

## Recognizing and Evaluating Policy Initiatives for Reducing Maternal and Child Health Inequalities in Lower Income Countries: A Review of Tanzania's Position

Godfrey M Mubyazi<sup>1</sup>, Adiel K Mushi, Michael A Munga, Julius J Massaga, Emmanuel A Makundi, Angela Shija, Stella P Kilima Prince-Pius W Mutalemwa and Mwele N Malecela

National Institute for Medical Research (NIMR), Headquarters, P.O Box 9653 Dar es Salaam, Tanzania

\*Correspondence author: Godfrey M Mubyazi, National Institute for Medical Research (NIMR), Headquarters, P.O Box 9653 Dar es Salaam, Tanzania, Tel: +255-22-2121400; E-mail: [gmmubyazi@yahoo.co.uk](mailto:gmmubyazi@yahoo.co.uk)

Received date: December 26, 2013; Accepted date: June 25, 2014; Published date: July 3, 2014

Copyright: © 2014 Godfrey MM, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### Abstract

Inequalities in maternal and child health (MCH) are still critical in Tanzania where the government strives for attaining the millennium development goals (MDGs). With the hope for succeeding, she continues formulating or modifying and implementing her own policies while adopting and implementing policy initiatives recommended globally and establishing mechanisms for monitoring and evaluating programs. Several initiatives have demonstrated gains in reducing maternal and child morbidities and mortalities, increased health budgets, training and recruitment of health workforce, health buildings, procurement and supply of essential medicines, equipment, and other materials, fostering private-public-partnership, enrolling girls in schools, safe motherhood among other reproductive health issues, devolution of decision making powers to lower governance structures, coupled with launching short-term and long term programs for tackling MCH problems. However, evidence is still scanty on country's successes in reducing MCH inequalities. With reference to literature, we synthesize evidence and arguments on whether Tanzania is on track toward attainment of MDG 4 and 5 and give suggestions for policy.

**Keywords:** Maternal health; Poverty; Health inequalities; Millennium development goals

### Introduction

#### Overview

The global millennium development goals (MDGs)-4 and 5 specifically recognize the need for the countries to reduce health inequalities if at all they have to succeed realizing the desired gains and attain their predetermined goals and objectives of improving the health of mothers and children [1]. Discourse on both the measuring of inequities in maternal, newborn and child health (MNCH) and simply maternal and child health (MCH) problems through concerted strategies officially launched has remained and is critical in the economics, politics, and research debates. One of the concerns in these debates has been what could be the best or more appropriate method or frameworks for studying and analyzing health inequities for better policy guidance. This is because the data documented seem to be either controversial nature or sometimes inadequate and as a result the intuition or interpretation of the data collected is somewhat misleading or flawed [2-4]. A number of analysts reviewed in this paper argue depict that there is still a general confusion about 'what the term health inequalities actually means' as opposed to the term 'inequities'. Therefore, answers to this question would help decision-makers come up with better health policies and plans capable of enabling such countries move successfully their national countdown strategies for reducing MNCH problems [4].

For a long time, the world has been faced with a number of health policy and systems challenges in the area of MNCH. Governments with assistance from development partners in developing countries have succeeded to mobilize resources for investing in improving

human resource recruitment, deployment, training and rewarding systems, allocation of more budget to finance such key initiatives as improving supply of basic drugs, other medical supplies, equipment and the operation of health programs employing a considerable number of health personnel. Other development partner-supported interventions include governments' initiatives to revisit the existing policies and management systems, opening new opportunities for civic and media engagement in disease prevention, behavior change, priority-setting and health promotion strategies as well as supporting research and development (R&D) and policy dialogues. However, a wide range of the literature, as we are going to see in the present synthesis depicts some gaps as still existing and some of these even widening in several areas within and between the developing countries in relation to MNCH services and general population's health conditions. The global strategy of Countdown to 2015 was launched with the aim of promoting maternal, neonatal and child survival through improving national and institutional health policy and service systems and building a better health future for women and children [1].

The present review targeted to cover selected as many relevant discussion papers, working papers, technical consultancy reports and peer reviewed and published articles, paying attention to different authors' perspectives on specific policies and practical interventions conceived, designed, implemented and evaluation for their achievements and failures to address the challenges relating to MNCH inequalities in developing countries. Our understanding and the main driver for our engagement in this review was that many governments have still been striving to know the status of their strategies established to tackle contemporary MNCH inequality problems and how they would better measure inequalities and use the data/evidence to improve policies and operational programs and therefore help to reduce the critical gaps more efficiently, effectively and sustainably [5].

We noted how encouraging it is to see that already there is a high international recognition of the role research could play to provide evidence on MNCH inequalities, but so far studies focusing on this area have remained inadequate [5]. The Tanzanian government through the Ministry of Health and Social Welfare (MoHSW) admits the need for taking measures that would lead to the improvement in women's, newborns, under-five children's and even the general public's access to quality health services but for this to be possible there should be evidence-based and goal-oriented health and social policies and interventions that are informed by best practice [6]. That is why we find that it making sense to review literature for updating ourselves and informing the international community on the status of health policies and practical interventions officially instituted with the aim of identifying and solving MNCH problems by comparing where possible the experience from different nations or regions and interventions. This would help enhance or create awareness among policy makers, development partners and other stakeholders on what would be the basis for necessary improvements, where and when it deems necessary and realistically feasible. The main focus might be on the extent to which the policies and plans instituted have been successful in tackling MNCH problems effectively and based on which reliable evidence; what are stories on failures, challenges, and their contributing factors, and what are lessons to learn from all such stories. Indeed, the recently, the World Health organization (WHO) expressed an urgent need for research and policy synergy that would help to address the critical health services and policy related challenges acting as impediments to efforts or strategies launched for reducing current, and preventing future, inequities. This includes, among other things, analyses focusing on what actually works and what does not as well as why and what should be done toward an acceptable level of goals achievements [1,8-10].

### Essence of the present review and rationale

Around mid-2011, a Multilateral Association for Studying Health Inequalities and Enhancing North-South and South-South Cooperation (abbreviated as MASCOT) Project was conceived. The contract for this project's official implementation was signed in 2012 with the Commission responsible under the European Union. Governed by a consortium assessing the current situation of health research and MCH inequalities in the 16 countries, the Project was envisioned to identify best practices in terms of development of policies and strategies aimed at addressing two main aspects-MCH inequality situations and role of health research on MCH inequalities. It involved the use of a standardized methodological approach in terms of tools and procedures, with participants coming from different institutions among which were research team members who have ever undertaken studies in this area. The participating individuals were responsible for detecting or depicting any promising policies, projects, strategies, and programs implemented with the aim of tackling MCH inequalities, with or without research contributions [11]. As noted by the latter authors, one of the methodological tasks assigned to, and actually performed by, the individual country teams was to undertake a systematic review of the literature on maternal health inequalities for their countries and synthesize the evidence by compare and contrasting the findings with the regional and global situations [11]. So, the present paper is part of the review done by the Tanzanian team from the National Institute for Medical Research (NIMR). This review may appear not being exhaustive of all the evidence documented, but the authors have done their best to search for all relevant materials that shed light to a smarter understanding of the situation of MCH

inequalities especially with reference to Tanzania. The benefit of this review work to our readers is justified as we cite the President of Tanzania quoted saying during the MNCH Countdown Event and a Promised Renewed Launch recently held in Dar es Salaam: "*Ladies and Gentlemen, our experience in implementing the MDGs has taught us that without periodic reviews and clear timelines, goals in themselves do not impose discipline in execution*" [12]. In the same speech, issues relating to how to address inequalities in health with reference to Tanzania have been mentioned.

### Objectives, scope and organization of the present paper

As mentioned above, this paper gives an account of the policy strategies and interventions that have so far been documented regarding national policies and interventions/strategies instituted towards tackling (mainly by reducing) MCH inequalities in Tanzania. The article pulls evidence from different sources as part of a wider review of the evidence planned to be disseminated in light of the MASCOT Project [11]. We limit our focus on published articles and unpublished (grey) literature relating to Tanzania. Nevertheless, we supplement the Tanzanian evidence-based findings with the international experience for comparative purposes. We also supplement our position or arguments with references from the reported studies based on primary interventions such as randomized-controlled trials and other biomedical researches and those based on rapid appraisal through situational analyses and evaluative studies. The paper's organization follows the flow: We began with the introduction section; brief description of the methods used for the present review; Presentation of and discussion on key findings concurrently. However, the findings and its subsequent discussion section has been divided into three main parts so as to provide sufficient accounts to the respective sub-sections: Part one begins with a detailed account of the statuses of MCH and diseases determining the existing statuses over a considerable period of time, and then moves to a more detailed background on the MCH inequalities as indicated by current policy and research debates at global level. This takes the readers to point and brings them to an understanding of the global context in relation to MNCH conditions before concentrating on the Tanzanian situation. Part two specifically focuses on Tanzania, by giving our readers an opportunity for weighing out whether Tanzania has been facing similar or different situation when compared with other developing countries. Finally, the paper gives conclusions and recommendations for policy consideration and opens a new page for debate and research in this important public health area.

### Materials and Methods

#### Review methods

The documents reviewed were traced from different sources and were either in hard copies of printed information or in electronic form. Using selected search terms that were typed over internet connected computer facilities, the relevant publications appearing in peer review journals accessible or retrievable online were downloaded. We particularly accessed most of the papers downloaded from the PubMed (Medline). Apart from peer reviewed articles, some technical research or consultancy reports and other articles labeled as official working documents/papers were downloaded from the internet by going into the websites of various organizations, for instance, from the websites of the World Health organization (WHO), United Nations Children's Fund (UNICEF), World Bank, non-governmental

organizations (NGOs), governments' official blogs, universities and similar institutions, and the like. This was made possible through a systematic use of relevant search terms and search engines. Moreover, hard copies of the books, working papers and even a few journals were also traced physically from official libraries such as those based at the institutions doing health research, Ministry of Health (MoH), NGOs, and Universities. As for the peer review journal articles, the main interest for directing our focus was in only those articles published in the period falling between 1990 and 2014. Much more attention was aimed to be paid to papers published from year 2000 when the MDGs were launched and 2013, but we later found it reasonable to include even a articles of relative importance as they seemed to give a good account on the past policy ambitions and practical experience even if such articles were older. These include articles showing the history of government policy initiatives since independence and those highlighting on international declarations and conventions by elaborating on what were the objectives, plans, and interventions and then stories about the success, failure, weaknesses and opportunities. To ensure that only the articles intended were the ones downloaded from the internet, the review team had to first of all read the contents of the abstracts of each of the displayed paper/article to make decision on whether or not to proceed reading the whole paper, so if the abstract was promising, then the next step was to attempt downloading the full paper. If the abstract seemed not to disclose a clear or meaningful message of the author(s) to support the seeming to be catchy article title/heading, the decision was subjective as it depended on whether the reviewer could opt for downloading the article concerned and reading between lines at least from the front sections of the paper such as the background and rationale, objectives (if not contained in the background), before moving to the next sections including the results, discussions and conclusions. As for searching the online papers using appropriate search engines, the articles were accessed either directly after typing the key words in mainly in google or HINARI (supported by the World Health organization), but yahoo search mechanism was also tried out. Once an article was displayed over the computer screen, the next step was to look at other 'related articles' on the PubMed website so as to mobilize additional information. This helped to reveal other relevant articles that were not contained in the original search. The MEDLINE search was performed by using combination of search terms e.g. maternal AND health AND Inequality, and if interest were in knowing about a particular country or program, then typing the relevant name of it was accomplished. Use of other key words sometimes accompanied by an asterisk (\*) that was put on its end and typed in the appropriate place of the computer was done as a way of limiting the articles not required to be displayed. To accomplish our work on this topic, we referred to the same methodologies adopted by past reviewers [13] supported by previous work done by some of the co-authors of the present paper [14-16].

