District and sub-district stewardship of quality and health outcomes: roles, systems and strategies

Briefing Document

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Executive summary

Sub-district and district health systems – generically referred to as the meso-level – are key to enhancing quality of care and improving health outcomes. Facility (micro) level improvement strategies are less likely to succeed or be sustained if they are not supported and enabled by the meso-level.

In this briefing document, we explore district and sub-district stewardship of quality of care and health outcomes, based on insights and experiences of a national initiative referred to as Mphatlalatsane. This initiative seeks to improve maternal and neonatal health in selected districts of three provinces (Mpumalanga, Limpopo and Eastern Cape). As part of the wider evaluation of Mphatlalatsane, we conducted serial interviews with project partners over the course of 2020 and 2021, specifically probing views on the meso-level in relation to maternal and neonatal health (MNH) quality and outcomes. Drawing on these interviews and programme documentation, we seek to characterize both the 'what' and 'the how' of meso-level stewardship of quality and outcomes, including roles/capabilities, enabling systems and change strategies. We believe the insights generated offer guidance on system functioning that can complement clinical guidelines and standards, and feed into debates on the design of district and sub-district health systems in South Africa.

To achieve better quality and health outcomes (whether for MNH or other programmes), the meso-level needs to be able to: drive implementation of provincial and national strategy, while simultaneously advocating for bottom-up service delivery needs; authorise and support innovation by frontline providers, drawing on improvement methodologies; coordinate health programmes and players across levels of the health system; and ensure appropriate accountabilities. These roles imply a high degree of agency and responsiveness on the part of the meso-level, proactively connecting elements of the system, problem-solving, learning, allocating resources and exploiting efficiencies.

These roles and capabilities, in turn, require an enabling meso-level environment of 1) distributed leadership that is stable, skilled and committed; 2) area-based (geographical) service delivery models, supported by mechanisms of governance and accountability, and outreach and referral systems; and 3) district support and systems responsive to quality and outcomes, including human resource management, information, equipment and emergency medical services (EMS) infrastructure.

In interviews, the meso-level was, however, consistently described as poorly oriented to achieving quality and outcomes at the frontline. As repeatedly pointed out, meso-level players are embedded in provincial and to some extent national decision-making and accountability eco-systems that are risk averse and reward compliance and inaction rather than innovation. Meso-level decision-space – the product of delegated decision-making, sub-district and district capacity and the nature of accountabilities – is in effect very narrow. Caught in a rule-bound and centralised command and control system, it is not surprising that the meso-level is often perceived as a passive player.

Nevertheless, interviewees offered insights into several promising experiences and strategies to mobilise and *"bring back agency"* to the meso-level. Specific strategies of change included participatory audits, management level 'plan-do-study-act' cycles, escalation protocols, sub-district and district monitoring and response forums, participatory development of referral pathways and systems, and peer learning networks. There is no single one-size-fits-all recipe to strengthen the meso-level, but successful strategies have in common investment in nurturing relationships over periods of time. In addition, reconfiguring, formalising and creating greater coherence in roles and structures for quality and outcomes is required, starting with formalising the functions of the sub-district health system, accompanied by a widening of meso-level decision-space.

Acknowledgements

This document is an edited version of an earlier project report circulated in December 2021, entitled: Meso-level stewardship of maternal and neonatal quality of care and health outcomes: roles, capacities and strategies.

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Background and rationale

Mphatlalatsane is a multi-year project (2019-22) seeking to improve maternal and newborn health outcomes through quality improvement methodologies, implemented in selected districts of three provinces (Mpumalanga, Limpopo and Eastern Cape). The project is steered by a national partnership of governmental, non-governmental and academic players implementing a range of interventions, including Plan-Do-Study-Act (PDSA) cycles, training, audit, mortality surveillance and patient support, amongst other approaches, in primary health care and referral (district and regional) hospitals.

The South African Medical Research Council (SAMRC) and the School of Public Health, University of the Western Cape (UWC) are jointly evaluating Mphatlalatsane, and amongst other objectives, are assessing contextual factors in the uptake and outcomes of project interventions.

Mphatlalatsane partners interviewed in the early phases of the initiative highlighted the importance of sub-district and district (generically referred to as meso-level) as the immediate context shaping facility-level processes. Facility teams could respond enthusiastically to quality improvement methodologies, but their change ideas meant little if they were not supported or embraced at higher levels. In the words of one senior manager: *"we have …. highly experienced and learned clinicians working on the ground but what they are lacking is that envelope that talks to them through leadership, accountability and ownership. That meso-level, the district, is missing from this equation."* Existing systems and processes of district planning, coordination, resource allocation and review were regarded as poorly oriented towards achieving quality and health outcomes in many parts of the country. Action on maternal and neonatal health (MNH) at this level has often relied on programme managers and/or district clinical specialist teams (DCSTs), but these players do not have sufficient decision-making authority and control of resources to effect significant system-level change. District managers are themselves trapped in a system of upward accountability and compliance, where they easily default to being *"gate-keepers rather than gate-ways"*, stifling innovation and improvement at the frontline. In the main, Mphatlalatsane partners regarded the meso-level as weak, absent or even disabling.

But what exactly is the meso-level role in ensuring MNH quality and outcomes? What structures, processes and systems are required and how best to catalyse and nurture these roles? As with district and sub-district health system processes generally, there is little in the way of formal guidance to either assess or support managers in this task, even though a growing collective experience points to the key elements required.

This briefing document tackles this theme in more depth, drawing on interviews with Mphatlalatsane partners and project documents.   Through the lens of MNH, we examine the roles, capabilities and systems of the meso-level required, but which are often *"missing from the equation"* ('the what'), including the often-cited factor of 'agency'. We refer to these functions collectively as 'stewardship', to denote their essentially collaborative nature

and to emphasize the combination of quality improvement methods and health system planning and review involved.[1] We then provide examples of strategies put forward from Mphatlalatsane partners to catalyse change and strengthen the meso-level (the 'how').

Our purpose is to:

- Identify the stewardship role of the meso-level in quality of health care and health outcomes as a core district and sub-district function, requiring appropriate structures, processes, capacities and decision-space;
- Collate experiences with strategies to develop and nurture the meso-level for MNH quality of care and health outcomes;
- Inform policy and guidance on the meso-level stewardship of MNH quality and health outcomes that can complement integrated MNH clinical guidelines and standards (supported by clinical governance systems), and which can inform debates on the future sub-district and district health system, especially as the National Health Insurance (NHI) system becomes a reality in South Africa.

