

A Formative Assessment of Nurses' Leadership Role in Zambia's Community Health System



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Abstract

Background: Despite its achievements in decreasing HIV prevalence and under-five mortality, Zambia still faces high maternal and neonatal mortality, particularly in the rural and remote areas where almost 60% of the population resides. After significant investments in developing its community health system, the Zambian Ministry of Health was interested to understand how to leverage the role of nurses to sustain achievements made and further improve the quality of care in rural communities. The Ministry joined research partners in an assessment into the role and leadership capacity of nurses heading rural health facilities.

Methods: A seven-member research team conducted 30 in-depth interviews and 10 focus group discussions in four provinces with four categories of respondents: national decision-makers, provincial and district managers, rural facility staff and community respondents (neighborhood health committee members and volunteers). An initial scoping visit and literature review informed the development of specific interview guides for each category of respondent. After audio-recording and transcription, research team members identified and reached consensus on key themes, and presented and validated the findings at a national stakeholder workshop.

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Results: Zambia's front-line health teams are a complex mixture of professional facility staff, community providers, community-based volunteers and neighborhood health committees. Nurses and nurse-midwives head over half the rural facilities in Zambia, where they are expected to lead the delivery of safe, high-quality care with staff and volunteers who often operate beyond their level of training. Nurses and midwives who are assigned to head rural facilities are not adequately prepared or recognized for the leadership responsibilities they are expected to fulfill.

Conclusions: This paper highlights opportunities to support rural facility heads in effectively leading front-line health teams to deliver primary healthcare to rural communities. Front-line teams require a leader to coordinate and motivate seamless and sustainable quality services that are accessible to all. Zambia has the potential to support integrated, responsive quality care and advance toward universal health coverage if nurses are adequately prepared and recognized with job descriptions that reflect their responsibilities and opportunities for career advancement.

Background

Zambia has invested heavily in its community health system. These investments have paid off in improved service quality as well as reduced infant, under-five and maternal morbidity and mortality and decreased HIV prevalence over the past 15 years (Central Statistical Office (CSO) [Zambia], Central Board of Health [Zambia], and ORC Macro 2003; Central Statistical Office (CSO) [Zambia], Ministry of Health (MOH) [Zambia], and ICF International 2014; United Nations Development Programme (UNDP) 2013). However, Zambia still faces high maternal and neonatal mortality, particularly in the rural and remote areas where almost 60% of the population resides (Population Reference Bureau (PRB) 2015; World Bank. Rural population (% of total population) n.d.).

Most (85%) of Zambia's health facilities are government-run (Ferrinho et al. 2011). Public-sector health services in rural and remote areas are delivered by a variety of service providers working with and/or around rural health posts (RHPs) and rural health centers (RHCs) expected to serve catchment populations of approximately 3,500 and 10,000, respectively (Ferrinho et al. 2011). The RHPs are intended to extend the services of RHCs to be more broadly

accessible. The heads of these rural facilities shoulder wide-ranging responsibilities. These include supervising facility staff and volunteers, overseeing the administration of the facility, managing commodities, being on call after hours, coordinating neighborhood health committees (NHCs) with village leaders and volunteers, responding to emergencies or outbreaks, and generally standing accountable for the quality of services provided.

Official Zambian staffing policies dictate that RHCs are to be led by either a clinical officer or a registered nurse-midwife and that enrolled nurse-midwives serve as heads of RHPs. Because RHP staff respond to a wide variety of primary care and maternal and child healthcare needs and also oversee community health providers and volunteers, RHPs ideally require experienced clinical staff who are trained in nursing and midwifery. However, with ongoing health worker shortages and difficulty in retaining clinical officers in Zambia's rural areas (Makasa 2008), over 60% of rural facilities are led by one of the country's various nursing cadres. Zambia's nursing cadres include registered nurses, registered nurse-midwives (generally referred to as registered midwives), enrolled nurses, enrolled nurse-midwives (referred to as enrolled midwives) and BSc nurses,

who are qualified to teach. Registered and enrolled midwives are more highly trained than registered and enrolled nurses. As the government pursues its campaign to construct and staff 650 new RHPs across Zambia (Ministry of Health [Zambia] 2011), the percentage of rural facilities led by nursing cadres will only increase. When circumstances place nurses in charge of rural facilities, they need to be equipped with the clinical and managerial/leadership competencies that high-demand and low-resourced rural facilities require and should be recognized for their leadership and wide-ranging responsibilities.

