Bottom Up Innovation for Health Management Capacity Development: a Qualitative Case Study in a South African Health District

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Abstract

**Background** As part of health system strengthening in South Africa (2012-2017) a new district health manager, taking a bottom-up approach to developing managerial capacity, developed a suite of innovations to improve the processes and practices of managers and NGO partners in monthly district management team meetings. Using a systems perspective on capacity development, the research explored the initial sensemaking by the district manager, how these homegrown innovations interacted with existing social processes and norms, the mechanisms for change that were triggered and the emergent capacity outputs.

**Methods** We conducted a realist evaluation complemented by a case study approach over a two-year period (2013-2015) in the district. The initial programme theory development included ten senior manager interviews and literature review. To understand processes and mechanisms triggered in local context and identify emergent capacity outputs we conducted fifteen interviews with managers in the management team and with seven non-state actors, supplemented by researcher notes and time spent in the district. Thematic analysis was conducted using the Context-Mechanism-Outcome -Actor configuration alongside theoretical constructs.

**Results** The new district manager drew on complex frames, tacit and experiential knowledge to design bottom up innovations, and collective capacity development was triggered through micro-practices of sensemaking and sense-giving. Sensegiving included using sticks (positional authority, enforcement of policies, over-coding), intentionally providing justification for change and setting the scene (a new agenda, distributed leadership). These micro practices, managers engaging with the new practices and social sense-making, influenced the motivation of managers and partners to further participate in new meeting practices, and triggered a generative process of buy-in and emergent capacity in a routine meeting structure.

**Conclusion** District managers are well placed to design local level capacity development innovations and must draw on multiple knowledge forms to enable relevant ‘bottom-up’ capacity development in complex health systems. Managers must draw on their intangible soft skills and the tangible policy resources (hardware) of the system to influence motivation and buy-in for improved management practices. From a systems perspective, we argue that capacity development can be conceived of as part of the daily activity of managing in routine spaces, to unleash capacity.

**Background**

Decentralisation debates have a long history in the health sector in low- and middle-income countries (LMICs) (1). The rationales for decentralising decision-making authority include better coordination of disparate activities, improved use of local knowledge, and strengthening accountability - with the intention to improve the equity, responsiveness, efficiency and quality of health services (2-4). Over time, the district health system (DHS) is understood as an important decentralised foundation for a well-
functioning and primary health care (PHC) oriented system (5, 6). The DHS “consists of a large variety of interrelated elements that contribute to health in homes, schools, workplaces, and communities, through the health and other related sectors .... its component elements need to be well coordinated by an officer assigned to this function in order to draw together all these elements and institutions into a fully comprehensive range of promotive, preventive, curative and rehabilitative health activities” (7).

Many agree that the management and leadership capacity of the ‘officer’ (and her/his team) to steward the DHS is a key cross-functional ingredient for strong health systems functioning (7-20). District managers (DMs) and their district management teams (DMTs) are the middle managers who “work at the boundaries between senior management and the rest of the workforce” (21). They must conduct both ‘sensemaking’ around top-down policies and the changing environment, as well as ‘sensegiving’ to a variety of actors in the district to direct change (22). They are responsible for improving and sustaining organizational performance over time, ‘managing’ the internal activities of the organization and ‘leading’ the staff and external partners in the face of increasingly complex conditions (23).

However, across settings, capacity to manage the DHS is often found to be weak and in need of strengthening (8, 16, 24-27). Considerable attention has, then, been paid to strengthening this management capacity. This has resulted in the development of many managerial competency frameworks (28-31) and the delineation of the twelve practices of managers, grouped as (1) leading (2) managing (3) and governing (13). Over time, as the DHS has come to be recognised as a complex adaptive system (CAS) (32-34), understanding of the competencies and capabilities that district managers need has evolved (10, 35-38). As a result, capacity development efforts have moved beyond a traditional focus on administrative management and health professional practice training. Instead, they have come to consider the leadership skills needed to manage complex systems, including both harder (budgeting, planning, monitoring etc.) and softer competencies (communication, trust building, networking etc.) (20, 35, 36, 39-42), and intersections with the organisational environment (19, 43). The recognition of complexity demands different ways of managing and measuring capacity development interventions. A systems perspective looks beyond the black box of the intervention, to consider the how and why of capacity development, understanding it as systems learning (39, 44). Baser and Morgan (45), for example, bring a CAS perspective to capacity, moving beyond linear understandings. They define capacity development as an “emergent combination of individual competencies, collective capabilities, assets and relationships that enables a human system to create value”.

There are several calls for further research on management and leadership capacity in the DHS. These identify as important the role and capacity of middle managers in bridging policy and practice, how management practices become part of organisational routines, ‘how’ capacity development interventions work for managers in diverse settings, more knowledge on complex leadership and strategic management of the health workforce and operational research on how to develop capacity in decentralised systems (8, 16, 20, 36, 46-48).

The local setting: DHS in South Africa
A new Health Plan for post-apartheid South Africa (1994) laid the basis for the introduction of a district based PHC system in South Africa (49). The primary purpose of the new DHS was to involve local people in decision making, to take account of local needs, to overcome inefficiencies in service delivery and to shift from “administering health services towards improving health and quality of care at the local level” (50). South Africa now has fifty-three health districts in nine Provinces, each led by a district manager who is supported by a district management team (50), with variations in the numbers, capacities and authority of team members (15). Table 1 shows the responsibilities of district management teams in South Africa.

**Table 1:** District Management Team core responsibilities in South Africa

| Responsibilities                                                                 |
|----------------------------------------------------------------------------------|
| Identification of client and stakeholder needs                                   |
| Identification of critical health and systemic challenges and understand source of the challenges. |
| Take decisions and set priorities (public health interventions)                   |
| Balance competing demands by taking decision on key District Actions which respond to key priorities, client and stakeholder needs and challenges. |
| Allocate resources (time from personnel, goods and services and capital costs). Ensure that capacities are matched with planned Actions. Refine the Actions until the allocated resources meet the Actions. |
| Monitor and reflect on progress against plans                                     |
| Strengthen processes where necessary (to implement the plan)                      |

**Source:** (51)

The DHS in South Africa has achieved successes over the years, but there is still need for improvement, including in building the capacity of DMTs to distribute and manage resources (15, 52, 53). In 2012, the South African National Department of Health introduced a range of innovations under the banner of ‘National Health Insurance (NHI) piloting’. These innovations focused on strengthening the public health system in preparation for major health financing reforms in the future (54, 55). Eleven NHI district pilot sites were selected in 2011 as in need of improvement, given underperformance in health outcomes relative to other districts in the country (56). The innovations proposed/introduced centred on re-engineering the PHC platform and included a call to strengthen the capacity of management in the DHS at all levels (57). Many top-down capacity development initiatives were then introduced, including a hospital revitalisation strategy focused on Hospital CEO capacity. In addition, as identified in our previous research, some district managers used their discretion to develop bottom up innovations to strengthen management (55, 58, 59).