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[1] The meso-level stewardship of quality and outcomes is thus not reducible to facility-level clinical governance or district management or to a vertical 'quality assurance' cadre or function

A note on methodology

This briefing document brings together interview data and documentary evidence from one component of the Mphatlalatsane evaluation, reviewing the macro- and meso-level contexts and implementation of the project. Between February 2020 and August 2021 we conducted a total of 22 baseline and follow-up interviews with Mphatlalatsane designers and partners. Some were individual, some were joint interviews and all were held virtually. The follow-up interviews specifically probed the theme of the meso-level, and in large part form the basis of this analysis. In these interviews we sought to draw on the wider experiences of partners, inside and outside of the Mphalatlatsane initiative, which at the time of the interviews had had limited opportunity to engage the meso-level due to COVID-19 related constraints.

In addition to these interviews, a joint UWC/SAMRC team convened monthly debriefings of the quality improvement advisors (total of 17 over the period), which also contributed important insights on the meso-level.

These interviews and debriefings were recorded and transcribed. Analysis involved a first step of immersion in the data (re-reading transcripts and in some instances listening to the audio files), followed by manual extraction of data onto spread sheets that addressed one or more of the following:

- Making the case for the meso-level
- Meso-level roles and capacities
- Meso-level decision-space
- Supporting change

The two authors each coded data individually, identifying key themes, and jointly wrote the report. Interviews were conducted with consent, and consistent with other evaluation reports, we removed all attribution of quotes. However, some of the quotes – in particular reports of strategies - are obviously connected to a stakeholder, and we have sought their permission to include this material before circulating the report more widely. In addition to the interviews, the document draws on Mphatlalatsane project documentation – including power point presentations, reports, publications, and project management committee minutes.

The analysis also provided the conceptual framework for subsequent phases of the contextual evaluation in the intervention districts and provinces.

The roles of the meso-level

The meso-level was viewed by interviewees as playing a number of important roles in maternal and neonatal quality of care and health outcomes. These roles include mediating between micro (implementation) and macro (policy) levels, authorising and enabling action by frontline providers, innovating to improve quality, coordinating programmes and levels of the health system, and managing key service delivery systems, notably referral and clinical outreach and support (Table 1). All these roles imply a meso-level that acts autonomously and is far more than a 'post box', conveying instructions from above and transmitting reports from below back up the system.

Table 1: Roles of the meso-level in maternal and neonatal quality of care and outcomes

Role	Details	Quotes
Mediate between macro and micro levels	Translate policy into implementation; advocate for the needs of the micro-level	"… the meso level leaders are actually the ones who are the conduit between the highest level and the lowest level." "They are well placed not to be too high up such as national and provincial, but at the same time, they also have direct access to the facilities and hospitals in a way so that they are able to drive from the bottom and from the top to be able to deliver on the healthcare outcomes." "The DCSTs played a very critical role in terms of advocating. They were major advocates for newborns. So, one of their advocacy roles was to ensure that every single neonatal unit has a doctor and a nurse champion and that those staff are fully competent to care for neonates. So, they made sure that there were warm bodies there. They advocate."
Authorise and enable action	Give permission to frontline providers to innovate and implement; prevent disablement	"The people who make decisions, these are district managers and facility CEOs, these are key decision makers and for any improvement work or activity to even begin, these too need to become the sponsors or drivers of that improvement activity" "we leave out the CEOs of hospitals, we don't engage with the operational managers as much as we should... we could be doing everything, [but] if they say no it's no" "the sub-district is instrumental in buy-in from other staff" "Health workers can change their reality. They can. They can be relied upon to. They know what's wrong with them. They understand. They just don't feel that they are allowed to act"

| | | "at the frontline, there are a lot of people who are working as hard as they can, to do their jobs as they should, but the system itself seems to be disabling rather than enabling"

"if the frontline workers understood the principles but the meso level are still stuck in their old way of doing things, it wouldn't result into any change"

"so processes can be changed without feeling like the operational manager in the clinic or in the facility doesn't have to feel intimidated or oppressed that she is breaking the rules?"

"What happens at facility ends up being paralyzed by the multiple layers above it, all of which appear, to many people at facility level to be placed there precisely to stop them from doing things." |
|---|---|---|
| Innovate to improve quality | Implement QI methodologies and drive processes to spread innovation | "The district clinical specialist introduced a number of quality improvement projects. And they had a system already going, where they were doing some quality improvements with the whole district with … [the] hospital's drainage area." |
| Coordinate and align actors and activities | Ensure alignment of quality initiatives, coordinate actors, overcome fragmentation | "the problem with the district offices and in some places even replicated in subdistrict offices is that we have one manager per indicator, so with all the indicators on DHIS, people have tended to balloon, the management layers have ballooned with people who are responsible for reporting essentially, on a single indicator. And that has fragmented the system"

"There was not much coordination, each clinic or district had different quality improvement programs which were not linking to one and other"

"So, it needs a structure, the package that would implement and monitor the implementation and support implementation" |
| Manage key service delivery and other systems | Referral and outreach and supportive human resource, supply chain and information systems | "the DMT is mainly looking at systems but it also has clinical governance, where they look at the real clinical care…….. I will give you an example, you know we are coming from the situation where people just refer, (you have a piece of) paper and refer to an unknown, unnamed, unidentified person. But now, the governance structure that they put together now, they, it's opened the in-reach and the out-reach so you refer to a person, and you can have contact with the person whether a consultant or a specialist prior to actually referring the patient, so actually the cooperation is much better." |

To fulfil these roles, meso-level actors need to be capable of:

- Effective *problem solving*, such as the initiative to increase deliveries in community health centres of the City of Mbombela in Ehlanzeni District of Mpumalanga. The strategy involved a series of meetings with key stakeholders (Themba Hospital, District, EMS and feeder facilities), making the case through data and analyses presented to PHC facilities, identifying bottlenecks and jointly negotiating solutions. As a result *"when you look at the referrals to Themba Hospital and the feedback and the impact that the various programmes had there, it was quite impressive, and that was just facilitating communications and making everyone understand and everyone pulling in the same direction."*

- Maximising *efficiencies*, such as Letaba Regional Hospital in Mopani District Limpopo identifying a system for sharing of resources between district hospitals by creating common inventories of consumables and equipment; and enabling access to drugs for newborn care in district hospitals to prevent unnecessary referrals. As explained *"the district hospitals would say that we were told by pharmacy that a level 1 hospital is not supposed to have these drugs and that's why we refer all the patients to you guys… and on the spot, they had a meeting with the pharmacists and managers and said, listen, we can stock that drug so you don't have to send the babies to us. We will order enough for all of our district hospitals and then you just ask from our pharmacy, like on a weekly basis or something like that, easy as that, and keep the baby here."*

- *Building* on and *learning* from past initiatives, rather than constantly reinventing the wheel or creating siloed approaches, such as the quality improvement initiatives in the Eastern Cape, where the MNH and SRH were integrated with existing HAST quality improvement structures, referred to as nerve centres.