In 2012, Zambia deployed its first cohort of community health assistants (CHAs), a new community-level cadre trained, staffed and paid as part of the 2010 Ministry of Health National Community Health Worker Strategy (Ministry of Health [Zambia] 2010). CHAs spend 80% of their time in the community working directly with families and community-based volunteers (CBVs), and 20% of their time in RHPs assisting the nurse in charge. With this new addition, the Zambian Ministry of Health and the former Ministry of Community Development, Mother and Child Health (MCDMCH) recognized the need to more clearly define the front-line health teams working at the community level and better understand the role of the facility heads who lead those teams to deliver high-quality care.

As a prerequisite to building the necessary capacity of the nurses who head up rural facilities, and to adequately recognize their position and define their grade, it is important that actors at all levels of the health system (from national decision-makers to local staff and volunteers) understand the roles and responsibilities that rural facility heads currently perform. Comprehensive information on how the front-line team performs as a whole is lacking. Further, whereas there is ample research addressing the role and leadership capacity of nurses in

primary healthcare settings, little attention has been paid to the relationship between community health nurses and community health teams in Zambia or elsewhere (Appendix 1, available at: https://www.longwoods.com/content/25305, notes the various cadres and groups that may participate in Zambia's rural front-line teams.)

To this end, the Zambian Ministry of Health invited the Primary Health Care to Communities (PHC2C) partnership to lead a formative assessment into the role of nurses heading rural health facilities and their capacity for leading quality care. The PHC2C partnership – formed in 2014 by IntraHealth International, the International Council of Nurses (ICN), the Dalhousie University WHO/PAHO Collaborating Centre for Health Workforce Planning and Research, the University of Zambia (UNZA) School of Medicine, mPowering Frontline Health Workers and Johnson & Johnson - seeks to strengthen community health systems toward achieving universal health coverage. Johnson & Johnson and IntraHealth provided resources to support UNZA and PHC2C partners in carrying out the assessment in 2015. This paper presents key findings and highlights opportunities to support rural facility heads in effectively leading front-line teams to deliver safe and high-quality primary healthcare to communities.

Methods

Design and setting

the research design and the evaluation framework were developed collaboratively by the members of the PHC2C global advisory group and additional researchers from PHC2C partner organizations. The assessment used qualitative methods to generate a rich description of front-line health teams and the role of the registered and enrolled nurses and nurse-midwives who lead them. (For convenience, we refer to "nurses" rather than "nurses and nurse-midwives" in the remainder of the paper.)

An initial scoping visit in May 2015 helped shape the research protocol and the assessment's focus on the role of nurses heading rural health facilities.

The research team selected four of the country's nine provinces (Copperbelt, Eastern, Lusaka and Southern) representing six industrial, agricultural and river-basin districts (8% of districts nationwide). In each district, the team collaborated with district managers to purposively select at least one RHC and one RHP to represent "typical" healthcare provision in low-resource settings. In all, six RHCs and nine RHPs were selected. To gain a comprehensive perspective on the care provided at these rural facilities, the assessment used in-depth interviews and focus group discussions to gather information from four categories of respondents: national-level decision-makers; provincial and district managers and officers; nurses and other clinical staff at RHCs and RHPs and community respondents (CBVs and NHC members). The interviews targeted all four categories of respondents, whereas the focus group discussions primarily involved community respondents.

Instruments and data collection

a review of relevant literature informed the study methodology and the design of separate interview and focus group discussion guides for each category of respondent. General topics of discussion included definition of front-line health team members, service delivery needs, front-line teams' ability to meet those needs, communication, data and technology use, roles of and competencies required by nurses leading front-line teams and barriers or facilitators to high-quality service delivery and effective facility management. All interview guides were extensively pretested with provider teams outside of the study; questions that providers perceived as unclear, subjective, leading or irrelevant were revised for

maximum comprehension and relevance. Providers representing each respondent group also were invited to recommend additional questions or improvements.