We followed the emergence of such bottom-up innovation for two years in two districts, to understand the ‘how’ and ‘why’ of capacity development from a systems perspective. This paper presents insights from a realist evaluation in one of the districts that illuminates how district managers working in context, design bottom-up innovations to improve management practices in meetings through simple but profound acts
of sensemaking and sensegiving. It provides lessons that can inform thinking on approaches needed to develop DHS management capacity.

**Methods**

We conducted a realist evaluation complemented by a case study approach over a two-year period (2013-2015) in one health district. This study followed the realist evaluation cycle, see Figure 1.

**Study aim:** To contribute to an evolving understanding of how to develop management capacity in district health systems.

**Research question:** What mechanisms for change are triggered when bottom-up innovations to develop management capacity emerge in the district context and how do these homegrown innovations interact with the existing social processes and norms? What outputs and outcomes emerge?

**Eliciting the programme theory (PT)**

To elicit the PT, we drew on (1) theories of bottom-up innovation and capacity development and (2) exploratory research to elicit the assumptions of key actors who designed the bottom-up innovations in the local context (see Appendix 1).

**Narrating the programme theory**

Bottom up policy implementation theory tells us that managers make meaning of top-down reforms based on the conditions in which they work and use their own experience and tacit knowledge to transform policy into practice (11, 61-63). Making meaning of top-down instructions, to ‘strengthen management’ is the act of sensemaking (22, 64). Sensemaking has to do with the way managers understand, interpret and create sense for themselves based on the information surrounding the strategic change (64). In a district with some of the worst comparative health outcomes in the country which needed to implement NHI piloting reforms, the new DM sought to institutionalise functional systems, explicitly focusing capacity development efforts toward improving practices within the routine, extended district management monthly meetings. This is a core meeting space for oversight and planning in the district which includes senior managers and invited partners.

**Innovation**

The DM designed a bricolage of bottom-up innovations. This involves working with a combination of existing resources to address problems; it is an approach to problem solving where one sees past the limitation of existing resource constraints (65). This work included: introducing a new meeting agenda that focused on all the health system building blocks; developing job descriptions for former hospital CEOs who were sent to work in the district office; inviting NGO partners to the meeting to foster shared vision and accountability; enforcement of the Health Management and Information Systems (HMIS) policy to promote information use by managers; and efforts to focus on solutions in meetings, not only
problems. “Innovation is the introduction of new elements into a public service – in the form of new knowledge, a new organisation, and/or new management or processual skills. It represents discontinuity with the past” (66).

**Hypothesized mechanisms**

In times of change managers like the new DM need to challenge ways of working that drive existing individual and collective action (67). Managers first engage in ‘sensemaking but must also ‘sensegive’ to their staff to get them to buy into and enact the innovations in practice, a step that forms part of and precedes an innovation adoption decision. “Sense giving is concerned with their [managers] attempts to influence the outcomes, to communicate their thoughts about the change to others, and to gain their support” (64). Adoption is not a linear process and innovation recipients work through a series of sensemaking cycles before the adoption decision (68). It is this cog in the wheel of change we seek to explore; what are the cycles of sensemaking that precede the adoption decision. Sensemaking and sense giving are “complementary and reciprocal processes” (64). Rouleau and Balagon (69) identify two strategic discursive competencies of managers. First, ‘performing the conversation’, which includes crafting and diffusing messages in order to influence others, using the right words, the appropriate metaphors and symbols – in ways that speak to the demands and interests of others. Second, ‘setting the scene’ is about bringing the right people and alliances together; this includes mobilising networks as well as drawing on others for influence and legitimacy .... knowing how to set up the arena in which the conversations are to be performed”. Table 2 outlines micro-practices entailed by these competencies, and that are “embedded in tacit knowledge and social contexts” (64). Also shown in Table 2 we borrowed the ideas of carrot, sticks and sermons from political science that categorise policy instruments for behavioural change (70). Action, participating in the activity, is another key ingredient for sensemaking (67).

**Table 2:** Four micro practices of strategic sensemaking and sensegiving
| Micro practices |  |
|-----------------|---|
| Translating     | Translating is an act of authoring, involving selecting the content to be shared and then using material and discursive symbols in the language of the receiver to bring the elements together. Elements and symbols are chosen purposefully to establish shared meaning, managers use their tacit knowledge of people and situations to shape the content. |
| Over-coding     | Inscribing speeches and acts in the appropriate professional and socio-cultural codes of the receiver to reinforce meaning. Different social contexts are home to different social codes, social codes are intrinsic to meaning creation. |
| Disciplining the client | In routines and conversations, managers produce subjective and emotional effects around the change. Disciplining clients therefore consists of using diverse tactics – including symbolic (e.g. speaking in someone's language, invoking common cultural roots to create shared meaning), and discursive consciousness (conscious use of implicit knowledge to construct and tell stories to – to subjectively influence and convince recipients to adopt change). Through their implicit knowledge managers create sense for others and diffuse meanings around the change. This includes the use of space and body to create an environment which resonates with what is trying to be achieved. |
| Justifying the client | Providing a set of good reasons for actors to adopt the change. |
| Sticks, carrots and sermons | Sticks reflect the use of tools to mandate compliance (e.g. regulation), Carrots represent the use of incentives or rewards to motivate for a change in behaviour (e.g. the offer of a subsidy). The use of sermons is the attempt to “influence people through the transfer of knowledge, the communication of reasoned argument” (e.g. sharing information). |

Source: (64, 70)

We hypothesize that the reciprocal processes of sensemaking and sensegiving will kick start a generative process of buy in for new management practices.

**Proximal outputs**

Outputs envisioned by the new DM included a well structured meeting with an agenda that focused on core business, improved use of information by managers for decision making, sharing of solutions by managers, NGO services aligned to the district health plan and a correct skills mix in the DMT. The long term outcome is *improved capacity of the DMT to engage in management practices* that serve to improve health outcomes in the district.

The proximal outputs serve as improvements on the emergent journey to full capacity.

**Outcomes**

The new DM wanted to develop the *capacity* of the management team by improving the practices and processes of the managers in the monthly DMT meeting. As we adopt a systems perspective in this study, we see capacity development as a continuous process, not a time-bound, discrete intervention.
Capacity development is “the process of enhancing, improving and unleashing capacity; it is a form of change which focuses on improvements” (Baser and Morgan, 2008, pg. 3). Capacity is meanwhile understood as an “emergent combination of individual competencies, collective capabilities, assets and relationships that enables a human system to create value” (45).

