Governance for Public Health and Health Equity - The Tröndelag Model for Public Health Work

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Abstract

Aims: Multi-sectoral governance of population health is linked to the realization that health is the property of many societal systems. This study aims to contribute knowledge and methods that can strengthen the capacities of municipalities regarding *how* to work more systematically, knowledge-based and multi-sectoral in promoting health and health equity in the population. *Methods*: Process evaluation was conducted, applying a mixed methods research design, combining qualitative and quantitative data collection methods. *Results*: Processes strengthening systematic and multi-sectorial development, implementation and evaluation of research-based measures to promote health, quality of life, and health equity in, for and with municipalities were revealed. A step-by step model, that emphasizes the promotion of knowledge-based, systematic, multi-sectoral public health work, as well as joint ownership of local resources, initiatives and policies has been developed. *Conclusions*: Implementation of systematically, knowledge-based and multi-sectoral governance of public health measures in municipalities demand shared understanding of the challenges, updated overview of the population health and impact factors, anchoring in plans, new skills and methods for selection and implementation of measures, as well as development of trust, ownership, shared ethics and goals among those involved.

Key Words*: public health, multi-sectoral, implementation, knowledge based, systematic, knowledge translation*

Introduction

In the context of current public health challenges across European countries, such as the increase in non-communicable diseases, and the growing social inequalities in health, there is a need for public sector reforms and reorganizations [1]. Over the past decades, international organizations like the World Health Organization (WHO), EU, OECD and the World Bank have presented principles for good governance of public health [2]. Highlighted here are the facilitation of mechanisms that foster participation from citizens, high degree of accountability and transparency, and a dedication to reducing poverty and promoting health equity through multi-sectoral governance. Participation is underlined as being particularly important for improving the transparency of decisions and the efficacy of actions, and comprises both awareness of the assets that local people bring to solving complex problems and appreciation of the value and importance of genuine and systematic participation in generating, implementing and reviewing solutions [3, 4]. The emphasis on participatory governance is grounded in the need for a deeper understanding of the social, cultural and economic situation of population groups; especially marginalized groups that, according to studies from across Europe [4], often are not included in developing policies and public health actions. Engaging target groups in defining problems and designing solutions ensures that policies and actions are people-centered and reflect local needs. In addition, individuals' health and well-being benefit from participating in decisions-making processes that concern their lives [5].

People's health and well-being is, according to Antonovsky`s theory on salutogenesis [6], influenced by the social structures in which they live and function. With the increased use of technologies such as networked social media and smart phones, changes have taken place in how governing institutions and citizens interact. This has also paved the way for new ways to develop, implement and evaluate public health initiatives [7]. Thus, the state and local governing bodies have assumed new roles in participatory processes and must now act as brokers, catalysts, animators, educators and partners [7]. This calls for updated models prescribing how to engage with new methods on how to engage different actors in the planning, implementation and evaluation of public health initiatives.

The need for multi-sectoral governance of population health is linked to the realization that health is the property of many societal systems. Thus, actions should be taken at different levels of government (global, national, regional and local), and across sectors such as e.g. education,

transport, housing and food-production [3, 4, 7]. In Norway, the Public Health Act of 2012 [8] has internalized these principles and emphasizes the ‘Health in All Policies’ (HiAP) approach [2, 7]; policies in all sectors influence population health, and vice versa. The adoption of knowledge-based strategies, involvement of citizens and stakeholders as well as multi-sectoral governance are recommended in order to achieve international and national objectives for improving population health, quality of life and health equity [2, 9]. In addition, the Norwegian public health act [8] encourage county and local municipality governments to move towards a pro-active approach that incorporates effective use of scientific and experience-based knowledge when translating their plans into effective actions and adapting them to the social, cultural, economic, and political realities of local populations, groups and settings [10]. However, studies have shown [10-14] that the implementation of multi-level, multi-sectoral, participatory governance of health demand new skills and changes in the coordination of activities. The present study also reveals the necessity of developing trust, shared ethics and goals among those involved.

Another key concern that has emerged in the field of health policymaking and public health work is *how* to translate knowledge and evidence into action [11]. Several models have been developed in the context of health promotion, typically addressing how-it-works (effect) and procedures and processes on how-to implement population health initiatives in local communities [9, 15, 16]. Documenting evidence on effects in health promotion and public health is seen as vital because society pays a high cost when interventions that yield the highest health returns are not implemented. Practitioners and politicians also need evidence when justifying decisions and priorities [12]. Allocating evidence of efficacy within the field of health promotion and public health is however challenging since implementation processes do not always correspond with the demands of evidence-based practice.

