

# Project Report

## Use of Norwegian Municipal Public Health Profiles and Data Bank: A qualitative study

DL Public Health MSc PHM 305

Word count: 9994

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Candidate Number: J09639

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**Submitted: September 30 2014**

## Abstract

**Background:** In order to support the 428 Norwegian municipalities in making available “sufficient” public health information, the Norwegian Institute of Public Health (NIPH) annually updates the Municipal Data Bank (MDB) and simultaneously publishes individual Municipal Public Health Profiles (MPHPs). This study explores views of municipal public health professionals regarding these information toolsets.

**Aim:** To gain knowledge about whether and how municipal public health professionals are using the MPHPs and the underlying MDB and what they want from these toolsets.

**Methods:** After a strategic literature search, semi-structured qualitative interviews were conducted with 12 informants in 7 purposefully sampled municipalities. Short questionnaires were filled in and practical tests observed.

Using Thematic Analysis and Grounded Theory, transcripts of interviews/observations were coded and used with the questionnaires to identify themes that illuminated whether, when and how the toolsets were used.

**Results:** The informants appreciated the clear data presentations in the MPHPs. They claimed to find the MDB clear and serviceable, but many had never actually tried it. The MDB/MPHP indicators were used to guide municipal planning, to collaborate in various ways with other municipalities, and many informants hoped to use them for evaluation of interventions.

**Conclusion:** Main recommendations were the need for further indicators, more training, particularly on the MDB, and that the political leaders in the municipalities must be more involved with public health work and more actively support their public health officials. Despite some shortcomings, the MPHP-/MDB toolsets were thought to be serviceable for municipal public health work.

## Acknowledgements

Olav Brunborg for help and support during his internship at the NIPH.

Ursula Småland Goth for telling me I could do it.

Anna Biehl for listening and for quality control of transcripts and translations.

Bernd Rechel, my advisor at the LSHTM, for agreeing to work with me and supporting me during the process.

Else-Karin Grøholt and the Municipal Health Group for giving me time off and for making such useful data presentation systems.

Corinne Lyche Campos for the writing days in August.

The Norwegian municipalities Bjørkebygd, Fjordby, Granbygd, Kystby, Skogsby, Strandbygd and Urbankommune (pseudonyms) and my 12 informants for the interviews.

Kjetill Gunnarson and Magne Rolf Lyshol Gunnarson for forbearance and patience, as well as long discussions about the infrastructure of words and the beautification of contents.

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## **Abbreviations and Definitions**

CMO = Chief Municipal Officer (“Rådmann”)

CPHPs = County Public Health Profiles (“Folkehelseprofiler for fylkene”)

LSHTM = London School of Hygiene and Tropical Medicine

MPHPs = Municipal Public Health Profiles (“Folkehelseprofiler for kommunene”)

MDB = Municipal Data Bank (“Kommunehelsa statistikkbank”)

MPH = Master of Public Health

NDH = Norwegian Directorate of Health (“Helsedirektoratet”)

NIPH = Norwegian Institute of Public Health (“Folkehelseinstituttet”)

NMHCS = Norwegian Ministry of Health and Care Services (“Helse- og omsorgsdepartementet”)

## 1. Introduction

The 2012 Public Health Act (Norwegian Ministry of Health and Care Services (NMHCS), 2012) charges the Norwegian Institute of Public Health (NIPH) to make available some of the information the municipalities need to have sufficient overview over health and underlying factors, as well as support them in their work to counteract social inequalities in health.

It has been hypothesized that in countries like Norway, where health-related policy is based on egalitarian principles, socioeconomic inequalities may be smaller, but this has not been shown to be true (Mackenbach, Kunst, Cavelaars, Groenhof & Geurts, 1997). Despite Norway's longstanding reputation as an egalitarian society there are large and potentially growing social inequalities in health in Norway, showing a clear gradient (Sund & Krokstad, 2005, p8).

The 428 Norwegian municipalities are required to monitor the health status of their inhabitants and the determinants for health (Ibid. §1, §4, §5). In fulfilment of §5, the NIPH annually distributes a suite of processed statistics from central registries to support the municipalities.

The Act (Ibid.) states that the Chief Municipal Officer (CMO) ("Rådmanden") is responsible for public health, but there are no rules for how this responsibility should be organised, planned, implemented and measured. All municipalities must have a Public Health Officer ("Kommunelege") (NMHCS, 2011, §5.5) but the Act does not describe how this physician is supposed to influence public health.

In the last few years, many municipalities have hired Public Health Coordinators, Advisors or similar (Lyshol, 2014, p28). Some of them have public health educations, others come from



non-Health sectors and many work part-time. There is no one set way of organising municipal public health, as mirrored in how these very different professionals use the NIPH toolsets.

In January 2014, the Municipal Data Bank (MDB) and the Municipal Public Health Profiles (MPHPs) were distributed for the third consecutive year.

In this context, I was asked by the NIPH to explore how the MPHPs and the MDB were used in Norwegian municipalities. After discussions with acquaintances in the municipal health sector, I added “or whether they are used at all” to my objectives.

This study’s objectives were to

1. describe how and whether public health co-ordinators, municipal physicians and other municipal public health officials use the MPHPs and MDB,
2. observe and illuminate the actual use of these toolsets in an office setting using a simple practical test;
3. obtain these officials’ opinions about the technical parts of the systems, about the overall content and about the specific indicators;
4. present a list of user recommendations

I conducted qualitative interviews with public health professionals in seven municipalities.

The interviews, augmented by a simple questionnaire and practical tests, provided knowledge about the use of the MPHPs and MDB. I mainly used qualitative techniques, such as thematic analysis, to explore the bigger picture and find out whether and how the MPHPs and MDB were used and also produced a list of user recommendations that would make them more serviceable for municipal public health work and in interactions with central health authorities.

## **2. Background**

This section describes geographical, legal and organisational background, as well as the relevant information systems and toolsets. The literature search has been placed in the Methods chapter, as I had to use some rather unorthodox methods to find some of the literature cited, and they fit better with the overall logic of the Methods chapter.

### **2.1. Norway's Administrative Regions**

Norway is a Scandinavian welfare state based on egalitarian values (OECD, undated; Mackenbach et al., 1997), with a population of just over 5000000 inhabitants. The country is administratively divided into 19 counties (“fylker”) and 428 municipalities (“kommuner”). Persisting social inequalities in health (Næss, Rognerud & Strand, 2007) have been the basis of wide-reaching legal reforms in the last few years.

### **2.2. The Public Health Act of 2012**

In 2012 the NMHCS Public Health Act entered into force. The purpose is to:

- “contribute to societal development that promotes public health and reduces social inequalities in health”,
- “ensure that municipalities, county authorities and central government health authorities implement measures and coordinate their activities in the area of public health in a proper and sufficient manner”,
- “facilitate long-term, systematic public health work” (NMHCS, 2012).

### 2.3. Sufficient Municipal Overview of Public Health

The Act redistributes much of the public health responsibility to the municipalities, which are “required to have sufficient overview over health conditions and influencing factors” and counteract social inequalities in health (Ibid.).

This overview should be based on:

- **“information that the central health authorities and the county authorities make available”,**
- “knowledge from the municipal health and care services”,
- “knowledge of factors and development trends in the environment and local community that may influence the health of the population “(Ibid.).

As a central health authority, the NIPH has produced the MPHPs and the MDB in support of the first third of these requirements.

