, de Haes and Saan [20] introduced the triangle between research, practice and policy to the Dutch public health field. Jansen [21, 22] elaborates on this triangle and refers to the different niches of practice, research and policy. She argues that the niches are characterized by specific ideologies, values and norms, internal orientation, specific communication language, codes of behavior and self-directed improvement processes. Each niche has a dynamic of its own. The differences in culture between the niches are expressed in different missions, goals and strategies, professional standards, criteria for evidence, networks and accountability. One of the characteristics of these niches is that they have the tendency to be closed to outside actors. Jansen concludes that, due to these differences, "gaps" occur between the niches. These gaps need to be overcome by collaboration and interaction strategies. De Leeuw et.al. [23] acknowledges the different niches and in their publication on the theoretical reflections they elaborate on the nexus between research, policy and practice. The authors describe the different strategies in which the interaction between the niches takes place and distinguishes seven models that range between abstract systems perspectives and interpersonal behaviorist mechanisms.

Our study refers to specific parts of the nexus triangle. The focus is on the interchange between research and policy and study the epidemiological research produced by the RPHSs, the development of the local health memoranda and the strategies used to include epidemiological knowledge in the local policy process.

Theoretical perspective of the study

In general in the scientific world, it is normatively assumed that "policies based on evidence …[are] likely to be better informed more effective and less expensive" than policies formulated through ordinary time and political constrained processes without evidence input [24, 25]. Although this sounds straightforward and logical, to study the phenomenon of the research use in

policy making is complex and one has to unravel the black box of evidence, the black box of policy making and the ties (or the lack thereof) between them.

Every element has a scientific body of literature of its own. The black box of evidence is dominated by the tradition of Science Technology Studies (STS) and has a constructivist approach [18, 26, 27]. It focuses on the creation of (useful) knowledge by multiple actors, possible in interaction with end-users and production in a specific context. In social constructivism, knowledge is derived from and maintained by social interactions. Knowledge is created in a specific context in which it has a specific value and meaning. When this piece of knowledge is transferred to another context, the value and meaning will change [28]. These types of studies have provided interesting and instructive insights into the black box of evidence making. However, there is also an important shortcoming that these studies mostly do not give insight how the evidence was actually was used by potential users.

In the research utilization literature, the aspect of research use (if, how and why) is more elaborated [29, 30]. Here the focus lies on the ties between research and policy; there are different descriptive models of research impact processes and ways to asses research use. These models include possible impeding and improving factors for research uptake and the influence of contextual issues. In the present state of art, the focus lies on the influence of interactions between researchers and policymakers or practitioners on utilization. An important shortcoming in presented research utilization models is that they are restricted to the connection between one type of research and the behavior of researcher and the use by one (type of) policy makers of practitioners and do not include the influence of multiple research and policy actors on the behavior of a potential user.

Considering the black box of policy making and more specific of political decision making, we find a body of literature about the complexity of policy processes and how to study it. The complexity involves the duration of the policy process and the many possible policy actors from interests groups, politicians and governmental agencies at different levels of government. Each of these actors has potentially different values, interests, ideologies, perceptions of the situation and policy preferences. Due to these stakes and stances, a policy debate is seldom a polite and rational dispute. Political deals are made and coalitions are formed. From a rational perspective, research and scientific knowledge can function as an objective base for systematic policy making. Another perspective, based on the so-called Garbage Can model of policy processes [31], makes the role of research and scientific knowledge less important. From this perspective, the policy process is chaotic and knowledge is used at random. A third perspective emphasizes on the different and often contrary interests of actors participating in the policy process, the negotiations and creation of coalitions [32]. As we follow Diane Stone, policy making can be regarded as a "battle" about policy ideas and ideologies [33]. Knowledge is, in this regard, always

multiply interpretable, incomplete and able to be manipulated because of strategic aims of the policy actors.

For our study, we had to make a decision about a general research perspective. Due to the central research questions, our first focus is on the research utilization models because we want know how epidemiological research is used during the policy making process and how it served as a base for the developed local health policy. However, we also want to understand why these events happen and, as a result, it is necessary to obtain insight into the black boxes of the production of the examined epidemiological reports and of the local public health policy processes. If we consider the overview of research approaches above, some central issues stand out. These are the issues of interaction, multiple actors, processes and changing contexts and values. Therefore we decided to take a network approach for research use [34, 35]. This approach will enable us to describe the actors and their interactions during the research process as well in the policy process, their interests and resources and will provide a thorough understanding in contextual factors for research use. One of the key features of the network approach is the interdependence between the actors in order to achieve their goals. Our study meets the requirement of interdependence because multiply interdependent actors work on the local health reports, as well for the process for local health policy. The policy process is not completely and exclusively steered and structured by formal institutional arrangements of governmental organizations like the local Authorities or the Regional Public Health Service. Multiple actors from related policy domains may play an important and influential role.

Research strategy and outline of the thesis

In order to answer the research questions, we require different types of study designs. On the one hand, we want to know more about how and why the epidemiological research is used. On the other hand, we aim to measure the degree of epidemiological research use. An incremental study design with qualitative and quantitative methods has been developed. The qualitative method consisted of four case studies in which interviews among key informants, observations and document analyzes were used to collect data. The quantitative method consisted of a survey among local public health officials in the Netherlands.

In chapter two, we describe the development of a conceptual framework on research utilization based on international literature, and a short inventory on experiences from the Regional Public Health Services. It serves as a theoretical underpinning for our empirical studies. The conceptual framework is based on existing research utilization models and concepts and different types of impeding factors for research transmission (barriers) are mapped. The conceptual framework was used in the following chapters as a tool to structure and analyze the research data.

The third chapter reports on the experimental development of a regional Public Health Status and Forecast report in two Dutch RPHS regions. It provides insights into the three products of a regional PHSF and the process of development. The first product is a regional PHSF and contains a summary report which provides insight in the health situation of the RPHS region and the significance for policy. The key messages for local health policy are the next category of products. These booklets, abbreviated to Local Health messages (LHMs), are concise health reports for each municipality. The last product is a RPHS website, Regional Public Health Compass (www.regionaalkompas.nl), and gives an accurate overview of the most important national and regional epidemiological information, national and local policy options, effective and recommended interventions and regional prevention programs.
The fourth chapter is an evaluation of the use of key messages for local health policy and the development of local health policy in three municipalities based on case studies. Here we are able to gain information about all three research questions from a local in-depth perspective. These case studies provide a detailed account of the process of local decision making and the influence and role of the policy actors involved. It is against this background that we explain how the key messages were used by the policy actors and which factors have improved or impeded this use.
We have also conducted an evaluation study about the regional public health report in the RPHS Midden-Holland region in the Netherlands. This study is described in chapter five. Here we focus on the second and third research questions from a more regional perspective. There are several characteristics that have made this case interesting for our study. The initiative for the development of the report came from a group of regional health care providers (Transmuraal Netwerk Midden Holland, TMN). Therefore, they approached researchers from the RIVM instead of the usual partner in public reporting, the RPHS. The RPHS participated at a later stage. The municipalities, which often represent the policy side in public, did not participate at all in the development of the report. Second, there was a strong interaction between TMN and the researchers during the development of the report. The study reveals the use of the report by the different actors and the mechanisms of this use.
In order to answer the question on the degree of research use (second research question), we have employed a quantitative approach and designed a nationwide survey for Dutch local health officials. The results of the survey are described in chapter six. By using multiple regression models, we gain insight into the factors that improve the different types of research use (instrumental, conceptual and symbolic) of local health officials in the Dutch context.
Chapter seven is a contemplative research article on the institutional system of public health policy and considers aspects of the first research question. In 2010, the Dutch healthcare inspectorate formulated a profound critique on the quality of local health policy developed and carried out by municipalities. We analyzed the practical setting of the development of local health policy by using a network perspective. The data comes from the three municipal case studies and the nationwide survey among public health officials. We formulate

recommendations for improvement of the quality of the local health memoranda and compare our recommendations with those of the Dutch health inspectorate.

Chapter eight draws general conclusions from the data presented in this study and returns to the central research questions. The methodology is discussed and there is a reflection on the developed conceptual framework. Finally we present en discuss the practical implications and recommendations based on the findings of this study.

Chapters 2, 3, 4, 5, 6 and 7 have been written as separate articles for publication in national and international scientific journals. The chapters can be read independently; however, there is an inevitable overlap with respect to the theoretical background of the study. There may be some minor differences in wording or lay-out between the articles as a result of being submitted to or published in different journals.

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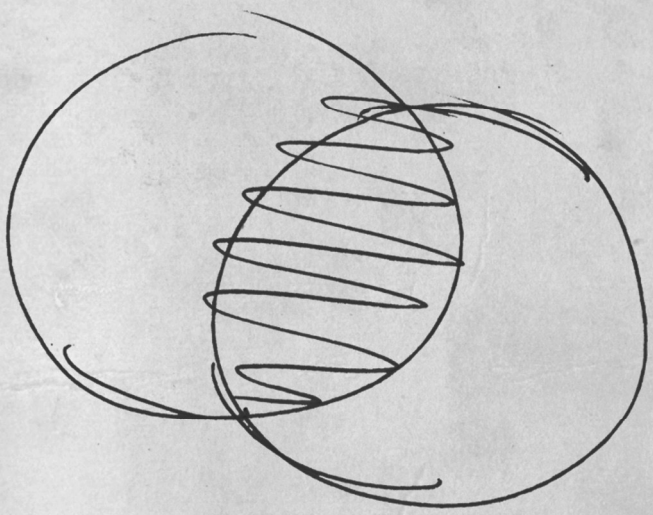
2. Knowledge in process?

Exploring barriers between epidemiological research and local health policy development



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J. de Goede
K. Putters
T.E.D. van der Grinten
J.A.M. van Oers

Abstract

Background

In the Netherlands municipalities are legally required to draw up a Local Health Policy Memorandum every four years. This policy memorandum should be based on (local) epidemiological research as performed by the Regional Health Services. However, it is largely unknown if and in what way epidemiological research is used during local policy development. As part of a larger study on knowledge utilization at the local level in The Netherlands, an analytical framework on the use of epidemiological research in local health policy development in the Netherlands is presented here.

Method

Based on a literature search and a short inventory on experiences from Regional Health Services, we made a description of existing research utilization models and concepts about research utilization. Subsequently we mapped different barriers in research transmission.

Results

The interaction model is regarded as the main explanatory model. It acknowledges the interactive and incremental nature of policy development, which takes place in a context and includes diversity within the groups of researchers and policymakers. This fits well in the dynamic and complex setting of local Dutch health policy.

For the conceptual framework we propose a network approach, in which we "extend" the interaction model. We not only focus on the one-to-one relation between an individual researcher and policymaker but include interactions between several actors participating in the research and policy process.

In this model interaction between actors in the research and the policy network is expected to improve research utilization. Interaction can obstruct or promote four clusters of barriers between research and policy: expectations, transfer issues, acceptance, and interpretation. These elements of interactions and barriers provide an actual explanation of research utilization. Research utilization itself can be measured on the individual level of actors and on a policy process level.

Conclusion

The developed framework has added value on existing models on research utilization because it emphasizes on the 'logic' of the context of the research and policy networks. The framework will contribute to a better understanding of the impact of epidemiological research in local health policy development, however further operationalisation of the concepts mentioned in the framework remains necessary.

Background

In the Netherlands in 1989 a new law on collective prevention was approved by parliament: the Public Health Preventive Measures Act (in Dutch abbreviated to WCPV) [1]. This law made the municipalities responsible to protect and promote the health of their population. In 2003 all municipalities became legally required by an amendment of the WCPV to draw up a Local Health Policy Memorandum every four years. To encourage evidence-based policy development, this law required that local health policy should be based upon epidemiological research. Although the WCPV tried to reinforce a renewed collaboration between policy and research, this was not always successful [1, 2]. It is largely unknown if and in what way epidemiological research is used during policy development at the local level. Furthermore it is not clear what the reasons are behind (not) using this research.

Context of Dutch local health policy development

Dutch municipalities are responsible for a range of public health tasks, of which "epidemiological assessment of the health status of the population" is one. In figure 2.1 all WCPV-tasks are presented. Municipalities delegate their public health tasks to a Regional Public Health Service (RPHS).

Figure 2.1. Elements of the Public Health Prevention Measures Act

Municipal responsibilities under the WCPV act:

- Attuning prevention to curative medicine
- Epidemiological assessment of the health status of the population
- Monitoring health aspects of administrative decisions
- Health promotion and health education
- Environmental health care
- Technical hygiene to control microbial threats
- Public mental health care, including a safety net for vulnerable persons and refugees
- Surveillance and control of infectious diseases, including aids, sexually transmitted diseases and tuberculosis
- Preventive youth healthcare

In total 29 RPHSs are active in the Netherlands, covering all Dutch municipalities. The tasks of a RPHS are performed by professionals from social medicine, nursing, epidemiology and health promotion. Although the RPHS-epidemiologists are assembled in a National Association there is still a large variation in research methods and reporting styles in assessing and reporting the health status of the local population. These differences depend on academic background, personal preferences and organizational structures of the RPHS. In

past years, most RPHS-epidemiologists primarily assess the population health status by describing the public health condition and linking it to preventable risk factors. This population health assessment generally ends with the conclusion that *"something must be done"* [3]. Research concerning *"what should be done"* has less attention in the RPHS research setting.

In 2003 an amendment of the WCPV required municipalities to develop and implement a Local Health Policy Memorandum every four years. How this should be done was not pronounced, but three requirements were given: (1) it should be integrated health policy connected with other local policy domains, (2) it should be developed and implemented with actors in the local public health field and (3) it should be based on epidemiological research. As a result of this amendment, the development of a Local Health Policy Memorandum became a complex multi-actor process: decisions in this process had to be made in different settings, by different actors, using different resources [1, 2, 4-9]. This amendment directed RPHS-epidemiologists to deliver *more comparable data* for municipalities and, also to deliver *more usable knowledge* for specific municipalities. Furthermore, a new discipline rose in RPHSs: local health policy-advisers who support municipalities with the development of local health policy [2]. Simultaneously on the national level, the ministry of Health, Welfare and Sports drew up a new National Memorandum for prevention [10]. This memorandum was largely based on the public health report from the National Institute of Public Health and the Environment (RIVM), published every four years. These reports and accompanying websites [11] describe the current health status of the Dutch population.

There are three aspects that make the relation between municipalities and their RPHS a complex one. First of all, municipalities are the principal funders of the RPHS. Dutch RPHSs in general serve multiple municipalities, and therefore are directed by more than one. This implies that a RPHS performs the same tasks for all municipalities in its region. But these regional tasks have to fit also the specific needs of the individual municipality [2]. The second aspect refers to the range of duties and roles that a municipality expects from the RPHS. This can vary from an executive role – carrying out necessary tasks of the WCPV – to an advising role in drafting local health policies. A potential role conflict can appear when, within the RPHS, different divisions take different attitudes toward municipalities [2]. The third aspect refers to the communication within and between regional health service and municipalities. There are many (inter)organizational connections, on various management levels. There is an extensive information flow within and between organizations, so a good regulation is necessary in order to avoid misunderstandings.

To summarize the above-mentioned, we can state that the context for the development of local health policy in The Netherlands is a complex one. On the one hand, many actors are involved – and the RPHS is one of them – and these actors are also related to and dependent upon each other. On the other hand, national developments influence the local policy processes and outcomes.

Aim of this study

In recent years growing attention on research utilization in policy processes was seen in Dutch [1, 4, 6, 7, 9, 12] and international literature [13-15]. However, empirical studies are still scarce and largely outnumbered by theoretically oriented articles. Also in The Netherlands there is hardly any empirical study on the use and impact of epidemiological research on local health policymaking. Therefore an in-depth study on knowledge utilization at the local level in The Netherlands was setup. As part of this study, an analytical framework on the use of epidemiological research in local health policy development in the Netherlands is presented in this article, to be used for further empirical studies in the remainder of the project. To develop the framework, we first provide an overview of explanatory models for research utilization, based on national and international literature. Secondly, we describe barriers between policymakers and researchers, based on national and international literature, and on an inventory of the experiences of Regional Health Service (RPHS) epidemiologists in the Netherlands. Thirdly, we discuss the two most appropriate theoretical concepts of research utilization and research impact. Based on these findings we conclude this article with the proposal of an analytical framework for further empirical studies concerning research utilization in local public health policy.

Methods

Literature review

We used different search strategies in order to find relevant literature. Firstly we used selected known Dutch studies and dissertations, and international books [1, 2, 4-6, 9, 12, 13, 16, 17] on this topic. The Dutch studies and dissertations were mainly used in order to make an analysis of the context of local health policy making. Secondly we searched in different national and international websites [http://www.odi.org.uk/RAPID/, http://www.ruru.ac.uk/, http://www.idrc.ca/, http://www.chsrf.ca/home_e.php, http://www.who.int/topics/health_policy/en/, http://www.evipnet.org/php/index.php] concerning research utilization and health policy development. Thirdly specific literature was searched using Pubmed and Google Scholar, using the key words "evidenced based policy", "research utilization", "epidemiology" and "local government". Articles and books published between 1975 and 2006 were included in the study. In addition the snowball method was used in order to identify other relevant articles not thrown up by the initial search. After 2006 we followed up the literature by regularly reviewing international websites and relevant international scientific journals (including using RSS feeds). The materials selected for inclusion represent the most relevant dealing with the topics (context of local Dutch health policy, utilization of local epidemiological health research) covered in this article.

Narratives

To ensure we missed no aspects of research utilization that were not mentioned in literature we conducted an inventory among epidemiologists working in RPHSs. By means of the National Association of RPHS-epidemiologists, representing 33 RPHSs, we asked them by mail to give narratives of (the lack of) research-utilization from their own experience.
We asked them to take a particular case in mind, in which it was irrelevant whether it was an example of "good", "bad" or "non" use of epidemiological research. We asked the epidemiologists about four topics:

- Research context: aim, persons who give the assignment, financiers, collaborative partners, research method;
- Main outcomes of the research, considered important by epidemiologists;
- Follow up given to the results;
- Explanation of this follows up.

We received 25 reactions from 15 RPHSs. The narratives were coded by hand based on the overview of barriers found in the literature. We found no barriers, which were not mentioned in literature.

The construction of the framework

Based on the results from the literature we made a description of existing research utilization models and concepts about research utilization. After this we mapped different barriers in an overview. To make the overview more workable for practitioners from RPHSs and policymakers in the field we asked ourselves the question: How far can these barriers be overcome? Therefore we classified them into two groups: (1) barriers at the process level, which can be worked on during the epidemiological research process and are preventable, and (2) barriers at the individual level, which are much harder to tackle because these barriers are hidden and related to personal values and norms of the receivers as well the senders of the research information. From this practical point of view we divided the group of process barriers into the barriers by phase of the research process. Within the group of individual characteristics we distinguished barriers which are negotiable during the policy process and the ones that can only be changed by learning and experience. Subsequently we checked the overview of barriers with the findings of the narratives. We integrated the findings into one framework. In that framework we chose a specific research utilization model, and combined it with the overview of barriers, to make it fit with the specific Dutch policy context. The framework was presented to and discussed with academics and practitioners from our Collaborative Centre Public Health of the University of Tilburg, academics from the Health Governance Group of the Institute of Health Policy and Management of the Erasmus University in Rotterdam, epidemiologists from the National Association of RPHSs and policy advisors from the National Association RPHSs, all working in public health field in the Netherlands.

Findings

This section contains three sub-sections. The first sub-section gives a summary of models for explaining research utilization in policymaking found in the literature. The second sub-section gives an overview of possible barriers in research utilization. The third sub-section describes different possibilities to describe research utilization or research impact itself.

Theoretical explanations for research utilization

Various researchers have created research utilization models or frameworks. In general, these models share the common goal of explaining the apparent gap between research and policy. In general six types of research utilization models can be distinguished. Table 2.1 shows the main characteristics and shortcomings of each of these models.

There are two main rational explanation models of research utilization: knowledge push [14, 15, 18-20] (model 1) and demand pull [14, 15, 21] (model 3). Both assume a linear sequence from supply of research to utilization by policy makers. This assumption is a weak point of the explanations because of the incremental nature of the policy development process. The initiative for use lies either with producers (researchers) or with users (policy makers).

Two other explanations are complementary to the aforementioned explanations: the dissemination explanation [14, 15] (model 2) elaborates on the science push explanation, as the organizational interests' explanation [14, 15, 22, 23] (model 4) elaborates on the demand pull explanation. Caplan's 'two communities' explanation [14, 15, 17, 22, 24-30] (model 5) takes a different approach. It emphasizes the cultural gap between researchers and policymakers, which Jansen refers to as "niches" [1]. Caplan argues that it is necessary to frame research outcomes in such a way that these fit in the niche of policymakers. Furthermore, Caplan's explanation model suggests that it is also necessary for policymakers to be involved with research agendas and design [24]. However, there is also a critique of this explanation. Lin and Gibson argue that "the two communities alone is an inadequate basis for attempts to change the way research and policy relate to each other" [17]. They question whether the model captures important determinants like the rejection or acceptance of research by advocacy coalitions during policy development based on their core values and beliefs, the influence of institutional structures within policy networks and the perspective that researchers already make part of the policy makers domain and that the so called 'gap' does not exists.

The final explanation model focuses on the interaction between researchers and policymakers [14, 15, 30-35] (model 6). Interaction can be defined as the reciprocal actions of two or more people who work together, negotiate on opinions, values and norms and find consensus. The explanation assumes that the presence of interaction and how interaction takes place, explains the way research is utilized during policy development.

Table 2.1. Overview of explanatory models of research utilization

Model	Characteristics	Shortcomings
Model 1 **Knowledge push explanation** [14, 15, 18-20]	▪ Assumes linear sequence from supply of research to utilization by decision makers. ▪ Assumes that high quality research will automatically lead to higher uptake and use by decision makers. ▪ Content attributes of the research influence its use by decision makers. For example: notability, complexity, validity and reliability. ▪ Type of research influences its use by decision makers. For example: theoretical/applied, quantitative/ qualitative, research domains and disciplines.	▪ No acknowledgment of the incremental nature of policymaking. ▪ Quality is a necessary, but not sufficient, condition for user's attention. ▪ It is not always clear who takes responsibility for transfer. ▪ There is a process of transforming academic knowledge into useable knowledge.
Model 2 **Dissemination explanation** [14, 15]	▪ Assumes linear sequence from supply of research to utilization by decision makers. ▪ Recognizes the fact that knowledge transfer is not automatic. ▪ Suggests that an extra step should be added to research activities by developing dissemination models. It suggests developing a strategy to disseminate research results. ▪ Type of research output (results) explains research utilization. ▪ Dissemination efforts explain research utilization.	▪ Assumes "unidirectional" dissemination from producers to users. ▪ Includes neither the involvement of potential users in the selection of transferable information nor involvement in the production of research data.
Model 3 **Demand pull explanation** [14, 15, 21]	▪ Assumes a linear sequence from supply of research to utilization by decision makers. ▪ The initiative is shift to the policy makers. As such, this explanation asserts that as policy makers identify problems and define the needs, they ask researchers to conduct studies that will generate alternatives or solutions. ▪ Knowledge utilization is explained by the needs of users.	▪ No acknowledgement of the incremental nature of policymaking. ▪ Does not consider the fact that the results of necessary research can be pushed aside because they do not stroke with personal or organizational interests. ▪ Omits the interaction between producers and users of research findings.

Model	Characteristics	Shortcomings
Model 4 **Organizational interests explanation** [14, 15, 22, 23]	▪ Assumes a linear sequence from supply of research to utilization by decision makers. ▪ Variant of Demand Pull Explanation. ▪ Stresses that personal and organizational interests are important impeding factor for research utilization. ▪ Important factors are organizational structures, types of policy domains, needs of organizations and positions of actors. ▪ Within this explanation, the use of knowledge increases "as users consider research pertinent, as research coincides with their needs, as users' attitudes give credibility to research and when results reach users at the right time".	▪ No acknowledgement of incremental nature of policymaking. ▪ Places too much emphasis on the interest of users and neglects the fact that users do not merely act as rational consumers, looking for their own profit. Users have also irrational preferences, belief systems and values.
Model 5 **Two communities explanation** [14, 15, 17, 22, 24-30]	▪ Assumes a cultural gap between researchers and users, which is visible in different communities, different language and different methods of communication. ▪ Adaptation of research products by users reduces the cultural gap utilization; therefore researchers should invest in more readable and appealing reports, make more specific recommendations and focus on factors amenable to interventions by users. ▪ Acquisition efforts by research users reduce the cultural gap. This means that users are making an effort to influence the research agenda by discussing the subject and scope of research projects with researchers and discuss results.	▪ No assumption about the process, either linear or incremental. ▪ Emphasizes the cultural gap and pays no attention to factors mentioned above. ▪ No attention for the influence of the construction of the policy network, advocacy coalitions an institutional constellations.
Model 6 **Interaction explanation** [14, 15, 30-35]	▪ Offshoot of the Two Communities Explanation and is analogous to the elected affinities model. ▪ The process is a set of interactions between researchers and users, rather than a linear move from research to decisions. ▪ This explanation suggests that research utilization is brought about by various interactions between the researchers and the policy makers. Interaction does not start with the needs of researchers or needs of policymakers. ▪ It is assumed that the more sustained and intense interaction between researchers and users, the more likely utilization will occur. ▪ Important factors are the so-called linkage mechanisms and dissemination efforts.	

Identifying specific barriers between policymakers and researchers

To elaborate on these six types of explanatory models, table 2.2 provides an overview of the seventeen barriers found in the literature and the inventory of RPHSs. In the third column of table 2.2, critical key factors of influence derived from the barriers are shown. Based on the findings we made a distinction between barriers at the process level and at the individual level. The process level refers to barriers related to the different steps and phases in the research process. The individual level refers to barriers related to characteristics of (policy) receivers of research information.

The process related barriers were classified in two domains: the *expectation* domain and the *transfer* domain. In the *expectation* domain [12, 21, 25, 27, 29, 30, 33, 36-42] we classified barriers that can be acted upon during the preparation phase of research. This domain addresses the issue of awareness among researchers and policymakers of each other's 'niches'. The second domain of *transfer* [12, 18, 22, 27, 33, 38-40, 42-47] addresses how research is communicated and the involvement of the media. This domain refers to the publication phase of the research cycle. Also the barriers at the individual level were classified in two domains: the *acceptance* domain and the *interpretation* domain. Barriers classified under *acceptance* [15, 22, 25, 28, 29, 41, 43, 45, 46, 48-52] refer to the degree to which a person believes the research outcome to be true; not about the scientific validity or credibility, but the perception of these by researchers and policymakers. Barriers classified under *interpretation* [21, 25, 32, 41, 43, 46, 50, 51] deal with the value people give to research outcomes, in this case local health problems. In other words "is the problem important enough to act?" The value of research outcomes depends on personal experiences and interests, organizational interests and possibilities of (policy) solutions.

Concepts of research utilization or research impact

The extent of research utilization or research impact can be assessed in different areas, like in the scientific area, policy area, health services and organizational area and societal area [53].

Within the policy area, there are two main concepts found in the literature regarding research utilization and impact. The characteristics of the concepts are stated in table 2.3 The first concept is derived from Amara et al. [22] and is partly based on the earlier work of Weiss [39]. They distinguish three types of research utilization models: instrumental, conceptual and symbolic. Other authors accepted these three types of use and have even delineated subtypes [2, 6, 32, 53]. The second concept stems from Knott and Wildavsky in 1980 [54] and is called "the ladder of research utilization'. As shown in table 2.3, it distinguishes seven stages and suggests a normative degree of research utilization – the higher the step, the better [13, 31].

Table 2.2. Overview of barriers in research utilization

Specific barriers	Lit ref	Identified critical key factors of influence	Problem level	Problem domain
1. No awareness of researchers about the policy process	[12, 21, 27, 36] and mentioned in inventory	Creating insight in working processes	Process	Expectations (Preparation phase of research)
2. Finding researchable questions	[7, 12, 27, 29, 30, 33, 37, 38] and mentioned in inventory	Negotiate research questions, make an inventory on the need of information	Process	Expectations (Preparation phase of research)
3. Answers about a specific item	[12, 30, 39, 40] and mentioned in inventory	Discuss limitations of study design and timelines	Process	Expectations (Preparation phase of research)
4. Limited results by choice of study design, mostly cross-sectional studies, no causes and solutions	[12, 27, 39, 40] and mentioned in inventory	Discuss limitations of study design and timelines	Process	Expectations (Preparation phase of research)
5. Degree of uncertainty	[12, 21, 27, 39]	Discuss limitations of study design and timelines	Process	Expectations (Preparation phase of research)
6. Actuality	[12, 21, 27, 39] and mentioned in inventory	Discuss limitations of study design and timelines	Process	Expectations (Preparation phase of research)
7. Timing	[7, 12, 21, 25, 27, 30, 33, 38, 39, 41-43] and mentioned in inventory	Which research information is given at what time	Process	Expectations (Preparation phase of research)

Specific barriers	Lit ref	Identified critical key factors of influence	Problem level	Problem domain
8. Language	[12, 18, 22, 27, 33, 38, 39, 44, 45] and mentioned in inventory	For which target group is the information intended; what jargon is used How convincing is the research message How is the package	Process	Transfer (Publication phase of research)
9. Conflicting knowledge by other researchers	[39, 40, 42, 46]	Collecting other research information	Process	Transfer (Publication phase of research)
10. Media	[12, 43, 47]	Communicating with media	Process	Transfer (Publication phase of research)
11. Perceived robustness of evidence	15, 22, 25, 41, 45, 46, 48-50	How do stakeholders perceive the quality of the research	Individual	Acceptance
12. Perceived credibility of source: researchers or other stakeholders	[25, 28, 29, 38, 41, 43, 51, 52] and mentioned in inventory	Who is bringing the message	Individual	Acceptance
13. "Fit" with personal knowledge, values or belief systems, preferences and traditions	[25, 41, 43, 46, 50, 51] and mentioned in inventory		Individual	Acceptance
14. Consider whether or not a problem is important enough to deal with, relevance	[21, 25, 32, 41, 43, 46, 50, 51]		Individual level	Interpretation
15. Consider connection with own personal or institutional interests	[21, 25, 32, 41, 43, 46, 50, 51]		Individual level	Interpretation
16. Consider whose responsibility it is to take action	[21, 25, 32, 43, 46, 50, 51]		Individual level	Interpretation
17. Consider which solutions are at hand	[21, 25, 32, 43, 46, 50, 51]		Individual level	Interpretation

Table 2.3. Two main concepts of research use

Concept of research utilization		Description
Types of research utilization [6, 22, 32, 39, 40]	Instrumental	When research is acted upon in specific and direct ways, i.e. to solve a problem at hand
	Conceptual	Contributing to improved understanding of the subject matter, related problems, more general and indirect form of enlightenment
	Symbolic	Justify a position or course of action for reasons that have nothing to do with the research findings (political use) or use the fact that research is being done to justify inaction on other fronts (tactical use)
Ladder of research utilization [13, 31, 54]	1. Reception	Research results are received by actors
	2. Cognition	Research results are read and understood
	3. Reference	Research results change a way of thinking by actors
	4. Effort	Efforts are made to get the research results into policy even when this was not successful
	5. Adoption	Research results has direct influence not only on the policy process but on the context of the policy
	6. Implementation	Research results not only has been used for policy formulation but also translated into practice
	7. Impact	This refers to successful implemented policy initiated by research results.

If we compare the two concepts, Amara et.al. on the one hand and Knott and Wildavsky on the other, it seems that the "instrumental use" of Amara et.al. overlaps with the highest stages of implementation and impact from Knott and Wildavsky. The "conceptual use" overlaps with "reference" stage of the research utilization ladder. The last type of use defined by Amara et.al., "symbolic use", does not seem to fit directly into the research utilization ladder.

Towards a conceptual analytical framework

The purpose of this article is to identify a useful analytical framework for research utilization in the Dutch setting of local health policy development, and to use it for further empirical studies in this field.

In the literature we see the interaction model is internationally regarded as the main explanatory model [13, 30, 32, 53]. It acknowledges the interactive and incremental nature of policy development, which takes place in a context that includes diversity within the groups of researchers and policymakers regardless how they are organized. The elected affinity theory of Short is related to the interaction explanation. This theory assumes that the extent of contact and timing of interaction between researchers and policymakers and the fit with personal values and beliefs will improve a positive reception from the policy audience [35]. Also the linking and exchange model developed by Lomas [19] focuses on mutual exchange and the joint creation of knowledge between policy makers and researchers. Here we see a link between interaction and the overview of barriers we presented. The theory of Short and the model of Lomas presume that interaction can avoid barriers and in this way improve research utilization. So assuming a network of policy stakeholders, different barriers can occur with different stakeholders. Then it becomes interesting to study when and with whom interaction takes place, in what way and with what result.

In addition, de Leeuw et al. provide useful theoretical models in which they describe the different ways the "barriers" between research and policy can be overcome [55]. They distinguish between seven models which can be ordered in three groups. First of all there is a theoretical model regarding changing the rules and games within the structure of the research and policy networks called "the institutional re-design" model. Secondly there are four theoretical models about the ways interaction takes place and the nature of the evidence: the "Blurring the boundaries" model which is about the reciprocal participation of researchers in the policy process and of policymakers in the research process; the "Utilitarian Evidence" model in which research outcomes are articulated in a way that reflects current political agendas; the "Conduit" model about the role intermediaries play between research and policy; and the "Alternative evidence" model which is about the importance of more supporting evidence so that the research outcomes can no be longer ignored even if the issues is not on the policy agenda. Thirdly, two theoretical models about the ways of communication are distinguished: the "Research narratives" model in which research outcomes are made personal and the "Resonance" model where interaction is intended to connect with underlying belief systems of policymakers [55].
The interaction models above are related to domains in our conceptual framework. For example "Utilitarian evidence" and "Research narratives" are related to the *transfer* domain, while the "Resonance" model relates to the *acceptance* domain.

In the background section we explained the dynamic and complexity of context of Dutch local health policy. Researchers and policymakers are influenced by the culture of the institutions they work in. Researchers act and make decisions in the research process in keeping with the norms of a specific research institute. This implies that researchers working in the RPHS setting are influenced by their fellow researchers and other local public health professionals. Policymakers on the other hand must consider multiple actors in the policy process. These actors

can, for example, be civil servants or local administrators, members of the city council (politicians), professionals of public services from related policy domains or representatives from interest groups.

In the conceptual framework, not only interactions between a specific researcher and a specific policymaker must be considered, but also interaction between other actors within and between the research and policy process. Therefore we propose for our conceptual framework a network approach, in which we "extend" the interaction model. We not only focus on the one-to-one relationships between an individual researcher and policymaker but include interactions between several actors participating in the research and policy process.

In policy and administration sciences there are different perspectives on how to study the policy process. The network perspective provides theoretical concepts and normative starting points for analyzing and assessing complex processes of problem solving in network settings and the roles that perceptions, interactions and institutions play in this [56]. Policy networks have a number of characteristics [2, 57, 58, 59]:

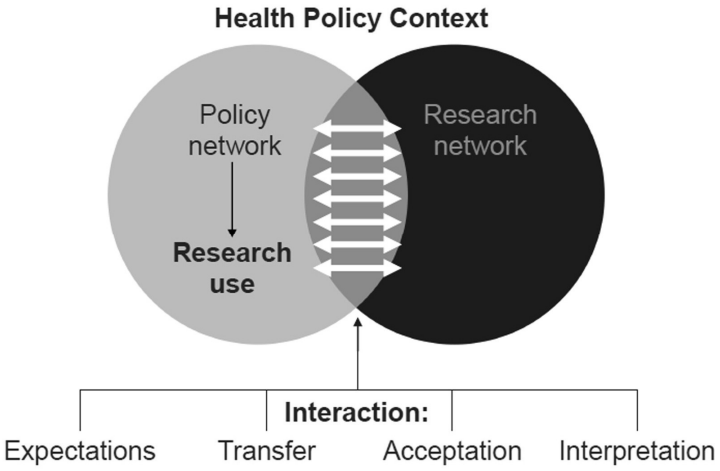
- Variety of actors in terms of size, interests, power and perception of problems;
- Reservations on the part of individual actors, the willingness to cooperate and their strive for autonomy;
- Mutual dependencies between the actors on each other's resources and decisions;
- Fragmented problem solving ability where actors also depend on each other's resources and;
- Coordination by bargaining where decisions are a result of consultation and bargaining processes.

Stone [44] suggests that research can play a key role in the policy process when researchers are network participants. Also Nutley agrees that concepts of policy networks provide a useful framework to study the context of policymaking and research utilization [60]. They even say that the looser the policy network, the more divergent are the views represented and the wider the range of different types of research that are likely to be used by those advocating different policy lines. However there is also substantial critique on the network theory [61]. It is argued that it is only a way of describing the policy process, but it explains little about how the network actually influences the policy process itself.

To conclude, in our conceptual framework the network approach offers a frame to describe the policy process and respectively research utilization. It will show us how the arena is shaped and whether this influences the presence or absence of interaction between actors and existing barriers. Subsequently the elements of interaction and barriers have to provide an actual explanation of research utilization. We think it is of interest not only to take a network perspective on the policy process but also on the research process. In figure 2.2, the proposed analytical framework is presented. We visualize the research and the policy networks both as circles. In the research network actors are researchers or

health professionals, working together on a research project, discussing questions, design, analytic strategies or papers. In the policy network actors discuss and negotiate on the importance of public health problems and the possible solutions at hand. Here we also find different actors, some in power over others, some with financial resources and others with specific knowledge and expertise. Actors may exchange information or choose not to do so. There is a possibility of overlap between the networks. This happens when policymakers get involved in the research process, for example when formulating research questions, or researchers are participating and communicating their results in the policy process. Notably this type of interaction relates to the model, "Blurring the boundaries" of de Leeuw et al. [55]. How these processes of research and policy are organized, the constellation of the research and policy networks and the way interactions between actors both within and between these networks appear, are empirical questions.