National guidelines as well as guidelines from the WHO suggest both topdown “decisions” (macro-level) and bottom-up “process perspectives” (micro-level) [13] when translating plans into effective actions [2]. In line with a process perspective [13], interviews with Norwegian county officials, municipal councilors and public health coordinators [10, 14] suggest a need for guidance and specified methods on the implementation of high quality public health work. Reports from Norway indicate that the majority of municipalities have not yet established systematic, knowledge-based work anchored in sectors besides health [14]. Furthermore, a substantial part of the research on public health governance is devoted to the planning side,

while less is known about the process of implementation [17]. This clearly displays a need to strengthen the how-to-do-it models in public health work at the municipal level. Accordingly, this study aims to contribute knowledge and a model that can strengthen the capacities of municipalities regarding *how* to work more systematically, knowledge-based and multi-sectoral in promoting health and health equity in the population.

Methods

This study was carried out in collaboration between research institutions, county- and local municipalities Governments, as part of a multi-sectoral research- and innovation program; *Innovation in Public Sector – From knowledge to action - from action to knowledge* 2012-2016. The county authorities coordinated the program. The program aimed to improve the quality of public health planning and work by developing and testing models and methods for implementation of knowledge-based multi-sectoral public health initiatives in three small to mid-sized municipalities in Norway. In order to get an insight into the work methods, each municipality involved developed its own public health initiative. Each municipality established both a multi-sectoral project group and a steering group responsible for facilitating a participatory process for selecting, planning, and implementing a knowledge-based public health measure. Researchers led the evaluation of this process, but with strong participation from the members of all three municipal steering groups. To obtain insights into processes and factors that optimize the effectiveness of public health measurers, data were collected before, during and after the implementation of the selected initiatives in each municipality. Formal and informal partnerships and meeting arenas were established in order to ensure strong commitment, openness, transparency in decision-making processes and comprehensive stakeholder engagement during the whole project period. The value of engaging local people in dialogue and participation in identifying and solving challenges were significantly emphasized [3]. In order to answer the predefined aims of the process evaluation [18] of the study, a mixed methods research design [19] was applied, taking advantage of using several means (methods and data sources). The mixed methods design allowed us to identify possible pathways and unexpected consequences and barriers regarding how to work more systematically, knowledge-based and multi-sectoral in promoting health and health equity in the population.

Participants

The county authorities assisted the researchers in coordinating the research activities, establishing meeting arenas and identifying study participants in all three municipalities included. A selection criteria for this study was multi-sectoral expertise in the field of public health. Participants were selected for individual interviews and focus group discussions. A total of 30 public health leaders, and/or leaders/employees with organizational, plan and policy responsibilities were invited to participate. The sample consisted of 18 men and 12 women. The participants represented the following public departments/agencies: culture, health, school and kinder garden, environment, community planning/structures and inter-municipal council for outdoor activities. Homogeneity and heterogeneity of the study sample were considered [20]. The included participants were homogenous concerning topic expertise. Heterogeneity was achieved by including variation in age, gender, type of work, and sector affiliation. .

Data collection and analyses

Document analyses

Document analyses has proven useful within public health research, especially when trying to obtain insight into an activity or approach [21]. Document analysis were conducted at baseline in all three municipalities in order to provide a deeper understanding of barriers and facilitators to the realization of the Health in All Policies approach [2] at the municipal level. Data relating to established HiAP terms covering the scope and scale of municipal strategies, policies, action plans and evidence of governance arrangements were extracted from strategic policy- and plan documents as well as from agendas and minutes from projects meetings within the municipalities.

Individual interviews and focus group discussions

Focus group discussions and in –depth interviews are particularly vital for exploring opinions, attitudes, experiences, and wishes [20]. The focus group discussions were also used to generate a further insight into topics that emerged from the document analyses. Two individual interviews and one focus group discussion consisting of seven (n = 7) participants were conducted at baseline among public health leaders and/or leaders with organizational, plan- and policy responsibilities. Six month follow up data were collected by individual interview of one of the project leaders in order to capture relevant knowledge before the project leader started in another position/was replaced. One year follow up data were collected in two focus

group discussions conducted among nine (n = 9) project group members (5 and 4 participants in each group). In addition follow up data were collected in two focus group discussions among the steering group members, with a total of 11 (n = 11) members (7 and 4 members in each of the groups). Semi-structured interview guides, with open-ended questions, directed the interviews in order to promote an open discussion related to processes and factors that help optimize the effectiveness of public health measurers and the ability to gather and use relevant evidence of "what works". Questions were developed based on the following topics, extracted from the document analyzes:

- Anchoring of public health in the municipality's planning system (baseline)
- Sources of knowledge, means and context for knowledge-sharing (baseline)
- Decisions-making processes; how, where, when and who (baseline and follow up)
- Methods, forms and arenas for communication (baseline and follow up)
- Facilitators and obstacles for participatory processes (baseline and follow up)

Regarding the focus group discussions, questions were asked in an interactive group setting in which participants were free to talk with other group members. The duration of the individual interviews and focus group discussions ranged from 1 to 2 hours. All focus groups had the same moderators, the first and fourth author, who facilitated the discussions through guidance and by encouraging all participants to talk freely. Written information about the study's purpose and how the information would be used, was distributed to the participants prior to the individual interviews and focus group sessions. Additionally, each session started with an oral presentation of the study`s purpose and the way the information would be used. The participants were informed that they were free to participate and could withdraw from the study at any point if they wished. Confidentiality was ensured, as raw data were handled only by the moderator, and demographical data did not identify participants in any way. All interviews were digitally recorded and transcribed verbatim. The transcript was checked for accuracy throughout the process. Additionally, notes were made during the interview sessions and referred to during the analysis. Data analysis was undertaken by the first author, followed by a discussion between the first and co-authors. Raw data were deleted after verbatim transcription.

