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Women's and Health Workers' Voices in Open, Inclusive Communities and Effective Spaces (VOICES): Measuring Governance Outcomes in Reproductive and Maternal Health Programmes

Anne K. Sebert Kuhlmann, Sara Gullo, Christine Galavotti, Carolyn Grant, Maria Cavatore and Samuel Posnock*

Given the growing popularity of the social accountability approach to governance, we developed and tested measures of governance outcomes to evaluate maternal and reproductive health social accountability interventions. We articulate a theory of change for how CARE's Community Score Card©, a social accountability approach, 1) empowers women, 2) empowers health workers and 3) creates expanded, inclusive and effective spaces for the two to interact. Our measures worked well in surveys of women and health workers. For women, eight of 13 scales had alphas ≥.70. For health workers, five of 11 scales were ≥.70; four were .60–.69. To our knowledge, this is the first attempt to develop comprehensive measures of governance outcomes to evaluate a social accountability approach for maternal and reproductive health.

Key words: Social accountability, governance, CARE's Community Score Card©, reproductive and maternal health, measurement

1 Introduction

Social accountability, as an approach to governance, centres around citizen engagement in processes that strive to improve public sector performance and hold service providers and other actors accountable (World Bank, 2003). Over the last decade, the global community has developed a variety of social accountability approaches and tools, as studies have shown that improved governance can improve uptake, quality and effectiveness of services. Recently, these approaches have grown in popularity as a means to achieve global maternal and newborn health goals (iERG, 2013; United Nations Secretary-General Ban Ki-moon, 2010). Although few in number, randomized controlled trials of social accountability approaches used in the health sector have demonstrated significant improvements in a range of

*Respectively, Saint Louis University, College for Public Health and Social Justice, (sebertkuhlmanna@slu.edu); CARE USA, (sgullo2@care.org); CARE USA, (cgalavotti@care.org); CARE USA, (cgrant@care.org); and CARE International U.K, (cavatore@careinternational.org); Georgia Institute of Technology, School of Psychology, (sposnock3@mail.gatech.edu). The authors would like to thank the CARE Malawi team who helped refine the conceptual model and measures.

outcomes, including reductions in health provider absenteeism, increases in use of family planning and of health facilities for childbirth, attendance at prenatal care, improved child weight and reductions in under-five child mortality (Björkman and Svensson, 2009; Björkman et al., 2013; Gonçalves, 2014; Touchton and Wampler, 2014). The social accountability evidence base is limited, however, and results overall are still mixed (Boydell et al., 2014; Fox, 2014; Gaventa and McGee, 2013; Joshi, 2013).

Social accountability approaches exemplify the political/democratic aspect of Brinkerhoff's accountability framework (2004) in that they are mechanisms designed to build relationships and trust between service providers and citizens, to ensure that services are responsive to citizens' needs and standards are upheld, and to monitor that services are fair and equitable in their delivery. Recently, several authors have stressed the importance of contextual factors to the success of social accountability as an approach to governance (Brinkerhoff and Wetterberg, 2015; Boydell et al., 2014). For example, the level of decentralization in decision-making and the existence of space for citizen engagement in governance processes (Brinkerhoff and Wetterberg, 2015) may play important roles in the implementation and effectiveness of such strategies. In CARE's experience, the national context, the local governance and service delivery context, and the relationships between service users and service providers, all influence how social accountability programmes operate and help dictate what adaptations might be necessary in different enabling environments (Wild et al., 2015).

Several factors have been identified as important drivers of the success of social accountability approaches in the maternal and reproductive health sector. These include their effectiveness in generating demand for better services, leveraging intermediaries and sensitizing community leaders and health providers to the needs of women (Papp et al., 2013) as well as generating partnerships that involve citizens, government representatives and health officials working together (Global Health Visions, 2015). Yet, many studies do not clearly articulate the underlying theory of change, nor measure the governance variables – such as empowerment, trust or collective action – that are assumed to be driving that change (Gaventa and McGee, 2013; Joshi, 2013).

The growing popularity, and promise, of social accountability approaches within the health sector makes fostering good evaluation research to ensure that these approaches 'actually deliver benefits for women and children' (iERG, 2013) particularly important. The purpose of this article is to describe CARE's approach to social accountability in health, articulate the theory of change and share the novel measures of governance developed to evaluate the impact of one social accountability approach – the Community Score Card© – on governance processes and health service delivery outcomes in Malawi. As global research on social accountability in health continues to expand, we hope these measures will be of use to others attempting to evaluate programme effectiveness.

2 Background

2.1 Our approach: CARE's Community Score Card©

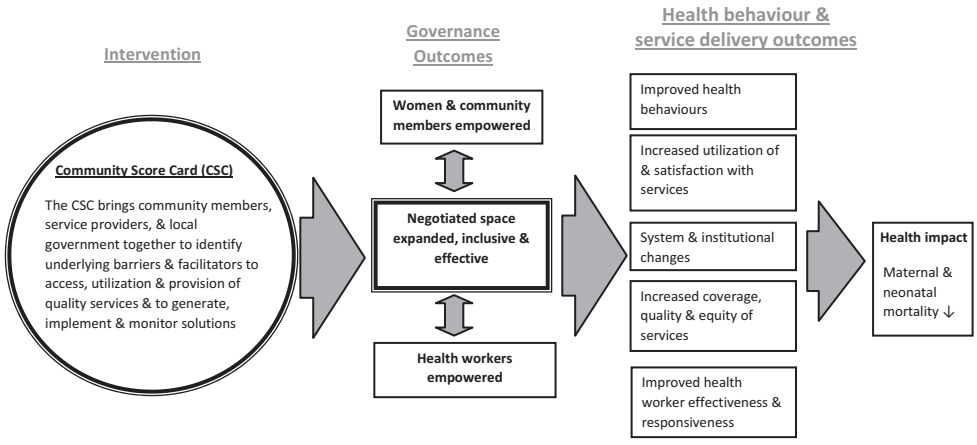
In CARE's experience, social accountability is a key strategy for linking the community and the health system in a way that can result in increased utilization, quality and equity in service delivery and outcomes. In 2002, CARE Malawi innovated a social accountability in health approach known as the Community Score Card© (CSC) (CARE Malawi, 2013). Numerous partners, including the World Bank, have since adopted the CSC and applied it in a variety of sectors. CARE's CSC brings together the community, service providers and power-holders (for example, local and district authorities), in a mutual process of identifying needs, concerns and barriers to effective service delivery and healthy outcomes. As part of this negotiated process, indicators are developed and 'scored', action plans are developed and implemented, and progress is tracked regularly by the community, service providers and power-holders in a mutual process of accountability for health. Working together builds awareness and understanding, as well as trust and motivation to act, which leads to improved responsiveness of the health system to the community's needs, as well as improved outcomes (ibid.).