### 2.4. The NIPH Health Information Systems

The NIPH Department for Health Statistics provides a set of tools for public health:

- **NorHealth** – an online health presentation system containing data for Norway and, when available, for the 19 counties. Established in 2000, updated continuously.
- **NIPH Fact Sheets** – around 100 short informative web pages and pdf files giving general, statistics-based information about different health conditions and risk factors. Established in 2005, variable updates.
- **County Public Health Profiles (CPHPs)** – 19 short reports about public health factors on a county level. Established in 2012, updated continuously.

- **Municipal Data Bank (MDB)** – an online health information system with data on municipal and county level with data from person-identifiable registers. Established in 2012, updated annually.
- **Municipal Public Health Profiles (MPHPs)** – 428 short reports about public health factors on a municipal level. Data are taken from person-identifiable registers via the MDB. Established in 2012, updated annually.

This study deals with the MPHPs and the MDB because the new Act (NMHCS, 2012) requires the NIPH to interact with the municipalities and their needs in a completely new way. Unlike the earlier parts of the NIPH Health Information Systems, they are directed primarily towards smaller administrative units, specifically Norway's 428 municipalities.

## 2.5. Municipal Public Health Profiles

The MPHPs contain data on 34 health indicators in all 428 Norwegian municipalities, comparing municipal data with county and national data. The MPHP and MDB indicators were selected by the NIPH Municipal Health Group with Marmot and Wilkinson's "Social Determinants of Health" (2005) in mind, which means that the indicators include both health determinants and health outcomes. The emphasis cannot be on indicators concerning health outcomes and health services alone, since structural and political factors are considered of utmost importance, both for the health of the individual and for public health, and to counteract social inequalities in health.

The profiles are published annually, each January, and consist of:

- A front page summarising important public health issues for the relevant municipality, describing how the **municipality** places compared to the country as a

whole for 15-20 selected indicators in six indicator groups: About the population; Living conditions; Environment; School; Living habits; and Health and disease.

- A midsection of two pages, consisting of information, graphs and other illustrations concerning a specific **national** subject. The 2014 subject was environmental health.
- The back page, known as the **public health barometer**, lists 34 indicators coded with red dots (significantly worse than country level), green dots (significantly better than country level) or yellow dots (not significantly different/too few observations for significance). There are also colour bars showing the spread of each indicator within its county and the county level, plus actual percentages. The indicators are sorted into the same six groups as on the front page.

The MPHPs were inspired by the work of the Public Health Observatories, Great Britain, which have been making Health Profiles for Local Authorities since 2006, (<http://www.apho.org.uk/>), and the EU project I2SARE, Health Inequalities Indicators in the Regions of Europe, which published 265 regional health profiles in 2010 (<http://www.i2sare.eu/>).

An MPHP in English (Tromsø Municipality, 2013) is shown in Annex H.

## 2.6. The Municipal Data Bank

The MDB contains more than twice as many indicators as the MPHPs, using more age groups and data divided by gender.

The MDB can be used to make graphs, maps and bar diagrams to illustrate the different indicators, showing developments over time and across municipalities.

Each indicator has a description identifying the data source, calculation methods, its importance in a public health context and availability.

When applicable, the indicator is hyperlinked to the relevant NIPH Fact Sheet and other references.

A similar databank, NorHealth, contains data at a country and county level (but no municipal data). Some informants knew more about NorHealth than about the MDB, presumably because NorHealth has been available since 2000. NorHealth is also available in English, whereas the MDB has not been translated.

The present user interfaces of NorHealth and the MDB are very similar, and user proficiency from one easily carries over into the other.

Some examples of how the MDB can be used are found in Annex E.

### **3. Methods**

This study consists of:

- A strategic literature search (Aveyard 2010) to identify health profile evaluations and other relevant documents.
- Qualitative, semi-structured interviews (Silverman, 2013, p204) with public health officials in seven municipalities, purposefully sampled (Maxwell, 2013, pp97-99),
- Recorded observations of officials' use of the MDB in an attempt to mimic naturally occurring data (Silverman, 2013, p132),
- A short survey, informed by Hesse-Biber (2010, ch7) to illuminate interview findings from another angle,
- Data coding of the transcripts (Braun & Clarke, 2013, p210),
- Identifying patterns across the data (Braun & Clarke, 2013, pp223-243),
- Thematic analysis (Braun & Clarke, 2013, pp202-203) and data interpretation, informed by grounded theory (Hesse-Biber, 2010, p119).

Particularly useful research method textbooks were Braun & Clarke (2013), especially on interview and transcription techniques, Hesse-Biber (2010) on mixed methods, and Maxwell (2012) and Silverman (2013) on selection and sampling.

#### **3.1. Strategic Literature Search**

##### **3.1.1. Traditional Literature Review**

An extensive search of the published, peer reviewed literature was conducted to find out how evaluations of similar public health profiles, health reports and health databases have been conducted.

The following databases were searched with the help of a NIPH research librarian:

**EMBASE 1974-, Medline 1946-, ISI Web of Science 1987-, SCOPUS 1823-.**

The following search terms were used in different combinations:

**Health profile, health report, health database, user, evaluation.**

No exclusion criteria were used during the search; each article was skimmed for relevance to the objectives of this study. This approach was informed by grounded theory, without preconceptions on how such an evaluation could be carried out.

The articles found were mainly concerned with specific health risks or settings, such as school health profiles. I did not find any evaluations of public health profiles/reports/databases at all.

I found this paucity troubling, and hoped that there might be more evaluations in the «grey literature» (Hopewell, McDonald, Clarke & Egger, 2007). I therefore conducted a similar search on the base OpenGrey (<http://www.opengrey.eu/>) and Google Scholar (<http://scholar.google.no/>). I came across some additional local health profiles, but no evaluations.

### **3.1.2. Alternative Literature Search**

No peer-reviewed articles about evaluations were found through traditional literature search, so personal contacts and more irregular methods were attempted.

Through contacts at the British Public Health Observatories, I was sent Bradford, Hill & Wilkinson (2009) and Hill et al. (2010). Both these articles deal with whether their public health profiles fulfil user needs.



A list of 13 existing health profiles was created by a combination of previous knowledge, the new profiles that had come up in my search in OpenGrey and Google Scholar, asking colleagues and searching the internet for the terms “health profile” and “health report” in English, Norwegian, Swedish, Danish and Spanish. The 13 were chosen to provide a range of different types of profiles and reports, using both national and regional data.

The researchers behind these profiles and reports were contacted. Six institutions replied that they had not done any evaluations, while seven institutions provided eight different evaluations. The reports are summarised in Annex B.

I also received some questionnaires and interview guides that had been used, and adapted some questions that are relevant to the Norwegian context, such as the question about specific uses of the MPHPs and MDB (Annex F), adapted from (Helgesen, Hofstad & Westby, 2008, p40).

## **3.2. Sample Recruitment**

### **3.2.1. Purposeful Sampling of Municipalities**

The number of interviews was predominantly a pragmatic decision, informed by the theoretical literature and discussions with my thesis advisor at LSHTM. Given the timeline, purposeful sampling (Silverman, 2013, pp279-281) of a low number of municipalities was seen as optimal. I aimed at interviewing two people from each of five selected municipalities, geographically as widely spread as possible. A sixth municipality was added to provide back-up.

I included only municipalities that would be affordable to visit. They were sorted into sextiles according to the MDB educational attainment indicator, and one municipality was selected

at random from each group. This was an attempt to obtain a *purposeful selection* “to capture the heterogeneity in the population” (Maxwell, 2012, p98).

The educational indicator was selected because it is the most common variable for examining social inequalities in Norway (Sund & Krokstad, 2005).