While we do not measure long term outcomes, the Baser and Morgan (45) view on capacity enables us to think about a set of interdependent collective capabilities (Table 3) that managers need to function in complex systems. We anticipate that these collective capacities will emerge over time in the district as a result of the bricolage of innovations.

**Table 3**: Five interdependent collective capabilities that emerge and work together to harness capacity in a system

| The core capability to commit and engage | Actors can mobilize resources (financial, human, organizational); create space and autonomy for independent action; motivate unwilling or unresponsive partners; plan, decide, and engage collectively to exercise their other capabilities |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The capability to carry out technical, service delivery and logistical tasks | Actors produce acceptable levels of performance; generate substantive outputs and outcomes (e.g., health or education services, employment opportunities, justice, and rule of law); sustain production over time; and add value for their clients, beneficiaries, citizens, etc |
| The core capability to relate and to attract support | Actors can establish and manage linkages, alliances, and/or partnerships with others to leverage resources and actions; build legitimacy in the eyes of key stakeholders; deal effectively with competition, politics, and power differentials |
| The capability to adapt and self-renew | Actors can adapt and modify plans and operations based on monitoring of progress and outcomes; proactively anticipate change and new challenges; learn by doing; cope with changing contexts and develop resiliency |
| The capability to balance diversity and coherence | Actors can develop shared short- and long-term strategies and visions; balance control, flexibility, and consistency; integrate and harmonize plans and actions in complex, multi-actor settings; and cope with cycles of stability and change |

Directly from source: (71)

**Study design**

We employed a realist evaluation (RE) approach, which is method neutral and allows study designs to be chosen based on their capacity to test the initial programme theory. RE not only assesses outcomes, but explicitly seeks to understand the processes involved in achieving the observed outputs and outcomes (12, 72, 73). It is the combination of intervention inputs together with mechanisms triggered in context that brings about change. Mechanisms are “not variable[s] but an account of the behaviour and interrelationships of the processes that are responsible for the change” (72). Programmes don’t work, it is
people that make them work (72). Mechanisms are a combination of resources and reasoning, “intervention resources are introduced into a context, in a way that enhances a change in reasoning (74). Resources (material, emotional, social, encouragement etc.) and reasoning alter the behaviour of participants, which then leads to outcomes. To complement the RE, we adopted the flexible case study approach (75) as it provides an opportunity to study a phenomenon in context as it is being shaped and re-shaped.

Research ethics was approved by the University of Cape Town Human Research Ethics Committee (479/2011 and sub study 746/2015).

**Definition of the case and of the unit of analysis**

The case is defined as the introduction of bottom-up capacity development innovations targeted at the district management team to improve processes for managing the district. The unit of analysis is the health district.

**Site selection**

We purposively selected a health district to which we had access given the larger project in which this work was nested[1], which had a district management team in place. We confirmed that managers were actively thinking about the call by the Minister to strengthen management and the new DM was willing to grant us access to himself and his staff and had clear ideas on what he was planning to do to strengthen management.

**Data collection**

The first author conducted research over a two-year period 2013-2015 monitoring reforms in the district pilot site, keeping researcher notes and capturing key reflections on district context. The process of eliciting the initial programme theory from managers in 2013 contributed to a rich understanding of context. We drafted the PT and then member checked it with the new DM in an additional in depth interview. To test the PT and to understand the processes and mechanisms underlying the introduction and buy in (or not) of the innovations intended to improve management practices, the first author conducted in-depth interviews with 15 senior managers in the district (all were part of the extended district management team and were thus subject to the innovation) and 7 major non-state actors (some who participated in the extended district management team meetings). Researcher notes on context were used to further interpret findings.

**Data analysis**

In realist evaluation, the context-mechanism-outcome (CMO) configuration is used as the main structure for analysis (72, 74). The transcripts were coded using principles of thematic analysis, deductive codes included actors, mechanisms (both resources and reasoning, including the micro practices of sensemaking and sensegiving as key concepts), contexts, processes and emergent outputs and
outcomes as well as elements of the innovation itself (76). “People who study sensemaking pay a lot of attention to talk, discourse, and conversation because that is how a great deal of social contact is mediated” (67). The process also included looking inductively for any new ideas that emerged in the data.

We moved back and forth between the empirical data and key theoretical concepts. We deepened analysis by searching for patterns and conjecturing various CMO configurations. Finally, plausible CMO configurations were tested by triangulating a variety of sources of data including researcher notes and observations, and by validation with co-researchers within the project. We moved between the micro practices within the meeting space and the interaction with meso context. Interim findings in this paper were presented to some of the senior managers as part of the larger project feedback session in 2016, the final conclusions of this paper were presented in 2019 to the District Manager who had led the innovation, to member check the analysis.

*Synthesis and comparison of CMO findings with the programme theory*

At the end of the analysis phase, we reflected on our findings against the original PT, moving back and forth between the data, the theoretical literature and the original PT. In this process we engaged in peer debriefing across three authors to discuss what we had found beyond the original assumptions captured in the PT.

**Footnote:**

[1] In the larger project we selected 3 of the 11 NHI pilot sites based on (1) a district that was actively receiving information from other levels of government and/or was implementing some of the innovations, (2) access to the site, meaning district managers were prepared to give us access to staff and (3) rural/urban mix to capture variation in experiences of implementation possibly linked to geography (Orgill et al, 2019).

**Results**

In this section, we describe the general context of the district, the innovations to strengthen management practices, key outputs achieved in the eighteen-month period November 2013 to April 2015 and finally, present a discussion of the mechanisms (resources and reasoning) triggered in context that generated outputs. The results are summarised in table format in Appendix 2.

**A. Context and actors**

The health district was under-performing relative to the rest of the country regarding health outcomes and still suffered from human and infrastructural under-resourcing as a result of the legacies of apartheid (pre democracy in 1994) in South Africa (77). The district is considered rural, it is hard to attract staff and at times there are poor working relationships between the district and the Provincial government.
In November 2013 a new DM with twenty-nine years’ experience in the South African health system (public and private sector) arrived to lead the district. The new DM worked with a core district management team (DMT) who met every Monday morning. There was also an extended DMT (including the core managers as well as hospital, programmatic and sub district managers and other invited guests, in total twenty-four managers at that time) who met once a month to report, plan and prioritise for the district. There were critical vacancies in the DMT, and three hospital CEOs who had to leave their hospital posts[1] were sent to work within the district office with no specific portfolio. The DM reflected that stability was needed, and challenges were made more complex by being an NHI pilot district expected to implement several new service delivery reforms;

“I think the preparation for NHI relies heavily on innovation and in order to innovate properly, you need a stable system. This is an extremely unstable system, so you have got to innovate and stabilise at the same time, which I think adds a lot to the complexity of what we do (The new DM, 09/09/2014).

