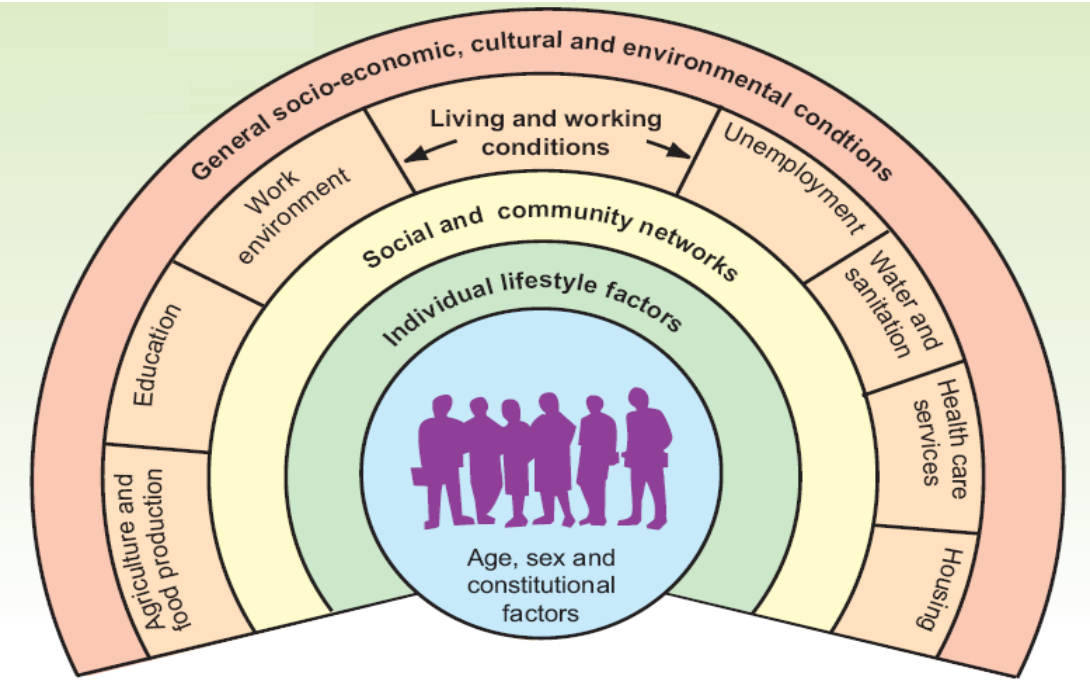
Mapping tool for public health competence mapping in municipalities

Introduction

The aim of the proposed mapping tool is to provide the municipalities by a standardized tool which allows self-assessment of public health competencies within the municipality. Both modern public health and the Danish quality reform requires increasing use of standardized tools; this tool offers one such a possibility

The proposed mapping tool is based on the following three basic premises:

- Dalhgren & Whitehead model of health –



Dahlgren and Whitehead "rainbow"
Source: Dahlgren G and Whitehead M, Health Inequalities, London HMSO 1998

- Key determinant groups – the key determinants of health enlisted in second upper layer of the model are work environment, unemployment, housing, traffic, education, agriculture and food production, water and sanitation, social insurance systems and health services
- Key public health competencies - Assessment and analysis, policy and program planning, implementation and evaluation, partnership, collaboration and advocacy, diversity and inclusiveness, communication and leadership create the main core competencies.)

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Description of the core competencies:

1. **Assessment and analysis** means that a municipality is able to:
    a. Recognize that a health concern or issue exists.
    b. Identify relevant and appropriate sources of information, including community assets and resources.
    c. Collect, store, retrieve and use accurate and appropriate information on public health issues.
    d. Analyze information to determine appropriate implications, uses, gaps and limitations.
    e. Determine the meaning of information, considering the current ethical, political, scientific, socio-cultural and economic contexts.
    f. Recommend specific actions based on the analysis of information **.**
2. **Policy and program planning, implementation and evaluation** means that a municipality is able to:
    a. Describe selected policy and program options to address a specific public health issue.
    b. Describe the implications of each option, especially as they apply to the determinants of health and recommend or decide on a course of action.
    c. Develop a plan to implement a course of action taking into account relevant evidence, legislation, emergency planning procedures, regulations and policies.
    d. Implement a policy or program and/or take appropriate action to address a specific public health issue.
    e. Demonstrate the ability to implement effective practice guidelines.
    f. Evaluate an action, policy or program.
    g. Demonstrate an ability to set and follow priorities, and to maximize outcomes based on available resources.
    h. Demonstrate the ability to fulfill functional roles in response to a public health emergency.
3. **Partnership, collaboration and advocacy** means that a municipality is able to:
    a. Identify and collaborate with partners in addressing public health issues.
    b. Use skills such as team building, negotiation, conflict management and group facilitation to build partnerships.
    c. Mediate between differing interests in the pursuit of health and well-being, and facilitate the allocation of resources.
    d. Advocate for healthy public policies and services that promote and protect the health and well-being of individuals and communities.
4. **Diversity and inclusiveness** means that a municipality is able to:
    a. Recognize how the determinants of health (biological, social, cultural, economic and physical) influence the health and well-being of specific population groups.
    b. Address population diversity when planning, implementing, adapting and evaluating public health programs and policies.
    c. Apply culturally-relevant and appropriate approaches with people from diverse cultural, socioeconomic and educational backgrounds, and persons of all ages, genders, health status, sexual orientations and abilities.
5. **Communication** means that a municipality is able to:
    a. Communicate effectively with individuals, families, groups, communities and colleagues.
    b. Interpret information for professional, nonprofessional and community audiences.
    c. Mobilize individuals and communities by using appropriate media, community resources and social marketing techniques.
    d. Use current technology to communicate effectively.
6. **Leadership** means that a municipality is able to:
    a. Describe the mission and priorities of the municipality and apply them in practice.
    b. Contribute to developing key values and a shared vision in planning and implementing public health within policies of the community.
    c. Utilize public health ethics to manage self, others, information and resources.

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d. Contribute to team and organizational learning in order to advance public health goals.
e. Contribute to maintaining organizational performance standards.
f. Demonstrate an ability to build community capacity by sharing knowledge, tools, expertise and experience.

Description of the determinants of health

- **Work environment** – work safety, sickness leaves, occupational diseases, injuries, ISO standards, control over work conditions
- **Unemployment –** unemployment rate as for whole population and for specific subgroups
- **Housing –** availability of housing, private houses, social housing, level of rent, support programs, average number of people living in house, provision of environmental services (waste)
- **Traffic –** car traffic, cycling paths, traffic safety, road quality, public transportation (availability and affordability)
- **Education** – availability of schools, percentage of youngsters leaving school on different level
- **Agriculture and food production –** food production, food safety, availability and affordability, farmer employment
- **Water and sanitation** – access to safe drinking water, access to safe waste water collection and cleaning
- **Social insurance** – coverage of citizens by social insurance, access to social care
- **Health services** – availability of and coverage by health services, family doctors (GPs), specialist, hospital care, nursing, support services (physiotherapists, etc…)

How to complete the matrix

Please fill in a number in each cell of the following table, which indicates a score on 1-5 scale; a score 1 means that the municipality has no competence on the core "public health competence" listed in the column of the table and the "determinant of health" listed in the rows of the table. Score 5 means that the municipality is able to fulfill all sub-competences (See above "description of the core competencies") within a core competence on the listed determinants of health. A score in between 1-5 means at what extent is a municipality able to fulfill the competence within the determinant of health area.
In additional, please provide the latest copy or an Internet link of the health profile and health policy of your municipality (if available).
The tool is intended for political leaders in municipalities on the field of public health (health) (sundhedchefer, sundhedsdirektører), however recognizing the differences among municipalities please not at each determinant group who filled in the responses. As many of the determinant groups belong to non-health units of municipalities we recommend to complete the matrix in collaboration of a health unit and relevant other unit person.
The final results of this testing survey of mapping tool will be distributed to all municipalities who send their completed matrix form both in text and graphical format including recommendation of routine self-use of the tool.