Observational data

Participatory observation can provide rich data on decision-making, project management processes and communication [18]. Participatory observation was conducted by the research team during the selection and implementation phase of public health measures in the three municipalities by taking part in Search Conferences (one in each municipality) [22] and at 5 joint municipal project meetings during the project period. A Search Conference is a participative planning method that seeks to create a plan for the most desirable future of the participants' society [22]. In line with approaches described as important for accomplishing evidence-based health promotion [23] the Search conference methodology involves participation that is aimed at increasing responsibility within the local community. The goal for the Search Conferences conducted, were to develop knowledge based public health initiatives, and, by involving local stakeholders, citizens, politicians, administrative staff, non-governmental organizations (NGO's), private and public enterprises, to facilitate stronger, joint ownership of local resources, public health initiatives and policies. The Search Conference Methodology, is also an innovative way to disseminate research results, and discuss implications and implementation with practitioners in the field. The research team took part in implications- and implementation-discussions with practitioners, as well as took notes during the Search conferences and project meetings.

Log – diary.

One of the project groups established, with support from the county authorities, an online web system for keeping a log throughout the project period. The log included information about meetings, participants, plans, decisions, and responsibility. The log data gave additional valuable process insight into facilitators and obstacle related to each step of the municipal working process.

Public meetings and social media

The municipal project groups in each of the municipalities administrated formal and informal public meetings, meetings with marginalized groups in the local community, as well as used social media to ensure involvement and development of joint ownership of local resources, public health initiatives and policies in the local communities. The researchers participated in several of the formal and informal meetings in the municipalities. Notes were taken systematically during one of the formal meetings in which approximately 25 citizens attended and in several informal meetings.

Analyses

To provide a more in-depth understanding of facilitators and barriers regarding how to work more systematically, knowledge-based and multi-sectoral with promoting health and health equity at a municipal level, a combination of conventional and summative content analysis [21] were applied to analyze baseline and follow-up data. Frequency of HiAP terms were counted and the different types of data extracted from interviews, focus group discussions, observations and written texts/documents were all read repeatedly to achieve immersion and obtain a sense of the whole. Then, data were read word by word to derive codes by first highlighting the exact words from the text that appear to capture key thoughts and concepts. Initial codes, were extracted directly from the text, and sorted into categories based on how different codes were related and linked. In addition to the overall analyzes of the total process data material, cross-case analyses were performed in order to identify patterns and capture potential local contextual similarities and differences across municipalities [18, 21]. Results from both the thematic cross-case analyses and the overall analysis were checked for accuracy in direct dialog with the project-group members and stakeholders in each municipality throughout the whole process. In addition, the researchers presented preliminary results for feedback and discussions for all municipal project members in a working seminar at the end of the project period. Results from these analyzes, feedback and discussions gave directions for development of a working model, in close dialog with the project group members and local stakeholders, emphasizing the promotion of knowledge-based, systematic, multi-sectoral public health work, as well as joint ownership of local resources, initiatives and policies.

Ethics

The Norwegian Social Science Data Service approved the study (ref: 44766 / 3 / LT). All participants were volunteers and gave their informed consent. Confidentiality was emphasized.

Results:

The analysis of baseline and 6 month follow data extracted from interviews, focus group discussions, observations and written texts/documents in the three municipalities clarified both the perceived capacities and barriers in the municipalities regarding *how* to work more systematically, knowledge-based and multi-sectoral in promoting health and health equity in the population.

There was a consensus in the written material and among the study participants that more systematically, knowledge based and multi-sectoral public health work relays on *political and community commitment* to HiAP and that commitment to HiAP is built on *shared understanding* of the municipality challenges related to population health. The study participants described shared understanding of the challenges and an updated overview of health status and impact factors on municipality population health, as a precondition for deciding on, and implementing targeted measures that aim to ensure a broad involvement among the parties that holds a role and a responsibility for public health work.

The study participants also emphasized the necessity of c*ooperation and coherence across government sectors, policy areas, disciplines and levels*, and stated that collaboration across sectors, disciplines and levels could be achieved only by putting efforts in *anchoring* public health in the municipality's *planning and control system.* Document analyses of plan documents in the respective municipalities show that public health to some degree is anchored in plans, however further elaboration is still needed. These findings was confirmed by the study participants, adding that they, by participating in this study, also became aware of significant differences between the three municipalities regarding stakeholder involvement and how systematically the municipalities worked with the plan and anchoring processes related to public health.

