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CHAPTER 6

Measuring stages of *health in all* policies on a local level: The applicability of a maturity model

Ilse Storm
Janneke Harting
Karien Stronks
Albertina J. Schuit

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Abstract

Objectives: Many local governments are trying to establish Health in All Polices (HiAP), but no sensitive tool is available to measure HiAP growth processes. This study explores the applicability of a general maturity model to classify stages of HiAP and to characterize its manifestations and conditions.

Methods: Based on other maturity models we have developed a Maturity Model for HiAP (MM-HiAP), which consists of six maturity levels and 14 corresponding key characteristics. This model was applied to assess HiAP growth processes within 16 municipalities in the Netherlands. We used municipal policies on health inequalities as a case. Empirical data was gathered based on document analysis, a questionnaire and interviews.

Results: Using this model we were able to classify HiAP growth processes by several characteristics, such as the recognition of the importance of HiAP (stage I; three municipalities), HiAP described in policy documents and collaboration with sectors present (stage II; seven municipalities), concrete collaboration agreements and structural consultations forms (stage III; four municipalities), and a broad, shared vision on HiAP (stage IV; two municipalities). Examples of necessary conditions were sufficient support and resources.

Conclusions: This study shows that it is possible to apply a maturity model to classify stages of HiAP in municipalities. Use of the MM-HiAP as a formal measuring instrument depends on further operationalization and validation.

Keywords: Health in All Policies, Maturity model, Measuring instrument, Local government

1. Introduction

1.1 What is the problem?

Solving wicked problems is assumed to require a whole-of-government approach [1]. Health in all Policies (HiAP) is a whole-of-government approach with a focus on health [2]. The alleviation of wicked public health problems, like inequalities in health, requires integrated contributions from health and non-health sectors [3, 4]. That is, only joint efforts of multiple sectors and actors could effectively influence the determinants that underlie health inequalities, such as low income, unemployment, low level of education, unfavorable working conditions, and an unhealthy life style [5, 6]. However, establishing HiAP has been found to be exceptionally complex [3, 7-9]. It has, for example, been found difficult to engage other sectors, to link problems and solutions for several sectors, and to take care of a sustainable approach [10]. Core to this complexity may be the fact that from an analytical point of view the concept of HiAP can be defined in different ways, but also empirically it can mean different things [1]. It has been proven difficult to identify and to measure both processes as well as outcomes of HiAP [1, 11].

1.2 What do we know and what do we not know?

Different characteristics, strategies and instruments for the development and implementation of HiAP can be identified [3, 7, 12]. An important characteristic is that HiAP is a policy in which the relevant municipal sectors collaborate on the shared aim of promoting and protecting health [3, 13]. This means that other sectors (e.g. Social Affairs, Education, Housing, Employment) are involved in the policy design as well as in the policy implementation process [14, 15]. This involvement can be either symbolic or tangible, but also pro-active or reactive [14]. An additional characteristic of HiAP is that policy plans of the non-health sectors explicitly review or address (determinants of) health in order to contribute to the promotion or the protection of health [13, 15]. The integration of health in (non-health) public policy can be measured by looking at the commitment of non-health policymakers to invest in health, expressed in word and act [16]. On an individual level, commitment can vary between no commitment, shared interest, agenda status and policy adjustment. On an organizational level, commitment can be characterized as either new division of labour or sufficient resources [16]. Management support is essential for commitment on an organizational level [17]. On a political level, commitment for a HiAP strategy includes whole-of-government elements such as having a broad vision on health, stimulating sectors outside the public health domain to improve population health, supported by a visible and approachable unit, using Health Impact Assessment (HIA), and evaluating the results and effects of HiAP [7, 8].

Despite these identified characteristics or strategic elements, we have little knowledge how to measure the development and status of HiAP (both content and process outcomes). This lack of knowledge might be one of the reasons why HiAP is often considered insufficiently mature [18]. At present, no specific instrument is available to measure dynamic HiAP processes in a structural way [19], although such information seems necessary to manage and to control HiAP [20].

1.3 Purpose of this study

Findings of previous studies indicate that establishing HiAP may be considered as a growth process that successively passes several stages of 'maturity' [12]. Therefore, we chose to apply a general maturity model, analogue to Capability Maturity Models (CMM) or Architecture Maturity Model (AMM), as assessment instrument for the maturity for HiAP [21, 22]. CMM's have been widely used as management instrument to classify, steer and develop capability in organisational policy and behaviour, with regard to certain organizational tasks (such as software development, project management, and enterprise architecture) [23]. Such a classification constitutes a few consecutive maturity levels.

The present study explored the opportunities of such a model to assess the maturity of HiAP process. For that purpose, we operationalized the respective maturity stages specifically for HiAP, including key characteristic of each of these stages as well as the necessary conditions in each of these stages. We chose municipal policies on health inequalities as a case, because in the Netherlands, like in many other countries, developing and implementing HiAP is regarded as an important task of the municipal organization [24, 25]. Although we acknowledge that regional and national governments have important task and responsibilities in HiAP as well [2, 26], these levels remain beyond the scope in this study.