The seven municipalities ranged in size from around 5000 to almost 80000 inhabitants (average 29000), with a total population of 205000 inhabitants. Their population structure ranged from sparsely populated (17 inhabitants/km<sup>2</sup>) to quite densely populated (570 inhabitants/km<sup>2</sup>). Due to travel budget restrictions, all the municipalities are in the Southern half of Norway.

### **3.2.2. Inviting the Municipal Informants**

The six municipalities were asked via e-mail to allow access to public health coordinators, municipal physicians and others with similar duties. Five replied positively.

Later, two more municipalities were selected from the same (sextile) lists to replace the municipality that did not reply and also to add more informants.

All the participating municipalities were offered training courses in the use of the MDB as an incentive to allow access to their employees. This was also done to “give something back to the participants in return for the time and inconvenience of being involved” (Maxwell, 2012, p94). Courses were taught in three municipalities to 22 participants.

### **3.3. Data Collection: Qualitative Interviews and Observations**

#### **3.3.1. Interview Methods and Guidelines**

As described by Braun & Clarke (2013), data were collected through qualitative interviews.

This interview form was chosen because my research was centred on experience, and I wanted rich data describing attitudes and thoughts so that eventually, the NIPH would know more about the use of the MPHPs/MDB in everyday municipal work.

A total of 11 interviews were conducted with 12 informants from seven municipalities in six counties.

In one municipality, the local authorities insisted on providing three informants, and in another, the two informants would only consent to be interviewed together.

There were two municipalities with two informants, and three with one informant.

The informants consisted of eight women and four men aged 38 to 59 (average 49). Their educational backgrounds were very diverse, demonstrating that municipalities organize their public health work in different ways. There were four physicians, two people with a MPH degree, and seven people with other degrees from health and/or education. The interviews ranged in length from 25 to 70 minutes (average 48).

Guidelines for the semi-structured interviews were developed based on the literature review, discussions with Dr Olav Brunborg (NIPH intern spring 2014), and the Municipal Health Group in the NIPH Department of Health Statistics. They were revised and piloted with Dr Brunborg.

The full interview guide is in Annex D.

Such guidelines are important to ensure that topics of interest are covered. The interviews took the form of loosely guided conversations, allowing the informants control over the discussions. Not all topics in the guidelines were covered in each interview.

Demographic information about the municipalities was collected in advance.

All interviews were recorded as audio files. Observation notes were also taken during and after the interviews.

The 12 municipal visits were structured in this way:

- Introductions/questions about the project
- Presentation of introductory letter and consent forms (Annex C)
- Tape recorded interview, following the interview guide (Annex D),
- Solving three practical tasks with the MDB (Annex E)
- The questionnaire (Annex F)
- Closing discussion

Each interview started by elucidating information about the informant; age, educational background and employment duration in this municipality; followed by:

- Knowledge/use of the MPHP and the MDB
- Practical experience in everyday work
- Whether they had an effect on municipal public health policy
- Wishes for changes or developments in both tools

### 3.3.2. Observation as a Data Collection Method

Silverman (2013, pp317-319) warns against believing that all data will be available through interviews alone, and recommends observational studies to elicit more information.

Watching the informants solve simple tasks with the MDB illustrated this.

After the interview, each informant was given the task list (Annex E, without the solutions) and went online to make maps and a timeline using the MDB. Comments made during this process were recorded, and extensive field notes written. There were great differences in competency, many informants struggled to solve the tasks, even many who had shown great confidence during the interviews. Several comments made during these observations resulted in suggestions listed in the Recommendations.

### 3.4. Data Collection: Quantitative Data

The data in this study are mainly qualitative. Additional quantitative data help to inform interpretations and to some degree triangulate results (Hesse-Biber, 2010, p98). These data take four forms:

1. **Questionnaire** data
2. Numbers of **downloads** of the MPHP (available monthly per municipality January 2012 – July 2014),
3. **Population data** about each municipality, and
4. Data about the **informants** (gender, age, education etc.).

#### 3.4.1. Questionnaire

**The questionnaire** (Annex F) contains 36 questions, 18 about the MPHP, 18 about the MDB.

In the **first** section, the 12 respondents were asked to say whether they agreed or disagreed with six positive statements about the MPHP. Five answers were possible; Strongly agree, Agree (combined as “Agree”), Disagree, Strongly disagree (combined as “Disagree”), and Don’t know.

On the advice of a statistician colleague, I did not allow any kind of intermediate (“Neither agree nor disagree”) answer, but aimed at dichotomising the answers.

The **second** section uses the same six statements about the MDB and offers the same possible replies.

The **third** section asks whether the respondent has used the MPHP and the MDB for specific purposes, such as “To illustrate a talk” or “Professional skills development”. The required responses were tick-marks for each listed purpose.

The **fourth** section offered the less active users of the toolsets a way to disclose that “I have never really used (x)” or “I understand what it’s about, but it is of no use to me”.

### 3.4.2. Other Quantitative Data

The monthly **download** figures for the MPHPs rise each January, when a new MPHP is made available.

The total number of downloads for all 7 municipalities was 1453 over a period of 29 months. For each individual municipality, the number of times the MPHP had been downloaded was from 60 to 450 times. Since the municipalities vary so much in size, I looked at the number of downloads per 1000 inhabitants.

The national average is 7.9 times per 1000 inhabitants, while the seven selected municipalities had from 4.2 to 14.0 downloads per 1000 inhabitants with an average of 7.1.

Since it is possible to save the MPHP as a pdf file and to print it on paper, this number can't be used to say anything directly about how many times someone has looked at the MPHP. Several of the respondents showed me that their MPHP was stored in paper form in a binder or on the municipality's web page. I did not try to conduct further analysis of this dataset.

The **population data** about each municipality and the **informant data** have been utilised and discussed in sections 3.2.1, 3.3.1 and 4.3.

### 3.5. Data Transcriptions (Interviews and Observations)

Interviews and note-taking took place in Norwegian. Digital recordings were fully transcribed, using Braun & Clarke's notation system (2013, p165) and relevant selections later translated into English. Native English speakers were available at the NIPH for consultation. Colleagues quality checked random parts of the transcripts for consistency with the recordings and translations of selected quotes in the transcripts.

### 3.6. Data Familiarisation and Coding

#### 3.6.1. Reading, Familiarisation and Initial Coding

Transcribed interviews were saved in Microsoft Word and the texts prepared for analysis, with transcripts numbered by line, and presented in double space for ease of reference.

The transcripts were marked with code names for municipalities and informants and printed. A thorough side-by-side reading of the transcripts ensued to identify possible topics, or **codes**, using simple colour-coding and numbers.

Using a cut-and-paste technique, quotes about the same topic were collected on a spreadsheet, ensuring that each statement was traceable back to the original transcript by maintaining information about municipality, informer and line. Following Braun & Clarke

(2013), my transcripts were read and re-read, and some statements about how, why and whether the respondents used the MPHP and MDB emerged as more significant than others. I coded them according to what I saw as the main topic. Some transcripts are very rich in codes, with informants making statements that can be seen as particularly full of meaning. Here are two examples, to illustrate my working process.

The informant S in Kystby (lines 187-191) describes their working situation:

*It was sort of like, "Here you go, start!" And there hasn't been a good overview for us. And it obviously can't be completely and totally a guideline [for what to do in the municipality], municipalities are different, but there is probably, in a way, 90-95% much the same stuff that any municipality must take into consideration, when you start working with public health. And that's what I miss, to have something like that all the way, in some public ...er... place.*

This statement was coded with code 9, "Need for practical information about interventions and priorities", and code 28, "Working with and consulting central health authorities".

This informant would like to have some kind of general guidelines for what to do, what kind of interventions and other public health measures to take, and believes that although municipalities are different, such best practices could be shared between municipalities and made available to all.

