

IDS

EVIDENCE REPORT

No 67

Empowerment of Women and Girls

Maternal Mental Health in the Context of Community-based Home Visiting in a Re-engineered Primary Health Care System: A Case Study of the Philani Mentor Mothers Programme

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April 2014

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The author would like to acknowledge comments on this publication from Hayley MacGregor at the Institute of Development Studies.

The material has been funded by UK aid from the UK Government, however the views expressed do not necessarily reflect the UK Government's official policies.

AG Level 2 Output ID: 86

MATERNAL MENTAL HEALTH IN THE CONTEXT OF COMMUNITY-BASED HOME VISITING IN A RE-ENGINEERED PRIMARY HEALTH CARE SYSTEM: A CASE STUDY OF THE PHILANI MENTOR MOTHERS PROGRAMME

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April 2014

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First published by the Institute of Development Studies in April 2014
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Executive summary

This document constitutes a briefing summary of the case study of a maternal mental health intervention in South Africa, the Philani Mentor Mothers Programme. The case study has been compiled by Professor Mark Tomlinson at Stellenbosch University as a contribution to the Empowerment of Women and Girls theme of the Accountable Grant at the Institute of Development Studies. In particular, it relates to the sub-theme that focuses on the health of women and girls in rapidly urbanising settings in South Africa and Kenya. The case study in this sub-theme discusses the particular health conditions that have been identified to affect women and girls in low-income urban settings, with a focus on identifying key 'good practice' and cutting edge interventions.

Community health workers (CHWs) are increasingly being identified as a potential vehicle for strengthening community-based care, especially for maternal, newborn and child health. It is estimated that globally there are currently more than 40 million CHWs (Lewin *et al.* 2010), and there have been recent calls for one million CHWs in sub-Saharan Africa by 2015 (Singh and Sachs 2013). Most research evaluating the impact of CHW programmes has been limited to small and short-term interventions in heavily resourced research settings (Haines *et al.* 2007). Larger scale CHW programmes have been hindered by barriers to effective scale-up. Among other things, large-scale programmes are frequently undermined by high attrition and low activity levels of CHWs, which are less likely in smaller scale initiatives where supervision is often more intense and consistent (Walt *et al.* 1989).

In global health, the extent to which the gap can be bridged between small-scale efficacy studies and effective interventions at scale will depend on a number of factors:

- Holistic programmes that target the broader health concerns of women, families and children such as mental health interventions, particularly in light of the fact that mental and behavioural disorders account for 22.7 per cent of all years lived with disability (Vos *et al.* 2012);
- While the use of CHWs has achieved many successes (Baqui *et al.* 2008; Rahman 2008), the system has also been characterised by a lack of consistent supervision and linkages to the health system (Walley *et al.* 2008; Haines *et al.* 2007).
- An enabling policy environment that facilitates the successful completion of tasks across the maternal and child health continuum of care.

In this paper Professor Tomlinson argues that unless we begin to examine the 'how' rather than the 'what' of interventions or, as McCoy and colleagues (2010) describe, moving from knowledge of what works to systems that deliver, we will not be able to improve holistic population health in low-middle income countries (LMIC). This summary describes the context of global health, mental health in South Africa, and a case study of a generalist health intervention (with a maternal mental health component) by a South African non-governmental organisation (NGO), Philani, within the current fluid South African health system. It analyses what the Philani experience has to offer in terms of lessons to surmount the significant obstacles to holistic and equitable health care delivery that exist in South Africa and elsewhere.

Context of global health

Despite the enormous strides made in improving global health in the last 20–30 years, the progress is too slow for many countries to reach their agreed targets. Approximately 8.5 million children under five die each year, almost all of which take place in poor countries – about half of these deaths occur in Africa (Bhutta *et al.* 2010). Almost two-thirds of child deaths could be diverted through the timely delivery (at scale) of the interventions we know

to be effective in saving children's lives. A continuum of care provides a useful way of considering care across the life cycle (Kerber *et al.* 2007).

Gwatkin (2001) has shown how even interventions that are considered to be 'pro-poor' such as immunisation and oral rehydration therapy have better coverage amongst less disadvantaged groups. Reasons for this include greater distances to services and poor quality of services with shortages of supplies and drugs. The net effect is that while countries may on average achieve many of their Millennium Development Goals (MDGs), targets will not be achieved for children in the poorest quintiles within these countries.

The critical lack of human resources for implementation of health care in many LMIC impedes the potential scale-up of treatment and provision of care (Kakuma *et al.* 2011). In sub-Saharan Africa 36 of the 57 countries face health worker shortages (WHO 2006a). Other factors include brain drain and the migration of professionals, poor morale and lack of appropriate incentives (Zachariah *et al.* 2009). Task shifting—the delegation of health care tasks to existing or new cadres with either less training or narrowly tailored training has been a suggested response (Zachariah *et al.* 2009). At this level tasks can be delegated outside of the formal health system to train lay community members, such as CHWs with increasing evidence in support of this (Araya *et al.* 2003; Lehmann 2009; Patel *et al.* 2011; van Ginneken *et al.* 2011).

In the most recent Global Burden of Disease analyses mental and behavioural disorders were the largest contributors to global years lived with disability (YLD), accounting for 22.7 per cent of all YLD (Vos *et al.* 2012). Mental illness has thus far not achieved commensurate visibility or funding, particularly in LMIC (WHO 2011). Mental health is neglected in the national policies of many LMIC (Rahman 2005), with as many as 42 per cent of African countries not even having a mental health policy and only two-thirds having a mental health plan (WHO 2011). The vast majority of people with a mental disorder in LMIC do not receive basic mental health care. This 'treatment gap' is 50 per cent across all countries globally but reaches a staggering 89 per cent for some disorders in many LMIC (Lora *et al.* 2012).

Maternal depression

For girls and women aged 14–44, anxiety and depression are the third leading cause of disease burden, while in LMIC approximately 16 per cent of women suffer from common mental disorders during pregnancy and 20 per cent postnatally (Fisher *et al.* 2012). In South Africa, up to 47 per cent of women have been diagnosed with major depression across the perinatal period (Rochat *et al.* 2011; Cooper *et al.* 1999; Hartley *et al.* 2011); the rate of postnatal depression was found to be 34.7 per cent two months after the birth of the child (Cooper *et al.* 1999); and almost 40 per cent of pregnant women screened positive on the Edinburgh Postnatal Depression Scale (EPDS) for depressed mood (Hartley *et al.* 2011).

In a high HIV prevalence region of KwaZulu Natal almost 50 per cent of women were diagnosed with antenatal depression (Rochat *et al.* 2011), a prevalence four times higher than in rich countries (Bennett *et al.* 2004). There is also growing evidence that antenatal depression is a strong predictor of maternal depression in the postnatal period (Lancaster *et al.* 2010). There is currently no routine screening or treatment for maternal mental disorders in South Africa (Honikman *et al.* 2012) at the primary health level.

A large body of research evidence has implicated maternal depression in disturbances in the early mother–infant relationship and in compromised child development (Patel *et al.* 2011). Key aspects of infant development, such as growth, are compromised in the context of the parental poverty and mental health problems that prevail in LMIC (Walker *et al.* 2011; Grantham-McGregor *et al.* 2007). In LMIC, where circumstances such as overcrowding, food

insecurity and poor sanitation are commonplace, sub-optimal care from the mother may have detrimental effects on the health of her child (Rahman 2005).

Child undernutrition is a major concern in LMIC and maternal depression has been implicated in poor infant and child growth (Rahman *et al.* 2007; Stewart 2007). A number of mechanisms such as poor self-care skills, poor illness detection and poor care-seeking behaviour have been implicated in the link between depression and physical morbidity (Rahman 2005). Inadequate antenatal care has also been shown to be characteristic of depressed women (Pagel *et al.* 1990). Depression in the postpartum period is particularly important in that the emerging processes of self and mutual regulation and social capacities make infants particularly vulnerable to early disruptions to interactions with their caregivers (Murray and Andrews 2000; Tomlinson *et al.* 2005).

Concerns for women's psychological wellbeing extend across the life cycle and cannot be confined to reproductive functioning (Astbury 2001). Risks for adverse mental health outcomes in women and girls include factors such as poverty and socioeconomic disadvantage, exposure to violence, stressful life experiences and inadequate support in addition to the risk factors associated with reproductive health. These factors, separately and together, work to reduce the degree of autonomy, control and decision-making possible for women and girls (Astbury 2001; Kehler 2001; Patel *et al.* 2007). In addition, in LMIC the economic and social realities of poverty and poor governance may be more constraining on individual behaviour than in richer countries (Tomlinson *et al.* 2010).

Women and girls have particular mental health needs that may vary from those of men, with gender playing an important role in defining susceptibility and exposure to various mental health risks, access to resources and treatment (Astbury 2001). Females are also at greater risk of experiencing gender-based violence such as interpersonal violence (IPV) and sexual assault, and the vast majority of partner abuse is perpetrated by men against their female partners (Heise *et al.* 2002). Women in abusive relationships report fear of violence as a barrier to contraceptive use (Heise *et al.* 2002; Williams *et al.* 2008) and are more likely to report negotiation challenges associated with male-controlled contraception (e.g. condoms) than women without such experiences (Heise *et al.* 2002). Access to individual level interventions to improve maternal mental health is essential.

Health in South Africa

South Africa's apartheid history legitimised disparity, the unjust distribution of resources, inferior education and unequal access to health. This had, and continues to have a profound impact on health, the development of health services and the formulation of health policies to redress the disparities. South Africa faces a quadruple burden of disease, concurrently challenged by HIV/AIDS and tuberculosis (TB), high rates of maternal and child morbidity, a growing burden of non-communicable diseases (NCDs), especially mental illness, as well as high rates of injury and violence (Norman *et al.* 2007). Policies to create an enabling environment are essential but can only be realised in the medium to long term. This includes implementation of child-focused legislation, availability of adequate financing and monitoring systems and inter-sectoral coordination across government departments. Currently, there is political will and leadership which is essential to creating an enabling environment. A critical question, however, is the extent to which the actual environment is in a position to deliver on the vision.

In May 2010, the newly appointed Minister of Health, Dr Aaron Motsoaledi, visited Brazil to learn from its Family Health Programme (Paim *et al.* 2011). The current South African primary health care package was drawn up in 2002. Arising out of the visit to Brazil, the Department of Health embarked on a re-engineering of the primary health care package. The aim of the re-engineering process is to bring adequate service provision to those

communities in need and reorganise resource distribution for both health promotion and disease prevention in light of the current human resource crisis.

A central pillar of the re-engineering is the mobilisation of health systems to provide a continuum of care that follows from community to clinic, to district hospital to more specialised services. Unlike the current approach that focuses on curative, individually orientated health care, the re-engineered approach aims to reach out to families and communities through health promotion and prevention activities, and will be implemented by a multidisciplinary team. The aim is a service that is organised both vertically and horizontally.

The second prong of the Department of Health's strategy is the implementation of a system of national health insurance (NHI) that will be phased in over the next 13 years. This framework serves to overcome the unequal distribution of resources between the private and public sector (Mayosi *et al.* 2012). In principle, the re-engineered primary health care system and the NHI scheme have the potential to revitalise and reshape the delivery of equitable health care in South Africa.

Philani Maternal, Child Health and Nutrition Project

The Philani Maternal, Child Health and Nutrition Project was established in 1979 by Dr Ingrid le Roux in the 'informal' settlements on the outskirts of Cape Town as an intervention to prevent malnutrition, rehabilitate underweight children and promote good health. This programme has as one of its core components the idea that communities are best placed to solve their own problems and that community participation in health care decisions (in line with the Alma Ata Declaration of 1978) is essential. Both the home-visiting intervention model and the selection of CHWs have been used to inform the recruitment and intervention strategy of Philani.

During a 4–6 week assessment and training period, mentor mothers are trained in skills relating to HIV/AIDS, maternal mental health, nutrition, basic health, early stimulation and play, knowledge about community resources and services, and information on grants, and referral routes and mechanisms. Following training, successful applicants are employed and conduct approximately six home visits per day, building supportive and trusting relationships and discussing family and parenting-related issues during each 15–60-minute visit. Ongoing supervision and input from coordinators and local clinic nursing staff ensures the programme's success.

In 2008, a cluster randomised controlled trial (RCT) was conducted and had significant benefits for mothers and infants over the first 18 months of life, based on a composite index of wellbeing composed of 32 measures. The benefits were in the areas of children's health and cognitive intelligence, maternal adherence to health care, and HIV prevention strategies (le Roux *et al.* 2013). The findings also provide evidence that while there might be benefits for child development in the context of perinatal depression, the primary preventive nature of community-based platforms such as Philani may not impact on moderate or severe depression.

The CHW system in the province has been characterised by extremely high levels of CHW attrition, with more than two-thirds of provincial CHWs having been employed for a year or less. There is a need for improved working conditions including increased remuneration, ease of mobility for CHWs and addressing the emotional strain that CHWs deal with on a daily basis. Intensive recruitment, ongoing high-quality supervision (individual and group based) and ongoing capacity development through on-the-job training, can also contribute to reducing attrition.