Figure 2.2. Conceptual framework for analyzing use of epidemiological research for local health policy development



To understand research utilization it is important to study the presence of the aforementioned factors in the policy context, barriers in communication, the constellation of the network and the behaviour of actors and the interaction between them. From this point of view it seems evident to differentiate between research utilization of an individual actor and utilization within the policymaking process [4]. The first would mean that individual actors within the policy network use research information in the policy-making process. The three types of research utilization as proposed by Amara et.al. [22] could be a good indicator for this. Utilization on the process level would mean the impact of the research information within the policy process. An adapted and more elaborated ladder of research utilization [54] could be the base for a feasible instrument for this purpose. Impact can be measured whether information is disseminated, read and discussed by policy actors up to successful influence of it on policy itself.

Conclusions and Future work

This article shows a substantial number of critical key factors that contribute to or impede the use of epidemiological research in local health policy making in the Dutch political context.

The developed framework has added value on existing analytical frameworks and models like Landry [14] and Hanney [15] because it emphasizes more on the 'logic' of the context and the existing networks within this specific public health policy domain. By 'logic' we mean the aims, duties and responsibilities of actors from participating organizations and relations between them in the Dutch context of local health policy. The choice for this approach is internationally mentioned before and recommended [62]. The framework gives the opportunity to take the possible effect of this logic on the use and impact of research for local health policy development into account. Recent Dutch studies showed that, on the national policy level, the different interactions between researchers and policymakers during the research and policy processes provides useful insights [9, 63].

As stated at the beginning of this article the proposed conceptual framework is to be used in empirical studies about how epidemiological research progresses within the policymaking process. The primary research question in these studies is whether or not interactions will contribute to the use of epidemiological research in local health policy development. To obtain more insight into this, we will first conduct in-depth case-studies in three municipalities and their RPHS, using social network analyzes. Secondly, we will make a national description of the impact of epidemiological research on local health policy making within Dutch municipalities and the interaction between them and their RPHS.

Further operationalization of the concepts mentioned in the framework is necessary. Different contextual and key factors have to be transformed into relevant questions for actors about their position in the networks, their relations, their involvement in research, their attitude towards it and their perception and judgment on the way research was transferred. On the one hand we will study existing barriers described in the conceptual framework, on the other hand we intend to elaborate on the theoretical models of de Leeuw et al., and how the barriers are overcome in the empirical situation [55, 64]. Also the way impact and use of research is measured needs further elaboration in questions. Therefore we intend to adapt and translate earlier used questionnaires by Amara [22], Landry [31], and Kothari [26].

We expect the results of these studies will contribute to a better understanding of the use or impact of local epidemiological research in local health policy development and the role of researchers within this development.

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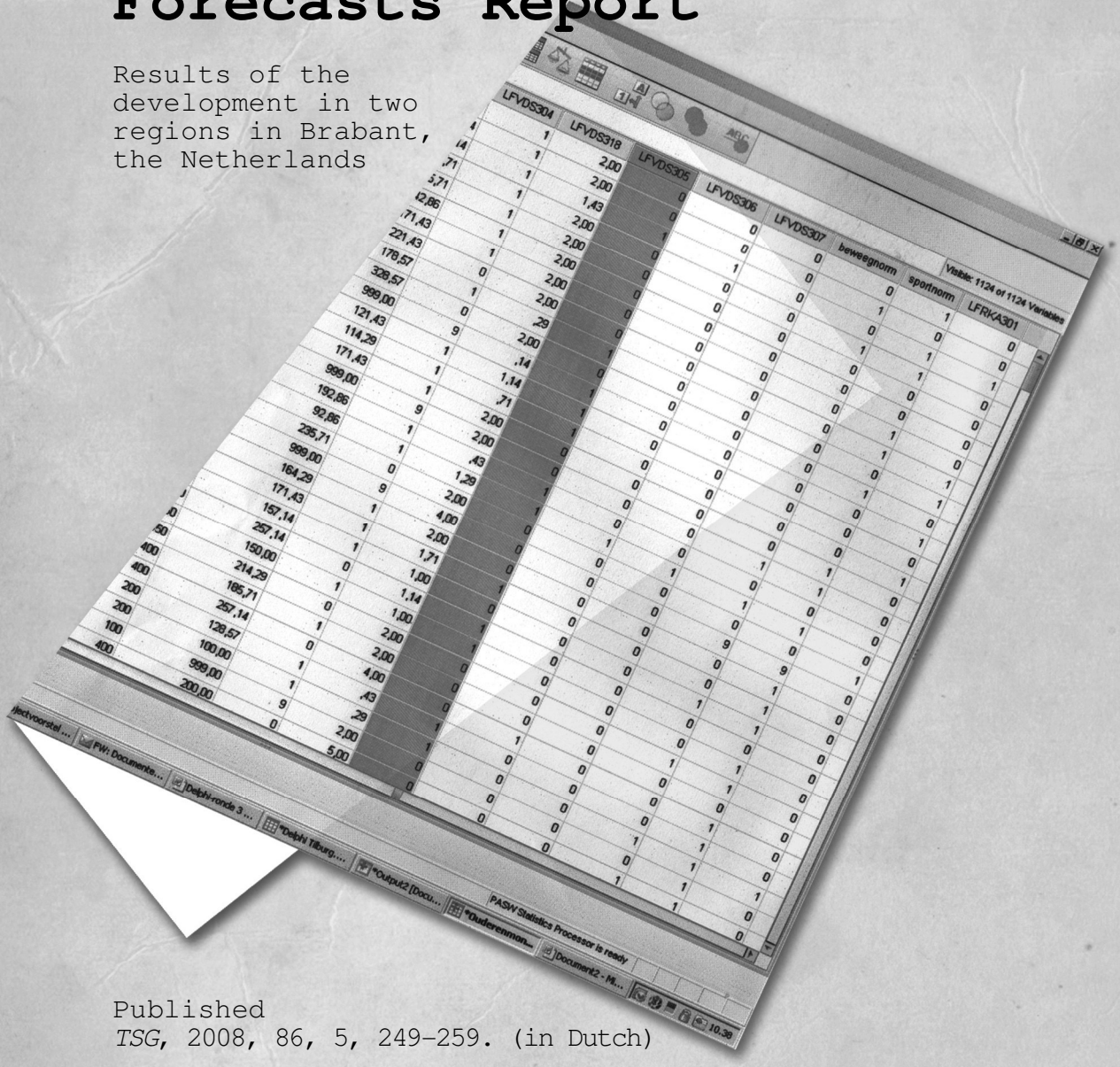
3. The regional Public Health Status and Forecasts Report

Results of the development in two regions in Brabant, the Netherlands



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Abstract

Since the introduction of the Public Health (Preventive Measures) Act (WCPV) the implementation of evidence-based action in public health has been laborious. The Regional Health Services (RPHSs) face the issue of making their epidemiological knowledge more useful to local public health policy. At national level, the National Institute for Public Health and the Environment (RIVM) successfully contributes to national evidence-based public health policy through their Public Health Status and Forecasts Reports (PHSFs). Therefore this article focuses on the following question: can a regional variant of the national PHSF be realised in practice and, if so, what would it look like?

The development of two regional PHSFs was started in 2005 as a pilot-study in the RPHS-regions 'Hart voor Brabant' and 'West-Brabant'. This article describes the empirical results of this pilot-study.

Conclusion is that a regional PHSF, based on the national model, can be realised. The developed empirical model for a regional PHSF can be characterised by (1) its products, (2) its content and design and (3) its process and organization. The article describes these aspects of the pilot-study and discusses them in relation to the development of a generic model for a regional PHSF.

Introduction

In the Netherlands, the Public Health Act requires that once every four years local authorities draw up a memorandum on public health policy, similar to the national health report [1]. To do this, local authorities need to know the local public health situation, based on epidemiological analysis, in order to stimulate evidence-based health policy at the local level. Since the introduction of the Public Health Act the implementation of evidence-based action in the public health service has proved a laborious process [2-6]. Evidence-based means the conscious, explicit and judicious use of the best evidence available in decision-making [7].

The epidemiological task of local authorities is carried out by their Regional Health Services (RPHSs). Differences between the RPHSs in the execution of this task lead to a decreased comparability of local and national figures and those of (local authorities in) other RPHS-regions. The RPHSs 'Hart voor Brabant' (29 local authorities, 1,009,000 inhabitants) and 'West-Brabant' (18 local authorities, 676,000 inhabitants) have been collecting data on the population's health by using questionnaires and registrations in a four year cycle. This so-called 'Local Health Monitor' should contribute to evidence-based decision-making, especially at strategic policy level, by supplying epidemiological knowledge on the most important health problems, their causes, and their most important target groups for health policy.

Despite the evolution of the RPHSs epidemiological task, from supplying regional to supplying local information, and from occasional questionnaires to structural monitors, epidemiological knowledge has still not been used much in the development of local public health [8-10] and it is unknown to what degree epidemiological knowledge has been used in policy-making, let alone the most influential factors [11]. Therefore the RPHSs face the issue of how to make their epidemiological information more useful for local public health policy.

Conceptual framework

In recent years national and international literature have given a great deal of attention to the gaps between research, policy, and practice [11]. of which one of the important causes is the difference in the definition of 'evidence' [6, 12]. In this respect, Jansen refers to 'scientific evidence' and 'policy-based evidence, where it can be defined by its (scientific) quality and by its relevance and applicability to a specific context [13]. In order to promote the use of epidemiological information in local public health policy, there needs to be attention to the improvement of the (scientific) quality of the information, but also to its relevance for local public health policy and its translation into relevance for the local context for which other sources of knowledge and insight are needed [14, 15]. Furthermore, the use of research in policy can be improved when researchers involve policy-makers in the development of the research and if researchers accept the responsibility to supervise the translation of their

research into policy [16]. This implicates that the research process design is an important factor for the usefulness of epidemiological knowledge for local public health policy.

In international literature the interaction between different actors in the research process and the policy process is regarded as an important condition for the use of research in policy development [11] and is influenced by possible problems in the following domains: expectations, transferral, acceptance and interpretation [11].

Practical elaboration of the conceptual framework

At national level, the Dutch National Institute for Public Health and the Environment (RIVM) is successfully contributing to evidence-based public health policy through their Public Health Status and Forecasts reports (PHSFs) which are acknowledged as some of the best practice-based models for national public health reports, integrally describing the health status of the Dutch population [17-20]. The national PHSF acts as a consensus platform for scientific epidemiological knowledge, reducing the amount of political discussion on the value of the figures, making observations and setting the agenda [21]. By paying attention to the four above mentioned problem domains - expectations, transference, acceptance and interpretation - in the interaction between researchers and policymakers, the national PHSF can be considered as a practical example of the elaborated conceptual framework.

Because of its primarily national character, this PHSF has only limited potential for evidence-based local public health policy. This raises the question whether a *regional variant* of the national PHSF, with a similar evidence-base, can be developed. The national PHSF could then serve as a model for its products, content and design, and its process and organization. In order to make such a regional PHSF successful, Van Egmond states that RPHSs should dedicate themselves to the interaction between research and local actors, for example the policymakers of local authorities, adapted to the specific local context [21].

A preparatory study in the regions of the RPHSs 'Hart voor Brabant' and 'West-Brabant' showed that there was sufficient support for a regional PHSF among policy-makers *and* researchers, and also gave direction to the products to be developed [22] and already contributed to gearing the expectations of the regional PHSF of policy-makers to those of researchers.

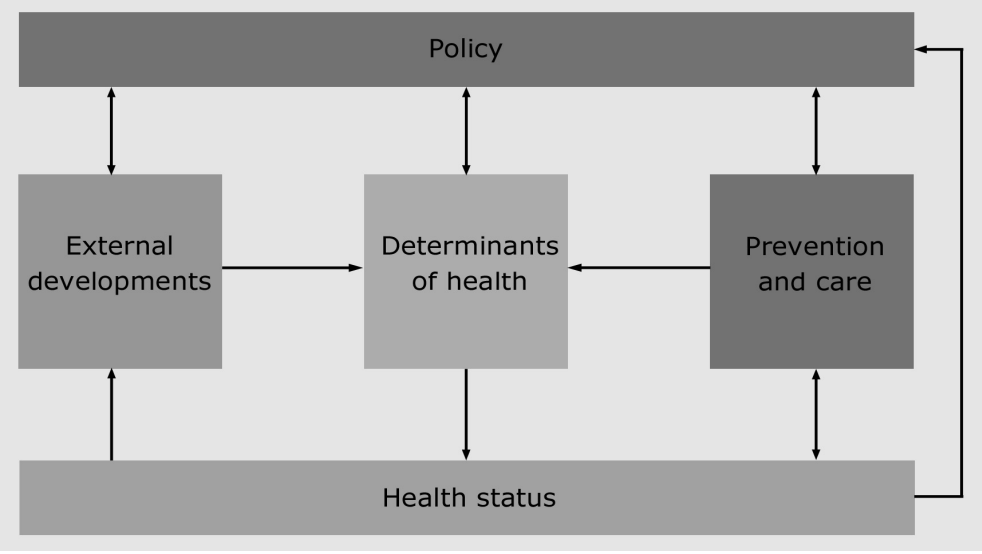
In 2005, a pilot study into the development of a regional PHSF for the local authorities in both RPHS regions started in the Academic Collaborative Centre Public Health Tilburg. This article describes the empirical results of this development, focussing on the question: *can a regional variant of the national* PHSF be developed in practice and, if so, what would it look like?

Eventually and beyond the scope of this article, this pilot-study will be followed by an evaluation, which will assess the actual impact of the regional PHSF on local health policy and the effective elements in the regional PHSFs products in order to develop a generic model.

Method

In order to answer the central question, the results of the pilot study were used as the basis for the *products* to be developed for the regional PHSF, analogously to the national PHSF. At the same time a *project organization* was established. Finally, for the content of the regional PHSF the conceptual model of the national PHSF (figure 3.1) was operationalized.

Figure 3.1. The conceptual basis model for public health



Source: De Hollander et al., 2006

Products

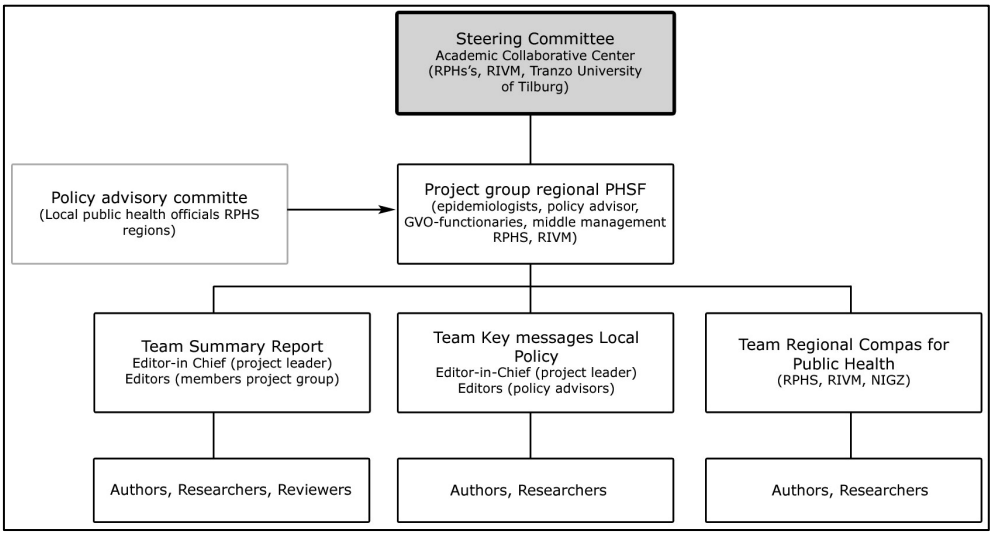
Conclusion of the pilot study was that the regional PHSF should consist of three parts: (1) a Summary Report with key messages for the RPHS region; (2) a report per local authority with Key messages for local health policy and (3) one or more websites with geographical health information and specific themes dealing with regional information about health and policy [22].

Project Organization

Essential conditions for drawing up a regional PHSF are the capacity of the users and executive bodies, sufficient personal commitment by researchers and policy

advisors, and a clear and practical project structure with agreed responsibilities and tasks [22]. In the project organization these responsibilities were spread over three levels. (see figure 3.2).

Figure 3.2. Project organization of the development of a regional PHSF

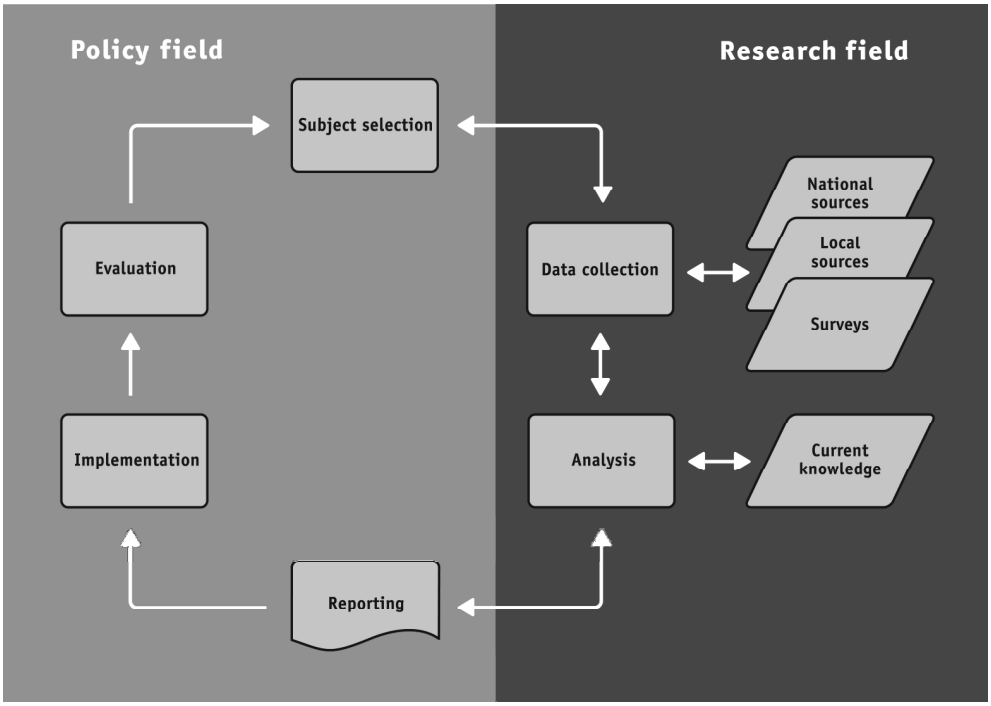


The *steering committee*, responsible for strategic decisions on the development of the regional PHSF, consisted of mandated representatives of the management of co-operating partners. The *project group*, responsible for the content, development and execution of the regional PHSF, consisted of researchers from the RPHS and the RIVM, supplemented by policy advisors, Health Promotion (HP) functionaries and middle management of both RPHSs. The end products were made by *product teams*, which could call upon staff of both RPHSs and the RIVM for data, analysis, and writing and commentary on texts. In addition there was a *policy advisory committee*, consisting of official representatives of Public Health from both RPHS regions, which advised on the utility of the regional PHSF for local authority policy development during the entire process.

Regional operationalisation of the conceptual national PHSF model

In the national PHSF model the health situation is interpreted as the outcome of a multi-causal process with various determinants. It places public health in the centre of four groups of determinants: (1) endogenic or person-related characteristics (genetic, biological), (2) lifestyle, (3) physical and social environment, and (4) health care (including prevention). Figure 3.3 illustrates the model in its simplest form and provides the structure for the information presented in the PHSF [17].

Figure 3.3. Process model for the development of a regional PHS



To adapt this conceptual model for a regional setting, elements of the PHSF model were described with quantitative indicators, when relevant for local public health policy, as much as possible on the basis of available regional and local data. These indicators were based on the ECHI shortlist (European Community Health Indicators), the performance indicators of the Netherlands Health Care Inspectorate for the supervision of the Public Health Act, the performance indicators of the Dutch Health Care Performance Report, and the health indicators of the RPHSs health monitors [23-25].

Results

In the period November 2005-June 2007 a regional PHSF was developed for both RPHS regions, consisting of three products that were presented to a broad public of national and regional policy makers and researchers in November 2006 [27]: a Summary Report per region, reports with Key messages for local health policy for each local authority, and the website Regional Health Compass [8, 9, 26].

The experimental development of the regional PHSF resulted in an empirical PHSF model and specific products for the two RPHSs concerned We will describe, per product, how its development resulted in (1) insight into the health situation

and the significance for policy, (2) knowledge of content and form and (3) knowledge of project organization and process. The results per product will then be summarised in components for an empirical regional PHSF model.

Product: Summary Report regional PHSF

Insight into the regional health situation and the significance for policy

The Summary Report outlined the regional public health situation, based on an integral analysis of existing local, regional and national data-sources and answered the questions: What are the main health problems in our region? What are the main causes of ill health? What is done regionally with regard to health policy, prevention and care? And what will the regional health situation look like in the future? In the Summary Report, the main conclusions were given significance for strategic regional and local health policy in so called regional key messages, an example of which is shown in table 3.1.

Table 3.1. Example of the regional Key messages Hart voor Brabant

Health in Hart voor Brabant scored below the average for the Netherlands
In various aspects health in the region Hart voor Brabant is poorer than the average for the Netherlands. The life expectancy is a little lower, and the figures for death from lung cancer, intestinal cancer and strokes are higher than average.
Heart and vascular diseases and psychological disorders are the most important health problems
The pattern of ill health in Hart voor Brabant does not diverge from the general picture of that of the Netherlands as a whole. The top ten illnesses and conditions with the greatest burden of disease in Hart voor Brabant are led by coronary heart diseases, anxiety neuroses, strokes, depression and chronic pulmonary diseases. (COPD)
There are also areas health deprivation in Hart voor Brabant
People with a low socio-economic status have poorer health than those from the higher socio-economic levels of society. These socio-economic differences are also found in Hart voor Brabant.
Considerable deterioration in health through unhealthy life-style
Smoking is the cause of 13% of the total burden of disease in the Netherlands, in particular lung cancer, chronic pulmonary disease (COPD) and coronary heart disease. Alcohol, physical inactivity and overweight also contribute significantly to ill health. An unhealthy life-style is not a discrete factor, but is closely connected to the social and physical environment at all levels, such as family, school or neighbourhood.
Unhealthy life-style of youth cause for concern
Many young people behave in an unhealthy manner. In recent years youths are drinking more. Increasing numbers of children and youths are overweight. By this unhealthy behaviour they are contributing to future ill-health.

Investing in healthy living is essential

Considerable gains in health can be achieved by prevention, in particular the stimulation of a healthy life-style, with attention given to the physical and social environment. De efficacy of prevention can be increased by integrated health policy, systematic approach and evaluation.

Local authorities can play a more forceful directive role

In Hart voor Brabant all 29 local authorities have a local authority policy plan for public health. There are numerous organizations and institutions in the region active in prevention activities, but their work is fragmented. A greater degree of co-operation and co-ordination would strengthen preventive health care. The local authority can act as director here by stimulating co-operation and co-ordination, and the registration and evaluation of activities. An integrated policy and the use of juridical measures offer possibilities for the next statement.

Role of the local authority in care extremely underdeveloped

The local authority's responsibility also lies in the area of curative measures and care, partly due to the Law on Social Support (Wmo). In Hart voor Brabant, however, there are few local authorities active in the co-ordination of collective prevention and curative care.

Source: Van Bon-Martens et al., 2006

Content and form

The national PHSF model appeared to be very useful for the description of the health situation, causes of ill health, and health forecasts at regional level, but proved to be less useful for the description of policy, prevention and care in the region because of its national orientation. For example, the national PHSF does not describe in detail what is done in the area of prevention, while at regional level this is very desirable. Also, the description of care in the national version concentrates on aspects less relevant for local authorities, such as costs. and scarcely any data about the care facilities offered at local and regional level were available. Therefore, the description of policy, prevention and care differed between the national and the regional PHSF.

The description of regional policy concentrated on the local authority's task in prevention and care, and the way in which this was interpreted in the region. The description of regional and local prevention programmes offered, was limited to the five national priorities: smoking, obesity, alcohol abuse, diabetes, and depression. Information about the nature and scope of these programmes appeared to be available only from the national Qui-database (www.quidatabank.nl; renamed by now into Intervention Database www.loketgezondleven.nl/i-database/). The description of cure and care in the region focussed on accessibility, based on the model of the Dutch Health Care Performance Report and using examples characteristic for locally relevant cure and care sectors, different accessibility aspects, and/or differences between municipalities [25].

The main results of the Summary Report and their significance for strategic regional and local health policy were placed in a prominent position in the report in the form of *regional key messages*, guided by their relation with health and the potential health increase.

Process en organization
The development of the Summary Report started with a detailed description of the report's structure and table of contents, based on the national PHSF, hereby ensuring the comparability between both reports while explicitly following the national PHSFs conceptual model. In this way, the 'blanks' in the available data were identified, making prompt intervention possible. Subsequently, each member of the project group edited one or more chapters, under the general supervision of and final editing by the project leader. The final reports were approved by the management of the RPHSs concerned.

The *regional key messages* were established following two routes. The first versions, which were primarily intended as discussion papers for the Summary Report's content, were drawn up almost at the start of the pilot study, based on the knowledge and experience of the RPHSs staff. In addition, They served as a basis for discussing and adjusting the expectations of the RPHSs staff concerning the PHSF. The second route was the systematic analysis of existing information and data-sources according to the conceptual PHSF model. During the process these two routes were constantly geared to one another.

Product: Key messages for local health policy

Insight into the local health situation and the significance for policy
The *Key messages for local health policy* are concise reports for each local authority based on the regional Key messages and the integral analysis of existing data sources at local, regional and national levels and are primarily intended to place health priorities on the local political agenda and serve as building blocks for the local public health memoranda. They answer the same questions as the Summary Report, but then specifically for each municipality. Table 3.2 gives some examples of the Key messages of local health policy.

Table 3.2. Examples of the Key messages for local health policy in local authority X (76,000 inhabitants)

MOST IMPORTANT FINDINGS
Health in Hart voor Brabant scored below the average for the Netherlands
What are the findings for local authority X? - Life expectancy for women in local authority X is lower than the average for the Netherlands - Death from heart and vascular diseases in local authority X is higher than in the Netherlands as a whole.

Heart and vascular diseases and psychological disorders are the most important health problems

What are the findings for local authority X?
- Incidence of chronic illness in local authority X is comparable to that in Hart voor Brabant as a whole
- Loneliness is also frequently found in local authority X
- Greatest burden of disease is from heart and vascular diseases and psychological disorders.

Considerable deterioration in health through unhealthy life-style

What are the findings for local authority X?
- Unhealthy living is prevalent in local authority X
- Overweight is a major problem
- Smoking, alcohol and physical inactivity are the most important life-style factors.

Local authority X is working on prevention, but it could be better

Since 2004 local authority X has had a local authority policy plan for public health, 'Statement Local Health Policy Local Authority X 2004-2007'. With this the local authority takes more responsibility for collective prevention than it did in the past.

Four starting points for local health policy
- Attention to life-style, physical environment and care in the Statement
- Local authority X pays no special attention to the national priorities smoking, overweight, depression and diabetes
- It is not always possible to make an evaluation of the aims declared in local authority X's Statement
- The directive role of local authority X is slow in becoming established.

SIGNIFICANCE OF THE FINDINGS FOR THE LOCAL POLICY OF LOCAL AUTHORITY X

Investing in healthy living is essential

- Preventive programmes for smoking, overweight and alcohol abuse give the highest health gains
- Most important risk groups in local authority X are youth, the elderly and people with a low socio-economic status
- Efficacy can be raised by an integrated policy
- Choice of effective interventions.

Local authority X can play a more forceful directive role

- New Statement of local authority X offer the chance to strengthen its directive role.

Content and form
The Key messages for local health policy consist of two sections and an appendix. In the first section, the regional Key messages are further specified according to local figures and findings whereas the significance for local public health policy is pointed out in the second section. The appendix gives a concise local health profile in which the figures for the municipality are compared to regional and, where possible, Dutch figures. The health profile's indicators relate to the regional Key messages and are based on the ECHI-shortlist and the Netherlands Health Care Inspectorate's performance indicators, supplemented by indicators from the RPHSs' health monitors.(Kramers and the ECHI-team 2005; IGZ Inspectie voor de Gezondheidszorg 2007)

Process en organization
The project group drew up the report's format and the final list of local health profile's indicators whereas the RPHSs epidemiologists filled in the profiles for all local authorities. Subsequently, the reports for each local authority were written and edited in three stages and under the responsibility of the RPHSs advisors for local health policy, working for the local authority concerned.

1. In an *internal RPHS session*, experts from various disciplines and departments supplemented the regional Key messages with the most important local findings, based on the local health profile and their expert knowledge about present local health policy and prevention programmes. They also discussed the significance of these findings for the upcoming public health memorandum of the local health authority concerned. The RPHSs epidemiologist and advisor for local health policy incorporated the results of this internal session into a first draft.
2. The RPHSs epidemiologist and local health policy's advisor discussed this first draft with the *local authority*, elucidating the quantitative findings and checking and supplementing the qualitative findings. Furthermore, the local authority was consulted to synchronize the Key messages to the local authority's policy and perspectives.
3. The results of these discussions were incorporated in a second draft and submitted for approval to the local authority, after which the final text was drawn up.

Based on differences in existing communication habits, the RPHSs arranged the consultations and involvement of their local authorities differently. In order to control structure and quality of the reports, the project leader was responsible for all final editing and the RPHSs' directors for the final approval and publication of the reports. By the end of June 2007, all local authorities had received their own report.

Product: Regional Public Health Compass

Insight into the regional health situation and significance for policy

The RPHSs website Regional Public Health Compass (www.regionaalkompas.nl) is a regional variant of the RIVM's website National Public Health Compass (www.nationaalkompas.nl), even going further by giving concrete suggestions to policy makers. For each health policy theme, the Regional Public Health Compass gives an accurate overview of the most important national and regional epidemiological information, national policy and local policy options, effective and recommended interventions, and prevention programmes and interventions offered regionally. Hereby, the website provides local authorities with building blocks for translating their strategic policy priorities into a concrete plan of action. An example of the table of contents for one health policy theme is given in table 3.3.

Table 3.3. Example table of contents in the Regional Public Health Compass

SMOKING

Definition, seriousness and prevalence

- What are the consequences of smoking and how many people in the Netherlands smoke?
- How many people in the region smoke?

What is the policy?

- National policy
- Possibilities for facet policy
- Local policy

What can be done?

- Recommended interventions
- What is already happening in the region?

See also:

- Information and advice on the Tobacco Law
- Stivoro – for a smoke-free future

Sources

Source: www.regionaalkompas.nl/RPHShvb

Content and form

In August 2009, the Regional Public Health Compass contained information on 25 health policy themes, including the five national principle objectives.
The website attuned to the RIVM's National Public Health Compass and was directly linked to the de I-database, a national database with interventions offered locally, regionally and nationally, held by the RIVM's Centre for Healthy

Living. The Regional Public Health Compass was structured according to the National Public Health Compass, so that the themes were arranged in the same thematic tree. Via the I-database, the titles of the offered interventions were arranged per regional prevention instance in a handy overview. On a mouse click, concise information about the intervention was given, including a hyperlink to view extended information in the I-database itself, for example contact information.

Process and organization

The RPHS Hart voor Brabant developed the Regional Public Health Compass in co-operation with the Netherlands Institute for Health Promotion (NIGZ, until January 2008) and the RIVM [28]. A regular panel of the RPHS, consisting of local public health officials in the RPHSs working area, decided on the standard format of the health policy themes' documents. In a continuous process, this panel also decided on the themes to be added or updated, while the texts were written or revised by RPHS' and NIGZ's staff under the responsibility of the project leader as final editor.

Prior to each release, the RPHS updated their own interventions in the I-database for existing and new themes in the Regional Public Health Compass and asked the major regional prevention organizations (Local Authority Mental Health Care [GGZ], Home Care and Addiction care) to do the same.

The Regional Public Health Compass was launched on 9th November 2006 [27].

Empirical regional PHSF model

The empirical model for a regional PHSF can be characterised by three aspects: (1) products (2), content and form and (3) process and organization. Table 3.4 shows the relationship between the *regional PHSF* products and those of the national PHSF.

Table 3.4. National and regional PHSF products

NATIONAL	REGIONAL
Summary Report for the Netherlands: Care for Health	Summary Report per region: Health counts! in Hart voor Brabant Health counts! in West-Brabant
National Key messages	Regional Key messages (chapter 1 Summary Report) Local Key messages per local authority: Health counts! in [local authority]
National Atlas of Public Health	RPHS Atlas of health(1)
National Public Health Compass	Regional Public Health Compass
Thematic policy reports	-

(1) Existing website that may later be includes in the regional

The national PHSFs conceptual model was used for the *content* of the regional PHSF with respect to the subjects' arrangement as well as to the indicators' operationalization (figure 3.1). The national PHSF also provided the model for the Key messages, regional as well as local, and for style aspects, such as language and text structure. The *design* was chosen to blend with the 'look' of the RPHS (presenting as a RPHS product) and the 'feel' of the RIVM (professional and scientific appearance).

This was achieved by modelling the layout of the reports covers in RPHS house style and the reports interiors in RIVM house style and using the RPHSs banners and the RIVM's arrangement and layout of the documents on the website.

The responsibility for the *project organization* was spread over three levels (strategic, tactical and operational) (figure 3.2). The involvement of other parties concerned, in this case only municipal public health officials as primary target group, was formalised at a tactical level by a policy advisory committee.

Figure 3.3 schematically presents a model in the form of a research cycle of the developed *process design* for the production of a regional PHSF. In this process model the production steps are divided into two fields.
The right field (data collection and analysis) represents the 'exclusive' domain of the researchers. In these steps the researchers have specific expertise and other (policy) actors only play a role as knowledge suppliers. By organizing it in this way, the scientific quality (validity, reliability) of the regional PHSF is ensured.

In the left field's steps however, the discussion and negotiation between researchers and policy actors (such as the RPHSs policy advisors and municipal policy makers) play a prominent role. This interaction between researchers and policy actors is necessary for the policy relevance of the regional PHSF, increasing the utility of the epidemiological knowledge and facilitating evidence-based local health policy.

Table 3.5 gives the practical elaboration of the regional PSHFs empirical model aspects for the three products of the first regional PHSFs in the RPHS' regions Hart voor Brabant and West Brabant, arranged according to the steps of the process model in figure 3.3.

Table 3.5. Elaboration of the process model regional PHSF for the three products

Phase	Summary report	Key messages for local health policy	Regional Compass of Public Health
Choice of subject	▪ Table of contents according to national model ▪ Indicators based on health monitors RPHS, ECHI-shortlist, progress indicators IGZ, Care Evaluation, national PHSF ▪ Advice from experienced RPHS staff in the field ▪ Advice from the policy advisory committee ▪ Made definitive by project group	▪ Table of contents according to regional key messages ▪ Subjects local health profile on the basis of regional key messages ▪ Indicators based on health monitors and registrations RPHS, ECHI-shortlist, national PHSF ▪ Consultation of RPHS-epidemiologists Zeeland and Brabant on indicators ▪ Advice from policy advisory committee ▪ Made definitive by project group	▪ Choice of subjects by professional discussion panel public health ▪ Format table of contents per subject made definitive by professional discussion panel ▪ Organization of website according to National Compass of Public Health
Data collection	▪ Edit chapters by project group members ▪ Sources: RPHS: health monitors, RPHS registrations, local statements. RIVM: national PHSF. Province: prognoses. NIGZ: Qui-databank. CBS: demographic data	▪ Edit RPHS advisor local health policy ▪ Elaboration of profiles by RPHS epidemiologists ▪ Sources: RPHS: health monitors, RPHS registrations, local statements. RIVM: national PHSF. Province: prognoses. CBS: demographic data	▪ Edit health situation by RPHS-epidemiologists ▪ Edit policy (national and municipal) by NIGZ ▪ Edit recommended interventions by NIGZ ▪ Edit present intervention programme by RPHS and regional instances ▪ Sources: RPHS: health monitors, RPHS registrations, local statements. RIVM: national PHSF. NIGZ: Qui-databank. CBS: demographic data. Also: Literature, data banks and policy statements.

Phase	Summary report	Key messages for local health policy	Regional Compass of Public Health
Analysis	▪ Execution by RPHS and RIVM	▪ Health situation by RPHS epidemiologist ▪ Policy analysis by RPHS advisor local health policy ▪ Consultation of experienced RPHS staff working in or for the local authority via internal sessions per local authority	▪ Health situation by RPHS epidemiologist ▪ Policy analysis by NIGZ ▪ Analysis of intervention by NIGZ
Report	▪ Authors: RPHS and RIVM staff ▪ Advice from professional text writer ▪ Advice on regional Key messages by policy advisory committee ▪ Final editing by project leader ▪ Agreement of management RPHS ▪ Professional design and printing	▪ Format made definitive by project group ▪ Authors: epidemiologist and adviser local health policy ▪ Consultation on 1st draft with official public health via discussion with advisor local health policy and epidemiologist (Hart voor Brabant) ▪ Consultation on 1st draft with official and councillor for public health via discussion with advisor local health policy and epidemiologist (West-Brabant) ▪ Pertinent advice 2nd draft by official public health (Hart voor Brabant) ▪ Agreement 2nd councillor for public health (West-Brabant) ▪ Final editing by project leader ▪ Agreement of manager RPHS ▪ Professional design and printing	▪ Authors: RPHS and NIGZ staff ▪ Consultation of RPHS staff and regional institutions ▪ Consultation of professional discussion panel ▪ Final editing RPHS project leader

Phase	Summary report	Key messages for local health policy	Regional Compass of Public Health
Implementation	▪ Presentation to chairpersons General Management of the RPHSs during a symposium ▪ Presentation to the press linked to the symposium ▪ Grounding the regional Key messages in RPHS policy cycle ▪ Grounding the regional Key messages in local policy ▪ Distribution national, regional and local ▪ Distribution to care providers, care financing instances and care consumers ▪ Distribution to other RPHSs	▪ Formal presentation to councillor for public health (HvB) ▪ Dispatch to councillor for public health (West-Brabant) ▪ Agreements about communication to council and press and about grounding the statement ▪ Grounding the Key messages local policy via a supporting statement route by adviser local health policy and offered tailor-made package RPHS ▪ Extra implementation activities due to subsidy from ZonMw for the distribution and implementation plan Key messages for local health policy	▪ Publication on website via editing system National Compass for Public Health ▪ RPHS appearance ▪ Information about releases via newsletter Health Monitor ▪ Grounding information in RPHS policy cycle ▪ Grounding information via policy support local authorities by advisor local health policy ▪ Organization of instruction meetings for officials and RPHS staff
Evaluation	▪ Form and content ▪ Process ▪ Relevance to the other two products ▪ Relevance for policy ▪ Application in policy	▪ Form and content ▪ Process ▪ Relevance to other two products ▪ Relevance for policy ▪ Application in policy ▪ Extra implementation activities	▪ Form and content ▪ Process ▪ Relevance to other two products ▪ Relevance for policy ▪ Application in policy

Conclusions and discussion

The central question of our study was: can a regional variant of the *national* PHSF be developed in *practice* and, if so, how should it look like?