### **Ethical considerations**

The MASCOT research part of the study in Tanzania received national ethical clearance from the Medical Research Coordinating Committee (MRCC) through the National Institute for Medical Research (NIMR) of . NIMR as the leading health research institution in the country and as a parastatal body under the MoHSW, hosts the Secretariat of MRCC. The ethical clearance for the same study done in other countries was obtained from the respective governments apart from the financial support and approval by the EU. Dissemination of

study findings was one of the elements required for the research and this includes the present review.

### **Findings**

#### **Disease and non-disease determinants of maternal and child health problems in developing countries**

Records on maternal morbidities and mortalities due to disease are among the key indicators used for measuring or evaluating inequalities in health worldwide. It estimated that between 500,000 and 600,000 women die each year during childbirth or pregnancy related causes, and at least 90% of these deaths occurring in sub-Sahara Africa (SSA) [17,18]. Different causes or factors contribute to this situation, some being of disease nature while others relating to weak or poor health management systems. As for diseases, malaria and HIV/AIDS have dominated at least for the last two decades according to records. So far, the evidence collected based on the statistics recorded around the world indicates that internationally HIV and complications faced with at the time of childbearing are the leading causes of death among women of reproductive age. Meanwhile, gaps remain to be observed in terms of shortage of respectful, health system support for women during pregnancy presented in terms of better policies, supplying health-care institutions with sufficient supplies including medicines, medical equipment, infrastructure and skilled and motivated human resources, all of which have negative implications on availability and quality services required for attracting the women come forward for effective use of the available services [19]. In addition, the health systems of many countries have continued being faced with the problem of stigma and discrimination against women, including those suffering from HIV/AIDS and this leads to suboptimal use of the available services by the eligible women and risking their life. Thanks to increased production and distribution of antiretroviral therapies (ART) and their delivery to pregnant women at no cost through the prevention of mother-to-child transmission (PMTCT) systems in the endemic countries, although the burden of this disease and associated inequalities in access to the recommended ARTs, are still highly regrettable [20]. Malaria has been, and remains to be, another public health systems' major conundrum and in some countries such as those in SSA this disease has for many years been the leading cause of morbidities and mortalities to populations of all ages [21]. Many studies reported in the literature regarding the burden of this disease have established that overall the epidemiology of this disease varies between localities, regions and nations, and even the ability of the respective authorities and communities to manage this disease and other diseases prevailing in the respective countries has also not been the same. From this point one, we think that one can get some impression that the reported maternal health inequalities in developing countries could be contributed partly by the variations existing in terms of endemicity, populations' risk exposure, gender, socio-economic statuses, and management of the prevailing diseases. We add that although the latter argument may open the debate and create a sub-topic calling for systematic research, we can rely on the available records on morbidities and mortality based on the published literature, routine health management data and/or from other official sources to build an argument as the rationale for the proposed analysis. What is important is to be specific on the approaches used in the measurement/assessment, whether in relative terms or absolute terms, whether by involving few variables in the technique used for data analysis or many and more robust variables to come up with a composite formula, whether using quantitative techniques alone or

qualitative techniques alone or a mixture of both, comparing different population socioeconomic groups (inter-group differences) or population categories within the same groups (intra-group differences), whether male groups or female groups, or other elements according to the interests of the evaluators and scope of their analysis [2,3,22,23]. For instance, recent statistics indicate that malaria alone accounts for 25% of all of the deaths occurring during pregnancy in countries where this disease is endemic [24].

Apart from malaria and HIV/AIDS, the current scientific literature tells us that such conditions as anaemia due to other causes (e.g. those associated with poor nutrition including low iron intake), and the complications caused by other causes that could be prevented have continued to affect women during pregnancy and after childbirth. To mention some of these, problems like haemorrhage, hypertension, unsafe abortion, stillbirths, anaemia, essential vitamin and iron deficiency disorders, and sepsis are frequently reported as being very common in many developing countries [21,25]. Although these conditions may face both the women living within and away from formal health care facilities, evidence shows that the women most at risk are those living far away from health facilities who have to walk long distances to the nearest facility due to lack of transport, as well as those with poor knowledge on risks associated with pregnancy and/or without immediate access to skilled workers to educate and assist them on pregnancy related matters [1,26].

### **International recognition of MNCH inequalities and strategies for its reduction**

Despite the fact that maternal morbidities and deaths due to preventable diseases have continued being reported as a great concern among governments, local communities and development partners worldwide, the greatest attention is paid to the lowest income countries (LICs) where the situation is much worse. In the latter countries, maternal mortality (MMR) has remained higher than necessary when compared to what is happening in higher income countries [1]. In response, working towards reduction of MMR by 75% has become one of the targets governments in developing countries have committed themselves to attain in line with the millennium development goals (MDG) projected to be realized by 2015 [18]. The MDGs - 4 and 5 recognize the need to reduce inequalities in health without which member countries cannot attain their goals of improving the health of mothers and children [1,5]. Based on these goals, many countries around the world have set programs in their health systems for ensuring that they succeed to meeting their targets, although to date there is an apparent shortage of evidence documented on the achievements of individual countries.

### **Methods for measuring inequalities in health in general and specifically in MNCH**

Many authors depict that measuring inequalities in health is a complex process. The discourses on measurement of health inequities including those using MMR among the key indicators and the strategies officially launched toward reduction of inequality problems are still taking critical viewpoints, as they seem to raise much concern in economic, political, and research forums. There has been a concern about what could be the best or more appropriate method or frameworks for studying and analyzing inequities, otherwise the criteria used and methods employed may remain biased and not appropriate for a fair comparison of situations in different regions. In connection to the latter point, a number of analysts have depicted that

some of the data used in the assessment and finally documented tend to be either controversial in nature or inadequate, and as a result the intuition or interpretation made on such data is somewhat misleading or flawed [2,3,23].

Some observers have established the appropriate meaning of the term/concept 'health inequalities' that could be a useful basis for arriving at a more appropriate measurement of the real inequalities is still unclear to many people – general economists, politicians, researchers and academicians, and people representing other disciplines [2,3,5]. Leon and Walt [27] define 'inequalities' as the variation in health statuses across individuals in a population. This definition is distinct from the concept of health inequalities as used by the researchers in studying health differences between social groups. However, the World Bank economics experts regard 'inequalities' as a composite measure of individual-level variation(s) that is consistent with other disciplines looking at inequality across individuals and between and within particular geographic localities. However, there is a critique that still this view remains to be more suggestive than the actual measurement and this is the case when the available data and their use cannot adequately help to depict the actual picture on poor-rich health inequalities and their implications on the health of the poorest and vulnerable groups, especially in low and middle income countries (LMIC) [2,27]. Meanwhile, several primary studies and reviews consistently confirm existence and widening of inequalities between the wealthier countries of the north and poor countries of the south in the field of public health. It is argued that the observed disparities exist even within the geographic localities and among same community's population groups – and this is when one looks at the issue by age, gender, race, ethnicity, level of education, etc. [5,17]. Meanwhile, current evidence shows that the vulnerability to ill health problems caused by communicable diseases and those causing poverty among the people varies by a person's sex, levels of education, area of residence, accessibility to clean and safe water, social infrastructure e.g. schools and healthcare facilities, income levels and expenditures, among other socio-economic conditions [3,17]. Therefore, assessment of inequalities between regions or countries should consider the differences in the social determinants of health and both inter- and intra- regional and groups characteristics [5,28,29]. Other non-personal characteristics important to take into account include the lack of food, low food nutrients intake and feeding behaviors [1,30].

Generally throughout the world, wealthier groups of people are at a more advantage of getting access to basic and quality social (including health) services, and this means they are less likely to face illnesses or deaths caused by communicable and preventable diseases than the poorest people [2,5,31,32]. In Europe alone, the losses resulting from health inequalities have been estimated to amount to €1 trillion per year, or 9.4% of Gross Domestic Product (GDP) [11]. The gap has been widening among the European countries when looking at such basic indicators as infant mortality rate (IMR), MMR, under-five mortality rate (U5MR), and life expectancy at birth, to mention some [33]. Furthermore, the countries located in both the north and the south continue striving for recognizing effective reduction of inequalities in health and they try doing so using various approaches. Indeed, there are notable successes in the latter countries, although the challenge is still great. For instance, some of the good news come from the interventions so far implemented following (or along with) concerted investment and according to reports the overall the MMR and even infant and U5MR and IMR have been declining in those countries, despite with variations between and within the regions. The observed variations are reported to be partly attributed to different

countries having adopted (or having decided to institute) specific policies or strategies that are more or less distinct from those adopted in other countries/areas [1,2,5]. According to these authors, some of the countries have succeeded more than others at receiving aid or foreign investment in health from their allies through bilateral and multilateral contracts or agreements [1,2,5]. Furthermore, the evidence continues showing that the overall morbidity and mortality rates among pregnant women and U5 children has remained higher than the rates for the people of other ages, and generally, adult men are less vulnerable to morbidity rates than their female counterparts even if the latter experience a higher life expectancy at birth than men [1,31,34].

### **Overview on international policy and field experience on maternal health inequalities situation**

Since 1993 when the World Bank published a book called *'World Development Report: Investing in Health'* [35], other world health reports consistently continued revealing that globally there have been crises in the countries' health sectors. The crises included among other things the widening gap in the accessibility of women, under-fives and other groups to basic social services. Evidence on similar or controversial experiences has prevailed as regards health inequalities.

About a decade ago, a study reported by the World Bank [2] revealed that by simply looking at the "headline" health inequality figures and exploring the reasons for the observed inter-country differences, one would conclude that large inequalities in health are not in such variables as the shares of publicly financed health spending in low income countries (LICs) when compared with what is observed in the high income countries (HICs). Instead, they are associated with higher per capita incomes. Other reports reveal that in LICs, as in middle income countries (MICs), the poor functioning or performance of the national health systems below expectations has contributed to the observed health inequalities and this is what makes the difference with higher income countries (HICs) where the systems are better financed and functioning more favorably [36]. At least for the last one decade, the deficiencies observed in the health systems of 191 countries assessed by WHO were related to inequitable financing between the poorest and the wealthier households, budget shortages for the health sector in general, lack/shortage of financial protection for the most disadvantaged groups, and inadequate public-private sector partnership (PPP). In terms of health service financing, some governments in LMICs (including Tanzania) have tended to disregard private sector's role in health care provision, and this has contributed to their failure to allocate fair budgets to support the private sector [37]. This means the women attending private health care facilities for maternal health services may be (as have sometimes been) at the disadvantage of being forced to pay user fees for the services that are delivered for free at public health care facilities [38,39]. It is a shame that some governments have tended to encourage private sector care providers to offer services for free to the vulnerable groups (including the services needed for MCH) and they do so without considering resource challenges private sector providers are being faced with for them to accomplish that mission. The unsupported care providers in the latter sector prompt the care providers to impose some cost-recovery mechanisms including asking even the poor people and pregnant women pay at least in part for the services demanded. The disadvantage increases for the clients living far away from public facilities as they end up missing the intended services after finding it unaffordable to meet the costs of such services at the private clinics

that might be closer to them [38]. Additional evidence indicates that concerted safety net measures such as health insurance in favour of the poor and vulnerable groups are generally inadequate while the weak priority setting mechanisms in place leads to suboptimal allocation and even misallocation of scarce resources. And in general, the existence of poor health service delivery systems and unfair financing mechanisms contributed by low resource allocation per capita exacerbates inequitable financing and this marginalizes the vulnerable groups by limiting their access to basic services [17].