2. Methods

2.1 Application of a maturity model

In order to classify HiAP to reduce health inequalities in municipalities, we developed and applied a Maturity Model for HIAP (MM-HiAP). This model shown in Fig. 1 is similar to other maturity models, which distinguish six levels of maturity [21, 27].

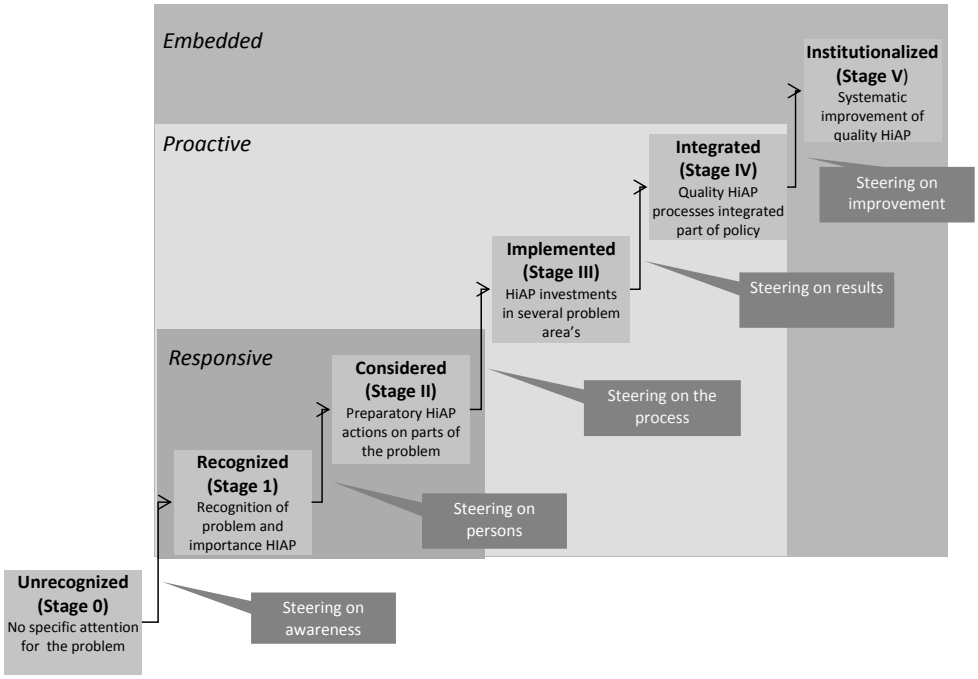


Fig. 1. Maturity Model for Health in All Policies (MM-HiAP): explored maturity model for classifying practices on HiAP, primarily based on a Capability Maturity Model [21] and an Architecture Maturity Model [23].

In accordance with applications of maturity models [28], we have assigned 14 key characteristics from a content and management processes perspective (see Table 1 and Appendices A to D). Each stage has its own characteristics (indicators):

- Stage 0 '*Unrecognized':* there is no specific attention for the problem, in this case the problem of health inequalities.
- Stage I '*Recognized':* municipalities recognize the problem and the solution of HiAP and there is clarity which activities will alleviate the problem (characteristics 1-2).
- Stage II '*Considered':* there are preparatory HiAP actions on parts of the problem. For example, HiAP is described in the local health policy document as a means to reduce health inequalities, collaboration between health and non-health sectors is started (project-based), and there are preparatory actions and activities to influence determinants of health inequalities (characteristics 3-6).
- Stage III '*implemented':* HiAP investments in several problem areas exist. Non-health sectors are involved in the policy making process as well as in the process of policy implementation to reduce health inequalities. Collaboration agreements are made between sectors. Structural consultation with others sectors and the presence of a key person for HiAP are available (characteristics 7-10).

- Stage IV '*Integrated':* quality processes are an integrated part of HiAP. There is a broad, shared vision on how to reduce health inequalities by HiAP, and there are visible milestones (both content and process) (characteristics 11-12).
- Stage V '*Institutionalized*': there is a systematic improvement of HiAP quality. There is political and administrative anchoring of the HiAP approach and HiAP is considered at every municipal policy cycle (characteristics 13-14).

Table 1. *Classification by six maturity levels and 14 corresponding key characteristics*

Nr	Key characteristics	Stage 0	Stage I	Stage II	Stage III	Stage IV	Stage V
1	Importance of HiAP recognized to reduce health inequalities	Negative	Positive	Positive	Positive	Positive	Positive
2	Visible which activities of sectors contribute to (determinants of) health inequalities						
3	HiAP described in policy documents	Negative	Negative	Positive	Positive	Positive	Positive
4	Collaboration with sectors present (project-based)						
5	Collaboration on health inequalities is started						
6	Activities of sectors contribute to determinants of health inequalities						
7	Concrete collaboration agreements	Negative	Negative	Negative	Positive	Positive	Positive
8	Structural consultations forms present						
9	Key person HiAP is present (role is clear)						
10	Working from sectors on health inequalities (policy basis)						
11	Broad, shared vision on HiAP (political and strategic)	Negative	Negative	Negative	Negative	Positive	Positive
12	HiAP results visible (both content and process)						
13	Political and administrative anchoring of the HiAP approach	Negative	Negative	Negative	Negative	Negative	Positive
14	Continuous improvement of integral processes and results on the basis of the achieved results						