Based on an empirical development of a regional PHSF in two regions of Brabant we can conclude that a regional PHSF based on the national model can be realised. The empirical model for a regional PHSF is characterised by (1) products, (2) content and design and (3) process and organization. In the discussion below, we will focus our comments on the content of the regional PHSF and the process design.

Comments on the content

The regional PHSF makes uses of a large volume of data obtained from a variety of regional and national sources, such as questionnaires, registrations and screening programmes. However, in a number of areas the information supply reveals gaps: the comparison between regional and local data is not always possible, information about vulnerable groups is insufficient, appropriate indicators for prevention and care with respect to local health policy are unclear and the information on prevention and care is insufficient [8, 9].

For a number of important health indicators in the *Summary Report*, such as incidence and prevalence of diseases on the basis of medical registers, and disease burden, a comparison between the region and the Netherlands as a whole could not be made adequately because these health indicators were estimated using national figures (by demographic projection). As a result, the key messages based on these indicators highly agreed with the national key messages, which seems very realistic, particularly as the inhabitants of the RPHSs form a considerable part of the Dutch population. Moreover, it seems desirable as well for attuning the regional and local health policy with national health policy. However, it does raise the question whether the regional PHSF for regional and local policy has added value in comparison with the national PHSF. In addition, in the Summary Report, the state of prevention's description was restricted to the five national priorities, mainly for practical reasons. Though this enhanced the most important health problems and the national priorities being put on the agenda, it also resulted in other (local) priorities being ignored. This could be solved if these local priorities could be included in the Regional Public Health Compass.

As to the *Key messages for local health policy*, a number of important health indicators at local level had a limited availability, caused by insufficient numbers or even lack of registrations at the local level and only limited comparisons could be made between the health status at the local level and the regional or Dutch health status. More detailed, there was lack of (suitable) data for local (healthy) *life expectancy*, whereas for *mortality*, only total mortality figures and mortality figures for the main causes of death, being cardiovascular diseases and cancer,

were available. However, the comparison of life expectancy and mortality between the local and the Dutch level is of limited (policy) value because unambiguous causes for any differences are difficult to address. Furthermore, because local figures on medical registers' prevalence of disease and on disease burden lacked, regional findings were locally applied for the assessment of the *most important local health problems*, with only some differentiation based on local data on self-reported prevalence of disease. Finally, because local data on disease burden lacked, the assumption was made that there were no differences as to which were the *most important causes of ill health* between the local, the regional and the Dutch level, even if the prevalence of these causes differed considerably. Consequently, in the Key messages for local health policy, *differences between the municipalities* mainly arose from differences in the prevalence of causes of ill health, their translation into significance for local policy, and differences in the state of local health policy. In this way, the national priorities were retained at a local level so that agreement with the national prevention statement was stimulated.

In the *Regional Public Health Compass*, the national information for most themes could directly be embedded from the National Public Health Compass (www.nationaalkompas.nl), ensuring the information's comparability. However, though not included in the National Public Health Compass, some themes were included in the Regional Public Health Compass because of their relevance for local policy, for example informal care and loneliness. This lead the RIVM to consider inclusion of these themes in the National Public Health Compass. Furthermore, unambiguous information about municipal policy options and recommended and/or effective interventions was difficult or impossible to find whereas the effectiveness of local policy and interventions was frequently unknown.

Finally, the information on the regional prevention programmes was derived from the national Qui-databank, being scanned and dated in the beginning of the pilot-study, leading to poor quality of information. Because of the importance to the RPHS and the principle regional prevention organizations (e.g. Home Care, Mental Health Care and Adiction care) of their own programmes being visible to the local authorities during policymaking, the pilot-study appeared to be a potent stimulus to update the programmes included in the Qui-databank before each release of the Regional Public Health Compass.

Comments on process design

Because of the involvement of numerous actors in the development of a regional PHSF a firm project organization and an optimal process design were required. The co-operation between the local RPHSs and the national RIVM had the advantage that various types of expertise could be called upon for content, design, process and organization.

As with the national PHSF, in the experimental development of the regional PHSF the contribution of policy actors was realised in various ways, both within and outside the RPHS (see table 5). The empirical process model for a regional PHSF developed from this basis connects to the conceptual framework in which interaction is an important condition for the use of research data by policy actors. The process model primarily offers the RPHSs a new framework for thought in order to decide per research step which possibilities there are for researchers to bring about interaction with policy makers and workers in practice, where before more emphasis was laid on content and the (scientific) quality of the collected data and the analysis. The aims of this interaction are: (1) the improvement of the quality of information in the regional PHSF through the contribution and integration of knowledge based on practice, research and policy (knowledge synthesis); (2) increasing the chances that epidemiological knowledge is used by working on the expectations, transference, acceptance and interpretation by the relevant policy actors [11].

In general, the organization of the process design of interaction is context dependent. Van Egmond also stated that the specific form of the interaction between researchers and policy makers will depend on specific local circumstances [21]. Consequently, there will be differences among the RPHSs in how they elaborate the process design, dependent on the relationship between the RPHS and its local authorities, the opinion of the RPHS role in policy advice, the choice of relevant sources of data and actors, and the value and significance given to epidemiological evidence. There will also be differences among RPHSs in the extent of 'negotiation' with the policy actors in the various stages of the research cycle. Of importance here is the question of how great the policy actors' influence might or should be. In the present pilot-study, there has been discussion as to whether, at the request of a local authority, a relatively high degree of attention should be paid to socio-economic differences in the Key Messages for local policy. Another local authority objected to the message 'Unhealthy behaviour of youth is a cause for concern' because this would not involve any factual information. In these ' negotiations' the highest possible scientific quality was sought in conjunction with the greatest political acceptance, within the institutional limits of the RPHS and the local authority. Accordingly, the choices made in the process, the organization and negotiations will have consequences for the content of the regional PHSF and its significance for policy, which will be investigated in a follow-up study. One consideration to be made then, is the comparability of the regional PHSF with other regional PHSFs as well as the national one.

Concluding remark

The empirical regional PHSF model is a first step in the direction of generic model for a regional PHSF in which effective context-independent and context-dependent elements will be identified. To achieve this, research will be necessary into the availability, validity and utility of the measurements of health and determinants at regional and local level (in particular mortality, life

expectancy, medical registers and disease burden), the validity and utility of forecasts for regional and local health policy and appropriate measurements for the description of policy, prevention and care at a local and regional level. In addition, research is needed into the implementation of epidemiological data in local policy and the role of (the process and organization of) the regional PHSF in this respect.

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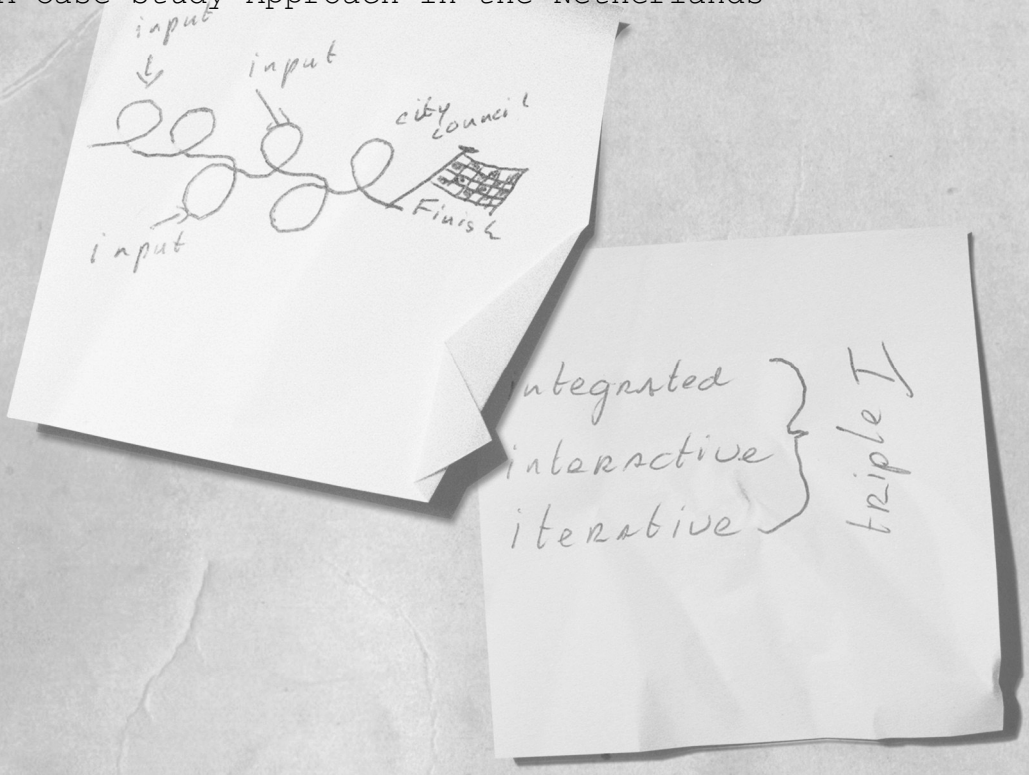
4. Utilization of epidemiological research during the development of local public health policy:

A Case Study Approach in the Netherlands



In review

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Abstract

The use of epidemiological knowledge in local health policy development is claimed to be problematic. In these in-depth case studies, we examined the interface between local epidemiological research and local health policy development, and the use of epidemiological reports, published as Local Health Messages (LHMs). The qualitative study design is based on an earlier developed conceptual framework of extended interaction. We collected data about 129 actors, for which we used face-to-face semi-structured interviews, telephone interviews, internet questionnaires, observations, and organizational documents.

Local health report development was characterized by multiple interactions between Regional Public Health Service epidemiologists, policy advisors, and local health officials. This preliminary interaction helped to manage the expectations of the local health officials and improved a specific type of use of LHMs in the policy process. However, we discovered a lack of use of the LHMs by specific groups of actors within the policy network, which could be explained by factors influencing the actors, such as personal belief systems and values, institutional interests, and contextual factors such as the design of the policy processes. We concluded that the necessity of interactions depends on the frames of references of the potential users. As a consequence, it becomes important to obtain insight in and act upon different health frames of participating policy actors. This should be a start for researchers in order to select strategically promising ways of interaction to influence the policy process.

Introduction

For several decades, public health scholars and professionals have been discussing whether and how epidemiological research for public health policy can be understood and improved. In recent research utilization literature, the emphasis has shifted from linear models of research use by individual policy actors, which emphasizing impeding and enabling factors to a more interactive systems approach [1]. This approach acknowledges and engages with policy context, where multiple policy actors interact and allow that more (types of) knowledge is available for these actors. Furthermore, in these models, research use is regarded as a socially mediated process. Research will be adapted, blended with other forms of knowledge, and integrated with the contexts of its use [2, pp. 119]. Researchers and policy actors are operating in the same health system, although organizational contexts, processes, cultures, and even "languages" may differ. To use a biological metaphor; research and policy can be seen as "niches" [3] but they are part of the same (eco) system, sharing space, interacting, living together, and adapting to each other in order to survive. Due to the change from a linear to a systems approach, the question on research utilization changes from "how to create the conditions for greater utilization of research and evidence" into "how can the coherence and potential conflict between types of knowledge be made sense of and managed" [4]. Bowen and Zwi [5] state that the way in which organizational and system level values influence a decision to accept or reject the policy related evidence has largely been unexplored.

As early as 1993, research showed that policy makers in the Netherlands did not necessarily use epidemiological evidence [6]. Since that time, attempts have been made throughout the public health sector to create and use knowledge for public health. Recently Van Egmond et al. [7] investigated the successes of the Dutch National Public Health Status and Forecast Reports and related websites of the National Institute of Public Health and the Environment [8] by using a system perspective, emphasizing on the interactions between scientists and policymakers and the co-construction of health reports. Their conclusion is that by creating an infrastructure of interactions between scientists and policy makers during the research process will stimulate the translation of the research findings and improve the usefulness; however if and how this usefulness was actually improved was not investigated.

The aim of this study is to give insight in the interface and the mechanisms between local epidemiologists and local policy actors, both during the development of and throughout the local policy processes. Even more we want to establish how these mechanisms can eventually explain research use by the participating policy actors. Based on three case studies in Dutch municipalities we will first describe the construction and presentation of Local Health Messages (LHMs), a local offspring of the National Health Reports, by Local Authorities. Second we will describe and explain the use of the LHMs by local health policy actors.

Developing a conceptual framework for research utilization

Carol Weiss [9] was the first to open up the academic discussion about the usefulness of social research for practice and policy, proposing six theoretical models of research utilization: the knowledge driven model, the problem solving model, the interactive model, the enlightenment model, the political model, and the tactical model. The first three models refer to the reasons for use, while the latter three refer to the way in which research is actually used. Many other models with different perspectives have been developed since, such as the Huberman classic model (1994), the Lomas linkage and exchange model (2000) and the Dobrow context model (2004). They all emphasize the interactions between research and policy, but mainly focus on research utilization at an individual level. Studies based on these frameworks prove that the interaction between a researcher and a policy actor is an important enabler of research use [10, 11]. In the pathways to evidence informed policy and practice, proposed by Bowen and Zwi [5], the systems approach to research utilization is explored further, emphasizing the values and norms of the receiving policy makers, which are a result of the context and culture of the organization they work in.

On the basis of these earlier models, many authors believe that a network perspective will provide a useful framework for studying research utilization [12, 2, 13, 14]. Stone [14] suggests that research can play a key role in the policy process when researchers are network participants. As Hanney [12] states, ”Where researchers become part of a policy network, or find their ideas taken up by elements within it, this could be a strong version of the interactive model and be an important route for such findings to enter the policy arena. Network approaches can highlight the role of actors in research utilization”. The network approach applies to the policy process, but also to researchers. They work in a specific research institute, acting and making decisions in the research process in keeping with the norms of this institutional context and facing the possible risk of excluding other forms of knowledge not arrived by scientific methods. Science study scholars like Latour [15], Bal and Bijker [16], and public health scientists like Gibson [17] argue that research itself is socially constructed. This means that “knowledge” originated from a specific type of research cannot be considered isolated from the context in which it is produced and moving this knowledge to another (policy) context will change the value. So, to understand the mechanisms of use of knowledge it becomes important to gain insight how the research knowledge was produced, in what context, when and by whom.

In an earlier literature review, we developed a framework of “extended” interaction for research utilization in the Dutch local health policy in which we take a network approach and include the insights of the authors mentioned above [18]. The conceptual framework consists of three parts: (1) the research and the local health policy context and networks, (2) the types of knowledge utilization, and (3) explanations for research use.

Description of the local health policy context and networks

The first part of the framework describes the research network and the policy network. We define the networks as more or less stable patterns of social relations between interdependent actors, which take shape around policy problems and / or programs [19]. Networks actors can vary in terms of interests, power, willingness to cooperate, problem perceptions and resources. In the research network, actors are researchers or health professionals, working together on a research project, discussing questions, design analytical strategies or papers. In the policy network, actors discuss and negotiate on the importance of public health problems and the possible solutions at hand. In both networks, some actors are in authority over others, differ in financial resources, have specific knowledge and expertise, and choose to exchange information. Interaction between the actors of both networks occurs mainly when policymakers get involved in the research process (for example, when formulating research questions), or when researchers are participating and communicating their results in the policy process. The networks are embedded in and influenced by a policy context where actors have to take into account national laws, research developments and national policies [5, 20-23].

Description of types of knowledge utilization

The second part of the framework describes the types of knowledge utilization. Several authors have developed and debated different ways in which use or impact can be measured [24, 25, 12]. The biggest challenge is capturing the dynamic and diffuse way in which (scientific) information becomes part of the policymakers' discourse. One of the most important concepts relating to research utilization originated from Weiss [9], later adopted and elaborated by various authors [26]. Best known are three types of use, namely instrumental, conceptual, and symbolic use [27]. Instrumental use means that the research is acted upon in specific and direct ways, for example to solve a problem at hand. Conceptual use means that the research improves the understanding of the subject matter and related problems, and refers to a more general and indirect form of enlightenment. Symbolic use means that research is used to justify a position or course of action for reasons that have nothing to do with the research findings (political use) or exploits the fact that research is being done to justify inaction on other fronts (tactical use).

Description of explanations for research use

The third part of the framework describes the interaction between research and policy. Interaction, defined as communication between researchers and (potential) users influencing each other, is regarded as an essential precondition for the use of research results [12, 28, 29]. From a theoretical perspective, these interactions can be classified into models about the redesign of the rules and the games within the structure of research and policy networks, models of different ways interaction can take place and models of ways of communicating

[20]. Based on the literature, we distinguish four domains of barriers that explain why research is not used more often. Two domains are connected to barriers at the process level: the *Expectation* domain and the *Transfer* domain. The *Expectation* domain addresses the issue of awareness among researchers and policymakers of each other's 'niches', classifying barriers that can be acted upon during the preparation phase of research. The *Transfer* domain, referring to the publication phase of the research cycle, addresses the way in which research is communicated, and the involvement of the media. The two other domains are connected to individual barriers: the *Acceptance* domain and the Interpretation domain. Barriers classified under *Acceptance* refer to the degree to which a person believes the research outcome to be true; not the scientific validity or credibility, but the researchers' and policymakers' perception. Barriers classified under Interpretation deal with the value given to research outcomes, in this case local health problems.

Methods

Selection of participating municipalities

To gain insight into the way in which the LHMs were used and to understand the underlying mechanisms, we have used a case study design [30]. We collected qualitative data from three municipalities in the south of the Netherlands: Breda, Oss, and Boxtel, three of the 48 municipalities served by the two Regional Public Health Services (RPHSs) that developed the Regional Public Health report, including the LHMs [31]. They were selected because they differ in terms of urban nature and population size (see table 4.1) these two factors being related to the capacity of civil servants assigned to the development of local health policy, and influence the level of local health policy measures [32].

Data collection

The study was conducted during the years 2006, 2007, and 2008, and followed the process of the development of the LHMs and the related process of the development of the local health policy memoranda in real time. We conducted 40 semi-structured interviews with various key players: researchers, policy advisors, civil servants, local administrators, and politicians. Other actors (such as client representatives and health care providers - 89 in total) were interviewed by telephone and, if they had read the LHMs, were sent an additional online questionnaire. We also used minutes of deliberations during the research and policy processes, discussion papers, e-mails, work plans and successive versions of the LHMs and memoranda. We searched for issues regarding the interaction between the research and policy actors, the time lines, events during the developmental processes and the health priorities mentioned. Special attention was given to obstacles in the interactions and processes and to how these were solved. Spread over the three cases, seventeen meetings were observed: council meetings (5), public conferences (2), task groups (5), and municipal deliberations (5).

Table 4.1. Participants in research and policy process

			Internal respondents of the municipality			External respondents of the municipality			
Municipality of:	All participants	Total Number of responding participants	Officials and elected Public Health administrator (alderman)	Officials from related policy domains	Politicians*	RPHS	Professionals (Public Health, Care and Welfare)	Client representatives	Non-professionals
Boxtel (rural) (30 281 inhabitants, 2009)	51	30 (=59%)	3	5	8	5**	1	5	3
Oss (urban/ rural) (77 097 inhabitants, 2009)	59	41 (=69%)	2	10	7	9**	0	13	0
Breda (urban) (171 916 inhabitants, 2009)	105	68 (=65%)	2	12	6	11	20	17	0

* Politicians involved were members of city council and appointed to a committee responsible for social welfare, sports, public health, and local health care.

** In these two cases, the person in the function of policy advisor changed; both persons were included.

Respondents were recruited by means of snowball sampling, starting with local public health officials and aldermen. We followed up the development processes of the LHMs and policy memoranda, and approached all actors that had been invited to participate in the policy process.

As shown in Table 4.1, the overall number of eligible participants was higher than the number of responding participants. In the case of the politicians, only a specialist public health spokesman of each political party participated in the study. We interviewed only the administrators either responsible for public health or directly involved in the development of a combined health and welfare memorandum (as in the case of Boxtel). Other administrators were not approached because they barely participated in the processes. There was a lower response from professionals and client representatives because of personal circumstances and changes of jobs.

Interviews and questionnaires

In the interviews and questionnaires we asked about the type of research use and associated factors. For instrumental use, questions were asked about the initiation of new proposals or projects, the (re)formulation of (new) policies and the maintenance or termination of policy actions. Conceptual use was related to a better understanding of the causes and extent of health problems and development of fresh ideas for new long term projects or policies. As for symbolic use we asked if the LHMs supported existing decisions or proposals, enabled critical questions on policy priorities and policy actions and enhanced possibilities of putting your own interests on the policy agenda. Questions were included about the presumed barriers for research utilization. For example, in the Expectations domain we asked about awareness of actors regarding the research and policy processes and timing and presentation. In the Transfer domain, we asked about (too) technical language, comprehensibility and the role of the media. In the Acceptance domain, we included questions about perceived robustness and credibility of the evidence and "fit" with personal knowledge, values, or belief systems; preferences and traditions. Finally in the Interpretation domain issues like relevance, connection with personal or institutional interests and responsibility for taking action were discussed.

Findings

Building the context of Local Health Policy in the Netherlands

In the Netherlands, public health policy is the responsibility of the National Authorities as well the Local Authorities, formalized by the Public Health Act [33] which, at the national level, obliges the Ministry of Health, Welfare and Sports to draw up a National Health Memorandum every four years. The Health Memorandum during our study was published in 2006 [34] and was largely based on the National Public Health Status and Forecast report of the National Institute for Public Health and the Environment [8]. Under the PHA, local

authorities of Dutch municipalities are also required to develop a local health policy memorandum and action plan once every four years, with three directives. First, the memorandum should be based on (local) epidemiological analyzes. Second, the local policy must be integrated, developed, and made effective in collaboration with those working in the field, such as professionals in care and/or welfare institutions, health insurers, patients' interests organizations, and local residents. Thirdly, the local policy should be tied in with other policy domains at municipal level (multi-sector approach) [35].

The RPHSs in the Netherlands, have the task of gathering epidemiological information, RPHS epidemiologists monitor the population's health, based on national, standardized research methods. Our municipal cases are served by the RPHS Hart voor Brabant and RPHS West Brabant in the southern part of the Netherlands and provide services to 48 municipalities with a total of almost two million residents.

The interface between research and policy processes

This section starts with a description of the LHMs development and the interactions between the actors involved and subsequently describes the implementation of the LHMs in the policy process for each municipality separately.

The production of the LHMs

In 2006, two RPHSs ('Hart voor Brabant' and 'West Brabant') were commissioned by the Local Authorities to develop a Regional Public Health Report based on the National Public Health Status and Forecast Report. As part of this regional public health report, an epidemiological analysis was made of the local health situation in each of the 48 municipalities, resulting in a set of Local Health Messages (LHMs). Each municipality received its own local report describing the local health situation, with its own set of policy recommendations [31].

The national PHSF report, which was published in April 2006, was set as an example for content as well for lay-out. The aim of the project was if and how a regional variant of the national PHSF can be realized in practice. During the development process the focus was on interaction between RPHS professionals and local health officials, the theoretical base for this experiment was narrow.

The development of the LHMs started with a kick-off meeting of epidemiologists in April 2006 in order to collate the local data and compare them with draft Key Messages of the national report. In the following weeks the project leader, supported by the project group, a team of advisors of the RIVM (National Health Institute), Tilburg University and Managers of the participating RPHSs, created a template for the LHMs based on this meeting. It consisted of a translation of the

national Key Messages, specified according to local epidemiological figures and local findings and a part in which the significance for public health policy, from the RPHS point of view, was pointed out. The appendix gave a concise local health profile in which municipal figures are compared to regional and, if possible, Dutch figures. The health profile indicators were related to the Key messages and based on national and international sets of epidemiological health indicators. These were indicators like life expectancy, death rates, incidences on chronic diseases and their influence on the quality of life. The LHMs emphasize on the possibilities of preventive measures on determinants like overweight, smoking, alcohol use and physical inactivity .

For each municipality an RPHS policy advisor and an epidemiologist were made responsible for the production of the LHMs. In June 2006 the first LHMs draft were made, following the template and mainly based on the quantitative health profile. It was discussed in an internal RPHS session with health professionals from various disciples and departments, who discussed the significance of the findings for the upcoming public health memorandum of the municipality concerned. At the same time, RPHS policy advisors and epidemiologists deliberated continuously in preparation of draft LHMs. During this period, the project leader had a meeting with a policy advisory committee from the RPHS regions in which the regional key messages and the template of the LHMs were discussed. During this developmental phase of the LMHs, the medical and epidemiological nature of the template was discussed continuously. In the policy advisory committee as well as the internal RPHS meetings, policy advisors and local health officials preferred a more societal approach of public health with more attention for problems like loneliness, nuisance and safety problems. However, the medical approach carried the day, based on the argument *"Since the final goal of health policy is population health benefit, it is logical to start with a description of health problems that contribute the most to ill-health. Subsequently it makes sense to determine its main causes, unhealthy behavior being the most important".* This argument was supported by the Key messages of the NPHSF report, besides, a different approach would lead to a greater workload.

Implementation of the LHMSs and the development of the local memorandum in Breda

Breda's local official took part in the policy advisory committee of the regional PHSF project and was consulted about the local LHMs in the period from August until November 2006. The official had written health policy memoranda before and had substantial policy experience in the field of Public Health. In August 2006, the official started the preparation of the memorandum and involved the RPHS policy advisor as a project member.
From this moment to the presentation of the LHMs to the local administrator in February 2007, the RPHS policy advisor took part in the LHMs development as well in the policy process during which the balance between the medical and epidemiological orientation and the societal one was a continuous matter for

debate. Ultimately the medical orientation prevailed and the LHMs were made part of a policy background document. In the process towards the memorandum, which took eighteen months, we recognized twenty-two formal deliberations between the local health official, the alderman, and various groups of actors, like officials from other policy domains, politicians, health care and welfare professionals and client representatives. Eleven employees from different departments of the RPHS took also part in the policy discussions. There are two points of note: no epidemiologist took part, and, although many RPHS employees were present, they had not discussed their opinions in advance, and most of them were only slightly familiar with the LHMs. Each policy deliberation resulted in a new version of the draft memorandum, which was used as input for the next discussion. In the last stage of the process, the memorandum was discussed and approved by the municipal council. During the policy process, the actors were able to negotiate on three policy questions. The first was: What is the problem at hand and what are the policy objectives? The second was: How can the policy objectives be met? And finally: Who is responsible?
The memorandum was strictly related to public health and focused on priorities such as alcohol, overweight and depression, recognizable health priorities originating from the national Public Health and prevention memoranda. Epidemiological information was mentioned only because of direct input of the RPHS policy advisor during the writing process of the memorandum.

Implementation of the LHMs and the development of the local memoranda in Oss

In August 2006, the draft LHMs was to be discussed with the local health official, however there was no official assigned so the deliberation took place with another official, working on welfare policy issues. No significant adjustments were necessary. During a visit to the RPHS in October, the municipal council members were given a preview of the LHMs, and were informed about a slight decrease in life expectancy among women in Oss. A record of this occasion became public and resulted in extensive local media attention. In January 2007 the administrator, a RPHS manager and epidemiologist, and a policy advisor held a press meeting at which the LHMs were presented and the situation was explained after which the situation calmed down. In April 2007 when a new local official for public health was appointed, the development of the local health memorandum started. This new official had no public health background and organized, under supervision of the local administrator, a deliberative policy process similar to the one in Breda, although in Oss policy actors were consulted during only seventeen formal deliberative sessions. Policy actors were mainly officials from other policy domains, patient representatives and council members, the RPHS had a limited role. The epidemiologist had the opportunity to present the LHMs in order to inform local politicians and the RPHS policy advisor responded to a draft version of the memorandum. The local memorandum was approved by the municipal council in March 2008 and was restricted to the public health field, with a focus on priorities such as alcohol, overweight, and depression following the national health priorities and with

inclusion of supportive epidemiological information of the LHMs. Additionally priority was set on local health care and environmental health as a result of the input of consulted policy actors. There were no indications that the media attention in Oss ultimately led to a sense of urgency during the policymaking process. This can be explained by the indifferent tone of the articles, and the time gap between the media attention and the actual political decision-making.

Implementation of the LHMs and the development of the local memorandum in Boxtel

In August 2006, the draft LHMs was discussed by the RPHS policy advisor, epidemiologist, and an experienced local health official who had written a public health memorandum before. No significant adjustments were needed for the LHMs, the official just considered them as recommendations from the RPHS. In December 2006, the LHMs were officially presented to the local administrator; in February 2007, the health policy memorandum development started and was combined with a Welfare memorandum. There were twenty-five formal deliberations, of which only one concerned public health. In this case the LHMs were presented by the RPHS epidemiologist and the policy advisor to council members and discussed and public health priorities were set for the draft memorandum. In all other deliberations, issues on welfare, such as social cohesion in neighborhoods, informal care and social participation of disabled people and mental health problems, were discussed with different local officials, politicians, patient representatives and residents. Notably, in all discussions about welfare issues, no link to public health was made, and in none of these discussions any consideration was given to the RPHS, the LHMs, or other epidemiological information. In October 2007, the RPHS policy advisor was given the opportunity to respond to the public health part of a draft version of the memorandum. In March 2008, the memorandum was approved by the municipal council and included national public health priorities such as alcohol, overweight, and depression, the supporting epidemiological information of the LHMs. Other additional priorities were local health care and sexually transmitted diseases among adolescents, as a result of the input of consulted policy actors.

Use of the LHMs by local policy actors

In all three cases, we see major differences between groups of policy actors in research use.

As for the local health officials and administrators, the LHMs were mainly used as a starting point for policy deliberations and facilitated discussion with policy actors on problem definitions and solutions. Conceptual use, for a better understanding of the health situation, and incidentally symbolic use, support of prior policies, were mentioned. One of the respondents described the LHMs as follow: *"It gives a concise overview about the main health problems and risks of a part of the residents, so that priorities can easily be established. However the*

disadvantage is that it excludes risk groups such as young care givers, who grow up in a family with chronic illness and people with addictions or disabilities".

Several benefits of the LHMs were found, such as good timing and advance information before publication (Expectations), the accessibility and comprehensibility, the fact that the LHMs were in line with national health policies, the local nature of the figures (Transfer) and the direct responsibility of the officials and administrators for the development of the memorandum (Interpretation). The RPHS was considered a credible source and the LHMs matched the personal knowledge of most officials and administrators (Acceptance) although in the case of Boxtel one administrator called the LHMs biased and only in support of the RPHS. He was not convinced that prevention is effective for improving public health (Acceptance). The welfare alderman in Boxtel and the local official of Breda both noticed the missing link with societal and welfare issues which they perceived to be important to link public health explicitly to the welfare policy domain (Interpretation).

The *local council* members mainly used the information in a conceptual way by gaining a better understanding of the health situation. Some considered the LHMs as a background document. Mentioned benefits of the LHMs were: The accessibility and the local nature of the figures which gave them the opportunity to identify health problems within their own communities. Again, the RPHS was considered a credible source, and the LHMs matched the belief systems of most committee members (Acceptance), and were considered relevant (Interpretation). Important impeding factors were the lack of relations with other policy domains as well as the lack of detailing of possible policy solutions (Interpretation) and the preference of local council members to the experiences and stories of residents and practitioners than to epidemiological figures. *"I am a politician. It is my job to listen to people on the street, this means more to me that what the RPHS is saying".*

For the RPHS professionals, there are several benefits in relation to the LHMs. First of all, the LHMs were a shared responsibility of epidemiologists and policy advisors, and led to negotiated opinions within the RPHSs and better collaboration (Expectations) and improved inside the RPHS instrumental use. The LHMs were regarded as accessible and comprehensible (Transfer). There was an implicit confidence in epidemiological research which is based on shared (public health) belief systems and knowledge (Acceptance). Finally, public health is the main organizational objective of the RPHSs; the LHMs serve as a business card, and advocate the health priorities of the RPHSs (Interpretation) and improved more symbolic use outside the RPHS.

For three groups of policy actors, *officials related to other policy sectors, professionals of health care and welfare organizations and client representatives* the use of the LHMs was low. In general, there was only minimal conceptual use in that one sometimes actors gained a better understanding of the health situation. These actors were more likely to have had previous collaboration with

the RPHS, had affinity with epidemiological research, the LHMs fitted their personal belief systems (Acceptance), and they implicitly acknowledged the relation between public health and their own policy field (Interpretation).

However, most policy actors considered the LHMs of no importance and neglected them during the policy process. The most important barriers were that the LHMs were not in line with these groups' belief systems and view of public health (Acceptance). A respondent told us: *"I also miss the combination between Welfare and Public Health, there are so many other vulnerable groups in our society".* These policy actors perceive the provision and accessibility of care or societal determinants, like school drop outs or domestic violence to be more important than healthy behavior. Furthermore, another respondent said: *"I suppose that the LHM contain neutral information. However the RPHS is also a organization who implement health activities".* This suggest that the RPHSs were not always considered to be a credible source and has interests of its own. In addition, the focus of the LHMs on public health prevention and gives no clue to policy solutions within the health care or welfare sector (Interpretation). Finally, none of the participating residents were aware of or had read the LHMs.

Discussion and conclusion

Rigor of the study

The qualitative nature of this study provides in-depth understanding of the usage of local epidemiological research and evidence during the process of local health policy making although case studies have limitations in terms of the generalisability, validity, and reliability of the results [30]. Due to the time-consuming design of the study and the simultaneous policy processes, it was limited to three cases. Not all participants were responsive to the study but we made sure that all key informants taking an active part in the discussions were included. Most non-respondents were not structurally involved during the formal meetings; the respondents included are the most relevant for this study. To ensure the validity and reliability of this case study, use was made of various data sources such as policy documents, interviews, observations, and questionnaires. Data triangulation contributed to shedding light, from various perspectives, on the development process of the report and the policy processes.

Reflection on the results

Equal to the study of Van Egmond et al. [7], in the development of the LHMs we saw a back stage and a front stage. In the backstage, frequent formal and informal interactions between epidemiologists, policy advisors and local health officials were organized. We noticed a constant tension between a medical, epidemiological approach (public health frame) guided by the national PHSF report, and a more societal frame. We concluded that the LHMs were socially constructed in the setting of the RPHS and held a dominant public health frame.

The local aspect of the LHMs were restricted to the local figures but not to the adaption of the massages itself to present political or policy issues. On the front stage the LHMs, in line with their national predecessors, were presented as a neutral set of scientific policy facts to inform local policy actors and mitigate the political debate.

Shifting our focus to the interactions between research and policy processes different mechanisms can be noticed. Local health officials propose and shape the policy process by the decision when to have discussions and who is to be involved in relation to the setting of local health policy. They also propose what kind of information is disseminated to whom and compose the memorandum, deciding which opinions or actors to take into account and which to ignore. The policy processes involved various actors who defined their interests and responsibilities in different ways at different times. Additionally, in each policy process we saw a varying number of feedback loops [13] in the form of deliberations with various actors over a period of time, making it an incremental process in which identification of goal and policy solutions evolve over time rather than being clear at the beginning. In every loop there are negotiations about the relevance of perceived heath problems and possible policy solutions. This is what makes the local policy process complex and it can differ between every single municipality.

We found different explanatory mechanisms for the use of the LHMs to create local health memoranda. In two cases, due to preliminary interaction, local officials knew what to expect of the LHMs, which were in line with their beliefs, values (Acceptance), and responsibilities (Interpretation) and caused the research to be incorporated in the policy process, as a starting point for discussion. The LHMs helped the local officials to become more effective in achieving their objectives (formulating well-supported policy memoranda and activities) in the complexity of local decision-making. In these two cases, there had been longstanding working relationships and close interaction between local public health officials and the RPHSs, and it became evident that this supported matching views on public health issues. This resembles the elective affinity model [36], which holds that "a policy community is more likely to react favorably to research findings if they have participated in the research process, when the timing of the research has been right, and where the beliefs and values of the policy audience coincide with research findings" [37]. In the third case no preliminary interaction occurred, but this did not obstruct usage because the new local official already had a "public health" frame of reference. Although the officials were not always satisfied with the way the LHMs were presented (the medical approach and the lack of concrete policy solutions), the reports were sufficiently applicable to back up the national priorities (Context). Additionally, other reasons contributed to the usage of the LHMs, such as the role of the RPHS policy advisor and the overall accepted authority and trustworthiness (Acceptance) of RPHS research within the public health policy field.

We can conclude that the LHMs helped the local officials to become more effective in achieving their objectives (formulating well-supported policy memoranda and activities) in the complexity of local decision-making with various policy actors. They needed the information to define health problems so that other policy actors could negotiate on them. The diversity of the information and solutions provided by policy actors was used to enrich the discussion, legitimizing the outcomes and ensuring future cooperation [38].

Following De Leeuw [20], three general ways of interaction can be appointed, the most important one, and present in all cases, being the "Alternative evidence" model.
Firstly, as the LHMs are closely connected to the national health report and the national health priorities, a strong incentive was present to refer to the LHMs in the local memoranda. Secondly, in the LHMs development process there was an emphasis on the participation of the local officials or at least on informing them in an early stage, an example of the "Blurring the boundaries" model. This model also suggests that the epidemiologists should be involved in the policy processes. In fact, this happened only in the cases of Oss and Boxtel where the epidemiologist had the opportunity to give a presentation on the LHMs.