Leon and Gill Walt [9] observe that the relationship between health and gender has been blind, and of course, this applies in the field of health as in other sectors of the economy. The effect might be to lower the opportunities for countries' or other stakeholders' to understand causal mechanisms creating and perpetuating social patterning in health. Thus, we find that assessing the relationship between men and women in terms of mortality and morbidity helps one to pay attention to analyzing the potential explanations relating to differences in the socio-economic gradients in the field of health. It possibly could also give useful insights or explanations for the observed gender differences in health in connection to gender or sex-based (and mostly biological) differences [17]. Until today in LMICs, health inequalities are among the most political, social and economic issues of concern and that is why the suggestion for more systematic evidence to guide policies on how to tackle such problems continues to be given [40]. There are various reasons for this suggestion remaining, and these include: the fact that the records available show that the ratio between the skilled (trained) staff and number of people attended per staff as well as the ratio between the skilled male and female health care workers (HWs) are lower in LICs than in MICs and HICs [36]; the proportion of births attended by skilled HWs is lower among the mothers with the lowest level of education than those with higher education and this trend applies to all continents; there is a great disparity between Europe and middle Asia and between North America and the rest of the world in relation to this issue of skilled birth attendances [17]. In many situations, we continue being informed that shortage of skilled staff and unsatisfactory quality of care for MCH services in LICs force a considerable number of residents (including women) local people to approach traditional birth attendants (TBAs), and that is why in some countries governments with support from WHO and other development partners found the need to support the training and involvement of TBAs in maternal health services including those relating to assisting in childbirth in areas with serious shortage of skilled HWs [41,42]. However, this has continued raising concerns and debates among the healthcare professionals about TBAs' ability to deliver the standard care required, including their capacity to detect danger signs that predict unwanted pregnancy outcomes [25,26].

### ***Proposed and implemented approaches for addressing the MCH inequality Challenges***

Suggestions have been made by various experts regarding measures that could be taken for tackling the existing health inequality problems in LMICs. Many view-givers seem to argue in favour of the point that understanding the nature of the problem is a fundamental and useful step towards solving the problem in question. The measures recommended include those targeting specific health interventions or health care services and those requiring broader sector-wide and multisectoral approach [17]. However, most of the authors commenting on this subject seem admitting the reality that there is no single best approach/strategy for tackling health inequality problems.

They base their argument on the fact that some of the evidence and discussions presented by different authors tend to be inconsistent, controversial and sometimes inconclusive [3,5]. There seems to be a common ground for basing some authors' argument that besides the people's biological differences, the factors contributing to the observed and usually reported MCH problems are diverse not only between one individual person or group and another, but also between localities found within and outside of specific countries. In principle, the authors mention a combination of differences relating to people's demographic, social and economic conditions on one hand, and the existing policies and their translation into practice on the other hand [43]. Thus, several documents reviewed indicated the authors arguing that some of the factors contributing to the observed health inequalities are too broad or many and may be interrelated or interdependent [22,44]. Some of these factors may be systemic in nature in that they are directly linked to policy designs or guidelines and programs implementation (including health service delivery systems) as well as cultural and behavioral factors as a considerable literature may support. The policies or programs concerned are either partly or entirely decided and promoted/advocated at global level for the individual nations to adopt in their own environmental contexts, and the acceptability of the policies concerned and their translation into national guidelines and practice depends on the perspectives of the national stakeholders in the respective countries [45]. It is not uncommon for the respective countries to find themselves in a situation of being tied (or forced) to implement the policies already decided at global level rather than having policies emerging from inside and driven by the internal demands. A good example could be the policies aimed at enabling countries to attain the MDGs. Often, policy statements and guidelines given by such multilateral organizations as WHO, The World Bank and International Monetary Fund (IMF), and even bilateral organizations, through their Experts Committees are adopted or embraced by the recipient countries especially those that are much more dependent on donor funding of their key sectors including health [46].

Debate has also persisted regarding whether to stick to vertical programs or comprehensive programs in the health sector even when specific health problems such as diseases are targeted. Some experts have tended to support the former kind of programs as opposed to those favoring the latter ones [47]. However, our review brought us to the conclusion that most of the key programs addressing specific diseases seeming to significantly affect maternal health are (and have been) vertical in nature as they deal with single or a few diseases, for instance, programs on malaria, HIV/AIDS, TB and mother and child immunization/vaccination programs, among others. As highlighted in the subsequent sections discussing on the health systems, we find most authors feeling very sad that these programs have continued being implemented in a generally weak local system of governance, with less effective or totally ineffective legislative or regulatory frameworks, coupled with insufficiently expressed political will on the part of the government and its representative leaders. Tanzania, for instance, the community enjoys a political peace and it is the country where a number of programs addressing MCH have been well conceived and launched. Unfortunately, the weak mechanisms for monitoring and evaluation (M&E) of the existing policies and programs, inadequate financing of the planned interventions/activities, and lack (or inadequacy) of cooperation between the health sector agents/departments and the agents from other sectors/departments, and poor governance including accountability mechanisms and their practice at various levels, pose a disappointing impact on the effectiveness and success of

the launched programs in this country [12,30]. The factors of biological or epidemiologic nature are related to burden of disease, usually measured using morbidity and mortality indicators (such as MMR, IMR and U5MR) and sometimes in terms of years of living with disability. The MMR is cumbersome to measure as it requires taking into accounting many factors including those of biological nature as well as of socio-economic nature [35,48], and these conditions vary from one geographical setting to another [17]. The socioeconomic factors include those related to individual and community knowledge on and perception of health and diseases, household income ownership, individual (e.g. woman's) decision-making power and ultimately their health seeking behavior [17,29,43]. Many authors suggest that measures designed and taken to address these kinds of limitations to women's health seeking behavior and access to adequate, timely and quality health services would be much welcome and would help to narrow the health inequality gaps in developing countries and areas of similar nature in other countries.

The apparent inadequate performance of countries' health systems, especially the least developed countries (or LICs) not only reflects the chronic weaknesses in national health systems, but provide a message that the advocacy for attaining the MDGs 4 and 5 by 2015 is a mere rhetoric [17,36]. However, we find the most outstanding question that should be answered by those criticizing the current and/or proposed initiatives is – *'what is the best alternative way out after 2015 if the MDGs will not be attained as anticipated?'* The cut-off point between all the identified causes/factors has often been difficult to determine. Many analysts in the field of maternal health economics and policies depict some direct and indirect links between such systemic conditions as the nature and level of supply of health facility infrastructure, medicines, other medical supplies, equipment and skilled and motivated human resources for health (HRH) on the volumes/levels and standards of health care services delivered to target populations and such populations' ability to access and use them on the other hand [36].

For a long time majority of LMICs have been faced with budget shortages for their health sectors leading to lower than standard allocations per capita [19,36,43]. Nevertheless, evidence shows that in spite of low countries' budget capacities, national health systems of most LICs have been experiencing resource misallocations or mismanagement and lack of strict accountability mechanisms and inadequate human resource numbers, capacities or skills and their working morale, all of which having direct or indirect impact on district's health performances and population's health [43]. Moreover, reports show a consistent trend of population aging unhealthily, and health systems of most LMICs continuing to be fragmented and failing to adjust to people's needs [49]. The reports reveal that healthcare worker (HW) shortages remain high in the LICs while the correlation between the lack of HWs and low quality of care, care utilization rates on one hand and health outcomes on the other hand is consistently documented. As a result, worries have increased among many developing countries about their ability to do something remarkable in conformity to the targets set for the MDGs [36,46]. Many documents reviewed have commonly reported that rural residents in all countries have been faces with relatively more serious shortages and disadvantages related to HRH and other supplies mainly because of the social infrastructural constraints and poor working environments as compared to urban areas [17,36]. Yet, it seems that little systematic research and reviews have been conducted to evaluate the within-country health inequalities between sub-population groups, focusing

on differences pertaining to individual socio-economic characteristics and their areas of residence [2,5].

## Tanzania's position in relation to MCH inequalities and health policy since 1961

### *Success stories at policy design level:*

The Tanzania government conceived a Development Vision 2025 aiming at achieving high quality livelihood for all Tanzanians. This includes having in place the strategies capable of increasing access to quality primary health care for all; quality reproductive health service for all individuals of appropriate ages; reduction in infant and maternal mortality rates by three quarters (75%) of current levels; universal access to clean and safe water; life expectancy comparable to the level attained by typical MICs; food self-sufficiency and food security; and gender equality including the empowerment of women in all health and development parameters [43]. This vision is in line with the broad national health policy's aim of improving the health and well being of all Tanzanians [50], special attention being paid to those most at risk and making the health system more responsive to the needs of the people. This could be achieved by facilitating the provision of equitable, quality and affordable basic health services that are gender sensitive and sustainable and delivered to improve the health status of the target populations as much as possible [6]. Of the eight specific objectives of the latter policy mission is the reduction of the burden of disease, MMR and IMR, and increase life expectancy through the provision of adequate and equitable MCH services; facilitate promotion of environmental health and sanitation, adequate nutrition, control of communicable and non-communicable diseases and treatment of common conditions [51]. The Government continues demonstrating its commitment to supporting primary health care (PHC) initiatives and interventions through all possible means, for instance, the Mpango wa Maendeleo ya Afya ya Msingi (abbreviated as MMAM), meaning The PHC Service Development Program (PHCSDP) with the aim of ensuring that PHC services are accessible and equitable for all by 2017 [6]. The government also has a health financing policy paying attention to several reforms, with more emphasis being put on social health insurance mechanisms and community based health care prepayment schemes, targeting to improve coverage of the population at most disadvantage of direct payment of user fees [52]. Furthermore, there are strategies for increasing children's enrollment in primary schools, emphasis being on promoting children of both sexes, promoting reproductive health education at all school levels, promoting nutritional behavior change for better health outcomes, and supporting institutional measures for preventing violence against girls, women and children. All these are part of the government's MKUKUTA Strategy [6,30,53]. Just for illustration, selected statistics are summarized (Table 1) as an update of the input, process and output indicators of the achievements made and officially recognized so far in Tanzania. It can be seen that MMR

has fallen from about 870 per 100,000 live births in 1990 to 460 in 2010, the annual reduction rate being 3.2% that indicates notable progress [1]. Unfortunately, still only about 50% of the births are assisted by skilled HWs, and the proportion of births assisted by skilled HWs has been painstakingly slow for the period of over 20 years. Also, the majority of maternal deaths have been occurring due to obstetric complications that could be prevented by providing accessible quality prenatal and postnatal care [6,54]. Data reveal that AIDS alone accounts for 6% of all maternal deaths and 5% of all under-five deaths, and generally non-pregnancy related complications caused mainly by AIDS, malaria and pneumonia contribute to around 25% of all maternal deaths [55]. However, the government has been much concerned to fight HIV/AIDS to its best level towards the eradication of this pandemic. It is evident that in all of its short term, medium term and long term plans, the issue of AIDS control has prominently featured with greater enthusiasm shown by the government to support all innovative and proven to be best practices for the prevention of new infections and minimizing the chances of HIV transmission among the population. The establishment of the Tanzania Commission for AIDS Control (TACAIDS), the presence of the National AIDS Control Program (NACP) through which issues of behavioral change communication (BCC) in relation to AIDS, prevention of mother-to-child-transmission (PMTCT) and strategies for wider distribution of ART including for the people living with HIV/AIDS, are good examples of policy initiatives [6].