Moreover, the study participants discussed possible *sources of knowledge*. There was a general agreement that municipalities should identify relevant sources of knowledge, collect and analyze the best available knowledge, which also is, as previously stated by the participants, necessary in order to reach a common understanding of the challenges in the municipality. The best available knowledge should be the foundation for decisions and new initiatives. Additionally, the study participants discussed what type of knowledge should inform the decisions. Here they agreed that our health is affected by factors and conditions from all sectors of society. Accordingly, they argued that the collection of knowledge should not be limited to the health sector, nor should it be limited to knowledge extracted from research. Furthermore, they argued that knowledge about both positive and negative factors that influence our health is vital.

The need for *engaging several target groups* in defining problems and designing solutions was highlighted. This, they argued, would ensure that policies and actions were people-centered and reflected local needs. The written material, observations done in each municipality's

project process, as well as the study participants' statements illuminated the significance of facilitating both bottom-up and top-down mechanisms that foster *participation* from citizens, high degree of accountability and transparency, new arenas for *knowledge sharing* and a dedication to reducing poverty and promoting health equity through multi-sectoral governance.

Municipal processes that facilitate the development, implementation and evaluation of research-based measures were further explored by adding one-year follow up data to the analyses. Analyses revealed that the study municipalities lacked a systematized feedback loop ensuring that new knowledge from the implemented actions became part of the *decision-making, policy and practical solutions* in the municipalities. Such a lack limits the possibility for continuous improvement and development of practice, as well as it undermines the requirement for evidence-based, knowledge-based and systematic public health work.

These findings gave direction for developing a working model, capturing the critical steps detected from the data material, on how to initiate, develop, implement and evaluate complex multi-sectoral public health measures in municipalities. The model development was accomplished in close dialog with the project group members and local stakeholders, ensuring that the model responded to the need for guidance and specific methods on how to implement high quality public health work. The model encourages actors to make use of the best available method and knowledge in decision-making, policy and practical solutions. It is designed to enable continuous improvement and development of practical solutions and provide a foundation for restructuring and responding to new challenges.

The Tröndelag Model for Public Health Work:

The Tröndelag Model for Public Health Work (Figure 1) is based on key challenges in public health work. It represents a work method that operationalizes the legal requirements on knowledge-based and systematic public health work at the municipal level [8]. The work method is not limited to specific disciplines or sectors, but is possible to apply in different contexts where the aim is to improve practical solutions. *The Tröndelag Model for Public Health Work* involves seven steps for how to collect and apply the best available knowledge in developing targeted measures based on a common understanding, inclusiveness and participation. Decisions are made at each step, providing the basis for the next step. It is necessary to complete one step before taking the next one. This means that none of the seven steps should be by-passed.

The model and working method has been developed in close cooperation with all actors involved in the public health work (see actor circle in the model Fig 1), ensuring dynamic and continuous learning and improvement through mutual knowledge sharing. The working method is recommended integrated into the daily practice of public health work.