The "conduit" model is recognizable in the case of Breda where the policy advisor was closely related to the development of the LHMs and the policy process, acting as link between research and policy.

Another important finding of this study was the lack of use of the LHMs by actors linked to related policy domains. Not all rejected the LHMs, but most merely ignored them because of the lack of fit between the research results presented and the actors' existing belief systems (Acceptance), tasks and responsibilities and institutional interests (Interpretation). Other studies such as Kouri [39] and Nutley & Webb [24] confirm this result. The value of epidemiological knowledge with a public health frame diminished when it became part of a different policy context where other frames on health emerged [15]. Moreover, during the development of the LHMs, none of the other policy actors were involved in the research process; there was no preliminary interaction so it was impossible to achieve a fit (Interaction). This missing link resulted in the lack of a sense of responsibility and problem ownership on the issue of local health policy. For the group of client representatives, and also for the members of the municipal council, it becomes clear from this study that they have the tendency to give more value to personal experience and stories than to the figures.

The interactive network approach of our study gave us more understanding of the mechanisms of epidemiological research use by different local policy actors. Several authors [40, 41] emphasize the importance of linkage and exchange at the beginning of the research process influencing the expectations of potential users. By describing and comparing the research use between the groups of policy actors and finding explanatory mechanisms, we can conclude that research use is mainly determined by their personal motives, perspectives, tasks

and responsibilities. Interaction will give researchers a clue to the perspectives and state of knowledge of the users so that they are able to take this into account when communicating the research results (Transfer), and deciding when to do so (Expectation). However, it has to be said that in the present study, as in an earlier study [42], we found that interaction is not always necessary when the potential user already has a frame of reference corresponding to the research results. As a consequence, it becomes important to obtain insight in and act upon different health frames of participating policy actors. This should be a start for researchers in order to select strategically promising ways of interaction to influence the policy process.

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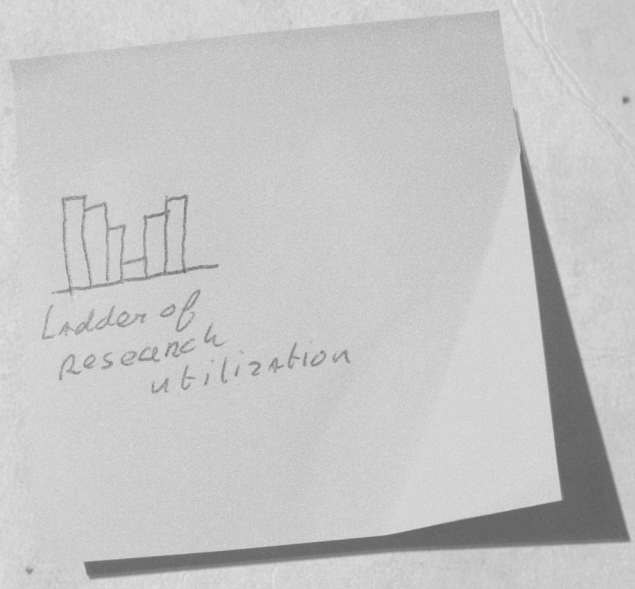
5. Public health knowledge utilization by policy actors:

An evaluation study in Midden-Holland, The Netherlands



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Abstract

A comprehensive report has been prepared on the state of Public Health and Health Care in the Midden-Holland region of the Netherlands. This study describes the development of the report and the mechanisms behind public health knowledge utilization by three groups of health policy actors: Local Authorities, public health professionals and regional care providers. The processes are studied in various qualitative ways. The mechanisms explaining the use of the report were found to be complex and different for each group of policy actors. Interaction between researchers and users is not the only factor that explains usage, but rather serves as an intermediate factor.

Introduction

In the Netherlands, the RIVM (the National Institute for Public Health and the Environment) has published a Public Health Status and Forecasts report (PHSF) every four years since 1993. The PHSF describes the present and future state of health in the Netherlands, including the causes of ill-health and their significance for prevention, care and policy [1]. Because this is a national report, it is mainly used by the Ministry of Health, Welfare and Sport (VWS) and national organizations to support the National Public Health and Prevention Policy.

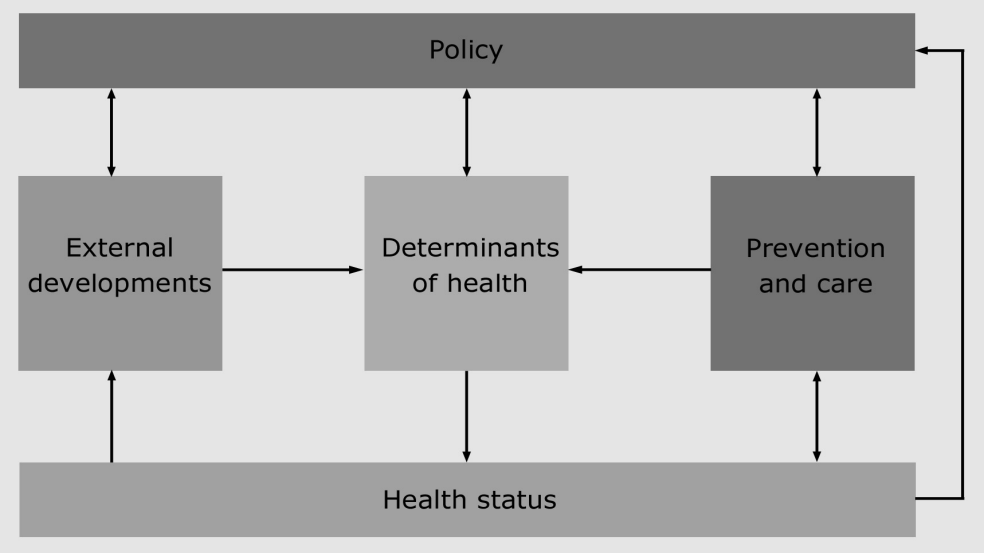
Under the Public Health Act (formerly the Act for Collective Prevention in the Public Health field - WCPV), Local Authorities are required to develop a local health policy document once every four years. This Act includes the requirement that the policy developed must be based on epidemiological analyzes. The Act also includes a directive that the local policy must be integrative, that is, it must be developed and implemented in consultation with those working in the field, such as professionals in care and/or welfare institutions, health insurers, and patients' interests organizations. The professional care and welfare institutions in particular are not organized locally, but provide their services at a regional level, that is, for several Local Authorities. Therefore, there is a need for reliable information and knowledge on public health and health care at both local and regional levels [2].

The Regional Public Health Services (RPHSs) in The Netherlands have the task of gathering this information and knowledge, and they too work at a regional level. At present there is a nationwide network of 29 RPHSs. In recent years, the RPHSs Hart voor Brabant, West Brabant, and Zeeland have been commissioned by the Local Authorities to develop regional variants of the National PHSF that meet local and regional needs [3-5].

The Midden-Holland region is an area in the mid-west of the Netherlands and has over 230,000 inhabitants. The RPHS provides its services to thirteen municipalities centred on the city of Gouda. A specific feature of this region is the traditionally close collaboration between care providers and the main health insurer, united in a regional network (Transmuraal Netwerk; TMN). In contrast to the three regions mentioned above, in the Midden-Holland region it was not the Local Authorities but the TMN which took the initiative to prepare a description of the (future) state of health for the region. This report, "Grow in Health: Health and Care in Midden-Holland, now and in the future" [6], following the PHSF model (figure 5.1), is based on an analysis and integration of existing data and information. The report provides an overview of several health topics at the local and regional level. These are: a description of the demographic situation; a description of health status (life expectancy, mortality, morbidity and self-reported physical and psychological health); information about the causes of ill health, mainly focusing on lifestyle determinants (smoking, alcohol and drugs, diet, physical activity and safe sex); an analysis of the use of the services of health care providers (such as GPs, hospitals and mental health

care); and finally, a calculation of the predicted future presence of chronic diseases based on demographic developments [6].

Figure 5.1. PHSF model: Conceptual model of the basic principles governing public health [25]



Source: de Hollander et al., 2007

In 2008, an evaluation was carried out to find out what regional health policy actors have done with the research results in this report. This evaluation project studied policy development in the field of public health within the Midden-Holland region, and examined all the organizations that provide care or are concerned with health, care and prevention, and the municipal resources in the thirteen Local Authorities in this region. This article describes how the report was developed and distributed, the intensity with which various health policy actors have used it for policy development, and how the more or less intensive use can be explained. Three groups of health policy actors are distinguished: Local Authorities, public health professionals and regional care providers. The results of this case study can contribute to improved knowledge utilization within public health policy development.

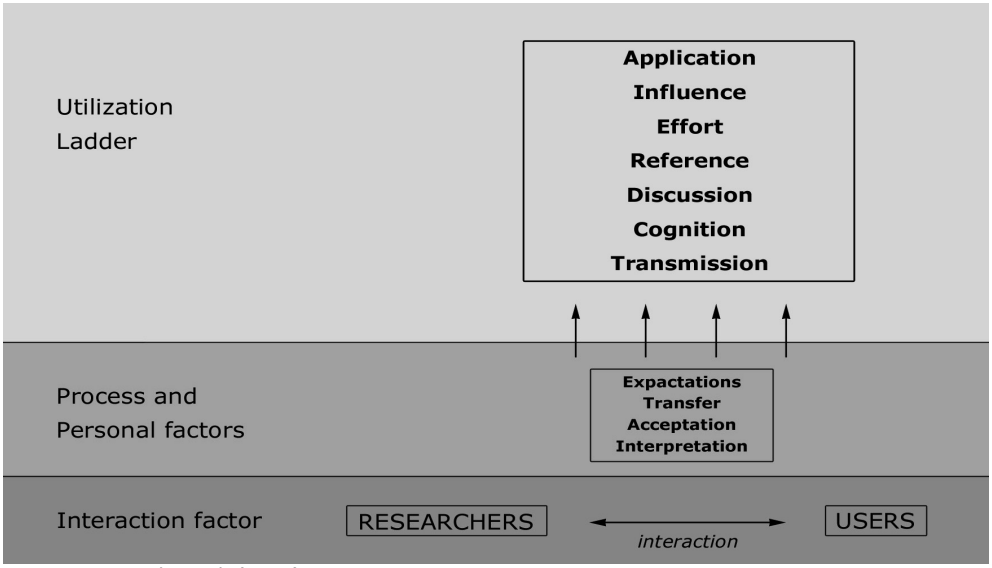
Conceptual Framework

The theoretical basis for this evaluation study was derived from research literature in the field of knowledge utilization; it is represented in the conceptual model shown in figure 5.2 [7]. The interaction between researcher and user is a key element in this conceptual model because the interaction process is seen as an essential precondition for knowledge utilization [8-10]. In this model, it is assumed that knowledge utilization will increase if, during the interaction

process, communication takes place on two process-related factors (Expectation and Transfer) [11, 12]. Two person-related factors (Acceptance and Interpretation) also play a role in the model; earlier research has shown that knowledge utilization increases if these two factors match the personal frame of reference of the user [12, 13].

This leads to the following factors that can explain the use made of the report:
1. Interaction between researchers and potential users;
2. Expectations: the degree to which the research results, within the context of an organization, are adapted to the expectations of the potential users;
3. Transfer: the degree to which the research results in terms of form and content are adapted to and distributed among the potential users;
4. Acceptance: the opinion of the user on the reliability and authority of the researchers and the research results;
5. Interpretation: the opinion of the user on the degree to which the research results match his/her views and knowledge and the views of the organization of which the user is part.

Figure 5.2. The process of knowledge utilization [7]



Source: De Goede et al. (2010)

The measurement of knowledge utilization in this conceptual model is based on Knott and Wildavsky's 'ladder of utilization', adapted to the Dutch situation [14]. This ladder describes the successive phases in the process of policy development (Transmission, Cognition, Reference, Effort, Influence, Adoption and Implementation). The Adoption and Implementation phases of the original ladder have been merged into the phase Application, and the phase Discussion has been added. This results in the following ladder (see figure 5.2):

1) the potential user has received the information (Transmission);
2) the user has read and understood the research results (Cognition);
3) the user has discussed the research results (Discussion);
4) the user has referred to the research results in documents (Reference);
5) the user has made an effort to convey the importance of the research results to third parties (Effort);
6) the research results have influenced policy development (Influence); and
7) according to the user, the research results have led to new policy developments (Application).

Methods

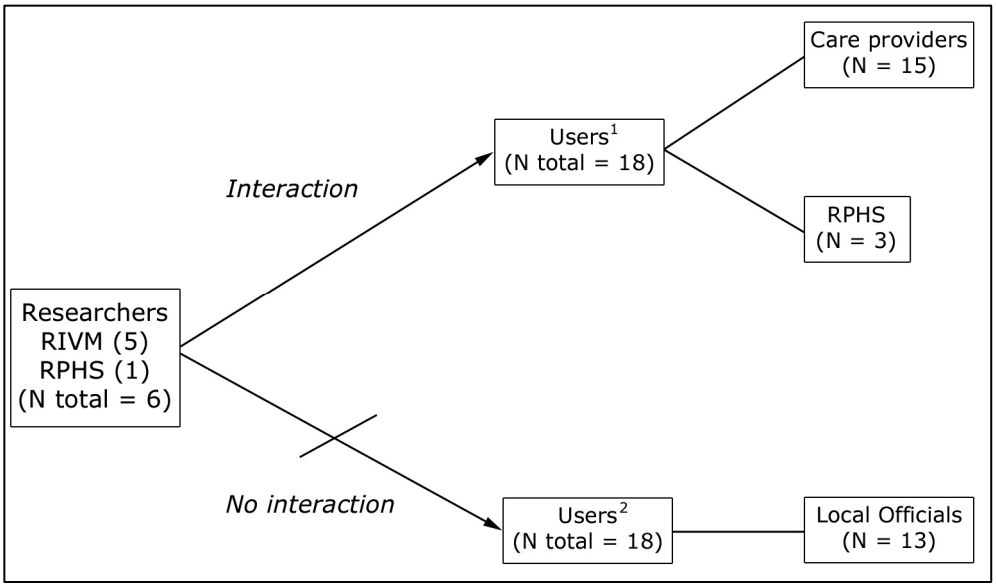
This evaluation uses a case study approach. Case studies are suitable for answering 'how' and 'why' research questions [15]. In this study, we focus on how the research of the Midden-Holland report was used by policy actors and explore the reasons behind it. The main researcher (BS) was appointed to carry out the evaluation and was not directly involved in the development of the report.

All data was collected between January and May 2008. In figure 5.3, all respondents to the evaluation study are presented (37 in total), representing all organizations which either participated in the development or implementation of the report and/or which received the report. These are the researchers and (potential) users of the report. The users can be divided into three groups: Local Authorities, public health professionals and regional care providers.

Respondents were selected based on their direct involvement in the development of the report. All care providers of Midden-Holland were represented, as well as the main Health Insurer and a regional welfare organization. They were approached by means of the TMN. Local officials from all 13 municipalities of the Midden-Holland region were selected based on their involvement with local health, care or welfare policy.

Based on the case study protocol, we conducted semi-structured interviews with all 37 respondents. All interviews were tape-recorded, written out and coded by hand. In order to measure interaction, items were developed that relate to four aspects of interaction: with whom, in what way, how often, and about what did contact take place. The response options varied between items, for example: *"What was the nature of the contacts with the care providers? (with multiple possible answers), with the answer categories: planned meetings for discussion of the research results, contact via e-mail or telephone, other, namely…".*

Figure 5.3. Overview of the respondents



[1] Users with Interaction: Care providers: Stichting Zorgpartners (services in the area of care, welfare, and living accommodation), Vierstroomzorgring (home care organization), Geestelijke GezondheidsZorg (Mental Health Care), Stichting Groene Hart Ziekenhuis (hospital), Vereniging Medische staf Groene Hart Ziekenhuis (hospital), Regionale Organisatie van Huisartsen (GPs), Kwadraad (services in the area of general social work), Gemiva-SVG Groep (care of the handicapped), Health insurer TRIAS, RPHS Hollands-Midden. There were multiple respondents of each care provider possible.

[2] Users with no Interaction: Officials from the Local Authorities Bergambacht, Bodegraven, Boskoop, Gouda, Moordrecht, Nederlek, Nieuwerkerk a/d IJssel, Ouderkerk, Reeuwijk, Schoonhoven, Vlist, Waddinxveen, Zevenhuizen-Moerkapelle.

On the basis of ideas gained from the literature [11-13], items were developed to reflect the factors Expectation, Transfer, Acceptance, and Interpretation (table 5.1). The answers were measured on a two-point scale: neutral to complete disagreement (0) and limited to complete agreement (1). A sample question is: *"Are the research results sufficiently regionally oriented?"*

On the basis of available knowledge and the ideas from the literature [11, 12], items were also developed that reflect the activities of the user in the various phases of the modified ladder of Knott and Wildavsky. We operationalized the ladder as follow:

1. I have received the research report (Transmission);
2. I have read and understood the research report (Cognition);
3. I have participated in discussion considering the results of the research report (Discussion);

4. I have referred to the research report in other (policy) documents and plans (Reference);
6. I have emphasized the importance of the research report (Effort);
7. The result of the research report have influenced decisions in my organization (Influence);
8. The result of the research report has directly led to new policy activities.

The ladder can be calculated and presented in two ways. Firstly we can calculate the general impact. Therefore we follow the method of Landry et al. [16]. The propositions were applied using a 5 point scale, in which 'no' scored 1 point, 'slight' 2 points, 'average' 3 points, 'much' 4 points and 'very much' 5 points. Subsequently every score was multiplied according to the phase in the ladder, because of the assumed importance of the phase. For example in the second phase (read and understood) the score was multiplied by two and in the last phase (led to new policy activities) by seven. In this way we could calculate a total impact score for each respondent, varying from 28 to 140 points.

Secondly the ladder can be presented in a more descriptive way. The use of the research results was summarized by the use of a two-point scale – no to slight (0) and average to very much (1). If the respondent's answer was average, much, or very much, then the corresponding phase within the ladder of policy development had been achieved. If the respondent's answer was no or slight, then the phase was not achieved. If a respondent indicated no knowledge of whether a certain phase had been passed through, this was also interpreted negatively.

Additionally a questionnaire was designed to quantify research utilization. The questionnaire was pretested by policy advisers and epidemiologists of various RPHSs, and subsequently, some amendments were made to the text. All 37 participants were asked to fill in the questionnaire; three questionnaires could not be included because they were not returned in time for analysis and three were not returned at all, so there were 31 responses. The questionnaires were analyzed using the statistical package SPSS 16.0.

Document analysis was used to obtain more insight into research development, distribution of the report, and policy of the health care providers. Documents were identified during the interviews and from searching websites. The documents were:

- Local health memoranda (if available);
- Regional health memoranda Midden-Holland 2007;
- Research and consultancy publications of the RPHS (if relevant);
- Local and national media publications 2007;
- Annual reports of health care providers 2007;
- Strategic and policy plans of health care providers;
- "Grow in Health: Health and Care in Midden-Holland, now and in the future".

Table 5.1. Overview of the personal and process factors that play a role in the interaction [26]

Factor	Aspects that have been taken into account
Expectation	The need for the research results
	Relevance of the research results
	Usefulness of the research results within policy development
	The research results are up-to-date
	Timing of the publication of the research results
	Credibility of the research results
	The degree to which the research results support policy standpoints
Transfer	The level of satisfaction with the layout
	The degree to which the research results are informative
	The degree to which the research results are understandable
	The degree to which the research results are applicable for policy making
	The degree to which the research results are seen as regional
	The degree to which the research results provide sufficient background information
	The degree to which the research results indicate priorities within policy development
	The extent to which the research results have been disseminated
Acceptance	The degree to which the individual considers the RPHS to be an authoritative and reliable source of research results
	The degree to which the individual considers the RIVM to be an authoritative and reliable source of research results
	The degree to which the results are substantiated and can therefore be considered reliable
Interpretation	The degree to which the research results fit with the views and knowledge of the individual
	The degree to which the research results lead to increased knowledge
	The degree to which the research results fit with the views of the organization

Results

Process of the development and distribution of the report 'Grow in Health'

The research report was begun in 2005 and published in 2006. The initiative for this specific research report came from the TMN, and the proactive attitude of the chairman played an especially important role. The RIVM was the most obvious research institute to carry out the assignment because of its expertise with the national health status and forecast reports. Besides three researchers from the RIVM, one epidemiologist from the RPHS was added to the research group because the RPHS is by law required to collect data on public health status and its determinants and this research information was considered a necessary input for the report.

A steering group of seven TMN members and three additional members (from the regional welfare organization, the main regional health insurer, and the RPHS) accompanied the development of the report. The steering group had five meetings. The local officials were not represented in this steering group because, as was apparent from the interviews, there was no strong network between the Local Authorities and the TMN at the time of the invitation to participate, and the Local Authorities did not recognize the value of the report beforehand. However, the RPHS informed local officials on the progress of the report during regular bilateral meetings.

Initially, the interaction process between researchers and steering group was characterized by low expectations in relation to the precise content of the report, since the steering group, which consisted largely of care providers, had limited or no knowledge of the PHSF concept. As a result, the PHSF concept was offered 'top-down' by the researchers; draft reports were prepared, with great care being taken with the details of structure, layout and research results, and were offered to the steering group. The researchers asked for feedback on the degree to which the report satisfied expectations, and whether its form and content were appropriate and matched the wishes and views of the steering group and the sectors that they represented. In this way, they received feedback on issues about the content of the report, timing and perceived relevance.

We quote two members of the steering group as an example of the low expectations they had:

"As steering group we had no expectations about the research report beforehand. You are a member of a club (TMN) and you participate. You behave in solidarity with the other members… Looking back now we could have done more to provide research data."

"Despite the open atmosphere and good contacts between the members of the steering group, I wondered: Will the report ever come to life? On the last meeting XX said that she had intended to do a lot with the research results.

However, YY took the opposite position because the report contained little relevant information for them. Later on, they will realize what opportunities they have missed and what topics they could have contributed. Then the question will be, is it still possible to add these topics?"

The steering group indicated that they had great confidence in the expertise of the researchers. They regarded the report as a PHSF geared towards their region, which met their expectations. The final report was presented during a regional care conference that was organized by the TMN. A great deal of attention was given to this by the media, including an item on the national television news. The report was also distributed to Care and Welfare aldermen and officials in the Local Authorities. After the distribution of the report, there was no further contact between the researchers and potential users.

Utilization of the results and the most important explanatory factors

After the distribution of the report, we determined which phases were accomplished by the receivers. First we determined the general impact scores of the three groups (figure 5.3). The group of RPHS professionals had the highest mean impact score of 108. The mean impact score of the healthcare providers was 97 and the local officials had a score of 82. In the following paragraphs, we will elaborate on the use and the underlying mechanisms for three different user groups. In figures 5.4 and 5.5, we show the different phases of use for all three groups.

Figure 5.4. The 'ladder of utilization' of the users (percentage of respondents (31) who carried out activities in the various phases) [26]

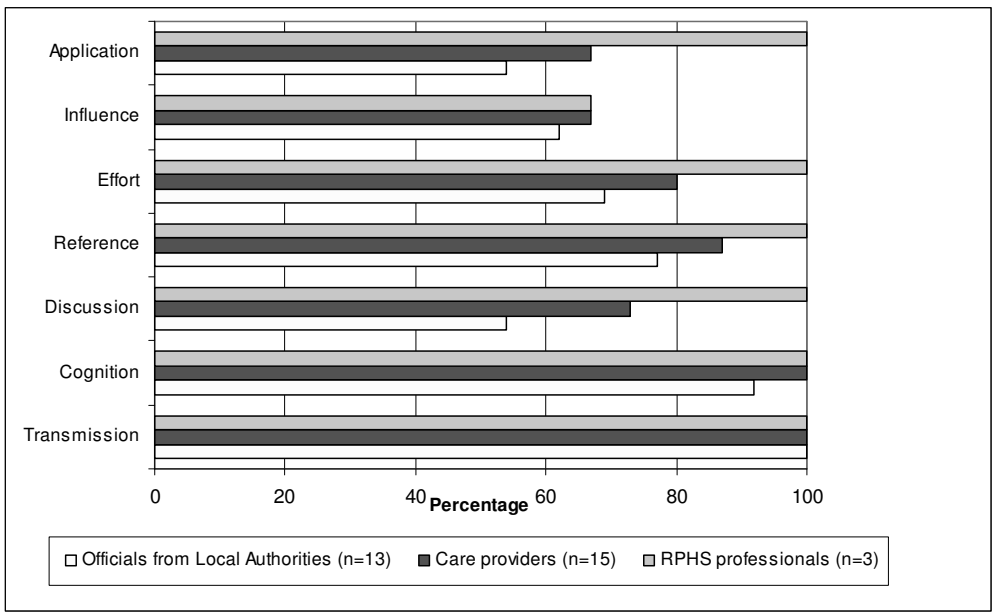
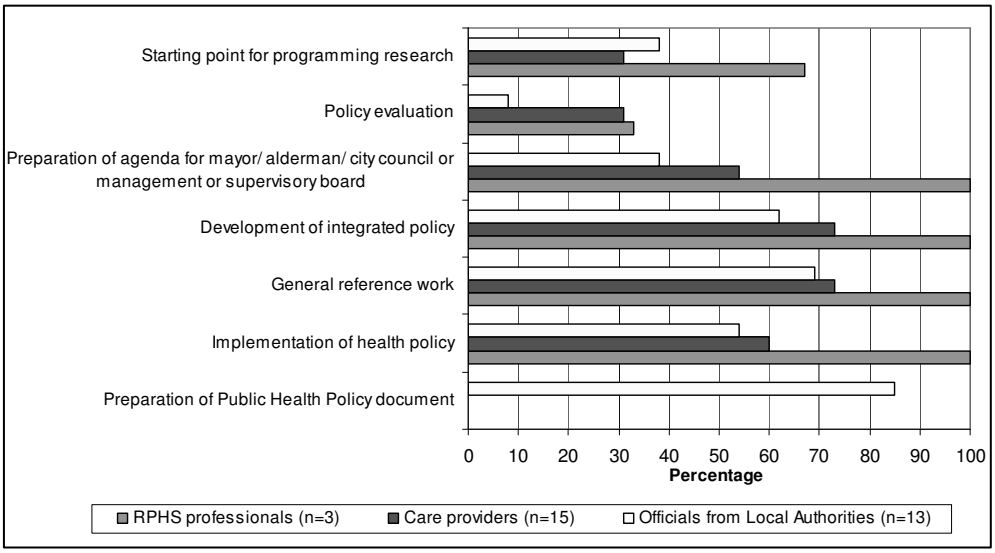


Figure 5.5. The way in which the research results were applied (percentage of respondents (31)) [26]



Use of report by the RPHS

As shown in figure 5.4, the RPHS professionals had almost achieved all six phases of the research utilization ladder. It appears that usage by the RPHS was twofold. First, the report enabled them to start discussions with care providers (including the health insurer) and Local Authorities on the consequences of the report in terms of changes in the demand for and provision of care. Second, they had discussions with the Local Authorities on the consequences of the regional demographic developments for related local policy domains like social support and the health of the young. In figure 5.5, we show concrete examples of applications, like the implementation of health policy, development of integrated policy and agenda preparation.

In table 5.2 we give an overview of the explanation of usage by the RPHS professionals. It shows that the research data fitted well with their personal views and knowledge of health policy, and with the views and interests of their organization (the Interpretation factor). The RPHS professionals were already aware of the demographic and epidemiological data and were not completely satisfied with the actuality of the results and the relevance for health policy development (the Expectation factor). This can be explained by their institutional commitment to municipalities (Interpretation factor), the vision of the RPHS on Public Health and the perceived authority of the RIVM (Acceptance factor). They found the research results to be written understandably and informatively, and they were satisfied with the background information that was given (the Transfer factor). This enabled them to place the information within the right context and to look for the best possible "fit" between the research data and the prevailing views and priorities of their potential clients. The report

Table 5.2. The most important factors that explain the level of use made of the research results [26]

User group	Factor	Explanation
RPHS	Interaction	Double role: As researchers: to enable RIVM researchers and the steering group to reach agreement. As member of the steering group / potential user: contact achieved with a new target group
	Acceptance	Implicit confidence in research results and research institute (RIVM)
	Transfer	Background information
		Understandable
		Informative
	Interpretation	Agreement with the views and knowledge of RPHS professionals and the views and objectives of the RPHS and those of other organizations
Care providers	Interaction	Consensus between researchers and steering group
	Expectation	Satisfied the need to obtain insight into the present and future demand for care
	Acceptance	The steering role of the researchers by means of the top-down approach inspired confidence in the results and the researchers (RIVM and RPHS)
	Transfer	Regional character
		Applicability within policy development
	Interpretation	As a result of interaction on the part of the health care providers, the report fitted the organizational interests
Officials	Acceptance	Implicit confidence in the results and the researchers because of the long-term relationship with the RPHS and the familiarity with interpreting RPHS and RIVM reports
	Transfer	Priority setting within policy

also encouraged this because it invited collaboration between care providers, the health insurer, Local Authorities and the RPHS in the area of care and prevention. This was due to the increase in the number of chronic diseases in Midden-Holland. Because of these research results, it was possible to create a larger consensus for developing chains of preventive activities. In the discussion between all these disciplines, the RPHS was able to profile itself as expert and adviser in these fields, as shown in the following quotation from an RPHS professional:

"The research results show that it is necessary to invest in preventive activities because of the growing care demand, which we cannot handle. The amount of chronic diseases is increasing. These research results have raised awareness with all other parties. Local administrators are addressed by hospital and home care administrators and GPs on this issue. More investment in preventive activities also suits the wishes of health insurers. Together they say that they have to make great achievements… The RPHS wants to advise the Local Authorities. Initiate and support collaboration between municipalities and health care organizations, that is the new role of the RPHS."

Use by the care providers

As shown in figure 5.4, we saw that not all individual care providers reached all stages of the ladder; this was true for the discussion, reference, effort, influence and application stages. Also we see fewer concrete applications in figure 5.5.

There is a dichotomy between the care providers. On the one hand, we saw a limited amount of discussion in Kwadraad (social work) and GGZ (mental health care) due to changes within these organizations, which meant that there was no urgency for policy change. These organizations scored less on the sequential phases of the ladder. For GPs, the report also added little, and resulted in lower impact, because they already obtained specific data for their sector from the Netherlands Institute for Health Services Research (NIVEL). Finally, for Gemiva-SVG (care for the handicapped), the report also did not have very much influence. This was because there was very little relevant data available on this topic.

"It (TMN) was a diverse group. The organization for the handicapped needs different research information from a home care organization. Additionally you have the problem of availability of data. For an example, for the handicapped there is not so much. Also you work in a tight time frame in which you don't have the time to elaborate on a specific topic".

This quote shows that in the first place, there were problems in the expectation domain, and with the relevance of the topics and the time to elaborate on them. Another barrier, for GPs especially, was the existence of other (competing) research. So despite their interaction efforts, the researchers were not able to meet the expectations of those care organizations and adjust to their specific context.

On the other hand, other care providers – Zorgpartners (services in the areas of care, welfare, and living accommodation), the Groene Hart Ziekenhuis (hospital), Vierstroomzorgkring (home care organization) – and the health insurer used the report intensively to underpin policy choices in the context of strategic and medical policy development, such as proposed annual growth (Groene Hart Ziekenhuis), the intended merger between Zorgpartners and the Groene Hart Ziekenhuis, the organization of care processes, the distribution of

resources, personnel planning and investment policy, and the formulation of associated projects.

"We are very pleased with the research results. The forecasts tell us to expect an increase in delivery of home care and nursery. Due to the results we have more focused insight into what will happen with the chains of care for dementia, diabetes and cardiovascular diseases. The results confirm the progress we will make or have already made in our organization."

The requirements and expectations of the care providers (including the health insurer) were satisfied (Expectation factor). They wanted to gain insight into the present and future demand for care in Midden-Holland to enable them to respond to changes in the market. Their policies on strategy and medical care used to be based on developments in the past and on intuition. By making the development of the demand for care in Midden-Holland visible, it became possible to develop policy plans for the future that were based on valid research results, and to emphasize the importance of the regional character and the applicability of the research results for policy development (the Transfer factor). It thus became clear what interventions were needed in the care structure, where it was necessary to make cutbacks or investments, and with which partners it was possible to enter into collaborations. The interaction in the steering group made it possible to fulfil the expectations of some of the care providers and adapt the report to fit with their organizational interests (Interpretation factor). The way researchers interacted with the care providers also enhanced the authority of the RIVM and RPHS (Acceptance factor).

Use by Local Authority officials

As figure 5.4 also shows, the Local Authority officials scored less in comparison with the other user groups, especially in the first five phases of the ladder. Figure 5.5 shows that the report was mainly used for preparation of public health memoranda. One of the officials put it as follows:

"The research results are interesting from a political point of view. It is a regional report where health priorities are given. With this we can put health problems on the political agenda. The comparison with other municipalities provides a stimulus to push the problems even higher on the policy agenda. Municipalities want to be the best. Priorities mentioned in the research report supported the development of the local public health and welfare memoranda."

The quote shows that many officials considered the research results as setting a benchmark. During the preparation of the local Public Health policy documents in the framework of the WCPV and the WMO policy documents, there were discussions on priority setting of health problems (figure 5.5). The report underpinned the local importance of previously established national health priorities set in the memoranda "Choose for Healthy Living, National Memorandum for prevention" by the Dutch Ministry for Public Health, Welfare and Sports. Subsequently, excessive consumption of alcohol among youth,

obesity, and psycho-social problems among the elderly and young people were chosen as policy subjects.

The report also contributed to policy discussions in the areas of accessibility of care, the guaranteeing of first-line care, and projects that respond to developments in the areas of living accommodation and welfare (integrated health policy).

Although there was no interaction between the researchers and the local officials, the research report was considered quite useful. For the local officials, prioritizing health problems for the purposes of policy development (the Transfer factor) was relevant in the development of a local Public Health policy document. After all, the research results contain information on the most important health problems, and key messages for policy, with associated consequences for the distribution of Local Authority financing over different policy fields (for example youth health care and social work). Another aspect which could explain the use was the longstanding institutional relationship between the RPHS and the municipalities. Local officials traditionally receive epidemiological health information from the RPHS and have regular contact with RPHS professionals. This could result in equivalent frames of reference (Acceptance and Interpretation factor) and improved the impact. The media attention led to raised awareness in the local health officials and they used it to increase the sense of urgency in local politicians and administrators.

Conclusion and Discussion

This evaluation study investigated the course of the process of development, distribution, and use of the research results contained in the report "Grow in Health", and how their application within policy development by care providers, RPHSs and Local Authorities can be explained.

The development of the report 'Grow in health' is not representative of the way in which regional health reports in the Netherlands are prepared. We chose to evaluate this report because of the strong involvement of care providers, which gave us the chance to study their attribution and use of the report.

If we look at the general impact scores of the report in Midden-Holland with the three user groups, this proposition seems right. The RPHS professionals had the greatest involvement on each of the phases of the ladder, followed by the care providers, and then the officials. The research results were used in different ways within the organizations of care providers, within the RPHS, and in Local Authority consultative bodies (figures 5.4 and 5.5). The RPHS professionals and the care providers who had interacted with the researchers, made more frequent use of the research results than the officials (figure 5.3). This is in line with various utilization studies [8-10].

The factor Acceptance played a role with all user groups, but differences were found in the other factors that could explain the variations in use (Table 5.2). Research results will be regarded as more useful if the potential user perceives the source of the research and the research outcomes as being reliable, authoritative and of high quality [9, 11, 12, 17-22]. The participation from researchers of the RIVM contributed to these factors.

However, if we look more deeply, there are more complicated mechanisms at work. Interaction is not the only factor that explains the high level of usage of the research results, but rather serves as an intermediate factor. From the questionnaires and interviews it became apparent that influences the other four factors and that they in turn are related to usage of the report.

First of all we note the diversity of use within the group of health care providers. Although all of them participated in the steering group, only some of them used the research for their policy development. Despite the interaction, the content of the research report did not fit the personal and organizational interests of all health care providers. The reasons were, for example, the lack of appropriate data or the availability of "competing" research from another research institute. It appears from this study that the right frame of reference is a prerequisite for research use. If the frames of reference are absent, as in the case of the care providers in this study, interaction between the researchers and potential users is essential. With interaction, the development of research results becomes a joint process in which questions, problem definitions and ideas for solutions become clear (the Expectation factor). This raises the confidence of the potential users (the Acceptance factor), and there can then be discussion on the precise use of the research results (the Transfer factor). Initially, these results must match the frame of reference of the potential user, so that this user can then determine whether they satisfy the views and objectives of the organization (the Interpretation factor). If so, potential users are able to interpret the research as consistent with their personal vision, interests and knowledge and those of their organization, and their use will be higher [13, 20, 22].

In this study, the absence of frames of reference among the care providers led to a strong role for the researchers. In such situations, researchers must be conscious of the fact that they are responsible for drawing attention to the factors in the model during the interaction, and that the cultivation of frames of reference requires an appropriate time investment.

Secondly although the local health officials had a lower impact score, the report seems to have been useful in the policy process for the local health memoranda. The explanation for this usage lies in the long-term collaboration between the Local Authorities and the RPHS; they were accustomed to RPHS reports, and prepared to accept the contents and to use the report for the development of local health policy. This is in line with the recent debate begun by Kouri, in which she emphasizes the "pre-existing frames of reference or understanding of the

issue, their predisposing attitudes and their pre-existing knowledge which matter a great deal" [23].

The main explanation for the high level of use is the report's timing and breadth of content. The report made it possible for local officials to enhance policy discussions during the local policy process. The report underpinned the local importance of earlier established national health priorities and therefore it did partly set the local policy agenda. The media attention during the launch of the report also influenced the level of use. The openness and visibility of information reinforced the political discussion of facts that had suddenly arisen, and speeded up the decision process in several Local Authorities.