- *Resilience*, the ability to maintain core processes despite shocks and stresses, most evident during the COVID waves. As one interviewee said, *"from my side, I think we need to strengthen built-in resilience for the meso level managers… they need to stand up … and protect the needs and the rights of the women at a reproductive age… it showed not to be strong with the first wave… but I think that's what we need to be building on going forward."* On the other hand, referring to Mphatlalatsane, they indicated that *"when everyone else is scared of the possibility of the third wave … the project is still continuing on the ground … for me, that was a success because we could have lost it completely due to the COVID pandemic."*

A key cross cutting capability, repeatedly referenced in interviews was the phenomenon of *agency*: *"the single most important objective of this project, is to work out how to give people back their agency".*

Agency is seen in the first instance as an individual willingness or freedom to act:

"you do have situations where you have very motivated front liners who don't really care about what is happening up there… you would have some facilities that would say, we want this, we want to do it with or without the permission of an HOD, and then you get to another facility where they say if we don't have a letter we can't talk to you."

"Those are communication issues which they can actually deal with locally at the district, and if you had a proper manager, that could happen, but that's often lacking. And the courage to make decisions is also lacking so they just continue as they are."

Agency was also described as delegated power - the authorisations and absence of disablement referred to in the section on roles.

"…if a change is being made in the labour ward.. they all agree on as a team, that all patients as they walk to labour ward that within 15 minutes or within 5 minutes … that patient is assessed, triaged and properly moved into a cubicle for appropriate case management. And if that is not in the custody or power of the operational manager of labour ward then that defeats the purpose of having micro system level changes that actually can make a big difference in outcomes. So, and the only way to do this is to get the CEO, the zonal matron and the subdistrict manager that's overseeing those hospitals to buy into the idea that agency doesn't have to sit at meso level. Agency can be transferred, and delegated and empowered to the frontline worker."

Meso-level capacities and systems that enable quality and outcomes

Interviewees reflected on the meso-level systems that enable and support the roles and capabilities outlined above.

These are summarised in three main areas:

1. **Distributed leadership** that is stable, skilled and committed
2. Coordinated **area-based service delivery**, supported by mechanisms of governance and accountability focused on quality and outcomes, and systems of outreach, referral and problem 'escalation'
3. Responsive **district support and systems**, including human resource management, information, equipment and EMS infrastructure

We address each of these in turn.

Distributed Leadership

The notion of distributed leadership recognises the exercise of leadership at all levels, spanning from the facility to the provincial level, and the particular forms of leadership required at each level (Figure 1). Champions and team leaders drive action at facility level, but need to be supported by proactive facility and sub-district leadership, and appropriate strategy and resourcing at district and provincial levels.

| Leader roles |
Facility	Champions Team competencies
Sub-D	Authorising, enabling Mentoring Brokering
District	Supporting, responding Resourcing Directing implementation Coordinating, aligning
Province	Defining strategy Resourcing

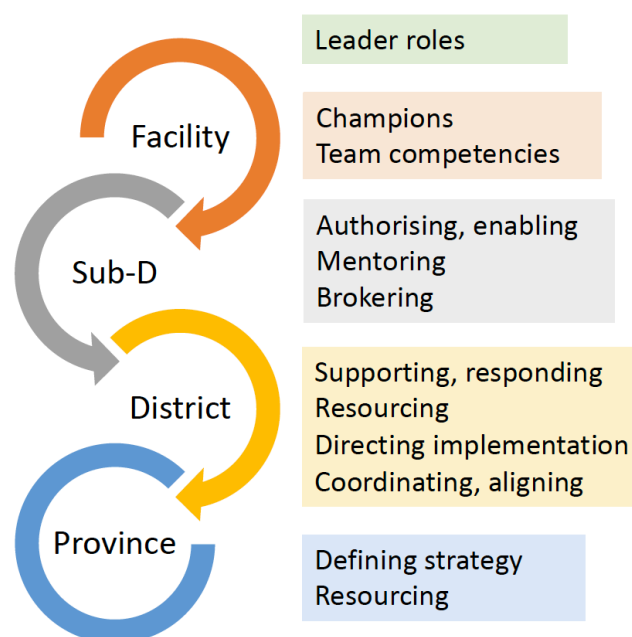Figure 1: Distributed leadership roles

The most basic element of meso-level capacity is stable and skilled leaders across the leadership chain, without which wider system development is not possible: *"you can get enthusiastic people on the ground, and they can improve the situation in their hospital, and they can have good ideas… but to take it beyond that is almost impossible because of the*

lack of capacity and stability in the middle management." Many places are characterised by chronically unstable managerial chains, and an especially high turnover of middle hospital managers, with many in acting positions. *"In just about every place there have been a number of managers over the time and people keep coming and going and every time you have to start fresh … particularly at the management level."* The reasons for this are complex, but often have at their core fractious labour relations and the politicisation of leadership structures.

Stable leadership is a necessary but not sufficient condition for quality and outcomes. Ownership and commitment of leaders is also key to enabling change at the frontline *"because [when] they've bonded with the project … then they allow the people on the ground to continue with the implementation".* In one Mphatlalatsane site *"the provincial involvement and the district involvement and the whole catchment area [enabled] people to take ownership and … to get involved."*

Meso-level managers also need to have the capabilities outlined earlier: supportive management styles, 'big picture' system thinking, the ability to analyse problems and lead people through meaningful change processes, and the autonomy and agency to make and follow through on decisions. Yet, in reality managers are often appointed without appropriate training and development and lacked *"the experience necessary to manage and … the skills and clinical knowledge to be able to affect any change."* These include 'simple things' like running an effective meeting.