2.2 Theory of change

The theory of change for the CSC (see Figure 1) is based on CARE International's Governance Programming Framework (GPF) (CARE, 2011). The adaptation of the GPF to maternal and reproductive health focuses on three key ingredients: 1) empowering women and service users, 2) empowering health care service providers, and 3) creating spaces for service users and service providers to engage in constructive dialogue and negotiation. Within the context of the maternal and reproductive health sector environment in Malawi, we operationalized the empowerment of women to include concepts such as women's status in the household, women's involvement in household decision-making, and promoting the confidence and autonomy of women to access specific maternal and reproductive health services and managing their expectations and perceptions thereof. For health care workers, empowerment in this context includes knowledge of their rights as providers, their perceptions of the maternal and reproductive health services they deliver and their ability to influence the quality of these services, and their relationships with the patients they serve. The CSC may be particularly good at improving the patient-centred dimensions of service quality because it is designed to facilitate the relationship between frontline health workers and the patients they serve. Therefore, the theory of change states that in order to achieve positive, sustainable and equitable health and service delivery outcomes: 1) women and community members must be empowered, 2) health workers must be empowered, and 3) spaces for negotiation ('negotiated spaces') must be expanded, inclusive and effective. These three domains of governance outcomes within our social accountability approach are not mutually exclusive; rather, they interact and

influence each other, resulting in improved health behaviours, increased utilization and satisfaction with services, and a more responsive, effective, accountable health system (for example, system and institutional changes, increased coverage, quality and equity of services and improved health worker performance). The ultimate result of changes in all of these domains is reduced maternal and neonatal mortality.

Figure 1: Community Score Card (CSC) theory of change



2.3 Measures

A cluster-randomized trial of the CSC is being conducted in Malawi, focused on reproductive and maternal health service delivery and outcomes. As part of the baseline data collection for the randomized trial, measures of key components of the theory of change were developed. These measures are part of two multidimensional survey tools – one for women called Women's Voices in Open, Inclusive Communities and Effective Spaces (VOICES) and another for health workers called Health Worker's VOICES. These same survey tools, with some minor modifications resulting from the analyses presented here, will be used during the endline data collection for the randomized trial in order to assess change over time as a result of the CSC intervention.

2.4 Study context

Malawi is a small, landlocked, low-income country of approximately 16 million people in southern Africa (WHO, 2015) that is heavily dependent on subsistence farming and fishing along Lake Malawi. Over 80% of the population lives in rural areas (WHO, 2015), and only 61% of the adult population is literate (UNICEF, 2013). Despite tremendous improvements since 2000, Malawi still has relatively poor maternal and child health indicators. Overall life expectancy is only 55 years (UNICEF, 2013) with a total fertility rate of 5.4 (WHO, 2015). Infant mortality is

45 per 1,000 live births (UNICEF, 2013) while the maternal mortality ratio is 510 per 100,000 live births (WHO, 2015). While Malawi's constitution and other legal documents enshrine decentralization of political and administrative authority to the local level, in practice this occurs on an ad hoc basis. Downward accountability in the health sector has been weak. Historically, local government has not been perceived as generally responsive to civic pressure (Wild et al., 2015), so the CSC aims to change this through the empowerment of key actors and the creation of safe, negotiated spaces for their interaction.

Ntcheu district, in the country's Central Region where the CSC was implemented and evaluated, lies half-way between the country's two main cities of Blantyre and Lilongwe along the border with Mozambique. Ntcheu has three hospitals and 33 health facilities administered by either Malawi's Ministry of Health (MOH) or the Christian Health Association of Malawi (CHAM) that serve a population of approximately 470,000. Most of the health facilities offer prevention of mother-to-child transmission of HIV services and youth-friendly reproductive health services; a few provide basic emergency obstetric care. All the MOH's health facilities offer family planning services as do some of the CHAM facilities. Recently, the Government of Malawi has entrusted more authority over health services to the local level and emphasized the role of community health workers, known in Malawi as Health Surveillance Assistants (HSAs), in trying to reduce the country's high burden from maternal and child health issues. CARE's CSC in Malawi is designed to facilitate the engagement of citizens in oversight of health services, the empowerment of frontline health workers and their voice in decision-making processes, and the interaction of local health officials and district leaders with direct service providers and local community members.

3 Methods

3.1 Design and evaluation of measures

Construct development. We drew on theory and past research to develop our measures, adapting measures where needed to reflect appropriately the context as well as our programmatic focus.

Domain 1: Women and community members empowered—The development of empowerment measures for Women's VOICES drew upon CARE's multidimensional quantitative survey tool – Women's Empowerment-Multidimensional Evaluation of Agency, Social Capital and Relations (WE-MEASR©) (CARE USA, 2014) – which consists of 20 short scales measuring women's empowerment in domains critical to maternal and reproductive health. Scales adapted from WE-MEASR© include measures of attitudes and beliefs about gender roles (for example, rejection of intimate partner violence, belief in a woman's right to refuse sex); household power dynamics (for example, participation in household decision-making, self-efficacy to enact health-promoting behaviours); social cohesion and collective efficacy; and structural and cognitive social capital, including membership of and help from community groups.

Where gaps were identified in WE-MEASR©, new measures were developed, including scales to measure women's knowledge and awareness of health rights, participation in collective action and perception of service quality. Several of these constructs were selected because they have been shown to influence women's health behaviours and service utilization. For example, perceptions of service quality may influence a woman's decision on whether to give birth in a health facility (Otis and Brett, 2008; Bohren et al., 2014), and perceptions of service quality as well as autonomy over decision-making can influence a woman's choice to use modern contraceptive methods (Tumlinson et al., 2014; Pulerwitz et al., 2000).

Domain 2: Health workers empowered and responsive—For Health Workers' VOICES, we adapted several of these same measures. These included self-efficacy to improve one's own performance as well as to improve the quality of health services delivered; social cohesion and collective efficacy; perceptions of service quality and service efficacy; and knowledge and awareness of rights – both patients' rights and their own rights to supplies and a safe work environment. Since motivation is critical to health worker performance (Dieleman et al., 2003; Franco et al., 2004; Mutale et al., 2013), we also included scales that measure perception of supervisor support and appreciation, as well as work attachment and satisfaction – key components of motivation, retention and performance improvement (Dieleman et al., 2003; Franco et al., 2004; Kanfer, 1999; Mathauer and Imhoff, 2006).

Domain 3: Expanded, inclusive and effective negotiated spaces—Measures for this domain were informed by the GPF's Monitoring and Evaluation Guidance Note, which highlights the importance of monitoring collaborative and equal engagement between power-holders and citizens, including the most marginalized and excluded, in both formal and informal arenas (CARE, 2011). To ensure that 'negotiated spaces' are expanded and inclusive, as well as conducive to effective negotiations between all parties, these spaces must be transparent, equitable and of high quality. Furthermore, all parties must believe that working together is the best way to achieve impact and that power-holders need to be responsive and accountable. The scales we developed to measure these characteristics include the level of citizen and health worker participation in negotiated spaces over the preceding six months, collective efficacy and mutual responsibility, joint monitoring and accountability, participation in collective action, and the transparency, equity and quality of negotiated spaces.