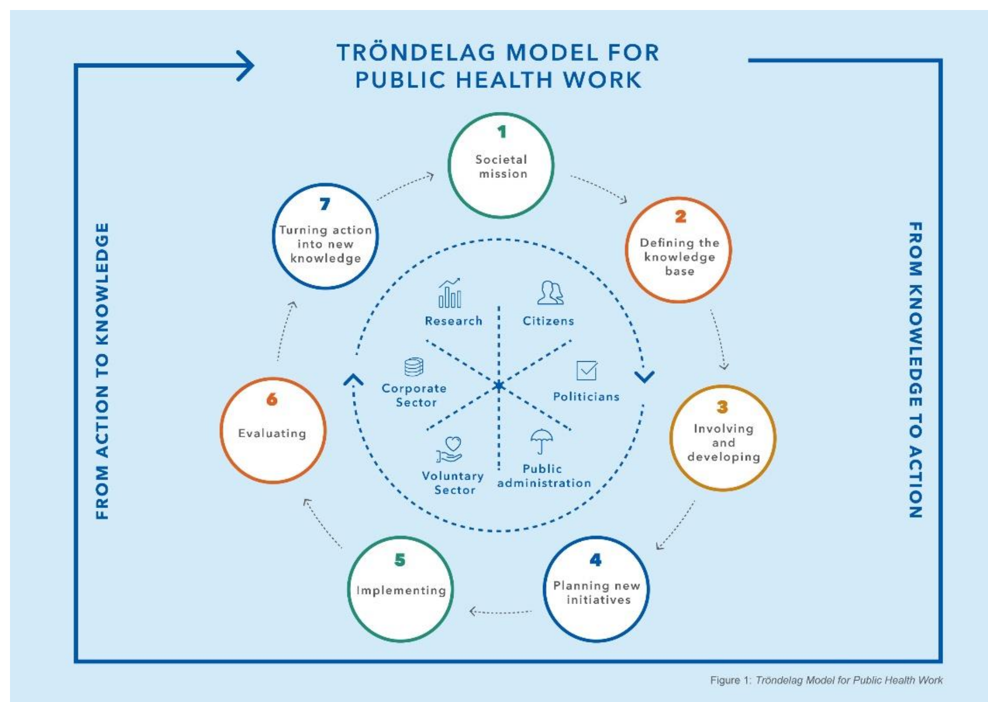

Figure 1: The Tröndelag Model for Public Health Work

Taken together, these seven steps presented in the model meets legal requirements for knowledge-based, systematic multi-sectoral public health actions. Broad user involvement, is ensured by involving local stakeholders, citizens, politicians, administrative staff, non-governmental organizations (NGO's), private and public enterprises and researchers during the whole selection, implementation and evaluation process. The seven steps are:

1 Societal mission

2 Defining the knowledge base

3 Involving and developing

4 Planning new initiatives

5 Implementing

6 Evaluating

7 Turning action into new knowledge

Step 1: Societal Mission: It became evident from the analyses that the societal mission and the central framework for public health work, such as National guidelines [24] and the Norwegian Public Health Act [8], were agreed upon as the "starting point". This formed the basis on which the steering groups determined the tasks and the roles and responsibilities of parties involved. Citizens, politicians, public administration, voluntary sector (NGOs), corporate sector and research were all described with shared responsibilities. Goals and strategies for public health work were described in plans and documents as a "whole-municipality" responsibility. This was underlined by the study participants and they referred to the requirement in the Public Health Act, which stated that municipalities are required to obtain an overview of health conditions and impact factors through:

- Anchoring, follow up and reporting of public health in accordance with governance plan and systems
- Identification and use of strategies, arenas and forms for involvement and participation
- Identification and use of strategies, arenas and forms that promote multi-sectoral interaction and knowledge sharing

Step 2: Establishing a knowledge base: Knowledge-based and systematic public health work presupposes a compilation of knowledge and evidence. It was a common understanding among the participants that knowledge should be drawn from existing legislation, experience from professionals, policy makers, citizens, businesses, NGO's, local authorities as well as from research, including different types of population data. This knowledge was expected to provide the basis for multi-sectoral collaboration and decision-making processes when it came to selecting, implementing and evaluating relevant measures. Thus, Step 2 includes a) collecting and analysing the best possible data/evidence available, b) establishing a common understanding of the challenges. However, the participants pointed out that as soon as this knowledge has been obtained, a comprehensive analysis of the accumulated knowledge should take place, and this process might be challenging with regards to the competence required.

Step 3: Involve and develop: Based on Step 2, Step 3 moves on to identify and prioritize sustainable local actions that promote health and quality of life, and reduce social inequalities

in health. A concrete plan for interventions was developed in each municipality, by use of the participative planning method *Search conference* [20]. This method was experienced by the participants (local stakeholders, citizens, politicians, administrative staff, non-governmental organizations (NGO's), private and public enterprises), as particularly useful for ensuring empowerment and participation in planning and decision-making processes, as well as for setting new policy directions, strategies and actions across sectors, public or private. The study participants evidently stated that those affected by plans and measures should be involved in these processes.

Step 4: Plan for actions: Study participants underlined the importance of building local community ownership and trust, and described it as crucial that the results from the Search Conference are followed up. The overall responsibility lies with the municipal authorities. Municipal authorities must clarify who will be responsible for the multi-sectoral planning, and see to it that the ideas and plans for initiatives generated at the Search-Conference are further developed and that the selected initiative(s) are implemented. It is vital that potential mutual responsibilities are clarified, and that strategies for participation, anchoring, communication and information are developed.

Step 5: Implementation: During this step the initiatives are implemented. It was emphasized both in the written material that was analyzed, as well as by the participants, that the implementation processes should be described, monitored, and documented. This in order to do adjustments required for eventual changes related to for example budgets, political situation, and need for competences. Participants also addressed the fact that possible repercussions should be considered, as chosen initiatives also might influence other health promoting initiatives.

Step 6: Evaluation: National guidelines [24] underline that sustainable, knowledge-driven public health work requires systematic evaluation. Planning of evaluations has to coincide with the planning of the chosen initiative(s). The study participants pointed to a knowledge-gap in municipalities regarding methods for evaluation, and that the municipalities, to a greater extent, should collaborate closer with research partners/other collaborating partners when deciding on appropriate evaluation methods and critical indicators for various types of evaluations (output-, outcome-, process evaluation, cost-benefit analyses).