There is a paradox in the current meso-level: leadership capacity exists on the ground, in the *"highly experienced and learned"* frontline champions*,* but is not matched by the power to act, or capacity and support at higher levels: *"we have created this system that disempowers progressively as you go down the ranks. You get to a point where you're at the bottom, you're just at the bottom of the pile. And even doctors and specialists at the bottom of the pile are scared of the authorities."*

Coordinated service delivery in catchment areas

Improved quality and outcomes hinge fundamentally on coordinated approaches between primary health care and district and regional hospitals in catchment areas. The basic unit of service delivery – and the most significant from the point of view of access, quality and outcomes – is the district hospital and surrounding PHC facilities and community-based services. This basic unit may correspond to the sub-district boundaries or may be one of several such units in a sub-district (see Figure 2 below). These units relate to a referral, regional hospital, which may or may not be managed by the district authority, and which together form the larger service delivery unit (referred to as the 'wedge' in Mphatlalatsane).

As explained by one of the Mphatlalatsane designers:

"regional hospitals have specialists, and these specialists by definition … gazetted definition, are meant to oversee the entire clinical operations in their wedge, in their catchment area.

Yet this has not been either communicated, or it's been communicated but never executed and it's not executed … So, we're seeing that regional hospitals actually work as islands, in isolation outside their catchment environment. And what we wanted to see happen here is that the clinical leadership actually takes ownership and accountability for all clinical processes – case management, case referral, down referral, out referral, clinical support for them, clinical support meaning outreach support for clinical care and governance, reviewing data as a unit, responding to data as a unit."
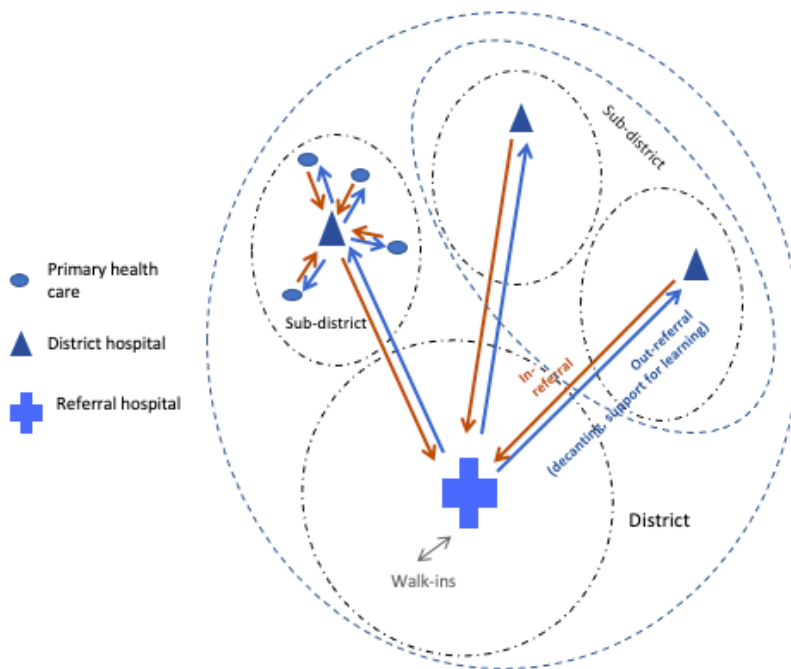

Figure 2: Catchment areas as service delivery units (Source: Dr Shuaib Kauchali)

To achieve service delivery coordination requires the establishment of several key processes within the smaller and larger catchment units, interfacing – not always in a straight forward manner - with reporting lines to the sub-district and district.

Three core systems/processes are required:

1   a governance mechanism for reporting and review, decision-making, coordination and accountability, able to generate meaningful information;

2   negotiated systems of referral between units, in conjunction with emergency medical services;

3   systems of skills development, specialist outreach and support.

Governance mechanism

A key challenge in the basic unit of service delivery is overcoming the fragmentation inherent in the design of the sub-district health system, between primary health care and the district hospital referred to earlier. While in practice *"there are forums"* between the two, these tend to be informal in nature and often characterised by blame games and some degree of *"resistance"*. Interviewees thus raised the need for a mandated and formalised mechanism of governance in the core unit of service delivery focused on improving quality and outcomes. Such mechanisms need to bring together local operational (line), clinical, information, EMS and programme managers (spanning PHC, hospital and sub-district).

Their functions are:

- To review morbidity and mortality data and consider both 'thrive' and 'survive' measurements, in order to identify the links between actions at PHC and community level and outcomes at the hospital level.
- Develop appropriate responsive action – whether skills development or system action.
- Assign roles and responsibilities to actors, and hold them accountable for decisions and plans. As one interviewee remarked: *"If managers are not accountable, then nothing is going to change and it goes all the way down".*
- Identify appropriate responses required at higher levels of the system (district and province).
- Develop communications channels (formal and informal) for day to day problem solving.

These forums build on/extend and need to align with existing established audit mechanisms such as PIPP, CHIPP, maternal death review processes and facility morbidity and mortality meetings. They thus combine traditional clinical governance (clinical audit, guidelines and training), public health, programme and core sub-district and district management functions.[2]

A corresponding mechanism is required in the larger catchment area, bringing together regional hospitals and line, clinical and programme managers from the sub-district and district. At this level, the forum would interface with formal district planning and quarterly performance review (QPR) processes. It would also identify and negotiate more substantive system-level change around resourcing, service provision and referral relationships and engage higher levels of the system.

Examples of existing mechanisms reported in interviews include:

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[2] Note: The Province of KwaZulu-Natal has proposed the formal establishment of sub-district structures, with a unified reporting line and mandated responsibility for the key service delivery functions outlined in this section.

- Structures linked to the newly established Limpopo Newborn Response Team (LNRT) providing specialist outreach from the tertiary facilities to lower levels of the system, where at different levels *"there is … a standing day within a quarter that the team meets and then discuss[es] what's the progress, what are the issues… that can help unblock to make sure that things continue."* The structures include PHC operational and hospital clinical managers and maternal, newborn and child health programme managers.
- The Monitoring and Response Forums (MRF) linked to the three-feet approach, currently being implemented in Mphatlalatsane sites, which bring together clinical, operational and programme managers monthly, supported by a system of real-time mortality surveillance, and 'open-tap analogy' dashboards linking PHC and hospital indicators.
- 'Nerve centres', also referred to as 'quality improvement forums' established in the Eastern Cape at district and provincial level around HIV and TB, and recently adding PMTCT, maternal, sexual and reproductive health as part of the Mphatlalatsane project.