Like in other maturity models [29] every maturity stage requires the use of different management strategies, such as steering on awareness, persons, processes, results, and continuous improvement [23]. Based on national and international studies we identified necessary conditions (critical factors) for establishing HiAP and applied these to the various stages [7, 8, 17, 18, 30]. As shown in Table 3, a distinction is made between individual factors (uniform language, existence of good relations, positive experiences), organization factors

(shared interest, visible health implications of the sector, sufficient resources, adequate timing), and political factors (high sense of urgency, sufficient support, input municipal councillor).

2.2 Research design and sample

To compose a sample, we identified fifty municipalities in the Netherlands (of a total of 441 in 2009) with possible activities in the area of health inequalities or HiAP. In order to obtain a heterogeneous sample, twenty-four of these municipalities were selected based on criteria such as size, geographical distribution, and the explicit objective to reduce health inequalities as described in their municipal health policy documents. We also intended to include municipalities with and without deprived neighbourhoods, as the health status of inhabitants of Dutch deprived neighbourhoods is – in general – less good than the health status in the rest of the country [31]. Finally, we intended to include municipalities with and without any activities with regard to HiAP.

To recruit municipalities for participation, health policy officers (operational level) were telephone accessed by researchers of the National Institute for Public Health and the Environment. A total of 16 municipalities were willing to participate. They were asked to provide contact details of their colleagues of other policy sectors (also operational level). These comprised social sectors, like Youth, Education, Sport, Social Affairs and Integration, and physical sectors, like Spatial Planning, Housing, Environment, Mobility and Safety. These sectors were involved as health inequalities are closely related to inequalities in other aspects, such as low income, low educational level, poor living and working conditions, and an unhealthy lifestyle [32]. All these sectors may therefore be regarded necessary for the establishment of HiAP to reduce health inequalities.

2.3 Measurement and data collection

In order to assess the stage of HiAP of the 16 municipalities, information was collected with three different methods (triangulation), each with its own instruments and data sources.

1. *Document analysis*: health policy documents of the 16 participating municipalities were screened for themes, objectives and activities with regard to health inequalities and HiAP as practice (see Table 2, characteristics 2-3).
2. *Digital questionnaire*: an online questionnaire was used to measure perceptions and practices of policy officers from different sectors. Items in the questionnaire were e.g. attention for (determinants of) health inequalities and involvement in intersectoral collaboration on health inequalities (see Table 2, characteristics 5-6, 10). The questionnaire also addressed the necessary conditions for collaboration on health inequalities. With closed answer categories (yes, no, do not know) policy officers from the different sectors could

indicate whether these critical factors were considered relevant. A total of 155 questionnaires were sent to policy officers (health and non-health), of which 123 questionnaires were returned, indicating a response of 79%.

3. *Individual interviews*: more in-depth insight in local developments on HiAP was collected through interviews. Themes that were addressed included: the recognition and acceptance of HiAP, activities or interventions that address (determinants of) health inequalities, involved actors, co-operation agreements, structure and form of collaboration, role of actors, results and experiences, context and organization (see Table 2, characteristics 1-2, 4, 7-9, 11-14). In total 32 semi-structured interviews were conducted. Sixteen of these were conducted with policy officers of the public health sector, four with policy officers of Education and Youth, four with policy officers of Sport, four with Social Affairs and finally four with policy officers of Spatial Planning and Housing. Interviews were conducted in the period June - November 2009 and had an average duration of 90 minutes. The interviews were recorded with a digital voice recorder.

2.4 Analysis of the data

The collected data per municipality were summarized by a first researcher. This summary was qualitative for the policy documents and interviews, and quantitative (in SPSS 17.0) for the questionnaires. In addition, the summarized information was ranked conform different capability levels. The 14 characteristics associated with the six maturity levels were scored as positive (+), doubtful (±), or negative (-) by the first researcher (see Table 2).

Then, the scoring of the characteristics and the ranking in maturity levels were discussed with a second researcher to the point that consensus on the maturity level of the 16 municipalities was reached. Subsequently municipalities were rated and appointed a maturity level if more than half of the characteristics associated with the maturity level scored 'positive' (which was operationalized by the researchers in this way).

No direction pre-existed for the definition of scores and the ranking algorithm. Both were, by way of face validity, edited by the first researcher in close collaboration with the second researcher, as is done in other CMMs [21]. For further specifications, see Appendices A to D.

The perceived critical factors were analysed by the various stages of MM-HiAP to identify the conditions (individual, organizational and political) that are characteristic for each of the stages of maturity (in SPSS 17.0).