Step 7: From action to knowledge: Study participants expressed that the overall goal should be to improve public health practice. Based on sufficient data from evaluations of public health initiatives, municipalities should be able to identify and analyse central experiences from the work undertaken. New knowledge obtained should be transferred to and influence future public health decisions and policy-making; resulting in a continuous process of improvement in public health work. Identifying and participating at important arenas where such knowledge can be communicated and disseminated is therefore seen as crucial. Here central political, administrative, and academic arenas, as well as other arenas for local stakeholders, enterprises, NGO's, and inhabitants, should be considered.

Discussion:

Health promotion has increasingly come into focus on an international, national and local level. On an international level, this study answers to calls both in the Ottawa-charter for Heath Promotion [2] and the Shanghai-declaration on Health Promotion [25] that emphasize the need to develop strategies for health promotion in local settings. The model presented in present study aims at developing systematic ways to develop and implement public health measures, and simultaneously monitor implementation processes in order to secure future use of experiences and knowledge obtained from such processes. Therefore, the model presented answers to the goals of the HiAP-approach, as advocated by the Helsinki-statement on health in all policies [26]; to focus on a broad range of conditions that influence health, it emphasizes the need for active involvement from all possible stakeholders and systematic collaboration across sectors throughout the whole process.

On a national level, the model suggested operationalizes the requests of the Coordination reform in Norway [24] as well as that of the Norwegian public health Act [8]. The Coordination reform [24] demands a new focus on *what* health promotion is in the context of local communities, and *how* health promotion specifically could be implemented or facilitated. Adoption of knowledge-based strategies, involvement of citizens and stakeholders as well as multi-sectoral governance have been proposed here in order to achieve international and national intentions for advances in population health, increased quality of life and reduced social inequalities in health. The public health Act in Norway instructs County and local municipality governments to implement a pro-active approach that incorporates effective use of scientific and experience-based evidence [8].

Considerable parts of the research on public health governance is dedicated to the planning side, while less attention is paid to the process of implementation. Guidance and methods on how to implement high quality public health work in municipalities is therefore still limited [17]. Accordingly, this study evaluated the implementation of complex public health initiatives in three municipalities in Norway and developed a working model that aims to enable health promoters to work systematically towards broad health-goals in specific contexts, while simultaneously documenting their experiences and thereby make them accessible for evaluations and further development. This might strengthen the municipality as both an arena and actor in health promotion and disease prevention in public health. By working on local society governance for public health through coherent systematic actions, study results potentially improve health equity.

The social responsibility of municipalities when it comes to public health involves developing communities that promote health and participation and reduce social inequalities in health. It also includes the obligation to provide positive social and environmental conditions and sustainable welfare services [2, 6, 7]. A focus on public health and particularly health promotion in the local community context might benefit society by creating means to promote individual health for all members of society [2, 6, 7]. Knowledge transfer is however essential in promoting municipality driven processes [10]. This study offers a working model for developing and implementing measures at a local level, which systematises public health work and increases the likelihood that public health measures are incorporated into daily routines, thereby avoiding dependence on personal enthusiasm and knowledge, something that has been pointed out as a major problem within health promotion and HiAP [2]. The model presented enables health promoters to work systematically towards broad health-goals in a specific context, while simultaneously systematizing their experiences and thereby making them accessible for evaluations and further development. This might enable practitioners across the public health field to build personal competence regarding how to monitor, evaluate and adapt their own praxis.

Several models on *how to* work more systematically in promoting health exist already, for instance the Model for Management of Intervention Programme Preparation (MMIPP) [15] and models presented by Green, Tones et. al., [9] and Raphael [16]. The Tröndelag model is similar to these models in emphasizing the necessity of dividing the process into smaller steps, which follow a certain sequence. Furthermore, the Tröndelag model is similar to these earlier

models in acknowledging the importance of effective community participation, the need to analyze carefully local community challenges, formulating a clear goal, plan the actions and conduct evaluations.

However, the Tröndelag model differs from earlier models when it comes to ensuring significant bottom-up and top-down mechanisms throughout the whole work process: Firstly, it differs from existing models in emphasizing the use of a broader knowledge base, including research evidence, but also professional and lay knowledge throughout the whole process. Secondly, it differs from other models in assigning dedicated roles to various participants during all steps of the work process, and going beyond the health sector to find these (including commercial actors, voluntary associations, NGOs, research institutions, and citizens). Thirdly, the Tröndelag model provides specific directions on how to obtain feedback-loops between 'action' and knowledge to make sure that experiences and knowledge from implemented initiatives inform and improve later decisions. Thus, the Tröndelag model seeks to contribute to a continuous improvement of public health work and provides specific measure for the active dissemination of results.

Strengthening the capacities of municipalities regarding *how* to work more systematically, knowledge-based and multi-sectoral in promoting health and health equity in the population, seems highly related to succeeding in engaging comprehensively with all stakeholders. The role of the county authorities in establishing formal and informal partnerships and meeting arenas proved to be essential in this study in order to achieve trust, commitment to and openness during the entire implementation process. Close collaboration between researchers, county and municipal authorities' facilitated ownership to the process and to the development of the working model – all of which might be crucial in ensuring continuous improvement of practice. The model developed, is characterized by its broad user involvement approach, ensuring people-centered actions reflecting local needs. This is in line with previous research showing that individuals' health and well-being benefit from participation in decisions-making processes that concern their lives [3, 6].