Supportive tools include:

- A revised District Planning Framework that integrates the MRF concept and the maternal death reporting system, even if, according to a national stakeholder, *"we only got to the level of getting it into the document"*
- An 'Activity Matrix' (see Figure 3 below) and 'Escalation protocol' proposed for the MRFs to support multi-level coordination and system responses. In the activity matrix, actions/responses are allocated to levels of the system based on resource requirements and decision-space. This forms the basis of the escalation protocol, with the accomplishment of actions denoted by traffic light signals (red, amber, green). As explained by one interviewee: *"at the moment what seems to happen is people hit the brick wall, when they try to report or suggest things upwards, they tend to disappear into this fog of no answers or impossibility. So, what we are trying to do with this escalation protocol which we just starting to implement now is to get people to actually document the effort they are making to try to get the system to function"*;
- Development of electronic data systems by SAMRC-UP bringing together key databases for decision making: electronic birth register, and the PPIP and CHIPP.

Convenors of the sub-district and district level mechanisms ultimately need to be line managers, but they rely heavily on distributed leadership across levels of the system, and on the capacity to forge collaborative rather than solely command and control relationships. In this regard, the DCSTs with programme managers have been key brokers and boundary spanners in the system, and their sudden withdrawal in Limpopo led to a communication and coordination vacuum before new clinical outreach systems were developed in 2020.
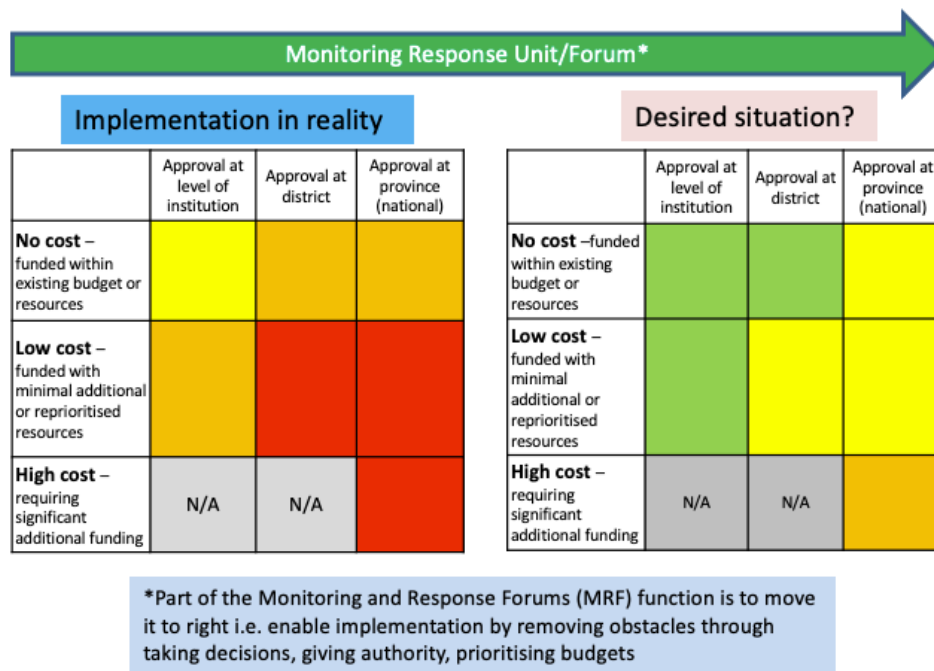
Figure 3: Activity matrix (Source: Dr Shuaib Kauchali)

Systems of referral

Another key dimension of the meso-level is establishing rational and effective referral systems between facilities. While basic guidance in this respect may be relatively easy, there are complexities related to the 'many hands' involved in MNH - sending and receiving facilities and intermediaries (EMS), as well as the often urgent nature of obstetric or newborn referrals. These emergencies may have antecedents (such as unmanaged hypertension), with hospitals often pointing fingers at the performance of antenatal care in clinics. In addition, the heightened scrutiny of maternal deaths adds to a reluctance to manage deliveries in PHC facilities, especially if ambulance services are stretched. As a consequence, deliveries may become routinely diverted to district hospitals, which can easily become overwhelmed with low risk deliveries. Communication, negotiation, relationships and problem solving are thus central to the establishment and maintenance of referral relationships, and interviewees reported on several initiatives to facilitate improvements in referral systems (see also change strategies later).

A well-functioning referral system:

- Can accommodate differentiated needs: firstly, experts can go to a facility as opposed to patients always having to travel through the system. Secondly, the referral should focus on adding value – if the requisite expertise is not available at the next level, patients should be able to bypass that level to access the correct level.
- Involves contact between people who are known to each other: Referring to new arrangements, one interviewee indicated that "*we are coming from the situation where people just refer, [you have a piece of] paper and refer to an unknown, unnamed, unidentified person. But now, the governance structure that they put together now, …*

it's opened the in-reach the out-reach so you refer to a person, and you can have contact with the person whether they be a consultant or a specialist prior to actually referring the patient, so actually the cooperation is much better." Such interactions also enable expert input into clinical care while waiting for referral.

- Is embedded within an ecosystem of relationships: related to all three core functions, where informal communication and networking is encouraged.
- Is enabled by technology: the possibilities of remote communication and social media have leap-frogged with the advent of COVID. Participation in multiple Whattsapp groups has become the norm. There are specific tools for supporting referral systems, most notably the Vula app, which enables communication between clinicians on individual patients, while providing referral system data for feeding and receiving facilities *"which is completely non-existent."*
- Generates monitoring information: numbers and types of referral, those accepted or not accepted, emergency services to transfer time, condition of the patient at referral and on arrival.

Systems of clinical outreach

The third area is systems of clinical outreach, of which there are two main models in South Africa: the DCSTs, which are implemented in several provinces, and the geographical service area (GSA) model. The prototype of the DCST model is regarded as Kwazulu-Natal, where the programme is run by two provincial coordinators, who *"have managed to get a whole lot of programs implemented and implemented well".* The GSA model is implemented in the Western Cape, where regional and tertiary specialists and hospitals are responsible for specific areas as part of their contracts and do training and also in-service support at lower levels. It has also been introduced for MNH in Limpopo. As one interviewee put it *"it does not matter whether it is the Western Cape process or the district clinical specialist process, but you need the skilled people, you need organized outreach and a systematic way along a clearly defined process."*

Examples of structured programmes implemented through outreach include the 'safe caesar' package, the ESMOE fire drills and facility assessment tools (FAST) and the 'helping babies breathe' course for newborn care, which are collectively credited with declining maternal and neonatal mortality. Outreach systems also help mobilise the necessary equipment and broker infrastructural development with district and provincial managers. Clinical outreach thus involves a combination of personal and team mentorship, skills development, specialised patient care and advocacy roles.