3. Results

3.1 Brief characterization of municipalities

The sample of this study included: (a) three large municipalities with deprived neighbourhoods (> 450.000 inhabitants); (b) five medium-sized municipalities with deprived neighbourhoods (between 50.000 - 200.000 inhabitants); (c) three medium-sized municipalities without deprived neighbourhoods (between 50.000 – 200.000 inhabitants); and (d) five small municipalities without deprived neighbourhoods (<45.000 inhabitants). All these municipalities acknowledged health inequalities as a problem and, more or less, deployed activities with regard to HiAP to tackle this. We did not succeed in including a number of municipalities without any activities with regard to HiAP. These municipalities refused to participate due to lack of time or lack of interest.

3.2 Classification by MM-HIAP

Based on the three different methods we assessed the stages of maturity of the 16 municipalities by MM-HiAP (Table 2; Appendices A to D). In all municipalities the problem of health inequalities and the urgency to take action by HiAP was *recognized* (Stage I). Three municipalities did not come further than this stage. In seven municipalities HiAP could be classified as *considered* (Stage II), in four municipalities HiAP could be classified as *implemented* (Stage III), and in two municipalities HiAP could be considered an *integrated* part of policy approach (Stage IV). No municipality could be classified having HiAP on reducing health inequalities *institutionalized* (Stage V). Both municipalities in Stage IV were large municipalities with deprived neighbourhoods, while the third large municipality was categorized in Stage III. Stage III however also included one small municipality without deprived neighbourhoods. The composition of municipalities in Stage II and I was mixed.

Table 2 Stages of maturity in sixteen Dutch municipalities

Nr	Key characteristics	Score-definition	O	B	Sector	A1	A2	A3	B4	B5	B6	B7	B8	B9	B10	C11	C12	C13	C14	D15	D16
T						b	c	d	b	d	d	c	b	d	c	a	b	d	b	a	a
I	**Recognized**					**+**	**+**	**±**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**
1	Importance of HiAP recognized to reduce health inequalities	+ importance recognized importance not recognized	P	I	H	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
					NH	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+
2	Visible which activities of sectors contribute to (determinants of) health inequalities	+ aware which activities contribute not aware which activities contribute	C	I/D	H	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
					NH	±	+	-	+	±	+	+	+	±	+	+	+	+	+	+	+
II	**Considered**					**±**	**±**	**±**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**	**+**
3	HiAP described in policy documents	+ collaboration sectors described collaboration sectors not described ± collaboration sectors described, but implicitly	P	D	H	+	+	+	+	+	+	+	+	+	+	±	+	+	+	+	+
					NH	-	+	-	+	?	?	?	?	?	?	?	?	+	?	+	?
4	Collaboration with sectors present (project-based)	+ collaboration with multiple sectors no collaboration with multiple sectors ± collaboration between only two sectors	P	I	H	+	±	+	+	±	+	+	+	+	+	+	+	+	+	+	+
					NH	-	±	-	+	-	+	+	±	+	-	+	+	+	+	+	+
5	Collaboration on health inequalities is started	+ > 67% of the sectors < 33% of the sectors ± 33% -67% of the sectors	P	Q	H +NH	±	±	+	+	+	+	+	+	+	+	+	+	+	+	?	+
6	Activities of sectors contribute to determinants of health inequalities	+ activities focused on determinants: > 67% activities not focused on determinants: < 33% ± limited number of activities focused on determinants: 33% -67%	C	Q	H+NH	-	-	+	±	±	±	±	±	-	±	+	+	±	+	?	+
III	**Implemented**					-	-	-	-	-	-	±	±	±	±	+	+	+	+	+	+
7	Concrete collaboration agreements	+ agreements with regard to health inequalities no agreements with regard to health inequalities ± agreements with regard to health	P	I	H	-	-	±	-	-	-	±	±	±	±	+	+	+	±	+	+
					NH	-	-	-	-	-	-	-	-	±	-	+	+	+	-	+	+

8	Structural consultations forms present	+ consultation forms exists around health inequalities no consultation forms exists around health inequalities ± consultation forms exists around health	P	I	H	-	-	-	±	+	±	±	+	-	±	+	+	+	+	+	+
					NH	-	-	-	±	-	-	-	-	-	-	+	+	+	±	+	+
9	Key person HiAP is present (role is clear)	+ role clear regarding HiAP role not clear regarding HiAP	P	I	H	-	-	-	-	-	-	±	-	+	-	+	+	-	+	+	+
					NH		-	-	-	-	-	-	-	-	-	+	+	±	+	+	+
10	Working from sectors on health inequalities (policy basis)	+ > 67% of the sectors < 33% of the sectors ± 33% -67% of the sectors	C	Q	H+NH	±	±	±	±	-	±	+	±	-	+	+	±	±	+	?	+
IV	**Integrated**					**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**±**	**+**	**+**
11	Broad, shared vision on HiAP (political and strategic)	+ HiAP widely supported and in coherence developing policy HiAP not widely supported and not in coherence developing policy	P	I	H	-	-	-	-	-	-	-	-	-	-	-	-	-	±	+	+
					NH	-	-	-	-	-	-	-	-	-	-	-	-	-	±	+	+
12	HiAP results visible (both content and process)	+ effects are visible and positive effects are not visible ± effects are visible, but modest	P/C	I	H	-	±	±	-	-	-	-	±	±	-	±	±	±	±	±	±
					NH	-	-	?	-	-	-	±	-	±	-	-	±	±	-	±	±
V	**Institutionalized**					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Political and administrative anchoring of the HiAP approach	+ anchoring of HiAP in organization - no anchoring of HiAP in organization ± anchoring of HiAP, but without targeted funding	P	I	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	±
					NH	-	-	-	-	-	-	-	-	-	-	-	-	-	?	?	?
14	Continuous improvement of integral processes and results on the basis of the achieved results	+ guidance on improving results and processes - no guidance on improving processes and results	P/C	I	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					NH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	**Stage of maturity**					**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**4**	**4**