The informant M in Strandbygd (lines 422- 424) has similar ideas:

*Er ... So I think that ... uh ... everything from government sources, which could give us a better overview of ... both research and action. But going a little across, then.*



(Interviewer: Mmm.) *In the sectors. It's sort of my hobby horse all the time. And it is very like that silo thinking, then, all the time. Yes.*

Again, the informant wants central authorities (code 28) to provide relevant overviews over what kinds of action to take (code 9), and stresses the importance of acting across sectors (code 21, "Using MDB/MPHP in multisectorial municipal working groups"), warning against "silo thinking"; focusing on each municipal sector on its own and not seeing how different sectors may collaborate and strengthen each other.

This is important considering the municipal objectives from the Public Health Act (NMHCS, 2012). Both informants (M and S) feel unable to follow the Act, because they don't know which measures to implement, and would like the central health authorities, in essence, to tell them what to do. I believe both these informants express insecurity in their roles, which they feel require them to take the responsibility for what is done in their municipalities while they are not given enough knowledge about which interventions are best suited, nor empowered to initiate relevant actions. There is tension between the potential for control exercised by central health authorities and the preference for local self-determination.

After going through all the 11 transcripts multiple times, I became familiar with the texts and felt I had some kind of grasp of what the municipal informants' issues were.

### **3.6.2. Selective Data-Derived Coding Informed by Grounded Theory**

Going over the transcripts again, I selectively identified 63 topics (Annex I) for which the transcript were coded. I attempted to "notice patterns that link to broader psychological, social or theoretical concern" (Braun & Clarke, 2013, p204) by questioning *why* the informants framed their experiences in those words, and tried to phrase the codes so they would be understandable to others. Using the words and ideas of the informants, I moved

back and forth between the texts and my working notes, as described in Braun and Clarke in their description of coding in grounded theory (2013, p214).

### 3.7. Thematic Data Analysis Methods and Steps

#### 3.7.1. Searching for Themes Across Data

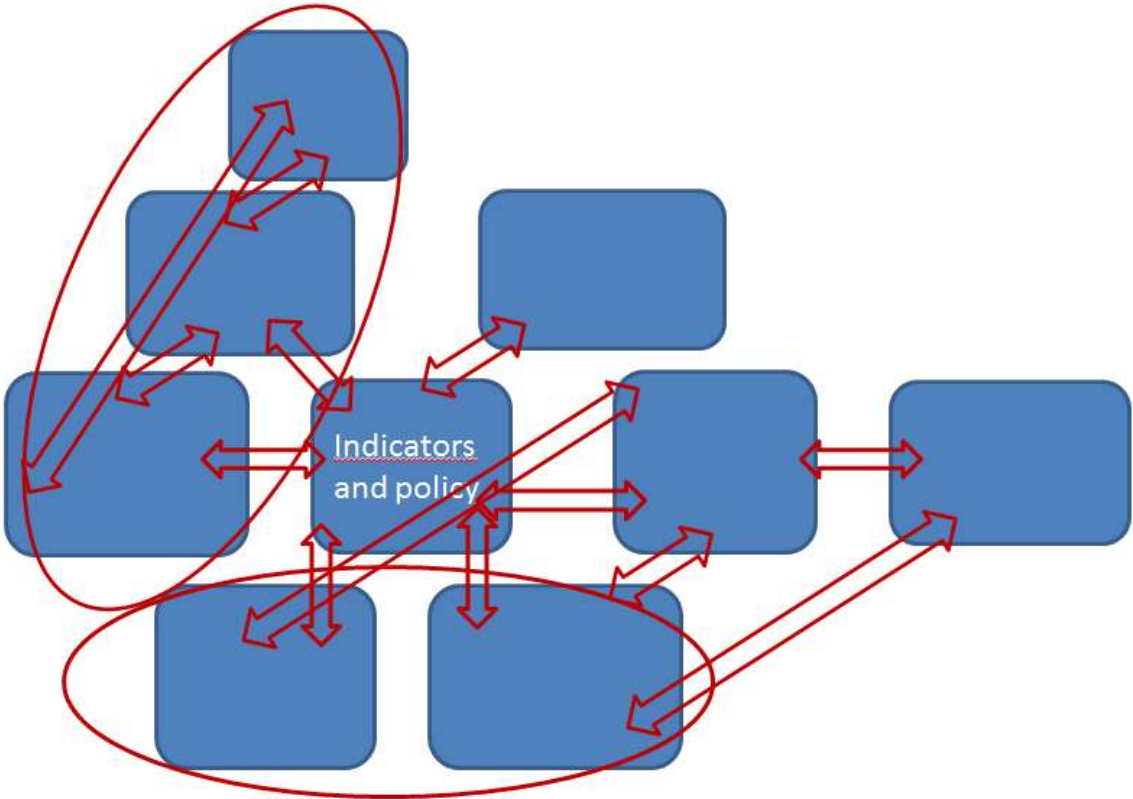
In thematic analysis, relevant codes are grouped together into **themes**. Themes are larger patterns that “recur *across* a dataset [and] capture something psychologically or socially meaningful” (Braun & Clarke, 2013, p223).

Braun & Clarke (2013, p249) state that “Writing is the process through which the analysis develops into its final form (...).” I therefore choose to write in detail here about how results were reached, because I believe this process was among the most important parts of this project.

Without access to the software mentioned in the textbooks, I cut up a printed list of the 63 codes, and sorted them into different stacks, according to my immediate reactions, to find candidate themes and their connections. This by-hand technique, is very much a bottom-up approach, suited to my understanding of grounded theory and described by Braun & Clarke (2013, p232). I then started grouping the lines of paper codes into one or more themes.

There were false starts and revisions, many codes were moved around on the table and several models were drawn to find a way the different themes with underlying codes fit together.

**Figure 1: Early Thematic Grouping**



In the end, nine themes were constructed. Some are obviously more important than others, and some themes can be seen as sub-themes of others. The finished list of 63 codes linked to 9 themes is in Annex J.

**3.7.2. Defining and Naming Themes**

As described in Braun & Clarke (2013, p249), full descriptions of the themes are a stage of the process. Due to length restrictions, short descriptions and selected codes illustrating the themes are given in the Results chapter. What is important to note is that the themes have been *sculpted* (Ibid., p225, p287), they did not emerge by some mystical process, but gradually, through multiple revisions. The theme names themselves went through several iterations.

### 3.8. Ethical Considerations

All informants were sent an information letter, including the consent form (Annex C), by e-mail. Before each interview, they were given another copy of the letter and asked to read it before signing the consent form, including the tick box on whether they consented to be re-contacted. The requirement for informed consent should thus be fulfilled.

In nine hours of transcribed interviews, none of the 12 informants volunteered any personal information, and I did not seek any. It is nevertheless important to protect their confidentiality and anonymity through pseudonyms for both the municipalities (Fjordby, Strandbygd etc.) and the informants (M, K etc.).

Some informants spoke freely about the current situation in their municipalities, information that might be detrimental to their careers should word reach their superiors. It is therefore especially important that the pseudonyms are used consistently.

Identifying information has been omitted from all quoted transcripts.

## **4. Results**

This study has led to qualitative and quantitative results. The quantitative data have mainly been used to examine the assumptions and conclusions from the qualitative data, and have been very useful as a form of triangulation (Maxwell, 2013, p102; Braun & Clarke, 2013, pp285-286). I will expand on this in section 4.3.

### **4.1. Pattern Interpretation across Data**

During the analysis phase, as recommended by Braun & Clarke (2013, p232), I used visual mapping to explore relationships between codes and themes. Figure 2 shows the final iterative result of this process; the theme “MDB/MPHP Indicators and Policy” is in the centre, tied to and connecting all the other themes.