It has also been found that disparities in health facility-based deliveries between regions have remained e.g. ranging from 28% in Shinyanga to 91% in Dar es Salaam, and even between rural and urban settings within same regions, and generally, urban settings show significantly higher records on health facility availability and accessibility than rural ones [6,55,56]. Other indicators are likely to be reported elsewhere while some remain undocumented. As in other countries, some of the reported data from Tanzania are either contradicting each other or overlapping each other and this is mainly due to different measurement methods employed and the sources of information accessed e.g. national household survey data, observational studies data and intervention studies data [57] and as illustrated in Table 1.

### **Table 1 about Here**

Overall, the government appreciates that the MMR has remained high for the last 10 years without showing any remarkable decline and that even neonatal and child mortality rates have remained significantly higher than the expected levels for a long time. That is why the government has set a plan for promoting the innovative initiatives and accelerating the currently well doing initiatives including those addressing ways of tackling poverty, disease, ignorance and inequalities in access to basic services towards a remarkable change for the next financial budget years [6].

Indicator	Baseline (Old) rate/level (Year)	Latest rate/level reported
Total Health Expenditure as % of GDP	3.7 (2004) [43]	6.8 [43]
% Number of households within 5km walking distance to nearest health care facility	90 (2007-08) [43]	95 [50]
% Households with at least one ITN	18 (2005) [48]	46 [48]

	39.2 (2007-08) [43]	63.4 [43]
% Pregnant women sleeping under ITNs	26.7 (2007-08) [43]	57.1 [43]
% women receiving skilled childbirth attendance	43 (2004-5) [43] 44 (1999) [40]	50.2 [50] 46 [40]
% of women delivering in homes (home-based deliveries)	53 (2008) [41] 57 (2004-05) [49]	61 in rural, 19 in urban [41]
% coverage of immediate skilled postpartum care	13 (2004-05) [50]	-
% pregnant women attending ANC clinics at least once	94 (2004/5) 90 (2004-05) [50]	96 [50]
% pregnant women making at least 4 visits to ANC clinic	64 (2004/5) [41]	43 [50]
	62 (2004/5) [50]	-
% pregnant women receiving at least 1 dose of IPTp-SP	46 (2001) [51]	78 [51]
		63.3 [50]
% pregnant women receiving at 2 doses of IPTp-SP	26 (2001) [51]	44 [51]
% Pregnant women who slept under ITNs at least one night before the survey	11 (2005) [48]	19 (2008) [48]
		28 [41]
		56.9% [50]
		57 (2009) [40,50]
% coverage of three doses of DPT3 Immunization	-	86.1 [50]
MMR, as % number of births per 100,000 live births	578 (2005/06) [50]	454 [36,50]

Table 1: Selected indicators of successes or achievements by Tanzania directly or indirectly related to maternal health services and inequalities problem solving strategies (numbers shown in square brackets represent the cited references).

The government strategy to fight social inequalities in the country has a long history. For instance, immediately after independence in 1961, it embraced a socialist oriented political economy ideology that fostered egalitarianism in national socioeconomic affairs [58,59]. Also, the government strove for ensuring a universal PHC coverage by enabling all the citizens to access PHC services free of charge irrespective of their biological, social, economic, race and political statuses. This was among the conceived fight or war against three main national enemies –namely, poverty, ignorance and disease [60]. Fighting this war was set to take several means. It started with establishing policy principles and regulatory systems that could command effective implementation across various sectors.

In 1967, The Arusha Declaration was launched as a national strategy promoting Socialism and Self-reliance ideology. Following this, all major means of production were declared to be collectively owned and used by the public for public interests while the government taking the custodian position. As envisaged, the self-reliance notion was aimed to instill people with self-initiated and supported development drive so that they could avoid over-dependence on donors. The latter aim has nevertheless never been totally achieved [58]. The issue of strengthening governance at all levels was not left unconsidered as in 1972 the government launched a Decentralization of Regional Administration system with the view to empowering local governments in planning for various developmental issues with little interference by the central government. This system

was reviewed in 1982, but so far its direct contribution to addressing problems related to MCH inequalities has not been explicitly documented anywhere. Possibly this is because the government's health policy was still vaguely known to exist [43,61].

In 1977, the government launched a Universal Declaration of Primary Education (UPE) as the immediate and best practical means towards ensuring that primary education accessible to all Tanzanians irrespective of their income, social status such as gender, tribal origin, religious faith affiliation, and other conditions and that the education should be accessed free of charge. The UPE system or program was expected to support the government's aim of fighting the three key enemies - disease, poverty and ignorance [62]. In the same year, the government abolished the private medical practice for the same aim as one that led to the launching of the UPE program. That aim is nothing else but the intention to move policy, plans and interventions more positively hand in hand with allocation of resources in favour of the poor majority of the citizens who were vulnerable to disease instead of leaving the wealthier segments of the population disproportionately favored. This policy move was conceived in line with the conditions stated to be achieved under the Arusha Declaration of 1967. It was perceived that achieving these aims successfully would help the government to remain committed to take a full responsibility of financing public sector (government owned) health service delivery systems. The government took this stance while allowing few and essentially 'faith-based health care providers' to continue delivering

PHC services even though they were charge modest fees and often offering exemptions to the needy [61,63].

In 2001, the government abolished the system of imposing school fees in primary schools in order to promote the enrolment of children of both sexes and from all socioeconomic groups in schools. While this is acknowledged for having raised the enrolment rates of the pupils, analysts depict that still gender based disparities in the enrolment and performance were (and are still being) observed [64]. This fact is supported by evidence indicating that the male candidates have continued to be more advantaged in terms of school enrollment and overall academic performances at least for several subjects such as those related to science [65]; some regions remaining to be left behind by other regions, and rural areas being less advantaged than urban ones in most socioeconomic facilities and health performance [30]. Also, the enrolment of the poorest children in secondary and higher levels of education – and hence the benefit they derive from government spending for education, has remained far behind that of the least poor [55]. We add that even if there might appear some positive changes, with girls seeming to perform better than the boys at least in several areas of academics, and health care facilities increasing in numbers or delivering some higher levels of healthcare services in rural areas relative to urban areas, the observed changes may be temporary and may not refute the fact that women have generally been left behind in many things due to partly socio-cultural limitations and ineffective policies and regulations that would have helped to enforce change.

Around mid-1980s the deteriorating economy of the country led the government to admit the strict structural adjustment program (SAPs) policies enforced by the World Bank and IMF. This made it hard for the government to continue fully financing the national health services and education sectors alone by allowing the citizens access the services for free. As a result, the immediate alternative or option was to involve citizens in the cost sharing system and this include the beginning of user fees for public health care services around mid-1993 [63,66]. Critics depict that the role of UPE and the previous universal PHC for free system on addressing MCH problems including those relating to inequalities is not seen directly or is not expressly stated in the current official documents, but this does not mean that nothing potential has been realized so far. Apparently, UPE's inception was based mainly on the belief that with better education, the chance for ignorance to perpetuate prevalence of preventable diseases could be minimized and this means it is up to researchers establishing evidence evaluating the achievements made so far [43,62]. Other critics have expressed doubts about the introduction of school fees in primary education systems including the schools owned and run by the government, and however little they might seem, this policy move has resulted in drop in the enrolment rates and provoked social discontent in Tanzania [67].

Furthermore, Tanzania is a signatory of the multilateral agreement popular as the Alma Ata Declaration of 1978 that set a goal for the member states to achieve 'Better Health for All by 2000' by implementing a PHC strategy [61]. At least a few citations exist in the current literature regarding some good lessons learned from an effective PHC system's implementation in several socialist countries among which are from the developing world and these include Cuba and China those that relied on socialist oriented policies (though by now China is a middle income country). Others include Brazil and some other countries located in southern America. Nevertheless, there are also a few countries in Europe whose governments have shown

political will and commitments for working to address problems relating to equity, accessibility, affordability, availability, effectiveness, efficiency, community participation, private-public partnership (PPP), decentralization and sector-wide financing approaches for health [68]. So, this is a proof that Tanzania's long equity and universal access to PHC oriented policy has not been conceived by accident and in bad faith.

In attempt to further implement the PHC system, the Tanzanian government continued learning from, and attempting to address, the problem of shortage and skewed distribution of HFs and HRH (simply 'health workforce') in the country. As documented, this problem was inherited from the colonial system that was biased to favoring the urban and peri-urban settings in many development issues including the allocation of resources and location of basic social services including health facilities [59]. At least in theory, innovative strategies have been conceived and launched in Tanzania as basis for implementing programs that would help change, and this includes change in the numbers and composition of the health workforce (including the skills of the existing staff) and ensuring that their recruitment and deployment are done more equitably [59,69]. Meanwhile, the government in recognition of the hardships faced with by a significant proportion of the people especially those residing in remote settings who were/are forced to walk over 5km to reach the nearest health care facilities, it has considered and attempted to increase the number of such facilities, paying special attention to the vulnerable groups including pregnant women and young children [6,59]. Even after the introduction of the cost-sharing system in the mid 1990s, the national/government policy explicitly stated that the most vulnerable groups including pregnant women, under-fives, the poor and elderly people deserved eligibility to receive basic maternal and child health (MCH) services for free at all levels [70]. The question left and still clicking in the minds of many critics and development stakeholders is whether this has at all been possible.

Since 1995, the President of Tanzania, beginning with Mr. Benjamin W. Mkapa has willfully dedicated himself to give monthly speeches addressing the country to update the citizens, foreigners and development partners on the government efforts in key areas of development, and these include the speeches reflecting on the government's political will, actual commitments and performances in the provision of health services. The issue of government's intention to increase the accessibility, coverage and quality services of affordable level to all of the eligible populations dominates the discussions. This stance of airing monthly speeches through the mass media was maintained by Mkapa's successor – the current President Jakaya M. Kikwete. The latter on behalf of his government has motivated researchers and academicians by encouraging them to continue designing and undertaking innovative studies aimed at investigating, evaluating, documenting and reporting evidence in critical social development areas including the area of health and particularly MNCH services. The President has been urging these experts to report all the lessons learnt including both the poor and best practices reflecting the performance of his government, its allies as development partners and even other stakeholders including the research and academic institutions in the pursuit of searching for, implementing, and accelerating positive initiatives in health. His aspiration has been to double the country's health workforce training capacity and in his own view, this would support the government's

Tanzania has also been, and is still, a signatory of many other regional and multilateral conventions. The government has been

sending delegates to represent it at various international conferences including those aimed at tackling MCH inequalities. Such declarations, conventions and conferences have all emphasized the need to respect health as one of the human rights and the health of women and children to be accorded priority attention for protection and support [16]. It has also been observed that the political stability experienced in Tanzania since her independence has enabled the official programs initiated so far to be implemented in the area of PHC in general [61]. We find this to be a true fact even if as we discuss later on the successes and failures, critics may still claim that the achievements reported so far do not appear to be as high as expected or anticipated. We also find that the government's equality and universal health service coverage oriented policy stance has taught a lesson to the world stakeholders who reviewed its policy and eventually participated in signing the Alma-Declaration in 1978. Therefore, as a matter of fact, Tanzania has already moved a step ahead of the universal health coverage conception by then.