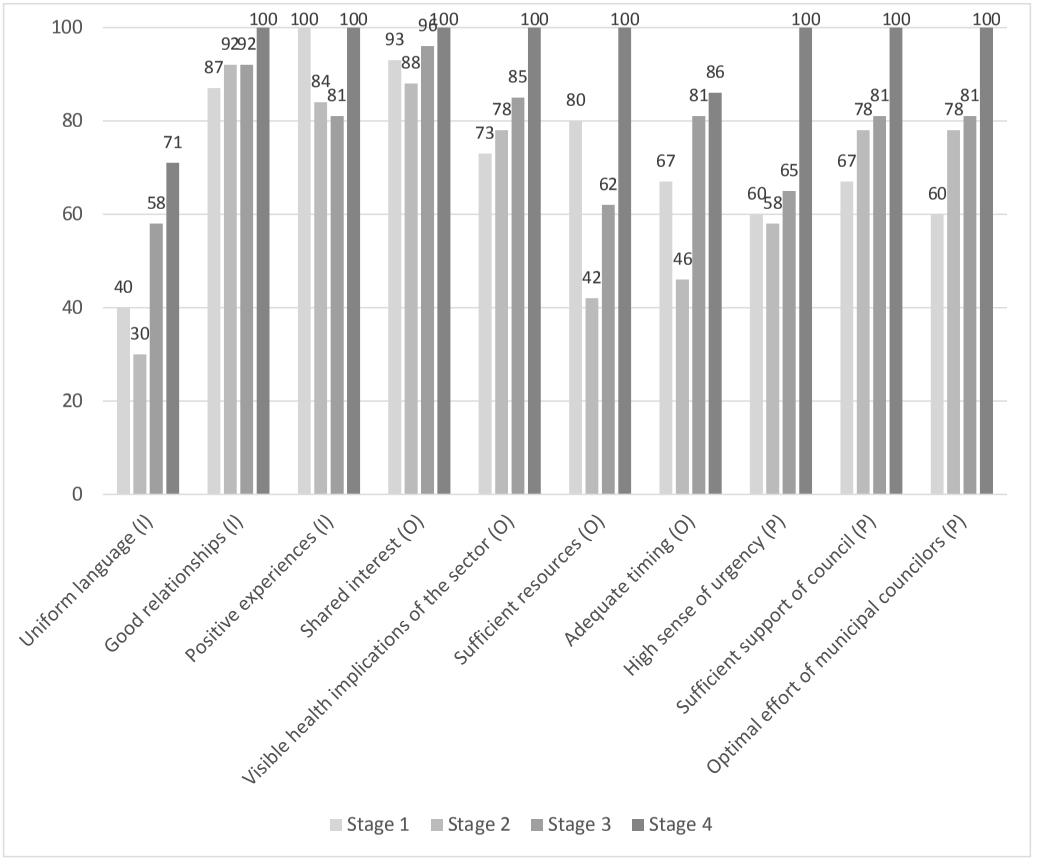
Nr= number key characteristics, O= Outcome, P=process, C= content, I=interview, D=documents, Q=questionnaire, H=health sector, NH= non-health sector, T= Type of municipality (a= large with deprived neighbourhoods, b = medium-sized with deprived neighbourhoods, c= medium-sized without deprived neighbourhoods, d= small without deprived neighbourhoods)

3.3 Description of the stages in sixteen Dutch municipalities

In Stage I, policy officers of both the health sector as well as non-health sectors acknowledged the importance of intersectoral collaboration to improve health and to reduce health inequalities. Policy officers were able to identify measures within their own municipality that could reduce health inequalities. Examples from a non-health perspective are: policy measures targeting sport stimulation in deprived neighbourhoods, the improvement of financial resilience, the guidance on getting a job for people with low socio-economic status, and the reduction of children with language delays.