**Figure 2: Thematic Grouping by Actions**

<p><b>Municipal Use of the MDB/MPHP</b> describes how the municipalities use the MPHPs and MDB.</p>	<p><b>MDB/MPHP Indicator Wishlist</b> lists the indicators that the informants would like to have.</p>	<p><b>MDB Functionality Wishlist</b> lists application issues problems and problems in the user/software interface.</p>
<p><b>Municipal Size and MDB/MPHP Suitability</b> concerns issues regarding municipality size and indicator selection issues where municipality size plays a role.</p>	<p><b>MDB/MPHP Indicators and Policy</b> describes the interaction between the indicators selected for the MPHPs and MDB and national and municipal policies.</p>	<p><b>MPHP Midsection Wishlist</b> lists the topics that the informants would like to find in future MPHP midsections.</p>
<p><b>Municipal Roles and Leadership</b> relates to local policy and working practices.</p>	<p><b>Central Health Authority Roles (and leadership)</b> concerns national authorities and how the informants see their present and desired roles.</p>	<p><b>NIPH Actions Wishlist</b> lists potential (non-indicator) activities from the NIPH that would support the municipalities.</p>

Two groups of themes have similar attributes: the four **Wishlist themes**, informing the NIPH what the municipalities would like from them, and the three **Municipal themes**, describing municipal conditions and usage. The theme Central Health Authorities stands alone.

**4.2. Core Coding Representations of the Nine Themes**

Following Braun & Clarke (2013, p252), data may be used illustratively or analytically. My themes are mainly in the illustrative category, in that they are an attempt to categorise what the informants said about whether, how and when they use the MPHPs and MDB and what I think this means. Thematic analysis and grounded theory are inductive methods, so it is important to stay close to the data, while presenting an analysis that moves beyond the data (Ibid., p254).

The numbering of the 63 codes has been maintained to make it possible to refer back to specific codes in the 11 transcripts. Several codes were linked to multiple themes, as shown in Table 1, giving 82 code/theme combinations.

Complete code and theme lists are presented in Annexes I/J.

**Table 1: Codes per Theme**

A) MDB Functionality Wishlist	7
B) MDB/MPHP Indicator Wishlist	22
C) MPHP Midsection Wishlist	9
D) Municipality Present Use of MDB/MPHP	11
E) Municipality Size and MDB/MPHP Suitability	7
F) Municipal Roles and Leadership	8
G) Central Health Authority Roles (and leadership)	2
H) NIPH Actions Wishlist	6
I) MDB/MPHP Indicators and Policy	7
J) Other issues	3
	<b>82</b>

This selection of 26 codes has been made to represent the core meanings of the nine themes and illustrate “the scope of the theme in relation to the dataset” (Ibid., p254).

**4.2.1. Theme A: MDB Functionality Wishlist**

**Code11. User friendliness of map function**

This particular issue was discovered while observing task-solving. When asked to make a comparison map, all informants spent a long time searching for the map button, and on being asked, said they hadn’t used this function before.

This theme covers many useability technical issues.

**4.2.2. Theme B: MDB/MPHP Indicator Wishlist**

**Codes 13/27/51. Adding indicators: health promotion/school nurses/purchasing power**

All informants had ideas for new MDB/MPHP indicators, with 21 suggestions.

#### 4.2.3. Theme C: MPHP Midsection Wishlist

<b>Code24. Adding reasons for inclusion of indicator/MPHP midsection subjects</b>
---

<b>Codes 14/60. Providing MPHP midsections: mental health/ substance abuse</b>
--

<b>Code42. Add indicators/MPHP midsection on social inequalities in health</b>
--

The midsection of the MPHPs contains texts concerning specific health related topics. The informants wanted the NIPH to be more specific on why topics were included, so they could use our arguments to influence their superiors. There were also several suggestions for future midsection topics.

#### 4.2.4. Theme D: Municipal Use of MDB/MPHP

<b>Codes 21/22/38. Using MDB/MPHP in multisectorial municipal working groups/collaborating with other municipalities/evaluating municipal activities</b>
--

For code 38, here is K from Skogsby (lines 44-47):

*We have prepared a summary document, Skogsby municipality, and then we used the public health profile unfiltered [straight, without changing or trying to explain anything]. (Laughs). And we use it for information about the municipality, but we also want to use it as a means to evaluate if the interventions we are doing are right or wrong.(...) A two-sided use of the profile, I think.*

K would like to use successive generations of the MPHPs to evaluate local interventions.

K was one of the people who had never used the MDB, which is designed to show developments over time.



This theme describes the ways municipalities use the MPHPs and MDB today and will be useful for training design. Several municipalities use the MDB as a starting point or a way of figuring out how they can learn from each other in collaborative efforts.

**4.2.5. Theme E: Municipality Size and MDB/MPHP Suitability**

<b>Code19. Potential municipal mergers</b>
<b>Codes 35/45. Adding indicators from local municipal surveys/more age groups</b>

Large municipalities have their own issues. The informants felt hampered by the fact that the MPHPs in many ways have been constructed to serve the needs of the many small municipalities with their special anonymity concerns.

**4.2.6. Theme F: Municipal Roles and Leadership**

<b>Code4. Interacting with legal frameworks</b>
<b>Code15. Discussing the role of the Chief Municipal Officer</b>
<b>Code20. Being frustrated over own municipal role/position</b>
<b>Code30. Lacking Public Health Coordinator</b>

This theme is related to local policy and concerns ways of organizing public health work in the municipalities, the necessity of getting full support of the CMO and how the MPHPs were used in fulfilling both municipalities’ legal obligations and targets set by central health authorities.

**4.2.7. Theme G: Central Health Authority Roles (and leadership)**

<b>Code28. Working with and consulting central health authorities</b>
---

Many informants would like the national authorities to be more directly involved, especially in fulfilling knowledge needs. This theme also includes discussions of how they are involved today.

#### 4.2.8. Theme H: NIPH Actions Wishlist

<b>Code7. Offering physical training courses</b>
<b>Code29. Providing NIPH support with analysis/interpretation</b>
<b>Code37. Offering online trainings/ video lectures</b>

This theme was very fruitful. Informants had many suggestions, mostly about ways the NIPH could communicate better with municipalities to ensure smarter use of the MPHs and MDB, as well as how the NIPH could promote municipal requirements to relevant central health authorities.

#### 4.2.9. Theme I: MDB/MPHP Indicators and policy

<b>Code2. Presence of indicators in the MPHs rules what the municipalities notice or measure</b>
<b>Code23. One-sided focus on red and green lights</b> J in Granbygd presents code 23 like this (line 178): <i>Yes, it's this way where we just look at, you know, we jump straight to the red dots. (Laughs).</i>
<b>Code31. Working with municipal politicians</b>
<b>Code36. Prioritizing within municipal public health</b>

This theme describes the interaction between the indicators selected for the MPHs/MDB and national and municipal policies. I see this as the most important theme, and will expand on it in the Discussion and in the Conclusion.

I will return to code 23 in the Discussion. This code occurs in almost all the transcripts, signifying that politicians are mainly concerned with reducing the absolute number of red dots on the public health barometer and less concerned with the context.

### 4.3. Triangulation: a Result of Using Different Data Sources

Braun and Clarke (2013, pp285-286) describe triangulation as the process of capturing multiple “truths”. This may be at play here.

Some informants had many things to say about the two toolsets, but also turned out to have a lot of tick marks in the “I have never used” section of the questionnaires, especially regarding the MDB, which four of the 12 respondents never had used at all.