Thirdly, the mechanism of interaction underlying the use of the report by the RPHS is complex, because staff of that organization were both researchers and users. RPHS professionals provided data and the report was in line with their personal and organizational visions of and interests in public health. During the interaction process, the RPHS professionals seem to have come to realize that, with the aid of their own expertise, they were well able to apply this new knowledge to policy at a local level, and to act in an intermediary role between parties. Ultimately, this contributed to the profiling of the RPHS as a centre of knowledge for various groups in the field of prevention and health.

Study limitations

For this evaluation, we used a case study approach. Therefore it is important to mention some limitations and the way we tried to handle them.

This research was conducted by one main researcher. Inter-observer reliability was covered because the results of the study were critically considered by four study participants (2 researchers, 1 care provider and 1 local official). When disagreement occurred, a discussion took place with a final outcome based on consensus.

Considering the face validity of the study, use was made of various data sources such as policy documents, interviews, group discussions and questionnaires. Data triangulation has contributed to shedding light, from various perspectives, on the development process of the report and the policy processes. We used an adapted version of the ladder of research utilization as a measure for the subject under study. Several international publications have shown [11, 12, 16, 24] that the ladder is an instrument which produces a valuable insight into the impact of a research report. But because of the adaption to the Dutch health policy context and the study design, it is hard to make a comparison with these international studies.

Unfortunately, there was another potential bias of the utilization ladder in this case. It is not clear whether the respondents, in answering the questions in each phase, had the same subject in mind, because the questions were about the use

of the report in general, whereas there were a large number of subject elements in the report.

We used our conceptual framework as the starting point for a study protocol. To handle the *internal validity* of this study, we developed semi-structured interviews and questionnaires based on this protocol and collected the data. Furthermore, we ensured that the respondents in this study represented all participants in the development and use of the report.

The findings in this study focus on explaining factors and the mechanism of research utilization. This knowledge provides information towards general theories of research utilization beyond this specific case; it facilitates analytical generalization and supports the *external* validity of the study.

Future research

We acknowledge that in this study we have not been able to assess the relative importance of each factor within the model because there were large differences between the user groups in terms of knowledge and experience of developing and interpreting research results, and large differences between the objectives of the organizations. However, an investigation focused on individual organizations within a single user group might enable a clear statement to be made on what is possible.

In future evaluation studies of this type of report, questions focused on specific subject elements could provide more insight into the way in which information is used and what specific information is important for a specific target group. Moreover it would be interesting to record and analyze the quantitative relationship between interaction, personal factors and process factors, and the use of research.

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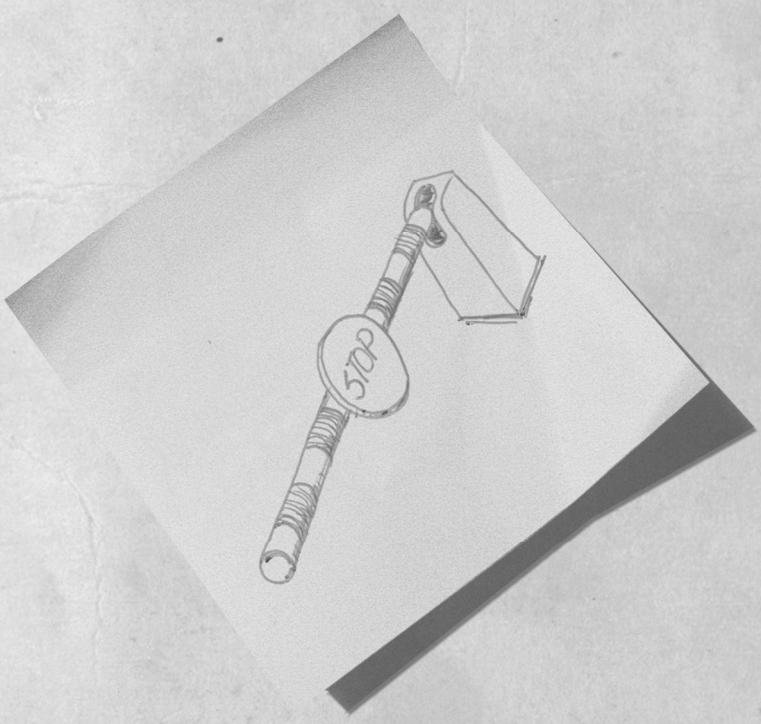
6. Quantitative measurement of the utilization of research by Dutch local health officials



In review

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M.J.H. van Bon-Martens
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K. Putters
J.A.M. van Oers

Abstract

Background

In the Netherlands, local authorities are required by law to develop local health memoranda, based on epidemiological analyzes. The purpose of this study was to assess the actual use of these epidemiological reports by municipal health officials and associated factors that affect this use.

Method

Based on a conceptual framework, we designed a questionnaire in which we operationalized instrumental, conceptual, and symbolic use, the interaction between researchers and local health officials, and four clusters of barriers in this interaction process. We conducted an internet survey among 155 Dutch local health officials representing 35% of all Dutch municipalities. By means of multiple regression analyzes, we gained insight into the related factors for each of the three types of research utilization.

Results

The results show that local health officials use epidemiological research more often in a conceptual than an instrumental or symbolic way. This can be explained by the complexity of the local policy process which is often linked to policies in other areas, and the various policy actors involved. Conceptual use was statistically associated with a presentation given by the epidemiologist during the policy process, the presence of obstructions regarding the report's accessibility, and the local official's personal belief systems and interests originating from different professional values and responsibilities. Instrumental and symbolic use increased with the involvement of local officials in the research process.

Conclusions

The results of this study provide a partial solution to understanding and influencing research utilization. The quantitative approach underpins earlier qualitative findings on this topic. The outcomes suggest that RPHS epidemiologists can use different strategies to improve research utilization. 'Blurring the boundaries', and the enhancement of interfaces between epidemiologists and local health officials, like direct interactions into each other's work processes, will create better possibilities for optimizing research use.

Background

In recent years, research utilization has been a growing scientific field. As Nutley et al. (2007) stated: "Research use is a complex and multifaceted process, and the use of research often means different things for different people" [1]. In public health discourse, "use" is mainly acknowledged if research causes a change of policy. Research use in the sense of increasing the general body of knowledge is not taken into account, and research use as ammunition during policy discussions, is often regarded as 'mis'use [2]. Many health professionals perceive research utilization as important for improving health at population level, related to the increasing importance of the concept of 'evidence based policy' (EBP). Thereby it is assumed that EBP will offer the best possibilities for improving population health. EBP means the conscious, explicit, and judicious use of the best available evidence [3] during the policy process. The term 'evidence-informed' can also be used, to stress the role of evidence and the ambition to improve the extent to which research evidence leads to informed decisions [4].

In the Netherlands, the Dutch Public Health Act builds on the concept of EBP, stating that local authorities are required to establish a local public health memorandum every four years on the basis of (local) epidemiological research. The regional or local epidemiological reports that are produced for this purpose are mainly based on health surveys, and have a descriptive nature. For example, the reports describe the frequency of different health measurements such as the occurrence of diseases or quality of life. They also describe the occurrences of determinants of health such as lifestyle and social and environmental factors. The epidemiological research data is provided by 28 Regional Public Health Services (RPHS) serving all 430 Dutch municipalities. However, it is yet not known whether and how the epidemiological reports are used by the local health officials who receive them.

The aim of this paper is to determine how and to what extent the RPHS epidemiological research is used by local health officials, and to identify the factors that influence this use. Qualitative studies are valuable for identifying the mechanisms of research use, but to gain insight into the nature of utilization and finding influencing factors, a quantitative approach is more suitable. Earlier municipal case studies [5] have shown that the local health officials fulfill a key role in the distribution of epidemiological information and knowledge during the local health policy development process, so a survey was carried out among these local health officials. These local health officials are professional practitioners and work under the supervision of elected administrators. They are responsible for the development of the local health policy memoranda and in many cases also for implementing the policy.

In this article we start with the explanation of a conceptual framework as a base for this study. In the methodological section we describe how this framework is operationalized into survey questions. In the following result section we will

present the descriptive statistics and the linear regression models. We close the article with an extensive discussion concerning the results, methods and the conceptual framework and end with final conclusions.

Development of a conceptual framework

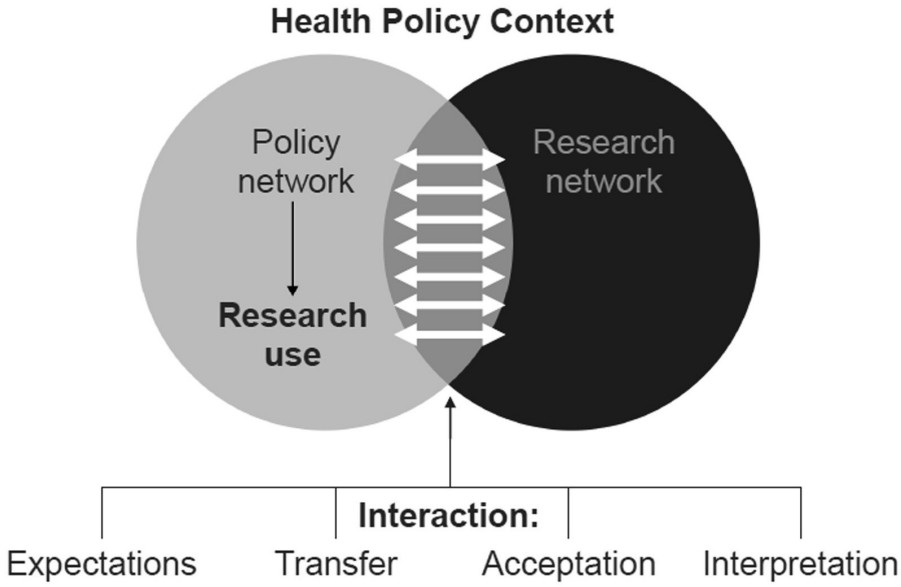
There is an extensive body of international literature on research utilization which is still growing. In an earlier review published in this journal, we developed a conceptual framework on research utilization in this specific Dutch context [6]. This framework is shown in Figure 6.1. First, we state that an epidemiological research report is produced in a network of researchers. Second, the report is received by several policymakers who all are related to one another in a policy network. In the theoretical literature on research utilization, interaction is seen as an important precondition for translating research findings into policy [7-14]. Interaction can be defined as the reciprocal actions of two or more people who work together, negotiate on opinions, values and norms and find consensus. In practice this means either that policymakers are directly or indirectly involved in the research process or that researchers are involved in the policy process. In our conceptual framework, this interaction, and consequently research use, can be obstructed by several barriers, which we have divided into four domains. The Expectation domain addresses the issue of awareness among researchers and policymakers of each other's 'niches' [15], containing barriers that can be acted upon during the preparation phase of research. The Transfer domain refers to the publication phase of the research cycle, addressing research communication. In another case study conducted in the Netherlands [16], it became clear that media attention can be very influential. Therefore we added this item to the conceptual framework in the transfer domain. Two other domains, Acceptance and Interpretation, both contain barriers relating to the individual attributes of the officials. Acceptance barriers refer to the personal perception of the validity of the research outcome, (not to be confused with scientific validity). Interpretation barriers refer to the meaning each person gives to research outcomes. In the conceptual framework all associated factors are described separately however in practice it will be possible that these factors themselves are interrelated [6].

There are various quantitative measurements for research utilization. Many quantitative studies have used the ladder of research utilization of Knott and Wildavsky, a measure of main outcome [8, 17-20]. However, as a result of our municipal case studies [5], we became more interested in the different ways of usage because we noted that the same research can be applied in several ways. Therefore we followed Amara et al., and distinguished three types of use for individual policymakers: instrumental, conceptual, and symbolic [19]. Instrumental use means that the research is acted upon in specific and direct ways, for example to solve a problem at hand. Conceptual use means that the research improves the understanding of the subject matter and related problems, and refers to a more general and indirect form of enlightenment. Symbolic use means that, 1) research is used to justify a position or course of

action for other reasons such as someone's own interests that have nothing to do with the research findings (political use), or 2) the fact that research is being done is exploited to justify inaction on other fronts (tactical use).

In earlier municipal case studies [5] it was shown that epidemiological research utilization of the local health officials also depended on the characteristics of the policy memoranda and how the policy process was organized. We believe these associated factors belong to the setting of the policy network in our conceptual framework, and it is therefore important that they are taken into account in the current study.

Figure 6.1. Analytical framework for analyzing use of epidemiological research for local health policy development



Method

Data collection

In the absence of a national list of Dutch local health officials, we approached all 28 Dutch RPHSs, asking them to cooperate with our study by providing us with the names and phone numbers of the municipal public health officials in their working area. 20 RPHSs cooperated, covering 339 municipalities. Reasons for the RPHSs not to cooperate were lack of time, other priorities, different timing of the development of the local health memoranda, and participation in other research projects regarding public health policy. Four research assistants approached the 339 local health officials by phone between November 2008 and April 2009, and asked them to participate. Those participating were asked to provide some background information such as the number of years working on

this policy issue in this municipality, what other policy issues they have in their portfolio (e.g. social welfare, youth, or the elderly), and their education and research experience. Subsequently we asked for their email addresses, and sent them a protected link to an internet questionnaire. In December 2008, all approached officials received a reminder in the form of a digital Christmas card, and in February 2009 the respondents who had not yet filled in the questionnaire received again a reminder by email.

Measurement of epidemiological research use

In an earlier study Amara et al. only used one question for each of the concepts of instrumental, conceptual and symbolic use. Given the specific Dutch context we designed multiple questions for each concept, since the concepts can have several meanings [5]. This was also suggested by Ouimet et al. [16], who pointed out that, in order to obtain more understanding of research utilization, more precise questions are needed. The questions we developed initially were pre-tested by, and discussed with, ten practitioners in the public health field (three RPHS epidemiologists, four RPHS local health policy advisors, and three local health officials).

The concept of instrumental use, referring to direct and concrete action due to the specific research results, was measured using two questions that asked whether research results had led to (1) new direct policy actions; and (2) the termination of one or more existing policy activities. Conceptual use was measured using three questions that asked whether the research results had led to (1) a better understanding of the occurrence and causes of health problems within the RPHS region; (2) a better understanding of the causes and occurrence of health problems within the municipality; and (3) new long-term ideas for projects or policies within the municipality or RPHS region. Finally, symbolic use was measured using two questions that asked if, due to the research, the officials were able to (1) question existing policies and decisions; and (2) put personal ideas on the policy agenda. All questions had a 5-point Likert-type response scale ranging from (1) not applicable in my situation; (2) minimally applicable in my situation; (3) moderately applicable in my situation; (4) applicable in my situation; (5) strongly applicable in my situation.

Measurement of the associated factors

All independent variables are shown in Tables 6.1a to 6.1d.

For the policy context (as part of the policy network in the conceptual framework), we first defined six categories of background variables: the size of the municipality, the urban nature of the municipality, the number of years worked as a local health official in this municipality, whether the local health official had to consider other policy issues in his daily job besides public health (dichotomous), the educational level of the official, and his experience in

conducting research. Secondly, we defined two categories of variables relating to the public health memorandum: the composition of the memorandum (memoranda solely for their own municipality or written together with other municipalities), and the type of the memorandum (memorandum solely about public health or combined with other policy domains). Thirdly, we defined six questions concerning the decision-making process: (1) Who took the initiative to start the memorandum (categorical)?; (2) Did they receive support in the decision making process from the municipal Registry office (dichotomous)?; (3-6) four questions asking who took part in the policy preparations (city council members, local health care providers, local client representatives, colleague officials from related policy domains such as welfare or youth - all dichotomous). For the content of the epidemiological research information, we asked which geographical area was covered, and, from a list of 22 topics, which public health topics were described, (for example, death rates, indicators for quality of life, presence of chronic diseases, lifestyle-related risk factors, social risk factors). The frequencies of all these associated factors are shown in Table 6.1a.

For the measurement of the actual interaction between the RPHS epidemiologists and the local health officials, we used three questions based on the 'blurring the boundaries' model of de Leeuw et al. [13]. In this model, interaction is defined as actions undertaken by policy makers during the research process, and conversely by researchers during the policy process, in order to influence these processes. Therefore, we asked whether (1) the local officials were involved in the research process at any given moment (dichotomous); and (2) whether RPHS officials were involved in the policy process. Three answers were possible for this question: epidemiologists (with or without other RPHS professionals), only other RPHS professionals, or the RPHS professionals were not involved at all. Additionally we asked if an oral presentation about the epidemiological research had been given by the RPHS during policy preparation (Table 6.1b).

Table 6.1a. Associated factors of research utilization for policy and epidemiological reports

variables	response categories	%
Policy memorandum		
Composition of the memorandum	Memorandum specific for my own municipality	61,3
	Memorandum composed with other municipalities with a local section	38,7
Type of memorandum	Memorandum solely about public health	78,7
	Memorandum combines public health issues with other policy issues such as welfare	21,3
Policy process		
The initiative to start the memorandum	Local administrators	49,7
	City council	10,3
	Local official	24,5
	RPHS	10,3
Receive support on the decision making process from the Registry office	Yes	14,8
	No	85,2
Council members are involved during policy preparation before they had to make a decision	Yes	31,6
	No	68,4
One or more welfare and health care organizations are involved during policy preparation	Yes	81,3
	No	18,7
One or more organizations of client representatives are involved during policy preparation	Yes	82,6
	No	17,4
One or more local officials working on other policy issues are involved during policy preparation	Yes	95,5
	No	4,5
Epidemiological report		
Geographical area of the epidemiological research	Local level only	12,9
	Regional level only	10,3
	Local as well regional level	71,6
Number of public health topics that can be mentioned in the epidemiological reports		median: 18

Table 6.1b. Associated Factors of research utilization for interaction (n=155)

variables	response categories	%
Interaction		
Involved in the research process at any given moment	Yes	38,1
	No	61,9
Involvement in policy process by RPHS	RPHS professionals including epidemiologists	52,3
	RPHS professionals excluding epidemiologists	40,0
	No RPHS professionals involved	7,7
Epidemiological health reports presented during policy development	Yes	44,5
	No	55,5

For the measurement of possible barriers to research utilization within the interaction, we operationalized the barriers (in each case, noting which of the four domains is applicable) (table 6.1c). Questions for measuring barriers in the expectation domain asked whether the epidemiological research was (1) considered relevant for local health policy; (2) sufficiently related to other policy domains; (3) current; and (4) on time. Questions for measuring barriers in the transfer domain asked whether (1) the respondent was satisfied with the structure of the report; (2) the respondent was satisfied with the accessibility of the report regarding intelligibility; (3) the respondent thought the report contained enough regional information; (4) the respondent thought the report contained enough local information; (5) there had been media attention due to the epidemiological report (Table 6.1d); and (6) the respondent had additional research information from other sources(Table 6.1d). Questions for measuring barriers in the acceptance domain asked whether (1) the respondent trusted the RPHS as a credible source for epidemiological research; (2) the RPHS made clear what the epidemiological research was based on; and (3) the epidemiological report suited the respondent's personal belief system regarding local health policy. Finally, questions for measuring the barriers in the interpretation domain asked whether the content of the epidemiological report was in line with the current political vision on public health within the municipality.
All barrier questions, except for media and the use of other research sources, had the following 5-point Likert-type response scale: totally agree, agree, neither agree nor disagree, disagree, totally disagree.

Table 6.1c. Associated factors of research utilization for barriers (n=155)

%	Totally agree	Agree	Neither agree nor disagree	Disagree	Totally disagree
Relevant for local health policy (expectations)	5,2	47,1	41,3	5,2	1,3
Sufficiently related to other policy domains (expectations)	17,4	28,4	33,5	15,5	5,2
Content is sufficiently current (expectations)	2,6	34,8	41,9	17,4	3,2
Report is presented to me on time (expectations)	5,2	37,4	50,3	5,8	1,3
Satisfied with the structure of the report (transfer)	32,3	38,1	22,6	5,2	1,9
Report was easy to understand (transfer)	46,5	34,2	14,8	3,9	0,6
Sufficient regional information (transfer)	27,1	32,9	14,2	18,7	7,1
Sufficient local information (transfer)	43,2	39,4	15,5	1,3	0,6
RPHS is perceived as a credible source (acceptance)	51,6	32,9	11,6	1,3	2,6
RPHS made the basis of the epidemiological finding clear (acceptance)	40,6	38,1	16,8	1,9	2,6
Suited/Fitted well with personal belief system regarding local health policy (acceptance)	25,2	34,2	32,9	6,5	1,3
Suited the contemporary political vision on public health within the municipality (interpretation)	22,6	30,3	37,4	7,1	2,6

Table 6.1d. Additional associated factor of research utilization for media n=155)

variables	response categories	%
Media attention (transfer)	Mainly positive publications	16,1
	Mainly negative publications	1,3
	Mainly neutral publications	16,8
	Variable publications	8,4
	No publications	9,0
	Not familiar with any publications	48,4
Additional research information from other sources	Yes	67,1
	No	32,9

Statistical analysis

We used linear multiple regression analyzes to determine which independent variables were associated with each type of use of epidemiological research (instrumental, conceptual, symbolic), in order to take advantage of the continuous response scales. For each linear regression model, we first constructed a scale for research use if appropriate, based on all the responses to the questions involved. Secondly, we made a selection of independent variables to be included in the model, based on their univariate associations with research use and their mutual associations. All analyzes were carried out with SPSS Statistics 17.0.

Construction of scales for research use

For each type of research use, the internal reliability coefficient of the corresponding questions was calculated, using Cronbach's Alpha [21]. When the value of Cronbach's alpha exceeded a score of 0.60, we concluded that the internal consistency of the questions was reliable, and combined the responses of the questions into one sum score [22]. If Cronbach's alpha was 0.60 or lower, we chose the one question that, in our opinion, best covered the concept for the Dutch situation.

Selection of associated variables

Since the research population is rather small, only a limited number of independent variables can be included in the regression models [19]. For each regression model, the unconditional relations of the independent variables with research use were tested using one-way Anova. The independent variables with a significant test result ($p<0.05$) were further tested for their mutual correlations in order to avoid multicollinearity. Depending on the nature of the variables (categorical or continuous) we used a Chi-square test, a one-way Anova, or a Pearson correlations coefficient. Correlated variables (based on $p<0.05$) were then combined into one interactive variable. If this was necessary we describe the development of the new combined variable in the result section. No correlations between continuous and categorical variables occurred. Additionally, dummy coding was used to convert the categorical variables into dichotomous dummy variables.

Results

Response

In total, 284 of the 339 eligible local health officials consented to collaborate in the study. Officials who did not want to participate, were either not interested, had no time, or sometimes indicated a poor relationship with their RPHS. After the follow-up email invitation, 224 local health officials started the internet questionnaire, eventually leading to 173 completed questionnaires. This a response of 51% and covers 39% of all Dutch municipalities.

We then excluded 18 respondents who acknowledged that, although they were involved in the policy process and could reproduce information on this, they did not know the epidemiological reports, and therefore were not able to give their opinions on interaction and barriers to research use. Mostly, these officials had been working in their present function for less than three months. As a result of their exclusion, 155 questionnaires were included in our analysis, covering 35% of all Dutch municipalities.

Population size is a factor that influences the development of local health policy, and is related to the capacity of civil servants assigned [23]. If we compare the distribution of population size of the municipalities in the study with all Dutch municipalities we see that there were only minor differences in the distribution of population size. Municipalities in our study were slightly more often medium sized, and less often small.

Descriptive statistics of the associated factors

Tables 1a to 1d show the descriptive results of the all associated variables. The municipalities in which the 155 respondents worked varied in population size and urban nature. The experience of the respondents in their current position was diverse. Most of them (34 %) had had five to ten years of experience. Almost all respondents had served in a variety of policy areas besides public health. Social services, youth, and the elderly were mentioned most frequently. Most of the respondents held a Bachelors degree (41%) or a Masters degree (47%). Furthermore, approximately one third of the respondents had no personal experience with research. The others had experience of qualitative research, quantitative research, or both.

The use of epidemiological research in local health policy development

Table 6.2 shows that conceptual use was the most common type of research use in the development of local health policy. The questions for conceptual use had the highest mean scores (2.80, 2.77, and 2.77). Instrumental use was the least common type of research use.

Table 6.2. Frequency distribution of instrumental, conceptual, and symbolic use by Dutch public health officials

		not applicable in my situation	minimal application in my situation	mode-rately applicable in my situation	applicable in my situation	strongly applicable in my situation	Total	Mean	SD
Instrumental use	I have recently started new concrete policy activities within my municipality	43%	19%	21%	11%	6%	100%	2,17	1,25
	I have stopped certain policy activities within my municipality	91%	3%	8%	X	X	100%	1,15	0,49
Conceptual use	I have a better understanding of the health problems and their causes within the RPHS region	24%	16%	22%	31%	7%	100%	2,8	1,3
	I have a better understanding of the health problems and their causes within my municipality	22%	18%	28%	26%	6%	100%	2,77	1,23
	I have developed new ideas for the long term for projects or policies within my municipality or in collaboration with other organizations	22%	17%	28%	26%	6%	100%	2,77	1,24
	Sum score for conceptual use							9.0	2.99
Symbolic use	I have been able to discuss existing policies and activities within my municipality	46%	18%	22%	10%	5%	100%	2,1	1,22
	I have been able to place my personal ideas and preferences on the policy agenda	38%	19%	21%	17%	6%	100%	2,34	1,29
	Sum score for symbolic use							4.7	2.17

X: this response category was not mentioned

For instrumental use, Cronbach's alpha for the two sub questions was too low (α = 0.230) to combine them into one variable. For further regression analysis, we therefore decided to use the first question ("I have recently started new concrete policy activities within my municipality") as dependent variable, because, in our opinion, it covered the concept of instrumental usesufficiently well, and had enough respondents in each category.

The internal reliability of the three sub-questions for conceptual use was high enough (Cronbach's α=0.841) to sum their scores into one score. The mean sum score for conceptual use was 9.0 (SD=2.99).

Regarding symbolic use, the value of the internal reliability was also sufficient to combine the two sub-questions (Cronbach's α= 0.66). The mean sum score for symbolic use was 4.7 (SD=2.17).

Results of the linear regression models

Table 6.3 shows the results of the linear regression models for each of three types of research use.

Table 6.3. Regression models on instrumental, conceptual, and symbolic use by Dutch public health officials (N=155)

Typology of research use	B	β	t	p
Instrumental use				
(constant)	2,245		4,391	0,000
Personal experience with research				
no personal experience with research (ref category)				
mainly experience with qualitative research	0,405	0,131	1,534	0,127
mainly experience with quantitative research	-0,530	-0,139	-1,705	0,090
experience with both types of research	0,376	0,140	1,663	0,099
Involvement of the local health official in the research process				
No local officials involved in the research process (ref category)				
Local officials involved in the research process at any given moment	0,626	0,242	3,167	0,002*
Involvement of the RPHS in the policy process				
No involvement of the RPHS with the policy process (ref category)				
RPHS professionals including epidemiologists involved in policy process	-0,158	-0,063	-0,435	0,664
RPHS professionals excluding epidemiologists involved in policy process	-0,569	-0,223	-1,562	0,121

Typology of research use	B	β	t	p
Media attention				
no media publications (ref category)				
mainly positive media publications	-0,631	-0,185	-1,630	0,105
mainly negative media publications	0,962	0,087	1,064	0,289
mainly neutral media publications	-0,537	-0,160	-1,402	0,163
variable media publications	-0,571	-0,126	-1,276	0,204
no familiarity with any media publications	-0,817	-0,326	-2,438	0,016*
Conceptual use				
(constant)	10,554		7,853	0,000
Involvement of the local health official in the research process				
No local officials involved in the research process (ref category)				
Local officials Involved in the research process at any given moment	0,534	0,087	1,206	0,230
Involvement of the RPHS in the policy process				
no involvement of RPHS and no presentation was given (ref category)				
epidemiologist involved in the policy process and gave a presentation	2,839	0,422	3,266	0,001*
epidemiologist involved in the policy process but did not give a presentation	1,087	0,158	1,247	0,214
other RPHS professionals were involved and gave a presentation	1,612	0,198	1,731	0,086
other RPHS professionals were involved, and no presentation was given	1,004	0,143	1,146	0,254
Presence of barriers	-0,152	-0,350	-4,815	0,000
Symbolic use				
(constant)	3,545		6,849	0,000
Involvement of the local health official in the research process				
No local officials involved in the research process (ref category)				
Local officials Involved in the research process at any given moment	0,871	0,354	2,464	0,015*

*significant with p<0,05

Four independent variables were significantly and unconditionally related to instrumental use, as tested with one-way Anova: 1) experience with research (F= 3.70, df=3, p< 0.01,), 2) involvement of the local official with the research process (F= 14.04, df=1, p< 0.01), 3) involvement of the RPHS with the policy

process (F= 3.37, df=2, p<0.05), and 4) media attention (F= 2.47, df=5, p< 0.05). Chi-square tests between these associated factors showed that they were not interrelated. Therefore, all four factors were included in a linear regression analysis. Table 3 presents the resulting model, which explained a significant amount of variance in instrumental research use (adjusted R2=0.17, F=3.93, p< 0.01). The model shows that the involvement of local officials was significantly related to more instrumental use, whereas unawareness of local officials of a media publication about the epidemiological report was significantly related to less instrumental use.

Fourteen associated factors were significantly related to conceptual use: all three actual interaction variables and eleven of the thirteen barrier variables. Only media attention and satisfaction with the local information were not statistically significantly related to conceptual use. The tests for mutual correlation showed that involvement of the RPHS in the policy process was related to a oral presentation on the epidemiological report. Moreover, all barrier variables were interrelated. The results of these tests can be obtained from the authors on request. For the linear regression model, we created a new combined categorical variable for actual interaction, with five response categories: 1) an epidemiologist was involved in the policy process and gave a presentation, 2) an epidemiologist was involved in the policy process but did not give a presentation, 3) other RPHS professionals were involved and gave a presentation, 4) other RPHS professionals were involved, but no presentation was given, 5) the RPHS was not involved in the policy process at all (see Table 6.3). Based on a reliability calculation of the eleven selected barrier variables (Cronbach's alpha=0.88), we concluded that these questions had sufficient internal consistency to combine them. The responses of all eleven questions were combined into one sum score for interaction barriers, which varied between 11 (no barriers present) and 55 (all barriers present), and had a mean of 24.96 (SD 6.87). Table 6.3 presents the resulting model for conceptual use, which significantly explained the variance (Adjusted R2=0.227, F=8.541, p<0,01). There was a relation between, on the one hand, the involvement of, and a presentation by, an epidemiologist in the policy process and, on the other hand, a higher sum score for conceptual use of the research. However, as mentioned by the local officials, conceptual use decreased with a higher sum score for barriers to interaction.

As for symbolic use, only one associated factor was significantly related: involvement of the local official during the research process (F= 6.071, df=1, p<0,05). Table 6.3 presents the resulting model for instrumental use, which had a low explanation of the variation (Adjusted R2=0.032, F=6.071, p=0.015). It showed that interaction during the research process increased symbolic use, as mentioned by the local health officials.

Discussion

The aim of this paper was to quantify the nature and extent of epidemiological research use in the Netherlands during the development of municipal public health policy, and the factors that determine this use. We conducted a survey among local health officials because, in earlier case studies [5], it was shown that they played an key role in the development of local health policy.

This study provides very specific insight into this specific research population of Dutch local health officials. Conceptual use was more common than instrumental and symbolic use. This means that the knowledge and insights of the epidemiological reports are not translated into concrete actions nor are they used in policy debates. The greater amount of conceptual use was also found by Amara et al., although they conducted their survey among professionals and managers in government agencies in Canada [19]. In our study, the level of conceptual use, as well as that of instrumental and symbolic use, is higher than in the study of Amara et al. [18]. One explanation for this is the difference in research population in a specific Dutch local policy area. The study population of Amara et al. was more diverse and contained also managerial, regional and national officials [18]. Another explanation could be that we operationalized the concept of research utilization by using different and multiple questions. If we consider the higher amount of conceptual use from the local Dutch policy making context this can be explained by the process of the policy process and diversity of other policy actors playing in the field of local health policy. The local official has to take account of the knowledge, opinions, and interests of other actors, and is therefore not able to directly transform the recommendations of the epidemiological report into action. The importance of the health frames of policy actors and their belief systems and interests determine the outcomes of the health policy process [5, 24]. It remains the questions to what extent it is possible for researchers to take all these different perspectives into account during the research process. Giving the complexity of the policy process it is debatable whether evidence based policy and instrumental use of epidemiological knowledge are actually the proper goals to strive for. It would probably be better to emphasize on conceptual use and aim for higher awareness and better understanding of the provided epidemiological research knowledge so we can speak about evidence informed policy. Ultimately if conceptual use of research is high during the policy process and applies for multiple policy actors eventually this can lead to more instrumental use.

Instrumental use can be explained by preliminary interaction between researcher and policy makers during the research process, in other words, the involvement of local officials during the design of the research and during the publication phase. However, it is harder to understand a lack of awareness by local officials of a media publication on the epidemiological report as a factor for less instrumental use. Because of the cross-sectional design of this study, this association could be the other way round. If a person does not see many

possibilities of using an epidemiological report instrumentally ("I do not have to do anything with it"), he might have less interest in media attention.

Our results showed that the presentation of the health report was associated with greater conceptual use. This would imply that more value is given to the epidemiological knowledge when presented by an epidemiologist than when presented by another employee of the RPHS. This can probably be explained by the perceived authority of an epidemiologist. In the conceptual framework, we distinguish four domains of barriers to research use. This study shows that most of these barriers are interrelated, so we are not able to assess which barriers are more important.

For symbolic use, the only factor was the preliminary interaction, which can explain only limited variance. This means that there must be other factors than those included in our study that explain variance. On the one hand this outcome can be explained by the fact that, during the policy process, local officials do not always take part in the policy discussion but function as process manager. It can be expected that if we had asked administrators, politicians, or client representatives, the symbolic use would have been greater. On the other hand, we may have missed other factors such as the political composition of the municipal council or the political background of the local administrator.

The response to the study was 51%, covering 35% of all Dutch municipalities. A study by van Dijk [23] showed that the development of local health policy differs between municipalities of different size and urban nature. This is related to the time that the local official has available for the specific subject. However we showed that the distribution of the sizes of the municipalities in the research population corresponds with the national distribution in the Netherlands. Therefore we believe the response is sufficient to represent all Dutch municipalities.

Reflections on methodology

There are some methodological limitations of this study that we have to discuss. We recruited the local health official by means of the RPHS. This was because there was no central list of local health officials in the Netherlands, and people regularly change jobs in the policy domain. We believed that the RPHS was the best possible source for the most recent list. However, this use of the RPHS was a potential cause of bias, because those organizations that were willing to cooperate with our study possibly put more emphasis on research utilization. Another form of selection bias could have occurred because officials with a negative attitude towards the RPHS might have been less willing to cooperate in our study. Both types of selection bias can cause an overestimation of research utilization by the group of local health officials. This could have the consequence that the regression models we produced are valid only if there is a neutral or positive relationship between the local health officials and the employees of the RPHS.

We chose a specific analysis strategy for the construction of the regression models. This strategy could have caused us to miss variables not directly related to research use but that have an indirect influence by interacting with other variables. However, this is difficult to determine because there is not much theoretical knowledge of these types of variables.

The ladder of research utilization [17] is the impact measurement most mentioned in international quantitative studies [8, 17-20]. Only Amara et al. [19] used the typology approach, and this study seems our only comparison option. However, because of our concentration on the details of health policy making in the Dutch local context, our research results are moderately comparable (for the outcome, for the dependent variables, and even for the associated variables). The different operationalization of the associated factors is especially problematic. This brings us to another issue - the need for the validation of instruments. It should be possible to reach international consensus on how research utilization should be measured, but further elaboration of these concepts is necessary. This could be achieved using, for example, the method of concept mapping by various international experts on research utilization. Consensus is also needed on presumed associated factors. However we acknowledge that it would be more difficult to reach international agreement on this because of the differences in policy context and processes. We also question how precise the measurements can be. For example, Ouimet et al. suggest that interaction activities can best be measured on an absolute scale [18]. In our earlier municipal case studies we found that it is sometimes difficult for people to remember this issue is because of the long term ongoing development of both research and policy [5].

As we described earlier, the regression models developed fit a specific policy context, and do not cover the dynamics of the entire policy network and policy process. However, if certain explanations of research utilization that are found in qualitative studies, for example [25-30], are true, we believe that other methodological approaches will provide additional information and parts of the puzzle. Quantitative studies are necessary to underpin qualitative findings and to underline the importance of the possible implications.

Reflections on the conceptual framework

There are many conceptual frameworks circulating in the international scientific area of research utilization, of which our conceptual framework is one [9-12, 18]. On some issues, our framework overlaps with others. For example, the independent variables of Landry et al. [31] and Amara et al. [19] relating to adaptation of the products (publications) mention issues (comprehension, credibility of the source, capacity to verify the quality of the results, appeal of the reports) that can be found in our list of barriers. But there is also overlap with Ouimet's model [18] where social interaction corresponds with our interaction questions, and where recognition of the values corresponds with our barriers.

In this study it turns out that interaction enhances research use. However we limited ourselves to direct ways of interactions between epidemiologists and local health officials. Taking the literature on nexus theories [13] and collaborative research [32] more advanced measures are possible of interaction. This will be challenge for future studies.

One important feature of our framework did not work out well; the classification of the barriers into four domains. The interrelations between these barriers could have multiple reasons. First of all, it is possible that, in the empirical setting, from the perspective of local officials, the meanings of the theoretical notions are hard to distinguish in practice. On the other hand, the way we operationalized the barriers and the sequence in which we questioned the respondents, could have influenced their answers. Because of these methodological shortcomings it is not possible to draw conclusions on the ways interaction between epidemiologists and local health officials are associated to the barriers, for example if the interactions influence the belief systems of officials. It is interesting to explore this clue in future studies because it could provide a explanation what interactions actually do on the interface between research and policy.