Promotion of public-private sector partnership (PPP) is another area the Tanzanian government has continued recognizing especially in the period falling between now and the last ten years unlike in the past period when the *Ujamaa* (socialism and nationalization) policy ideologies were dominating the minds of the government authorities. One of the drivers for the government's decision to promote PPP is that nearly around 40-48 percent of all health facilities in Tanzania are

private sector among there are faith-based and private-for-profit (commercial) providers [61,71]. The National Health Policy statement of 2007 acknowledges the contributions of the private sector and includes an objective of fostering PPP in health service plan and provision [53]. The private sector contributes to increasing accessibility of PHC services by providing basic health care services to all people in need, including the pregnant women and underfive children for such essential services as immunization through Expanded Program for Immunization (EPI) system, ANC (at little or no cost), neonatal and postnatal care, delivery and curative services free of charge using government subventions [72,73]. A summary of these and additional initiatives aimed at improving maternal health situation, inter alia, reducing maternal health inequalities are as listed (Table 2).

**Table 2 about here**

Furthermore, Tanzania has attempted to address MNCH challenges by revising the National Health Policy whereby reproductive and child health (RCH) issues were considered to be given a higher national health priority and this went hand in hand with the national Health Sector Reforms, Health Sector Support Programs (HSSP) implemented in phases of 5 years and now Tanzania is in HSSP III (2008-2012) and like the PHSDP/MMAM this is part of NSGPR/MKUKUTA) [6,74].

Date/Year	Initiative officially launched
1974	Maternal and Child Health Services
1975	Expanded Program on Immunization for vaccine preventable diseases (EPI)
1989	Safe Motherhood Initiative (SMI), and this came after the official launch of the Global SMI in Nairobi, Kenya in 1987
1992	Baby Friendly Hospital Initiative (BFHI)
1994	Code of Marketing Breast Milk Substitution and Vitamin A Supplementation
1994	Reproductive and Child Health strategy (RCHS), following an International Conference for Population and Development (ICPD) that emphasized the right to access to reproductive health services
1996	Integrated Management of Childhood Illnesses (IMCI) for reducing childhood morbidity and mortality (including improving the health of the mothers)
2003	Health Sector Strategic Plan (2003-2007), Other Strategic Plans that followed (at 5 years interval)
2005	National Strategy on Infant and Young Child Feeding and Nutrition
2005	National Strategy for Growth and Poverty Reduction (NSGPR/MKUKUTA) 2005-2010
2007	Primary Health Service Development Program (PHSDP/MMAM) 2007 – 2017
2006	National Roadmap Strategic Plan to Accelerate Reduction of Maternal and Newborn Mortality (2006-2010)

Table 2: Selected Key Initiatives to improve MNCH in Tanzania [41].

**Success stories at policy implementation level:**

The reports reviewed have established the fact that the national efforts to tackle the three main enemies were effected through centrally directed development plans and these initially resulted in a significant improvement in the per capita income and access to education, health, water and other social services [60]. Soon after independence, the government stated to develop a health policy strategy set with the aim of doubling the number of health facilities throughout the country, with an estimated 90% of the population

living within a walking distance of 5-10km to a nearby health facility [75]. The latter strategy was planned to be developed or implemented in phases, and truly, it took a phased implementation approach, and moved hand in hand with other arrangements such as increasing the number of trained community health staff [68]. Also, health service was made an integral element of all development programs; increasing number of health professional training centers and students; introduced new courses for health and recruited special staff cadres e.g. rural medical assistants, medical attendants, public health nurses, medical assistants popularly known as clinical officers, assistant

medical officers, and medical officers that could work to serve in the capacity of their training [71]. There has also been a policy prioritization on water, health, and environmental sanitation and hygiene (WASH) aimed at promoting preventive health; provision of mass immunization against infectious diseases to all population and immunization to specific groups such as pregnant women and children under five years of age [43]. Meanwhile, the PPP issue continues gaining momentum, albeit at a low pace, and there is a national PPP Steering Committee and most of the regions have appointed PPP coordinators to link their regions with the centre (MoH headquarters) and development partners when it comes to participation in setting priorities for health [53].

Regarding HRH distribution, reports show that Tanzania is among a handful of the countries within SSA noted to have achieved an 'equitable' geographical distribution of doctors, nurses and midwives across both urban and rural areas while the overwhelming majority of the countries has not. It is revealed that 81% of the countries show a population-adjusted workforce that seem strongly favoring urban areas [7]. However, the reports acknowledging Tanzania to have an equitable distribution of skilled workers are contradicted or criticized by various observers based on other reports. For example, the Ministry of Health has recently evaluated and established that urban centers are more advantaged than rural ones and that by 2010 the deficit of skilled health workers varied by regions as it ranged between 31% in Shinyanga and 62% in Mtwara [53].

#### **Successes stories based on health process and outcome/ impact indicators:**

Notably, the period between 1961 (at independence date) and 1990 has recorded some reductions in maternal and child deaths in Tanzania. However, the records seem to have fluctuated after 1990. For instance, it has been estimated that the national average MMR has slightly fallen to <454 per 100,000 live births while during the period before 1990 the mortality rates were significantly higher [16]. According to President Jakaya M. Kikwete, in his speech of May 2014, the observed current rate of MMR is estimated to account for a 45% reduction from the previous levels during the 1990 and the period beforehand, and this indicates remarkable and satisfactory, but yet insufficient achievement of the existing policies and programs [12]. Other records indicate either slightly or greatly higher figures of MMR than 450 per 100,000 live births (Table 1). The regional average was found to account to 832 per 100,000 live births [53]. This is somewhat misleading or confusing, and as we noted before, the methodologies employed in the data collection and analysis and the sources of data contributes to the observed data overlaps or contradictions.

As a wide range of the literature reviewed supported, we found that some of the key factors seeming to have led to the observed or reported success stories include a committed introduction of RCH survival initiatives; coordinated or integrated programs - one of them focusing on RCH issues involving stakeholders from other sectors (e.g. Ministry of Education, Ministry of Law and Constitutional Affairs, and Ministry of Community Development, Women and Children); increased delivery of RCH services such as immunization, child spacing counseling and products such as contraceptives, introducing voluntary counseling and testing (VCT) services as part of program of free delivery of the PMTCT for HIV/AIDS using anti-retroviral therapy (ART), introducing intermittent preventive treatment during pregnancy (IPTp) against malaria, and regular carrying out of maternal death audits. While these initiatives/programs are

acknowledged, additional evidence indicates that so far, Tanzania is among the top ten countries in SSA with highest mass immunization coverage of pregnant women and children under five years; one of top ten countries with relatively higher ANC attendance rates of at least for four visits; and number pregnant women sleeping under ITNs; and having launched a mass household indoor residual sprays (IRS) strategy that is implemented in several regions. This intervention is said to have combined effects on reducing malaria related morbidities and mortality rates significantly in the presence of other strategies such as ITNs and IPTp [16]. It is also greatly believed that the PMTC services delivered through the Clinton's Child Health Initiative (CHAI), Benjamin W. Mkapa Foundation (BMF) through recruitment and retention of HRH in rural areas and other difficult to reach areas, such programs as the Presidential Malaria Initiative (PMI), President's Emergency Plan for AIDS Relief (PEPFAR), initiatives under The Bill and Melinda Gates Foundations [76] and those organized by other bilateral organizations and multilateral organizations e.g. WHO, UNICEF and UNDP have greatly and invaluable been implemented and served. These programs/initiatives are commended to have been able to reach even the populations living in the previously under-reached/underserved areas, and they still have the potential for reducing unnecessary morbidities and premature deaths among the people at most risk including women during pregnancy and young children in other regions [43,53,77].

#### **Success stories in relation to Research and Development (R&D):**

The government has continued showing its political will and actual commitment to fund research. Even though the support given has not been much as compared with funding from external sources, the supportive policy environment for research to be conducted in the country covering MNCH issues among other areas has remained being a national priority for years. This opportunity has been used by the researchers and their funding agencies [51]. Our experience has proved that all the country's top leaders including the current and past presidents and ministers responsible for health, science and technology, have been either attending personally or represented by other delegates at annual joint and international conferences and other local workshops organized by the National Institute for Medical Research (NIMR) and its allied institutions including Ifakara Health Institute (IHI), Tanzania Commission for Science and Technology (COSTECH), Tanzania Public Health Association (TPHA), Medical Association of Tanzania and other professional associations. Researches undertaken by these institutions have had made a significant contribution for bringing to the desks of decision-makers the evidence relating to the nature, magnitude and trend of the MNCH problems in the country and recommended policy options. There is no doubt about this given the vast literature available as published by researchers and that can be traced from such institutions' websites, and even the scholarly journals and other sources such as websites of various non-governmental organizations that are accessible online using appropriate search engines. The current promotion on ITNs usage emphasizing coverage of pregnant women and under-fives [78,79], IPTp implementation [73,80], HRH training, recruitment and motivation schemes [81], HF improvement and all arrangements fostering to improve both equity and reduce inequalities in access to PHC services, are key examples of areas where the evidence has been created and shared with high level policy decision-makers. Among the institutions of excellence in providing more practically useful policy briefs regularly and mainly done through newsletters on top of

publications in peer review journals and workshops with key policy decision makers, private sector agencies and researchers is the IHI ([www.ihl.or.tz](http://www.ihl.or.tz)). With government support through annual budget allocations and Tanzania Health Research Users' Trust Fund, NIMR has also continued to undertake and promote research and then documenting most of the studies and other reports in its website ([www.nimr.org](http://www.nimr.org)). Thus, a variety of published research papers, policy briefs and official working documents based on consultancy reports from IHI, NIMR and other organizations indicate the role the researchers have played after being involved in studies focusing on issues related to health service cost-sharing policy, piloting and thereafter recommending the implementation of national discount voucher scheme for ITNs - all being in favour of pregnant women and children under five years [78,79,81]; voluntary counseling and testing (VCT) for HIV among the pregnant women attending ANC clinics, administration of ARV to lactating mothers for the PMTC with HIV/AIDS, immunization for vaccine preventable infections among the women attending MCH clinics, and change of first line drugs for malaria treatment with emphasis on the implication of this on the poor and vulnerable groups [82]. These, among others, would not be possible without government approval by granting ethical clearance and even partly proving research funds. Furthermore, the building of more health care facilities and training centers for health workers to meet the existing staff shortages and improving accessibility to such facilities throughout the country could not be achieved without reference being made to recommendations from researchers (National Malaria Program Managers, per com). As mentioned above, President Kikwete supports scientific research and has shown his government's commitment to allocate at least 1% of the country's budget for supporting research, as presented in the speeches given by the delegates representing the Office of The President of the United Republic of Tanzania (URT) as well as keynote address given each year by the COSTECH and NIMR Leaders at the Annual Joint Scientific Conferences organized by NIMR in collaboration with its allied partners and supported by the Government of the URT and development partners. However, little has so far been published or officially documented on the ability of the researchers to use this opportunity and the government's ability to keep its promise in terms of remitting funds at least for capacity building, infrastructural and equipment strengthening.