They didn’t want to say that they hadn’t used the MDB, but found it easier to write on the questionnaire. Silverman (2013, pp281-282) discusses the difference between truth and rhetoric, and I perceive the similarity. The informants knew they were expected to use the toolsets and more or less pretended that they had during the interviews, but told a different story on their questionnaires. I believe there may be a sense of shame involved, as shown by J in Bjørkebygd, when asked about their usage of the MDB during the practical test (lines 122-128):

*I: Do you have work where you use this [MDB], rather than instead of, or as supplement to the [MPHP] profiles?*

*J: Not really.*

*I: Have you used it much?*

*J: No ...*

*I: Have you used it at all?*

*J: No ...*

(Laughter)

This may also tell us something about the user threshold and/or the lack of training in some municipalities, as well as local organisation and distribution of labour.

As G in Strandbygd, who mainly gets others to look things up for her/him in the MDB says about his/her use of both the toolsets (lines 359-362):

*Therefore I'm probably at the level where I think so far this has been satisfactory and good for ME, but, I get increasingly more updated through the work the public health advisor and the others in the working committee do, THEY work a lot with it. And also provide input to me on what is important to emphasize.*

I have not concentrated on age or gender issues in my analysis, but one thing stands out: In the fourth section of the questionnaire, "I have never used", both the informants who had never used the MPHs were men. These two men were half the informants who replied that they had never used the MDB. This is more than expected due to chance, but in a material of 12 persons, eight women and four men, statistical significance testing is unfeasible. An explanation might be that these men were older (and less computer literate) or were more highly placed and had employees to do this job for them. Neither of these speculations was strengthened by the interviews.

#### **4.4. Interpretation: how the Themes and Codes Inform the Results**

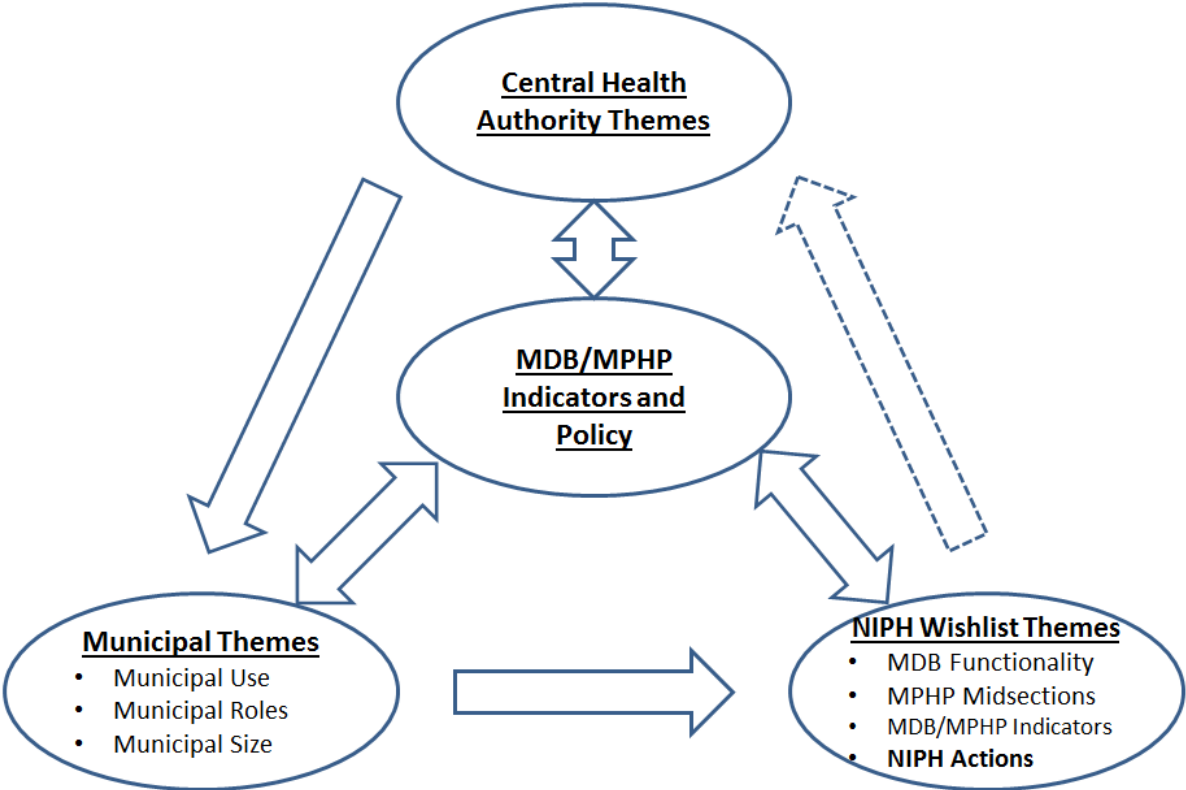
I did not find all codes equally fruitful, but once they were sorted into thematic groups, first by actions and later by actors, many things became clearer.

Theme I, "Indicators and Policy" is at the centre of this study's discourse. It is connected to all the other themes in some way. The indicators that are used must connect to policy, both

municipal and national, to be used for setting plans and implementing strategies, to run interventions, and to measure developments over time.

Figure 3 shows a more compact way of grouping the themes, demonstrating which actors “own” the themes, and how central health authorities influence what happens in the municipalities, while the municipalities may influence what goes on at the NIPH. This was a frequent comment in many interviews: “Thank you for letting them [the NIPH, and by extension, the central health authorities, demonstrated by the dotted line] know what we think!”

**Figure 3: Thematic Grouping by Actors**



This focus on which actors “own” different themes and codes is illustrated in the next two interview fragments.

As stated by J in Granbygd (lines 34 –37):

*In other words, we have not managed, in a way, to have the boost in public health that we say that we should have. But we have worked a bit with this to look at public health in relation to all plans. So that we have in a way, we have included it, even if we have not gotten to the commitment (levels) that we had hoped for.*

By this, J expresses some concern about the way public health work in Granbygd has not achieved the results that the municipal employees would like to see.

J thinks it is hard to see how the indicators connect to the authorities' targets and plans, as exemplified by the Norwegian Directorate of Health (2013):

*It's like this in Granbygd, that we've worked a bit too little with public health. We have adopted it as a goal in our municipal plan, so that that is one of three priority areas, but in reality we have no public health coordinator (lines 31-33)*

Granbygd, like many other municipalities, does not have a public health coordinator, corresponding to code 30 ("Lacking public health coordinator").

Possibly with local situations like this in mind, the NDH has published a guide (2013) to support the municipalities in their public health responsibilities. This guide suggests six thematic areas (Population, Living conditions for children and adults, Environment, Injuries, Health related behaviour and Health conditions) that municipalities need to cover to comply with the Act of Public Health (NMHCS, 2012), but some informants find this insufficient.

As said by M in Strandbygd (lines 215-219):

*It's not very much ... if we look at this guide, which came last fall. Where we municipalities really are supposed to know a lot about all these six thematic areas, I think this is little in relation to all we're supposed to gather [information on]. Of course,*

*if things should match here, one could probably wish that it was a bit more connected between the six themes of the Regulation and the profile here.*

“This guide” is also referred to in my code 26, “Ensuring that indicators correspond with the NDH handbook” (NDH, 2013, pp19-21). This code was initially sorted under Theme B, “MBD/MPHP Indicator Wishlist”, but also belongs under Theme G, “Central Health Authority Roles (and leadership)”. It is the NDH’s role to help the municipalities to fulfil the requirements of the Public Health Act (NMHCS, 2012). What M in Strandbygd essentially asks for, is that the NIPH should have the NDH handbook in mind when designing MPHPs, and perhaps collaborate more closely on future handbooks.