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Public health competences → ***Determinant of health*** ↓	assessment and analysis	policy and program planning, implementation and evaluation	partnerships, collaboration and advocacy	diversity and inclusiveness	communication	leadership	**Total**	**Please note who completed the tool!**
Work environment								
Unemployment								
Housing								
Traffic								
Education								
Agriculture and food production								
Water and sanitation								
Social insurance								
Health services								
Total								

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Supporting Report

Introduction

A European Commission, Directorate for Health and Consumer Protection (DG-SANCO) project entitled "Healthy regions" provided the basic framework for work presented in this report. The objective of this project is to put health on the political agenda. The project aim to develop, exploit and implement a new concept for "Healthy Regions" on a regional and European level, which shows how a pro-active, preventive, holistic, democratic and mainstreamed focus on health and well-being can be an economic and social growth factor. The project addresses the need for support at a regional level in looking at public health and prevention initiatives in a more strategic way. It is extremely important that regions all over Europe start to think and act more pro-active and preventive, through promoting regional health and making it the "easy choice" to have a healthy lifestyle. As to make it possible for citizens to make "easy choices" the main objective of the project is to introduce a concept for "Healthy Regions" which should be understood as a set of guidelines, recommendations and practical tools, which makes it easier for regions to develop health strategies and implement these strategies on a practical level – close to the citizens, so that the "easy choice" becomes a reality. As for tool development the project focused on getting a complete overview of regional public health competences via mapping (mapping tool) those competences and on use of the mapping tool for strengths, weaknesses, opportunities and threats (SWOT) analysis. The presented work targeted Denmark and specifically the region of Southern Denmark who is also a partner within the Healthy region project. However, we expect that findings of the presented work might be applicable for other regions of Denmark and with some modification for other countries of Europe as well.

The structural reform in Denmark[1] introduced by January 1st. 2007 significantly changed both the administrative division of the country and division of work responsibilities. Health promotion, disease prevention and public health responsibilities have been moved to municipal level leaving health care management (hospital management) on regional level. Many other sector responsibilities were delegated to municipalities as well. Due to this situation the project team decided to focus on mapping and conducting a SWOT analysis on municipality level accepting the premise that a healthy region is created by healthy municipalities.

The Healthy region project set the public health policy of the European Union as reference line. As the broad determinants of health are in centre of both last two directives of European Commission (EC) on Community Action Plan on Public health [2,3] and the health strategy of EC[4] the determinants of health as defined by Dalhgren and Whitehead[5] were applied for mapping tool development. As of public health competences we decided to use the set of core competencies on public health as defined by Canadian Agency for Public Health[6] due to clarity, simplicity and applicability to practice.

The healthy regions project is not the first dealing with issues of public health in regional or municipal setting. The World Health Organization has for many years operate for two projects dealing with similar issues. The Regions for health project focuses on regions and comprises 29 regions in 18 countries of Europe[7]. Since its inception in 1992, the Regions for Health Network (RHN) has complemented work for health carried out at the national level by supporting the development of policies and strategies to improve health at the level immediately below it. RHN members work to strengthen health in many ways:

- to guide and support new European Union (EU) regions;
- to cooperate on regional health systems and information development;

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- to support members requesting help;
- to promote links between regions.

More recently RHN has focused on strengthening its work on health systems and the implications of this for regions[7].

The Healthy city program comprises over 1200 cities across 30 countries of Europe[8]. It engages local governments in health development through a process of political commitment, institutional change, capacity building, partnership-based planning and innovative projects. It promotes comprehensive and systematic policy and planning with a special emphasis on health inequalities and urban poverty, the needs of vulnerable groups, participatory governance and the social, economic and environmental determinants of health. It also strives to include health considerations in economic, regeneration and urban development efforts[8]. Despite of these interest areas none of the two projects has produced a systematic mapping tool to evaluate how well are regions or cities equipped to apply core public health competencies across broad determinants of health. In literature we identified one paper by Anderson[9] dealing with assessment of organizational capacity for health promotion within regional authorities in Alberta, Canada. Authors analyzed organizational capacity based on surveys.

The objective of this report is to summarize work done on the development and testing of a mapping tool to map ability to use core public health competencies across broad determinants of health areas, discuss the experience with testing of the tool and discuss possible strength, weaknesses, opportunities and threads of municipalities of Southern Denmark region.

Methods

To gather information on the subject of mapping of public health competencies we conducted a literature search in PUBMED using keywords: mapping tools, public health competencies, determinants of health. Web sites of the Regions for Health and Healthy Cities programs of WHO were searched as well, however no specific publications describing this type of mapping were identified.

To develop the mapping tool we studied literature related to public health competences and determinants of health, models of health. Consultations within the Unit for health promotion research of University of Southern Denmark (SDU) and the Danish partnership of the project were conducted to develop the first version of the tool.