### **Key stories about failures, Constraints and Challenges:**

The nature of the policies, plans and associated strategies officially established

Observers have established that the laws and policies dealing with some RCH issues (e.g. the issue of abortion) in Tanzania are so "inconsistent, unclear and often contradictory" in relation to RCH. As a result, women and frontline health care providers are denied chance of accessing comprehensive information package on what is legal and what is illegal as far as RCH services and practices are concerned, and this hinders women's access to safe service opportunities including those addressing the problems facing adolescents [54]. Critics further observe that the initiatives established soon after independence and several years later were not guided by any coherent health policy for their successful implementation. Because of this, it is argued that there has been an improper planning (including non-evidence based and well grounded policies) and implementation of various programs/initiatives. This has been viewed to be one of the main or root causes of the observed failures in the specific and overall performances of various health programs []. Meanwhile, the

Tanzania has remained one of African countries with high IMR, U5MR and MMR although this has not discouraged the government and development partners' to continue showing their commitments to improve the situation [66].

From the research point of view, we find that the majority of national documents analyzed maternal morbidities and mortalities in relation to malaria and HIV/AIDS by paying little attention to problems related to fistula and emergence obstetric care (EmOC) across different socio-economic groups and geographical strata. Apparently, this is mainly due to malaria and HIV/AIDS for many years having been perceived to be the major public health threats. That is why research has been more oriented to these problems. Our experience brings us to the argument that researchers often tend to dance the beats of the music of those who set research agenda and priorities and these include decision-makers at national policy and global policy-making spheres. Moreover, we found and agree with many other authors that MCH problems seem to be more often analyzed on national scale or district or regional scale without going deeper into looking at disparities within the subgroups and localities. Evidence from the Tanzanian Demographic and Health Survey (TDHS) reveals a large discrepancies in access to health care based on geography (location of the individuals from health care facilities), as most medical facilities offering maternal health services seem to be concentrated in urban areas; generally the problems of access to health care due to presence of user-charges and/or long travel distance are felt most acutely by rural women (and mostly from poorer families and less educated) than their urban counterparts [54]. Many other reports show the disparity to remain between the people living in rural settings and those living in urban settings, and this covers the issue of access to ANC services and skilled birth attendants [1,83]. As for research in Tanzania, there seems to be a general shortage of studies looking at broad health systems and social contextual issues associated with policy design, interpretation, environment and inter-sector and inter-sector dimensions. This makes it difficult to control diseases/problems of public health significance due to scantiness of the evidence required for better policy consideration [84]. The general, to be aware or to assume that rural and urban areas differ in terms of health facility availability/distribution, accessibility of actual services, and in terms of morbidity and mortality rates is not enough. There is need for going further to examine the key contributing factors that are not often conceived and systematically analyzed to help come up with more robust, informed and practicable recommendations. Issues of national health budget allocation favoring urban district more than rural districts and failing to capture the real constraint facing some specific health care service activities continue being reported. This is because of the crudeness in the resource allocation formula used whose design has been based mainly to focusing on such indicators as the population density and distribution of hospitals and health centers while these are automatically in favor of urban settings [85].

### **Practicability of the policies and plans so established:**

The practicability of a given health intervention may depend on, among other things, the acceptability of the policy in place about it among those purported to implement the policy, the availability of human and material resources and the capacity and skills of the management or governance system in place [84]. We argue that one may need to look at these dimensions or elements when considering to evaluate the operational effectiveness of a given policy or intervention. According to Diepeveens and others [86], the governments can intervene to change the health-related behaviors and may do so using

various measures. However, public perceptions and attitudes towards a government intervention may sometimes prompt or influence the government concerned to think twice or more and become too sensitive to any measures perceived of being essential to be officially instituted for implementation. This depends on the systemic circumstances faced with by the government and communities concerned – be it for general services and specifically for MCH services [84]. The government recognizes the key challenges the health sector has been encountering when it comes to tackling MNCH problems in the country (Table 3). To highlight, an account has been made of the main initiatives and programs introduced by the government in the national health system as the roadmap toward success attainment of the MDGs, although still much more have to be done towards accomplishing the goals [6,12].

**Table 3 about here**

A number of research and policy experts seem to have a common argument based on tie experience that the health sector reform policies mentioned above, particularly the decentralization by devolution has

been a policy conception more advocated on paper than their practicability on the ground. It would have been commendable if there were evidence demonstrating the ability of the existing policy structures and systems of governance at all levels to translate the reforms and their resultant plans into a reality by satisfying community health needs [53,87,88]. In Tanzania, as in many other countries, it has been observed that the concept of community/civic participation (CP) is far from being understood clearly by many people partly. This is partly due to the misinterpretations people do of the term ‘community’ and ‘participation’ [39,72,87]. It is difficult to address problems requiring effective CP if the target communities are not well studied to be approached properly, and while this fact is not new to decision-makers, it is surprising to find the authorities concerned underrating or undermining their communities who should be target beneficiaries of the policies and interventions so advocated and practically introduced. We therefore argue that most of the MCH problems including those relating to HIV/AIDS, pregnancy and postnatal complications may continue due to lack of appropriate CP initiatives.

<p><b>(a) Systemic factors</b></p> <ul style="list-style-type: none"> <li>-Inadequate implementation of pro-poor policies</li> <li>-Weak health infrastructure</li> <li>-Limited access to quality health services</li> <li>-Shortage of skilled HRH</li> <li>-Weak referral system</li> <li>-Low utilization of Family Planning services</li> <li>-Lack/shortage of equipment and supplies</li> <li>-Weak management/governance at all levels</li> <li>-Inadequate coordination between public and private sectors (weak/low PPP)</li> </ul>
<p><b>(b) Non-health system factors</b></p> <ul style="list-style-type: none"> <li>-inadequate community involvement and CP in planning, implementation, and M&amp;E of health services</li> <li>-Gender inequality</li> <li>-Weak educational sector</li> <li>-Social-cultural beliefs and practices</li> <li>-Poor health seeking behavior</li> </ul>

Table 3: Critical/key challenges experienced in relation to tackling MNCH problems in Tanzania [41].

The outcry about shortage of reliable evidence on MCNH inequality exists at policy level [6]. We find that the primary research and monitoring and evaluation (M&E) reports seem to rarely focus on analyzing issues relating to inter-regional inequalities in health and doing little or nothing on assessing the gaps within and between specific gender groups in terms of community access to basic health services. Conducting a comparison between rural and urban residents may sound fine, but this could be expanded by considering other wealth and non-wealth indices. Use of a more composite or robust formula when mathematical calculations are involved would be more realistic and recommended. Unfortunately, there seems to be a general lack of surveys aimed to collect the data that could compare the differences in the groups mentioned and between the rural and urban dwellers. The little data available show some picture indicating the unexplained and/or unexpected variations between the rural and urban residents in terms of access to basic services and ultimate health

outcomes. The traditional thinking has been that rural dwellers are more disadvantaged in health services/interventions and therefore are more likely to indicate poorer or less improved health outcomes than their urban counterparts, but this seems not to apply to all the indicators shown (Table 4). Generally, some records have shown that country-wise, 13,000 women are still dying each year from pregnancy related causes, and another 157,000 have been dying before their first birthday. Of these children, 45,000 babies have been dying before they reach one month, the most victims being poorest and marginalized people [56].

Reports show that disparities according to household wealth status or educational attainment of another are more pronounced, and that the regional records indicate rural women being more likely than their urban counterparts to deliver in health care facilities [55].

Indicador	National Average	Geographical Setting		Wealth Quantile	
		Rural	Urban	20% lowest	20% highest
Maternal Mortality Ratio (MMR)	454	-	-	-	-
Infant Mortality Rate	54	60	63	-	-
Under-five (<5years) Mortality Rate (U5MR)	81	92	94	-	-
ANC attendance (≥4 visits)%	43	39.1	54.8	-	-
Postnatal care for mothers and babies within 2 days of birth %	35	-	-	-	-
% Exclusive Breast-feeding (0-5 months of age)	50	-	-	-	-
% Three doses of DPT3 immunization coverage	86.1	85.9	97.0	84.1	96.9
Antibiotic treatment of Childhood pneumonia	-	-	-	-	-
% ITN coverage among pregnant women	73.5-ITNs,	74.2 IT	70.2	75.3	76.1
% ITN coverage among children <5 years	63.6	63.5	64.1	61.1	65.0
% IPTp-SP with dose 1st (IPTp-1) coverage	63.3	61.8	68.8	60.9	72.4
% IPTp-SP with 2nd dose (IPTp-2) coverage	27.2	26.3	30.8	25.7	32.4
% Skilled birth attendants	50.2	41.9	82.4	33.1	89.6
% pregnant women delivering in h-facilities		>80	39	32	86
Knowledge of PMTCT (among pregnant women)%**	72.9	67.5	83.3	59.9	82.9
% of HIV-exposed babies receiving Nevirapine prophylaxis	30	-	-	-	-
% Public HFs providing Emergency Obstetric Care (EMOP) services	64.5	-	-	-	-
% Health centres delivering EmOC services	5.5	-	-	-	-
% HFs delivering PMTCT services	20	-	-	-	-
% Stunting among children <5 years	42	44.5	31.5	48.4	26.3
% Wasting among children <5 years	5	4.9	5.8	5.1	6
% Severely underweight children <5 years	3.8	4.1	2.1	21.5	9.3

Table 4. Selected Progress Indicators for MCH inequality status in Tanzania [40,46,50]; \*\*Knowledge about HIV transmission/prevention in infants; (-) Records not found.

Meanwhile, it has been noted that the inequality elements related to non-quantifiable indicators are yet to be explored despite their significance. This is because studies have continued revealing that a considerable number of pregnant women avoid - travelling long distances, paying user fees and utilizing facilities perceived to deliver poor quality care. The poor quality of care has often been noted to be related to patients' perception of long waiting time for services, shortage of essential medicines, impolite or unfriendly staff dealing with patients, lack of privacy, and lack of laboratory confirmatory services, among other things. Inclusion of each of these elements in a single formula for assessing quality of care and comparing the results across geographical settings may sound ambitious or promising interesting results, but frankly speaking that is not easy at all. Meanwhile, the evidence indicates that the people living in rural settings and the majority of these being poorer tend to suffer the most when user-fee for service are in place [5,6,38,59,89]. These facts tell us

that the government may argue confidently that it is a right decision to introduce its MMAM strategy as planned as a way of reducing the complaints communities may have regarding inaccessibility of PHC services. The immediate question to ask is-'will the government really have the expected funding base for all the desired service increase and improvements if at all some of the problems mentioned have prevailed since independence?' We argue that the decision or act of improving health facility infrastructure by renovating and equipping the existing ones and building additional ones sounds encouraging and it is good to always think big, but this dream may not turn out to be a reality when it comes to implementation. We base our argument on the fact that most of the recently constructed health care facilities are still understaffed, others lack key staff completely, leave alone problems relating to poor retention and motivation of the existing HWs especially those residing in the underserved areas [72]. There are also

possible barriers relating to user fee implementation and insufficient quality of the services.