Conclusion

The finding on depression in the Philani RCT raises important questions regarding generalist versus specialist CHWs. While there may be benefits for the infants and children of women with depression it appears that unless mental illness is directly targeted and treated, the benefits for women's mental health may be marginal (Cooper *et al.* 2009). However, specialist interventions for maternal depression are likely to be too expensive for many LMIC and, therefore, evidence is needed for how specifically targeted interventions for moderate to severe depression can be integrated into primary health care and other delivery platforms. What is needed now and in the post-2015 arena is a more explicit acknowledgement and focus on the tension between urgent action and building slowly. In the face of high HIV burden in South Africa, acting urgently is understandable given that policymakers need rapid demonstrable outputs from their interventions. There is however no quick fix for health systems strengthening, or building effective human resources. The Philani approach epitomises the ability to engage with the tension rather than being seduced into the 'quick technological fix' or the temptation to reduce the quality of recruitment, training and supervision in order to 'extend reach'. The Philani approach is one that focuses on quality (not on volume) and according to one respondent being staffed by enthusiastic, dynamic and motivated people 'is the difference between a good and a bad system'. Women are at the centre of the Philani approach, and Philani's core value (perhaps) is that behaviour change occurs in the context of a supportive relationship.

1 Introduction

In most low- and middle-income countries (LMIC) women and girls carry a significant care burden, are twice as likely as men to suffer from depression, and are at greater risk of experiencing gender-based violence and sexual assault. There is an increasing focus on the health of women and girls, evidenced by Millennium Development Goals 4 and 5, and the explicit focus on maternal and child health by many international agencies such as the Department for International Development (DFID). Delivering effective and affordable health interventions in most LMIC is, however, a difficult task. With the health budgets of more than 40 African nations less than US\$30 per person annually, it is critical that more cost-effective delivery strategies are identified for health care (Lewin *et al.* 2008). Traditionally, a narrow disease-focused model has dominated interventions characterised by categorically funded vertically integrated interventions, with funding to programmes to address single risk factors. For example, HIV funding cannot be spent to address maternal depression, while alcohol funding cannot be spent on HIV-related interventions. Vertical programmes may not work as effectively or efficiently as more comprehensive approaches, particularly in countries that face multiple and concurrent health challenges (Sepulveda *et al.* 2006). This is especially true in domains such as maternal and child health where the synergistic interaction between mothers and children makes vertical un-integrated programming nonsensical.

Community health workers (CHWs) are increasingly being identified as a potential vehicle for strengthening community-based care, especially for maternal, newborn and child health. It is estimated that globally there are currently more than 40 million CHWs (Lewin *et al.* 2010), and there have been recent calls for one million CHWs in sub-Saharan Africa by 2015 (Singh and Sachs 2013). Most research evaluating the impact of CHW programmes has been limited to small and short-term interventions in heavily resourced research settings (Haines *et al.* 2007). Larger scale CHW programmes have been hindered by barriers to effective scale-up. Among other things, large-scale programmes are frequently undermined by high attrition and low activity levels of CHWs, which are less likely in smaller scale initiatives where supervision is often more intense and consistent (Walt *et al.* 1989).

In global health, the extent to which the gap can be bridged between small-scale efficacy studies and effective interventions at scale will depend on a number of factors:

- Holistic programmes that target the broader health concerns of women, families and children such as mental health interventions particularly in light of the fact that mental and behavioural disorders account for 22.7 per cent of all years lived with disability (Vos *et al.* 2012);
- While the use of CHWs has achieved many successes (Baqui *et al.* 2008; Rahman 2008), the system has also been characterised by a lack of consistent supervision and linkages to the health system (Walley *et al.* 2008; Haines *et al.* 2007).
- An enabling policy environment that facilitates the successful completion of tasks across the maternal and child health continuum of care.

In this paper I will argue that unless we begin to examine 'how' rather than the 'what' of interventions – or as McCoy and colleagues (2010) describe moving from knowledge of what works to systems that deliver, we will not be able to improve holistic population health in LMIC. This will be done by describing the context of global health, mental health in South Africa, and by using a case study of a South African non-governmental organisation (NGO), Philani, within the current fluid South African health system to illustrate what it has to offer in terms of lessons to surmount the significant obstacles to holistic and equitable health care delivery that exist in South Africa.

2 Context of global health

Despite the enormous strides made in improving global health in the last 20–30 years, the progress is too slow for many countries to reach their agreed targets. Approximately 8.5 million children under five die each year, almost all of which take place in poor countries – about half of these deaths occur in Africa (Bhutta *et al.* 2010). About 40 per cent of all child deaths occur in the neonatal period; with diarrhoea, pneumonia, and malaria accounting for most deaths in the period between one month and five years of age. In southern Africa, HIV is a significant contributor to high levels of child mortality, while undernutrition contributes to about a third of all child deaths. Most current estimates of maternal mortality suggest that there are about 350,000 maternal deaths occurring annually but other estimates put the figure closer to 500,000 (Hogan *et al.* 2010).

Almost two-thirds of child deaths could be diverted through the timeous delivery (at scale) of the interventions we know to be effective in saving children’s lives. Breastfeeding is perhaps the single most powerful intervention to reduce child deaths from pneumonia, diarrhoea, and neonatal sepsis. One of the negative consequences of vertical silo programming is that maternal, newborn and child health is not conceptualised as a continuum. A continuum of care provides a useful way of considering care across the life cycle (Kerber *et al.* 2007). This is illustrated in Figure 2.1 which outlines a (non-exhaustive list) of essential interventions that are needed to support caregivers across the continuum.

Figure 2.1: Continuum of care

	Pre-pregnancy	Pregnancy	Birth	Newborn/postnatal	Childhood
Family/community	Pre-pregnancy nutrition	Counselling and preparation for newborn care	Community-based postnatal care	Healthy home care	Health home care
	Prevention of HIV and STIs	Pregnancy nutrition	Feeding counselling	Community- and family-based interventions for maternal mental wellbeing	Community- and family-based interventions for maternal mental wellbeing
	Community- and family-based interventions for maternal mental wellbeing	Community- and family-based interventions for maternal mental wellbeing	Community- and family-based interventions for maternal mental wellbeing	Parenting skills Access to child care services for working and work-seeking mothers	Parenting skills Access to child care services for working and work-seeking mothers
Access to key services	Reproductive health care	Reproductive health care	Good quality obstetric care	Access to grants	Routine preventive child care
	Access to good quality health care	Early ANC screening for physical and mental wellbeing – at least 4 visits	Access to grants	Referral for care-giver mental illness	Parenting education programmes to prepare for newborn and support responsive parenting and prevent abuse and neglect
	Prevention and management of HIV and STIs	PMTCT for HIV/AIDS	Access to early birth registration and children’s grants and other poverty alleviation programmes	Access to quality health care	Access to maintenance and child support
		Referral for care-giver mental illness		Access to maternity and family responsibility leave	Access to quality health care Referral for care-giver mental illness
Establishing an enabling environment	LEGISLATION Social Assistance Amendment Act Children’s Act Births and Deaths Registration Amendment Act Domestic Violence Act Maintenance Act Basic Conditions of Employment Act				
	FINANCING Availability of adequate fiscal resources Systems to allocate funding				

Source: Author’s own

2.1 Equity

Gwatkin (2001) has shown how even interventions that are considered to be 'pro-poor' such as immunisation and oral rehydration therapy have better coverage amongst less disadvantaged groups. In some cases this is due to user fees but in many cases even when services are universally available and free (such as immunisation against measles in India) children in the richest quintile are three times more likely to receive immunisation than children in the poorest quintile (*ibid.*). Reasons for this include greater distances to services and poor quality of services with shortages of supplies and drugs. The net effect is that while countries may on average achieve many of their MDGs, targets will not be achieved for children in the poorest quintiles within these countries. A crucial component of reducing these disparities is through ensuring basic care at family and household levels, utilising CHWs together with a functioning primary health care system. While CHWs are a central component of implementing equitable primary health care, equally important are functional health systems – whether a health post, clinic or health centre (Haines *et al.* 2007).

2.2 Task shifting

The critical lack of human resources for implementation of health care in many LMIC impedes the potential scale-up of treatment and provision of care. In sub-Saharan Africa 36 of the 57 countries face health worker shortages (WHO 2006a). The HIV/AIDS epidemic has fuelled the health workforce crisis. Sub-Saharan Africa has only three per cent of the world's health workers, but the highest prevalence of HIV/AIDS in the world (WHO 2007a). Other factors include brain drain and the migration of professionals, poor morale and lack of appropriate incentives (Zachariah *et al.* 2009). One response to this crisis has been the investigation of task shifting approaches to the delivery of health care services. Task shifting is the delegation of health care tasks to existing or new cadres with either less training or narrowly tailored training (*ibid.*). At this level tasks can be delegated outside of the formal health system to trained lay community members, such as CHWs (Lehmann 2009). Task shifting approaches have the potential to facilitate scaling-up of health services at minimal cost and ease bottlenecks in service delivery (WHO 2007b; Lehmann 2009). A central component of how this can be facilitated is through the efficiency gains achieved through the reduced time (and costs) needed to train CHWs or other cadres of health workers (*ibid.*).

Kakuma and colleagues (2011) have highlighted the fact that while there is an overwhelming worldwide shortage of human resources for mental health, the problem is particularly severe in LMIC. There is increasing evidence of how individuals with no mental health background can deliver psychological treatments effectively with relatively little training and continued supervision (Patel *et al.* 2011; van Ginneken *et al.* 2011). Social workers and nurses in primary health care clinics provided a collaborative stepped-care intervention that improved outcomes for depressed women in Chile (Araya *et al.* 2003). Patel and colleagues (2010) used the same approach using trained lay health counsellors for treating depressive and anxiety disorders resulting in improved recovery rates for patients.

2.3 The context of global mental health

In the most recent Global Burden of Disease analyses mental and behavioural disorders were the largest contributors to global years lived with disability (YLD), accounting for 22.7 per cent of all YLD (Vos *et al.* 2012). Mental illness has thus far not achieved commensurate visibility or funding, particularly in LMIC (WHO 2011). Despite the high prevalence of mental disorders and known correlation with poverty (Patel and Kleinman 2003), data for LMIC is limited. Mental health is neglected in the national policies of many LMIC (Rahman 2005), with as many as 42 per cent of African countries not even having a mental health policy and only two-thirds having a mental health plan (WHO 2011). The vast majority of people with a mental disorder in LMIC do not receive basic mental health care. This 'treatment gap' is 50 per cent across all countries globally but reaches a staggering 89 per cent for some disorders in many LMIC (Lora *et al.* 2012).

3 Maternal depression

3.1 The global picture

For girls and women aged 14–44, anxiety and depression are the third leading cause of disease burden, while in LMIC approximately 16 per cent of women suffer from common mental disorders during pregnancy and 20 per cent postnatally (Fisher *et al.* 2012). In rich countries the leading cause of death during pregnancy is suicide (Oates 2003), and while there is a relative lack of information on maternal suicide from LMIC, Patel and colleagues (2012) have recently shown that suicide death rates in India are among the highest in the world, and most occur between the ages of 15–29 with women being particularly vulnerable.

3.1.1 South Africa

In South Africa, up to 47 per cent of women have been diagnosed with major depression across the perinatal period (Rochat *et al.* 2011; Cooper *et al.* 1999; Hartley *et al.* 2011); the rate of postnatal depression was found to be 34.7 per cent two months after the birth of the child (Cooper *et al.* 1999); and almost 40 per cent of pregnant women screened positive on the Edinburgh Postnatal Depression Scale (EPDS) for depressed mood (Hartley *et al.* 2011). In a high HIV prevalence region of KwaZulu Natal almost 50 per cent of women were diagnosed with antenatal depression (Rochat 2011), a prevalence four times higher than in rich countries (Bennett 2004). There is also growing evidence that antenatal depression is a strong predictor of maternal depression in the postnatal period (Lancaster *et al.* 2010). There is currently no routine screening or treatment for maternal mental disorders in South Africa (Honikman *et al.* 2012) at the primary health level. Of course, when depression is picked up there would be a referral system either within the primary health care system, to psychiatric nurses or to a psychiatric institution.

3.2 The impact of maternal depression on infants and children

Depression is a multi-generational disorder in that its psychological, social, biological and social consequences are felt by all members of the family and not solely by the person who is depressed. A large body of research evidence has implicated maternal depression in disturbances in the early mother–infant relationship and in compromised child development (Patel *et al.* 2011). Key aspects of infant development, such as growth, are compromised in the context of the parental poverty and mental health problems that obtain in LMIC (Walker *et al.* 2011; Grantham-McGregor *et al.* 2007). In LMIC, where circumstances such as overcrowding, food insecurity and poor sanitation are commonplace, sub-optimal care from the mother may have detrimental effects on the health of her child (Rahman 2005). In highly adverse conditions where negative social determinants of health are evident, differences between attentive and non-attentive care are pronounced. For instance, it is now well documented that infant nutritional status is not solely influenced by food security and caloric intake but influenced by factors such as the health environment, availability of health care and feeding and care practices. Caregiving behaviours such as ensuring adequate hygiene, optimal nutrition through breastfeeding, immunisation, recognising illness and seeking care, along with the rest of responsive parenting and mother–infant bonding that is needed for physical and mental development of a child may all be compromised by mental illness.