To ensure the quality and integrity of the research, the data collection team included six of the researchers (AAF, FMG, CM, MKM, NLC and CK), assisted by one additional data collector. At least two members of the data collection team conducted each interview and focus group, offering respondents the option of being interviewed in English or in a local language. The data collection team members took notes and also audio-recorded all interviews and focus group discussions on two devices.

Analysis

Some data collection team members transcribed the recordings verbatim. Other members of the data collection team then reviewed the transcripts and referred to notes to provide clarification. All transcripts and recordings were stored electronically on an IntraHealth computer and then transferred and saved on a password-protected external drive.

At the end of each day, the research team discussed each transcript and manually extracted and displayed excerpts, notes and quotations on multiple flipcharts to allow for immediate discussion of findings. Using a content analysis approach, research team members later worked both deductively and inductively (Elo and Kyngäs 2008) to identify and reach consensus on key themes. The Zambia Stakeholder Advisory Group (representing key national stakeholders) subsequently validated the findings and provided further insights at a data synthesis meeting.

Results

Participant and facility characteristics

in September and October of 2015, the data collection team carried out 30 in-depth interviews and 10 focus group discussions at the 15 selected health facilities. Almost half of the interviews (13/30) were conducted with clinical staff (nurses, midwives and clinical officers) (Table 1). The remaining 17 interviews were split between the other three respondent categories. Nine of the 10 focus group discussions were with community respondents (CBVs and/or NHC members) (Table 1).

Table 1. In-depth interviews (n = 30) and focus group discussions (n = 10)

Level of respondent	Number of interviews	Number of focus groups
National decision-makers Government ministries* Ministries* and professional associations [§]	3	1
Provincial and district health management team members	7	7
Community level CHAs CBVs NHC members CBVs and NHC members combined	7 ¹ — —	
Total	30	10

^{*}Ministry of Health and former Ministry of Community Development, Mother and Child Health.

The 15 rural health facilities included in the sample reported serving populations that sometimes far exceeded their intended catchment size. Whereas RHPs are intended to serve approximately 3,500 people, three of the nine health posts served from 5,000 to 11,000 people. Two of the six RHCs participating in the study served roughly 10,000 community members, two served closer to 12,000 and one served 18,000. Only a third of the facilities (5/15) had computers and electricity. Several RHPs had recently (within the past two years) been equipped with solar power. Reflecting the more remote locations of some RHPs and RHCs, the facilities were anywhere from 16 to 155 kilometers from the

nearest hospital (mean distance = 57 km). Despite the government's intention to ensure that all populations are within 5 kilometers of a health facility, catchment maps showed that some villages were located 10–12 kilometers from the next facility.

Human resources for health shortages

According to one district medical officer interviewed, understaffed front-line health teams in rural/remote and low-resource facilities "are operating at less than [a] 60% [staffing level]." As a result, study participants described rural facilities as relying on a fluctuating mix of paid staff and volunteers who often have a lower level of training than what formal staffing policies require. The implications for nurses leading rural facilities are that they are accountable for all decisions and the quality of services provided. One registered nurse explained, "At the hospital, decisions are made for you, [but] at the rural health center you have to make your own decisions, and it's a big challenge." Another registered nurse also compared the different levels of responsibility working in hospital versus rural facility settings, stating that at the hospital, "You go back home at the end of your shift, but at the rural health post you live with your patients and you have to be available night and day."

Of the 15 rural facilities visited, only two RHCs were staffed per official staffing policies (by a registered nurse-midwife and a clinical officer), whereas 11 facilities were headed by enrolled or registered nurses. Two rural facilities had no assigned facility head at all and were staffed only by CHAs. At one RHC, an enrolled nurse served as the acting head of facility while the registered nurse nominally in charge was away on a two-year study leave. District managers confirmed that the majority of their rural facilities were headed by registered or enrolled nurses. The Stakeholder Advisory Group commented, moreover, that even when a clinical officer is nominally in charge

[§]General Nursing and Midwifery Council; Health Professionals Council of Zambia; Zambia Union of Nurses Organization.