Responsive district support and systems

Coordinated service delivery requires functioning district support systems. These are represented in WHO's health system framework as the 'building blocks' or as 'critical support functions' in the Western Cape's DHS 'accountability framework' (Figure 4). The most critical of the support functions is human resource management (HRM), which in the

accountability framework includes 'establishment' management, personnel targets (based on 'approved post lists'), competency-based teams and HRM compliance. The other key areas raised include information systems and management, the IT infrastructure, and the emergency medical services (EMS).
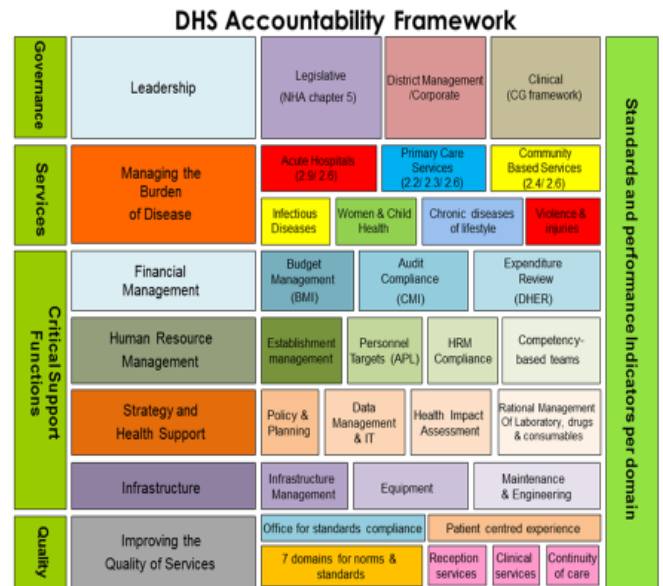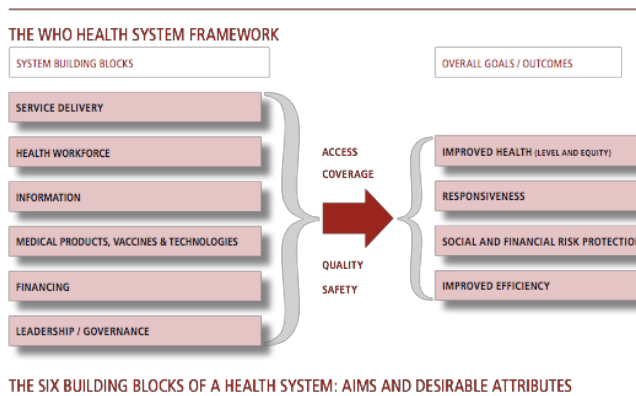

Figure 4: WHO Health Systems Framework and District Accountability Framework (Source: Dr Joey Cupido)

Human resource management

The key meso-level issues in this regard identified were:

- Inappropriate distribution of personnel, in particular midwives, who are often *"stuck at a level where they are not being used"*. Delivery services at a primary health care level are perceived to be under-utilised, with maternities in district hospitals buckling under human resource shortages. In a number of areas, initiatives to shift normal deliveries to community health centres are being put in place.

- Bloated and inefficient managerial structures in some districts and sub-districts: as new programmes have been established, *"the management layers have ballooned with people who are responsible for reporting essentially, on a single indicator."* This results in the problem of the 'inverted pyramid' where *"you have 18 managers at the meso level giving instructions to two managers at the frontline and creating a lot of confusion."* There is thus considerable scope for reviewing organograms at district and sub-district level, with deployment to roles in health facilities.

- Maintaining a pool of critical/scarce skills: The more skilled the health workers in maternities the more efficient and better the outcomes. The norm of rotating staff was identified as detrimental to quality and outcomes, although recognising that this involved trade-offs. If skilled staff leave then facilities are left with "zero" capacity.

- Systems of "skills governance": this includes implementation and maintenance of regular in-service training programmes such as the ESMOE drills; the sexual and reproductive health (SRH) package of training being developed nationally; the distribution of appropriate guidelines such as PMTCT, BANC Plus, hypertension management, antepartum and postnatal care guidelines developed nationally, and provincial initiatives such as the Maternal Health Standards in Limpopo.

- Training and supporting managers to navigate the politically charged labour relations environment, through both proactive and ongoing approaches that engage organised labour and appropriate reactive measures in disputes.

Information systems and infrastructure

Information technology (IT) infrastructures are increasingly becoming a vital part of e-communication and information systems. There has been an accelerated shift towards remote working and convening since the advent of COVID. This has revolutionised forms of working and enabled significant efficiencies, especially in rural areas. Smart phones are ubiquitous and Whattsapp groups – often multiple - have become the daily reality of health system managers. However, a key problem, particularly in rural areas, is mobile network access and availability of data or WiFi connectivity in health facilities. This also affects the transition to electronic information systems, such as the envisioned integration of the birth register, Perinatal Problem Identification Programme (PIPP) and Child PIP with the District Health Information System (DHIS). While data capturers are now part of core establishments and most health facilities have at least one computer, the shift from paper-based to electronic systems is still far from being realised.

Ambulance services and emergency medical service (EMS) personnel are key elements of infrastructure for maternal and neonatal health that need to be coordinated with other service delivery actors. With respect to ambulance infrastructures, several respondents were in favour of the model developed in the Free State Province[3], namely to station obstetric ambulances at lower level facilities, as a dual system with the remainder of the EMS. This would enable the transfer of patients with a skilled person, who can then be brought back to the health facility. The level of qualification of EMS personnel is also a key issue with insufficient numbers trained beyond basic life support.

Decision-space

As repeatedly pointed in interviews, meso-level players are embedded in provincial and to some extent national decision-making and accountability eco-systems that fundamentally shape (in)action at the meso-level.

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[3] Schoon, MG. Impact of inter-facility transport on maternal mortality in the Free State Province. S Afr Med J 2013;103(8):534-537. DOI:10.7196/SAMJ.6828

"So you go all the way down to sub-district level and all the way up the system … you seem to only find people who can tell you what you can't do but not people who can answer as to how you can do things. It has become a very risk averse system…"

Performance management systems reward inaction:

"people don't want to do anything that could get their seniors in the papers… the performance system … tends to reward inaction, because if you do nothing, you can't get blamed, whereas if you are proactive and do something, you run the risk of doing something wrong and getting hammered, so, it is actually safer to do nothing."