Testing of the tool was done on three levels:

1. Personnel consultation with 2 selected municipalities – convenient sample of municipalities was used due to time constraints. The aim of this level of testing was to verify understandability of items in the tool and set up the scoring system.
2. E-mail survey – the developed tool was sent out via e-mail to all 22 municipalities of Region Southern Denmark. The heads of health departments were kindly asked to complete the tool and give comments to the tool on content, scoring and usefulness.
3. A set of focus group interviews were completed as third level of testing with the aim to test the tool more in depth and get more detailed comments on its usefulness. For this level of testing 5 municipalities were selected from the 22 taking into account whether they responded in second round of testing or not, geographic distribution of municipalities within the Region to – in order to avoid clustering of neighboring municipalities - and size of municipalities. From among the selected 5 municipalities, 3 agreed to participate in a focus group interview.

Results

The mapping tool has been developed as a matrix and its final version is presented in annex of this report. The key determinants of health were identified using the Dalhgren & Whitehead model of health as work environment, unemployment, housing, traffic, education, agriculture and food production, water and sanitation, social insurance systems and health services. The core competencies have been identified as Assessment and

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analysis, policy and program planning, implementation and evaluation, partnership, collaboration and advocacy, diversity and inclusiveness, communication and leadership create the main core competencies. We decided to leave out research competence as it does not seem to be a municipality task in a Danish context. In the initial version of the tool, a 10-scale scoring was introduced setting 0 as no ability to perform public health competences on the selected determinant of health and 10 as full ability to perform public health competencies on selected determinant of health. In case a municipality has no competencies on a selected determinant they were advised to state "no competence to act" in the comments part of the tool.

During the first testing of the tool the two selected municipalities suggested to add definitions for the terms 'core competencies' and 'determinants of health' and change the scoring to a 0-5 scale by setting 5 as full ability to perform core public health competencies. These suggestions were implemented for the second testing.

The E-mail survey brought mixed results. Municipalities represented by heads of health departments were asked to score their ability to perform the core competencies on enlisted determinants, provide comments to the tool and to the whole process of mapping. From the contacted 22 municipalities that constitute the Region of Southern Denmark 10 (45.5%) municipalities did not respond at all, 5 (22.5%) responded but did not fill in the tool mainly due to time constraints, 3 (14%) responded by sending comments to the tool and the whole mapping process and 4 (18%) municipalities provided both scoring data (though one municipality only for one determinant) and comments to tool and process.

Table1: Mean scores of ability to perform core public health competences across different determinants of health assigned by four municipalities who completed the tool across different determinants of health.

Municipality	Assessment and analysis	Policy and program planning, implementation and evaluation	Partnership, collaboration and advocacy	Diversity ad inclusiveness	Communication	Leadership
A	3.9	3.9	3.6	2.9	4.0	4.3
B	4.0	3.0	4.0	3.0	4.0	3.0
C	3.9	3.7	3.7	3.2	3.3	3.6
D	4.2	3.6	3.7	3.1	3.3	3.1

Apparently responding municipalities feel less capable at performing public health competencies in the field of diversity and inclusiveness management. It is also worth- noting that there are differences among municipalities within certain competence areas for example leadership competence scores varied from 3.1 to 4.3 meaning an almost 20% variance in their accessed capability of leadership.

Table 2 summarizes scores of the individual municipalities by determinants of health and core public health competencies

Determi-nants	Municipality	Assessment and analysis	Policy and program planning, implementation	Partnership, collaboration and advocacy	Diversity and inclusive	Communication	Leadership

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			and evaluation		ness		
Work safety	A	3	4	3	2	5	4
	C	4	4	4	3	4	3
	D	5	4	4	3	4	4
Unemployment	C	4	4	4	3	3	4
	D	4		4	3		
Housing	A	3	4	4	3	4	5
	C	4	4	4	3	3	4
	D	4	4	4	3	4	4
Traffic	A	4	3	4	3	3	3
	C	4	4	4	4	4	4
	D	5	5	3	3	3	3
Education	A	4	4	4	3	3	5
	C	4	3	3	3	3	3
	D	4	4	4	3	5	3
Agriculture and food production	A	4	4	3	3	4	4
	C	3	3	3	2	3	3
	D	4	3	4	3	3	3
Water and sanitation	A	4	4	3	2	4	4
	C	4	4	4	4	4	4
	D	4	3	3	3	3	3
Social security	C	4	3	4	4	3	4
	D	4	4	3	3	4	4
Health services	A	5	4	4	4	5	5
	B	4	3	4	3	4	3