3.2 Data collection

We examined the psychometric properties of the measures in each of these domains using baseline data from the cluster-randomized trial in Malawi. Data presented here were collected in Ntcheu district, Central Region, Malawi from October to December 2012. The evaluation uses a cluster-randomized control design with ten matched pairs of health facilities and surrounding catchment areas. Matching criteria included presence (or absence) of basic emergency obstetric services, facility administrator (MOH or CHAM), proximity to the Mozambique border and

population size of the catchment area. One of each pair was randomly assigned to the intervention arm. Two cross-sectional surveys, one of women and one of health workers, were conducted at baseline.

In the 20 catchment areas, Women's VOICES surveyed women aged from 15 to 49 who had given birth within the past 12 months – regardless of whether they had delivered in a health facility or not – and whose babies were still living, using a two-stage probability proportional to size (PPS) methodology. Women were interviewed at home in Chichewa, the national language of Malawi. All of the 1,960 women approached agreed to participate, giving a 100% response rate. Of these 1,960 women, nine whose babies had died were excluded, leaving a final sample of 1,951 for analysis.

All 327 health workers (both facility- and community-based) within the 20 catchment areas were eligible for the Health Workers' VOICES survey. These workers included doctors, clinical and medical officers, nurses, nurse/midwives, patient attendants, ward attendants and community health workers, known as health surveillance assistants. Health workers were interviewed in English, their language of professional training. In all, 279 health workers completed the survey, for an 85% response rate.

All participants provided oral consent; no personally identifying information was collected. Malawi's National Health Science Research Committee reviewed and approved the protocol as programme evaluation. Data were double-entered from both surveys into CSPro software. Then, the data were cleaned and imported into SPSS version 20.0 (IBM Corp, 2012). We conducted an exploratory factor analysis in R version 3.01 (R core team, 2013) using the 'psych' package (Revelle, 2013).

3.3 Analytic approach

First, we examined the distribution of responses on individual items, removing items with little or no variability. Then, we ran reliability analyses on each proposed scale to test the internal consistency of participants' responses, and we removed items from scales in accordance with standard procedures (i.e., alpha improved substantially if item deleted). Finally, we considered Cronbach's alpha of .60 to be acceptable reliability and .70 or higher to be good reliability. Scales with Cronbach's alpha of $\geq$.60 were deemed appropriate for repeat use at endline data collection.

In addition to reliability analysis, we conducted exploratory factor analysis for several measures that we had adapted substantially (such as revising wording or adding items), or for which there was little previous empirical support. The raw data consisted of polytomous, categorical data, mostly collected via Likert-type multi-point response scales. We estimated measure dimensionality through exploratory factor analysis of the polychoric correlation matrix for items in a scale. Factors were extracted using maximum likelihood estimation with oblique, direct oblimin rotation to increase factor interpretability. For scales with hypothesized unidimensional structures, a one-factor solution was specified a priori. We dropped items with factor loadings <.4 from the scale. Scales with a substantial proportion of items (>40%) loading <.4 were tested again with a two-factor solution, retaining the more parsimonious model. We estimated one- and two-factor solutions for scales with hypothesized sub-dimensions. We dropped items with loadings <.4 in the two-factor

solution from the scale and corresponding sub-scales. Below, we report on the final scales along with their measurement properties.

4 Results

The women in the survey were, on average, 25.7 years old (±6.3 SD) with babies from their most recent pregnancy that were, on average, 6.4 months old (± 4.3). Nearly 90% of the women were Ngoni; 78% spoke Chichewa as their native language. More than 88% were married or living with their partners at the time of the survey. Nearly 30% were illiterate (see Table 1).

Table 1: Sample characteristics, women's VOICES (n=1,951) & health workers' VOICES (n=279)

Women		***n (%)***
Age, m (±SD)		25.7 (±6.3)
Ethnicity	Ngoni	1,745 (89.44)
	Other	206 (10.56)
Native language	Chichewa	1,526 (78.22)
	Other	425 (21.78)
Current marital status	Married/living together	1,729 (88.62)
	Divorced/separated	118 (6.05)
	Widowed	23 (1.18)
	Never married/never lived together	81 (4.15)
Literacy	Cannot read at all	579 (29.74)
	Able to read only part of sentences	239 (12.28)
	Able to read whole sentences	1,125 (57.78)
	No sentence in required language	2 (0.10)
	Blind/visually impaired	2 (0.10)
Health Workers		***n (%)***
Age, m (±SD)		35.9 (±10.7)
Ethnicity	Ngoni	144 (51.61)
	Lomwe	44 (15.77)
	Chewa	41 (14.70)
	Other	38 (13.62)
Native language	Chichewa	196 (70.25)
	Other	83 (29.75)
Have children of their own	Yes	226 (81.88)
	No	50 (18.12)
Provider type	Doctor/clinical officer	4 (1.43)
	Nurse/midwife	40 (14.29)
	Patient attendant	70 (25.00)
	Health surveillance assistant	138 (49.29)
	Other	28 (10.00)

Source: The author(s).

Nearly half of the health workers were HSAs who support the delivery of preventive health services at the community level (see Table 1). The health workers were, on average, 35.9 years old (±10.7). About 55% of them were women; 52% were Ngoni. Approximately 40% reported spending most or all of their time working in the communities (as opposed to in a health facility). Nearly 85% had worked in his/her current position for more than four years. More than 80% lived at the health facility or in the community where they worked, but nearly 70% were from another area of the country with no family ties to the communities they serve.

Both the Women's VOICES and Health Workers' VOICES survey instruments assessed not only their respective empowerment domains, but also perceptions about the existence and quality of negotiated spaces in the community at baseline.

4.1 Domain 1: Women and community members empowered

The survey measured women's awareness and attitudes, as well as their perception of the supportiveness of the surrounding environment. For details on measures and scale properties, see Table 2. We tested nine items related to women's knowledge and awareness of their rights to quality healthcare and respectful treatment at the health centre. The final eight-item scale achieved acceptable reliability (α =.60).

Measures of attitudes toward gender norms included acceptance of gender-based violence and the right to refuse sex. There was little variability on the first index, with most women strongly rejecting intimate partner violence. The right to refuse sex scale (α=.80) and the measures of participation in household decision-making showed more variability and achieved good reliability (α=.68-.83).

Scales measuring self-efficacy to participate and speak out at community meetings were also reliable (α=.79-.91). However, self-efficacy to go to a health facility was not reliable (α=.57). For outcome expectations, we developed a measure to assess women's expectations of how they would be treated at a community meeting, as these expectations affect the likelihood of women's participation. This measure achieved acceptable reliability (α=.68).

We also adapted and tested scales for community support in times of crisis, social cohesion and collective efficacy (how sure women are that people in their community could work together to improve a variety of health issues). The community support in times of crisis (α=.83) and collective efficacy (α=.90) measures had good reliability, while social cohesion had acceptable reliability (α=.67).

11 of our 12 scales measuring the women's empowerment domain showed acceptable reliability or better ($\alpha \geq .60$) at baseline; measurement theory suggests that reliability indicates that single items are working well together to measure a common, underlying construct (Nunnally and Bernsteinm, 1994). For the one scale with less than acceptable reliability, women's self-efficacy to go to a health facility, additional items will be added at endline in an attempt to improve measurement of this construct.