The extended monthly DMT meeting needed to change, as it was a space mainly used for complaining. The use of information by hospital and sub-district managers for problem diagnosis, decision making, and accountability needed to be improved;

“I think that there were lots of meetings, or there are lots of meetings that happen, but not lots of structured meetings. Not lots of minutes and not lots of agendas, so you cannot go to a meeting and you sit there the whole day and you don’t have something tangible to show .... We get a lot of whining sessions, but they actually don’t help at all .... That is more the approach than to listen, because you can spend ninety percent of your time listening to or whining, and then only ten percent looking at solutions, whereas we would like to reverse that ... It is about looking at the indicators and asking: “Why we are doing well or why we are doing badly? ... It has worked before and it is kind of standard practice in functional systems. I am sure it will work”(The new DM, 19/02/2014).

The information manager (IM) was carrying the burden of information preparation and presentation for the meeting. He had a sense that managers were afraid of working with numbers resulting in a general culture of avoidance and deferring queries back to her;

“... because even things that they can do themselves, they will also say: “No give it to [the] information person.” ... They would make it a big deal when it comes to compilation of other reports. Anything that is computer related, they associate it with anything that relates to numbers. They will just give it to someone to add it in ... they don’t want to use numbers“ (Manager 1, 09/09/2013).

The IM already had a huge workload to manage, including managing all the aggregate information, quality checking data and being responsive to information requests in the district. Additional data capturers had been sent as the district was an NHI pilot site, but they did not have the skills to do the work required. In the past, sometimes reports had been generated, but problems raised in them by managers were either not acted upon, or those in authority did not have power to act on them, reducing motivation to produce new reports.
There were also many NGO partners operating in the district, but it was not clear whether partners were well aligned with the service delivery priorities in the district health plan (DHP). The new DM felt there was neither a shared vision among all partners, nor an established decision-making platform where decisions could be taken consultatively with stakeholders.

**B. The innovation for management capacity development**

The ‘bricolage’ of *inter-connected* innovations introduced in the extended DMT monthly management meetings to improve collective capabilities (managerial practices) were:

(1a) The introduction of a new agenda that focused on the core functions of the district, addressing the system building blocks (the agenda included ‘services’, ‘corporate governance’ and ‘quality’, with time allocated for each item) and the introduction of a routine procedure to support decision making, whereby managers had to produce reports, covering core indicators for reading, distributed before the meeting. See Additional File 3 for key agenda items.

(1b) An explicit effort to institutionalise the engagement with and application of information by all managers, backed up by the DM’s purposeful enforcement of the national District Health Management and Information Systems (DHMIS) policy. Linked to this, the DM also established the routine procedure that managers must first investigate problems by collecting information on the ground before bringing them to the monthly meeting, and be ready to discuss solutions and progress (or lack thereof).

(1c) The routine procedure that NGO partners in the district would attend the extended district management meeting in order to support coordination and accountability, as well as discuss their activities directly with the DM.

(1d) Defining job descriptions for the ex-hospital CEOs newly posted to the district office and describing their purpose in the team, alongside attempts to fill critical management vacancies in the team.

**C. Emergent outputs**

By 2015, 18 months after the new DM’s appointment, senior managers and district partners who attended the monthly meetings confirmed that the innovations resulted in an emerging set of improved management practices over time – contributing to emergent capacity.

**Output 1a:** A new extended DMT agenda with a structured format was being routinely applied, managers had to present on core system issues and meetings were being time-managed.

“*Yes, we present but we are being given a chance, we are being informed earlier on that you are expected to present in such-and-such a DMT because of the time schedule and there are a lot of them here. So, it doesn’t become possible for us all to report. For instance, there’s a lot of, the NHLS, there’s pharmaceutical, there’s the information officer who gives a summary report for the activities that happened in the districts. Then we input or respond; when you haven’t done well, you indicate what*
causes the deviations from targets and how are you going to improve on those things. And if we don’t present the actual status ourselves, it appears”. (Manager 7, 02/10/ 2015).

Managers were preparing and sending reports to the new DM who then decided which reports had to be circulated to all to read in preparation for the meeting,

“so what we are trying to do now is have a structured agenda, not a reactive agenda, a structured agenda where you have reports that you prepare and then the line management people that attend have to interact with those reports” (The new DM, 19/02/2014).

Nonetheless, getting managers to engage with information in the reports was not easy. Toward the end of 2014 at least fifteen managers were submitting reports to the DM, who then decided what would be discussed in the meeting. The hospital managers and sub-district managers as line managers were expected to read the reports to empower themselves. The DM identified two challenges to his vision, he was not fully satisfied with the make-up of the reports and not all managers had read the reports as needed before coming to meetings;

“because progressively we are going to start making decisions based on that and if they don’t read those reports ... .... we are now at the point where we are kind of saying read your emails, read your reports etcetera” (The new DM, 19/09/2014)

Output 1b: The application of information for decision making was now part of managers’ performance contracts as per the Health Management and Information Systems (HMIS) Policy. There was an improved use of information to diagnose problems, monitor progress, and to support forward planning in the extended DMT meetings by sub-district managers. The IM and another manager in the DMT confirmed that, in 2015, service delivery information was being presented and discussed in the meeting and that managers had to account for targets. This process remained in place after our final evaluation period,

“we continued with what [the new DM] has started. We look into the indicators and the performance of the district, the subdistrict and the hospital CEOs, they do make some presentations so that we are able to identify gaps and formalise some strategies to work around the gaps - we’re still continuing” (Manager 6, 17/05/ 2015).

While problems were still brought to meetings, there was a proactive effort to identify solutions in the meeting;

“So now at least people, even though not everybody, but some are able to say, okay, we have got a challenge of transport – how about if management could talk with [the] municipality so that we can join vehicles together when they are going to ward A, maybe we got to ward A, all of them. Starting from that integrated planning there” (Manager 8, 24/03/2015).
"I have to get assistance from the people who are actually doing the immunisations, what was the problem? Were there vaccines that were not available, for instance; or was there something that made them not be able to come to the facility?" (Manager 7, 02/10/2015).

**Output 1d: Improved capability to relate and partner with others**

The large NGOs in the district met with the new DM personally to report on their district activities and subsequently, a growing number of NGOs attended DMT meetings to present and discuss their progress. NGOs also participated in developing the DHP to ensure shared planning and vision.