Child undernutrition is a major concern in LMIC and maternal depression has been implicated in poor infant and child growth (Rahman *et al.* 2007; Stewart 2007). A number of mechanisms such as poor self-care skills, poor illness detection and poor care-seeking behaviour have been implicated in the link between depression and physical morbidity (Rahman 2005). Inadequate antenatal care has also been shown to be characteristic of depressed women (Pagel *et al.* 1990). An additional important factor is that in the hostile environments that characterise many LMIC, high maternal responsiveness to the many potential dangers to their infants and children is crucial to ensuring positive child

development (Rahman 2005). Also, high maternal responsiveness to a malnourished child's need for food and comfort has a direct positive impact on child growth (*ibid*).

Depression in the postpartum period is particularly important in that the emerging processes of self and mutual regulation and social capacities make infants particularly vulnerable to early disruptions to interactions with their caregivers (Murray and Andrews 2000; Tomlinson *et al.* 2005). In a South African study, mothers who were depressed in the early postpartum period were significantly less sensitive in interaction with their infants in early face-to-face interactions than were non-depressed mothers, and infants of depressed mothers were also less positively engaged with their mothers (Cooper *et al.* 1999). One of the consequences of such disturbances in the mother–infant relationship is an irritable and withdrawn infant (Murray *et al.* 1996), and an elevated rate of behavioural and emotional problems in children (Murray and Cooper 2003).

3.3 Women and girls' mental health

Concerns for women's psychological wellbeing extend across the life cycle and cannot be confined to reproductive functioning (Astbury 2001). The considerable body of evidence that emphasises the relationship between women's biology and maternal depression runs the risk of perpetuating the stereotype that women's mental health is reducible to those conditions related to their reproductive health. Women's mental health becomes confined to determinants of their reproductive functioning, and in the process other factors such as social and political contexts are overlooked. In addition, a focus on individual mental disorder, and the proximal determinants of behaviour, may obscure the fact that proximal determinants are shaped by contextual realities (Tomlinson *et al.* 2010) and risks medicalising legitimate distress.

Risks for adverse mental health outcomes in women and girls include factors such as poverty and socioeconomic disadvantage, exposure to violence, stressful life experiences and inadequate support in addition to the risk factors associated with reproductive health. These factors, separately and together, work to reduce the degree of autonomy, control and decision-making possible for women and girls (Astbury 2001; Kehler 2001; Patel *et al.* 2007). Poverty is an important predictor of depression and anxiety (Kehler 2001; Connelly *et al.* 2010; Kagee 2008; Levy and O'Hara 2010; Ramchandani *et al.* 2009; Tomlinson *et al.* 2009), and environmental stressors such as challenging life events and chronic difficulties contribute significantly to the prevalence of disorders such as depression and anxiety amongst poor women (Patel and Kleinman 2003). In addition, in LMIC the economic and social realities of poverty and poor governance may be more constraining on individual behaviour than in richer countries (Tomlinson *et al.* 2010).

3.3.1 The mental health needs of women

Women and girls have particular mental health needs that may vary from those of men, with gender playing an important role in defining susceptibility and exposure to various mental health risks, access to resources and treatment (Astbury 2001). Gender may be a critical determinant in the manifestation and outcome of mental disorders. Mental disorders such as depression and anxiety more commonly affect women across diverse societies and social contexts (Patel and Kleinman 2003). The risk of depression for women is nearly twice that of men (Kessler 2003; Pillay and Kriel 2006; Scheibe *et al.* 2003; Stein *et al.* 2008). Psychological services are more commonly accessed by women but this is related more to help-seeking behaviour than prevalence of mental disorder (Astbury 2001). Research from a primary health care facility in South Africa showed that women over the age of 30 constituted 86 per cent of the patients attending psychological consultations (Petersen 2004). Gender differences in mental health often emerge in adolescence. Young women are reported more likely to have depressive disorders and attempt self-harm, whereas young men are more likely to suffer from conduct or behaviour disorders and schizophrenia (Patel *et al.* 2007). In both high-income countries and LMIC, self-inflicted injuries are listed as the second leading

cause of death in females aged 10–19 years (WHO 2008). Adolescent birth rates remain high in low-resource settings, increasing the risk for long-term mental and physical health consequences. Furthermore, studies report an association between the depressive symptoms in adolescents and sexual behaviours that place adolescent girls at risk for HIV infection, other sexually transmitted infections (STIs), and unintended pregnancy (Ramrakha *et al.* 2000; Tubman *et al.* 2003; Brown *et al.* 2006).

3.3.2 Gender-based violence

Females are at greater risk of experiencing gender-based violence such as interpersonal violence (IPV) and sexual assault, and the vast majority of partner abuse is perpetrated by men against their female partners (Heise *et al.* 2002). Experiences of physical or sexual violence by a partner are associated with increased odds of reports of poor physical and mental health, irrespective of where a woman might live, or her cultural or racial background (Ellsberg *et al.* 2008). Pillay and Kriel (2006) found that more than half of the women seeking mental health care in South Africa report violent abuse from their partners, despite the common under-reporting associated with forms of gender-based violence. The impact of exposure to violence is cumulative (Follette *et al.* 1996; Mechanic *et al.* 2008). Exposure to adolescent IPV has an important and unique effect on mental health in early adulthood, with high levels of exposure to adolescent IPV being associated with high levels of depressive symptoms which may be maintained over ten years (Lindhorst and Oxford 2008). The relationship between intimate partner abuse and mental health problems has been well documented, with post-traumatic stress disorder (PTSD) and depression being the most commonly identified disorders (Mechanic *et al.* 2008; Ngcobo and Pillay 2008; Peltzer *et al.* 2013; Ward *et al.* 2001; Kaminer *et al.* 2008). Women suffering physical and sexual abuse experience increased rates of depression, anxiety and PTSD (compared with their non-victimised counterparts), undermined sexual and reproductive autonomy and consequently increased risk of HIV infection (Jewkes *et al.* 2010; Maman *et al.* 2000). Recovery from PTSD and depression may also be further hampered by several other stressors, including poverty, lack of material resources and parenting stress (Mechanic *et al.* 2008).

During their reproductive years, women face a variety of constraining factors in their control over family planning and negotiating contraceptive use, especially condom use (Campbell *et al.* 2006). For women exposed to intimate partner violence, this becomes even more of a challenge. Women in abusive relationships report fear of violence as a barrier to contraceptive use (Heise *et al.* 2002; Williams *et al.* 2008) and more likely to report negotiation challenges associated with male-controlled contraception (e.g. condoms) than women without such experiences (Heise *et al.* 2002). Women in resource-poor settings have limited access or control over contraceptive use, often for fear of conflict with their husbands' preferences and attitudes (Casterline *et al.* 2001). Poor women and their children suffer disproportionately from the consequences of unintended pregnancies. Finally, in many countries in sub-Saharan Africa where women lack control over food supply and resources while being tasked to care for dependants, transactional sex becomes a survival strategy (Weiser *et al.* 2007).

Access to individual level interventions to improve maternal mental health is essential. However, this cannot be done at the expense of, or instead of, attending to structural determinants such as poverty and adverse living conditions. Identification of persistent neighbourhood conditions that moderate efficacy of maternal–child interventions offers a pathway to amplify or block intervention impact and sustainability (Culhane and Elo 2005; Galea *et al.* 2005a&b; Diez Roux and Mair 2010). High-density living, frequent migration, elevated violence, and high pollution may seriously interfere with maternal–child functioning and health. In the UK for example (data are absent from LMIC), noisy neighbours, home overcrowding, poor access to amenities, and fear of crime are linked to poor mental health status (Guite *et al.* 2006). Depression is strongly associated with neighbourhood adversity

(Cutrona *et al.* 2006), including social disorder (Kim 2008), poor built environment (Galea *et al.* 2005a), material deprivation, and residential mobility (Matheson *et al.* 2006).

In Khayelitsha, more than 80 per cent of township families are from the Eastern Cape, poor tribal lands with even higher unemployment and fewer resources. Most families migrate at least two or three times annually to visit the Eastern Cape. Migration into Cape Town townships has tripled during the period 1980–2000 (Ndegwa *et al.* 2007). As a result the population is fairly typical of both urbanised South Africa (60 per cent of the country's population) while also reflecting the rural population to some extent. Frequent circular migration impacts on family relationships, stability in child schooling and higher mortality levels (Clark *et al.* 2007; Collinson *et al.* 2007). The World Health Organization (WHO) recognises community violence as a major health problem (WHO 2002). Violence and injuries are the second leading cause of death in South Africa, while the injury death rate is almost twice the global average (Groenewald *et al.* 2008). Social and economic inequalities heighten relative deprivation in disadvantaged communities and contribute directly and indirectly to community violence (Aisenberg and Herrenkohl 2008). Cumulative exposure to violence and perceptions of neighbourhood disorder has been directly linked to depression in urban women and mothers (Tonorezos *et al.* 2008). Access to safe sanitation and clean water as well as reducing smoke exposure as a result of burning fossil fuels all make significant contributions to family health. In South Africa, as in most countries in the world, these structural determinants require urgent attention.

4 Health in South Africa

South Africa's apartheid history legitimised disparity, the unjust distribution of resources, unequal education and unequal access to health. This had, and continues to have a profound impact on health, the development of health services and the formulation of health policies to redress the disparities. The consequences of these disparities still persist today, most notably in South Africa's high burden of poverty-related diseases and the marked differences in rates of disease and mortality between racial groups as previously categorised. South Africa faces a quadruple burden of disease, concurrently challenged by HIV/AIDS and tuberculosis (TB), high rates of maternal and child morbidity, a growing burden of non-communicable diseases (NCDs), especially mental illness, as well as high rates of injury and violence (Norman *et al.* 2007). South Africa is one of 12 countries worldwide where child mortality has increased since 1990 (Bradshaw *et al.* 2008) although it has been significantly reduced in recent years. Spending on antiretroviral drugs has been accelerated and a new national strategy for HIV, sexually transmitted infections and TB was introduced for 2012–16 (Mayosi *et al.* 2012). Antiretroviral therapy (ART) services are now available in more than 2,552 facilities countrywide and South Africa continues to have the largest ART programme in the world (*ibid.*). South Africa has also achieved significant scale-up in interventions of HIV treatment for pregnant women, with more than 98 per cent of women receiving a HIV test during pregnancy and 91.7 per cent of HIV-positive mothers receiving ART or prophylaxis (Bhutta and Chopra 2012). Overall mother-to-child transmission (MTCT) rates (and mortality) have been dropping sharply (Goga *et al.* 2012). A study conducted in KwaZulu Natal province showed that by 2008, 98 per cent of pregnant women had had a HIV test. By 2010 there was 92 per cent coverage for either maternal highly active antiretroviral therapy (HAART) or prophylaxis amongst HIV-positive women in South Africa (Goga *et al.* 2012; Rollins *et al.* 2009).

Despite these recent gains pregnant women in South Africa face intersecting epidemics of HIV, alcohol and drug abuse and malnutrition. South Africa has the highest number of persons living with HIV globally: 5.2 million (Tomlinson *et al.* 2013a). Concurrently, it also has the highest documented rate of Fetal Alcohol Syndrome (FAS) and 17 per cent of mothers have at least one child with a birth weight under 2,500 grams, resulting in lifelong negative health outcomes (Tomlinson *et al.* 2013a; May *et al.* 2005). These imperatives both demand increasing focus on pregnancy, birth and the neonatal period, including improving facility-based care and implementing appropriate models of sustainable community-based care to reach the poorest families, especially the peri-urban poor.

4.1 Policy to create an enabling environment

There are a number of systemic functions that create an enabling environment and facilitate the successful completion of tasks across the continuum of care (see Figure 2.1).

Establishing an enabling environment is, in the first instance, a function of government and there are three main levers that contribute to this (Neuman and Devercelli 2013). These levers are essential but can only be realised in the medium to long term.

- An appropriate legal framework that provides support to caregivers across all domains, such as social assistance, maternity leave and quality child care. This would include the implementation of child-focused legislation such as the Children's Act to provide care and protection of children in a developmental way with an emphasis on the continuum of care.
- The availability of adequate financing and monitoring systems. Part of the solution is simply fiscal (more money should be spent in traditionally neglected areas), but equally important is the better redistribution and use of existing resources (Coovadia *et al.* 2009). Ensuring adequate financing of standard community visits by CHWs coupled with the establishment of a robust national data system on postnatal care

(whether in the home or in the facility) is essential. Another component is quality and appropriate supervision and management systems.

- The final lever is that of inter-sectoral coordination. In South Africa, as in many other countries, roles and functions that are intrinsically linked in the everyday lives of caregivers are in fact artificially split across government departments. For example, social grants are managed by the Department of Social Development while many other support or clinical services are driven by the Department of Health. The result may be a 'silo' approach to service provision and costly task replication resulting in missed opportunities to deliver essential services. In a financially constrained system, improving inter-sectoral coordination is vital, particularly as support for caregivers cuts across numerous systems such as Health, Social Development and Education.