¹Ten CHAs participated in the seven interviews.

of a rural facility, nurses and nurse-midwives often end up as de facto facility heads because of clinical officers' travel and other competing obligations.

Responsibilities and competencies

The interviewers solicited input from facility heads and staff about the tasks and responsibilities of nurses who lead front-line teams in rural facilities. Interviewers also asked district managers, facility heads, staff, community members and volunteers about the facility head practices they considered most effective for improving quality of care. The responses indicate that nurses who manage RHCs and RHPs have extensive on-the-ground job requirements, including clinical, managerial and operational duties (Table 2). As a nurse in charge of a health center commented:

You have to do two jobs at the same time [supervision and patient care]. There are no shifts, so you work Monday to Sunday – 24 hours – which is very different from the hospital setting. If you are in a hospital and you are a manager, you are there to supervise your colleagues ... You definitely don't screen patients if you are a supervisor in the hospital – but here you do.

Respondents at all levels also described the importance of nurturing collaborative relationships between facility heads, CBVs and other community constituencies (Table 2). An enrolled nurse explained why collaboration with communities is perceived as an essential component of rural health service delivery:

... You cannot just work alone [at] the health center without involving the community ... They are the same people that would tell that "This is what is happening in the community and we need your services here and there." So when I came here, that is the first thing that I did, to say, "... I need to work with these people."

Respondents identified a number of competencies perceived to be important for effectively leading a front-line health team and emphasized characteristics such as respect, attention to quality, responsiveness, independence and flexibility (Table 3). However, respondents noted that nurses heading rural facilities receive very limited management and leadership preparation through their preservice education curricula.

Table 2. Basic activities and effective practices for nurses managing rural health facilities

Basic activities	Effective practices	
"What tasks do you carry out and what are you responsible for?"	"Which in-charge practices are important to improve the quality of care?"	
Assess, screen, diagnose and manage referrals Prescribe and dispense medicines Oversee operations* Manage budgets, including budget shortfalls and allocation of bonuses and incentives Order, allocate and track commodities and medicines Monitor, document and report to district health management teams Supervise staff and CBVs Interface with NHCs Be responsive 24 hours a day	Prioritize and delegate tasks Build cooperative teams Train, mentor and supervise staff Build community relationships Engage NHCs in decision-making Motivate and integrate CBVs Resolve conflicts Remain clinically up-to-date	

^{*}Examples: Replace broken windows, find transportation, ensure water supply, protect against theft.

Table 3. Competencies perceived as necessary for nurses in charge of rural health facilities

"What competencies are needed to better prepare the in-charge to effectively lead their team?

Clinical

Provide services

Deliver respectful care

Ensure delivery of good-quality care

Management

Strategically plan

Manage physical resources

Flow of medicines and commodities; facility repairs Manage human resources

Delegate tasks; Teach, mentor, motivate, retain

Monitor performance

Leadership

Respond to community needs

Negotiate with community

Engage in independent and innovative decision-making Leverage position as facility head to influence change

Quality improvement

Manage and apply data for monitoring and evaluation Use technology for information management, training, monitoring and evaluation

Scope of practice

All of the registered and enrolled nurses in charge of rural facilities described performing clinical tasks outside of their formal job descriptions, including screening, diagnostic and prescribing activities that exceed their training and licensure. A provincial medical officer observed, "All [rural nurses] work outside scope of work and training due to necessity." In the words of a registered nurse, "When you are the in-charge, you are a doctor on your own."

One of the most noteworthy problems identified was the fact that the enrolled and even the registered nurses who are put in charge of rural facilities typically lack the midwifery skills required in low-resource environments to effectively recognize and respond to maternal health needs. Without such skills, head nurses lack the necessary training to recognize signs of delivery and postpartum complications or guide their team to do the same. Respondents lamented the absence of mechanisms for nurses to acquire experience or improve their clinical skills as well as the absence of regulatory

adjustments to officially acknowledge and expand nurses' scope of practice. Although the Zambia Union of Nurses Organization (ZUNO) negotiated a modestly higher professional standing for registered nurses who are deployed to lead RHCs, there has been no corresponding adjustment for enrolled nurses. Further, respondents emphasized that nurses who lead RHCs and RHPs lack a job description that explicitly delineates their unique role as heads of rural facilities and outlines the additional responsibilities and tasks that differentiate their expanded roles from the standard job descriptions that already exist for registered and enrolled nurses and nurse-midwives.