The reports reviewed suggest that the PPP concept has remained being more sort of policy advocacy and hence a rhetoric than a real world practice. It is therefore not clear whether the objective of engaging the private sector providers in MNCH service programs will be achieved with remarkable success. According to the evidence available so far, private sector providers are still disappointed with the approach used by various public sector departmental officers at district level to sideline them. Apparently, there is pervasive understanding (misconception) of either what the concept PPP actually means or what role the PPP is intended to play. This contributes to inequitable allocation of the budget funds and other resources in the so-called decentralized district, town and municipal councils, hence giving little or negligible priority to the private sector providers [55,72,73]. As a result, the key interventions including those relating to MCH remain challenged with suboptimal delivery due to inadequate resource subventions to the private sector [3,73]. Meanwhile, it is important to note that the issue of PPP in the delivery of maternal health services and the role of the private sector to reduce inequalities in such services require further systematic analysis and reporting of the evidence. Probably that is why research in MCH is still and may remain one of the national health priorities and actually among the topmost priorities whereby more robust methodologies are recommended [16,74]. Although the government through its MoH has plans to address the contemporary challenges, there is no guarantee for the funding opportunities due to tight budget culminated by poor national economic performance. Even some of the vertical programs that are (or have been) launched including those addressing MCH problems continue suffering from lack of essential integration. For instance, there is an apparent stiff competition for quality staff within local government councils that already have HRH scarcity [53]. This implies that some of the MCH services may be implemented without the implementers receiving inputs from other programs and may even not be implemented at all. Whatever the approach out of these two, the losers are the community whose MCH situation remains poor. It is a pity that reports also reveal that the distribution of skilled HRH including those specializing in MCH services is highly skewed in terms of numbers, gender and skills mix. This negatively affected or undermined the delivery of basic services [90,91]. In light of these observations, we argue that the MMAM initiative may still make no important difference if emphasis is more put on, and actions translated into building more health facilities without ensuring effective recruitment and training of the HWs directly needed for health care service provision and balancing the distribution of such workers between rural and urban areas.

## Conclusions and Recommended Policy Options

The reviewed literature reveals that although Tanzania is on track on her policy and plan initiatives and program implementation strategies aimed to attaining the MDGs-4&5, the problem of inequalities in maternal health are still a major challenge. In some of the areas the situation is even worsening [55]. There is a general shortage of evaluative studies on the initiatives that have proved to be best practices and lessons for other programs or countries to learn. Research would have made a better difference if it contributed to widen an evidence base for guiding public health policy decision-makers. Any research or study that has been done without being adequately or properly disseminated for the evidence to reach the

decision-makers at policy level and the general public (community) has wasted money and time unnecessarily. We have seen how the concept of PPP is still vague or ambiguous in terms of its interpretation and understandability among a good number of stakeholders including some key decision-makers who are supposed to promote it. Research has not been able to suggest the likely to be best practice of PPP in Tanzania, as might be in other countries within SSA. We recommend that in the future research covering issues relating to how to address MNCH inequalities problems from a PPP's perspective should be among the national priorities. Nevertheless, we feel that prioritizing research funding opportunities in this area is subject to the government's political will that is demonstrated in form of supporting researchers to secure funding for carrying out studies of great interest and that are demand driven. Achieving this would lead to a renewed interest or building a new interest and chance for commitment among the researchers in this area. This is possible if research becomes an integral part of the MNCH programs including M&E. That is to say that even if research on MNCH has been happening in Tanzania, the government's and development partners' support in terms of financing it is still highly needed. There is a great possibility for this to be accomplished so long as the government and its allies continue recognizing research as essential element in public health evidence creation for guiding policy decision. To minimize research conduction and reporting bias, local scientists should ensure they collaborate with foreign researchers to conduct the required studies in line with the country's priorities and this opens more opportunities for increasing the chances for additional funding from abroad. There is need for the researchers and other evaluators to work more systematically with sounder methodologies in order to avoid disseminating controversial evidence that may confuse the audience including policy-makers. This is because, any misreporting has a barring impact on public health, particularly if the activities expected are not established due to lack of reliable evidence in place. The government on its part need to ensure that there is some form of enforcement in its institutions to implement change so long as the same government admits that without addressing the chronic national health system shortages including low per capita health budgets, poor quality of services mainly due to health facility underfunding and under-financing leading to inadequate supply of basic medicines, other medical supplies and equipment, skewed distribution of health care facilities, unacceptable formal and informal charges imposed on women attending maternal health clinics, weak health governance associated with poor accountability and responsiveness of various authorities to local needs, government overdependence on external funders that are not reliable and weak PPP [55]. We join other speakers or authors to acknowledge the achievements realized so far in Tanzania, but we feel that such achievements cannot be maintained if the national health system and the government fail to perform and maintain certain and core functions. On the HWs side, we suggest that there is high need for the government and partners as well as other allied stakeholders to look at the best methods for building a strong HRH by increasing their investment in HRH/HWs training and recruitment if the desired quantities and quality of the services desired have to be realized. The policies would look at how better or best the financing mechanisms proposed and those already existing for the programs in place or being proposed can lead to a remarkable reduction of the existing inequalities in maternal health. Whatever can be conceived or considered, paying special attention to reducing the current and seemingly chronic gender imbalances associated with violence and other forms of discrimination against women and removal of other social-cultural roadblocks to women's access the

PHC services would be much welcome. As for good governance in the health system, we propose an effective accountability system that can lead to a better resources control powers of the frontline managers, and this requires such people to be honest and trustful to the government and the people they lead at all levels – be it at national policy-making level, national health program, regional, district, and even at health facility/community levels. Ensuring more effective CP in priority setting and health service management, supported with clear and workable policy guidelines, strengthening disease surveillance and M&E systems, and making research an integral element of these systems, would be great. Governments need to create an enabling environment for the translation of all success stories into practice by learning from the best practice. The government, researchers, policy-makers, politicians and everyone need to continue appreciating that most if not all of the existing maternal health problems are multifaceted in nature, needing concerted measures that require inputs from multidisciplinary stakeholders including those working or operating in different sectors. We support other authors who find that in order to sustainably reduce MMR and improve the overall life chances of poor mothers, policy and programs should address two interrelated root causes of maternal death and these are poverty, which create the conditions for inadequate, inaccessible and costly maternal health services in poor and underserved areas, and unfriendly services disappointing women's poor attendance to health care facilities, and gender norms acting more in favor men and leaving women at stake including their lack of economic options for them to have sufficient autonomy for making key decisions at family levels. Considering these challenges, we also support the proposal for a multisectoral approach attempting to increase the number of mothers receiving ANC, postnatal care and reducing the number of unattended births by using both conventional, social marketing and sociological approaches [1,5,17,56,]. There is no doubt that our present review establishes the truth in the reports r indicating that without overcoming health systems constraints, the UN and national policy goals of attaining MDGs including the issues covering the problem of maternal health inequalities will remain more of a rhetoric than a reality [12,56,92].

## Acknowledgements

As mentioned in the introduction section of the present paper, this review is a product of a study undertaken in Tanzania as one of the projects undertaken under the umbrella of a Multilateral Association for Studying Health Inequalities and Enhancing North-South and South-South Cooperation (abbreviated as MASCOT), and was funded by the European Union (EU) through Euro-Quality under Contract Grant Agreement No 282507. The respondents to interviews and personal communications made in this study and research assistants were very cooperative to spare their time and share their experience for making this study a success. We also wish to recognize all authors and departments that acted as sources of the information referred to in the present paper. The MRCC and NIMR Director General gave permission for this study to be disseminated through publication.

## Authors Contributions

GMM as a health economist and policy analyst was fully involved from the country research proposal writing through research implementation; drafted the first and revised version of this manuscript (MS). MAM, EAM, AKM, JJM and MNM were also fully involved in the country proposal writing, research implementation, as

well as commenting on this MS. AES, SPK, and PWM participated at the document review stage. MNM was the principal investigator and was closely assisted by MAM and JJM in the specific study for .

## Declaration

All authors have read the final version of the manuscript and declare no competing interest.

## References

1. <http://www.countdown2015mnch.org/reports-and-articles/2012-report> Wagstaff A (2002) Inequalities in health in developing countries: swimming the Tide? World Bank, Washington DC, Policy Research Working Paper No. 2795, February 2002.
2. <http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-2795> (last accessed: 26 May 2014)
3. Makinen M, Waters H, Rauch M, Almagambetova N, Bitran R, et al. (2000) Inequalities in health care use and expenditures: empirical data from eight developing countries and countries in transition. *Bull World Health Organ* 78: 55-65.
4. Mälqvist M, Yuan B, Trygg N, Selling K, Thomsen S (2013) Targeted interventions for improved equity in maternal and child health in low- and middle-income settings: a systematic review and meta-analysis. *PLoS One* 8: e66453.
5. Barros AJ, Ronsmans C, Axelson H, Loaiza E, Bertoldi AD, et al. (2012) Equity in maternal, newborn, and child health interventions in Countdown to 2015: a retrospective review of survey data from 54 countries. *Lancet* 379: 1225-1233.
6. [http://www.unfpa.org/sowmy/resources/docs/library/R224\\_MOHTanzania\\_2008\\_Roadmap\\_MNCH.pdf](http://www.unfpa.org/sowmy/resources/docs/library/R224_MOHTanzania_2008_Roadmap_MNCH.pdf)
7. Gupta N, Maliqi B, França A, Nyonator F, Pate MA, et al. (2011) Human resources for maternal, newborn and child health: from measurement and planning to performance for improved health outcomes. *Hum Resour Health* 9: 16.
8. Meyer SB, Luong TC, Mamerow L, Ward PR (2013) Inequities in access to healthcare: analysis of national survey data across six Asia-Pacific countries. *BMC Health Serv Res* 13: 238.
9. Campbell OM, Graham WJ; Lancet Maternal Survival Series steering group (2006) Strategies for reducing maternal mortality: getting on with what works. *Lancet* 368: 1284-1299.
10. Ronsmans C, Graham WJ; Lancet Maternal Survival Series steering group (2006) Maternal mortality: who, when, where, and why. *Lancet* 368: 1189-1200.
11. <http://www.worldwewant2015.org/fr/node/283798>
12. United Republic of Tanzania (URT) (2014) Remarks by H.E. Dr. Jakaya M. Kikwete, During The Maternal, Newborns and Child Health Countdown Event and A Promise Renewed Launch, Dar es Salaam, 15th May 2014. Government Office Blog, Ministry for Science, Technology and Higher Education
13. Pell C, Straus L, Andrew EV, Meñaca A, Pool R (2011) Social and cultural factors affecting uptake of interventions for malaria in pregnancy in Africa: a systematic review of the qualitative research. *PLoS One* 6: e22452.
14. Mubyazi GM, Hutton G (2012) Rhetoric and reality of community participation in health planning, resource allocation and service delivery: a review of the reviews, primary publications and grey literature. *Rwanda Journal of Health Sciences* 1: 53-65.
15. Mubyazi GM, Magnussen P, Goodman C, Bygbjerg IC, Kitua AY, et al. (2008) Implementing intermittent preventive treatment for malaria during pregnancy: review of prospects, achievements, challenges and agenda for research. *Open Tropical Medicine Journal* 1: 92-100.
16. <http://dx.doi.org/10.4314/thrb.v13i5.5>.
17. [http://www.icrw.org/files/publications/Targeting-Poverty-Gender-Inequality-Improve-Maternal-Health\\_0.pdf](http://www.icrw.org/files/publications/Targeting-Poverty-Gender-Inequality-Improve-Maternal-Health_0.pdf)