Currently there is political will and leadership which is essential to creating an enabling environment. A critical question, however, is the extent to which the actual environment is in a position to deliver on the vision. The NGO sector which is likely to constitute a core component of any future system has been significantly weakened with two decades of reduced funding. The roles of NGOs that have been receiving state funding for CHW programmes prior to the re-engineering of primary health care became little more than one of disbursing stipends (Schneider *et al.* 2008) – with little focus on developing comprehensive supervision and management systems.

4.2 Health policy development in South Africa

The history of public health in South Africa has been one of fragmentation within the public health sector, and between the public and private sectors (Coovadia *et al.* 2009). In the first paper of the *Lancet's* series on health in South Africa, Coovadia and colleagues (*ibid.*) describe a state of racially segregated health facilities, with separate curative and preventive services. The health system inherited by the first democratically elected government in 1994 was one in which more than half of the available financial and human resources were in the private sector. Within the public sector, infrastructure, financial and human resources were unequally distributed between geographical areas, and a meagre 11 per cent of spending was allocated to non-hospital primary care services (McIntyre *et al.* 1995). The model that was proposed for the post-apartheid health system was a primary health care approach that arose out of the Alma Ata Declaration (WHO 1978). This approach conceptualised community-based health services bringing health care as close to individuals and families through a continuing health care process, and that community participation in health was key (WHO 1978; Rosato *et al.* 2008).

The new government began by merging the 14 health administrations into one national and nine provincial health departments. Primary health care, delivered via the district health system was intended to redress the historical inequities through the provision of essential health care to previously disadvantaged communities (Coovadia *et al.* 2009). Free health care became available through an improved clinic infrastructure and the availability of key drugs in public facilities. However, almost 20 years after democracy, South Africa is still grappling with massive health inequities and high burden of disease and mortality (Mayosi *et al.* 2012). The ability to implement the vision of primary health care has been inhibited by inadequate human resource capacity, poor leadership and management, and the increased stress on the system caused by the HIV/AIDS pandemic. In addition, insufficient attention has been given to implementing a primary health care approach that emphasises both disease prevention and health promotion at the community level. Finally, the burden of HIV and the associated TB epidemic have diverted energy and resources from successful primary health care implementation. In the context of this less than optimal implementation of primary health care the National Department of Health has initiated a two-pronged strategy to redress imbalances.

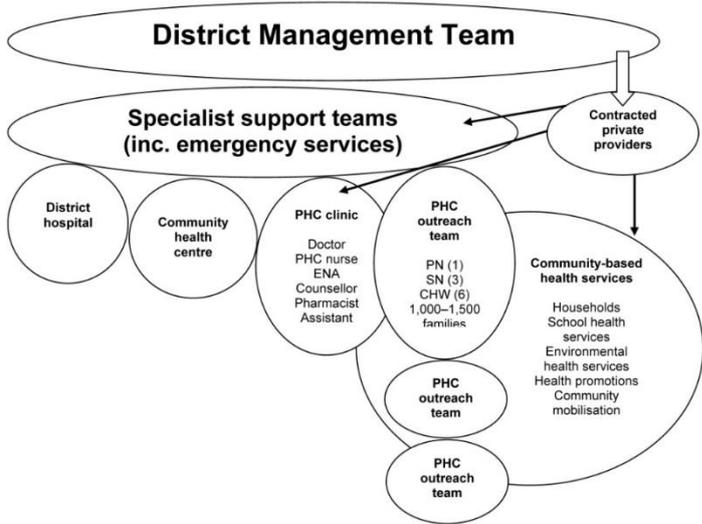
4.3 The re-engineering of primary health care

Following the catastrophe of the HIV/AIDS policies of ex-President Thabo Mbeki and his health minister, Mantombazana Tshabalala-Msimang (Mayosi *et al.* 2012), the current environment is one that has in the last five years become significantly more conducive to effective and equitable health programming. In May 2010 the newly appointed Minister of Health, Dr Aaron Motsoaledi, visited Brazil to learn from its Family Health Programme (Paim *et al.* 2011). Brazil is on target to meet most of its MDGs through the implementation of its Unified Health System (SUS). This has been achieved through a process of decentralising health services with community and social participation at all levels of government coupled with inter-sectoral action. At the core of the SUS are family health teams consisting of a doctor, nurses, assistant nurses and six CHWs. There are approximately 250,000 CHWs employed within the Brazilian health system and they provide the link between the community and the primary health clinics. The introduction of the SUS together with a conditional cash transfer programme, and a deliberate focus on reducing regional and economic disparities has ensured that the under-five mortality rate in Brazil has fallen by an average of 5.2 per cent a year since 1990, while inequalities have shrunk markedly since 1990 to the extent that in 2007 skilled care during childbirth was universal (WHO 2010).

The current South African primary health care package was drawn up in 2002. Arising out of the visit to Brazil the Department of Health embarked on a re-engineering of the primary health care package. The aim of the re-engineering process is to bring adequate service provision to those communities in need and reorganise resource distribution for both health promotion and disease prevention in light of the current human resource crisis. The approach emphasises population-based health and outcomes, tackled through a primary health care outreach team based on CHWs and the mobilisation of communities. The recommendations have largely been structured around the WHO framework for health systems strengthening (WHO 2007a). Currently, South Africa has over 70,000 CHWs most of whom are paid by national government but employed and monitored by NGOs – an intermediary between CHWs and the state (Schneider *et al.* 2008). Historically, CHWs have not been incorporated into the formal civil service or health system which has resulted in them occupying an ambiguous position as volunteers or workers (*ibid.*). An important component of the re-engineering process is the incorporation of CHWs into the formal civil service/health system.

A central pillar of the re-engineering is the mobilisation of health systems to provide a continuum of care that follows from community to clinic, to district hospital to more specialised services (see Figure 4.1). Unlike the current approach that focuses on curative, individually orientated health care, the re-engineered approach aims to reach out to families and communities through health promotion and prevention activities, and will be implemented by a multidisciplinary team. The aim is a service that is organised both vertically and horizontally. For example, integration of maternal and child health services begins at household level through health promotion and early identification of families at risk. This level of care then follows through to clinic and formal district-based services and to higher levels of care in secondary and tertiary hospitals where needed. The idea is to focus on health promotion and prevention at every level of care so that individuals and communities take responsibility for their own health – at its core a public health Alma Ata approach. The new strategy incorporates community-based services using primary health care outreach teams in order to help strengthen the district health system (DHS) as well as to focus on the social determinants of health such as education and infrastructural improvements.

Figure 4.1: Primary health care model within the district health system

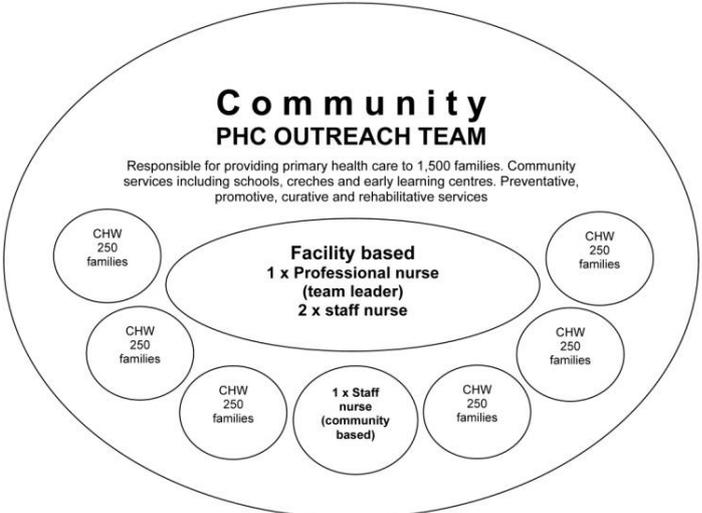


Source: Adapted from National Department of Health (n.d.).

4.3.1 Primary health care outreach teams

The restructuring of services in this way requires a new way of organising human resources. In South Africa there is a significant lack of trained health care personnel able to render services in rural and underserved areas. These primary health care teams consist of a mix of different personnel providing comprehensive primary health care services to the households in their care (see Figure 4.2). The professional nurse, staff nurse and CHW are the core components of the primary health care team. Current calculations estimate that a CHW will cover approximately 250 households. A primary health care outreach team will comprise six CHWs with approximately 1,500 households per team (250 households x 6 CHWs). Primary health care teams operate within a defined geographic boundary and are responsible for a set number of households and individuals. In addition to the six CHWs, each primary health care outreach team will include a comprehensively trained professional nurse (who is also a midwife), a staff nurse (mid-level nurse who will provide basic care to persons with stable and uncomplicated general health problems). Medical doctors and nurses will support the outreach team to manage complex health problems or disease outbreaks.

Figure 4.2: Primary health care outreach teams



Source: Adapted from National Department of Health (n.d.).

4.4 National health insurance

The second prong of the Department of Health's strategy is the implementation of a system of national health insurance (NHI) that will be phased in over the next 13 years. This framework serves to overcome the unequal distribution of resources between the private and public sector (Mayosi *et al.* 2012). NHI is currently being piloted in ten selected health districts, and its formal implementation could potentially provide universal access to health promotion, disease prevention, care and support through a variety of platforms. Such an approach will be essential to reduce the quadruple burden of disease and improve the health outcomes through a restructured and strengthened health system.

In principle, the re-engineered primary health care system and the NHI scheme have the potential to revitalise and reshape the delivery of equitable health care in South Africa.

5 Philani Maternal, Child Health and Nutrition Project

5.1 Background

The Philani Maternal, Child Health and Nutrition Project was established in 1979 by Dr Ingrid le Roux in the 'informal' settlements on the outskirts of Cape Town as an intervention to prevent malnutrition, rehabilitate underweight children and promote good health. Since then it has developed to include a holistic programme targeting maternal and child health as well as more recently an Early Childhood Development component, which offers support to expectant mothers and to children from birth to school-going age using what Philani calls 'mentor mothers' (essentially CHWs). The programme now operates in more than 140 neighbourhoods.

5.2 Model

This programme has as one of its core components the idea that communities are best placed to solve their own problems and that community participation in health care decisions (in line with Alma Ata) is essential. The home-visiting intervention model builds on two successful international models that improve the healthy development of children. The first is the nurse home-visiting model of David Olds in the USA where nurses visit disenfranchised families at risk of poor child outcomes. The Olds model is perhaps the 'gold standard' in terms of the longitudinal data available to track long-term efficacy of early home visiting (Olds *et al.* 2004; Olds *et al.* 2002). However, it is not possible to feasibly implement home visiting by nurses even in an upper middle-income country like South Africa, let alone a low-income setting, given the lack of human resources required to mount or sustain such an intervention strategy.

A second international model that is used to inform the recruitment and intervention strategy of Philani is the selection of CHWs (known as mentor mothers (MMs) within the Philani programme) who are what is known as 'positive peer deviants' (Aruna *et al.* 2001; Marsh *et al.* 2004). Mentor mothers are women who are poor, live in the same neighbourhood, and have children who are thriving. Philani MMs offer ongoing support over time, facilitate health care-seeking behaviour, and promote the translation of treatment recommendations into a family's daily routines. The underlying principle is that women from within these communities whose children are thriving are best placed to be trained to deliver services to others. Philani engages with community leaders to identify the needs of the community and to select mothers who have a positive attitude, are empathic, are non-judgmental and have good listening, organisational and coping skills.

During a 4–6 week assessment and training period, mentor mothers are trained in skills relating to HIV/AIDS, maternal mental health, nutrition, basic health, early stimulation and play, knowledge about community resources and services, and information on grants, and referral routes and mechanisms. Following training, successful applicants are employed and conduct approximately six home visits per day, building supportive and trusting relationships and discussing family and parenting-related issues during each 15–60-minute visit. Ongoing supervision and input from coordinators and local clinic nursing staff ensures the programme's success.

5.3 Philani Mentor Mothers cluster randomised controlled trial

In 2008 Philani, Stellenbosch University (South Africa), University of California Los Angeles and Emory Universities in the USA embarked on a cluster randomised controlled trial (RCT). The RCT emerged in response to the growing need in South Africa for the development, implementation and 'gold standard' evaluation of evidence-based health interventions which

are effective and affordable in addressing pervasive health concerns. An underlying principle of the evaluation was to evaluate an existing intervention that had longevity and community buy-in. Many evaluations of health interventions (often RCTs) involve researchers developing the intervention, conducting the recruitment, training and supervision of CHWs, implementing the intervention, as well as conducting all assessments. While the evidence generated through this method is important, the subsequent implementation or scale-up of the intervention is rare given that researchers are not implementers. The Philani RCT was designed specifically in order to avoid this happening – Philani has existed for three decades, has exhibited longevity and will continue to provide services once the RCT has been concluded.

5.3.1 Setting

Cape Town contains five major peri-urban settlements (townships) with formal and informal rudimentary housing. Unemployment in Cape Town townships is estimated at 40 per cent (Kalichman and Simbayi 2003; Statistics South Africa 2013). Most women live within 5km of a prenatal clinic. In each area, there is sub-economic formal housing and vast areas of informal houses (shacks).