This study was limited to local health officials. According to our conceptual framework, there are many more stakeholders in the local policy process who could possibly use the epidemiological reports. This study provides no answer to this issue, so it becomes interesting to gain insight into these other groups in order to study research use in a whole policy network. However, to do this in a quantitative way will cost considerable research effort if it is to achieve a sufficient number of respondents.

Concluding remarks

This study shows that conceptual use is more common among Dutch local health officials than other types of use. Probably this is precisely why the concept of evidence based policy, which, on many occasions, suggests instrumental use, should be replaced by evidence informed policy, which is related to conceptual use. Conceptual use itself was associated with a presentation given by the epidemiologist during the policy process, the presence of obstructions regarding the report's accessibility, and the local official's personal belief systems and interests. Furthermore, the results show that instrumental and symbolic use increased with the involvement of local officials in the research process.
The outcomes suggest that RPHS epidemiologists can use different strategies to improve research utilization. However, they do have to ask themselves beforehand what type of research utilization they want to achieve - should it be instrumental, conceptual, or symbolic. Either way, 'blurring the boundaries', and the enhancement of interfaces between epidemiologists and local health officials, like direct interactions into each other's work processes, will create better possibilities for optimizing research use.

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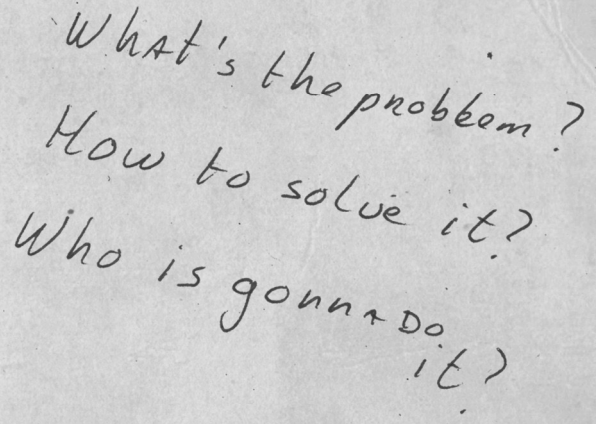
7. The Decentralization paradox in local health policy



In review

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Summary

The Dutch Healthcare Inspectorate is not satisfied with the quality of the local health policy memoranda. Although national prevention goals are often referred to, Local Authorities have difficulty in translating them into concrete goals and measures, and there is no guarantee of local implementation of the public health interventions [1]. In this article, to arrive at recommendations for quality improvement, we study, from a policy administration network perspective, how local health policy is developed. We describe the various policy actors, their actions, their motives, and the process itself. The data has been derived from three Local Authority case studies and a national survey among local public health officials. At local level, the emphasis is clearly on the development of an integrated health policy by means of an iterative and interactive policy process. After all, the variety of views and interests of local policy actors must be taken into account, because otherwise there is no support or joint responsibility for the policy. However, national control of the inclusion of the national prevention objectives hinders the local interaction process. So, from the network perspective, the solution for improving local memoranda would lie in creating more freedom for Local Authorities to intensify their discussions with the local actors, and to have the variety of problem definitions and solutions more strongly represented in the local memorandum. This is contrary to the inspectorate's recommendation for even stronger national control and monitoring of Local Authorities.

Introduction

Since the introduction of the Law on Collective Prevention (WCPV), the role of local government in developing and implementing local health policy has been defined. A new round of Local Authority health memoranda is expected between 2011 and 2015. But there is dissatisfaction with the previous memoranda. In March of this year, the Healthcare Inspectorate (IGZ) published the report "Staat van de Gezondheidszorg 2010" (The State of Healthcare 2010) [1], which concluded that Local Authorities do not adequately translate national prevention policy - as described in the prevention memorandum "Kiezen voor gezond leven" (Go for a Healthy Life) [2] - to local conditions. Too few concrete policy measures are included, and there is insufficient guarantee of implementation of specific interventions. This means that local policy does not contribute adequately to the nationally defined objectives, and the opportunity for health improvement in these fields is not fully exploited. So the question is: how can the quality of local policy memoranda be improved?

According to the IGZ, the cause of the problem lies in the absence of effective interventions, and in the lack of proposed public health interventions being formulated insufficiently SMART (specific, measurable, attainable, realistic, and timely) [1]. The inspectorate's problem analysis demonstrates a strongly *rationalistic perspective*. In this, policy formulation is seen primarily as a rational and cognitive process, driven by a central actor who knows the goals of other policy actors, and focused on the achievement of specific goals [3]. Because of this, the policy process works through phases, from problem definition, via generation of solutions, to implementation and evaluation.
The IGZ gives various recommendations for improving the quality of the memoranda. First, the local memorandum must be in line with the nationally defined objectives. Subsequently, the Ministry of Public Health, Welfare and Sport (VWS) should determine the objectives of the next prevention memorandum in consultation with the Local Authorities. In addition, where possible, it should be made clear what contributions are to be made at local level to achieve the objectives [1]. In the local memorandum, a clear link must be made between the priorities and proposed policy activities and interventions. The provision and reach of local public health interventions that are related to the national objectives should be more visible. If interventions that have proved to be effective are not available, the interventions that are carried out should be properly evaluated [1]. These solutions fit into the rational perspective of clear formulation of objectives, clear division of tasks and responsibilities, good, comprehensive information systems, and the possibility of monitoring and sanctions [4].

The question is, however, whether the rationalistic perspective gives a too-limited view of the practice of local health policy, and whether there are other possible approaches to a solution. In this article we want to explore this possibility. Precisely because, in recent years, local health policy has increasingly acquired a more integrated nature in which policy actors from different policy

fields have to collaborate, a problem analysis based on a *network perspective* is an obvious alternative. From this perspective, the formulation of policy is seen as an unpredictable, social, and political process, and policy is a product of negotiation between parties that are interdependent and that protect their interests partly through coalitions [4].

On the basis of this network perspective we formulated a number of research questions on the development of the local public health memoranda:

- Which policy actors are involved in the development of local health policy, and how do they interact?
- What are the details of the local policy process?
- What are the interests of the local actors, and what sources of support do they have at their disposal?
- What external factors influence the local policy process?

By answering these questions we want to provide alternative and supplementary solutions for achieving effective local health policy.

Method

The empirical material for this investigation is derived from two different studies:

1. In-depth case studies in three Local Authorities in Noord-Brabant

In the period June 2006 to March 2008 three case studies were carried out into the use of epidemiological data in the development of local health policy by the Local Authorities of Breda, Oss, and Boxtel [5].

These three Local Authorities were selected because they differ in size and urbanization (Breda: pop. 173,293, heavily urban; Oss: pop. 77,392, moderately urban; Boxtel: pop. 30,276, little urbanization). There is a relation between these factors and the number of officials available for the development and implementation of local health policy [6]. In the case studies, data was collected through interviews with 129 relevant policy actors, both within the Town Hall and outside. In addition, policy documents, reports, and (draft) plans were studied. Seventeen meetings were also observed, including five committee and Council meetings, two public conferences, five working groups, and five internal Local Authority discussions.[5]

2. Survey among 173 public health officials

An internet survey was carried out among Local Authority public health policy officials. The purpose of the survey was to gain insight into the development process of the local public health memorandum, on the basis of a previously developed conceptual framework on 'research utilization' [7]. The survey questions concerned the involvement of policy actors, and there were specific questions on the involvement and role of Regional Public Health Service (RPHS) staff. When compiling the questions, wherever possible we used the questionnaire from the report "Inhoud en kwaliteit nota's lokaal

gezondheidsbeleid: onderzoeksresultaten 2009" (Content and quality of local health policy memoranda: research results 2009) [8].

To get the highest possible response from local public health officials, the RPHSs were approached first with the request to take part in the survey. A total of 22 RPHSs (together covering 339 Local Authorities) agreed, and provided us with the names and telephone numbers of the public health officials. These 339 local authority officials were then approached by telephone between November 2008 and February 2009. In 2008, a Christmas Card was sent to all the participating officials. At the end of February 2009, a reminder mail was sent to those who had not yet (fully) answered the questionnaire. In total, 39% (173) of the Dutch Local Authorities participated in the survey. In view of the distribution of responding Local Authorities in terms of size and urbanization, we see a minimal over-representation of small Local Authorities. Of the four largest cities in the Netherlands, one also participated in the investigation. Because of this, we think that we have a reasonably representative picture.

Findings

Description of the actors and their roles

It is clear from the case studies that the local public health official has a key role in the preparation of the memorandum. The official works under the authority of the Alderman, designs the decision-making process, monitors this, and usually writes the memorandum. Sometimes this work is carried out in a project group with other officials. The extent to which the Alderman controls the memorandum and the policy process depends on his or her personal attitude. In the case studies, we see differences in this. The interviews show that the decision to involve various policy actors is based on the expectation that this will create support, politically and in practice. The results of the survey show that there is great involvement by colleague-officials from related policy areas (Table 7.1). These are mainly the policy areas Social Support (WMO), and care for the young and the elderly. Consultation with these colleagues takes place in various ways. The form most frequently referred to is bilateral discussion, but many colleagues also participate in information and discussion meetings.

In 83% of the Local Authorities that participated in the survey, at least one professional organization is involved in the development of local health policy. These are mainly care and welfare organizations, but hospitals (second line) are mentioned least (Table 7.1). The case studies show that GPs have input via an umbrella organization or as individuals. In half of the Local Authorities, representatives of patient organizations are involved in the policy process. The case studies show that they are consulted via existing advisory bodies. Furthermore, the results of the survey show that the WMO advisory bodies are particularly popular. Private individuals, and village and neighborhood councils are consulted least (Table 7.1). The external policy actors are usually consulted via sounding board groups, possibly with additional bilateral consultation.

Table 7.1. Policy actors involved in the development of local health policy

	Response		percentage of the 173 cases
	number	percentage	
In the preparation of the Local memorandum/paragraph, was there collaboration with the RPHS?	159	10%	92%
Involvement of the GGZ (mental health) in policy development	108	7%	62%
Involvement of Addiction care in policy development	91	6%	53%
Involvement of hospitals in policy development	26	2%	15%
Involvement of Homecare in policy development	101	6%	58%
Involvement of Welfare institutions in policy development	126	8%	73%
Involvement of child policy colleague in policy development	153	9%	88%
Involvement of Social Support colleague in policy development	156	10%	90%
Involvement of policy for the elderly colleague in policy development	154	9%	89%
Involvement of welfare and social affairs colleague in policy development	138	8%	80%
Involvement of Patient interest organizations (possibly linked) in policy development	88	5%	51%
Involvement of advisory committees for the elderly in policy development	93	6%	54%
Involvement of advisory committees for the young in policy development	49	3%	28%
Involvement of Social Support advisory committees in policy development	111	7%	64%
Involvement of Neighborhood councils in policy development	32	2%	18%
Involvement of Private individuals in policy development	45	3%	26%
Total	1630	100%	942%

The survey further shows that, in a third of the Local Authorities, the Councilors are already involved in the policy process before the draft memorandum is discussed in the council committee or council meeting. This can occur via information or discussion meetings or specific working groups. This way of working has a number of advantages. It enables the politicians to obtain information on the situation in practice from care providers and users. This early involvement also creates support for the memorandum among the politicians.

In 92% of the Local Authorities, the RPHS is involved to a greater or lesser extent in the development of the memorandum. The most important player in this is the RPHS policy advisor, but the epidemiologist and general healthcare (AGZ) and children's healthcare (JGZ) professionals are also regularly involved. The policy advisors undertake various activities. They participate in project groups, help to determine the policy process, and help to write the memorandum. They often also provide the epidemiological information and present the figures (29% of the Local Authorities), possibly together with an epidemiologist (Table 7.2).

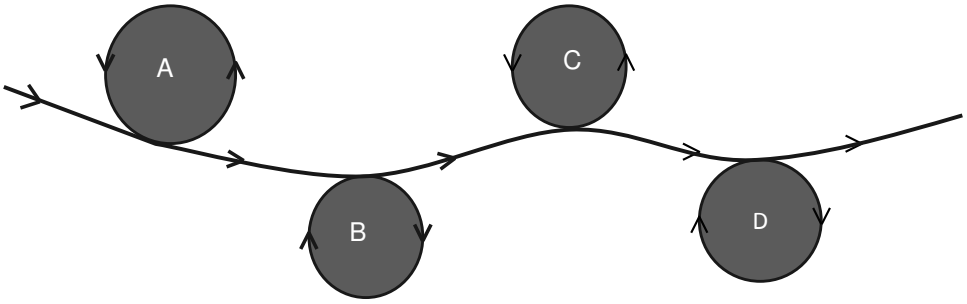
Tabel 7.2. RPHS staff involved in the development of local health policy

	Response		percentage of the 173 cases
	number	percentage	
RPHS policy advisor involved in memorandum development	110	27%	76%
RPHS epidemiologist involved in memorandum development	82	20%	57%
RPHS AGZ (infectious diseases, public mental health, etc) involved in memorandum development	88	21%	61%
RPHS JGZ (child healthcare) involved in memorandum development	79	19%	55%
RPHS MMK (Medical environmentology) involved in memorandum development	31	7%	22%
RPHS Management involved in memorandum development	24	6%	17%
Total	414	100%	288%

The course of the policy process

On the basis of the case studies, we here sketch the course of the process of developing local health policy. The course of the process can best be described as a series of feedback loops [9]. In Figure 7.1 we show this iterative process diagrammatically.

Figuur 7.1. Het iteratieve proces van ontwikkeling van lokaal gezondheidsbeleid



Policy development starts with the assignment to prepare a memorandum. In many cases, policy information is first gathered, such as the previous memorandum, national policy memoranda, and regional and local health information. However this can also be introduced at any other point in the process. The circles represent an arbitrary number of meetings or consultations with the actors involved. In the diagram we show four (A, B, C, and D), but in the case studies the number of loops ranged between 2 and 28. The composition is varied, and the actors can come from the Town Hall or from elsewhere. In the case studies, the policy process started with discussion meetings about the previous memorandum or other relevant policy information such as an epidemiological report. Then the official starts work on a draft memorandum. There is no strict format for this. For example, it can also be a plan of approach or a framework memorandum. This draft memorandum is then discussed with the actors in the various feedback loops, after which the official, possibly in consultation with the Alderman or colleagues, considers the comments and suggestions, and amends the draft memorandum. From the case studies it became clear that politicians were involved not only in the definitive decision-making but also in earlier feedback loops. The last feedback loop (in the diagram, that is loop D) always contains the final decision for the definitive memorandum with the approval of the Council.

In this decision-making process there are three central policy questions : *What* are the most important problems (problem definition), *How* must they be resolved (selection of policy tools / interventions), and *Who* is responsible? It is obvious that there are many different actors and perspectives. This leads to a large variety of (sometimes contradictory) problem definitions and solutions. The discussions of problem definitions and solutions influence each other. There is a chance that, when no effective solutions are available, the problem is perceived as less important.
From the case studies it became apparent that, in their memoranda, Local Authorities gave a global plan of approach with proposed policy activities and interventions. The local public health officials interviewed in the case studies acknowledged the lack of a SMART approach, since this is worked out only at project level. The officials are cautious in establishing firm health goals (such as

reducing the percentage of people with diabetes) because they consider it unlikely that any effect of these goals can be seen within the four year political cycle.

Interests and sources of support

The information on the interests and sources of support of the policy actors was gathered from the case studies. The official and the Alderman have primary responsibility for the development of the memorandum. The local public health official distributes available and relevant information to the other policy actors. The representatives of patient organizations and care institutions are primarily looking for Public Health links to the interests of their own organizations. These representatives want attention for the specific groups that they represent, and prefer to see in the memorandum concrete policy activities in which they themselves can play a role. Some of these actors can heavily influence the policy process. For example, in one of the case studies there was an important representative of a patient organization who had many contacts within the local political arena. The result was that it was important for the official that the opinion of this person should be incorporated in the memorandum in one way or another if the memorandum was to be accepted by the Council.

Representatives of patient organizations often use stories and examples from their experience to give force to their arguments. An occasional individual makes use of research publications but interprets them in their own way. Once the research does not match their own convictions or interests, the data is ignored. From observation of committee and Council meetings, it is apparent that local politicians are very sensitive to stories and examples taken from experience. Epidemiological research is well received if it is presented by an epidemiologist or RPHS policy advisor, but here too there can be resistance. Doubts about the research can be raised when it does not match the view or opinion of the Councilor. Further, it appears that Councilors of small political parties tend to check the formal process to see whether sufficient interested parties have had their say.

The case studies show that the local public health official must invest in colleague officials to convince them of the relationship between Public Health and the related policy fields. The local public health official must redefine the Public Health problem as a joint problem. The interviews show that working out the ideas is difficult since officials from related policy fields work in departments or sectors with different managers, and sometimes also with different Aldermen, and this can hinder the further concrete working out in detail.

The influence of external factors on the policy process and the actors

The survey shows that the national prevention memorandum has played a significant role in establishing priorities in the local Public Health memorandum. Because of the national memorandum, 70% of the Local Authorities have taken over one or more national objectives. However, the link to the local Council program (59%) and the link to the previous memorandum (52%) were also important. In the case of 64% of the Local Authorities, epidemiological research reports encouraged the inclusion of the national priorities in the memorandum. Patient organizations and local care institutions had the least influence.

The case studies show that if too much emphasis is placed on the national priorities, this influences the discussions during the policy process. Many of the policy actors interviewed who do not work directly in the field of Public Health feel restricted by the national view and priorities. The health problems presented do not match policy problems they experience. Because of this, the national control hinders the local integrated policy process. Furthermore, the RPHS is felt by other policy actors to be too dominant because it propagates and supports this national view of public health.

Discussion and analysis of the findings

The results show that local policy development is an iterative process in which major and minor decisions are taken in various discussion groups with a great diversity of policy actors, which together result in a memorandum approved by the Council.

The local public health officials, while taking account of the wishes and interests of the Aldermen, have the most important role in the development of local health policy. They largely determine which policy actors are involved, how and when, and the extent to which the RPHS is given an active role. This matches the findings of Hoeijmakers [10] that demonstrate that the Local Authority (as an organization) occupies a central position in the policy network. The Council is responsible for the final decision on the memorandum, but also checks the process. This includes checking on the contribution from and interaction with other policy fields (intersectoral policy) [11], and the involvement of public organizations in local health policy. In this way, more emphasis is placed on the integrated aspect [12] of local health policy, and the process is given a more interactive nature.

Edelenbos [13] describes a number of characteristics of interactive policy creation that we recognize in our case studies. Firstly, interactive policy creation contributes to support of the policy itself and its implementation. Secondly, the policy is enhanced. Policy actors are given the opportunity to state their opinions, interests, and viewpoints, and to translate these into decisions. The iterative loop is a repeating process of creating variety (input from the policy actors and negotiation on problem definitions, policy solutions, and

responsibilities) and selecting by officials, in which the collected ideas are included wholly or partly, or after modification. For interactive policy development to be successful, and if the policy actors involved are to want to be associated with the policy and feel joint responsibility for it, it is important that the policy actors feel that they are being taken seriously and that there is a recognizable effect of their input. This aspect of problem ownership is recognized by several authors and is seen as a necessary condition for successful integrated policy [11, 12, 14, 15].

If, within this interactive process, only a few public health interventions are available that have proved to be effective [1], the consequence is that the policy actors start to develop their "own" solutions and interventions that are then included in the memorandum. The lack of SMART objectives in the local memoranda arises because it is not considered feasible to set firm health goals. Instead, a project level approach is chosen. It has not become clear from our studies whether, and to what extent, such project approaches have been developed using SMART. Various authors point out that it is essential to make goals and sub-goals explicit in order to make the possible effects of (policy) interventions measurable [16, 17]. And it is not always essential to apply the weightiest scientific effect measurement, such as a Randomized Controlled Trial (RCT), for this purpose [18,19]. Interventions and other policy measures are ultimately judged by the Council, and the clear formulation of goals beforehand is an important aid in this.

Through the local emphasis on the integrated approach and the interactive process, the Public Health official is faced with a conflict of interest. On the one hand, the variety of views and interests of the local actors must be taken into account, while on the other hand, national priorities are imposed that are supported by the RPHS. If this national control gets the upper hand through statutory requirement, this will hinder local discussions and the development of joint responsibility. This conflict of interest is no unfamiliar phenomenon within the field of administration. Here it is also referred to as the *decentralisation paradox* [20, 21]. Local health policy is a decentralized policy in which the responsibility for Public Health and prevention is assigned to Local Authorities. Strong national control and monitoring have the consequence that there is little room for the local tailoring of policy. This reduces the quality of the policy because it becomes less specific, effective, and functional, and with less impact.

Discussion of methodology

Complex matters, such as the process of developing local health policy and the mechanisms that this entails, are particularly suited to being studied via case studies, because the processes and their context can be analyzed. The case studies were carried out in three Local Authorities in Noord-Brabant varying in size and urbanization. In future research it will be necessary to also include, for example, small and large Local Authorities in other parts of the country (including the four largest in the West of the country), and to look at their

organization structures. The validity and reliability of these case studies is ensured through the use of different sources of data such as policy documents, observations, and interviews based on study protocols grounded in a conceptual framework [7]. Information on local policy processes was collected on a large scale via a survey. In the development of the questionnaire use was made of existing questions [8] that were modified on the basis of the case studies carried out earlier [5]. We had the questionnaires pre-tested by officials, but no firm statements can be made regarding their validity.

In spite of the above methodological considerations, we think that, with the combination of data from the case studies and the survey we have obtained a unique and reliable picture of the local processes of the development of local health policy in which the dynamics of the policy processes have been made clear.

Conclusion and implications

From a network perspective, the lack of quality of the memoranda cannot be blamed only on the lack of concrete objectives and interventions. This does play a part, but there is an underlying problem. This study shows that the local public health official finds himself pulled in two directions. On the one hand, he must meet the national requirements, and on the other hand, to create support for the policy that is to be to be carried out, it is essential that local policy actors should be involved in the development of the memorandum. The strong national control on problem definitions and evidence-based interventions has the consequence that there is little room for integrated local policy to develop fully. As a result it is not possible to do justice to the shared responsibility and mutual dependence of local policy actors, which is needed for effective implementation of (integrated) health policy. From a network perspective, a solution for improving local memoranda would lie in the creation of more freedom for Local Authorities so as to intensify the discussions with the local actors and to take greater account of the variety of problem definitions and solutions in the development process, and to allow these to work through into the memorandum.

The question, however, is how this conclusion relates to the recommendations of the inspectorate? With respect to the recommendations about how well the proposed policy activities and interventions can be verified, the recommendations of the IGZ match our conclusions. We add here that it is necessary that local initiatives should be described and tested with applied evaluation research. In this way, the evaluation research can serve as an aid for the decision-making in the Council. However, the recommendations on the required inclusion of the national objectives in the local memoranda are problematical from the network perspective. Strong national control degrades the local interactive process to a mere ritual, with the result that too little

support for health policy can be created among actors outside the Public Health field.

Perhaps if, in the future, there is strong national control, it would be better for the RPHSs to settle on a standard basic health improvement service package. In that case, the Local Authorities would no longer receive tailored services. The advisory role of the RPHS would then be limited to integrated policy [12] where health promotion is not the primary goal, but fits in with the goals of other policy fields within the Local Authorities. Explicit health goals could then possibly be formulated in these memoranda. On the other hand, what would be the effect if the national control were to be relinquished? Policy would be tailored to deal with the most important local health problems, and this would be determined by local policy actors and the Council. A condition for this is, of course, that the Local Authority is adequately provided with an integrated picture of the local health situation by the RPHS. A regional Public Health Status and Forecasts report (rPHSF) [22] could play a role within this strategy. It also means that the RPHS would advise the Local Authority much more emphatically than at present on the use of evidence-based interventions, and discourage the use of ineffective interventions. These RPHSs would then have to strengthen their advisory role even more. This could include a clear view of the desired objectives, and a RPHS-wide strategy for influencing policy. More would have to be invested in the competences that RPHS staff need if they are to be able to work in the various policy contexts of the Local Authority. However, this decentralized approach could lead to large differences in the details of the health policy implemented by different Local Authorities.

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8. Discussion and conclusions

IF Research is the Answer...
what is the question?
Jonathan Lomas
1997

Introduction

Internationally, research utilization is a growing academic field and receives growing attention in the public health field. Following the current Dutch Act on Public health (WPG), which states that epidemiological research should provide a basis for local health policy, it becomes necessary to consider the role of epidemiological research in the development of local health policy. However to study the phenomenon of the research use in policy making is complex and one has to unravel the black box of evidence, the black box of policy making and the ties (or the lack thereof) between them.

The aim of this study was to acquire insight into how, to which degree and under what conditions scientific, in particular epidemiological, research can contribute to and support the development of local health policy. We defined three research questions:

1. Which factors and actors contribute to the development of local health policy?
2. How and to what degree does epidemiological research have impact on the development of local health policy?
3. How can the process of epidemiologic research utilization be optimized in the development of local health policy?

This chapter starts with a summary of the main findings guided by the initial research questions. We then highlight several methodological issues of the study. We present general conclusions and close with practical implications and suggestions for further scientific research.

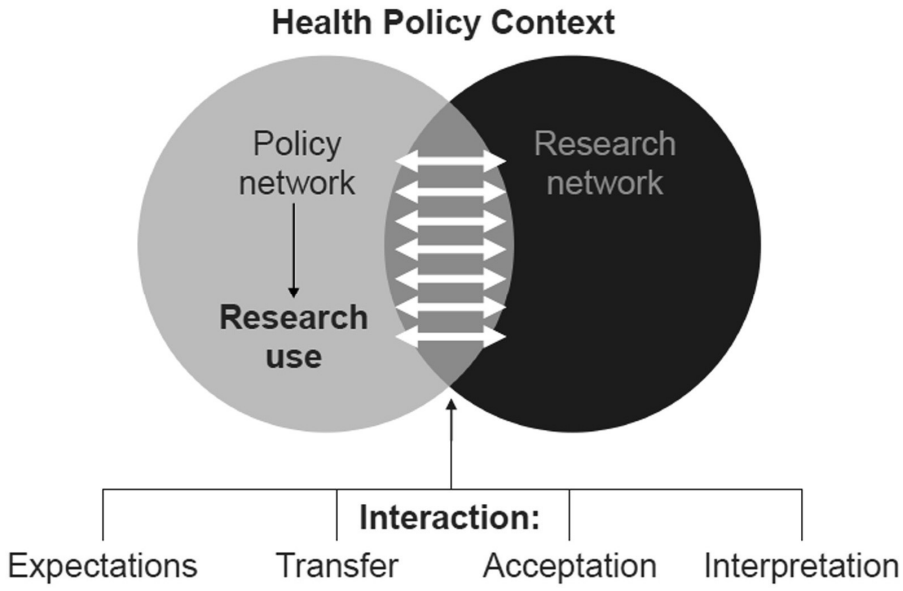
Primary findings

Based on a literature review, we developed a conceptual framework to provide a structure for the collection of empirical data. In existing international literature, there is a shift from a "one way" approach from research to policy, towards a systems approach [1] where "interaction" is seen as the most important feature to enhance usage [2-7]. Jansen [8] uses a biological metaphor where research and policy are considered as separate "niches". A systems approach sees these niches as parts of the same (eco)system, interacting and depending on each other in order to survive.

The Dutch local public health policy context is described in chapter 2. The public health law and the national memoranda on preventive public health activities play a role in the development of local health policy. The public health law directs that local health policy should be integrated and developed and implemented with actors in the local health policy field [9]. Hence a network perspective on the policy process provides useful insights into the variety of policy actors in terms of interests, problem perception, willingness to cooperate

with other actors, mutual dependencies and interactions, problem solving ability, and the bargaining processes. We also argue, along with other authors [10, 11], that a network perspective will help to understand the role and importance of research and policy interactions.
In the developed conceptual framework, we incorporated the network perspective and the role of policy context and interaction. The interaction model is "extended"; all interactions between researchers and policymakers in the research, as well as in the policy network, are included.

Figure 8.1. Conceptual framework on extended interaction for research utilization



In the extended interaction model, we distinguish four clusters of barriers on improving and impeding factors for research uptake. The Expectation cluster contains issues on the degree to which the research results are adapted to the expectations of potential users. The *Transfer* cluster describes issues on the degree of adaptation of form and content and distribution of the research results among potential users. The next two clusters include individual attributional factors of potential users. Issues in the cluster of *Acceptance* refer to the degree to which a person believes the research outcome to be true. We do not mean the actually scientific validity or credibility, but to the perception of it by researchers and policymakers. Barriers classified under *Interpretation* deal with the value people give to research outcomes, in this case local health problems.

In this thesis, we used three empirical studies. Two of them are qualitative and have a case study approach (chapter 4 and 5) while the third is a survey among Dutch local public health officials (chapter 6). The conceptual framework for

research utilization has been used to guide the empirical fieldwork and analyzes [12, 13]. Additionally, in chapter 7, a network perspective [14] has been used to analyze the empirical data from the municipal case studies and survey.

Which factors and actors contribute to the development of local health policy?

As the municipal case studies show, the local policy development process turned out to be an iterative, integrated and interactive process with deliberative feedback loops and a variation of actors, influenced by the requirements of the WPG. The process starts with deliberations about former memoranda or other relevant policy information. Subsequently, the local official for public health writes a draft memorandum; by proposing and discussing it in diverse deliberative sessions, the memorandum is shaped and reshaped. During the process the opinions, demands and ideas of the policy actors are included, leading to the enrichment of the policy process where the added information is selected and possibly taken over by the local official. For the interactive approach to be successful, the participating actors need to see how their input has been taken into account, for only then they will commit themselves to the policy priorities and actions, which is necessary for successful integrated policy [15]. During these deliberations policy actors were able to negotiate on three policy issues:

1. *What* is the problem at hand and what are the policy objectives?
2. *How* can the policy objectives be met?
3. *Who* is responsible for the policy objectives to be met?

Clearly, a large variation of policy actors will create large variations in perspectives on problems and contradictory solutions.

The survey gave us insight into which local policy actors are involved in the policy process. We distinguish six groups of policy actors with different roles. First, there are the local administrators and health officials who work together in the development of the local health memoranda. Depending on the degree of steering by the administrator, the local health officials play the central role. They determine how the policy process takes place and decide who is involved. They also propose what kind of information is disseminated to which policy actors. Second, local officials from related policy domains were involved. Most of these officials were responsible for policy on welfare, youth, or elderly. Third, professional health or welfare organizations were involved in the policy process. The fourth group is representatives from client organizations and fifth group is the members of the city council. Finally, different professionals of the regional public health service (RPHS) were involved in the policy making process. These were mainly the policy advisors, who could perform a variety of tasks, for example advice on the policy process, supply and presentation of research information (sometimes together with an epidemiologist) or even writing (parts of) the policy memoranda. Notably, epidemiologists play a role by presenting epidemiological research during the policy process and participating in discussions. The inclusion of these RPHS professionals in the process depended

on the willingness of the local official. If the local health official did not acknowledge the added value of a RPHS professional, there was not much a RPHS could do.

How and to what degree does (epidemiological/scientific) research effect the development of local health policy?

In the various chapters of this thesis, we have worked with two different concepts for research use: the 'ladder of research utilization' and the 'typologies of research use'.

Ladder of research utilization

In the Midden-Holland case study, described in chapter 5, it is clear that there are differences in use between three groups of regional policy actors. Based on the ladder of research utilization [16], we could calculate an impact score of the public health report (range 28-140 points), where a high score is related to large impact or high use. The group of RPHS professionals reported the highest impact score of 108 in comparison with the other two groups. The report enabled the RPHS professionals to start discussions with care providers (including the health insurer) and with Local Authorities on the consequences of the report in terms of changes in the demand for and provision of care. Within the group of professionals from health care organizations, we saw an average impact score of 97, however there was a big variety in degree of use. The health care professionals with high impact scores applied the knowledge of the report for policy action to underpin policy choices in the context of strategic and medical policy development. The local health officials group had the lowest impact scores of 82 and used the health report mainly for the preparation of public health memoranda as a starting point for policy discussions. This last finding is confirmed by the municipal case studies. The epidemiological research reports underpinned the local importance of previously established national health priorities [17].

Typologies of research use

In the municipal case studies, we noticed different ways of use by different policy actors. With the *local administrators*, we saw mainly symbolic use of the Local Health Messages (LHMs), such as support of prior policies and as argument during political discussions. The *local council members* used the information in a conceptual way, gaining a better understanding of the health situation and its determinants. For the RPHS professionals, we see all three types of research use. The LHMs relate to present and future policy plans and activities of the RPHSs. In this respect, we can speak of symbolic use (outside the RPHSs) and instrumental use (inside the RPHSs). Also, for some respondents, the information provided inspiration for long-term plans and developments, a form of conceptual use. For two groups of local policy actors, *officials related to other policy sectors* and *client representatives*, the use was minimal. Three quarter of these actors had not read the report at all. The small group that had read it showed limited conceptual use resulting in a better understanding of the health

situation. As mentioned before, *the local public health officials* used the epidemiological reports to enhance policy discussion of priority setting. The LHMs were used to facilitate discussions with the actors on problem definitions and solutions. Occasionally, when the local official was new in the policy field we saw conceptual use.

From the national survey, we obtained more quantitative information on the types of research usage within the group of local health officials. From this study, it appeared that conceptual use (concerning better understanding and new ideas) was the highest with 60% among the local officials. For two questions on symbolic uses, 37% of the respondent had been able to discuss existing policy and 42% placed personal ideas and preferences on the policy agenda. Instrumental use was least mentioned; 38% reported the start of new concrete activities and only 8% reported that certain policy was stopped.

How can the processing of scientific data within the development of local health policy be optimized?

"Blurring the boundaries"

It appears from the case studies, as well from the national survey, that involvement of policy actors during the research process and conversely by epidemiologists during the policy process positively influences research use. This resembles the "blurring the boundaries" model of the Leeuw et.al. [18]. The results of the survey show that conceptual use was associated with a presentation given by the epidemiologist during the policy process. Instrumental and symbolic use increased with the involvement of local officials in the research process. In one of the municipal case studies, we also recognized the "conduit" model. Here the policy advisor worked on the development of the LHM and was closely involved into the policy process, and acted as link between research and policy. Furthermore we noticed in all three municipal case studies the "Alternative evidence" model. The LHMs are closely connected to the national health report and the national health priorities, there was a strong incentive to refer to the LHMs in the local memoranda.

The influence of belief systems and interests

In the case studies as well as in the national survey, it becomes clear that besides the influence of interaction also specific barriers of research use are important. From the national survey we learn that the presence of obstructions regarding the report's accessibility and the local official's personal belief systems and interests influences conceptual use. The case studies offer a more complete and complex picture, revealing the mechanisms of research use for different actors. If a policy actor has the "right" public health frame of reference, they are equally willing to incorporate the epidemiological research reports in the policy decision making process. This frame on public health relates to the Acceptance and Interpretation barrier clusters of the conceptual framework. In the municipal case studies, specific groups of policy actors almost ignored the LHM's because of lack with their belief systems, knowledge and interests. Thereby we noticed

that the use of stories and images are more convincing than only facts and figures. If we look at the use of epidemiological research by the local public health officials the preliminary interaction between researchers and local public health officials manages the expectations. This happens in a way that research report is either adapted to the frames of references of the potential users, or when no adaption is made, the users know what to expect and are able to give the report a place in the policy process (or not). It seems necessary that the wishes and needs of these policy actors are included in the research process and suggests that just having preliminary interaction about the research report policy actors is not sufficient.

Discussion of the main findings

In present study, we aimed to describe the two black boxes of (the production of) epidemiological evidence, the (development of the) policy process and the ties between them in order to understand research utilization. In this section, we discuss and analyze the primary findings.

The consequences of interaction in the black box of the construction of local epidemiological evidence

In the Midden-Holland, as well in the municipal cases, we had the opportunity to study the development of the (local) health reports. In all cases, the involvement of potential end-users was orchestrated in varying degrees. In the Midden-Holland case, three parties were involved: researchers of the RIVM, representatives from health care organizations and the Regional Public Health Service (RPHS). Led by the RIVM researchers, the research process was a stepwise process in which the researchers analyzed data and wrote parts of the report. They received regular feedback of the representatives and the RPHS and negotiated about content. Notably, it occurred that some issues relevant for specific health care providers were not taken into account, such as of the absence of available and reliable data. However, in general, we can speak of a joint creation of the research report and this refers to the concept of co-production [19].

In the municipal case studies, we see an ambiguous picture appear. On the one hand, there is co-production of the LHMs as the RPHS epidemiologists and advisors work closely together. The policy advisors represent the policy perspective based on professional experiences and the epidemiologists represent the scientific perspective. However, this cooperation was strongly guided by a template dictated by the project leader and steering committee. As well, local health officials were invited to comment on draft proposals of LHMs but these interactions did not lead to the incorporation of other (societal relevant) health perspectives. This exclusion had two reasons: firstly because the local officials did not ask for it, the local health messages were positioned as representation of

the RPHS ("their stance") and secondly it appeared that in the end the template was mend to be sustained by the project leader and steering group.

As we look to the use of the reports ultimately by different policy actors, it becomes clear that the actors with no involvement in research process or where the research outcomes did not connect with their perspectives, values or belief systems did not use the report or used it only to a lesser extent. To more specific, those policy actors considered the local health reports as not important enough to take action upon it or mention it in policy and decision making processes. As a result, interaction during the research process can influence use however under the condition that the required information of actors is visible in the research process and health report. Interestingly enough, this finding corresponds with the findings of the survey by local health officials where interaction during the research process is positively associated to instrumental and symbolic use. In this respect, we might regard the use of local health reports and figures as we observed with local health officials in our case studies, as starting point for policy discussion, as way of instrumental use.