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	C	4	5	4	4	4	4
	D	4	4	3	3	3	3

The lowest scores are related to agriculture and food production where municipalities have little responsibilities. Highest scores are reported in health services signalizing a high level of self- confidence in own field. From the few returned mapping tools it is hard to estimate whether the tool is "self-guiding" enough to assess abilities to perform a public health competence in relation to certain determinant of health or respondents focused more on the issue of responsibilities of the municipality on the area of a determinant of health. With a higher response rate the tool would allow for also stratification by size of municipality for example; one of four municipalities who responded was significantly smaller and others; some of differences in scores could hypothetically explained by size of municipality.

Those who responded to the mapping exercise but did not completed the mapping tool itself provided very important comments which can be summarized into the following points:

- The need for such a tool and its use –
- Understandability, clarity
- The need for intersectorality while filling in the tool and lack of time -

In conclusion, the e-mail based mapping exercise helped to understand the competence mapping process and confirmed the need and interest for development of such a tool.

To get better insight into the process of mapping focus group interviews were arranged in three municipalities. Interviews were organized around the following key themes:

- Impression of the tool
- Need for tool and use of it
- Understanding of terms
- Scoring

The first impression of the tool was the same in all three interviewed municipalities. It is complicated, hard to understand, unknown terms like determinants of health, scoring is always subjective, no clear purpose of the tool, short time to respond and comment were the most often raised issues. However, two out of three municipalities pointed out that soon after their first reading they, read it again and realized it might be a helpful tool for their work, for planning. As a response to this they recommend personal guidance or as stated by the third municipality:

"…one cannot send out such a tool by a one side e-mail…it would be much better if we meet and get an explanation why is this mapping going on, what is the aim of the tool and the purpose of the whole process…".

Opinions on the need for such a tool and its usefulness have changed over time since their first reading. After repeated readings all three focus groups agreed that it might be a very useful tool for different purposes. These purposes should be clarified beforehand of testing in collaboration with users. Combination of different approaches would lead to optimal version of completion where representatives of different departments score their competences together as one intersectoral group. The tool could well be used as a self-assessment tool or a priority making tool if completed in form of a dialog:

"…this tool can be a big help to us if we know more about its items and we bring together the whole municipality to complete it in a permanent dialog…"

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"…if you as researcher come and help us to fill this in, identify which competencies are the most important, help us to prioritize it would likely lead to better, more systematic work…"

It was recommend by the focus group respondents to clarify who should fill in the tool as answers might vary significantly if the tool is completed by leaders of the municipality, or administrators as most likely each department will focus on own determinant and pay less attention to other determinants of health. Lack of time is clearly the main barrier for this option, though they would consider it as very important. One of the focus groups raised the issue of validity of results:

"…if we fill in and score high, does it mean that our municipality is more healthy?..."

Understanding of terminology used in the mapping tool was raised as another reason for the low response rate . The focus groups agreed that despite the effort to explain both public health competences and determinants of health understanding of these terms does differ from municipality to municipality, from respondent to respondent by job description, by education, by years of practice. If the tool goes to a higher rank professional (leaders, unit or department heads) the chance of getting the tool completed increases, however, in opposite case, if the tool goes to lower rank administration people would need special training before completing the tool. This issue is further complicated by the fact that in smaller municipalities there are few persons available for this type of work. Another aspect of understanding of terminology is that as each of the focus groups (and most of the comments received by e-mail) confirmed a tool like this needs input from other, non-health units of a municipality and understanding and knowledge of basic terms by those units is even lower at present.

Scoring has been discussed by the focus groups also from a point of objectivity – subjectivity. The external validity (does higher score means healthier municipality?) is mentioned earlier this debate could be considered as well as internal validity. Internal validity has been described by interviewees as follows:

"…the scores I did are mine; others might score our municipality different. Being employed in work place safety (author example only) I would always score high on our part, but likely lower on the other determinants; not necessarily due to bad intention, but rather due to lack of knowledge…"

Focus group members suggested more in depth testing of the tool from this point of view within selected municipalities, but also internationally.

Although all of the focus groups agreed on usefulness of the Dalhgren & Whitehead model of determinants of health, one group raised the issue to add lifestyle determinants such as smoking, physical activity, diet, alcohol to existing determinants of health with respect to ongoing KRAM program in Denmark (Kost-Rygning-Alkohol-Motion = Diet-Smoking-Alcohol-Physical activity).