Table 2: Women's empowerment measures, women's VOICES, n=1,951

MEASURE	Item(s)	m	SD	α	n	Range
Knowledge & awareness of rights[a,i]	8	4.29[b]	.47	.60	1950	1-5
1. A healthcare provider can refuse to provide me healthcare because of my age[c].						
2. The government of Malawi ensures that maternal and child health services are provided free of charge.						
3. The healthcare provider is required to keep my healthcare information private and confidential.						
4. I have a right to complain if a healthcare worker yells at me or is disrespectful.						
5. Healthcare providers are required to answer all my health-related questions.						
6. Every individual has the right to prompt emergency treatment from the nearest public or private facility.						
7. I do not have the right to complain about the quality of health services in this community[c].						
8. Community health workers (for example, HSAs) should visit pregnant women and now mothers/ babies at home.						
Rejection of intimate partner violence[d,j]	5	.87[e]	.33	–	1951	0-1
Is a husband justified in hitting his wife if…						
1. …she goes out without telling him?						
2. …she neglects their children?						
3. …she argues with him?						
4. …she refuses to have sex with him?						
5. …she did not cook the food properly?						
Belief in women's right to refuse sex[d,j]	6	3.14[f]	1.96	.80	1951	0-6
Is a woman justified in refusing to have sex with her husband if…						
1. …she knows he has a sexually transmitted disease?						
2. …she knows he has sex with other women?						
3. …she has recently given birth?						
4. …she is tired?						
5. …she is not in the mood?						
6. …she is unhappy with her husband?						
Overall decision-making[g,j]	12	1.67[b]	.26	.83	1949	1-2
Healthcare decision-making	5	1.76	.26	.68	1951	1-2
Which member of your household usually makes decisions about…						
1. …your healthcare?						
2. …whether you and your husband use family planning?						
3. …where you will deliver your baby?						
4. …when you will go to a health facility to deliver your baby?						
5. …if you will be tested for the AIDS virus?						
Abbreviated household decision-making	8	1.59	.30	.80	1949	1-2
Which member of your household usually makes decisions about…						
1. …your healthcare?						
2. …making large household purchases?						
3. …making household purchases for daily needs?						
4. …when you will visit family/relatives/friends?						
5. …when your whole household will visit family/relatives/friends?						
6. …how to use the money that you bring into the household?						
7. …how to use the money your husband brings into the household?						
8. …how many children you will have?						
Overall self-efficacy for participation[h,j]	6	3.60[b]	1.10	.83	1949	1-5
Self-efficacy for attendance	3	3.59	1.41	.91	1950	1-5
How sure are you that you could attend a community meeting if…						
1. …your family did not encourage you to go?						

Table 2: Continued

MEASURE	Item(s)	m	SD	α	n	Range
2. . . .your family did not want you to go?						
3. . . .your family would not help with your household duties so that you could attend?						
Self-efficacy to speak out	3	3.61	1.21	.79	1949	1-5
How sure are you that you could express your opinion. . .						
1. . . .at a community meeting?						
2. . . .at a community meeting if some people did not agree with that opinion?						
3. . . .at a community meeting if most people did not agree with that opinion?						
Outcome expectations for participation[h]	2	4.10[b]	.91	.68	1950	1-5
If you attended a community meeting, how sure are you that. . .						
1. . . .you would be treated fairly by the other participants?						
2. . . .your opinion and suggestions would be taken into consideration?						
Self-efficacy for service utilization[h,j]	2	4.25[b]	1.01	.57	1950	1-5
How sure are you that you could go to the health facility if. . .						
1. . . .you were worried that the staff would treat you badly?						
2. . . .your husband objected to your going?						
Outcome expectations for service utilization[a,k]	6	3.73[b]	.59	–	1948	1-5
The staff at [health facility]. . .						
1. . . .is friendly and treats me well.						
2. . . .gives me all the information I need to take care of my health.						
3. I often have to wait a long time to receive care at the health facility[c].						
Whenever I go to the health facility, . . .						
4. . . .there is a provider available to serve me.						
5. . . .it rarely has the supplies and medicine I need[c].						
6. . . .the staff involve me in decisions about my care.						
Perception of service quality[a,k]	6	4.36[b]	.49	–	1948	1-5
1. The staff at [health facility] provides high quality health services.						
2. The staff at [health facility] ensures privacy and confidentiality when providing services.						
3. The health facility is clean.						
4. Men are welcome to accompany their wives during pregnancy and delivery care.						
5. A family member or friend is welcome to accompany a woman during delivery.						
6. Unmarried women can access family planning & reproductive health services at the health facility.						
Community support in times of crisis: when pregnant and bleeding[h,j]	4	3.65[b]	1.23	.83	1950	1-5
How sure are you that there is someone in your community – apart from your immediate family – who. . .						
1. . . .you could turn to for advice?						
2. . . .could take you to the hospital?						
3. . . .would help care for your children or household while you are away?						
4. . . .would loan you money for transport?						
Social cohesion[a,j]	6	3.76[b]	.74	.67	1948	1-5
I can rely on people in my community. . .						
1. . . .if I need to borrow money.						
2. . . .to help deal with a violent or difficult family member.						
3. . . .to help take care of my children/household if I need to go to the doctor or hospital.						
4. The majority of people in this community can be trusted.						
5. The majority of people in this community generally get along with each other.						
6. I feel that I am really a part of this community.						

Table 2: Continued

MEASURE	Item(s)	m	SD	α	n	Range
Collective efficacy[a,j]	4	4.52[b]	.67	.90	1951	1-5
How sure are you that the people in your community could work together…						
1. …to improve maternal & newborn health services in this community?						
2. …to improve how women are treated at the health facility?						
3. …to obtain government services & entitlements?						
4. …to improve the health and well-being of women and children in this community?						
Social participation & collective action[d,l]						
In the past 6 months, have you…						
1. …been an active member in any organized group in your community, for example a women's group, a religious group, or other community group?	1	.18	.39	–	1951	0-1
1. …received help from any organized group in your community, for example a women's group, a religious group, or other community group? Help could include emotional support, economic assistance, or helping you to learn or do things.	1	.09	.30	–	1951	0-1
1. …joined together with other people in your to improve health services for women or children?	1	.31	.46	–	1951	0-1

Notes:
[a]5-point Likert scale, strongly agree (5) to strongly disagree (1)
[b]item scores summed & divided by number of items
[c]reverse coded
[d]yes (1), no (0)
[e]if 'no' to all then scored as 1, otherwise scored as 0; index of 1 indicates hitting is not justified under any circumstance
[f]item scores summed; scale score of 6 indicates a woman is justified in refusing sex in all situations
[g]you, your husband, you & your husband together, mother- or father-in-law, mother or father, or someone else; where you or you & your husband together are scored as 2; all other responses scored as 1
[h]5-point Likert scale, completely sure (5) to not at all sure (1)
[i]informed by Government of Malawi MoH
[j]adapted from CARE USA (2014)
[k]informed by IOM (2001)
[l]informed by De Silva et al. (2006)
Source. The authors.