The consequences of interaction in the black box of the policy process

The policy processes, as described in chapter 4 and 7, appeared to be a complex process; it is integrated, iterative, and interactive. With integrated, we mean that there is a wide range of possible participating actors originating from related policy domains to public health. These actors are officials from the local administration [20, 21], as well as from health and welfare organizations, client representatives and local politicians and council members. The local health official and local administrators decide which actor will be involved, how and at what time and become a key actor [9]. A local health official can play different roles in the policy process like an advisor, a process manager, a broker, or an entrepreneur [21]. With a total of 418 municipalities in the Netherlands, this means that the inclusion of policy actors can vary at least 418 times. During the policy process, the local health official is confronted with a (possibly broad) variation of frames on public health on problem definitions, solutions and responsibilities. As a consequence, as we saw in the municipal case studies and the survey, the RPHS professionals are involved in the policy process but regarded as just one of all other policy actors and their stance has to be weighted with those of the others. However the RPHS has two advantages: The presence of a strong leading national policy on preventive measures and public health and the perceived authority of the RPHS. Concerning the latter, we see the same backstage and front stage mechanism as described by van Egmond et. al [22] in the development of the national public Health Status and Forecasts reports. The backstage refers to the interactions and negotiations during the development of the health report, while on the front stage the report is presented as scientifically objective object. This presentation enhances the authority of the RPHS. Interactions of RPHS epidemiologists with other actors during the policy process varied over the municipal case studies. If an epidemiologist, as an authority presented the local health reports to (groups of)

policy actors, it raised awareness and created a better understanding of the local health problems (conceptual use). It depended on the frame of reference of the policy actor [23], whether he or she believed the research to be true and to considered them as important enough to act. The presented health problems in the local reports are not neutral [24, 25], to quote Stone [10]: Interpretations are more powerful than facts. This explains the high conceptual use of the local health reports and low instrumental and symbolic use and relates to the outcomes of regression model from the survey. During the policy process, there is continuously a collapse of frames on health issues and arguments are needed to convince "the other". Language, stories, and metaphors are important, and unfortunately (epidemiological) figures do not make a strong case, as they are an abstraction of reality. Reframing of the figures is necessary in order to survive in the policy negotiations, as only then it is possible to find mutual interests [21] and make coalitions with other policy actors [26] in order to achieve policy change.

The policy process also has an iterative and interactive nature. It appeared to be an ongoing process of drafting and redrafting different versions of public health policy memorandum. We saw feedback loops [11] of deliberations between policy actors. These deliberations start with information provided for example by experts or practitioners in the form of a presentation or a research report such as local health reports presented by an epidemiologist or a draft memoranda. The participating policy actors then start to react on this information and add their perspectives on the presented health problems and solutions. The interactive process creates support for the developed policy throughout the actors of the policy network. Edelenbos [15] considers the input of policy actors as an enrichment of the policy process. The iterative process is a recurring process of creating variation (input from policymakers and negotiating problem definitions will, policy solutions and responsibilities) and subsequently selection by local health officials which ideas and suggestions are rejected, distorted or accepted. The selection is a critical moment in which is decided what information will taken into account or not. In this regard the municipal case of Breda provides interesting insights. In this case, no epidemiologists were involved in the policy development but epidemiological information sustained throughout the policy process because of a RPHS policy advisor who worked closely together with the local health official. This policy advisor did two things: in every possible deliberation, the local health reports were mentioned and during selection moments the epidemiological information and related health priorities were held "on board". Based on this case, the work of the policy advisor can be related to concept of the policy entrepreneur [9, 27] and to the "conduire" model of the nexus theories [18].

So far, the local mechanisms for research utilization match earlier findings of other Dutch studies [28, 29, 30, 31]. What remains special for the local setting is the influence of the law (WPG) and the national public health policy memorandum on the priorities in local health memoranda. Given the compulsory nature of these national health priorities, the national health inspectorate checks

whether these priorities are translated in policy aims and policy programs and many local health officials and administrators feel obliged to take them in to account. In chapter seven, we describe the disturbing effect of this steering mechanism on the local interactive policy process and how it causes tension in the development of integrated local health policy. However, the presence of the national memoranda supported the use of epidemiological evidence because they were aligned with each other. Perhaps it is the other way around; local health reports supported the uptake of the national priorities. The local epidemiological figures "translate" national health problems into local health problems. Either way, in terms of interaction models we recognize the alternative evidence model [18] and the question remains whether the local health reports could influence local health policy without the presence of the national memorandum and the low on Public Health.

Methodological considerations

In the previous chapters of this thesis the advantages and limitations of the separate sub-studies have been discussed. In this section, we will highlight several issues.

The Dutch approach

In recent years in the international research utilization literature, the emphasis has shifted from linear models of research use by individual policy actors to a systems approach [1]. Where linear models emphasize impeding and enabling factors, systems models are more interactive, acknowledging policy context and the availability of more types of knowledge. In these models, research use is seen as a socially mediated process. Research will be adapted, blended with other forms of knowledge, and integrated with the contexts of its use [32]. Bowen and Zwi [33] state that the way in which organizational and system level values influence a decision to accept or reject the policy related evidence, has largely been unexplored in literature. As Nutley et al. [34] states: "there is much yet to be discovered about how intermediaries and policy networks operate within deliberative policy processes, how the research findings challenge the positions and interests of the policy actors, and how they use evidence". The subjects under study in this thesis are very suitable for this purpose because the Dutch way of policy making has the characteristic that during decision making processes the consensus of the different stakeholders is sought. This makes that our studies not only provide insights into and recommendations for the specific Dutch setting of local health policy but also contributes to international academic issues on research utilization.

Reflection the qualitative and quantitative research approaches

The case studies

As local epidemiological research utilization is an unfamiliar phenomenon in the Netherlands, we choosed to start with a more open and in depth case study approach. This approach, guided by our conceptual framework, enabled us to study the dynamics of the research and policy process. To meet requirements of *face validity* of the study, we consulted various data sources, such as policy documents, interviews, group discussions and questionnaires. Data triangulation contributed to shedding light, on the development process of the report and the policy processes. To handle the *internal validity* of this study, we developed semi-structured interviews and questionnaires based on this protocol and collected the data. Although only three municipal cases were studied, with variation in size, urbanization degree and the policy process, each case entailed many moments of observations, extended and repeated conversational interviews in one to two years of time and multiple agency or policy documents were read and analyzed [35]. However, the case study approach has limitations for the generalizability of the results. All four cases the epidemiological research reports were experimental in the aim to develop a regional health status report; the process and content were strongly influenced by the national example by the RIVM. The cross case analysis [36] facilitates analytical generalization and supports the *external* validity of the cases studies and makes it possible to draw some conclusions that provide information towards general theories of research utilization. However, the results of the case studies should be interpreted cautiously and need to be substantiated with more empirical data.

With respect to the case studies, there also need for more explanation about the role of the principal researchers during the study process and the possible influence on the subjects under study. In each case study efforts were made to minimize the role and influence of the researchers by using study protocols and data triangulation. In the Midden-Holland case, the principal researcher evaluated the public health report after it was finished and was not involved in the development. In the municipal cases, the data collection about the development of the local health reports was also after the reports were finished. The data collection about the policy processes was collected during and after the finishing of the local policy memorandum. The interviews during the policy process made the procedural choices of the local public health officials explicit and could have possible caused adjustments in the policy process. In all municipal case studies, a "thick" paper with a detailed description of settings, events, activities, interactions, and persons was made. These thick papers were sent to local health officials and policy advisors of the involved RPHS and any comments were discussed and if necessary adjusted.

The survey

In the previous chapters, we extensively discussed methodological limitations of the quantitative research. We now recall some points for attention when conducting a quantitative research on research utilization. Firstly, we have to acknowledge that a quantitative approach is only to investigate specific parts of

the dynamic process of research utilization. It is too ambitious to presume that the whole process and its mechanisms can be studied in one survey, due to many variable circumstances, actors and influencing factors. For instance, our survey was conducted among local public health officials and the way they were approached and the prior attitude of the officials towards the RPHS could possibly caused bias.

Secondly, we want to discuss the issue of the validation of the questionnaires on the various concepts of research utilization and the associated factors. In current international quantitative studies on research utilization different instruments are described namely, a typology approach and the ladder of research utilization. Both are adjusted to the Dutch situation and not validated. Regarding the typology taxonomy, the concepts of instrumental, conceptual and symbolic use were operationalized by multiple questions based on our prior case studies. This is in contrast to the operationalization by Amara et al. [26], who used one question for each concept. Regarding the ladder of research utilization [16], the Adoption and Implementation phases of the original ladder have been merged into the Application phase, and the Discussion phase has been added. The adapted version of the ladder of research utilization we included more process types of use, like the Discussion phase, the Effort phase and the Reference phase. Another question about the way the ladder of research utilization is about how it should be analyzed and interpreted. In the Midden-Holland case, we followed Landry et al. [37] and assumed an ascending degree of importance whereas concrete instrumental use has the highest position. In retrospective, this assumption is debatable because given the dynamics of the policy processes the other phases can be considered equally important.

Finally, as mentioned in chapter 6, there is need for an (international) agreement on the quantitative measurement of research utilization. We need consensus on the different concepts in order to get instruments validated and the "new" instruments need to be compared with other (preferably already validated) instruments on the same or closely related concepts. Another point of consideration is the way data is to be analyzed. How are the scales constructed? What happens to missing values? How do we handle interacting variables? If we want to create a dichotomy, where do we create a cutoff point? These matters refer to the question on what is considered to be "research use".

The additional value of using both research methods

In sum, we conclude, based on our experiences in this study, that quantitative methods provide knowledge on little parts of the complicated mechanisms of research utilization. Our research process can be seen as an iterative process where the findings of the qualitative studies were incorporated in the quantitative study. Our research method corresponds, in this respect, strongly to a mixed method approach. Initially mixed method can be understood as the collection, analysis and interpretation of both quantitative and qualitative data, both included in one study and where researchers combine different approaches, methods and concepts [38]. However, the quantitative as well as qualitative

research methods are linked to two different social science paradigms. On the one hand, we find a positivist orientation related to the quantitative method and on the other a constructivist orientation related to the qualitative method. In the positivism ontology, it is assumed that there is an objective reality to be found and one should use distinctive objectively correct scientific methods to describe it. Positivism provides knowledge in terms of reliability, validity and statistical significance. In constructivism, there is relativist ontology and the researcher rejects the achievement of objectivity and emphasis is placed on individual understanding of viewpoints [39]. However, despite the paradigmatic differences, there are some similarities, such as the use of empirical observations to address research questions and try to minimize bias or sources of invalidity. More over all research aims to explain social society, activities of (groups of) human beings and events happening. In our study, we take a more pragmatic approach to this issue [40] and focus on the research questions and different methods that can be employed to provide useful answers and solutions [38]. We believe that this pragmatic and iterative study process makes sense when the research subject is dynamic as is the case with research utilization. We emphasize the importance to let the research question drive the choice of method. Quantitative methods are good for questions about degree of research utilization and finding possible associated determinants and qualitative, interpretive methods are suitable to answer "how" and "why" questions [35]. Where qualitative research is more suitable for painting the whole (research usage) picture and provide more understanding in the mechanisms of research utilization, quantitative methods give the opportunity to study the associations between specific aspects for specific groups of users. Different research methods and perspectives can offer different outcomes, by combining them as we did in this PhD study, we get a clearer picture of the whole phenomenon of research utilization.

Reflections on the conceptual framework

In the introduction, we choose a network approach to examine the phenomenon of epidemiological research utilization in local municipal setting in the Netherlands. Within this approach, we defined our analytical frame, including an interaction model and barriers for research utilization. This study approach provides for the need for more empirical data on types of interventions and their effectiveness that encourage health policy makers to use of (epidemiological)research [41] and gives clues for further development of supporting and evaluating these interventions particularly in the situation that demands researchers to demonstrate the economic and/ or social benefits of their research [42].

The network perspective enabled us to consider the multiple actors involved in the research as well as the policy process and the interactions between them. Even more it made it possible for us to include the presence of diverging and sometimes conflicting perceptions, objectives and institutions into the analysis. It this way we were able to map the impact the consequence of decisions and

actions taken in the research process by the research actors on policy processes and actors. A critique on the network approach is that it neglects the subject of the matter in investigated. We have addressed this critique because we described and analyzed the content of the epidemiological local health reports [43], for example in the case studies, where we described the diversity of problem perceptions and solutions. We have to acknowledge that our approached resembles the Actor Network Theory[2] (ANT) [44] approach. However in ANT the use of a steering analytical framework is not consented and also the use of quantitative measurements would have been problematic.

In the last decades, there have been continues development of descriptive models explaining research use. The development starts with the linear models to interaction and relationship models en are now to a point of systems models for knowledge to action (KTA) [1]. The linear model holds several key assumptions: knowledge is a product, key process is a handoff from research producers to research use and knowledge is generalizable across contexts and is a function of effective packaging [1, 47]. The relationships models hold five other assumptions. First, knowledge originates from multiple sources research, theory and practice; second the key process is interpersonal involving social relationships. Third, there are networks of researcher producers and research consumers and collaboration between them is organized thru production-synthesis-integration cycles. Fourth, knowledge must be adapted to the contextual setting and finally, the degree of use is a function of effective relationships and processes [1, 47]. The systems model, building on to the relationships models, has the following key assumptions; there is influence of priorities, culture and contexts on the research cycle, and explicit and tactic knowledge need to be integrated to inform decision making and policy. Furthermore relationships mediate and must be understood from a systems perspective, in the context of the organization and its strategic processes and the degree of use is a function effective integration with the organization and its systems.

The conceptual framework as presented and used in this thesis is (at the base) an example of a relationship model. Another example of a relationship model is the linkage and exchange model (K&E model) from Lomas [48, 49]. Although our conceptual framework has a different presentation, it includes many corresponding elements, such as the networks of researcher and policy makers and the linking pins between them (knowledge purveyors). However, the main difference between our conceptual framework and the K&E model is that the latter seems to assume a one way direction with a stepwise progression from research to policy and does not mention the possible influence policymakers can

[2] Actor Network Theory originates from the Science Studies an interdisciplinary research field on the development of science, its history and the social and philosophical background. It is developed by French Science Sociologists Bruno Latour and Michael Callon. In ANT reality is socially constructed and phenomena's can be explained by the relation with networks of people and materialities [45, 46].

have on the research process. Based on Best et al., we can claim that a relationship model is good starting point for analysis because in our empirical setting there is consensus that local knowledge and context must be taken into account in adapting evidence informed intervention strategies. Also the organizational culture favored evidence informed planning and decision making [1] was present. We argue that in our conceptual approach we already took a step further towards a systems model for research utilization because we include the possible influence of events happening in the policy network which can cause unexpected changes in the research network and we have focused on the roles and action of key actors.

As said before, our conceptual framework with a network perspective is one out of many and resembles not only the systems models of Best et al. [3, 48, 50, 51, 52, 53]. To give an example; Ward et al. [54] determines three main processes of knowledge transfer. They distinguish linear, cyclical and dynamic multi directional and appoint central components: problem identification, knowledge/ research development and selection, analysis of the context, knowledge transfer activities or interventions and finally knowledge/ research utilization.

For the case studies, the conceptual model served as an outline to develop a research protocol and to structure the empirical data [12, 13]. By conducting the survey, we were also able to evaluate on the conceptual framework. The assumption that research is influenced by interaction appears to be correct and in line with other quantitative research [55, 56]. Additionally, we were able to specify different types of interaction and different types of research use.

One important feature of our conceptual framework, the classification of the barriers into four domains, was not up to his promise as we found out in the analysis of the survey data. This was due to many statistical associations between the barriers. Another proposition which we assumed based on the case studies, that interaction was related to the barriers, was also not confirmed. There are some methodological explanations for this. On the one hand, it seems possible that in practice the perspective of local officials, the meanings of the theoretical notions of the barriers are hard to distinguish practice. On the other hand, the way we operationalized the barriers and the sequence of the questions, could have influenced the answers of the respondents. The quantitative study had another shortcoming for it was limited to local health officials while, according to our conceptual framework, there are many more policy actors in the local policy process who could possibly use the epidemiological reports. This study provides no answer to this issue; therefore it is interesting for future quantitative oriented studies to gain insight into the research use other groups of policy actors.

Conclusions

The conceptual framework is a useful tool to understand the mechanisms of research use

The conceptual framework of extended interaction proved to be a useful tool to describe the mechanisms of research utilization because it gives the possibility to include the whole research/ policy system and does not just focus on individual research utilization of a single policy actor. The qualitative approach is fit to describe the overlap between the research and policy actors and determine different roles, their policy or political actions and how this is related to research use. A quantitative approach is fit to describe and statistically analyze specific elements of the conceptual framework while focusing of specific groups of policy actors. However, in the case studies, the different clusters of barriers in the conceptual framework can be distinguished but statistically within the group of local health officials they are highly associated. Interaction seems not to be directly statistically associated to the formulated clusters of barriers from the conceptual framework. This is in contradiction with explanations found in the case studies. Therefore, more research on the association between the barriers cluster and interaction and further elaboration elaborate on the concepts is needed in order to design valid questionnaires.

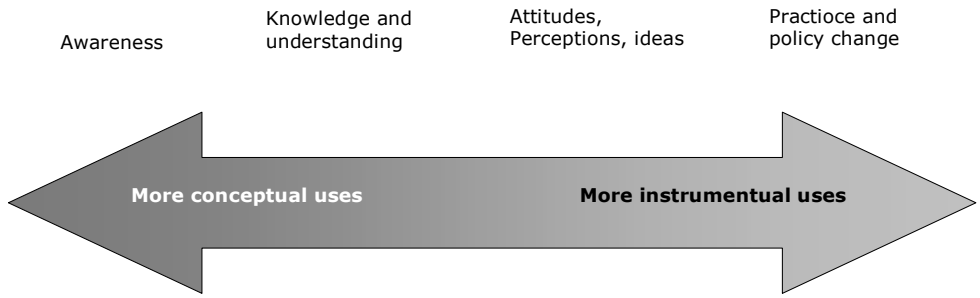
To influence local health policy it is essential to have insight in the policy process and to align with the public health frames of other policy actors

Local policy processes are integrated (with a possible wide range of policy actors), interactive (there are many ways policy actors can be involved), and iterative (there are continues negotiations between the policy actors on what the problem is, how it should solved and who is responsible to do it, ending up in writing and rewriting concept policy memoranda until it is finally approved by the city council). Local public health officials are key policy actors where they are a prime target group for communication of epidemiological research and an important informant for epidemiologists about the policy process. The RPHS represents a specific rational public health "frame" that does not automatically fit with frames of other policy actors. Although the epidemiological data is collected and analyzed by (inter)national scientific standards, the way it is interpreted and presented is more important in a policy process. Therefore, it becomes important to reframe the epidemiological knowledge to the already existing public health frames of other policy actors and seek for mutual interests. The problem for RPHS epidemiologists and policy advisors in this respect is they have to handle the different policy settings and networks of multiple municipalities and where changes continuously occur.

There are different types of research use and they are all equally important

Research use does not mean always mean instrumental use in the way that recommendations are totally acquired or action is taken upon it. Conceptual use is very common during local policy processes and we can endorse the two way flow continuum of research use [57] as shown in figure 8.2. The continuum must be seen as a two way rather than a simple linear flow from conceptual to instrumental use, acknowledging the interactive nature of research use.

Figure 8.2. continuum of research use



source: Nutley et.al. 2007 [57]

If we look at the continuum from a policy process perspective, the concept of evidenced based policy seems to be related to instrumental use and that of evidence informed policy to conceptual use. However it seems more important to acknowledge that either type of use exists and one is not considered to be more important than the other. In this study, conceptual as well as symbolic research use appears in the policy setting and has an important value of its own, by enriching the policy process with multiple facts and interpretations and improves to a better way of decision making.

Interaction and alignment with the belief systems and interest of policy actors are necessary but not sufficient factors for improving research utilization

Based on the conceptual framework, we assumed that research use was influenced by the interaction between researchers and policy actors. Based on the empirical data of both the qualitative and quantitative studies we can confirm this assumption. Research-policy interplay works either during the research or the policy process. However it is not a panacea; some (maybe important) policy actors will continue to base their health priorities in line with their own experiences, knowledge and interests. In our conceptual framework, these factors can be found in the Acceptance and Interpretation clusters of barriers. The personal beliefs and interests determine research use of policy actors and are possibly even a stronger factor then the interaction. In practice, this is something that has to be dealt with, and the RPHS can use different

strategies to handle this situation. The four barrier domains of the analytical framework give clues for the development research utilization strategy. For example, this can be done by including multiple interests into the research process or by reframing the epidemiological messages towards the public health frames of specific policy actors.
Also stories and images can be used during policy discussion because this communication strategy appears more influential then neutral presentation of facts and figures. However neither interaction nor alignment with belief systems will guarantee you that the epidemiological knowledge influences local public health policy because multiple actors and multiple interests will play a role.

A RPHS epidemiologist is also a policy actor in the complex and dynamic arena of local public health

A RPHS epidemiologist is initially trained to conduct epidemiological research. From this PhD study, it becomes clear that an epidemiologist is also a policy actor along with other RPHS policy actors and contributes from a specific stand to the policy process. The participation within policy processes requires additional skills. It is impracticable for a RPHS epidemiologist to follow up different complex policy processes in different municipalities; therefore, a RPHS-epidemiologist cannot and should not operate on their own in the policy arena. In this respect, an epidemiologist could act as a knowledge broker [58] and work close together with a policy entrepreneur [27], like a RPHS policy advisor or maybe the local public health official. Epidemiological research relevant for policy starts by knowing what the goal is and what to achieve with it. Depending on the type of research use an epidemiologist wants to achieve, in consultation with a policy advisor, he or she can make a strategic decision when and how to interact with local health officials and policy actors.

Implications

Practical implications

Unfortunately there seems no one way solution to successfully influence the outcomes of the policy process by implementing epidemiological research and evidence. But what can be done to improve the chance for research utilization? In this section we propose two key recommendations.

Working in the black box of the research process: clarity about the purpose of the research (Purpose)

a. Goal clarification

Knowing the questions is a prerequisite for conducting useful research. Thereby one has to differentiate between the research questions and the policy questions that lie behind them. Research questions are narrowly formulated, focusing on one or two topics, while the policy questions have a more open character, a broad approach settled in a specific policy context. Exploring and clarifying the

background of policy questions, with different questions mentioned in Textbox 8.1, enables the proposition of the right research questions.

Textbox 8.1. Goal clarification [59]

What is the purpose of the information? What is it intended for? For which stage of the public health cycle is information needed?
Who wants to know the information?: Who took the initiative? Who is going to receive the information? Who is going to make a decision on the policy issue?
What information do you want? What topic? What is the causal relationship between determinants and health and what is the population of interest?
What type of research is needed? There are different types of epidemiological research, which provide specific types of information. Is a health assessment needed or is the cause-effect relationship important? Is a cross-sectional study design sufficient, or is a cohort or patient-control method required? It may be helpful to challenge the policy maker by asking questions such as: 'Suppose we give you an estimation that more than 30% of the elderly population suffers from loneliness, would this information be helpful during the policy discussion?'
When is this information needed? How can different time-frames of policy and research be balanced?
How should the information be reported? Who will read it? Do the policymakers desire a concise paper of one or maybe two pages, or a more extensive report? Or both?

When the purpose of the research is more implicitly assumed, as in the case of the epidemiological RPHS monitors, and there is no specific policy or research question from policy actors, this creates the opportunity to set goals based on the vision of the RPHS. The RPHS organization will be able to consider what is to be communicated to municipalities and other actors in the policy field and what you want to achieve with the research. We give some considerations that can be taken into account: is it desirable that policy actors take over the research based problem definitions and should they take immediate action on it (instrumental use)? Or is it sufficient if policy actors consume the information and learn something from it for the long term (conceptual use). Is it acceptable if the research results are used by a policy actor to underpin his or her own opinion (symbolic use), even if this opinion is in conflict with those of other public health professionals?

b. A process design of epidemiological research

The process model of the regional Public Health Status and Forecasts Report may provide a convenient tool (see chapter 3) to determine which opportunities there are to interact with other policymakers during the sequential phases of the research process. A process design for interaction during research processes is a set of agreements between researchers, assigners or funders, and proposed users about the construction of the substantial research design, timelines, division of responsibilities, and room for reflection and evaluation of the policy oriented research project [60]. It makes the interaction process between those

involved transparent, guaranteeing the core values of each individual actor while focusing on making progress. Conflicting interests, contradictory expectations, and the policy being subject to high-rate change make the presence of a process design even more important.

c. Public health reporting

In the book 'Epidemiology in Public Health Practice" [61] a brief summary of various ways to report epidemiological information is discussed. There are three ways how to report to policy makers:

1. A health report: This report is designed for agenda setting in complex policy processes of long-term policies and is usually broad in scope and based on various epidemiological and other scientific research sources.
2. Policy briefs [62]. These are short notes describing a specific topic and placed in a specific policy context. The summary includes a problem definition, solution options and suggestions for implementation.
3. Policy dialogues [63]. These are developed as an instrument to allow research evidence to be considered together with the views, experiences and knowledge of other policy actors. There are several important aspects when organizing a policy dialogue. Firstly it is important to provide opportunities to discuss the problem, options to address the problem and key implementation considerations. Secondly, it is advisable to inform all actors by a pre-circulated policy brief and thirdly, during a dialogue it is important to ensure a fair representation of those involved in or affected by decision related to the issue.

The policy meetings described in the municipal case studies (chapter 4) are in fact a setting where these policy dialogues could and did take place. Given the dynamics of policy processes and the variation in the relevant policy actors in the setting of local health policy, researchers should make more use of policy briefs and dialogues.

Working in the black box of policy making: view of the policy-making process (Context)

The development of local health memoranda is a dynamic process in which information is collected, discussed and selected at various times. To influence this policy process and its outcomes, gaining insight into the process, which differs between municipalities, is essential. Within the RPHSs, many professionals deal with various actors within a municipality and to obtain insight into the municipal policy processes, a public health policy advisor may play a key role. This section includes a number of focus points about the positioning of policy actors within the policy network and process and how you can deal with the epidemiological information within the dynamics of these processes.

a. Checklist for Policy Diagnosis [60]

First, it is important to get a view the relevant group of policy actors, who have very diverse backgrounds, interests and concerns as we have seen the municipal

case studies. In the booklet "Implementation works" [64] and in the guideline "A healthy municipality" of the Center of the RIVM [65], different methods are described to understand the policy context. These methods can be helpful to make a policy diagnosis that will contribute to one's understanding of interdependencies between policy actors, power relations, resources, and levels of support. Already existing experiences from professionals (e.g. from RPHS management or local health official) may be mobilized to find out what the formal and informal 'rules of the game' are: who is open to new ideas and can be approached, when is the right timing. The diagnosis is based on identifying relatively independent policy actors that influence policies, identifying power resources, positioning actors according to their perceptions of the problem.

b. The roles of the policy entrepreneur and the knowledge broker

In the interplay between research and policy one can distinguish different roles of policy actors in order to make research relevant and practically useful to policy makers. There are two roles relevant in the context of local health policy and the use of epidemiological research.

A policy entrepreneur actively articulates a particular (health) problem and initiates activities to put this issue on the policy agenda [9, 27]. In politically sensitive moments, this authoritative person engages in intense interactions with relevant and influential individuals and organizations, creates a dialogue or gives his/her opinion in the newspaper, in order to put an issue on the public and policy agenda. Besides a large network of people and a good reputation, specific competencies are needed to realise this. For example, Academic professors with scientific authority and a high social reputation often play this role successfully. However in the context of Dutch local public health, the researcher conducting the work had better refrain from playing this role and mobilize another authoritative person as entrepreneur such as a RPHS policy advisor or a local public health official, depending on the possibilities of the municipal organization.

The role of *knowledge broker* serves to enable or strengthen the knowledge transfer between the researchers and the commissioners or end users [58, 60] and may take different forms: acting primarily as a 'knowledge manager', a 'mediator', or a 'capacity builder'. The manager searches for, weighs, and synthesizes relevant knowledge for policy, making it accessible while the expert often plays his part in conducting systematic reviews or collecting relevant data from different sources. The mediator focuses more on establishing personal contact between the expert and end users in order to enhance the exchange of relevant research and policy conditions for a research design perceived as (potentially) successful in answering the questions. The capacity builder has a long term view on facilitating social change in the structure and culture of research-policy interactions. This may range from making databases formally accessible, developing educational material for knowledge transfer skills, and initiating more structural relationships between research institutes and user organizations, such as the Academic Collaborative Centres for Public Health.

Looking at the Dutch local public health setting, the RPHS epidemiologist can operate at the very least as a knowledge manager in the interplay between research and policy. The role of knowledge mediator can be played by an epidemiologist or by a RPHS health policy advisor or by local public health officials. Regarding capacity building, a team of RPHS epidemiologists can develop a vision on this topic although an organization wide strategy (including management) would be advisable. In that way epidemiological research utilization becomes part of the organizational communication and relation strategy: what do we want to achieve with epidemiological research, when and to what extent do we interact with policy actors in developmental and reporting phase of the research process and how do we position the RPHS and professionals in the policy process.

c. Reframing of research information

As previously described in this thesis, there is a variety of local health policy actors who all differ in (power) positions, perspectives and interests. RPHS epidemiological research represent a specific public health perspective on major health problems which and is, as shown in this PhD-research, not entirely connected to other policy actors. This connection is desirable in order to find workable solutions and policy implementation.

Here the importance becomes evident of reframing the health problems from a RPHS perspective to the perspective of other related policy domains. This reframing [23] is a way of presenting knowledge in response to existing ideas, norms and beliefs within a particular network of policy actors. In the political arena policy actors try to use their frames to get their right [25]. The municipal case studies show that they do not (only) use research to achieve this but preferably use images and stories. Policy problems are not neutral, to speak with Stone: 'interpretations are more powerful than facts' [10]. When local epidemiological research is provided for policy debate it is necessary to place this knowledge in a broader social context. This can be a challenge but for example in the last National Public Health Status and Forecasts Report, it is recommended to analyze and present the relations between social and lifestyle determinants [66]. If local epidemiological research fits in frames of reference of multiple policy actors, discourse coalitions can arise [67] and the stronger the coalitions, the more influence they will have on policy [25, 26].

Research implications

Beside the many practical implications following from this PHD-study, recommendations are made for future research, leading in two directions.

1. Further elaboration on quantitative methods for "research utilization"

An important shortcoming in the quantitative part of this study was the lack of valid utilization measures and (valid) questionnaires on the explaining variables like interaction or on the concepts on "Expectations", "Transfer", Acceptance" and "Interpretation". Attempts should be made to reach international consensus on these concepts (for example using a Delphi method) and develop indicators

and standardized questionnaires. Ideally, the validity of the developed instruments would be established by comparison to a gold standard for research utilization. Lacking a definitive standard in this case, the best alternative may be to assess the degree of agreement between policy actors' survey-based measures and alternative measures for research utilization for example face to face interviews. Agreement survey among different groups of policy actors would attribute to strengthen the validity.

2. Further elaboration and steering of integrated health policy networks by providing scientific and epidemiological evidence
Inevitably in the future integrated and intersectoral health policy will become more important in the Netherlands. Guided by a systems approach [1] and with mixed research methods [38], these policy networks become interesting to follow up, to see how they are managed and how different types and forms of health reporting are received and processed. This type of research should include network concepts like power, interdependencies, trust, interests and frames. Another example for future research could be to investigate the role of a policy entrepreneur and/or a knowledge broker in integrated or intersectoral policy networks and what skills they use and need. Another interesting "experiment" in the interaction area between research and policy would be to include with different elements of Bekker's process design [60] in the future development of regional Public Health Status and Forecasts Reports.

Finally both elaborations will enhance understanding of the dynamics of research utilization. The conceptual framework, which is the basis of the contemporary study, Concepts and theories about research utilization are developed by continuous discussion between scientists and practitioners, while they are constantly refined, renewed and improved. It makes sense that Academic collaborative centers provide the right conditions to conduct future studies about research utilization in public health.

Final comments

Following the title of this thesis the question arises whether local health policy is actually evidence based. When we turn back to the original definition of evidence based policy by Sacket it says: "Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research." [68, 69]. The concept of evidence based policy is derived from evidence based medicine and introduced to public health policy making, where it is in line with the new public management standards for more accountability in government policy [22]. If we translate the definition of Sackett into a local public health context it becomes as follow: *"Evidence based policy is the conscientious, explicit, and judicious use of current best evidence in making policy decisions about public health within a municipality. The practice of*

evidence based local health policy means integrating individual municipal expertise with the best available external epidemiological evidence from systematic research".

According to the main findings of chapters 2, 4 and 5, local health policy is (to some degree) based on epidemiological research and includes the expertise of local politicians and officials, local health (care) professionals and local client representatives, making local health policy evidence based. However, given the policy context as explained in this thesis, the dispute on evidence based health policy is only about whether the epidemiological research has been used [70] as about the *way* it has been used and whether we considerer this type of use sufficient. Based on this study conceptual as well as symbolic use should be, equally to instrumental use, regarded as a success. The epidemiological knowledge has contributed to the improvement of the policy process and has been taken in to account and discussed, whether it leads to policy changes or not.

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Summary

Summary

In **Chapter 1** we start with a general introduction of the study. In the Netherlands municipalities are legally required to draw up a Local Health Policy Memorandum every four years. This memorandum should be based on (local) epidemiological research as performed by the Regional Health Public Services (RPHSs). In the practical setting there has been a growing attention on how local public health reports actually influence local health policy development.

Several Dutch studies have earlier addressed the issue of research utilization by policy makers. Most of these studies have studied policy making on a national level and it is not sure whether these finding are applicable to the local situation with its own political mechanisms and policy actors. It is largely unknown if and in what way epidemiological research is used during local policy development. This thesis aims to provide answers for this question in order to help local epidemiologists and other public health professionals in the Netherlands to enhance the possibilities for the use of epidemiological research in the policy making process. To unravel the phenomenon of research utilization one has to study the black box of evidence production (the local health reports), the black box of policy making (that is the development of local public health policy) and the ties between them. This study addresses the following research questions:

1. Which factors and actors contribute to the development of local health policy?
2. How and to what degree does (epidemiological/scientific) research effect the development of local health policy?
3. How can the process of epidemiologic research utilization be optimized in the development of local health policy?

In the Dutch public health domain the nexus triangle of practice, policy and research is often used. Cooperation between these niches is necessary for an effective public health although it is often difficult to achieve, due to the different perspectives, working cultures, values and norms. As overall research perspective we have chosen a network approach. In the research as well as the policy process, many different actors play a role and are interrelated. The network approach allows us to consider the variety of perspectives of the public health actors, what the problems are, how they should be handled, what is relevant and if it suits their interests.

Chapter 2 describes the development of a conceptual framework in order to study epidemiological research utilization in the Dutch local health policy context. We started with an international literature review and used different strategies such as the screening of relevant Dutch studies dissertations, international books, national and international websites and a literature research using Pubmed and Google Scholar. In addition, we conducted a narrative inventory among Dutch Local epidemiologists from different RPHSs. The findings include a description of existing research utilization models and concepts about

research utilization and map different barriers in research transmission. We found that the interaction model is regarded as the main explanatory model. It acknowledges the interactive and incremental nature of policy development and includes diversity within the groups of researchers and policymakers. This fits the dynamic and complex setting of local Dutch health policy. For the conceptual framework we propose a network approach, in which we "extend" the interaction model. We not only focus on the one-to-one relation between an individual researcher and policymaker but include interaction between several actors participating in the research and policy process. In this model interaction between actors in the research and policy network is expected to improve research utilization. In the extended interaction model we distinguish four clusters of barriers of improving and impeding factors for research uptake. The *Expectation* cluster contains issues on the degree to which the research results are adapted to the expectations of potential users. The cluster of *Transfer* exists of issues on the degree of form and content adaptation and distribution of the research results among potential users. The next two clusters include individual attributional factors of potential users. Issues in the cluster of *Acceptance* refer to the degree to which a person believes the research outcome to be true; not to the scientific validity or credibility, but to the perception by researchers and policymakers. Barriers classified under *Interpretation* deal with the value people give to research outcomes, in this case local health problems.

In **Chapter 3** we focus on the development of a regional Public Health Status and Forecasts Reports (rPHSFs) in the two RPHS regions "Hart voor Brabant" and "West Brabant", based on a national example of the National Institute for Public Health and the Environment (RIVM). This pilot study resulted in an empirical model for regional public health reporting, characterised by its (1) products, (2) content and design and (3) process and organisation. The developed empirical rPHSF model consists of different products for various purposes and targets groups. The regional report and the Local Health Messages (LHMs) on the municipal level aim to underpin strategic regional and local public health policy. The developed websites contain up-to-date information, aiming to underpin tactical decisions and local policy by providing supportive information to translate strategic policy priorities in to more concrete plans of actions.
In **Chapter 4** we zoom into the LHMs, their development and use during the local policy making process, using the conceptual framework as an analytical tool. In three municipalities, Breda, Oss and Boxtel, we applied an in-depth case study approach, collecting data about 129 actors with face-to-face semi-structured interviews, telephone interviews, internet questionnaires and obtained observations and organizational documents. The development of the LHMs was characterized by multiple interactions between Regional Public Health Service epidemiologists, policy advisors, and local health officials of the municipality. This preliminary interaction helped to manage the expectations of the local health officials and improved a specific type of use of LHMs in the policy process as a starting point for policy discussions. Also, we discovered a lack of use of the LHMs by specific groups of actors within the policy network like local officials from other policy domains, professionals from health care organizations

and representatives from patient groups. This lack of use can be explained by factors such as personal belief systems and values, institutional interests, and contextual factors such as the design of the policy processes. We concluded that the necessity of interactions depends on the frames of references of the potential users. As a consequence, obtaining insight in and acting upon different health frames of participating policy actors becomes important and should be a starting-point for researchers in order to select strategically promising ways of interaction to influence the policy process.