Municipalities classified in Stage II, described HiAP in different local policy documents and started collaboration between health and non-health sectors. Often, the collaboration was project-based and targeted on related themes of health inequalities (e.g. unhealthy lifestyle and social exclusion). Policy officers pointed out that with this form of collaboration most relevant sectors were engaged. As a result, the public health sector primarily collaborates with social sector (i.e. youth, education, sport, social affairs) and less with physical ones (i.e. spatial planning, housing, environments). Municipalities in Stage III, made concrete agreements on collaboration between the health and non-health sectors regarding the tackling of the (determinants of) health inequalities. Examples are: agreement to reduce of language deficits or the restructuring of deprived neighbourhood. Structural consultations existed, such as a working group consisting of people from many different divisions or a new division of labour. In stage III municipalities, there was a problem owner or a program manager who, with the support of division managers, could steer and stimulate different policy sectors to implement HiAP. Also, the roles of those involved were clear, like an advising or facilitating role. In Stage IV, municipalities showed a broad, shared vision on HiAP, both politically as well as administrative. This was expressed by the inclusion of HiAP themes (like health inequalities) in the program of the City Council and the active engagement of municipal counselors and division managers of different policy sectors. In one municipality, policy counselors of different sectors temporarily changed seats to get more familiar with the work of their counterpart. The Council promoted the collaboration of different sectors in order to work on health of people in a deprived situation. However, in these municipalities there was limited perception of outcomes of HiAP, in terms of the added value of the collaboration in itself as well as an improvement of the health of the inhabitants.

Table 3. Perceived necessary conditions of health and non-health policy officers (n=123) affect HiAP classified by stages of maturity



I = Individual factors, O= Organizational factors, P= Political factors

3.4 Perceived necessary conditions

Based on the digital questionnaire perceived necessary conditions within the various stages of HiAP could be identified. Table 3 shows the perceived importance of individual, organizational and political factors for every stage. A common language appeared to be of more importance in the later stages of maturity then in early stages of maturity. Good relationships between policy officers of different sectors, positive experiences with intersectoral collaboration, and the acknowledgement of a shared interest seemed to be of importance in each stage. Clarity on how a non-health sector could contribute to the reduction of health inequalities became increasingly important with the progress of maturity. Sufficient resources (e.g. money and manpower) and an adequate timing seemed to be less important for municipalities in Stage II. However, municipalities in stage I, and IV attributed a more positive influence of sufficient resources. Finally, a high sense of urgency sufficient support of the Council, and an optimal effort of the municipal councillors became increasingly important conditions with increasing stages. They were considered imperative in Stage IV.

4. Discussion

4.1 Development of a Maturity Model for HiAP (MM-HiAP)

Many local governments are trying to develop and implement HiAP, but no sensitive tool is available to measure HiAP growth processes [19]. This study explored the applicability of a general maturity model to classify stages of HiAP and aimed to develop an operationalization of these stages that specially apply to the process of HiAP, including key characteristics of each of these stages as well as necessary conditions.

Based on other maturity models we developed and introduced a prototype of MM-HiAP, which consists of six maturity levels and 14 corresponding key characteristics. This model was applied to assess HiAP growth processes within 16 municipalities in the Netherlands. We used municipal policies on health inequalities as a case. Empirical data on local level was gathered based on document analysis, a questionnaire and interviews. Since HiAP is a dynamic growth process key characteristics and necessary conditions will influence each other in a complex way. That means it is almost impossible for a municipality to entirely fit in one particular stage, but to rank stages of HiAP growth processes it is scored in this way (by cutoff points). However, maturity models have been found to contribute to dynamic measuring and controlling complexity [28].

4.2 The use of a maturity model to classify municipalities

The MM-HiAP seems to be an instrument that can be used to assess the stages of HiAP in a meaningful way by several characteristics, such as importance of HiAP recognized, visible activities (stage I), HiAP described in policy documents and collaboration with sectors present (stage II), concrete collaboration agreements and structural consultations forms (stage III), and a broad vision on HiAP and visible results (stage IV). This model can help municipalities to recognize the stage they are in, and also may help them to develop to the next stage. Among the 16 participating municipalities, more than half were in the first two stages of maturity: three in stage I (recognized), seven in stage II (considered), indicating the difficulty of establishing HiAP. This is also observed in other Dutch municipalities [17, 30].

It is noticeable that among the municipalities in stage I and II there are no major cities (with more than 450.000 inhabitants). Probably, these cities are collaborating for a longer period of time with different sectors and actors in the area of health inequalities. However, it's not justified to conclude that HiAP is more mature in large municipalities. We found a relatively small municipality in stage III being very proactive. Other medium-sized and small municipalities are spreaded over stages I to II of the MM-HiAP (see: Appendix A-D). In this first attempt to develop a classification system for HiAP we encountered one major problem in the application of the model. During our study we observed that some of the key characteristics or strategies of HiAP were interpreted differently by policy makers. So there was a, in some case a considerable confusion of tongues about what is meant by intersectoral collaboration or vision on HiAP. Also, in the local policy documents definitions and strategies of a HiAP approach were expressed differently [33]. However, this was countered by using triangulation of methods (document study, interviews and questionnaires with high response rate) and the use of multiple data sources (policy documents and policy officers), and researchers (first and second researcher). For a uniform interpretation in future studies, it is relevant to reach consensus on key characteristics of HiAP with both policy officers as well as policy researchers. Therefore, it is important to involve municipalities, which aren't deploying any activities with regard to HiAP yet (that is to say: that are in stage 0, according to the MM-HiAP). To put this in perspective it is important to note that the number of Dutch municipalities paying attention on HiAP in health policy documents has already risen to 78% in recent years [18].