4.2 Domain 2: Health workers empowered

The measure of health workers' knowledge and awareness of rights had borderline acceptable reliability (α=.59) (see Table 3). Self-efficacy to improve health services and to deliver quality services were both reliable (α=.83 and α=.62, respectively). Measures for self-efficacy for participation (α=.83) and outcome expectations for participation (α=.65) were also reliable.

We also assessed health workers' perceptions of how well particular interventions work (i.e., service efficacy) and level of service quality delivered in their health facility (i.e., service quality); both were highly reliable (α=.89 and .84, respectively). Measures of perception of supervision, perception of supervisor's

Table 3: Health workers' empowerment measures, health workers' VOICES, n=279

MEASURE	Item(s)	m	SD	α	n	Range
Knowledge & Awareness of Rights[a,h]	10	3.95[b]	.39	.59	279	1-5
1. Women have the right to get family planning services without their husband's permission.						
2. Patients must accept treatment if the health workers tell them they need it[c].						
3. Adolescents do NOT have the right to obtain family planning services[c].						
4. Patients have a right to complain about the quality of health services they receive.						
As a healthcare provider,...						
5. ...I have a right to have the equipment and supplies I need to do my job.						
6. ...I can't really expect to have clear working hours and rest periods[c].						
7. ...I have a right to file a complaint if I feel I am not being treated with respect by my employer.						
8. ...I have a right to yell at a woman if she does not listen to me[c].						
9. The government of Malawi ensures that maternal and child health services are provided free of charge.						
10. Community health workers should visit pregnant women and new mothers/babies at home.						
Self-Efficacy for Participation[d]	3	4.74[b]	.49	.83	279	1-5
How sure are you that you can...						
1. ...speak up in community or health facility meetings about things that need improvement in your health facility or catchment area?						
2. ...ask people in the community what health services their community needs?						
3. ...answer questions and share information with the community about the health services that are available?						
Outcome Expectation for Participation[a]	6	4.05[b]	.54	.65	279	1-5
1. It is important for health officials to share information with the community on services available, funding, and plans.						
2. I do NOT have enough time to participate in community meetings[c].						
3. Quality improvement efforts at work do NOT usually succeed[c].						
4. I would NOT feel comfortable having my work monitored by members of the community[c].						
5. I feel good when I am able to respond to community concerns about health services in this area.						
6. If the community is involved in quality improvement efforts, these efforts are more likely to be successful.						
Self-Efficacy for Delivering Quality Health Services[d]	2	4.78[b]	.43	.62	279	1-5
How sure are you that...						
1. ...you can do things to improve your own performance at work?						
2. ...you personally can do things to contribute to improving the quality of services in your health facility or catchment area?						
MNCH[e] Service Efficacy[a]	7	4.65[b]	.41	.89	279	1-5
1. Getting a health check during pregnancy is important for a health pregnancy.						
2. Delivering a baby at home is just as safe as delivering a baby at a health facility[c].						
3. Exclusive breastfeeding for the first 6 months of life (no water or other liquids) is the best thing for a baby's teeth.						
4. It is important for a woman and her baby to get checked within 1 week of delivery.						
5. All pregnant women should get tested for HIV so they can prevent infection of their babies.						
It is important for...						
6. ...women to understand danger signs during pregnancy & childbirth so that they can seek care immediately.						
7. ...pregnant women to think about what method of contraception they want to use after the baby is born.						

Table 3: Continued

MEASURE	Item(s)	m	SD	α	n	Range
Service Quality[a,i]	15	4.21[b]	.43	.84	270	1-5
At this health facility,...						
1. ...men are welcome to accompany their wives during pregnancy care.						
2. ...a family member or friend is welcome to accompany a woman during pregnancy.						
3. ...patients expect to wait a long time for services.						
4. ...women are left unattended for long periods during labor & delivery.						
5. ...patients' private information is kept safe & not shared with others.						
6. ...health workers treat patients with respect.						
7. ...adolescents feel comfortable asking for family planning services.						
8. ...the health facility is clean.						
9. ...health facility staff are present & available during official working hours.						
10. ...patients expect to get high quality health services.						
11. ...health workers sometimes yell at pregnancy women from coming to the health facility for delivery too late.						
12. ...there are frequent stock outs of needed drugs & supplies.						
13. ...staff members do not feel comfortable speaking up if they see a problem with care provided.						
14. ...skilled staff members are available to provide delivery care 24 hours a day, 7 days a week.						
15. I would feel comfortable with the quality of care as a patient at this facility.						
1. I would not recommend that my friend or relative come to this health facility [NAME] to deliver a baby[c].	1	3.20	1.5	–	279	1-5
Collective efficacy (health workers alone)[d,j]	1	4.85	.41	–	279	1-5
1. How sure are you that health workers in this area/health facility can work together to improve health services for women & children?						
Supervision[f]	3	13.14[g]	1.50	–	279	3-15
How often do you...						
1. ...meet with you supervisor?						
2. ...review & discuss your work with your supervisor?						
3. ...report on your work to your supervisor?						
Supervisor's Appreciation[a]	4	4.13[b]	.67	.63	279	1-5
My supervisor...						
1. ...appreciates my efforts to do a good job.						
2. ...does not take my recommendations for improvements at work seriously[c].						
3. ...does his/her best to make sure I have everything I need to be successful at my job.						
4. ...encourages me to work on things that will improve the quality of care in our area.						
Work Attachment & Satisfaction[a]	9	3.80[b]	.54	.70	279	1-5
1. My family is proud of the work I do.						
2. This work takes away too much time from my family[c].						
3. I really like my job.						
I do not have...						
4. ...the equipment & materials to do my job well[c].						
5. ...as much control over my work as I would like to have[c].						
I have...						
6. ...access to all the information that I need to do my job well.						
7. ...regular access to someone I can go to for help when I need it to do my job well.						
8. I am recognized for my good performance with awards or other compensation.						
9. If I complain about my working conditions, I might lose my job[c].						

Table 3: Continued

MEASURE	Item(s)	m	SD	α	n	Range
1. I would do something else if I thought I could get another job[c].	1	2.91	1.37	–	279	1-5
1. I receive regular and reliable payment for my work.	1	2.45	1.30	–	278	1-5
Social Cohesion[a,j]	11	4.14[b]	.45	.76	279	1-5
1. I cannot rely on the people I work with to give me advice[c].						
2. I can rely on the people I work with to help me out with a difficult patient.						
3. Oftentimes there is conflict among the people I work with[c].						
4. I enjoy the people I work with.						
5. In general, the people I work with only worry about themselves[c].						
I can rely on the people I work with to…						
6. …stand up for me if I point out a problem at work.						
7. …support me when I try to improve my performance at work.						
8. I can trust the majority of people I work with.						
9. In general, the people I work with get along well.						
The people I work with…						
10. …will resent me if I try to do things to improve the quality of care in this area/facility[c].						
11. …treat me with respect.						
Attitudes towards Patients[a]	9	3.47[b]	.35	.32	278	1-5
1. My patients really appreciate my help.						
2. I should NOT have to provide reproductive health service to unmarried women and girls[c].						
3. People in the community do NOT appreciate my efforts to provide services in the community[c].						
4. Patients should expect everything they say to me to be kept private.						
5. I get frustrated when a woman in this community chooses to deliver her baby at home[c].						
6. Men in this community want to support their wives when they are pregnant.						
7. People in the community are willing to do whatever they can do to improve the health of the women and children here.						
8. Health workers know what services the community needs most[c].						
9. Patients are often to blame for their poor health outcomes[c].						