5.3.2 Procedure

Township mothers were recruited as MMs by referrals, advertising, and nominations from stakeholders. More than 60 women applied and were interviewed, 40 attended training, and 26 graduated, with 14 being hired to implement the intervention. The MMs work half-time (four hours daily), making home visits on four days and attending supervision one day each week. Twice a month a supervisor randomly and unexpectedly attends the home visits with the MM. MMs systematically visit every home in their assigned neighbourhood of 450–600 mothers, identify every pregnant woman in their neighbourhood, carry a scale and then weigh all children under five years, and use growth charts to identify malnourished children (i.e. the two standard deviations below their age-to-weight norm). As already stated, historically Philani focused on nutrition and low birth weight. This focus has been expanded by formalised training on maternal and child health, early childhood development, HIV, TB, depression, and alcohol abuse.

5.3.3 Participants

In 2009, 26 township neighbourhoods were matched on size (450–600 households), density, public utilities (water, electricity, and toilets), distance of primary health care, and the number of alcohol bars. A recruiter obtained consent to contact and repeatedly visit all households in all neighbourhoods from May 2009 to September 2010 to identify pregnant women. Only 2 per cent of pregnant women refused participation. In control neighbourhoods, only one recruiter approached households to identify pregnant women, whereas in intervention neighbourhoods, both a recruiter and a MM identified pregnant women by house-to-house canvassing.

5.3.4 Intervention conditions

Standard Care (SC) condition. In South Africa, standard clinic care of mothers living with HIV includes: dual therapy to Prevent Mother to Child Transmission (PMTCT), standard Department of Health regimens for antiretroviral (ARV) treatment, the return of PCR test results (a test for HIV infection) for infants by six weeks of age, and the antibiotic co-trimoxazole for exposed infants starting at six weeks of age.

Philani Intervention Programme (PIP). All MMs were trained in: (1) cognitive-behavioural approaches to establishing healthy routines and to problem-solve on goal setting, choices, triggers, and shaping of desirable behaviours; (2) key health information about general maternal and child health, how to frame each health issue that is a risk (nutrition, alcohol, and HIV), and how to apply the health information in families' daily lives; and (3) coping with

their own life challenges. Trainers actively rehearsed and observed videotapes on how to solve challenging life situations, build engaging relationships, and keep responsibility for change with the mother. MMs were supervised weekly (interpersonal supervision as well as using mobile phones), and randomly observed twice a month.

In addition to the messages for all pregnant women, four antenatal and four postnatal sessions were specifically targeted for pregnant women at risk. The RCT has extensive protocol manuals, as well as 22 webisodes to systematically train and support health care professionals. Eight core messages include nutrition; hazardous alcohol use; information on gaining access to the Child Financial Assistance Grant; caretaking of self and baby; exclusive and appropriate feeding with an emphasis on breastfeeding; adherence to medical regimens; creating a supportive social network; and facilitating improved mental health through supportive networks and referral for serious mental disorders. The intervention content has been described in more detail elsewhere (Rotheram-Borus *et al.* 2011).

5.3.5 Results

The Philani intervention had significant benefits for mothers and infants over the first 18 months of life, based on a composite index of wellbeing composed of 32 measures. The benefits were in the areas of children's health and cognitive intelligence, maternal adherence to health care, and HIV prevention strategies (le Roux *et al.* 2013). The intervention also benefited subgroups: women living with HIV (WLH) adhered 5–10 per cent better on an absolute basis to each of the tasks to PMTCT compared to women in the control group. Overall, adherence to all PMTCT resulted in a relative effect size of 50 per cent better adherence to PMTCT tasks by WLH. Alcohol use is common with 27 per cent of pregnant women drinking more than once a day prior to recognising they were pregnant. About half of these women continued to drink after knowing they were pregnant (le Roux *et al.* 2013). Women using alcohol (WUA) in PIP neighbourhoods significantly reduced episodes of drinking during pregnancy, especially among women who drank four or more drinks. In contrast, WUA in the control group increased their drinking by 50 per cent during pregnancy. Alcohol use was similar across arms at the six- and 18-month follow-ups. The Philani intervention also reduced malnutrition: women receiving home visits were three times more likely to breastfeed exclusively for six months and breastfed longer. Those who previously had a low birth weight infant were half as likely to have another low birth weight infant, compared to controls.

The findings related to infant growth in the context of maternal antenatal depression are particularly interesting. While the CHWs were not trained to address depression and rates of depression were similar in the PIP and SC over time, the children of depressed mothers in PIP are more often in the normative weight and height for age over time and have higher IQs at 18 months compared to children of depressed SC mothers. For example, the weight–age Z score (according to WHO standards) (WHO 2006b) was significantly better in the intervention group among WLH and WUA, compared to infants of women in the control neighbourhoods. The intervention did not reduce depression; however, among depressed women, maternal caretaking was improved. These findings are in line with other data that show that community-based delivery programmes that do not directly screen for, or treat, depression may have impacts on aspects of child development strongly associated with perinatal depression. These findings also provide evidence that while there might be benefits for child development in the context of perinatal depression, the primary preventive nature of community-based platforms such as Philani may not impact on moderate or severe depression.

6 Discussion

The Philani approach using MM referrals to the formal health system falls squarely within the proposed re-engineering primary health care system which utilises health care teams that have CHWs delivering holistic community- and family-based health services (at least in theory). This discussion will be broken into two sections. Section 6.1 examines the implications of the Philani model with a specific focus on maternal mental health within a holistic comprehensive community-based approach. Section 6.2 explores the lessons of the Philani model to the current South African policy environment.

6.1 Philani and maternal mental health¹

The depression and infant growth outcome of the Philani study contribute to a growing body of literature examining the impact of community-based interventions on child health in the context of perinatal depression (Rahman *et al.* 2008). While the MMs are not trained to deliver a preventive or curative intervention for depression the day-to-day reality of their supportive role to women in their neighbourhood often results in quite specific responses to mental health difficulties.

My child was the main cause of my depression, so I wasn't feeling well and the mentor mother could detect that I had problem and she called an ambulance and I was admitted at Tygerberg Hospital and when I was discharged she came to visit me at home and wanted to find out what was the problems and I told her that at Tygerberg I was diagnosed with depression and I showed her the letter that I got at the hospital and the treatment. I tried to commit suicide by taking Rattex [rat poison] and fortunately she was on her way to my house on that day and arrived at the right time and she saved me by calling an ambulance that took me to hospital and when I came back from hospital she came back to find out what was the actual problem. She then referred me to a Psychiatrist in Nomsa Maphongwane but she kept on coming to check on my progress guiding and giving me advice on how to handle problems in life. (Nonceba, age 24, was visited by Philani MM in 2010.)

Increasingly, antenatal depression is being seen as an important public health concern. The link between postnatal depression and compromised child development is well established (Murray *et al.* 1996; Tomlinson *et al.* 2005), but that of antenatal depression has been receiving significantly more research attention. These findings also provide evidence that while there might be benefits for child development in the context of perinatal depression, the primary preventive nature of community-based platforms such as Philani may not impact on moderate or severe depression. This is in contrast to the findings of Tripathy *et al.* (2010) who found significant reductions in moderate depression in a group-based programme targeting reductions in neonatal mortality in Nepal. Tripathy *et al.* (2010) argued that the reductions they saw were due to improvements in social support and problem-solving skills in their group-based approach. They did not see an equivalent impact on severe depression. It is this increase in social support and relationship building that is central to the Philani approach.

She was a very friendly person who was always in a jolly mood, my baby was afraid of her in the beginning as babies become scared when you undress them but s/he got used to her. She always had a smile on her face and even when we meet in the street she smiles at me. (Hombakazi, age 33, was visited by Philani MM in 2012.)

¹ In preparing this case study, data collectors employed by Stellenbosch University interviewed nine women that had received the Philani intervention in the last two years. The women were interviewed between 10 October and 5 November 2014, and names have been changed.

She is easily approachable and when you share with your personal problems with her she assured me that whatever I disclose to her will be kept confidential, she was like a counsellor to me, when she walks in your house the minute she leaves you house you will feel completely different. She is a very kind person. (Nobuhle, age 29, was visited by Philani MM in 2011.)

She [the CHW] is like a mother: she would pick up my baby, undress the baby and advise me on how to prepare formula milk. (Nonceba, age 24, was visited by Philani MM in 2010.)

In the light of the strong associations between maternal mental state and infant growth in that region, the Rahman *et al.* (2008) randomised controlled trial hypothesised that an improvement in child growth would be seen when village women trained as CHWs delivered a cognitive behavioural therapeutic intervention to depressed mothers. While the Rahman and colleagues intervention had a large impact on maternal depression, it did not improve child growth. These data and the numerous findings on the association between maternal mental state and infant growth in the absence of an intervention, reflect the complexity of the interaction between maternal mental state and child nutrition and growth (Stewart 2007). While the mechanisms remain unclear, the data are clear that child growth and nutrition are intimately linked and that this needs to be considered when designing interventions.

6.2 Philani and the re-engineered primary health care system

South Africa is a country facing multiple and concurrent health challenges (Sepulveda *et al.* 2006) that includes a quadruple disease burden. Having said this, the HIV burden in South Africa is considerable with 2.5 million people currently receiving ARV treatment and the aim is to rapidly increase this number by 50 per cent. In this context, the imperative to scale up CHW interventions without due consideration for issues of timing, capacity, training requirements, the centrality of broad-based supervision and quality management of CHWs is immense. According to an interviewee from the Western Cape Department of Health² (who wished to remain anonymous) national plans for a re-engineered primary health care system that makes use of a ward-based approach and teams utilising CHWs is the correct one. The issue, according to this respondent, however, was that of timing. This respondent argued that the capacity is simply not currently available to make the system workable, and added that in the Western Cape adoption of the model will happen – but only in the future. The Western Cape Province is somewhat unique in that it is the only province in the South African federal system that does not have an African National Congress (ANC) provincial government. In this dispensation (where health is a provincial responsibility) the reluctance to roll out/scale up the re-engineered health system may have as much to do with politics as it does with health.

According to a public health specialist who was involved in crafting the re-engineering document, the main obstacle to implementation of the full (holistic) re-engineered primary health care is the HIV burden. This respondent argued that the burden was so immense that the ‘entire system is geared towards scaling up ARV treatment’, and added ‘if we did not have HIV everything would be on the table’.

6.2.1 Obstacles to implementation of the re-engineered primary health care

This section outlines what I see as the main barriers to the successful implementation and scale-up of the re-engineered primary health care system – with specific reference to CHWs. A brief outline of the obstacle is followed by a discussion on what I believe the Philani model of intervention can offer in terms of surmounting the obstacle.

² In preparing this case study I interviewed two high-level stakeholders – one from within the provincial health department and the other a public health specialist involved in the development of the primary health care re-engineering approach.

(i) Attrition

According to the respondent in the Western Cape Department of Health the CHW system in the province has been characterised by extremely high levels of CHW attrition with less than a third of provincial CHWs having been employed for any significant amount of time, with the vast majority of CHWs only having worked for a year or less. Another issue linked to attrition is the marginal nature of CHWs. Historically, CHWs in South Africa have had a status considered inferior by other health workers as well as by the CHWs themselves (Schneider *et al.* 2008).

Philani lesson

- Unless working conditions improve considerably (something that may be out of the immediate control of most NGOs and even some governments given resource constraints), CHW attrition will continue to be a problem. There are, however, other factors that can serve to reduce attrition. The Philani focus on intensive recruitment, ongoing high-quality supervision (individual and group based) and ongoing capacity development through on-the-job training, can all contribute to reducing attrition.

(ii) Working conditions – including salary and emotional strain

According to the respondent in the Western Cape Department of Health (DoH) the working conditions of CHWs are problematic – they are paid poorly (usually little more than a stipend) and have to currently walk everywhere in the ward/neighbourhood that they cover. In the opinion of the DoH respondent unless CHWs have bikes or motorbikes they will always be actively looking for work elsewhere. In terms of salary within the re-engineered health system, increased remuneration is part of the plan but it remains to be seen whether this will be affordable. Finally, there is the issue of the emotional strain that CHWs have to deal with on a daily basis. The Western Cape DoH respondent stated that ‘the level of violence, poverty, illness and death that they are confronting every day is not being dealt with in any systematic way through existing supervision systems’.

Philani lesson

- While MMs are paid the stipend currently being offered by the government they are not employed full-time (they work four hours a day) which mitigates somewhat the low wages.
- The Philani supervision system is structured, regular and consists of different components. Commonly, supervision is understood in administrative terms – showing up for work, making assigned visits, and completing paperwork. This is in fact CHW management, and while vital for job performance, does not begin to improve the quality of interventions delivery, to solve work-related problems or address the emotional load that many CHWs have to carry given the adversity with which they have to contend.
- Stellenbosch University, Philani, and the University of California Los Angeles are currently working with developing mobile phone-based systems that will utilise algorithms and GPS coordinates to minimise distances covered. The GPS coordinates of each household could also be used in such a way that within each week, those mothers who live closest to each other are scheduled for appointments on the same day. This system could minimise the distance the CHW needs to travel each day and improve the efficiency of the time they spend in the field. Philani also offers MMs transportation stipends so that they can make use of taxis when having to cover large distances.

(iii) Recruitment of CHWs

The history of recruitment of CHWs has been one of a rather loose selection and deployment process (Schneider *et al.* 2008). As the system evolved from an entirely ‘volunteer’ system to the mixed system it is today this ‘loose’ selection has been tightened up in many ways, but there are still wide variations in the selection procedure, whether candidates are interviewed adequately, and the extent to which there is accountability within the system.