Management of front-line teams

Respondents repeatedly pointed to the unique features of front-line rural health teams, which consist of paid staff and volunteers with varying skills and educational levels who are both facility- and community-based. These features give rise to special clinical and managerial challenges. A number of comments pertained to oversight of CHAs and CBVs.

CHAs

Most of the nurses heading up rural health facilities described positive experiences with the CHAs on their team, and nearly all CHAs reflected the same positive feedback about nurses in charge. Two CHAs working in a rural health center commented:

They [the nurse in charge] were really encouraging. They were supporting us in everything that we were doing. They were not able to look down on us and say "These are just CHAs and they don't know anything." They accepted us ... They even included us on their worksheet [staff shift schedule] ... And where you did not know something, they would show you what to do.

One registered nurse heading an RHC trained CHAs and deployed them to staff - on their own - a previously unstaffed RHP five kilometers away. The two CHAs reported feeling confident and secure in their abilities, supervised by the facility head through weekly visits and regular texting and phone contact. On the other hand, some CHAs perceived the need for stronger supervision and clearer lines of authority. One CHA expressed frustration about the facility head's lack of understanding: "I don't think the in-charge has been oriented on our work ... before he can supervise us, he should be taken though the CHA training program."

CBVs

An enrolled nurse heading an RHP described how he assessed the CBVs who show up each morning and considered the day's needs in light of current priorities, available volunteers and supervisory responsibilities. Another nurse facility manager explained the rotation of CBVs in service delivery:

... They usually come here on a daily basis ... There is one who ... comes every Tuesday, that's the day that we have under-fives ... we work together. Then every time we have family planning on a Wednesday, there is one who comes, he is the one who deals with family planning ... we work together. And every Friday, that's the day that I have antenatal, so the TBAs ... they are the ones that I work with.

An enrolled nurse reported going so far as to train a CBV to deliver babies under his supervision. Posted alone at an RHP for three years and only recently joined by another nurse (for a total of two trained providers for over 2,500 people), the head nurse explained how he had identified CBVs with the capacity to help with clinical tasks. After "training"

and supervising one CBV to deliver babies, the CBV transitioned from giving assistance to the nurse with deliveries to receiving assistance from the nurse. The nurse explained that without another person to help with deliveries and other clinical services, he would be unable to respond to urgent needs.

Several nurses in charge of rural facilities described creative strategies for incentivizing CBVs, who are not remunerated for their work. For example, one RHP head reported setting aside small amounts of the post's budget to help volunteers defray food or transportation costs. Another RHC head "promoted" volunteers when they performed exceptionally well by assigning management responsibilities to coordinate other volunteers. CBVs in turn acknowledged that their working relationships improve when in-charges "come to the community from time to time to see what we are doing." When nurses in charge do not demonstrate interest in and appreciation of CBV efforts, the CBVs experience a lack of connection with facility staff and declining motivation. One CBV commented, "We felt that we were not important; I used to bring clients here for their [antenatal care] visits, but now I don't come to the facility very often."

Community relationships

Provincial and district managers emphasized that facility heads play an important bridging role with communities. One district medical officer commented,

We have seen that there are [rural health] centers where relationships with these community groups and the [center] are flourishing – and others are not so well – this makes a difference. We attribute this to the leadership competency of the in-charge. When there is a problem, and you change the in-charge, you can make a difference.