Notes:
[a]5-point Likert scale, strongly agree (5) to strongly disagree (1)
[b]item scores summed & divided by number of items
[c]reverse coded
[d]5-point Likert scale, completely sure (5) to not at all sure (1)
[e]maternal, child, newborn health
[f]weekly (5), monthly (4), quarterly (3), annually (2),never (1)
[g]item scores summed
[h]informed by Government of Malawi MOH
[i]informed by IOM (2001)
[j]adapted from CARE USA (2014)

appreciation of one's work, and perceptions of work attachment and satisfaction were also reliable (α=.68, .63 and .70, respectively).

As with the women's survey, we successfully adapted an 11-item scale to measure social cohesion among health workers (α=.76). Finally, a nine-item scale measuring health workers' attitudes toward patients (α=.32) was not reliable.

Nine of our 11 scales in the health worker empowerment domain had acceptable reliability; two had borderline or poor reliability. For health workers'

knowledge and awareness of rights with borderline reliability, we chose not to drop any items to enhance reliability because the items in this scale reflect the Government of Malawi's Charter on Patients' and Health Service Providers' Rights and Responsibilities. For both scales, we will seek additional items to include during endline data collection in an effort to improve measurement reliability.

4.3 Domain 3: Expanded, inclusive and effective negotiated spaces

To assess the perception of mutual responsibility around maternal health, women were asked in the Women's VOICES survey whom they thought could have the most impact to make changes in five areas related to maternal health (α=.64) (see Table 4). The Health Workers' VOICES survey asked a similar set of 11 items (α=.73). We also asked health workers a single item about collective efficacy for health workers and community members to work together, as well as about their participation in health committees and in collective action together with community members.

Finally, we developed a range of items to measure women's and health workers' perceptions of the quality, transparency and equity of negotiated space. Most respondents from both surveys skipped out of these questions at baseline because they had not yet participated in processes that bring them together in this way. Because the CSC intervention is intended to create these types of spaces for dialogue and negotiation, however, it is anticipated that at endline there will be sufficient data on these items to fully measure the negotiated spaces domain from both the women's and health workers' perspectives.

5 Discussion

In this article, we present a theory of change and corresponding governance measures for use in evaluating the effectiveness of a social accountability approach – CARE's Community Score Card© – on maternal and reproductive health outcomes. To our knowledge, this is the first attempt to develop a comprehensive set of quantitative governance outcomes measures for use in evaluating social accountability interventions. Drawing from CARE's Governance Programming Framework, the theory of change outlines three key health governance outcome domains we expect to be influenced by the CSC: empowerment of women and community members; empowerment of health workers; and expanded, inclusive and effective negotiated spaces in which the two groups can effectively interact to improve health service delivery and outcomes. CARE's CSC aims to fundamentally change the decision-making process at the local level by giving more voice to those with less power. This is a political process that occurs within a complex environment, and measuring subtle shifts in power dynamics is not easy. The impact of this engagement, if successful, should include increased trust, a sense of shared responsibility and mutual accountability for improvements in service delivery and health outcomes. The measures presented here attempt to quantify these outcomes – empowerment of women, empowerment of frontline health workers, and creation of 'safe space' in which they can productively interact. Further, these measures provide

Table 4: Negotiated Spaces Measures, Women's VOICES (n=1,951) & Health Workers' VOICES (n=279)

WOMEN'S MEASURES	Item(s)	m	SD	α	n	Range
Mutual responsibility for & support of services[a]	5	1.19[b]	.25	.64	1951	0-2
Who could have the most impact on…						
1. …making sure that women are treated with respect by health workers?						
2. …making sure that pregnant women have transportation to the hospital during emergencies?						
3. …increasing the number of days a health worker visits your community?						
4. …making sure the poorest and most vulnerable women and children in the community receive care?						
5. …getting funding to improve health services in this community?						
Participation in negotiated spaces[c]	4	n/a[d]				
1. In the past 6 months, have there been meetings between the community, health providers, and government representatives?						
2. Were any of these meetings part of the Community Score Card process?						
3. Was your Village Health Committee part of any of these meetings?						
4. Did any other formal groups or committees participate in these meetings?						
Joint monitoring & accountability for services[c]	2	n/a				
1. Problems or issues with health services were discussed.						
2. Plans for improving health services were made.						
Transparency (of negotiated spaces)	3	n/a				
1. Information about health services was shared.[c]						
2. Community members voiced their concerns about health services.[c]						
3. Information on health services is widely available in this community.[e]						
Equity (of negotiated spaces)[c]	3	n/a				
1. Health issues of concern to the most vulnerable and marginalized groups were discussed.						
2. Did at least half of the community attend these meetings?						
3. Were at least half of those from the community who attended these meetings women and girls?						
Quality (of negotiated spaces)[c]	3	n/a				
In the past 6 months, have meetings between health workers, district government authorities and the community been…						
1. …well run?						
2. …inclusive of broad participation from the community?						
3. …focused on important issues?						
HEALTH WORKERS' MEASURES	**Item(s)**	**m**	**SD**	**α**	**n**	**Range**
Mutual responsibility for & support of service[a]	11	1.19[b]	.20	.73	279	0-2
Who is most likely to have an impact on…						
1. …increasing the availability of health services in this community?						