Philani lesson

- Philani engages with community leaders to identify the needs of the community and to select mothers. A rigorous interview process follows with a panel including all levels of the organisation from the Director, to supervisors and experienced MMs. Initially, many more women are selected to be trained as MMs than will eventually be appointed. During a 4–6 week assessment and training period the MMs who are judged to have the best potential are chosen, while others will be placed on the waiting list. This training period is seen as essential to assess the extent to which preferred MMs are actually able to be trained and to deliver an intervention. As many as 20–30 per cent of women trained will not be offered either a MM position or be placed on the waiting list. Selection and recruitment is thus rigorous, selective, and based to a large extent on actual capacity to be trained rather than simply potential.

(iv) Supervision and management

Rowe and colleagues (2010) have outlined a number of typical reasons for the inadequacy of supervision of CHWs at scale. These include poor coordination, inadequate management skills, problems related to decentralisation, increasing supervision workload, time required for supervision activities, lack of transportation, insufficient knowledge of how to plan visits and a lack of tools to assess supervision (*ibid.*). According to the Western Cape DoH respondent the most serious concern with current CHW models is that of work performance and the extent to which supervision is even happening. She stated that there is a real danger that unless there is high-quality supervision CHWs might do more harm than good.

According to the public health specialist the limitations placed on the health system by HIV is compounded by a lack of clear accountability and management throughout the system. The problems associated with this – such as ensuring the delivery of quality health care – will be eased somewhat by the recent introduction of supplementary legislation to set up an Office of Quality Standards. This will allow the setting of standards for facilities and this will report to the Minister of Health and ‘because it is legislated it will make it slightly stronger’ according to this respondent.

Philani lesson

- Philani MMs are highly trained, make use of the most up-to-date research and protocols, and in the case of growth monitoring make use of scales to assess growth faltering. As already stated, linked to this is the close supervision of the work of MMs on a weekly basis. In addition, we have reported elsewhere on how we have developed a comprehensive management and supervision system that combines mobile phones with a web-based interface (Tomlinson *et al.* 2013b). We have developed a system of daily monitoring of CHW visits to aid in the supervision of a large cadre of CHWs. Specific focus areas (all of which are central to supervision) were:
 - Recruitment of study mothers, CHW assessment, and adaptive scheduling and visit planning;

- Intervention delivery support, fidelity monitoring³ and individual case monitoring;
- Caseload reporting and management.

The system was designed to integrate all CHW activities into a web-based narrative that is initiated the moment a participant is recruited; all intervention and data milestones are triggered automatically. Computerised algorithms have been designed to monitor and trigger the intervention and assessment protocols to aid in the real-time supervision and management of CHWs. These protocols include assessment of intervention fidelity, quality control, visit planning, and monitoring of CHW productivity.

³ Fidelity is the extent to which when a tested and effective intervention is implemented elsewhere it conforms to the manual or instructions of implementation of the original intervention.

7 Conclusion

The finding on depression in the Philani RCT raises important questions regarding generalist versus specialist CHW. While there may be benefits for the infants and children of women with depression it appears that unless mental illness is directly targeted and treated the benefits for women's mental health may be marginal (Cooper *et al.* 2009). However, specialist interventions for maternal depression are likely to be too expensive for many LMIC and therefore evidence is needed for how specifically targeted interventions for moderate to severe depression can be integrated into primary health care and other delivery platforms. While there is some evidence on what works, the evidence on how these interventions can be delivered in routine low-resource settings remains sparse, although a recent initiative – the Programme for Improving Mental Health (PRIME) – aims to provide crucial data in this regard (Rowe *et al.* 2010). An added benefit to integrating responses to mental disorders in women and girls within the primary health care system, is that it reduces the risk of medicalising legitimate distress that may also be located in the violent day-to-day lives of women and girls living in poverty. One of the key constellations of risk factors in newly urbanised areas globally is the lack of social support systems, urban violence and the impact of social exclusion (Global Health Watch 2008). These risks are keenly felt by all, but for women when coupled with high levels of interpersonal violence and the denial of basic reproductive rights, it is clear that technological solutions or narrow vertically integrated health interventions offer little in terms of a solution. The Philani approach locates its response firmly within a relational framework of broader support, acknowledges the social determinants of health and the need for a social response, but at the same time provides crucial medical and psychosocial support to women and girls in real distress.

The perilous state of health of women and girls in most LMIC has led to a global imperative to scale up maternal and child health interventions. The social, economic, moral, and human rights imperative 'to do something' has led to what McCoy and colleagues (2010) describe as a tension between 'acting urgently and building slowly'. The 'acting urgently' has undoubtedly resulted in spectacular global health successes – since 2000 the malaria mortality rate in children under five has fallen by 50 per cent; the measles vaccine has averted more than 10 million deaths, while polio cases have decreased by 99 per cent since 1988 and new HIV infections in children have fallen by as much as 52 per cent since 2001 (UNAIDS 2012). While acknowledging these spectacular successes it is important to remember that reducing the neonatal mortality rate (NMR) from 71 deaths per 1,000 live births to 50 is in fact relatively easy (given such a high base), with relatively cheap and simple technologies, or with the strategic use of basic person power. Reducing the NMR from 25 to 20 deaths however is significantly more difficult, and is likely to depend on sophisticated models of behaviour change, holistic health care including ongoing training and high-quality supervision, health systems strengthening, developing people-centred health systems, and transforming the human resources mix in LMIC. The 'magic bullets' that were to some extent successful in the last two decades are unlikely to continue to be as successful.

What is needed now and in the post-2015 arena is a more explicit acknowledgement and focus on the tension between urgent action and building slowly. In the face of high HIV burden in South Africa acting urgently is understandable given that policymakers need rapid demonstrable outputs from their interventions. There is, however, no quick fix for health systems strengthening, or building effective human resources. The Philani approach epitomises the ability to engage with the tension rather than being seduced into the 'quick technological fix' or the temptation to reduce the quality of recruitment, training and supervision in order to 'extend reach'. The Philani approach is one that focuses on quality (not on volume) and according to one respondent being staffed by enthusiastic, dynamic and motivated people 'is the difference between a good and a bad system'. Women are at the

centre of the Philani approach, and Philani's core value (perhaps) is that behaviour change occurs in the context of a supportive relationship.

A global research agenda is needed that focuses on implementation research, on the relatively 'unsexy' topics of supervision, and the training and management of CHWs at scale. We need to rediscover the core focus on people-centred systems, and on building slowly (while acting urgently). This is vital if global health is to avoid a fixation on access and volume at the expense of quality and value (Porter and Teisberg 2006; Porter 2010), and in so doing ensure that the successes in the last two decades of improving the lives of women and girls in LMIC continue into the next two decades.

References

- Aisenberg, E. and Herrenkohl, T. (2008) 'Community Violence in Context: Risk and Resilience in Children and Families', *Journal of Interpersonal Violence* 23: 296–315
- Araya, R.; Rojas, G.; Fritsch, R.; Gaete, J.; Rojas, M.; Simon, G. and Peters, T.G. (2003) 'Treating Depression in Primary Care in Low-income Women in Santiago, Chile: A Randomised Controlled Trial', *The Lancet* 361: 995–1000
- Aruna, M.; Vazir, S. and Vidyasagar, P. (2001) 'Child Rearing and Positive Deviance in the Development of Preschoolers: A Microanalysis', *Indian Pediatrics* 38: 332–9
- Astbury, J. (2001) 'Gender Disparities in Mental Health', *Mental Health: A Call for Action by World Health Ministers, Ministerial Round Tables 2001*, 54th World Health Assembly, Geneva: World Health Organization, www.who.int/mental_health/media/en/242.pdf (accessed November 2013)
- Baqui, A.H.; El-Arifeen, S.; Darmstadt, G.L.; Ahmed, S.; Williams, E.K.; Seraji, H.R.; Mannan, I.; Rahman, S.M.; Shah, R. *et al.* (2008) 'Effect of Community-based Newborn-care Intervention Package Implemented through Two Service-delivery Strategies in Sylhet District, Bangladesh: A Cluster-randomised Controlled Trial', *The Lancet* 371: 1936–44
- Bennett, H.A.; Einarson, A.; Taddio, A.; Koren, G. and Einarson, T.R. (2004) 'Prevalence of Depression During Pregnancy: Systematic Review', *Obstetrics & Gynecology* 103: 698–709
- Bhutta, Z.A. and Chopra, M. (2012) 'The Countdown for 2015: What Lies Ahead?', *The Lancet* 380: 1125–7
- Bhutta, Z.A.; Chopra, M.; Axelson, H.; Berman, P.; Boerma, T.; Bryce, J.; Bustreo, F.; Cavagnero, E.; Cometto, G.; Daelmans, B. *et al.* (2010) 'Countdown to 2015 Decade Report (2000–10): Taking Stock of Maternal, Newborn, and Child Survival', *The Lancet* 375: 2032–44
- Bradshaw, D.; Chopra, M.; Kerber, K.; Lawn, J.E.; Bamford, L.; Moodley, J.; Pattinson, R.; Patrick, M.; Stephen, C. and Velaphi, S. (2008) 'Every Death Counts: Use of Mortality Audit Data for Decision Making to Save the Lives of Mothers, Babies, and Children in South Africa', *The Lancet* 371: 1294–1304
- Brown, A.; Yung, A.; Cosgrave, E.; Killackey, E.; Buckby, J.; Stanford, C.; Godfrey, K. and McGorry, P. (2006) 'Depressed Mood as a Risk Factor for Unprotected Sex in Young People', *Australasian Psychiatry* 14: 310–2
- Campbell, M.; Sahin-Hodoglugil, N.N. and Potts, M. (2006) 'Barriers to Fertility Regulation: A Review of the Literature', *Studies in Family Planning* 37: 87–98
- Casterline, J.B.; Sathar, Z.A. and ul Haque, M. (2001) 'Obstacles to Contraceptive Use in Pakistan: A Study in Punjab', *Studies in Family Planning* 32: 95–110
- Clark, S.J.; Collinson, M.A.; Kahn, K.; Drullinger, K. and Tollman, S.M. (2007) 'Returning Home to Die: Circular Labour Migration and Mortality in South Africa', *Scandinavian Journal of Public Health (Suppl)* 69: 35–44
- Collinson, M.A.; Tollman, S.M. and Kahn, K. (2007) 'Migration, Settlement Change and Health in Post-apartheid South Africa: Triangulating Health and Demographic Surveillance with National Census Data', *Scandinavian Journal of Public Health (Suppl)* 69: 77–84

- Connelly, C.D.; Baker-Ericzen, M.J.; Hazen, A.L.; Landsverk, J. and Horwitz, S.M. (2010) 'A Model for Maternal Depression', *Journal of Women's Health (Larchmt)* 19.9: 1747–57
- Cooper, P.J.; Tomlinson, M.; Swartz, L.; Landman, M.; Molteno, C.; Stein, A.; McPherson, K. and Murray, L. (2009) 'Improving Quality of Mother–Infant Relationship and Infant Attachment in Socioeconomically Deprived Community in South Africa: Randomised Controlled Trial', *BMJ* 338: b974
- Cooper, P.J.; Tomlinson, M.; Swartz, L.; Woolgar, M.; Murray, L. and Molteno, C. (1999) 'Post-partum Depression and the Mother–Infant Relationship in a South African Peri-urban Settlement', *British Journal of Psychiatry* 175: 554–8
- Coovadia, H.; Jewkes, R.; Barron, P.; Sanders, D. and McIntyre, D. (2009) 'The Health and Health System of South Africa: Historical Roots of Current Public Health Challenges', *The Lancet* 374: 817–34
- Culhane, J.F. and Elo, I.T. (2005) 'Neighborhood Context and Reproductive Health', *American Journal of Obstetrics & Gynecology* 192: S22–9
- Cutrona, C.E.; Wallace, G. and Wesner, K.A. (2006) 'Neighborhood Characteristics and Depression: An Examination of Stress Processes', *Current Directions in Psychological Science* 15: 188–92
- Diez Roux, A.V. and Mair, C. (2010) 'Neighborhoods and Health', *Annals of the New York Academy of Sciences* 1186: 125–45
- Ellsberg, M.; Jansen, H.A.; Heise, L.; Watts, C.H.; Garcia-Moreno, C. and WHO Multi-country Study on Women's Health and Domestic Violence against Women Study Team. (2008) 'Intimate Partner Violence and Women's Physical and Mental Health in the WHO Multi-country Study on Women's Health and Domestic Violence: An Observational Study', *The Lancet* 371: 1165–72
- Fisher, J.; Cabral de Mello, M.; Patel, V.; Rahman, A.; Tran, T.; Holton, S. and Holmes, W. (2012) 'Prevalence and Determinants of Common Perinatal Mental Disorders in Women in Low- and Lower–middle-income Countries: A Systematic Review', *Bulletin of the World Health Organization* 90: 139G–149G
- Follette, V.M.; Polusny, M.A.; Bechtle, A.E. and Naugle, A.E. (1996) 'Cumulative Trauma: The Impact of Child Sexual Abuse, Adult Sexual Assault, and Spouse Abuse', *Journal of Traumatic Stress* 9: 25–35
- Galea, S.; Ahern, J.; Rudenstine, S.; Wallace, Z. and Vlahov, D. (2005a) 'Urban Built Environment and Depression: A Multilevel Analysis', *Journal of Epidemiology and Community Health* 59: 822–7
- Galea, S.; Freudenberg, N. and Vlahov, D. (2005b) 'Cities and Population Health', *Social Science & Medicine* 60: 1017–33
- Global Health Watch (2008) *Global Health Watch 2: An Alternative World Health Report*, London: Zed Books
- Goga, A.E.; Dinh, T.H. and Jackson, D.J. 'for the SAPMTCTE study group' (2012) *Evaluation of the Effectiveness of the National Prevention of Mother-to-Child Transmission (PMTCT) Programme Measured at Six Weeks Postpartum in South Africa, 2010*, Pretoria: South African Medical Research Council, National Department of Health of South Africa and PEPFAR/US Centers for Disease Control and Prevention