In **Chapter 5** we examine the preparation and use of a comprehensive report on the state of Public Health and Health Care in the Midden-Holland region of the Netherlands. A unique characteristic of this case was the inclusion of regional care providers during the development of this report. In this case we also used the conceptual framework of extended interaction as an analytical tool and operationalized it by constructing a semi-structured interviews. Document analysis was used to obtain more insight into research development, distribution of the report, and policy of the health care providers. We used the "Ladder of research utilization" as an additional instrument for the measurement of the use of the regional health report. The ladder contains seven stages of research use and starts with familiarity with the report up to direct use of the report for policy changes and activities. The questionnaire was completed by 31 respondents and all were included in the analysis. In the result section we distinguish three groups of health policy actors and potential end users of the regional health report: local health officials from municipalities, public health professionals from the RPHS and regional care providers. Based on the ladder we found that RPHS professionals had the highest mean impact score of 108, followed by the health care providers with an impact score of 97. The lowest impact score of 82 was found with local health officials. Based on the interviews and document analyses we found different mechanisms of research use for each group. Firstly, the regional health report was in line with the personal and organizational visions of and interests in public health of the RPHS professionals, who also contributed data to the regional health report. This led to the profiling of the RPHS as a centre of knowledge for various groups in the field of prevention and health. Secondly, there was a diversity of use within the group of health care providers. Although all of them participated in the steering group, only some of them used the research for their policy development. Despite the interaction, the content of the research report did not fit the personal and organizational interests of all health care providers. It appears from this study that the right frame of reference is a prerequisite for research use. Finally, although the local health officials had the lowest impact score, the report seems to have been useful in the policy process for the local health memoranda. The explanation for this usage lies in the long-term collaboration between the Local Authorities and the RPHS; they were accustomed to RPHS reports, prepared to accept the contents and to use the report for the development of local health policy. But the main explanation is the report's timing and breadth of content, making it possible for local officials to enhance policy discussions during the local policy process.

The report underpinned the local importance of earlier established national health priorities and therefore it did partly set the local policy agenda.

Chapter 6 explores epidemiological research use by Dutch local health officials in a quantitative way. The purpose of this study was to assess the actual use of epidemiological reports by municipal health officials and associated factors that affect this use. We developed an internet survey in which we operationalized the interaction between researchers and local health officials, and four clusters of barriers from the conceptual framework. We measured research utilization in terms of instrumental, conceptual, and symbolic use. Instrumental use means that the research is acted upon in specific and direct ways and conceptual use means that the research improves the understanding the subject of the matter and related problem. Symbolic use means that either research is used to justify a position or course of action for other reasons such as someone's own interests (political use), or the fact that research is being done is exploited to justify inaction on other fronts (tactical use). A total of 155 Dutch local health officials participated representing 35% of all Dutch municipalities. By means of multiple regression analyses, we gained insight into the related factors for each of the three types of research utilization. The results show that local health officials use epidemiological research more often in a conceptual than an instrumental or symbolic way. This can be explained by the complexity of the local policy process which is often linked to policies in other areas, and the various policy actors involved. Conceptual use was statistically associated with a presentation given by the epidemiologist during the policy process, the presence of obstructions regarding the report's accessibility, and the local official's personal belief systems and interests originating from different professional values and responsibilities. Instrumental and symbolic use increased with the involvement of local officials in the research process. The quantitative approach underpins earlier qualitative findings on this topic. The outcomes suggest that RPHS epidemiologists can use different strategies to improve research utilization. 'Blurring the boundaries', and the enhancement of interfaces between epidemiologists and local health officials, like direct interactions between each other's work processes, will create better possibilities for optimizing research use.

In **Chapter 7** we focus exclusively on the development process of local health policy as a reaction on the findings of the Dutch Health Care Inspectorate which is not satisfied with the quality of local health policy memoranda. Although national prevention goals are often mentioned and recognized as local health problems, the translation into concrete policy goals and the local implementation is not guaranteed. To establish recommendations for quality improvement, we study the (policy) practice of the development of local health policy from a network perspective. We describe the various policy actors, their actions and motives and the policy process. The data come from three municipal case studies (chapter 4) and a nationwide survey among local health officials (chapter 6). It appears that at the local level, the focus lies on the development of integrated health policy (policy aligned with other local policy domains and

where public parties are involved), through an iterative and interactive policy process. After all, the developed policy must be responsive to a variety of views and interests of local political actors; otherwise there will be no support and no shared responsibility for the policy. The national guidance for inclusion of the national prevention priorities, however, hinders the local interactive process. From a network perspective, the solution for improving local health memoranda therefore lies in creating more deliberative freedom for municipalities to deal with local policy actors in order to intensify the variety of problem definitions and solutions. This is contrary to the recommendation of the Dutch Health Care Inspectorate which suggests more national direction and control on local health policy.

Rounding off the thesis, in **Chapter 8** we return to the central questions of the study and reflect on methodological and theoretical issues, draw conclusions and end with recommendations.

In this study we used a mixed method approach where we let the research question drive the choice of method. On the one hand qualitative, interpretive methods are good to answer "how" and "why" questions and in depth case studies are used to explore the whole system of research utilization for specific local and regional cases. On the other hand quantitative methods are good for questions about degree of research utilization and finding possible associated determinants and enabled us to collect more generalizable data (at least for the Netherlands) for specific actors in a specific setting within the complex system. However, it has to be acknowledged that the quantitative approach needs further elaboration, for example on the concepts we used and the importance of designing valid questionnaires.

If we reflect on the conceptual framework, it is initially closely linked to well known interaction and relationships models in research utilization literature. We argue that in our analytical approach we already took a step further towards a systems model for research utilization because the possible influence of events in the policy network on the research network have been taken into account and we have focused on the roles and (inter)action of key actors. The framework aligns with circulating contemporary conceptual and analytical frameworks. We conclude that the developed conceptual framework is a useful tool for studying research utilization.
Furthermore, we conclude that it is essential to have insight into the local policy process in order to influence it and take the existing public health frames from policy actors into account. The RPHS (including the outcomes of epidemiological research) represents a specific public health frame, sometimes conflicting with the frame of other policy actors. Although the epidemiological data is collected and analyzed by (inter)national scientific standards, in a policy process interpretation and presentation is more important. Therefore reframing the epidemiological knowledge to the already existing public health frames of other policy actors becomes essential. Another finding is that in the policy process there are different types of research use by various policy actors. Conceptual

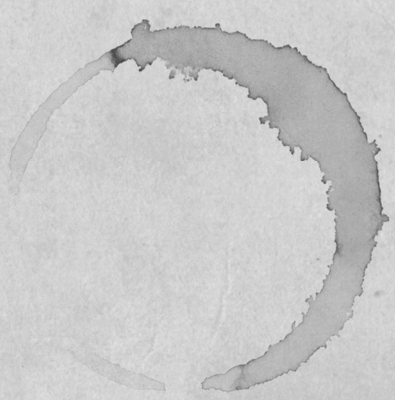
use is most common, where symbolic and instrumental use, are less mentioned. We argue that for the quality of the policy process, conceptual use is necessary, regardless whether the issues mentioned will turn up in the policy memorandum. Even more, instrumental use, given the complexity of the policy process and the possible variety in policy actors, is perhaps not even feasible. Therefore we conclude that all types of research use should be regarded as a "success" and are equally important. Subsequently we conclude that interaction between epidemiologists and policy actors, either during the research or the policy process, does work although it is not panacea. The personal beliefs and interests determine research use of policy actors and are possibly an even stronger factor than the interaction. Finally we conclude that an epidemiologist has to be aware that he or she is not a neutral "researcher" in the policy process, but a common policy actor who represents a specific policy stance although it may be based on scientific research. Producing policy relevant epidemiological research starts with knowing what the goal is. Depending on the type of research use an epidemiologist wants to achieve, in consultation with a policy advisor he or she can make a strategic decision when and how to interact with local health officials and policy actors.

Based on these conclusions we suggest some practical implications. In the first place we mention three issues regarding the clarity of research purposes, being the value of goal clarification and how to achieve it, the possibilities of process designs for research and the different forms of public health reporting. To get more insight into the black box of policy making there are some practical instruments which can help to map the policy arena, like checklists. It is also very useful to strategically elaborate on different roles for an epidemiologist or other policy health professionals within the policy network and process, for example the roles of policy entrepreneur or knowledge broker. Furthermore we advise to reframe the health problems from an RPHS perspective to the perspective of other related policy domains. In the political arena, policy actors try to use their frames to get their right. The municipal case studies show that they preferably use images and stories, not research. When local epidemiological research is provided for policy debate it is necessary to place this knowledge into a broader social context.

Based on this study we argue that local health policy is evidence based and that conceptual as well as symbolic use, equally to instrumental use, should be regarded as a success. The epidemiological knowledge has contributed to the improvement of the policy process and it has been taken into account and discussed, whether it leads to direct policy changes or not. The dispute on evidence based health policy is not only *whether* the epidemiological research has been used but about the *way* it has been used and whether we consider this type of use sufficient.

Samenvatting

(Summary in Dutch)



Nederlandse samenvatting

In **hoofdstuk 1** beginnen we met een algemene introductie van de studie. In Nederland zijn gemeenten wettelijk verplicht om elke vier jaar lokaal gezondheidsbeleid op te stellen. Deze lokale beleidsnota moet worden gebaseerd op (lokaal) epidemiologisch onderzoek, zoals wordt uitgevoerd door de GGD'en. In de praktijk is er een groeiende aandacht voor de manier waarop de lokale volksgezondheid rapporten daadwerkelijk van invloed kunnen zijn op de ontwikkeling van lokaal gezondheidsbeleid. Het is onbekend of en op welke wijze epidemiologisch onderzoek wordt gebruikt tijdens de lokale beleidsontwikkeling. Er zijn diverse Nederlandse studies geweest naar het gebruik van onderzoek door beleidsmakers. De meeste van deze studies zijn op nationaal niveau en het is niet zeker of deze bevindingen van toepassing zijn op de lokale situatie met zijn eigen politieke mechanismen en beleidsmakers.

Dit proefschrift beschrijft het onderzoek naar de mogelijkheden voor lokale epidemiologen en andere professionals binnen de openbare gezondheidszorg, om het gebruik van epidemiologisch onderzoek in het lokale beleidsvormingsproces te verbeteren. Om dit fenomeen te bestuderen is het noodzakelijk dat men de zwarte doos van de productie van epidemiologisch bewijs (de gezondheidsrapportages), de zwarte doos van beleidsvorming (de ontwikkeling van het lokale volksgezondheidsbeleid) en de interacties tussen beiden ontrafelt. Het huidige onderzoek zal antwoord geven op de volgende onderzoeksvragen:

1. Welke factoren en actoren leveren een bijdrage aan de ontwikkeling van lokaal gezondheidsbeleid?
2. Hoe en in welke mate heeft (epidemiologisch / wetenschappelijk) onderzoek invloed op de ontwikkeling van lokaal gezondheidsbeleid?
3. Hoe kan de doorwerking van het epidemiologisch onderzoek tijdens de ontwikkeling van lokaal gezondheidsbeleid worden geoptimaliseerd?

Binnen het domein van de Nederlandse openbare gezondheidszorg wordt vaak gebruik gemaakt van de driehoek van praktijk, beleid en onderzoek. De samenwerking tussen deze niches wordt als noodzakelijk gezien voor een effectieve volksgezondheid, echter is deze samenwerking vaak moeilijk te realiseren vanwege verschillende perspectieven, werkculturen, waarden en normen. Deze studie beperkt zich tot de niches van onderzoek en beleid en dan in het bijzonder in de lokale, gemeentelijke setting. Als algemeen onderzoeksperspectief hebben we gekozen voor een netwerkbenadering. In deze benadering staan de vele verschillende actoren, zowel binnen het onderzoeksproces als het beleidsproces, centraal waarbij veel van deze actoren met elkaar zijn verbonden. Echter hebben elk van deze actoren ook hun eigen perspectief op de volksgezondheid, welke problemen zij erkennen, hoe ze behandeld moeten worden, welke relevant zijn en aansluiten bij hun belangen.

Hoofdstuk 2 beschrijft de ontwikkeling van een conceptueel analytisch kader om het gebruik van epidemiologisch onderzoek in de Nederlandse context van het lokale gezondheidsbeleid te bestuderen. Er is begonnen met een internationale literatuurstudie waarvoor verschillende zoekstrategieën gebruikt zijn, zoals het screenen van relevante Nederlandse studies, proefschriften, internationale boeken, relevante nationale en internationale websites en een literatuuronderzoek met behulp van Pubmed en Google Scholar. Ook voerden we een inventarisatie uit naar de ervaringen van epidemiologen van verschillende GGD'en in Nederland. De resultaten van de literatuurstudie zijn een beschrijving van gebruikte analytische modellen en concepten over het gebruik van onderzoek en zijn er verschillende belemmeringen in transmissie van onderzoek in kaart gebracht. Uit de literatuurstudie bleek dat het interactiemodel als het belangrijkste verklarende model beschouwd wordt. Het erkent de interactieve en incrementele aard van de beleidsontwikkeling, de verscheidenheid binnen de groepen van onderzoekers en beleidsmakers, die goed past in de dynamische en complexe omgeving van het lokale gezondheidsbeleid. Voor het conceptuele kader stellen wij een netwerkbenadering voor, waarin we van het interactiemodel 'verlengen'. We focussen niet alleen op de één-op-één relatie tussen een individuele onderzoeker en beleidsmaker, maar ook op interacties tussen de verschillende actoren die deelnemen in het onderzoeks- en beleidsproces. In dit model is de centrale aanname dat de interactie tussen actoren in het onderzoeks- en het beleidsnetwerk het gebruik van onderzoek verbeteren. In het 'verlengde' interactiemodel onderscheiden we vier clusters van belemmerende en bevorderende factoren die van invloed zijn op het gebruik van onderzoek. Binnen het cluster "verwachtingen" staan onderwerpen die te maken hebben met de behoeften van potentiële gebruikers en de verwachtingen zie zij hebben van het onderzoek. Het gaat hier om zaken, zoals vraagstelling en timing. Het cluster van "transfer" bestaat uit mogelijke problemen op vorm, inhoud en de verspreiding van de onderzoeksresultaten onder de potentiële gebruikers. De volgende twee clusters omvatten individuele attributiefactoren van potentiële gebruikers. Bij het cluster van "acceptatie" gaat het om de mate waarin een persoon denkt dat de onderzoeksresultaten geloofwaardig zijn en deugen. Niet zoals dat wetenschappelijk gedefinieerd wordt, maar het gaat hier om de perceptie van potentiële gebruikers. Barrières ingedeeld in het cluster van "interpretatie" hebben betrekking op de waarde die mensen geven aan uitkomsten van wetenschappelijk onderzoek, in dit geval de lokale gezondheidsproblemen. Is het voor hen belangrijk genoeg om er daadwerkelijk iets mee te gaan doen.

In **hoofdstuk 3** richten we ons op de ontwikkeling van een regionale Volksgezondheid Toekomst Verkenning (rVTV) in de twee GGD regio's "Hart voor Brabant" en "West-Brabant" wat gemaakt is naar het nationale voorbeeld van het Rijksinstituut voor Volksgezondheid en Milieu (RIVM). Deze pilotstudie resulteerde in een empirisch model voor de regionale volksgezondheid rapportage en wordt gekenmerkt door zijn (1) producten, (2) de inhoud en vormgeving en (3) proces en organisatie. Het ontwikkelde empirische rVTV model bestaat uit verschillende producten voor verschillende doeleinden en

doelgroepen. Het regionale rapport en de Kernboodschappen voor Lokaal beleid (Lokale Kernboodschappen (LKB)) willen het strategische regionale en lokale volksgezondheidsbeleid onderbouwen. De ontwikkelde websites bevatten recente informatie, die is gericht op een versterking van het tactische regionale en lokaal beleid door de strategische beleidsprioriteiten te vertalen in concrete plannen van acties.
In **hoofdstuk 4** zoomen we in op de LKB, hun ontwikkeling en het gebruik tijdens de lokale beleidsvorming, waarbij we het conceptuele kader als analytisch instrument gebruikt hebben. In drie gemeenten (Breda, Oss en Boxtel) hebben we diepgaande casestudies gedaan. We verzamelden gegevens over 129 actoren en deden daarvoor semigestructureerde (telefonische) interviews, observaties en analyseerden internetvragenlijsten en beleidsdocumenten. De ontwikkeling van de LKB werd gekenmerkt door meervoudige interacties tussen regionale GGD epidemiologen, GGD-beleidsadviseurs, en de lokale ambtenaren volksgezondheid. Deze interactie gedurende het onderzoeksproces heeft de verwachtingen van de ambtenaren volksgezondheid bijgestuurd en zorgde ervoor dat de LKB gebruikt werden als discussiestuk binnen het lokale beleidsproces. Echter, ontdekten we een gebrek aan het gebruik van de LKB door specifieke groepen van actoren binnen het beleidsnetwerk, zoals ambtenaren van andere beleidsterreinen, professionals van zorginstellingen en afgevaardigden van patiëntenorganisaties. Dit gebrek aan gebruik kan verklaard worden door acceptatie en interpretatiefactoren, zoals persoonlijke overtuigingen en waarden, institutionele belangen en de context, zoals de manier waarop het beleidsproces is ingericht, wie op welk moment mag en kan meepraten. We concluderen dat de noodzaak van interactie afhankelijk is van de referentiekaders van de potentiële gebruikers. Daarom is het belangrijk om inzicht te krijgen op de verschillende gezondheidsperpectieven van de deelnemende beleidsmakers en ook naar die inzichten te handelen. Onderzoekers kunnen op deze manier strategisch veelbelovende manieren van interactie selecteren om het beleid te beïnvloeden.

In **hoofdstuk 5** onderzoeken we de ontwikkeling en het gebruik van het rapport "Groeien in gezondheid: Gezondheid en Zorg in de regio Midden-Holland, nu en in de toekomst". Een uniek kenmerk van de ontwikkeling van dit rapport was, dat de regionale zorgaanbieders er ook bij betrokken waren. Ook hier hebben we het conceptuele kader als een analytisch instrument gebruikt en geoperationaliseerd in semigestructureerde interviews. Documentanalyse werd gebruikt om meer inzicht te krijgen in onderzoeksproces, ontwikkeling, distributie van het rapport en het beleid van de betrokken zorgaanbieders. Specifiek in deze case gebruikten we het instrument van de "Ladder of research utilization" om het gebruik van het regionale rapport te meten. Deze ladder kent zeven fasen en start met het bekend zijn met het onderzoek en eindigt met de stelling dat het onderzoek direct geleid heeft tot beleidsverandering en activiteiten. Respondenten kunnen scoren halen variërend tussen de 28 en 140 punten. Hoe hoger de score des te hoger de impact van het onderzoek. De vragenlijst is door 31 respondenten ingevuld zijn opgenomen in de analyse. In de resultaten onderscheiden we drie groepen van beleidsactoren en potentiële

eindgebruikers van het rapport: ambtenaren volksgezondheid, de professionals van de GGD en de regionale zorgaanbieders. Gebaseerd op de ladder vonden we dat GGD professionals de hoogste gemiddelde impactscore had van 108, gevolgd door de zorgaanbieders met een impactscore 97 en de laagste impactscore van 82 hadden de ambtenaren volksgezondheid. Op basis van de interviews en documentanalyse vonden we verschillende mechanismen van het gebruik van het onderzoek binnen elke groep. Ten eerste, voor de GGD-professionals was het rapport in lijn met hun persoonlijke en organisatorische visies en belangen. Daarbij hadden zij ook bijgedragen in de dataverzameling en analyse van het rapport. Het rapport droeg bij aan de profilering van de GGD als een kenniscentrum op het gebied van preventie en gezondheid. Ten tweede was er een verscheidenheid van gebruik binnen de groep van regionale zorgaanbieders. Hoewel ze allemaal hadden deelgenomen aan de begeleidingsgroep van het rapport, hebben zij niet allemaal gebruik gemaakt van het onderzoek voor hun beleidsontwikkeling. Ondanks de interactie, paste het onderzoeksrapport niet bij de persoonlijke en organisatorische belangen van alle zorgaanbieders. Het blijkt uit deze studie dat juist deze aansluiting bij het referentiekader een voorwaarde is om het onderzoek te gebruiken. Hoewel de ambtenaren volksgezondheid de laagste impactscore hadden, blijkt het rapport wel nuttig te zijn geweest in het beleidsproces van de lokale nota Volksgezondheid. De verklaring voor dit gebruik ligt in de langdurige samenwerking tussen de lokale overheden en de GGD. Ze waren gewend aan epidemiologische GGD- rapporten, bereid om de inhoud ervan te aanvaarden en het rapport te gebruiken voor de ontwikkeling van lokaal gezondheidsbeleid. Maar de belangrijkste verklaring voor het gebruik is de timing en de inhoudelijke breedte van het rapport. Het rapport maakte het mogelijk voor lokale ambtenaren om beleidsdiscussies te verrijken tijdens het lokale beleidsproces. Het rapport onderbouwt het lokale belang van de eerder vastgestelde nationale gezondheidsprioriteiten en daarom heeft het rapport voor een deel de lokale politieke agenda beïnvloed.

Hoofdstuk 6 beschrijft het gebruik van epidemiologisch onderzoek door Nederlandse ambtenaren volksgezondheid op een kwantitatieve manier. Het doel van deze studie was om het daadwerkelijke gebruik van deze epidemiologische rapporten van GGD door ambtenaren en de daarmee samenhangende factoren te beoordelen. We ontwikkelden een internetenquête, waarin we de interactie tussen onderzoekers en de ambtenaren volksgezondheid en vier clusters van barrières van het conceptueel kader geoperationaliseerd hebben. Het gebruik van epidemiologisch onderzoek is gemeten in termen van instrumenteel, conceptueel en symbolisch gebruik. Instrumenteel gebruik houdt in dat het onderzoek op een specifieke en directe manier leidt tot beleidsverandering en conceptueel gebruik betekent dat het onderzoek het inzicht in het onderwerp in de gezondheidssituatie en de daarmee samenhangende (gedrags)problemen verbetert. Symbolisch gebruik betekent ofwel dat onderzoek wordt gebruikt om een specifiek beleidsstandpunt of actie te rechtvaardigen (politieke gebruik), of dat onderzoek wordt gedaan om beleid uit te stellen (tactisch gebruik). In totaal hebben 155 ambtenaren

volksgezondheid deelgenomen aan de survey en zij vertegenwoordigen 35% van alle Nederlandse gemeenten. Door middel van regressieanalyses, kregen we inzicht in de samenhangende factoren van de verschillende typen onderzoeksgebruik (instrumenteel, symbolisch en conceptueel). De resultaten tonen aan dat ambtenaren volksgezondheid het epidemiologisch onderzoek vaker gebruiken in een conceptuele dan een instrumentele of symbolische manier. Meer conceptueel gebruik werd statistisch vaker geassocieerd met het feit dat een epidemioloog een presentatie had gegeven gedurende het beleidsproces en de afwezigheid van barrières uit het conceptuele kader, zoals de toegankelijkheid van het rapport en persoonlijke overtuigingen en belangen van de ambtenaar. Instrumenteel en symbolisch gebruik hangen samen met de betrokkenheid van de lokale ambtenaren in het onderzoeksproces. De kwantitatieve uitkomsten sluiten aan bij eerder kwalitatieve bevindingen. De uitkomsten suggereren dat GGD epidemiologen verschillende strategieën kunnen gebruiken om het gebruik van epidemiologisch onderzoek te verbeteren. Het laten 'vervagen van de grenzen' en de verbetering van interacties tussen epidemiologen en ambtenaren, zoals directe betrokkenheid in elkaars werkprocessen, zal betere mogelijkheden creëren voor het optimaliseren het gebruik van onderzoek.

In **hoofdstuk 7** richten we ons uitsluitend op het ontwikkelingsproces van lokaal gezondheidsbeleid als een reactie op de bevindingen van de Nederlandse Inspectie voor de Gezondheidszorg, die niet tevreden is met de kwaliteit van de nota's lokaal gezondheidsbeleid. Hoewel de nationale preventiedoelen vaak genoemd worden, hebben gemeenten moeite met de vertaling naar concrete doelen en maatregelen en is de lokale uitvoering van de interventies niet geborgd. Om te komen tot aanbevelingen voor kwaliteitsverbetering, bestuderen we in dit hoofdstuk de (beleids)praktijk van de ontwikkeling van lokaal gezondheidsbeleid vanuit een beleidswetenschappelijk netwerkperspectief. We beschrijven de diverse beleidsactoren, hun acties, hun motieven en het beleidsproces. De gegevens zijn afkomstig uit drie gemeentelijke casestudies (hoofdstuk 4) en een landelijke enquête onder de lokale ambtenaren volksgezondheid (hoofdstuk 6). Het blijkt dat op het lokale niveau de nadruk ligt op de ontwikkeling van integraal gezondheidsbeleid, door middel van een iteratief en interactief beleidsproces. Immers, er moet tegemoet worden gekomen aan een variatie van inzichten en belangen van lokale beleidsactoren, omdat er anders geen draagvlak en geen gezamenlijke verantwoordelijkheid voor het beleid is. De landelijke sturing voor de opname van de nationale preventiespeerpunten belemmert echter het lokale interactieve proces. Vanuit het netwerkperspectief zou de oplossing voor het verbeteren van lokale nota's dan ook liggen in het creëren van meer vrijheid voor gemeenten om de discussies met de lokale actoren te intensiveren en de variatie van probleemdefinities en oplossingen in sterkere mate te laten doorwerken in de lokale nota. Dit is tegengesteld aan de aanbeveling van de inspectie om gemeenten nog sterker landelijk te sturen en te controleren.

In **hoofdstuk 8** keren we terug naar de centrale vraagstellingen van de studie en reflecteren we op de methodologische en theoretische benaderingen, trekken we conclusies en eindigen we met concrete aanbevelingen voor de praktijk.
In dit onderzoek hebben we gebruik gemaakt van een 'mixed method' aanpak, waarbij de onderzoeksvraag leidend is geweest voor de methodologische keuze van kwalitatief en/of kwantitatief onderzoek. Enerzijds zijn kwalitatieve, interpretatieve methoden goed in het beantwoorden van 'hoe' en 'waarom' vragen en worden diepgaande case studies gebruikt om het hele systeem van het gebruik van onderzoek voor specifieke lokale en regionale situaties te verkennen. Anderzijds zijn kwantitatieve methoden goed om vragen, over de mate van het onderzoeksgebruik en het vinden van mogelijke samenhangende determinanten, te beantwoorden en waren we hiermee in staat om meer generaliseerbare conclusies (in ieder geval voor Nederland) te trekken voor specifieke actoren in de specifieke omgeving. Toch erkennen we dat de kwantitatieve benadering verdere uitwerking nodig heeft, bijvoorbeeld een verdieping en definiëring van de gebruikte concepten en benadrukken we het belang om valide vragenlijsten te gaan ontwerpen.

Het conceptuele kader is in eerste instantie nauw verbonden met bekende interactie- en relatiemodellen uit de research utilization literatuur. We stellen dat wij in onze analytische benadering al een stap verder gemaakt hebben naar een systeemmodel voor het gebruik van onderzoek. We bestuderen namelijk ook de mogelijke invloed van gebeurtenissen in het beleidsnetwerk op het onderzoeksnetwerk en we hebben ons gericht op de rollen en activiteiten van de belangrijkste actoren en sluit en aan bij circulerende hedendaagse conceptuele en analytische kaders. We concluderen dat het door ons ontwikkelde conceptuele kader een nuttig instrument is voor het bestuderen van onderzoeksgebruik.
Verder concluderen we dat het essentieel is om inzicht te hebben in het beleidsproces om het te kunnen beïnvloeden en dient er rekening worden gehouden met de bestaande volksgezondheidsperspectieven van aanwezige beleidsactoren. De GGD (inclusief de uitkomsten van epidemiologisch onderzoek) staat voor een specifiek gezondheidsperspectief, die in strijd kan zijn met de perspectieven van andere beleidsactoren. Hoewel de epidemiologische gegevens worden verzameld en geanalyseerd aan de hand van (inter)nationale wetenschappelijke normen, is de manier waarop het wordt geïnterpreteerd en gepresenteerd het belangrijkste voor het beleidsproces. Het herkaderen van de epidemiologische onderzoeksresultaten en te spiegelen aan de perspectieven van andere beleidsactoren is noodzakelijk. De resultaten laten verder zien dat er verschillende manieren van onderzoeksgebruik binnen het beleidsproces zijn. Conceptueel gebruik (verbetering van het inzicht in de gezondheidsproblemen) komt het meest voor, terwijl symbolisch en instrumenteel gebruik minder genoemd worden. Conceptueel gebruik draagt bij aan de kwaliteit van het beleidsproces, de gegevens worden immers in de overwegingen en discussie meegenomen, ongeacht of de genoemde problemen worden overgenomen in de nota. Sterker nog, instrumenteel gebruik is gezien de complexiteit van het beleidsproces en de mogelijke variatie in aanwezige beleidsactoren misschien

niet eens haalbaar. Daarom concluderen we dat elk type onderzoeksgebruik als 'succes' moet worden beschouwd en even belangrijk zijn. Ook kunnen we concluderen dat de interactie tussen epidemiologen en beleidsactoren werkt, zowel tijdens het onderzoek als het beleidsproces. Het is echter geen wondermiddel. De persoonlijke overtuigingen en belangen van een beleidsactor zijn mogelijk zelfs een sterkere factor voor het gebruik van onderzoek dan interactie op zich. Tot slot concluderen we dat epidemiologen zich bewust moet zijn dat hij of zij geen is een neutraal positie hebben in het beleidsproces, maar een beleidsactor die een specifiek standpunt vertegenwoordigt. Zelfs als dit standpunt gebaseerd is op wetenschappelijk onderzoek. Beleidsrelevant epidemiologisch onderzoek wordt alleen gemaakt door te weten wat het doel is. Afhankelijk van het type onderzoeksgebruik wat men wil bereiken kan er strategisch bepaald worden wanneer en hoe de interactie met de lokale beleidsmakers plaatsvindt.

Er zijn een aantal praktische implicaties verbonden aan deze conclusies. In de eerste plaats vermelden we drie kwesties over het belang om vroegtijdig de duidelijkheid te creëren over het doel van het onderzoek. Het gaat dan over manieren waarop je doel en vraagstellingen kunt verhelderen, de mogelijkheid om met diverse beleidsactoren te discussiëren over de methode van onderzoek en de verschillende vormen van de volksgezondheidsrapportages.
Om meer inzicht te krijgen in de zwarte doos van het beleid zijn er praktische instrumenten, zoals checklists, die kunnen helpen om de beleidsarena in kaart te brengen. Het is ook heel nuttig om de verschillende rollen van een epidemioloog of andere professionals binnen het beleidsnetwerk en het proces strategisch te benutten. Zo kan een ambtenaar volksgezondheid of een GGD beleidsadviseur de rol van "beleidsondernemer" op zich nemen en een epidemioloog de rol van een "kennismakelaar". Verder adviseren wij om de gezondheidsproblemen vanuit een GGD perspectief te herkaderen naar het perspectief van actoren uit andere beleidsdomeinen. In de beleidsarena gebruiken beleidsactoren hun referentiekader om gelijk te krijgen. De gemeentelijke casestudies laten zien dat ze daar niet (alleen) onderzoek voor gebruiken, maar bij voorkeur beelden en verhalen. Om het lokale epidemiologische onderzoek te kunnen positioneren in het lokale beleidsdebat is het noodzakelijk om deze kennis in een bredere maatschappelijke context te plaatsen.
We sluiten dit laatste hoofdstuk af met een korte reflectie over het al dan niet 'evidence-based' zijn van lokaal gezondheidsbeleid in Nederland. Op basis van deze studie stellen we dat het beleid wel evidence-based is en dat conceptueel en symbolisch gebruik van epidemiologisch onderzoek, net zoals instrumenteel gebruik, als een succes beschouwd moeten worden. De epidemiologische kennis heeft bijgedragen aan de verbetering van het beleidsproces, is in acht genomen en bediscussieerd, ongeacht of het leidt tot directe veranderingen in het beleid of niet. Het debat over evidence-based lokaal gezondheidsbeleid gaat niet alleen over de vraag *of* het onderzoek is gebruikt maar over de *manier waarop* en of men dit als voldoende beschouwt.

Dankwoord

Dankwoord

Eindelijk kan ik aan dit dankwoord beginnen. Diegenen die mij kennen, zullen weten dat vooral het schrijven van het proefschrift een ware beproeving voor mij is geweest. Dat was dus ook nooit gelukt zonder de hulp van vele mensen.

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Op woensdag en donderdag verbleef ik bij de Academische Werkplaats Publieke Gezondheid Brabant bij Tranzo van de Universiteit van Tilburg. Wetenschappelijk gezien mijn thuisbasis. Ondertussen lopen er nu zoveel collega's rond dat ik ze

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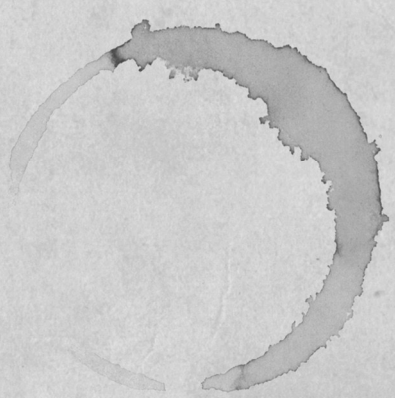
About the author



About the author

Joyce de Goede was born on May 25th 1972 in Breda, the Netherlands. After her graduation from secondary school in 1991 (Newmancollege, Breda) she studied biology at the University of Applied Sciences in Utrecht (education and pedagogic) and later at the Wageningen University, and specialized in epidemiology. She graduated in 1998 and in the same year she started working part-time at the Regional Public Health Service (RPHS) Midden-Holland in Gouda. In 1999 she combined this job with a part-time job at the RPHS Delfland in Delft, working on various epidemiological research projects and becoming acquainted with policy advice for municipalities. In 2001 she moved to the RPHS West-Brabant in Breda where she became involved in the development and practice of periodical health assessments for municipalities. In 2005 she started to write a PhD proposal on the use of epidemiological research during local health policy development. This proposal was granted by ZonMW (the Dutch organization for health research and development) as part of the Academic Centers of Public Health Programme and has led to the research presented in this thesis. At the moment Joyce is working as an epidemiologist and science practitioner at the RPHS West-Brabant and at the Collaborative Center for Public Health Brabant, Tilburg University. Furthermore, she is a regular academic guest lecturer on epidemiology, communication and policy.

Joyce lives together with Mariëlle Emmen in Breda, where they raise two children: Raymondo (7) and Romania (3).

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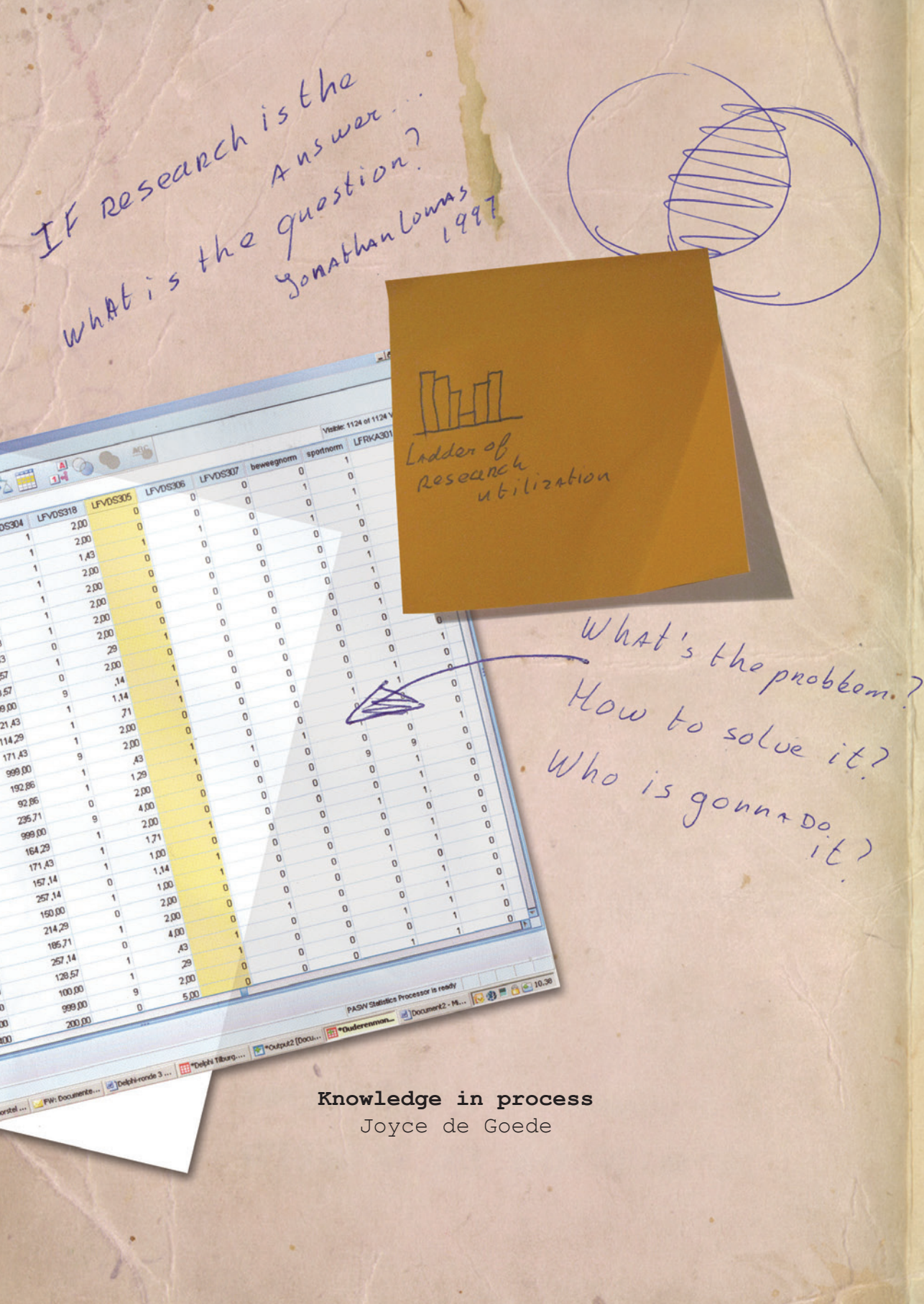

Knowledge in process

Joyce de Goede