Table 4: Continued

HEALTH WORKERS' MEASURES	Item(s)	m	SD	α	n	Range
2. . . .improving working conditions for health workers like yourself?						
3. . . .reducing wait times at the health facility?						
4. . . .increasing the availability of equipment & supplies?						
5. . . .increasing funding for improvements in health services?						
6. . . .making sure that pregnant women in the community have transportation to the hospital during emergencies?						
7. . . .making sure staff at the health facility are friendly and treat women well?						
8. . . .making sure health workers keep patients' information private?						
9. . . .making sure the poorest & most vulnerable women & children in the community receive care?						
10. . . .increasing the availability of skilled birth attendants at the health facility?						
11. . . .increasing the number of women who go to the health facility to deliver their babies?						
Collective efficacy[f]	1	4.84	.41	–	279	1-5
1. How sure are you that health workers in this area/health facility AND community members can work together to improve health services for women & children?						
Participation in negotiated spaces[g,k]	8	1.14[h]	1.55	–	279	0-8
Do you belong to a. . .						
1. . . .Village Health Committee?						
2. . . .Village AIDS Committee?						
3. . . .Village Action Committee?						
4. . . .Village Development Committee?						
5. . . .Area Development Committee?						
6. . . .Area Executive Committee?						
7. . . .Maternal & Newborn Health Committee?						
8. . . .Any other committees?						
Participation in health committee[i,k]	2	1.37[h]	.78	–	279	0-2
In the past 6 months, have you met with. . .						
1. . . .the Village Health Committee to discuss and work on health issues?						
2. . . .the Health Centre Committee to discuss and work on health issues?						
Participation in collective action[j,k]	1	1.30	.46	–	279	1-2
1. In the past 6 months, have you and other health providers in this health catchment area worked together with community members to improve health services?						
Joint monitoring & accountability for services[c]	2	n/a				
1. Problems or issues with health services were discussed?						
2. Plans for improving health services were made?						
Transparency (of negotiated spaces)[c]	2	n/a				
1. Information about health services was shared?						
2. Community members voiced their concerns about health services?						
Equity (of negotiated spaces)[c]	3	n/a				
1. Health issues of concern to the most vulnerable and marginalized groups were discussed?						
2. Did at least half of the community attend these meetings?						

Table 4: Continued

HEALTH WORKERS' MEASURES	Item(s)	m	SD	α	n	Range
3. Were at least half of those from the community who attended these meetings women and girls?						
Quality (of negotiated spaces)[c]	3	n/a				
In the past 6 months, have meetings between health workers, district government authorities and the community been...						
1. ...well run?						
2. ...inclusive of broad participation from the community?						
3. ...focused on important issues?						

Notes:
[a]community members together with health providers & district government officials (2); community members alone; health providers & district government officials, or higher level government officials & institutions (like the national government) (1); or no group is likely to have an impact (0)
[b]Item scores summed and divided by number of items
[c]yes (1), no (0), don't know (8)
[d]not applicable, insufficient data at baseline
[e]5-point Likert scale, strongly agree (5) to strongly disagree (1)
[f]5-point Likert scale, completely sure (5) to not at all sure (1)
[g]yes (1), no (0), doesn't exist (7)
[h]summed all 'yes' responses
[i]yes (1), no (0)
[j]yes (1), no (2)
[k]informed by De Silva et al. (2006)
Source: The authors.

a way to assess whether this interaction is building trust, social cohesion, collective efficacy and a shared sense of responsibility.

In general, the scales and indices we tested worked well with both women and health workers. We dropped a minimal number of items due to poor measurement performance. For women, the overall reliability of measures was relatively high, with eight of 13 scales having alpha values ≥.70, four in the .60-.69 range, and only one <.60. For health workers, five of 11 scales had alpha values ≥.70; four had .60-.69; and two were <.60. Therefore, we anticipate using these scales during endline data collection plus additional items for the weaker scales to help improve their measurement properties. For example, we plan to add three items to the self-efficacy for service utilization scale in Women's VOICES to expand the breadth of potential barriers to women's service utilization to include husband's reluctance and household responsibilities. Similarly, we plan to add three items to expand the measurement of knowledge and awareness of rights around community monitoring and provider complaints in Health Workers' VOICES. The endline data collection will involve repeat independent cross-sectional surveys of women and health workers in both treatment and comparison sites and will analyze the relationship between these governance outcomes measures and our health behaviour and service utilization outcomes.

While a few of the governance outcomes measures are similar to measures used in other social and behavioural research (for example, knowledge and awareness,

self-efficacy, outcome expectations, social support/cohesion), we included several dimensions used less frequently, such as gender norms and household decision-making power. Further, we created some novel measures specifically focused on beliefs about the efficacy of participation, and individual and collective action, to influence health service quality and outcomes. In particular, in both Women's VOICES and Health Workers' VOICES, we assessed each constituent group's perceptions of the existence and quality of negotiated spaces in the community. One scale asked respondents who they thought could have the most impact to make changes in five areas related to maternal and reproductive health; respondents had the option of responding 'community members working *together* with the health providers and districts health officials', versus any group working alone, or no group having an ability to make an impact. Both scales were reliable. This measure could be important to understanding if and how social accountability processes work by assessing whether a sense of mutual responsibility and belief in the effectiveness of working together is a key variable for achieving impact.

Critical to success of social accountability approaches like CARE's CSC is health worker buy-in and participation (Global Health Visions, 2015), not just citizen buy-in (Brinkerhoff and Wetterberg, 2015). Health workers need to feel that these spaces are safe (not simply places where they will be criticized or negatively evaluated for their performance) and to feel that investing in these processes will result in some positive outcomes. Thus, the six-item measure to assess health workers' perceived value of negotiated space and participation could also be particularly valuable for researchers.

5.1 Limitations

Where possible, we adapted measures from other validated measures, but the adaptations we made to items and/or response options may have significantly changed the psychometric properties of the original measures; thus, comparisons should be made with caution. Also, we did not conduct extensive formative research or cognitive testing on new items and measures; rather, we relied on strong theory, previous measurement research on related constructs and in-country field experience to inform the development of the new items and scales to test. Finally, we only developed tools for women and for health workers, as these were the priority populations for the larger evaluation trial; however, additional measures for other household and community members and local officials, as well as measures of changes in policies and other structural elements, would help to evaluate the theory of change more fully and would provide further insight into how change occurs.

5.2 Conclusion

Evaluation of complex social and development interventions and approaches suffers from a lack of consistency in definitions, guiding frameworks and measures. As a result, even when strong evidence exists for the impact of social accountability

approaches in individual studies, the pathway to those outcomes is rarely described adequately, making it difficult to compare approaches, to check our assumptions and to adapt our approaches effectively to new contexts and conditions. Thus, having a well-articulated theory of change and a consistent set of measures to evaluate that theory is important for advancing the field.

We offer both here. Our theory of change articulates how the intervention is expected to change both service users (empowered) and providers (empowered), and the negotiated space between the community and the health system (expanded, inclusive and effective). It outlines the kinds of health behaviour and service delivery outcomes one should expect if, in fact, these governance outcomes are achieved by the programme. Further, we provide a comprehensive set of robust and reliable measures for each governance domain, including individual attitudes and beliefs, as well as perceptions of supporting elements in the environment (community support for women, and supervisory and health system support for health workers). Further, we measure women's and health workers' beliefs about the efficacy of participating in processes that require mutual responsibility and joint accountability.

While quantitative measures of constructs like women's empowerment, health worker responsiveness and inclusive spaces will never fully capture the richness and nuance that these concepts imply, quantitative measures provide a relatively simple and accessible way to begin to understand what changes are, or are not, being catalyzed by social accountability interventions. We hope others will find these tools useful in their evaluation efforts, and that their use will contribute to building a body of evidence on the effectiveness of social accountability approaches in achieving health and development outcomes.

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References

Björkman, M. and Svensson, J. (2009) 'Power to the People: Evidence from a randomized field experiment of a community-based monitoring project', *Quarterly Journal of Economics* 124(2): 735–69.