- Grantham-McGregor, S.; Cheung, Y.B.; Cueto, S.; Glewwe, P.; Richter, L.; Strupp, B. and International Child Development Steering Group (2007) 'Developmental Potential in the First 5 Years for Children in Developing Countries', *The Lancet* 369: 60–70
- Groenewald, P.; Bradshaw, D.; Daniels, J.; Matzopoulos, R.; Bourne, D.; Blease, D.; Zinyakatira, N. and Naldej, T. (2008) *Cause of Death and Premature Mortality in Cape Town, 2001–2006*, Cape Town: South African Medical Research Council
- Guite, H.F.; Clark, C. and Ackrill, G. (2006) 'The Impact of the Physical and Urban Environment on Mental Well-being', *Public Health* 120: 1117–26
- Gwatkin, D.R. (2001) 'The Need for Equity-oriented Health Sector Reforms', *International Journal of Epidemiology* 30: 720–3
- Haines, A.; Sanders, D.; Lehmann, U.; Rowe, A.; Lawn, J.E.; Jan, S.; Walker, D.G. and Bhutta, Z. (2007) 'Achieving Child Survival Goals: Potential Contribution of Community Health Workers', *The Lancet* 369: 2121–31
- Hartley, M.; Tomlinson, M.; Greco, E.; Comulada, W.S.; Stewart, J.; le Roux, I.; Mbewu, N. and Rotheram-Borus, M.J. (2011) 'Depressed Mood in Pregnancy: Prevalence and Correlates in Two Cape Town Peri-urban Settlements', *Reproductive Health* 8: 9
- Heise, L.; Ellsberg, M. and Gottmoeller, M. (2002) 'A Global Overview of Gender Based Violence', *International Journal of Gynecology and Obstetrics* 78: S5–S14
- Hogan, M.C.; Foreman, K.J.; Naghavi, M.; Ahn, S.Y.; Wang, M.; Makela, S.M.; Lopez, A.D.; Lozano, R. and Murray, C.J.L. (2010) 'Maternal Mortality for 181 Countries, 1980–2008: A Systematic Analysis of Progress Towards Millennium Development Goal 5', *The Lancet* 375: 1609–23
- Honikman, S.; van Heyningen, T.; Field, S.; Baron, E. and Tomlinson, M. (2012) 'Stepped Care for Maternal Mental Health: A Case Study of the Perinatal Mental Health Project in South Africa', *PLOS Medicine* 9: e1001222
- Jewkes, R.K.; Dunkle, K.; Nduna, M. and Shai, N. (2010) 'Intimate Partner Violence, Relationship Power Inequity, and Incidence of HIV Infection in Young Women in South Africa: A Cohort Study', *The Lancet* 376: 41–8
- Kagee, A. (2008) 'Symptoms of Depression and Anxiety among a Sample of South African Patients Living with a Chronic Illness', *Journal of Health Psychology* 13: 547–55
- Kakuma, R.; Minas, H.; van Ginneken, N.; Dal Poz, M.R.; Desiraju, K.; Morris, J.E.; Saxena, S. and Scheffler, R.M. (2011) 'Human Resources for Mental Health Care: Current Situation and Strategies for Action', *The Lancet* 378: 1654–63
- Kalichman, S.C. and Simbayi, L.C. (2003) 'HIV Testing Attitudes, AIDS Stigma, and Voluntary HIV Counselling and Testing in a Black Township in Cape Town, South Africa', *Sexually Transmitted Infections* 79: 442–7
- Kaminer, D.; Grimsrud, A.; Myer, L.; Stein, D.J. and Williams, D.R. (2008) 'Risk for Post-traumatic Stress Disorder Associated with Different Forms of Interpersonal Violence in South Africa', *Social Science & Medicine* 67: 1589–95
- Kehler, J. (2001) 'Women and Poverty: The South African Experience', *Journal of International Women's Studies* 3.1: 41–53

- Kerber, K.J.; de Graft-Johnson, J.E.; Bhutta, Z.A.; Okong, P.; Starrs, A. and Lawn, J.E. (2007) 'Continuum of Care for Maternal, Newborn, and Child Health: From Slogan to Service Delivery', *The Lancet* 370: 1358–69
- Kessler, R.C. (2003) 'Epidemiology of Women and Depression', *Journal of Affective Disorders* 74: 5–13
- Kim, D. (2008) 'Blues from the Neighborhood? Neighborhood Characteristics and Depression', *Epidemiologic Reviews* 30: 101–17
- Lancaster, C.A.; Gold, K.J.; Flynn, H.A.; Yoo, H.; Marcus, S.M. and Davis, M.M. (2010) 'Risk Factors for Depressive Symptoms During Pregnancy: A Systematic Review', *American Journal of Obstetrics & Gynecology* 202: 5–14
- le Roux, I.M.; Tomlinson, M.; Harwood, J.M.; O'Connor, M.J.; Worthman, C.M.; Mbewu, N.; Stewart, J.; Hartley, M.; Swendeman, D.; Comulada, W.S. et al. (2013) 'Outcomes of Home Visits for Pregnant Mothers and their Infants: A Cluster Randomized Controlled Trial', *AIDS* 27: 1461–71
- Lehmann, U.; Van Damme, W.; Barten, F. and Sanders, D. (2009) 'Task Shifting: The Answer to the Human Resources Crisis in Africa?', *Human Resources for Health* 7: 49
- Levy, L.B. and O'Hara, M.W. (2010) 'Psychotherapeutic Interventions for Depressed, Low-income Women: A Review of the Literature', *Clinical Psychology Review* 30: 934–50
- Lewin, S.; Babigumira, S.M.; Glenton, C.; Daniels, K.; Bosch-Capblanch, X.; van Wyk, B.E.; Odgaard-Jensen, J.; Johansen, M.; Godwin, N.A.; Zwarenstein, M. and Scheel, I.B. (2010) 'Lay Health Workers in Primary and Community Health Care for Maternal and Child Health and the Management of Infectious Diseases', *Cochrane Database of Systematic Reviews* 3
- Lewin, S.; Lavis, J.N.; Oxman, A.D.; Bastias, G.; Chopra, M.; Ciapponi, A.; Flottorp, S.; Marti, S.G.; Pantoja, T.; Rada, G. et al. (2008) 'Supporting the Delivery of Cost-effective Interventions in Primary Health-care Systems in Low-income and Middle-income Countries: An Overview of Systematic Reviews', *The Lancet* 372: 928–39
- Lindhorst, T. and Oxford, M. (2008) 'The Long-term Effects of Intimate Partner Violence on Adolescent Mothers' Depressive Symptoms', *Social Science & Medicine* 66: 1322–33
- Lora, A.; Kohn, R.; Levav, I.; McBain, R.; Morris, J. and Saxena, S. (2012) 'Service Availability and Utilization and Treatment Gap for Schizophrenic Disorders: A Survey in 50 Low- and Middle-income Countries', *Bulletin of the World Health Organization* 90: 47–54
- Lund, C.; Tomlinson, M.; De Silva, M.; Fekadu, A.; Shidhaye, R.; Jordans, M.; Petersen, I.; Bhana, A.; Kigozi, F.; Prince, M. et al. (2012) 'PRIME: A Programme to Reduce the Treatment Gap for Mental Disorders in Five Low- and Middle-income Countries', *PLOS Medicine* 9: e1001359
- Maman, S.; Campbell, J.; Sweat, M.D. and Gielen, A.C. (2000) 'The Intersections of HIV and Violence Directions for Future Research and Interventions', *Social Science & Medicine* 50: 459–78
- Marsh, D.R.; Schroeder, D.G.; Dearden, K.A.; Sternin, J. and Sternin, M. (2004) 'The Power of Positive Deviance', *BMJ* 329: 1177–9
- Matheson, F.I.; Moineddin, R.; Dunn, J.R.; Creatore, M.I.; Gozdyra, P. and Glazier, R.H. (2006) 'Urban Neighborhoods, Chronic Stress, Gender and Depression', *Social Science & Medicine* 63.10: 2604–16

- May, P.A.; Gossage, J.P.; Brooke, L.E.; Snell, C.L.; Marais, A.S.; Hendricks, L.S.; Croxford, J.A. and Viljoen, D.L. (2005) 'Maternal Risk Factors for Fetal Alcohol Syndrome in the Western Cape Province of South Africa: A Population-based Study', *American Journal of Public Health* 95.7: 1190–9
- Mayosi, B.M.; Lawn, J.E.; van Niekerk, A.; Bradshaw, D.; Abdool Karim, S.S.; Coovadia, H.M. and Lancet South Africa Team. (2012) 'Health in South Africa: Changes and Challenges Since 2009', *The Lancet* 380: 2029–43
- McCoy, D.; Storeng, K.; Filippi, V.; Ronsmans, C.; Osrin, D.; Matthais, B.; Campbell, O.M.; Wolfe, R.; Prost, A.; Hill, Z. *et al.* (2010) 'Maternal, Neonatal and Child Health Interventions and Services: Moving from Knowledge of What Works to Systems that Deliver', *International Health* 2: 87–98
- McIntyre, D.; Bloom, G.; Doherty, J. and Brijlal, P. (1995) *Health Expenditure and Finance in South Africa*, Durban: Health Systems Trust and World Bank
- Mechanic, M.B.; Weaver, T.L. and Resick, P.A. (2008) 'Mental Health Consequences of Intimate Partner Abuse: A Multidimensional Assessment of Four Different Forms of Abuse', *Violence Against Women* 14: 634–54
- Murray, L. and Andrews, L. (2000) *The Social Baby*, Surrey: CP Publishing
- Murray, L. and Cooper, P.J. (2003) 'Intergenerational Transmission of Affective and Cognitive Processes Associated with Depression: Infancy and the Pre-school Years', in I.M. Goodyer (ed), *Unipolar Depression: A Lifespan Perspective*, Oxford: Oxford University Press: 17–46
- Murray, L.; Fiori-Cowley, A.; Hooper, R. and Cooper, P. (1996) 'The Impact of Postnatal Depression and Associated Adversity on Early Mother–Infant Interactions and Later Infant Outcome', *Child Development* 67: 2512–26
- National Department of Health (n.d.) *Re-engineering Primary Health Care in South Africa*, Discussion Document, November 2010
- Neuman, M.J. and Devercelli, A.E. (2013) *What Matters Most for Early Childhood Development: A Framework Paper*, SABER Working Paper Series 5, January, Washington DC: World Bank
- Ngcobo, M. and Pillay, B.J. (2008) 'Depression in African Women Presenting for Psychological Services at a General Hospital', *African Journal of Psychiatry* 11: 133–7
- Ndegwa, D.; Horner, D. and Esau, F. (2007) 'The Links Between Migration, Poverty and Health: Evidence from Khayelitsha and Mitchells Plain', *Social Indicators Research* 81: 223–34
- Norman, R.; Matzopoulos, R.; Groenewald, P. and Bradshaw, D. (2007) 'The High Burden of Injuries in South Africa', *Bulletin of the World Health Organization* 85: 695–702
- Oates, M. (2003) 'Perinatal Psychiatric Disorders: A Leading Cause of Maternal Morbidity and Mortality', *British Medical Bulletin* 67: 219–29
- Olds, D.L.; Robinson, J.; O'Brien, R.; Luckey, D.W.; Pettitt, L.M.; Henderson Jr, C.R.; Ng, R.K.; Sheff, K.L.; Korfmacher, J.; Hiatt, S. and Talmi, A. (2002) 'Home Visiting by Paraprofessionals and by Nurses: A Randomized, Controlled Trial', *Pediatrics* 110.3: 486–496