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Discussion

To our knowledge there is no similar mapping tool validated, published and used internationally; therefore our discussion focuses on discussion of responses of municipalities from all three rounds of testing.

The context of this research is given by the Healthy Region project funded by DG SANCO. The project focuses on issue of creating wealth by better health, introduction of health in all policies, in all sectors on regional basis. This is important to remember as it clearly explains and pre-determines the choice of Dalhgren & Whitehead model. The tool, as the project, aim to target the structural level; policy and decision making level instead of individual level and individual determinants of health. This explains the comment raised by one of the focus groups on lack of lifestyle determinants in model. However, it is necessary to declare, the lifestyle determinants are included indirect as they all are influenced by structural determinants, which are addressed by the tool.

The issue of understandability, sharing of common understanding of common public health terms came up as an extremely important issue from the mapping exercise. Level of knowledge does differ between municipalities, by position of personnel. Aiming to achieve health in all polices, intersectoral work for health or better wealth via better health (as the project aims to) it is absolutely crucial that a certain level of knowledge, certain level of agreement on key terms is achieved in community.

In region of Southern Denmark this research started from recent legislation and knowledge that most of public health responsibilities are on municipal level; this was the key reason why municipalities were chosen as target for mapping exercise instead of the Region. However, at first reading municipalities did not feel a need for such a mapping, such a tool. Later, after repeated reading they started to realize that a tool like ours could help them in different tasks such as self-evaluation, prioritization, development of intersectoral collaboration and increasing debate around health and wealth in a municipality. Many of them expressed clearly, if such a tool would be preceded by a meeting (or a training session or a workshop) where the tool and its objective is explained response would be much more positive. This is an important experience in terms of process, in terms of in brokering public health research into routine life of municipality level decision making (likely all levels of decision making).

Despite all the criticism and uncertainties related to validity of scores presented in the e-mail testing round respondents and focus group interviewees have agreed that scoring gives a good chance to identify the most critical public health competence areas (in our case diversity management) and introduce intersectoral working culture in a municipality. Those municipalities who did not return a completed mapping tool, but sent comments noted always that the main reason for not filling in the tool was lack of time due to a need to complete the tool with other sector colleagues; this recognition is a positive finding.

The tool in its last version is presented in annex of this report; there is definitely a need for more research on the following areas:

- Both internal and external validity
    - Internal validity could be done by a detailed and guided completion of the tool in 1-2 selected municipalities
    - External validity could focus on linkage between results of scoring, health policy, health profile and health status
- Linkage between better performance of health competencies, health status, health expenditures and wealth in municipality and on second level in region

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Another task related to introduction of the tool expected by the Healthy region project was to conduct a SWOT analysis of a region. Instead of hypothesizing strengths, weaknesses, threats and opportunities related to relation of health and wealth in region of interest (Region South Denmark) we suggests to use the tool for conduct of SWOT. With some level of uncertainties around scoring the tool in its present form can provide a good picture of ability to perform core public health competences by municipalities. The scoring uncertainties would likely create a systematic error, which would not influence significantly the whole picture if all municipalities of the region complete the tool. This would be possible even before additional research as outlined above, though strictly taking in account comments of respondents (proper introduction of the tool, aim, appropriate time to fill in).

In summary, despite all uncertainties on validity, the presented tool could be a very useful dialog tool on two areas:

- Within a municipality it can enhance dialog among different units on their role in public health and consequently improve intersectoral working for health.
- Between academia and municipalities via further testing of validity issues it can serve as a dialog tool to bridge the research – practice /policy gap

Conclusion

The mapping tool in annex of this report is the main product of research conducted within Healthy Region project at Unit of health promotion research of University of Southern Denmark. There is a lack of similar tools in public health literature what makes evaluation of the tool an uneasy job.

Municipalities welcome such a tool however, proper introduction, appropriate time window, clarity in basic terminology with regard local culture and level of knowledge is needed to better implement the tool. There is a need for closer and systematic collaboration on similar public health research and policy actions.

An added value of the tool could be its availability to provide good background data for SWOT analysis, though only under condition that most of the municipalities will complete the tool.

The mapping tool offers a chance to improve first intersectoral working culture for health within a municipality by discussing competences of units relevant for each determinant of health and second collaboration between research and practice and improve culture of participatory research.

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