4.3 The use of a maturity model to steer and to growth

By exploring perceived necessary conditions for the various stages of MM-HiAP, it becomes clearer how to steer on HiAP processes. However, some of these conditions or factors were not always sufficiently distinctive regarding the management strategies of the maturity model. Based on our application we may conclude that in order to move from Stage 0 to Stage I it is important to steer on awareness. One effort may be to visualize health effects

of policy plans outside the public health sector. This can be done, e.g. by the use of a health impact assessment (HIA) [7, 16]. In order to develop from Stage I to Stage II it is important to invest in personal efforts. One way to do that is to pay attention to positive experiences with regard to intersectoral collaboration and describe successes [12, 34]. To develop from Stage II to Stage III it is in particular necessary to focus on steering of processes. For instance, our data show that it is relevant to make agreements on intersectoral collaboration, and to allocate sufficient resources (money and manpower) and to obtain management support to establish HiAP [17, 18, 35]. To develop from Stage III to Stage IV, or even Stage V it is important to steer on results and continues improvement. In this study, conditions of stage IV seem particularly distinctive, such as high sense of urgency of the health inequalities problem, sufficient support of the Council, and an optimal effort of the municipal councillors. Also, previous studies mentioned a positive political context at the municipal level as an important driver for intersectoral collaboration [30, 36]. In the international literature there are indications that by targeting specific factors progress can be made in HiAP [33, 37].

In order to gain insight in factors and actors on a regional and national level (e.g. social health insurance system, funding from ministries) within the local HiAP growth processes it also seems relevant to include these conditions in future research (as necessary conditions).

4.4 Further development of the MM-HiAP

For this study health inequalities was used as a case of a wicked problem, but we expect that the introduced maturity model for HiAP is also applicable for other wicked problems (e.g. policies to tackle overweight). However, the key characteristics and necessary conditions may be different. This also is valid for the involved sectors and actors. In addition, further specification of concepts like 'intersectoral', 'integrated' and 'collaboration' is necessary [34]. A more specific operationalization could be supported by the conceptualization of HiAP by Bovill [12] to add value with regard to (1) a more specific definition of the stages, (2) a more extensive data collection, (3) a more specific definition of involved partners, and (4) a more precise classification of municipalities. Future use of the MM-HiAP as a formal measuring instrument depends on further operationalization and validation of characteristics corresponding different stages.

5. Conclusions

This study shows that it is possible to apply a maturity model to classify stages of HiAP in municipalities. Using the MM-HiAP we can conclude that several key characteristics and necessary conditions can discriminate HiAP growth processes in municipalities. Future use of the model as a measuring instrument depends on further operationalization and validation of characteristics and conditions corresponding various stages.

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References

1. Christensen T, Lægreid P. The whole-of-government approach - Regulation, performance, and public-sector reform. Bergen: Stein Rokkan Center for Social Studies; 2006.
2. Kickbusch I, Gleicher D. Governance for health in the 21st century: a study conducted for the WHO Regional Office for Europe. Copenhagen: WHO Regional Office for Europe; 2011.
3. Stahl T, Wismar M, Ollila E, Lathinen E, Leppo KE. Health in All Policies: Prospects and Potentials. Helsinki: Finnish Ministry of Social Affairs and Health, European Observatory on Health Systems and Policies; 2006.
4. WHO. Governance for health in the 21st century: a study conducted for the WHO Regional Office for Europe. Copenhagen: World Health Organization Regional Office for Europe; 2011.
5. Programme Committee on socioeconomic inequalities in health Second Phase. Reducing socioeconomic inequalities in health. Final report and policy recommendations of the Programme Commission II on socioeconomic inequalities in health. The Hague: ZonMw; 2001.
6. Marmot M, Friel S, Bell R, Houweling TA, Taylor S. Closing the gap in a generation: health equity through action on the social determinants of health. Lancet. 2008;372(9650):1661-9.
7. St-Pierre L, Hamel G, Lapointe G, Mc Queen D, Wismar M. Governance tools and framework for health in all policies. European Observatory on health systems and policies; 2009.
8. Storm I, Aarts MJ, Harting J, Schuit AJ. Opportunities to reduce health inequalities by 'Health in All Policies' in the Netherlands: an explorative study on the national level. Health Policy. 2011;103(2-3):130-40.
9. Steenbakkers M, Jansen M, Maarse H, Vries de N. Challenging Health in All Policies, an action research study in Dutch municipalities. Health Policy. 2012;105(2-3):288-95.
10. Schuit J, Storm I. Successen en valkuilen van integraal gezondheidsbeleid [Successes and pitfalls of health in all policies]. Tijdschrift voor gezondheidswetenschappen. 2007; Jaargang 85 (8):415-6.
11. Roussos ST, Fawcett SB. A review of collaborative partnerships as a strategy for improving community health. Annu Rev Public Health. 2000;21:369-402.
12. Bovill C. Rhetoric or reality? Cross-sector policy implementation at the UK government Department for Internatinal Development. Policy and Politics. 2010;37 (2):179-99.
13. Storm I, Zoest van F, Broeder den L. Integraal gezondheidsbeleid: theorie en toepassing [Health in All Policies: theory and application]. Bilthoven: RIVM; 2007.
14. Hoeijmakers M, Leeuw de E, Kenis P, Vries de NK. Local health policy development processes in the Netherlands: an expanded toolbox for health promotion. Health Promotion International. 2007;22(2):112-21.
15. Zichtbare Zorg. Verantwoording gemeentelijk gezondheidsbeleid [Justification of municipal health policies]. Utrecht: Inspectie voor de Gezondheidszorg; 2009.
16. Bekker M. The Politics of Healthy Policies: Redesigning Health Impact Assessment to Integrate Health in Public Policy. Delft: Eburon; 2007.
17. Steenbakkers M, Jansen M, Maarse H, Vries de S. Lokaal integraal gezondheidsbeleid: intersectorale samenwerking vanuit het perspectief van gemeenten [Integrated local health policy: inter-sector cooporation from the local government's perspective]. Tijdschrift voor Gezondheidswetenschappen. 2010;88:13-43.
18. Storm I, Savelkoul M, Busch MCM, Maas J, Schuit AJ. Intersectoraal samenwerken in de aanpak van gezondheidsachterstanden. Een onderzoek onder zestien gemeenten in Nederland [Intersectoral collaboration in tackling health inequalities. A study of sixteen municipalities in the Netherlands]. Bilthoven: RIVM; 2010.
19. Storm I, Verweij A, Lucht van der F. Integraal gezondheidsbeleid op lokaal niveau. Wat weten we en hoe nu verder? [Health in All Policies at the local level. What do we know and where do we go from here?] Bilthoven: RIVM; 2011.