These performance management systems are, in turn, the product of a growing orientation towards external compliance rather than service delivery:

"… the rules that we put in place to protect the system against things like fraud, like the PFMA actually land up disabling us from being able to do anything. Because we are so hedged with regulations, rules, and provisos … it's more important to follow rules than it is to deliver services"

Meso-level decision-space – the product of delegated decision-making, sub-district and district capacity and appropriate accountabilities – is in effect very narrow. Not only are *"district-level managers … not able to implement any initiative without the approval of the provincial managers",* fear of breaking the rules discourages them from taking such initiative, and inadequate leadership and management capacity prevents them from claiming the spaces they do have available to them. Caught in a rule-bound and centralised command and control system, with upward flows of reporting and little reciprocal downward responsiveness, it is not surprising that the meso-level is often perceived as a passive player, *"missing from the equation"*.

Meso-level strategies of change

Interviewees offered insights into the range of strategies to mobilise the meso-level away from a dominant compliance culture. As one pointed out *"it is possible to give people back their agency, but I don't think it happens just automatically."*

Strengthening relationships

Promising experiences of partners and from the Mphatlalatsane project itself had in common investment in strengthening relationships, whether this entailed bringing the right people into the room, engaging all levels of the system vertically, or enabling horizontal networks of exchange. For example:

"there was a lot of animosity between the district hospitals and the clinics, they hated each other. So we still needed to fix that relationship. So now they view each other as one unit… it is not a hospital and PHCs, they actually call the hospitals their mum. We have developed a Whatsapp group where all our managers and champions are on that group and they encourage each other all the time."

"[commitment] was catalysed by the initial workshop that we did for the leadership briefing where we had different levels of meso and macro level managers coming into one group … and realising that they can work together…."

Building constituencies for change was a painstaking process, requiring mentoring over long periods of time.

"… it takes a lot of motivation, a lot of hand holding because you have to spend, sometimes you have to spend three, four nights just there and trying to motivate them and trying to support them to deliver so that they can gain the confidence and they can feel that this is what they can do and this is what they are supposed to be doing."

Ownership came from processes of co-production or co-design with provincial and district actors, drawing on the tacit knowledge of local actors, and not imposing a single-size-fits-all approach.

"The first meeting was a disaster because it was led by Vula and there was this kind of deathly silence from all the clinicians, who landed up after an hour and a half saying, well, it's not as if we've never thought of this before, we have our own thinking around referral systems. [Project partner] persuaded the obstetricians and the clinical managers to do their own presentation in the next meeting. So, they did their own presentation on their referral system problems and ideas and suggestions, and then [project partner] introduced Vula and it worked like a charm."

"… we learned quite a lot from our previous experience that if we are going to implement any changes or any ideas that we would like to see, there is a need to actually locally adapt this to the context that we are working in. And if that's not being done with teams at the

provincial level, teams at the district level, teams at the sub-district level, and then teams at the facility level - then we will not see any gains being sustained. So, the ownership needs to start from the beginning."

Box 1 describes a participatory workshop methodology for developing an adapted referral system at district level.

Box 1: Participatory workshop to develop obstetric referral systems

it was done in Kwazulu-Natal where we were using four scenarios as a workshop to improve communication and management of cases. This [was] all related to the ESMOE programme, which provinces bought into and obviously EMS were very keen to get into, so we had buy-in from the management… We were able to run workshops where we had some of the managers and some of the people from EMS, and we asked for people from each district. …we [then] went to a few districts and they had the EMS people from that district, plus some ambulance people. We had the CEOs and key clinician of the hospital and we had midwives from the clinics, and we had someone from the tertiary hospital. Then we put them in their various places, so the EMS sat together and they had to have a station commander, because if you refer anyone, then the midwife at the clinic has to phone the station commander and then … there's a person that receives the call [at the call centre] and then they transmit the call.

So for example, there was one [scenario] where there was a sixteen-year-old who was brought in by her parents. Was fitting at home and is obviously pregnant, and that's at a clinic. So, then the clinic had to say what they would do, then how would they refer. So, then they had to go through the process of phoning the call centre. The call centre then dispatches an ambulance. And then the clinic, what they would do for the patient before getting into the ambulance, what the ambulance people would do while the woman is in the ambulance. Then communication between the tertiary hospital and what they were told and what information. So, we did roleplay of that whole thing… a whole lot of problems were brought up. So, for example, the EMS is not allowed to administer magnesium sulphate or anti-hypertensives. The EMS personnel are not allowed to do vaginal examinations or bimanual compression of the uterus or someone who's got post-partum haemorrhage.

And they had to … accept that the major barriers are not money, the major barriers are that people feel disempowered to implement the simple things that would make a difference.

Strengthening the meso-level also requires new system mindsets, especially amongst clinicians used to managing individual patients. An example of this is in Box 2, which describes the process of establishing the Limpopo Neonatal Response Team (LNRT), linking district, regional and tertiary services, and involving 'champions' at each level. A similar, Limpopo Obstetric Response Team was also established.

Box 2: Establishing a system of specialist neonatal outreach in Limpopo

When the DCSTs were disbanded, we went to the [tertiary level] specialists, [saying] this is the new model [of outreach]. They looked at us as though we were crazy that we were saying that they must go and do what? What about the patients in their hospital? So they just didn't get the concept that problems at the PHC become your district hospital problems. Problems at the district hospital become your regional hospital problems. Regional hospitals automatically become your tertiary hospital problems.

Our first thing was that we had to get the group together. We had to come up with terms of reference for them to say, guys, this is how we're going to function as a group, these are our roles and responsibility as a group. Then the first port of call we said, okay, give us a status update of newborn care in your district. The first time we did it, our regional hospital champions will tell you about their problems in their regional hospital, in their ward. So then we'd say, okay, but that's not your district, what's happening in the whole district. They couldn't tell us. So we [introduced them] to the tool called FAST [and asked them to] go find out in your district hospitals what's going on, so when you are asked what is happening with newborn care in your district, you're talking about your entire district and not just your little unit in your hospital.

It was the biggest eye-opener for them when they went out to their district hospitals. They actually solved 80% … of the bottlenecks on the spot in their district hospitals. We accompanied some of them… in the Mphatlalatsane catchment sites, where those regional hospital champions solved problems on the spot, long-standing bottlenecks that were causing babies to die, they solved them on the spot. So they are now starting to understand how the whole system works, that they are clinicians, yes, but they are also paediatricians or specialists for the entire district. And their problems in their facility will never go away until they solve the problems in the entire district at the lower levels … it's been an eye-opener.

As indicated in an earlier section, common social media platforms have greatly aided communication and sharing of information, generally reported as a positive (rather than intrusive) phenomenon.