The focus groups with NHC members and CBVs confirmed that community members discuss the comportment of the facility head nurse and scrutinize their level of community engagement. NHC members and CBVs from several facilities explained how villagers take note when a facility head comes to a community promotion or to an "under-five day," the one day each month when staff and volunteers go into the community specifically to provide services for children under five. Being accompanied by a facility head in a white coat attaches credibility and importance to the role of CBVs and NHCs as members of the front-line health team, making community members more responsive to CBV and NHC messages. NHC respondents also furnished detailed examples of the goodwill engendered by household visits made by in-charge nurses during neighborhood outreach activities. A different type of story was shared at an RHC, where several consecutive facility heads had been "run out" of the community. Community members had complained to the district and refused to use the facility because they had not developed a positive relationship with the nurses in charge. The current facility head reversed this trend and attracted community support after personally home-delivering medicines to get to know residents. All of the community focus groups highlighted "patience," "listening," "willingness to explain" and "respect" as important qualities for in-charge nurses.

Discussion

To effectively address its community health challenges, Zambia must sustain the achievements of the last decade and formalize mechanisms that enable its community health system to provide high-quality services to all. Leadership at the ground level is essential to this effort. Zambian stakeholders also have acknowledged the well-documented challenges of recruiting and retaining physicians and clinical officers in

the country's rural, low-resource environments (Goma et al., 2014; Gow et al., 2013). The assessment results, which reflect the voices of actors on the front lines who directly contribute to improving health in rural areas across Zambia, confirm that the pivotal responsibility of leading rural facilities has increasingly fallen to lowerlevel nurses who end up performing broader duties that are not part of their existing job descriptions. Nurses who head rural facilities are accountable for performance indicators that demonstrate service quality and improved population health, but receive no professional training, recognition or academic standing, and lack opportunities for appropriate advancement and salaries. Further, nurses' management responsibilities extend well beyond supervising trained clinical staff, involving oversight of a diverse front-line team and engagement of community stakeholders. At the same time, nurses in charge of rural facilities face multiple challenges linked to their facilities' limited resources that make it difficult to exercise effective management and leadership.

The assessment results support the conclusion that the training that enrolled and registered nurses receive during preservice education is inadequate for the varied clinical, supervisory, and operational duties that they are asked to assume as facility heads, or for the more subtle but vital leadership responsibilities of developing community relationships and influencing cooperation. The curriculum for enrolled nurses includes only 32 hours of management theory, which does not address practical management of facility budgets, commodities, operations and human resources. The preservice management and leadership curriculum for registered nurses, while slightly more in-depth, does not prepare nurses for the complexities of solving problems in the absence of resources, creatively motivating team members or building facility-community linkages.

As front-line health teams take on ever greater importance, nurses in charge must be able to respond to a wide range of constituencies while identifying creative ways of motivating and rewarding staff and volunteers to achieve service goals and health objectives.

The assessment data – discussed and validated by provincial and national policy makers – generated a number of recommendations that seek to leverage and reinforce nurses' role in leading front-line teams to maintain and advance community health progress. Core recommendations focus on improving preservice and in-service training, revising job descriptions and capitalizing on facility heads' potential as advocates.

Training

Nurses who become de facto heads of rural and low-resource health facilities must acquire the core competencies and leadership and management skills they will need to oversee skilled and unskilled staff and volunteers. Respondents at the facility, district and provincial levels recommended that nurses receive broader management training – focusing on skills such as coordinating and managing both physical and human resources, providing supervision and mentoring, building teams and carrying out monitoring and evaluation -as well as leadership training to build skills in communications, decision-making and problemsolving. A promising partnership between ICN and ZUNO offered continuing professional development to build nurses' communication skills and enable them to exercise greater influence at work and in the wider health sector (International Council of Nurses 2015). However, the training was aimed at nurses working at the district level and above and did not reach communitylevel nurses.

Stakeholders also highlighted the advantages of cross-cadre training to improve community health team efficiency.

Front-line teams rely on close collaboration between facility staff, volunteers and NHCs. One stakeholder described a successful district-level effort where facility staff, community members and district health management teams jointly clarified CHA roles, resulting in stronger ties and improved work practices. Stakeholders noted the importance of community-based training opportunities such as in-person workshops but pointed out that, while valuable, these often require that clinical providers leave their facilities unstaffed.