Additionally, the development of public health in local communities ought to be viewed in relation to the general global development. The world is changing rapidly, and increasing globalization causes greater inter-dependence between people, societies and health-related challenges [2, 24]. Subsequently, health must be understood as something more than a one-

dimensional and local issue. The conditions for achieving good health depend on social conditions, living conditions and health behavior [2, 25].

There are limitations to the present study. First, the close cooperation between research and public stakeholders, which brought forth the working model, might have influenced findings, as researchers might have become biased as a result of developing close personal ties and thus loyalty to the study participants and the municipalities during the prolonged involvement with the study. On the other hand, the close cooperation enabled researchers to grasp the lived reality of public health practitioners in the participating municipalities, and thereby, understand both the complex challenges that the practitioners faced in their day-to-day work as well as the solutions they came up with. Moreover, a broad mixed methods approach was applied, where several types of data (documents, in-depth and focus group interviews, participatory observation, log-diary and public meetings) as well as strategies-of-analysis were applied. This could increase the risk of ending up with a broad, but shallow analysis, and it might prove challenging when it comes to performing a solid and systematic analyses, since it is difficult to integrate knowledge from the various sources into a coherent, yet well-founded whole. Additionally, an in-depth analysis of fewer sources might have revealed more specific strategies of, for instance the implementation of HiAP into official documents, or how to involve and engage participants. However, it is an explicit aim in mixed methods research [19] to gather rich data, as different sources of information crave different means of analysis. The balancing between rich data and deep analysis is an integral challenge within mixed methods research.

Moreover, as all included sources are part of the context (e.g. public documents), and partly, represent common working methods (working meetings, log, public meetings to involve citizens etc), they represent valid sources of information about the context in which public health measures are indeed developed, planned and implemented. The richness of data does thereby mirror the complexity of the context from which the working model was developed, and is thereby considered an advantage. Furthermore, the research group kept a close track of all research-activities, in order to ensure systematic approaches, and increase the transparency of the research process.

A strategic sample was selected on the basis that the participants possessed extensive multi-sector knowledge in the area of public health and health promotion. The selection of participants may however have influenced the type of information that emerged. Whether the persons selected were best suited to participate in the interviews and focus group discussions can be questioned. A different group composition might have provided different results. Especially involvement of inhabitants or relevant NGOs (including commercial stakeholders) might have yielded different results. It is also reasonable to assume that a significant focus on multi-sectoral governance and evidence-based knowledge from the local authorities have influenced the discussions. Furthermore, although priority was given to the participants' own experiences, the contents of the interview guides might have influenced the nature of the information that emerged. All in all, since the focus of this paper was to develop a working model for knowledge based public health work, gathering experiences from, and involving public health practitioners seemed beneficial in order to highlight the specific challenges that arise in the context of this work.

Additionally, the fact that the participants in the present study represented different sectors should be viewed as positive, since multi-sectoral expertise in the field of public health is considered an advantage when trying to identify *how* to work more systematically, knowledge-based and multi-sectoral in promoting health and health equity in the population. Process evaluation helps us to interpret effects and results more precisely while simultaneously offering the opportunity to conduct continuous quality improvement [18]. This is perhaps one of the most important yet overlooked strategies in public health practice when trying to implement plans into effective public health initiatives [18]. In order to improve the validity and reliability of the process evaluation, regular meetings were held between the research group and the multi-sectoral project group, formal collaborating partners and stakeholders to discuss and get feedback on the project's relevance, progress, obstacles and results throughout the project period. The benefits of the working model regarding how to translate knowledge and evidence into targeted actions, are related to the fulfillment of principles of good governance. However, in order to improve the study face validity, a practical user manual for the working model has been developed in close cooperation with the municipalities, covering specified action points. Since the model is not limited to specific disciplines or sectors, but is possible to apply in different contexts where the aim is to improve practical solutions, the target group for the user manual is multi-sectoral. The conditions for achieving good health are however highly dependent of the specific context [3, 4, 24]. It is where people live and work that it is possible

to create conditions that promote health, well-being and a sense of belonging. Validity and sustainability of the model across municipality contexts and target groups should therefore be further explored.

In conclusion, the model presented in this study encourages actors to make use of the best available methods and knowledge in decision-making, policy and practical solutions. The model also ensures that the possibility for continuous improvement and development of practical solutions and a foundation for restructuring and responding to new challenges is taken care of. This can be achieved by shared understanding of the challenges, updated overviews of population health status and impact factors, efforts on anchoring public health in the municipality's planning system as well as collaboration across sectors, disciplines and levels. In addition, development of trust, ownership, shared ethics and goals among those involved can be ensured by involvement and participation in planning and decision-making processes. This requires new skills and changes in the selection, implementation and evaluation of measures. It is important, though, to keep in mind that best-practice approaches, models, and the evidence available are seen as dynamic and ever changing.