20. Greaves LJ, Bialystok LR. Health in All Policies - all talk and little action? Can J Public Health. 2011;102(6):407-9.
21. Jokelaa T, Siponena M, Hirasawab N, Earthyc J. A survey of usability capability maturity models: implications for practice and research. Behaviour & Information Technology. 2006;25(3):263-82.
22. Strutt JE, Sharp JV, Terry E, Miles R. Capability maturity models for offshore organisational management. Environ Int. 2006;32(8):1094-105.
23. Zee van der H, Laagland P, Hafkenscheid Br, editors. Architectuur als managementinstrument. Beheersing en besturing van complexiteit in het netwerktijdperk [Architecture as a management tool. Management and control of complexity in the networked era]. Den Haag: Ten Hagen en Stam Uitgevers; 2000.
24. RVZ. Off the beaten track. Advice on cross-sectoral policy. The Hague: The Council for Public Health and Health Care (RVZ), Council of Public Administration (Rob), Netherlands, Education Council of the Netherlands; 2009.
25. VWS. Being Healthy and Staying Healthy: A Vision of Health and Prevention. The Hague: Ministry of Health, Welfare and Sport (VWS); 2007.
26. Storm I. International Policy Overview: Health in All Policies (HiAP). Bilthoven: National Institute for Public Health and the Environment (RIVM), 2012. Available from: http://www.nationaalkompas.nl/object_binary/o13534_International%20Policy%20Overview_HiAP_Mei2012.pdf
27. Earthy J. Usability Maturity Model: Human Centredness Scale. Information Engineering Usability Support Centres; 1998.
28. MacGillivray BH, Pollard SJT. What can water utilities do to improve risk management within their business functions? An improved tool and application of process benchmarking. Environment International. 2008;34(8):1120-31.
29. Paulk MC. A History of the Capability Maturity Model for Software. ASQ Software Quality Professional. 2009;12(1):5-19.
30. Aarts MJ, Jeurissen MP, Oers van HA, Schuit AJ, Goor van de IA. Multi-sector policy action to create activity-friendly environments for children: A multiple-case study. Health Policy. 2011;101(1):11-9.
31. Verweij A, Lucht van der F, Droomers M. Gezondheid in de veertig krachtwijken [Health in forty deprived neighbourhoods]. Bilthoven: National Institute for Public Health and the Environment (RIVM); 2008.
32. Mackenbach JP, Stronks K. The development of a strategy for tackling health inequalities in the Netherlands. Int J Equity Health. 2004;3(1):11.
33. Kickbusch I, McCann W, Sherbon T. Adelaide revisited: from healthy public policy to Health in All Policies. Health Promot Int. 2008;23(1):1-4.
34. Harting J, Pauwe L, Stronks K. Theoretische perspectieven op intersectorale samenwerking en integraal beleid. Een thematische review [Theoretical perspectives on intersectoral collaboration and integrated policy. A thematic review]. Amsterdam: AMC, afdeling Sociale Geneeskunde; 2011.
35. Jansen MW, Vries de NK, Kok G, Oers van HA. Collaboration between practice, policy and research in local public health in the Netherlands. Health Policy. 2008;86(2-3):295-307.
36. Ollila E. Health in All Policies: From rhetoric to action. Scand J Public Health; 2010.
37. Hunter DJ. Leading for health and wellbeing: the need for a new paradigm. Journal of Public Health. 2009;31:202-4.