Bjorkman-Nyqvist, M., de Walque, D. and Svensson, J. (2013) *Information is Power: Experimental evidence of the long run impact of community based monitoring. Working Paper. Policy Research Working Paper No. WPS* 7015. Washington, DC: World Bank Group.

Bohren, M.A.; Hunter, E.C.; Munthe-Kass, H.M.; Souza, J.P.; Vogel, J.P. and Gulmezoglu, A.M. (2014) 'Facilitators and Barriers to Facility-Based Delivery in Low- and Middle-Income Countries: A qualitative evidence synthesis', *Reproductive Health* 11: 71.

Boydell, V., Keesbury, J. and Wright, K. (2014) 'Strengthening the Evidence Base on Social Accountability for Improving Family Planning and Reproductive

Health Programs'. London, July 16–17. Meeting Report. Washington, DC: Population Council, Evidence Project.
Brinkerhoff, D.W. (2004) 'Accountability and Health Systems: Toward conceptual clarity and policy relevance', *Health Policy and Planning* 19(6): 371–9.
Brinkerhoff, D.W. and Wetterberg, A. (2015) 'Gauging the Effects of Social Accountability on Services, Governance, and Citizen Empowerment', *Public Administration Review* 76(2): 274–86.
CARE (2011) *Towards Better Governance. Monitoring and Evaluation of Governance Programmes: Guidance Note*. Colchester: CARE International UK.
CARE Malawi (2013) *The Community Score Card (CSC): A generic guide for implementing CARE's CSC process to improve quality of services*. Lilongwe: Cooperative for Assistance and Relief Everywhere, Inc.
CARE USA (2014) *Women's Empowerment – Multidimensional Evaluation of Agency, Social Capital & Relations (WE-MEASR): A Tool to Measure Women's Empowerment in Sexual, Reproductive and Maternal Health Programs*. Atlanta, GA: CARE USA.
De Silva, M.J.; Harpham, T.; Tuan, T.; Bartolini, R.; Penny, M.E. and Huttly, S.R. (2006) 'Psychometric and Cognitive Validation of a Social Capital Measurement Tool in Peru and Vietnam', *Social Science and Medicine* 62(4): 941–53.
Dieleman, M.; Cuong, P.V.; Anh, L.V. and Martineau, T. (2003) 'Identifying Factors for Job Motivation of Rural Health Workers in North Viet Nam', *Human Resources for Health* 1: 10.
Fox, J. (2014) *Social Accountability: What does the evidence really say? Working Paper* No.1. Washington, DC: Global Partnership for Social Accountability (GPSA).
Franco, L.M.; Bennett, S.; Kanfer, R. and Stubblebine, P. (2004) 'Determinants and Consequences of Health Worker Motivation in Hospitals in Jordan and Georgia', *Social Science and Medicine* 58(2): 343–55.
Gaventa, J. and McGee, R. (2013) 'The Impact of Transparency and Accountability Initiatives', *Development Policy Review* 31(s1): s3–s28.
Global Health Visions (2015) *Engendering Accountability: Upholding commitments to maternal and newborn health*. Brooklyn, NY: Global Health Visions.
Gonçalves, S. (2014) 'The Effects of Participatory Budgeting on Municipal Expenditures and Infant Mortality in Brazil', *World Development* 53: 94–110.
Government of Malawi, Ministry of Health (2008) 'Charter on Patients' and Health Service Providers' Rights and Responsibilities', 8 November, http://www.medcol.mw/mrw/The%20Health%20Rights%20and%20Responsibilities.pdf (accessed 2 February 2015).
IBM Corp. (2012) *IBM SPSS Statistics for Windows*, Version 21.0 [Computer Software]. Armonk, NY: IBM Corp.
iERG (Independent Expert Review Group on Information and Accountability for Women's and Children's Health) (2013) *Every Woman, Every Child: Strengthening equity and dignity through health: The second report of the independent expert review group (iERG) on information and accountability for women's and children's health*. Luxembourg: World Health Organization.

Joshi, A. (2013) 'Do They Work? Assessing the impact of transparency and accountability initiatives in service delivery', *Development Policy Review* 31(s1): s29–s48.

Kanfer, R. (1999) *Measuring Health Worker Motivation in Developing Countries. Major Applied Research 5, Working Paper* 1. Bethesda, MD: Partnerships for Health Reform Project, Abt Associates Inc.

Mathauer, I. and Imhoff, I. (2006) 'Health Worker Motivation in Africa: The role of non-financial incentives and human resource management tools', *Human Resources for Health* 4: 24.

Mutale, W.; Ayles, H.; Bond, W.; Mwanamwenge, M.T. and Balabanova, D. (2013) 'Measuring Health Workers' Motivation in Rural Health Facilities: Baseline results from three study districts in Zambia', *Human Resources for Health* 11: 8.

Nunnally, J.C. and Bernstein, I.H. (1994) 'The Assessment of Reliability', *Psychometric Theory* 3(1): 248–92.

Otis, K.E. and Brett, J.A. (2008) 'Barriers to Hospital Births: Why do many Bolivian women give birth at home?', *Rev Panam Salud Publica* 24(1): 46–53.

Papp, S.A., Gogoi, A. and Campbell, C. (2013) 'Improving Maternal Health through Social Accountability: A case study from Orissa, India', *Global Public Health* 8(4): 449–64.

Pulerwitz, J., Gortmaker, S.L. and DeJong, W. (2000) 'Measuring Sexual Relationship Power in HIV/STD Research', *Sex Roles* 42(7/8): 637–60.

R Core Team (2013) 'R: A Language and Environment for Statistical Computing [Computer Software]', R Foundation for Statistical Computing, Vienna, Austria. http://www.R-project.org/

Revelle, W. (2013) 'psych: Procedures for Personality and Psychological Research' Version 1.4.7 [Computer Software]. Evanston, IL: Northwestern University. http://CRAN.R-project.org/package = psych.

Touchton, M. and Wampler, B. (2014) 'Improving Social Well-Being Through New Democratic Institutions', *Comparative Political Studies* 47(10): 1442–69.

Tumlinson, K.; Pence, B.W.; Curtis, S.L.; Marshall, S.W. and Speizer, I.S. (2015) 'Quality of Care and Contraceptive Use in Urban Kenya', *International Perspectives on Sexual and Reproductive Health* 41(2): 69–79.

UNICEF (2013) *Malawi: Statistics* Retrieved from https://data.unicef.org/country/mwi/ (accessed 2 February 2015).

United Nations Secretary-General Ban Ki-moon (2010) *Global Strategy for Women's and Children's Health*. New York, NY: United Nations.

WHO (2015) *Malawi: WHO Statistical Profile*, updated January 2015, http://www.who.int/gho/countries/mwi.pdf?ua = 1 (accessed 2 February 2015).

Wild, L., Wales, J. and Chambers, V. (2015) *CARE's Experience with Community Score Cards: What works and why?* London: Overseas Development Institute.

World Bank (2003) *World Development Report 2004: Making services work for poor people*. Washington, DC: Oxford University Press/World Bank.