"Yes, I was part of that stakeholders [mapping] meeting and we all [NGO partners] presented the work that we are doing, the challenges and the successes that we have had. And on a monthly basis we used to give him our progress reports in the DMT meetings" (NGO partner 1, 18/05/2015).

".... they [NGOs] are actually invited to make inputs [into the DHP] and also to look at the priorities of the district when they are going to be doing that. So their plans must actually be part of what the district plan is" (Manager 4, 1/10/2015).

Formal invitations to partners had also become routinised.

"Ja [yes], I think mainly it’s [NGO partner 1 & 2] who are attending those district management meetings, though it’s continuously growing in terms of who is attending those meetings" (Manager 4, 1/10/2015).

An NGO partner who had been part of the DMT meetings before 2013 (when the new DM arrived) noted that, as partners had to present on their activities when attending, it improved accountability amongst NGOs (NGO partner 2a, 2/10/2015).

**Output 1e:** The new DM filled at least two key senior management posts that had been critical vacancies, an HIV/AIDS, STI and TB (HAST) manager and a quality assurance manager. Also, the hospital CEOs who had been redirected to the district office were given clear job roles[2] linked to their competencies and the needs of the DMT.

**D. Mechanisms for change**

1. **Initial sensemaking by the DM**

The arrival and initial sensemaking by the DM were both a trigger and a mechanism in improving management practices in the DMT meeting.

“Look, when I first got here, we went through quite a long process of saying: “What is the ideal organogram that is needed at district level? What are the ideal processes needed at district level to ensure that we are able to have a strong management team that can take us into the NHI?” Therefore, I think it does depend a lot on what people we’ve got. I think there needs to be a standardisation of processes, because the way I am doing things, it is pretty similar to the way they do it in the [previous Province he
worked in], but chatting to my colleagues from other provinces, it is not the same and I think there needs to be a standardisation of the management processes. There should be some space in between for us to express our individuality and so on, but essentially there needs to be an improvement in the standardisation” (The new DM, 09/09/2013).

The new DM drew on his personal resources, including tacit knowledge and experience in the public and private health system in another Province to design the bricolage of innovations. He did not believe that more resources would by themselves improve district performance and instead judged that inefficiencies in the public sector could be dealt with through systems improvements. The new DM explained where the idea for the structured agenda came from:

“my little thing to keep me focused, there is a thing called the district management accountability framework, which over the …. five years, … that I was a manager in [Province X] we progressively developed a series of things that need to be in place for a health system to be functional. So, we documented you know, the governance, management, leadership … as I was saying, those things are the pillars of …what is it … [the] WHO building blocks, but having lived through the … development of it, I understand it in a particular way. It is … management, governance, leadership, it is service delivery, it is critical support functions, and it is quality. Now … and below that, I can see the headings … and that is the agenda for the DMT (The new DM, 09/09/2013).

“So, I think the vision comes from … a lot of the vision comes from what I have seen in reality in [Province X]. A lot of the vision [also] comes from what I have seen in reality in the private sector” (The new DM, 9/09/2014).

1a. Introducing a new agenda in the extended DMT meeting: sensemaking and sensegiving as reciprocal processes

The DM ‘disciplined’ the DMT meeting space as part of sensegiving to others– as shown in Table 2

“discipline comes from a meticulous organisation of gestures, words and objects that permits optimal use of space, bodies, and thought” (64). He employed tacit and experiential knowledge of meetings and agendas to structure proceedings in the space, the information managers summarised the comparative data and time was allocated for managers in the meetings to speak to their performance, reinforcing accountability.

The DM translated and framed the need for a new agenda by drawing on familiar organisational-cultural codes of the health system, including discourses such as ‘core business of health’, ‘patient care related’, ‘indicators’ and ‘PHC’ and ‘performance’– the careful crafting of ‘normative sermons’.

"You know, when he came there was much more focus around the core business in meetings, than to simply discuss how much money we have spent around HR, around that, and so on. Remember, we are having this business of being the Department of Health, so everything must be patient care-related. Now once you talk the performance indicators, you talk PHC, hospital indicators, that’s fundamental – because
we can say our department is existing not because of various other things but because of the performance. I would say in relation to that I'm still very much pleased “ (Manager 2, 25/03/2015).

For one manager, working closely alongside the DM (proximity to change) enabled an understanding of the need for change;

"Maybe one will be saying because I was really always close to this office and having that advantage of knowing why there is this initiative, why we should change – I would say starting from you say the nature of our agenda items in the DMT …" (Manager 2, 25/03/2015).

The DM over-coded, drawing on familiar organisational socio-cultural codes as a ‘stick’, noting that the ‘auditor general’ (a powerful character in the bureaucracy) can check up on the use of information and the focus on performance in meetings by looking at the agenda; effectively using hardware of the systems as a stick linked to accountability.

"the DMT meetings might have been held every month but if in the minutes and the agenda, there's no … agenda items around the information or data management, then you cannot say you are discussing your performance – because it's not showing in the agenda and minutes. So that's what [the new DM] emphasised all the time" (Manager 1, 09/09/2013).

The new approach to meetings encouraged active participation by senior managers, whilst simultaneously facilitating their buy-in to the new practices through the process of ‘doing’. Managers appreciated that they were not ‘falling asleep’ any longer because of long drawn out processes. Increased participation provided more ingredients for sensemaking and sensegiving, which triggered motivation and self-efficacy of managers.

“Yes, because before the subdistrict managers were presenting, the CEOs were presenting – so when the last one is presenting you are no more listening, it's already four o'clock, so you are tired. So the way he did it – it’s for the information manager to present comparing the subdistricts, not for subdistricts for [sub district A] to present, then one for sub-district B to present because at the end you won't be able to see how do they work comparing them, and where to give assistance. The way he did it is for the information manager to present and show us which subdistricts doesn't perform well in what. That has really helped us. Like they are also doing it today in preparation of the DMT on Thursday” (Manager 8, 24/03/2015).

These actions were complemented by the preparation and pre-reading of reports which reinforced the use of information which combined with the requirement to present problems with potential solutions, fed into a more structured agenda.

1b. Embedding the use of information for problem diagnosis and problem solving, sensegiving and sensemaking as a social process

The DM used his positional authority and employed over-coding, drawing on the professional codes of the bureaucracy [public policy], to create shared meaning around information use for decision making.
The National Health Management and Information Systems policy (policy hardware) also served as a ‘stick’. The new DM enforced it to justify why managers must use information and monitor performance in their daily practise. Information use also formed part of their performance contracts as per the policy. He married this with a sermon approach, taking the time, together with the Information Manager (IM), to personally visit managers at facilities, but also reinforcing that they ‘must’ comply with government policy.