## 5. Discussion

This section discusses some method considerations and limitations, and also explores one code and one theme that I see as central in this study, Code 23, “Red and green lights“, and theme I, “Indicators and Policies“. These were chosen because they illustrate work processes in the municipalities and because they point to what the informants think could make their work easier and less frustrating, as well as aid in fulfilling municipal and national plans.

### 5.1. The Argument for a Qualitative Approach to Mixed Methods

Hesse-Biber (2010, p67) says that qualitative and quantitative studies may be conducted concurrently to “gain a more robust understanding of qualitative results...“, to “triangulate research findings“ and to “explore divergent and disparate findings“.

Since public health work is organised in many different ways in Norwegian municipalities, attempting to run a purely quantitative study would be quite complex due to the sample selection of informants.

Georgeson’s (2012) study of the response to the health profiles for Wales demonstrates this complexity. His mainly quantitative study was based on only 23 questionnaires, which I do not consider enough, bearing in mind the large number of potential users described.

Georgeson mainly used a phone questionnaire with answers scaled from 0 to 4, with short additional notes for informant comments. These fragments of text offer a lot of information about the users’ actual experience of the Welsh health profiles, while the percentages reported cannot be said to be representative of all public health officials in Wales, due to the low number of informants (Ibid., 2012).



In Galbraith's study of the Scotland Health and Wellbeing Profiles (Galbraith, 2010), only respondents who used the profiles responded. A total number of 83 respondents may still be insufficient to examine how the intended users of the profiles for the Scottish communities see them, since the non-users are not included.

Regarding my study, which includes some mixed methods, there would be no way of knowing that the right person/s in each municipality received the questionnaire, and it would be difficult to know whether the results were statistically significant. A quantitative study would therefore not be suited at this stage, and my methods are therefore strongly weighted towards the qualitative side.

The paucity of evaluations of public health profiles was demonstrated in the Literature section. Considering the resources used to produce the MPHPs and MDB, absorbing almost half the personnel of the Department of Health Statistics for several months every year (Source: personal communication), it is important to evaluate both the products and the intended municipal users' attitudes, knowledge and actual usage as well as examining how the toolsets interact with municipal and national policy.

## **5.2. Handling Sample Limitations in Qualitative Studies**

In a qualitative study, it may be difficult to agree on when enough data have been collected and when enough interviews have been done. In this particular case, it is definitely possible to criticize the geographical spread of the municipalities selected. I believe that my technique in selecting municipalities with widely varied average educational levels was a feasible method to get variation; population size and population density varied, as shown in the Methods chapter.

As described by Guest, Bunce & Johnson (2006), after a fairly low number of interviews, few new discussion topics were introduced, and my two last interviews generated no new codes. It is therefore tempting to at least suggest that this study may show some data saturation (Braun & Clarke, 2013, p55).

### 5.3. Exploring “Red and Green Lights”

Code 23 is illustrated in the results section. I believe it merits further discussion. What do the informants mean when they say that the politicians only see red and green lights?

Here is K in Skogsbygd (lines 219-224):

*But I have worked a great deal with the barometer. It has its weaknesses, and one of them is that people look at red, yellow, green, and are blinded by it. So they really trust that when there is a red, red dot, then it's terrible. Whereas if it's green, it's all good. And it's very important to combine the barometer with the Municipal Data Base, and to be able to see the developments over time. To see "Is this is a figure to rely on or not?".*

Politicians (and many others) only look at the colours on the **Health Barometer**. If something is green, meaning that it is better than the country average, they believe that everything is fine and that no action needs to be done.

If, for example, your municipality has fewer pregnant women smoking at their first prenatal visit than the national average, this is still something that should raise concern.

If politicians (and journalists) see many “red lights” in a MPHP, they may start thinking and saying that public health officials are not doing their job. They rarely check the MDB to see if there has been improvement – the red light makes them action blind. This is frustrating to public health workers, who may be proud of their steady improvements.

This tendency to dichotomise, the propensity to see indicators as analogue, good-or-bad, instead of as digital, with a scale range, is a real problem that the NIPH needs to be aware of and to continually address in its annual design of MPHPs.

Or, as seen by A from Strandbygd (lines 44-48):

*I also think it is a profile that politicians and other interested parties go in and watch. So that I think that it is so clear with these red lights, red and green lights, these colour codes, so it's easy to visualize. And I believe and know that politicians, among others, are locked up in [our] municipality's red lights, for instance because it becomes very obvious what is a little, like, critical for us.*

The latter statement is also connected with code 31, "Working with municipal politicians".

The makers of the MPHPs need to know about this effect, that just seeing red and green dots may blind some users to what the numbers actually mean. I believe this may be alleviated by educating both municipal politicians and public health officials in interpreting the MPHPs and using the MDB, explicitly training them to use the MPHPs to get a quick overview, before going into the MDB to get deeper knowledge of local conditions.

#### **5.4. Exploring "Indicators and Policies"**

I see theme 9 as the core of my findings, and will try to illustrate what I mean using the words of my informants:

J, in Granbygd (lines 325-328), replying to a direct question about MPHP indicators:

*Interviewer: If you look for example at the data available, the indicators we use, are there others that would be better, or ...*

*J: It will always a bit like that, the indicators one uses, it's mainly these indicators. We haven't gone off and used any others.*

This is an example of code 2, "Presence of indicators in the MPHPs rules what the municipalities notice or measure".

G, in Strandbygd, (lines 134-138) concurs:

*So it is ... we often throw ourselves quickly at the reds and then ... regarding well-being in school too, that is also a subject that is very much in the forefront with us. And as I mentioned a while ago, that about mental health. But really, seeing that everything is relative to how big or small the problem is, you know, how far away from the median, in a way, the red lights are. But in any case it leads to, that is, such that in any case, we start with the reds.*

The presence of indicators in the MPHPs rules what the municipalities notice or measure – this needs to be taken very seriously. Instead of just looking for available register data, the NIPH needs to work with national authorities to ensure that the indicators are the best, most practical and also those that could be influenced by public health work.

Shared Intelligence (2009, p16) describes how the Local Health Profiles in England were used to support development of a Joint Strategic Needs Assessment, and how the profiles had helped the partners to agree on priority areas. An informant explained that the profiles' main "value lies in informing which areas" should be prioritised. This shows again how the indicators in the MPHPs may influence which areas are deemed most important, and not locally-informed opinions of municipal experts.

Chambers, Wilson, Thompson, Hanbury, Farley & Light (2011) discuss ways of making systematic reviews impact on decision making at policy level. The authors make some points that could be useful in the Norwegian context. Systematic reviews are very different from the MPHPs/MDB, but they are all made by specialists, summarising a topic, at least partially for an audience with less formal education within the field – the decision-makers. In both cases, something must be translated into a form that the end user will find practical, be it evidence or statistics. These “focused summaries” can be compared to the front page of the MPHPs, summarizing the most important findings.

Chambers et al. (2011) describe how “decision sheets” made by experts had a direct effect on implemented services for Down’s syndrome, but in many other cases there were no discernible effects. They describe a programme that allowed policymakers, be they central or local, to request systematic reviews on specific topics, but received few requests. The authors speculate that the policymakers may feel they know enough.

In our case, it is the job of the NIPH to educate them, and this study shows that the municipal public health workers would like to have our help, not only top-down, but in a fruitful interaction with give and take. The informants express tension between central guidance and local needs; they have responsibility, but are not always empowered to act.