Job descriptions

Respondents and stakeholders strongly recommended that nurses placed in charge of rural health facilities be formally recognized through revised job descriptions tailored to nurses' roles and responsibilities as facility heads, accompanied by a commensurate salary range. A job description that stipulates the core competencies required to oversee delivery of quality care in low-resource environments can make it clear that the nurses posted to these positions should be adequately trained and prepared for the unique challenges they will face. Moreover, a job description specific to a posting as head of a rural health facility should differ from job descriptions for enrolled or registered nurses working in higher-resource environments or leading teams or wards in hospitals or larger clinics, where the different cadres have more discrete roles with clearer reporting paths. In addition, policies need to recognize that nurses who meet the job requirements and possess the necessary competencies to take on the increased responsibility of being in charge of a rural facility merit recognition. Institutionalizing job descriptions that accurately reflect the breadth of rural facility head responsibilities and the depth of their contributions can highlight the position's importance and establish it as an advance in a career path.

Advocacy

Rural facility heads sometimes advocate for community needs with district managers and could expand these advocacy efforts to be more evidence-based and more broadly effective. Advocacy by facility heads can include efforts to acquire more resources for the facility, recruit additional staff and support CBVs. Although nurses leading rural facilities do not currently have meaningful input into broader strategic planning discussions, they are ideally positioned to play a more significant community-district liaison role and take part in policy discussions, strategic planning and advocacy for development needs. Facility heads also have the potential to develop considerable stature in their communities and may have untapped opportunities to influence attitudes and cultural norms. In short, nurses leading rural facilities are well suited to integrate the contributions of community members, volunteers and facility staff so that each group's role is coordinated toward the common goal of providing consistent, seamless and high-quality services.

Limitations

The assessment results should be considered within the context of methodological limitations. Principal among these is the possible concern of some respondents with social desirability and representing the rural health system in the best possible light. However, given that the assessment produced numerous findings illustrating problems and challenges, it seems unlikely that social desirability significantly biased the results in a positive direction. A second limitation is that while the assessment generated a large volume of qualitative data, in-the-field logistic constraints prevented the research team from using qualitative software to manage the data and facilitate the analysis process. On the other hand, regular and thorough team debriefings after each round of data collection as well as the

involvement of the Zambia Stakeholder Advisory Group helped zero in on and validate the most important themes. Overall, the assessment paints a rich and detailed picture of Zambia's front-line health teams, capturing nurses' perceptions of their leadership and management responsibilities as facility heads, complemented by the perspectives of the CHAs and CBVs that nurses oversee, the neighborhoods they serve and the district and provincial managers who supervise them.

Conclusions

The Zambian government seeks to build a community health system that offers "equity of access to quality, cost-effective healthcare as close to the family as possible" (Republic of Zambia 2006). Our assessment results indicate that the role of facility head at rural health centers and health posts – a position primarily occupied by nurses - merits recognition for its unique management, leadership and clinical responsibilities. The country's community health system can be strengthened considerably if nurses' intrinsic qualities are leveraged with further training and recognition. The evidence furnished by the assessment can inform recommended adjustments to the Nursing and Midwifery Act for a job description and certificate-level training to establish the competencies that will help nurses and midwives lead rural facilities most effectively. The government of Zambia and its partners need capable hands to nurture their community health investments so that they yield measurable and sustainable success. Adequate, prepared and motivated human resources are vital to continue advancing the rural health system with improved access to commodities, technologies and other modern tools for improved service delivery. With adequate institutional support, nurses who lead rural health facilities in Zambia have an opportunity to strengthen the community health system to an ever greater degree.

Declarations

Ethics approval and consent to participate

The study protocol received ethical approval from the University of Zambia's Biomedical Research Ethics Committee and IntraHealth International's institutional reviewer. All study participants provided verbal informed consent and were offered a copy of the consent form, with another copy dated, signed and retained under locked storage by the data collection team.

Availability of data and materials

The data generated and analyzed during the study are not publicly available because they contain information that could compromise research participant privacy. The authors declare that the principal data supporting the findings of this study are available within the article. Further details about the study and datasets generated and/ or analyzed during the study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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