“They [the managers] were fine because we were also emphasising to them that it’s not any person’s choice, because it’s a policy issue which, though we were trained on it, but in terms of implementation, you were not implementing it as expected, but now that [was coming from] from the district manager” when [the new DM] went around (Manager 1, 09/09/2013).

Including the IM as part of his visits was symbolic in ‘setting the scene’ as the IM legitimated discussions, was always highly motivated for change despite not having had the authority to enforce improved information practices and knew the content of the HMIS in detail. To improve information use and accountability in the DMT meeting, the new DM drew on his positional authority and introduced a requirement that the sub district manager ‘sign-off’ data from the facilities before sending to the district office.

“They [sub-district managers] are more responsive, especially when it comes to the variances that we are showing them, because they are the only people that should tell us the reason as to why is it like this” (Manager 1, 09/09/2013).

The planning manager, identified as exceptional by the DM, was tasked with reviewing all the data from facilities to identify any obvious discrepancies. The DM then employed ‘sticks’ to reinforce the importance of data by writing letters to each facility manager or sub-district manager, saying either 1) your data was late, 2) your data was not complete, 3) your data is not believable in the following areas.

“So, she is now … she has given me the second month’s letter, and it is almost identical to the first month’s letter” (The new DM, 19/09/2014).

The information management changes, however, had not yet impacted at the facility level at the time of this study.

Sensemaking and sensegiving for information use was also reinforced by the working environment Some managers had been permanently appointed to their positions during the tenure of the new DM. The IM felt ‘being permanent’ supported responsiveness and accountability in the meeting, as when managers are in acting positions it was easier for them to say they are ‘only acting’ which fed into a lack of accountability.

Since NHI piloting began, additional resources for performance monitoring were introduced by the National government and the Provincial government, including templates for monitoring and evaluation and sets of preparatory activities for meetings. All managers in the DMT had been given computers and
3G data cards. The IM was hopeful that the new technology would enable better practices by the managers. She felt she needed to be released from the dependence of managers on her for information:

“Yes, because in those pivot tables [shown on the computers], all the indicators for various programmes, they are there. So the managers even [can] now compare quarters to look at the performance of sub-district A versus [B] sub-district … to see areas that are alarming and as well as for them to be able to act up on the data that they see and it’s also assisting me as information manager, even if I am not there (Manager 1, 09/09/2013).

However, there were still challenges to using information for decision making, including a lack of trust in the data from some managers in the DMT, who therefore did not always believe in it for decision making. The DM tried to curtail these reservations by using an example of a project where data had successfully been collected and verified to illustrate that it is possible to change practice and get good data.

The new DM primarily used his positional authority (systems hardware) and told managers they must present proposed solutions based on insights from the ‘ground’ in the meeting – however he did try and justify the change through explanation,

“Ja, people were focussing on challenges. Really their focus was specific to challenges. Like they are doing now, [they] don't have vehicles to reach area 1, so at the end what he was saying is when you have got a challenge, come up with a proposed solution, it mustn’t be just a challenge being thrown because you need to think what is it that can help you to change” (Manager 8, 24/03/2015).

But wasn’t always easy process to get people to focus on solutions. Doctors’ accommodation repeatedly came up as an issue, with a seeming lack of solution;

“So, people started getting a little bit edgy. They said what is the point of telling this guy that we have got a problem, because he actually can’t do anything about it, you know and it is that kind of a … situation” (new DM, 19/09/2014)

When a problem was resolved the team were asked to share lessons in order to generate collective learning and thus contribute to the collective capabilities of the team.

1c. Sensegiving to NGOS: crafting and managing key relationships to attract resources and support (Baser and Morgan, 2008)

In 2013, the new DM used his positional authority to host a stakeholder meeting for NGOs to present to him what they were doing in the district, what progress they were making and to remind them of their role as supporters in the district. They were told they would be invited to the extended DMT monthly meetings to present on their work to ensure objectives and progress would be aligned to district goals – effectively reinforcing ‘the disciplining of the space’. His actions were supported by many managers in the DMT;
“They [NGOS] don’t have priorities; it’s the district that has priorities – they are here to support the district to achieve the set targets on those specific priorities” (Manager 5, 1/10/2015).

For supportive NGOs he leveraged on existing shared meanings and, with some, a history of working together, for example an NGO sharing office space in the district office facilitated relationship building. He thus tapped into the intrinsic motivation of some, as they felt he gave them a ‘voice’ in these processes and that he was working hard at working together.

“Everybody had a voice. Everybody had a voice, all the partners had a voice. We felt part of the plan, and so we were prepared or we managed to own the plan” (NGO partner 1, 18/05/2015).

“as a partner we have to compromise”. "As a partner we have to be flexible all the time because we are here to respond to the needs of the DoH. So if you are not doing that then the relationship between yourself and the DoH might turn a little bit sour; so you have to ensure that you’re flexible all the time" (NGO partner 1, 18/05/2015).

“no he was not a difficult person because he had the best interests of the department at heart” (NGO Partner 2b, 18/06/2020).

He told NGO partners who did not want to create a shared vision that he would report directly to their funders, using sensegiving ‘sticks’ to influence participation.

“we are actually more explicit to them, and said if you don’t talk to us, then we write to your funder, saying that you are not helping us, then they can send the money somewhere else, because everybody comes and they think the answer is training” (The new DM, 19/09/2014).

Some managers were wary of including NGOs in DMT meetings, who hold them accountable in the media. However, the new DM successfully justified the need for inclusion using his experiential knowledge;

“Really, it started working. He invited partners, even the partner that we didn’t like it a lot, Partner XXXX, so we felt that these are the people that normally write negatively about the department of health – then why are they here now? But the way he explained it ... because they were part of the meeting and they know what is happening, they have inputted in relation into what is supposed to be changed. ... It really worked; I think it really worked because otherwise we didn’t like the idea, but we saw that it as fruitful” (Manager 8, 23/05/2015).

As part of his plan the new DM had originally requested one of the large NGO partners to steward all the NGOs in the district. However, this did not work - the new DM noted that not all NGOs were pulling in the same direction or knew what they were doing toward district goals, “they must be guided as to what the needs of the district are” (The new DM, 19/09/2014).
The DM then drew on his planning manager to take coordination forward; employing distributed leadership toward the overall goal;

“[the planning manager] ensures that we plan with our partners; we do reviews with our partners”
(Manager 6, 17/06/2020).