As said by G in Strandbygd (lines 346-353):

*At the same time, I sometimes think that people are very much sector oriented, not only at the local level, but also from the national level and downward. For me, when you say you have a challenge in school, it is often something that the school must resolve, and then comes something new from the Ministry, doesn't it, like fruit and vegetables, physical activity, really, I miss having something a little more like a*

*dialogue about the challenges we have. (...) Sometimes what is happening is that that centrally approved stuff that we can neither influence or control, and then the question is - could the interventions be a bit more dynamic in relation to the experiences and findings in each municipality?*

This is an example of code 29, “Providing NIPH support with analysis/interpretation” as well as code 23, “Red and green lights”. The MPHP indicators are regarded as particularly important by our municipal colleagues, and this study shows that they are also those that politicians take note of. As public officials, the NIPH Municipal Health Team should be aware of this, and take care in selecting indicators that the municipalities may be able to influence in local interventions. Good indicators and dynamic policies, both nationally and municipally, support local empowerment.

## **5.5. Comparing Study Findings to Health Profile Evaluations**

Bradford et al. (2009) examine the uses of the Health Profiles 2006, a set of 386 publications offering standardized health information to local authorities in England. Many of the issues raised, especially regarding the positive aspects of the health profiles, are familiar. Among their interpretations, “advice on how to reduce inequalities should be ‘signposted’ “, very closely corresponds to one of the demands from my Norwegian informants, code 9, “Need for practical information about interventions and priorities”, and also code 42, “Add indicators/MPHP midsection on social inequalities”.

Informants in my study, like the informants in the English study, would like data providers to deliver practical advice on interventions, not just data, thereby recognizing and demonstrating a lack of expertise within this field in the municipalities/local authorities.

This refers to code 9, Prioritization. As said by G in Strandbygd (lines 208-210):

*No ... but you know, it's about any of this in relation to becoming more familiar with our supplier (laughs), you know, and actually maybe get some help to prioritize the important things, and such things as that . Yes.*

Bradford et al. (2009) demonstrate that a qualitative evaluation provides “a valuable insight into the target audience’s views”, but also raise some concerns about who the target audience actually is. They conclude that they have reached their intended target audience, local authority members and officers, since on the whole these gave positive replies.

The NIPH Municipal Health Group, when discussing the planned MPHs (unpublished meeting notes, 2011), discussed target groups and decided that the MPHs should be directed towards “planners who do not necessarily have any health-related skills” as well as politicians, and that the language had to be plain, non-medical Norwegian.

According to this study, we have mostly reached public health professionals. If we could also find better ways to reach politicians, and municipal officers in general, the MPHs/MDB would have far greater impact on public health development in the municipalities.

Hill, Balanda, Galbraith, Greenacre & Sinclair (2010) describe the process of creating health profiles for the UK and Ireland. A health profile includes both health determinants and health outcomes, and must include many indicators, because it is not possible to summarize “the many facets of health and ill health in the population” in a single statistic. Since these profiles inspired the Norwegian MPHs, it is interesting to see how similar the design processes have been, including the way that metadata have been constructed. Bradford et al. (2009) mention a wish from their informants that their profiles should provide more data

at a lower geographical area (p314), which was also seen in my study. There was great interest in profiles for smaller subdivisions or wards, as described by H in Urbankommune (lines 117-120):

*But I also have the same challenges in this respect that ... we know that we have big differences within the municipality. And we are a big municipality, with almost 70,000 inhabitants, so that ... for us, we need to have much more detailed information about conditions within the municipality to get something out of it.*

This demonstrates code 1, “Differences within municipalities are not covered” and code 43 “Large municipalities want more data to be made available”.



## 6. Conclusion

The aim of this study was to gain knowledge about whether and how municipal health professionals in Norway are using the MPHPs and the MDB and what they want from these toolsets. I have shown through analysis of a series of qualitative interviews and other methods that municipal usage and competence are uneven, though public health workers are very positive to the toolsets in general. The recommendations (Annex K) aim at improving both the toolsets and the municipal users' competence.

This study shows that there is tension between the desires for central control and local decision-making, and that local empowerment, brought about in the interaction between good health indicators and flexible policies, is a key term.

### 6.1. Health Information Systems are Policy Support Tools

Returning to my main theme, "Indicators and Policies", Bradford et al (2009) discuss how designing the English health profiles was a policy decision, and that their influence, was at least partially on a policy level, as demonstrated by the list of uses for the health profiles (p313), which includes target monitoring, local area agreements, identifying public health priorities and strategy setting.

As long as the indicators are not clearly anchored in municipal leadership, organisations, targets and plans, public health is going to be uphill work. It is symptomatic that there was a need for code 30 when I analysed the Norwegian interviews: "Lacking a public health coordinator in municipality". Informants describe a work-day cobbled together out of several part-time positions. Two of them are supposed to coordinate public health in their municipalities in a 20 % position, one single day a week.

## 6.2. Public Health Workers Need Municipal Leadership Support

This study shows the need to educate municipal politicians, as well as public health professionals, about the meanings of the indicators and why just counting red and green dots in the MPHP is not sufficient for them to fulfil the Public Health Act (NMHCS, 2012).

The Act specifically gives the final responsibility for municipal public health to the CMO.

Many of the informants express great satisfaction with this ideal, though they also say that real life leaves much to be desired regarding the interest the CMO actually takes in public health.

There are many references to the role of and lack of support from the CMO.

As said by H in Fjordby (lines 232-242):

*Go directly to the Chief Municipal Officer. That is what many of us struggle with in the municipalities, to get it anchored centrally in the municipalities. And one is often, as a public health coordinator, given some kind of main responsibility for public health in a municipality, and that is completely absurd. It cannot be that way. It is the municipality's responsibility; the Chief Municipal Officer should be the chief public health worker in the municipality. And we try to say so - in a way to bring it much wider, but when the public health coordinator is used as an advisor, that is the ideal organization of public health. Unfortunately, there are many municipalities, I have the impression, where it is not like that. So it is clear that, if [you] somehow can join in and make the management of the municipalities accountable, and not just the public health coordinators or health services. That would have been a very great help to us.*

I could not have said it better. Public health workers need their work to be taken seriously and prioritized at the top political level in the municipalities, and the way to do this is to work with the CMOs, to inform, educate, include and engage them. The health information systems that the NIPH continuously designs and delivers contain indicators that give meaning in varying municipal contexts, and support municipalities in fulfilling their legal obligations and the plans and targets set by central health authorities as well as the municipalities themselves.

### **6.3. Bottom-up Informant-derived Recommendations**

39 interview-derived recommendations are given in Annex K.

To fulfil our obligations according to the Public Health Act (NMHCS, 2012), the NIPH needs to use many channels to reach the intended users of the MPHPs and MDB. We at the NIPH need to use the regular NIPH mailing lists, provide video courses on our web pages as well as traditional physical training courses, especially at conferences, and we need to build tools that talk to politicians as well as to school nurses.

We need to make the electronic tools more user friendly and regularly test them with inexperienced informants. We need to listen to our users and provide them with the indicators and MPHP midsections they are asking for, including delivering additional indicators to the largest municipalities. We need to provide data that will help the municipalities tackle social inequalities in health and look at data on sub-district level as well as data for municipalities that want to collaborate on common projects, and we need to find a way to link our data sources to updated knowledge banks of effective interventions.

Since it was demonstrated that the indicators included in the MPHPs may determine what the municipalities prioritize, we need to take indicator selection very seriously.

But first and foremost, we need to appreciate that despite any shortcomings in our MDB/MPHP toolsets, the informants think that they present data clearly and serviceably and would like to use them even more effectively and more efficiently in future work.

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