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Conflicts of interest

There is no conflict of interest.

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References

1. Forsman AK Wahlbeck K, Aarø LE, et al. Research priorities of public mental health in Europe: Recommendations of the ROAMER project. *Eur J Pub Health*, 2015; 25(2): 249-254.
2. World Health Organization (WHO). *The Ottawa Charter for Health Promotion* Available at: www.who.int/healthpromotion conferences/previous/ottawa/en/index1.html (1986, consulted July 2017).
3. Brown C, Harrison D, Burns H and Ziglio E. *Governance for health equity: taking forward the equity values and goals of Health 2020 in the WHO European Region.* Final report. World Health Organization. Updated reprint, 2014.
4. Weiss D, Lillefjell M and Magnus E. Facilitators for the development and implementation of health promoting policy and programs–a scoping review at the local community level. *BMC Public Health*, 2016; *16*(1):140 DOI: 10.1186/s12889-016-2811- 9.
5. Marmot M. Status syndrome. *Significance*, 2004; 1(4):150-154.
6. Antonovsky A. *Unravelling the mystery of health – how people manage stress and stay well*. San Francisco: Jossey-Bass Publishers, 1987.
7. Kickbusch I and Gleicher D. *Governance for health in the 21st century*. Geneva: World Health Organization, 2012.
8. Public Health Act of 2012. Oslo: Ministry of Health and Care Services, 2012.
9. Green J, Tones K, Gross R and Woodall J. *Health promotion: Planning and Strategies*. London: Sage Publications, 2015.
10. Lillefjell M, Knudtsen MS, Wist G and Ihlebæk C. From knowledge to action in public health management. Experiences from a Norwegian context. *Scand J Public Health, 2013;* 41, 771-777.
11. McQueen D, Wismar M, Lin V, et al. (eds). *Intersectoral governance for health in all policies. Structures, actions and experiences*. Observatory Studies Series 26. Copenhagen: World Health Organization, 2012.
12. Raphael D. The question of evidence in health promotion. *Health Promot Int*, 2000; 15:355–67.
13. Fosse E. National objectives – local practice. Implementation of health promotion policies. In: Wold B and Samdal O (eds). *An ecological perspective on health*

promotion: Settings, systems and social processes. University of Bergen, Norway: Bentham e-Books, 2012.

14. Riksrevisjonen: Riksrevisjonens undersøkelse av offentlig folkehelsearbeid. Dokument 3:11 (in Norwegian). Oslo: Riksrevisjonen, 2014-2015.
15. Sanderson C, Haglund BJA, Tillgren P, Svanström L, Östenson C-G, Holm L-E, Ullen H and Smajkic A. Effect and stage models in community intervention programmes; and the development of the Model for Management of Intervention Programme Preparation (MMPI). *Health Promot Int,* 1996; 11(2): 143-156.
16. Raphael D. *Health Promotion and Quality of Life in Canada. Essential Readings.* Toronto, Ontario:Canadian Scholars`Press Inc.
17. Maass R, Espnes GA and Lillefjell M. *Handbook of Salutogenesis- Past, Present, Future*. Chapter: Cities and Towns. Springer, 2017.
18. Conner R. Community-based evaluation. In: *Encyclopedia of Evaluation*, Mathison S. (ed.). Thousand Oaks, California: Sage Publ., 2005.
19. Johnson RB and Onwuegbuzie AJ. Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Ed Research,* 2004; 33(7): 14-26.
20. Krueger RA and Casey MA. *Focus groups: A practical guide for applied research*, 4th ed. Los Angeles: Sage, 2009.
21. Hsieh HF and Shannon SE. Three Approaches to Qualitative Content Analysis. *Qual Health Res,* 2005; 15(9): 1277-1288.
22. Magnus E, Knudtsen MS, Wist G, Weiss D and Lillefjell M. The search conference as a method in planning community health promotion actions. *J Pub Health Res.* 2016: 5; 621: 60-67. DOI: https://doi.org/10.4081/jphr.2016.621.
23. Brownson RC, Fielding JE, Maylahn CM. Evidence-based public health: a fundamental concept for public health practice. *Annu. Rev. Public Health,* 2009; 30:175-201.
24. Det kongelige helse- og omsorgsdepartement. White paper nr. 47 *Samhandlingsreformen. Rett behandling – på rett sted – til rett tid* (in Norwegian). Oslo: Akademika AS., 2008–2009.
25. The Shanghai Declaration on Health Promotion. The 9th Global Conference on Health Promotion, Shanghai, China, 15-31 Oct., 2016.
26. The Helsinki statement on Health in All Policies. The 8th Global Conference on Health Promotion, Helsinki, Finland, 10-14 June, 2013.