The district NGO coordinator felt somewhat left out of these new processes, as he was not a senior manager and thus did not attend extended DMT meetings. In his daily role he coordinated Community Based Organisation organisations rather than large NGOs.

The DM also used familiar professional codes and discourse to translate to NGOs that they had to participate in the development of the District Health Plan. This also helped to create shared meaning on the importance of shared vision and accountability in the district;

"Firstly, [the new DM] told us that what he needs is a consolidated plan for the DoH and for the partners as well. As partners we have our own operational plans that talk to the objectives and the targets that have been set up by our funders, and there are certain indicators that we need to focus on. Same applies to the DoH because they have got some indicators that they need to focus on, so [the new DM] said with all your plans that you have, they need to be integrated into our master-plan so that we can have one plan that we are going to support and implement as OR Tambo district. So we found that very valuable because with all the plans that we had, we had an opportunity to express our concerns and maybe the needs that we might have as partners for the kind of support that we are expecting from the DoH" (NGO partner 1, 18/05/2015).

Other mechanisms in context that facilitated sensemaking and sensegiving included the formal establishment of a large NGO specifically placed in the district to provide technical support directly linked to being an NHI pilot site, and the arrival of donor-funded projects which intentionally and actively sought to build working relationships between themselves and members of the management team (eg. a UNICEF project).

An NGO partner noted that strong partnerships are built on good relationships,

"Make good relationships with people, be flexible and try and understand other's opinions. Don't be a know it all - acknowledge we learn from them and then learn from us. Be yourself and present yourself as you are" (NGO Partner 2b, 18/06/2020).

While the arrangements had improved, persistent ongoing challenges for partner NGOs in the district included no power and a lack of recourse to hold staff accountable in the sub-districts they supported where, for example, staff showed lack of urgency.

1d. The number and distribution of managers in the team: negotiation as sensegiving
Using his positional authority, the DM negotiated within his resource envelope rather than pushing the Provincial government for more money to fill a critical vacancy (quality assurance manager) in the DMT;

“I have weighed up the benefit of one post above the other one, and said I am giving you [the Provincial government] the money for a quality assurance manager, ... I have got a TB manager that resigned, and I said TB and HIV should actually be under the same deputy director. So, I am taking that TB money and that is quality assurance money” (The new DM, 19/09/2014).

This approach of ranking management posts according to importance was contested, as some senior managers felt that posts at the same level cannot be ranked (e.g. occupational health and safety against an HIV manager). But, using his positional authority, the new DM told managers to do the ranking. He used an exercise in which managers were asked to rank themselves from one to ten, in order to create shared meaning. Using his implicit knowledge he tried to create sense for others and diffuse meanings around the change – to subjectively influence and convince recipients to adopt change (64). Whilst acknowledging the reluctance of managers to do the ranking and his own discomfort in ranking posts as he believed were all important, he noted that due to shortages of money it had to be done.

“But you ... as a leader and manager, you have to make tough decisions” (The new DM, 19/09/2014).

He noted some said he did not push the Province hard enough for more resources, but he drew on his knowledge resources to arrive at a decision;

“I come from a different school of thought, but I mean to be fair, there are people that say I don’t argue enough for more resources and that is based on ... I attended a course on efficiency and so on and he [the lecturer] said the worst thing that you can do for a dysfunctional system is to throw money into it ..... it makes it more dysfunctional. So, I have been ... when Province says I am not giving you money, I say okay” (The new DM, 19/09/2014).

For the Hospital CEOs who were deployed to the DMT with no portfolio he considered their skill set, then wrote each one a role description and assigned them a portfolio of work where they could use their skills, thus purposefully enhancing the collective capabilities of managers within the DMT. The DM drew on a common cultural code in the workplace of having a ‘role description’ to facilitate a sense of collective purpose.

"He couldn’t get formal job description because job descriptions comes from the provincial office ..[but] ... he looked at those who were additional to the establishment and then from there he managed to allocate them in areas where he was seeing that there are gaps ... so from there you will be able now to come with what you are supposed to be doing" (Manager 8, 24/03/2015).

Footnote:

[1] As part of another innovation in the district some hospital managers were being replaced in their current job due to new job requirements, they were not removed from the payroll or from the district.
These were not new formal posts on the organogram but rather a description of the duties they were expected to fulfil.

Discussion

Amidst challenging contextual conditions and the implementation of top-down NHI piloting, this paper illustrates how a new district manager drew on complex frames, tacit and experiential knowledge to design bottom-up managerial capacity development innovations. The innovations, together with the agency of the DM, triggered simple but profound micro-practices of sense-giving and social sensemaking among other DMT members. In turn, these triggered a further, generative process of buy-in and motivation among managers and partners to engage in improved management practices in their monthly meeting, unleashing and harnessing emergent capacity in this routine structure (the meeting).

The research thus speaks to (1) the individual competency for complex sensemaking needed by those in sub-national management who must think bottom-up and develop capacity to manage district functioning (2) the mechanisms of sense giving and social sensemaking that trigger motivation and buy in of managers and NGO partners and (3) bottom-up capacity development as an emergent process in the daily routines of the DHS. These points are discussed further below.

The competency for complex sensemaking

The DM’s competency for sensemaking in context was a key mechanism underlying the design of the bottom-up innovation in the experience reported here. Sensemaking has to do with the way managers understand, interpret and create sense for themselves (11, 64, 69). Managers may adopt a linear or a complex frame to drive sensemaking and interpretation in context (39). The new DM adopted a complex frame, and applied systems thinking when targeting a routine structure (the meeting) that brought managers and partners together to work across health system functions/silos to manage the district collectively. Systems thinking is an approach to problem solving that views problems as part of a wider dynamic system, “demanding a deeper understanding of the linkages, relationships, interactions and behaviours among the elements that characterise the entire system” (78). Other experiences of capacity development also offer insights on how to build capacity for systems thinking. In Ghana, a programme to develop leadership capacity found that teaching systems thinking only as a tool rather than embracing it as an embedded practice failed to develop the new mental models needed (79). System leaders need to develop and apply three key capabilities; “their understanding of the system that shapes the challenge they seek to address; their ability to catalyse and support collective action among relevant stakeholders; and their ability to listen, learn and lead through coordination with and empowerment of others (80). The systems thinking competency demonstrated by the DM was informed and complemented by his formal training, as well as his tacit and experiential knowledge of the health system. Together these knowledge forms allowed the DM to design a bottom-up bricolage of innovations to build capacity which, as already explained, is about using the resources at hand and refusing to accept limitations as defined by the system (65). The DM’s individual competencies thus also contributed to the growing capacity of the DMT
- an “emergent combination of individual competencies, collective capabilities, assets and relationships that enables a human system to create value” (45).