"…We tend to set up WhatsApp groups for ease of communication. So, for newborn care we also have a LNRT WhatsApp group. And when was it…December or January…it was extremely active where the tertiary service newborn champions were actually providing lectures on the WhatsApp group to our managers and district hospitals. And they were even sharing journal article evidence, and the response from our poor district hospitals was amazing. They were saying, we honestly didn't know that. Thank you, please continue sharing with us and teaching us."

Specific strategies and tools

Participatory audits

Several respondents had been involved in participatory audits, using structured processes, that catalysed new ways of thinking and doing. The implementation of the neonatal FAST audits by newborn champions described above is one such example, supported by a well-

developed package of tools, and linked training curricula through the University of Limpopo Trust (ULT).

Participatory audits have been conducted in the Mphatlalatsane sites in rounds, complementing the quarterly collation and reporting of routine indicators:

"We got teams of about ten, a mixture of CHAI [Clinton Health Access Initiative] people and all the consortium people and local people, and we managed to cover the two arms of the wedges in the two places we did it. We managed to cover it in a week."

In Kwazulu-Natal, regular evaluations of hospitals were conducted by district clinical specialists as part of a 'Safe Caesar' package, in which they:

"evaluated every hospital, scored the hospital, and they were regarded as platinum, gold and silver and nothing. So those with nothing were told that they were not safe sites for Caesar, and they had three months to improve... The silver, they had two areas that were missing on the score of 12 and they were given six months to improve… The gold had one aspect missing. And the platinum, they had all aspects, which would be reviewed after a year. And if one looks at the deaths due to bleeding during or after Caesarean section as an indicator, that plummeted. They had very, very few deaths now due to bleeding … They can implement change and they are quite stable at the meso level."

Meso-level PDSAs, activity matrix and escalation protocol

The NDOH Mphatlalatsane designers proposed a strategy of replicating the plan-do-study-act (PDSA) approaches at the meso-level, combined with an activity matrix and an escalation protocol (see Figure 3 earlier).

The PDSA at a management level would *"lead people through, what are their processes, where are the blocks happening, could they test changes, just as we do at the frontline level… not just the empowerment at the frontline, but also the enablement at the next level up."* It would *"help people through very practical things … looking at real problems, real delivery, real challenges, real blockages and for them to work out how they themselves can solve these problems."* Problems requiring action at other levels could be mapped on the Activity Matrix, which assigns responsibility at different levels of the system, based on resource requirements. As noted earlier, the escalation protocol, *"is to document the effort they are making to try to get [higher levels of] the system to function and then, to take that documentation to the next level."* This, however, requires buy-in and agreement at all levels so that those raising problems at lower levels of the system do not *"feel threatened if they open their mouths."*

These proposals are structured mechanisms that simultaneously seek to enable agency, voice and greater responsiveness to the frontline, *"by depersonalising it … by turning it into a protocol … that the head of the district agrees that this will happen, and by implementing it in a way that focuses on processes, not people."*

Although these mechanisms were introduced into the Mphatlalatsane sites, further implementation was interrupted by the advent of COVID-19.

District referral pathways and M&E systems linked to guideline training

The approach adopted by the University of Pretoria/SAMRC to introduce new guidelines - whether ESMOE, Kangaroo Mother Care, Basic Antenatal Care, hypertension – has been through on-site 'saturation' training at district level. This provides the opportunity to simultaneously establish meso-level systems, whether referral (as described in Box 1) or M&E.

"for the training we had to train at least eighty per cent of the personnel involved in maternal and neonatal care and we held two workshops a week, in the districts for eight weeks until we had saturations and then we moved on to the next district. At the same time we had a monitoring and evaluation process going. So it is a part of the programme for implementation. The clinical specialists were a lot of the trainers and organizing the referral pathways and all that was part of the actual process of implementing the program."

The 3-feet model

The 3-feet model, currently being implemented in Mphatlalatsane districts, was developed by the national Department of Health as an approach to improving quality and outcomes, centered on real-time mortality surveillance and responses at the meso-level. A local governance mechanism – the Monitoring and Response Unit – is established in the basic service delivery unit at sub-district level, creating functional coordination between community, clinic and district hospital services, and between line managers, clinicians, health programme and information managers. The MRU focuses on outcomes and contributory factors to MN mortality, integrating real-time evidence into decision-making and building responses based on local decision making. The emphasis thus shifts from standard facility-level mortality or morbidity surveillance to a meso-level, sub-district clinical and outcomes governance mechanism. The 3-feet model is supported by structured reporting, decision-making and monitoring tools and a training package. The model of the MRU informed the integration of Monitoring and Response Forums (MRF) in the revised District Health Planning framework.

Peer networking

A key strategy in the inception phases of Mphatlalatsane was to convene a series of "Learning sessions" to enable sharing and dissemination of innovations on quality. This was to occur within sub-districts, between sub-districts in a district and between provinces in a "national quality forum". Learning sessions were implemented in one province prior to the advent of COVID-19. Such mechanisms of peer engagement and lesson learning build non-hierarchical informal and collaborative networks that empower frontline and meso-level actors, and hold promise for the future.

Conclusions

Drawing on the insights from the Mphatlalatsane initiative and partners, this briefing document has sought to concretise the role and capabilities of the meso-level in maternal and neonatal quality and outcomes, and the associated system capacities required to fulfil this role. Emphasis is placed on the basic unit of service delivery (district hospital, surrounding PHC, EMS and other services), and first level of governance, namely the sub-district, supported by the district health system.

Despite their pivotal role, however, sub-districts and districts are generally regarded as weak, "missing from the equation", or even actively disabling. The challenges at this level are rooted in wider system weaknesses that affect all health programmes.

We nevertheless report on positive experiences with strengthening the meso-level that offer guidance for the way forward. The most promising practices invest heavily in building relationships over time, adopt participatory approaches and seek co-production; they recognise that "enabling agency" is not simply a matter of tools and techniques, but also of cultural shifts, and of removing constraints on innovation and decision-making at the meso-level – whether these constraints lie in the lack of formal delegations, low capacity or the wrong kinds of accountability processes.

The first step in supporting the meso-level should thus to 'do no more harm', through top-down audit and reporting systems that entrench upward reporting and compliance, divorced from real everyday problems. A better balance is required between core system rules and enabling local problem solving and innovation. Secondly, reconfiguring and creating greater coherence in roles and structures of the district and sub-district systems is required, accompanied by widened decision-space. This includes establishing coordinating and accountability mechanisms focused on quality and outcomes, starting at the sub-district level. While greater formalisation of roles and structures will enable change, it is also important to recognise that there is no single one-size-fits-all recipe to strengthening the meso-level.