- Olds, D.L.; Robinson, J.; Pettitt, L.; Luckey, D.W.; Holmberg, J.; Ng, R.K.; Isacks, K.; Sheff, K. and Henderson Jr, C.R. (2004) 'Effects of Home Visits by Paraprofessionals and by Nurses: Age 4 Follow-up Results of a Randomized Trial', *Pediatrics* 114.6: 1560–8
- Pagel, M.D.; Smilkstein, G.; Regen, H. and Montano, D. (1990) 'Psychosocial Influences on New Born Outcomes: A Controlled Prospective Study', *Social Science & Medicine* 30: 597–604
- Paim, J.; Travassos, C.; Almeida, C.; Bahia, L. and Macinko, J. (2011) 'The Brazilian Health System: History, Advances, and Challenges', *The Lancet* 377: 1778–97
- Patel, V. and Kleinman, A. (2003) 'Poverty and Common Mental Disorders in Developing Countries', *Bulletin of the World Health Organization* 81: 609–15
- Patel, V.; Chowdhary, N.; Rahman, A. and Verdeli, H. (2011) 'Improving Access to Psychological Treatments: Lessons from Developing Countries', *Behaviour Research and Therapy* 49: 523–8
- Patel, V.; Flisher, A.J.; Hetrick, S. and McGorry, P. (2007) 'Mental Health of Young People: A Global Public-health Challenge', *The Lancet* 369: 1302–13
- Patel, V.; Ramasundarahettige, C.; Vijayakumar, L.; Thakur, J.S.; Gajalakshmi, V.; Gururaj, G.; Suraweera, W.; Jha, P. and Million Death Study Collaborators (2012) 'Suicide Mortality in India: A Nationally Representative Survey', *The Lancet* 379: 2343–51
- Patel, V.; Weiss, H.A.; Chowdhary, N.; Naik, S.; Pednekar, S.; Chatterjee, S.; De Silva, M.J.; Bhat, B.; Araya, R.; King, M. *et al.* (2010) 'Effectiveness of an Intervention Led by Lay Health Counsellors for Depressive and Anxiety Disorders in Primary Care in Goa, India (MANAS): A Cluster Randomised Controlled Trial', *The Lancet* 376: 2086–95
- Peltzer, K.; Pengpid, S.; McFarlane, J. and Banyini, M. (2013) 'Mental Health Consequences of Intimate Partner Violence in Vhembe District, South Africa', *General Hospital Psychiatry* 35: 545–50
- Petersen, I. (2004) 'Primary Level Psychological Services in South Africa: Can a New Psychological Professional Fill the Gap?', *Health Policy and Planning* 19: 33–40
- Pillay, A.L. and Kriel, A.J. (2006) 'Mental Health Problems in Women Attending District-level Services in South Africa', *Social Science & Medicine* 63: 587–92
- Porter, M.E. (2010) 'What is Value in Health Care?' *New England Journal of Medicine* 363: 2477–81
- Porter, M.E. and Teisberg, E.O. (2006) *Redefining Health Care: Creating Value-based Competition on Results*, Boston: Harvard Business Press
- Rahman, A. (2005) 'Maternal Depression and Child Health: The Need for Holistic Health Policies in Developing Countries', *Harvard Health Policy Review* 6: 70–80
- Rahman, A.; Bunn, J.; Lovel, H. and Creed, F. (2007) 'Maternal Depression Increases Infant Risk of Diarrhoeal Illness: A Cohort Study', *Archives of Disease in Childhood* 92: 24–8
- Rahman, A.; Malik, A.; Sikander, S.; Roberts, C. and Creed, F. (2008) 'Cognitive Behaviour Therapy-based Intervention by Community Health Workers for Mothers with Depression and their Infants in Rural Pakistan: A Cluster-randomised Controlled Trial', *The Lancet* 372: 902–9

- Ramchandani, P.G.; Richter, L.M.; Stein, A. and Norris, S.A. (2009) 'Predictors of Postnatal Depression in an Urban South African Cohort', *Journal of Affective Disorders* 113: 279–284
- Ramrakha, S.; Caspi, A.; Dickson, N.; Moffitt, T.E. and Paul, C. (2000) 'Psychiatric Disorders and Risky Sexual Behaviour in Young Adulthood: Cross Sectional Study in Birth Cohort', *BMJ* 321: 263–6
- Rochat, T.J.; Tomlinson, M.; Barnighausen, T.; Newell, M.L. and Stein, A. (2011) 'The Prevalence and Clinical Presentation of Antenatal Depression in Rural South Africa', *Journal of Affective Disorders* 135: 362–73
- Rollins, N.; Mzolo, S.; Moodley, T.; Esterhuizen, T. and van Rooyen, H. (2009) 'Universal HIV Testing of Infants at Immunization Clinics: An Acceptable and Feasible Approach for Early Infant Diagnosis in High HIV Prevalence Settings', *AIDS* 23: 1851–7
- Rosato, M.; Laverack, G.; Grabman, L.H.; Tripathy, P.; Nair, N.; Mwansambo, C.; Azad, K.; Morrison, J.; Bhutta, Z.; Perry, H. *et al.* (2008) 'Community Participation: Lessons for Maternal, Newborn, and Child Health', *The Lancet* 372: 962–71
- Rotheram-Borus, M.J.; le Roux, I.M.; Tomlinson, M.; Mbewu, N.; Comulada, W.S.; le Roux, K.; Stewart, J.; O'Connor, M.J.; Hartley, M.; Desmond, K. *et al.* (2011) 'Philani Plus (+): A Mentor Mother Community Health Worker Home Visiting Program to Improve Maternal and Infants' Outcomes', *Prevention Science* 12.4: 372–88
- Rowe, A.K.; Onikpo, F.; Lama, M. and Deming, M.S. (2010) 'The Rise and Fall of Supervision in a Project Designed to Strengthen Supervision of Integrated Management of Childhood Illness in Benin', *Health Policy Plan* 25: 125–34
- Scheibe, S.; Preuschhof, C.; Cristi, C. and Bagby, R.M. (2003) 'Are there Gender Differences in Major Depression and its Response to Antidepressants?', *Journal of Affective Disorders* 75: 223–35
- Schneider, H.; Hlophe, H. and van Rensburg, D. (2008) 'Community Health Workers and the Response to HIV/AIDS in South Africa: Tensions and Prospects', *Health Policy Plan* 23: 179–87
- Sepúlveda, J.; Bustreo, F.; Tapia, R.; Rivera, J.; Lozano, R.; Oláiz, G.; Partida, V.; García-García, L.; Valdespino, J.L. (2006) 'Improvement of Child Survival in Mexico: The Diagonal Approach', *The Lancet* 368: 2017–27
- Singh, P. and Sachs, J.D. (2013) '1 Million Community Health Workers in Sub-Saharan Africa by 2015', *The Lancet* 382: 363–5
- Statistics South Africa (2013) *Statistics South Africa. Quarterly Labour Force Survey: Quarter 3, 2013*, Pretoria: Statistics South Africa
- Stein, D.J.; Seedat, S.; Herman, A.; Moomal, H.; Heeringa, S.G.; Kessler, R.C. and Williams, D.R. (2008) 'Lifetime Prevalence of Psychiatric Disorders in South Africa', *British Journal of Psychiatry* 192: 112–17
- Stewart, R.C. (2007) 'Maternal Depression and Infant Growth – A Review of Recent Evidence', *Maternal & Child Nutrition* 3: 94–107
- Tomlinson, M.; Cooper, P. and Murray, L. (2005) 'The Mother–Infant Relationship and Infant Attachment in a South African Peri-urban Settlement', *Child Development* 76: 1044–54

- Tomlinson, M.; Grimsrud, A.T.; Stein, D.J.; Williams, D.R. and Myer, L. (2009) 'The Epidemiology of Major Depression in South Africa: Results from the South African Stress and Health Study', *South African Medical Journal* 99: 367–73
- Tomlinson, M.; O'Connor, M.J.; le Roux, I.M.; Stewart, J.; Mbewu, N.; Harwood, J. and Rotheram-Borus, M.J. (2013a) 'Multiple Risk Factors During Pregnancy in South Africa: The Need for a Horizontal Approach to Perinatal Care', *Prevention Science*, December
- Tomlinson, M.; Rohleder, P.; Swartz, L.; Drimie, S. and Kagee, A. (2010) 'Broadening Psychology's Contribution to Addressing Issues of HIV/AIDS, Poverty and Nutrition: Structural Issues as Constraints and Opportunities', *Journal of Health Psychology* 15: 972–81
- Tomlinson, M.; Rotheram-Borus, M.J.; Doherty, T.; Swendeman, D.; Tsai, A.C.; Ijumba, P.; le Roux, I.; Jackson, D.; Stewart, J.; Friedman, A. *et al.* (2013b) 'Value of a Mobile Information System to Improve Quality of Care by Community Health Workers', *South African Journal of Information Management* 15.1
- Tonorezos, E.S.; Breyse, P.N.; Matsui, E.C.; McCormack, M.C.; Curtin-Brosnan, J.; Williams, D.; Hansel, N.N.; Eggleston, P.A. and Diette, G.B. (2008) 'Does Neighborhood Violence Lead to Depression among Caregivers of Children with Asthma?', *Social Science & Medicine* 67: 31–7
- Tripathy, P.; Nair, N.; Barnett, S.; Mahapatra, R.; Borghi, J.; Rath, S.; Gope, R.; Mahto, D.; Sinha, R. *et al.* (2010) 'Effect of a Participatory Intervention with Women's Groups on Birth Outcomes and Maternal Depression in Jharkhand and Orissa, India: A Cluster-randomised Controlled Trial', *The Lancet* 375: 1182–92
- Tubman, J.G.; Gil, A.G.; Wagner, E.F. and Artigues, H. (2003) 'Patterns of Sexual Risk Behaviors and Psychiatric Disorders in a Community Sample of Young Adults', *Journal of Behavioral Medicine* 26: 473–500
- UNAIDS (2012) *Global Report: UNAIDS Report on the Global AIDS Epidemic*, Geneva: Joint United Nations Programme on HIV/AIDS (UNAIDS)
- van Ginneken, N.; Tharyan, P.; Lewin, S.; Rao, G.N.; Romeo, R. and Patel, V. (2011) 'Non-specialist Health Worker Interventions for Mental Health Care in Low- and Middle-income Countries', *Cochrane Database Systematic Review* 5: 1–23
- Vos, T.; Flaxman, A.D.; Naghavi, M.; Lozano, R.; Michaud, C.; Ezzati, M.; Shibuya, K.; Salomon, J.A.; Abdalla, S.; Aboyans, V. *et al.* (2012) 'Years Lived with Disability (YLDs) for 1160 Sequelae of 289 Diseases and Injuries 1990–2010: A Systematic Analysis for the Global Burden of Disease Study 2010', *The Lancet* 380: 2163–96
- Walker, S.P.; Wachs, T.D.; Grantham-McGregor, S.; Black, M.M.; Nelson, C.A.; Huffman, S.L.; Baker-Henningham, H.; Chang, S.M.; Hamadani, J.D.; Lozoff, B. *et al.* (2011) 'Inequality in Early Childhood: Risk and Protective Factors for Early Child Development', *The Lancet* 378: 1325–38
- Walley, J.; Lawn, J.E.; Tinker, A.; de Francisco, A.; Chopra, M.; Rudan, I.; Bhutta, Z.A.; Black, R.E. and Lancet Alma-Ata Working Group (2008) 'Primary Health Care: Making Alma-Ata a Reality', *The Lancet* 372: 1001–7
- Walt, G.; Perera, M. and Heggenhougen, K. (1989) 'Are Large-Scale Volunteer Community Health Worker Programmes Feasible? The Case of Sri Lanka', *Social Science and Medicine* 29: 599–608

- Ward, C.L.; Flisher, A.J.; Zissis, C.; Muller, M. and Lombard, C. (2001) 'Exposure to Violence and its Relationship to Psychopathology in Adolescents', *Injury Prevention* 7: 297–301
- Weiser, S.D.; Leiter, K.; Bangsberg, D.R.; Butler, L.M.; Percy-de Korte, F.; Hlanze, Z.; Phaladze, N.; Iacopino, V. and Heisler, M. (2007) 'Food Insufficiency is Associated with High-risk Sexual Behavior among Women in Botswana and Swaziland', *PLOS Medicine* 4: 1589–97; discussion 1598
- WHO (2011) *Mental Health Atlas 2011*, Geneva: World Health Organization
- WHO (2010) *Countdown to 2015 Decade Report (2000–2010) with Country Profiles: Taking Stock of Maternal, Newborn and Child Survival*, Geneva: World Health Organization
- WHO (2008) *The Global Burden of Disease: 2004 Update*, Geneva: World Health Organization
- WHO (2007a) *Everybody's Business. Strengthening Health Systems to Improve Health Outcomes: WHO's Framework for Action*, Geneva: World Health Organization
- WHO (2007b) *Task Shifting: Global Recommendations and Guidelines*, Geneva: World Health Organization
- WHO (2006a) *The World Health Report 2006 – Working Together for Health*, Geneva: World Health Organization
- WHO (2006b) *World Health Organization Child Growth Standards*, Geneva: World Health Organization
- WHO (2002) *World Report on Violence and Health*, Geneva: World Health Organization
- WHO (1978) *Declaration of Alma-Ata*, International Conference on Primary Health Care, Alma-Ata, USSR: World Health Organization
- Williams, C.M.; Larsen, U. and McCloskey, L.A. (2008) 'Intimate Partner Violence and Women's Contraceptive Use', *Violence Against Women* 14: 1382–96
- Zachariah, R.; Ford, N.; Philips, M.; Lynch, S.; Massaquoi, M.; Janssens, V. and Harries, A.D. (2009) 'Task Shifting in HIV/AIDS: Opportunities, Challenges and Proposed Actions for Sub-Saharan Africa', *Transactions of the Royal Society of Tropical Medicine and Hygiene* 103: 549–582



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