**Sensegiving and social sensemaking**

Recognising the DHS as a CAS informed our approach to investigating capacity development, this approach tasked us with looking at both the software of the system (knowledge, relationships, norms, communication), the intersection with hardware (positional authority, public policy documents) and how together they serve as sensegiving tools that drive an ongoing process of capacity development (9, 45, 81). “Sensegiving is concerned with ... [managers’] attempts to influence the outcomes, to communicate ... thoughts about the change to others, and to gain their support” (64). The micro practice of sensegiving included the use of sticks, such as drawing on his positional authority to shape accountability in the meeting, enforcement of the HMIS policy, and over-coding using discursive symbols such as ‘the auditor general’. But to trigger the motivation of managers and partners, the DM also employed sermons, created shared meaning by taking time to justify and translate the need for new management practices, including visiting managers in their workplace, gave voice to partners in meetings and employed relevant discursive symbols (performance, core business). He also disciplined the space by using an agenda to systematise the processes in the meeting and drew on distributed leadership to create an environment that reinforced the overall goal (64). As these experiences demonstrate, complexity-sensitive managers adopt a contingency approach to leadership, balancing transactional, transformational and distributed leadership styles based on the needs, the situation and the problem at hand , adapting leadership practices as required in particular contexts (36). A study on the daily management practices of sub district managers in South Africa found, for example, that improving practices in daily routines, such as facilitation styles in meetings, minute taking, etc. required a set a software skills to nurture and engender “relationships of constructive accountability ... that support persistent and adaptive problem solving aimed at enhancing service delivery and patient care” (40). We posit, then, that software skills are critical aspects to be considered when designing and evaluating capacity development innovations.

Sensegiving was strengthened by the DMT members’ proximity to change (working alongside the DM) as well as by their engagement with new practices. In other words, ‘doing’ triggered appreciation for the new practices leading to motivation and renewed self-efficacy in managers and partners triggering a generative process of buy-in. Actions also provide raw ingredients for sensemaking by generating stimuli or cues ... “action serves as fodder for new sensemaking while providing feedback on the sense that was already made” (67). Sensegiving and sensemaking are “complementary and reciprocal processes”, staff will go through a series of cycles of sensemaking before making a decision to adopt an innovation (64, 68). Sensemaking is not only an individual act, it is also a social process that is ongoing and recurrent in organisations that is influenced by contextual factors (67). In this experience, the introduction of NHI piloting came with additional technology to support information use, training on information use in facilities and the formal establishment of the large NGO specifically placed in the district to provide technical support -these other efforts to build capacity in the context complemented the new DM’s bricolage of innovations.
The outputs of these processes are emergent practices and processes within a routine meeting structure, that reflect improved DMT collective capabilities to manage in a complex district health system context.

**Proximal outputs and emergent capacity development**

Taking a CAS or systems perspective on capacity development in this evaluation has enabled us to look beyond the “input-blackbox-output” of capacity development (45). It has allowed us to identify how a space between the health system building blocks/functions, the monthly management meeting, itself shaped by history and context, emerged as a site of innovation and anchor for capacity development within the DHS.

While there are growing efforts to understand how to develop district/health management capacity through external CD interventions/programmes/courses (79, 82, 83), we posit that capacity development can also be conceived of and unleashed as an everyday act of managing from a bottom-up perspective. This may refocus attention to the challenging role of daily managing, critical vacancies, developing support systems, holding well-functioning meetings for better planning, the need for clear role description and knowledge of one’s role in a DMT (84, 85). We argue that bottom-up capacity development initiatives anchored in daily routines have the potential to circumvent some of the challenges identified in external CD initiatives. These include finding time in busy schedules to attend training, additional resources needed to convene new activities, the duplication of existing structures and/or processes in a district and the potential limited understanding of capacity development as a bounded project that is finished when the project is over or the convenors leave. Homegrown CD activities allow for longer time frames and can potentially deepen local actor ownership and voluntary commitment to CD strategies, both of which are necessary for sustained capacity (71). We acknowledge that this type of workplace based capacity development can work in combination with other external forms of training and learning such as classroom based learning or e-learning combining theory and practise (86-90).

We further argue that building the capacity of the ‘structures’ (e.g. meetings, organisational processes) that hold the district health system are critical for developing capacity and unleashing the tools, skills and infrastructure in the system at large. Structural capacity includes decision making fora where inter-sectoral discussions occur and corporate decisions are made, records are kept and individuals are called to account for non-performance (91).

**Limitations**

Improving district management team functioning is part of the long chain of proximal and distal outcomes needed to improve the capacity of district management teams towards improved responsiveness, equity and improved health outcomes. This research only provides insight into one cog of this wheel – that is, the social process of sensemaking and sensegiving needed to motivate change. We were also only able to observe short term outputs. Additional longitudinal research is needed to understand how bottom-up innovations are institutionalised over the long term and the consequences for
long term health goals in the district. Finally, we did not reflect here on all the challenges faced by the new DM when introducing the changes; these will be considered in a subsequent cross case analysis.

**Conclusion**

We argue that local managers are well placed to design CD innovations and must draw on multiple knowledge forms and system thinking capacities to be able to think ‘bottom-up’. As commitment and motivation is required from these managers to engage in CD processes, senior managers with power must draw on both their individual software competencies and the hardware resources of the system to influence motivation for capacity development. The act of managing is an everyday process, and we posit that CD can, thus, be conceived of as an everyday act of managing in routine structures while simultaneously building structural capacity. We recommend that further research is undertaken to understand bottom-up capacity development from a systems perspective, as well as CD interventions targeted at system ‘structures’ and organisational processes.

**List Of Abbreviations**

DM – District Manager

DMT- District Management Team

DHS – District Health System

IM – Information Manager

HMIS – Health Management and Information Systems Policy

NHI – National Health Insurance

**Declarations**

**Ethics approval and consent to participate**

Research ethics was approved by the University of Cape Town Human Research Ethics Committee (reference number 479/2011). We received written consent from participants in this study.

**Consent for publication**

Not applicable

**Availability of data and material**

The datasets generated and/or analysed during the current study are not publicly available as we did not receive consent from participants to share the transcripts publicly.
Competing interests

No competing interests to declare.

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Authors' contributions

MO developed and conceptualised the paper. MO developed data collection and data analysis tools, collected, coded, analysed data and wrote the manuscript. LG and BM contributed to the conceptualisation of the paper and provided critical commentary in the writing process. MSK collected data and provided comments on drafts, LS enabled communication with the fieldwork site and participated in data collection. All authors have read and approved the manuscript.

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Figures

Figure 1

The realist evaluation cycle (60).

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