18. Nour NM (2008) An introduction to maternal mortality. *Rev Obstet Gynecol* 1: 77-81.
19. Prata N, Passano P, Sreenivas A, Gerdt CE (2010) Maternal mortality in developing countries: challenges in scaling-up priority interventions. *Womens Health (Lond Engl)* 6: 311-327.
20. <http://www.mhtf.org>.
21. Greenwood B, Alonso P, ter Kuile FO, Hill J, Steketee RW (2007) Malaria in pregnancy: priorities for research. *Lancet Infect Dis* 7: 169-174.
22. <http://www.uq.edu.au/hishub/docs/WP20/HISHUB-20-WP-WEB-22Oct12>.
23. Subramanian SV, Kawachi I (2004) Income inequality and health: what have we learned so far? *Epidemiol Rev* 26: 78-91.
24. Schantz-Dunn J, Nour NM (2009) Malaria in pregnancy: a global perspective. *Obstet. Gyn.* 2: 183-192.
25. Mbaruku G, Msambichaka B, Galea S, Rockers PC, Kruk ME (2009) Dissatisfaction with traditional birth attendants in rural Tanzania. *Int J Gynaecol Obstet* 107: 8-11.
26. Vyagusa DB, Mubyazi GM, Masatu M (2013) Involving traditional birth attendants in emergency obstetric care in Tanzania: policy implications of a study of their knowledge and practices in Kigoma Rural District. *Int J Equity Health* 12: 83.
27. Leon DA, Walt G (2000) *Poverty, Inequality, and Health: An International Perspective*. Oxford University Press.
28. Smithson P (2006) *Fair's Fair: Health Inequalities in Tanzania*. Centre for Health Research and Development & Women's Dignity Project.
29. Braveman P, Tarimo E (2002) Social inequalities in health within countries: not only an issue for affluent nations. *Soc Sci Med* 54: 1621-1635.
30. United Nations, Tanzania United Nations Development Assistance Plan, July 2011-June 2015. Office of UN Resident Coordinator, Tanzania, 13th December 2010.
31. Wolfe B (2011) Poverty and poor health: Can health care reform narrow the rich-poor gap? *Focus* 28: 25-30.
32. <http://www.economist.com/node/7055911>.
33. European Union (EU): Press Release: Report on Health Inequalities: gaps in life expectancy and infant mortality narrow across the EU. European Commission, Brussels, September 2013.
34. World Health Report (WHR). *Health Systems: Improving performance: a case of Tanzania*. World Health Organization, Geneva 2010.
35. World Bank: *Investing in health: World Development Report*. World Bank 1993.
36. [http://www.solidarmed.ch/media\\_features/documents/publications/de/2011\\_3\\_solidarmed\\_publications\\_hr4h\\_1\\_.pdf](http://www.solidarmed.ch/media_features/documents/publications/de/2011_3_solidarmed_publications_hr4h_1_.pdf)
37. Mubyazi GM, Magnussen P, Byskov J, Bloch P (2013) Feasibility and coverage of implementing intermittent preventive treatment of malaria in pregnant women contacting private or public clinics in Tanzania: experience-based viewpoints of health managers in Mkuranga and Mufindi districts. *BMC Health Serv Res* 13: 372.
38. Mubyazi GM, Bloch P, Magnussen P, Olsen E, Byskov J et al. (2010) Women's experiences and views about costs of seeking malaria chemoprevention and other antenatal services: a qualitative study from two districts in rural Tanzania. *Malar Journal* 9: 54.
39. Mubyazi GM, Bloch P, Magnussen P, Byskov J, Bygbjerg IC (2012) Supply-related drivers of staff motivation for providing intermittent preventive treatment of malaria during pregnancy in Tanzania: evidence from two rural districts. *Malaria Journal* 11: 48.
40. Friel S, Loring B, Aungkasuvapala N, Baum F, Blaiklock A, et al. (2012) Policy approaches to address the social and environmental determinants of health inequity in Asia-pacific. *Asia Pac J Public Health* 24: 896-914.
41. Ana J (2011) Are traditional birth attendants good for improving maternal and perinatal health? Yes. *BMJ* 342: d3310.
42. United Nations Population Fund (UNFPA) (1996) *Evaluation Findings: Support to traditional birth attendants*. UNFPA, Issue 7.
43. Houweling TA, Kunst AE, Huisman M, Mackenbach JP (2007) Using relative and absolute measures for monitoring health inequalities: experiences from cross-national analyses on maternal and child health. *Int J Equity Health* 6: 15.
44. Buvinic, Madici A, Fernández E, Torr s AC: Chapter 10. Disease differentials in Health. In: *Disease Control Priorities in Developing Countries*, 2nd edition by Dean T Jamison, Joel G Breman, Anthony R Measham, George Alleyne, Mariam Claeson, David B Evans, Prabhat Jha, Anne Mills, and Philip Musgrove (Eds.). World Bank, Washington DC 2006, ISBN-10: 0-8213-6179-1.
45. Crombie IK, Irvine L, Elliott L, Wallace H (2005) Closing the health inequality gap: an international perspective. WHO Geneva.
46. Sodemann M (2007) Too many chefs in Africa. *Dan Med Bull* 54: 52-54.
47. Magnussen L, Ehiri J, Jolly P (2004) Comprehensive versus selective primary health care: lessons for global health policy. *Health Aff (Millwood)* 23: 167-176.
48. WHO, UNICEF (2011) *Monitoring maternal, newborn and child health: understanding key progress indicators*. WHO, Geneva.
49. <http://www.theinformationdaily.com/2011/02/09/health-crisis-widening-the-gap-between-rich-and-poor-in-south-asia-says-new-world-bank-report>.
50. Dominicus DA, Akamatsu T (1989) Health policy and implementations in Tanzania. *Keio J Med* 38: 192-200.
51. COHRED: TANZANIA (2009) *An assessment of the health research system: A country Report of Alignment and Harmonization in Health Research (AHA)*. Edited by G. Montorzi G, S de Haan, Jsselmuiden C and Mboera LEG. Council on Health Research for Development (COHRED), ISBN 92-9226-034-0.
52. Mubyazi GM, Kunda JS, Kisinza WN, Borg J (2014) Feasibility of a community health fund in Tanzania: a qualitative analysis of policy prospects and local stakeholders' experience-based views in Kagera Region. *African Journal of Health Economics (AJHE)*, 2 (1).
53. Musau, Stephen, Grace C, Rebecca P, Emmanuel M et al. (2011) *Tanzania Health System Assessment 2010*. Bethesda, MD: Health Systems 20/20 project, Abt Associates Inc.
54. United Nations (UN): Committee on Economic, Social, and Cultural Rights: Supplementary information on the United Republic of Tanzania, Scheduled for Review by the Committee on Economic, Social, and Cultural Rights during its 49th Session. UN, Geneva, Centre for Reproductive Health Rights, August 30, 2012.
55. United Republic of Tanzania (URT): *Poverty and Human Development Report, 2009*. Research and Analysis Working Group, Dar es Salaam, December 2009.
56. [http://www.hkmu.ac.tz/images/uploads/Mwaikambo.lecture\\_.pdf](http://www.hkmu.ac.tz/images/uploads/Mwaikambo.lecture_.pdf)
57. Singh M, Brown G, Rogerson SJ (2013) Ownership and use of insecticide-treated nets during pregnancy in sub-Saharan Africa: a review. *Malar J* 12: 268.
58. Tarimo E (1978) Health and self-reliance: the experience of Tanzania. *Dev Dialogue* 1: 35-40.
59. <http://www.tzonline.org/pdf/Nationahealthpolicy.pdf>
60. [http://www.kas.de/wf/doc/kas\\_19111-1522-2-30.pdf?110125174952](http://www.kas.de/wf/doc/kas_19111-1522-2-30.pdf?110125174952)
61. Yazbeck A, Deroeck D, Lionetti D (1995) Private sector delivery of health care in Tanzania: Major Applied Research Paper No. 14. Abt. Associates Inc.
62. Galabawa JCJ (2001) Developments and Issues regarding Universal Primary Education (UPE) in Tanzania. ADEA Biennial Meeting, Arusha 7-11.
63. Mubyazi G, Massaga J, Kamugisha M, J-Nyangoma M, Magogo G et al. (2006) User charges in public health facilities in Tanzania: effect on revenues, quality of services and people's health-seeking behaviour for malaria in Korogwe district. *Health Services Management Research* 19: 23-35.
64. Edholm F (2009) *Education for All in Tanzania: A case study of the MDG footprint in Babati*. Bachelor Degree Thesis, Södertörn University.

65. Mushi PSD (1996) Tanzania secondary school teachers perception and reaction to gender differences in science. *UTAFITI (New Series)* 3: 91-130.
66. Kajuna A (2011) Inequalities and Inequalities in maternal and child health care: a case study of Tanzania. MSc. Thesis. Maastricht University, The Netherlands.
67. Knutsson B (2005) Education for All or Enrolment for All? Linking Global Commitments and Local Reality. Master of Peace Development Thesis, Växjö University: 77.
68. Odaga J (2004) From Alma Ata to Millennium Development Goals: To what extent has the equity been achieved? *Health Policy and Development* 2: 1-6.
69. O'Shea A, Rawls A, Golden E, Cecil R, Stola E et al. (2009) Action now on the Tanzanian health workforce crisis: expanding HW training – The Twiga Initiative. Torch Foundation.
70. Mubyazi GM (2004) The Tanzanian policy on health-care fee waivers and exemptions in practice as compared with other developing countries: evidence from recent studies and international literature. *East African Journal of Public Health* 1: 11-17.
71. Government of The United Republic of Tanzania. Government Report: The Economic Survey 2010. Dar es Salaam, Ministry of Finance, August 2011.
72. [http://www.bmz.de/en/publications/type\\_of\\_publication/evaluation/international\\_joint\\_evaluations/Tanzania\\_Health\\_SectorReport\\_07.pdf](http://www.bmz.de/en/publications/type_of_publication/evaluation/international_joint_evaluations/Tanzania_Health_SectorReport_07.pdf).
73. Mubyazi GM, Bygbjerg IC, Magnussen P, Olsen O, Byskov J, et al. (2008) Prospects, achievements, challenges and opportunities for scaling-up malaria chemoprevention in pregnancy in Tanzania: the perspective of national level officers. *Malar J* 7: 135.
74. NIMR (2013) The Fourth Tanzania National Health Research Priorities, 2013-2018. National Institute for Medical Research (NIMR), Dar es Salaam, Tanzania
75. Benson JS (2001) The impact of privatization on access in Tanzania. *Soc. Sci. Med.* 52: 1903-1915.
76. Bill and Melinda Gates Foundation (BMGF) (2009) Maternal, neonatal and child health: Strategy Overview. BMGF.
77. USAID: Health Policy Initiative: Promoting accountability for Safe Motherhood. Task Order 1/September 2010.
78. Magesa SM, Lengeler C, de Savigny D, Miller J, Njau R et al. (2005) Creating an enabling environment for taking insecticide treated nets to national scale: the Tanzanian experience. *Malaria Journal* 4: 34.
79. Hanson K, Nathan R, Marchant T, Mponda H, Jones C, et al. (2008) Vouchers for scaling up insecticide-treated nets in Tanzania: methods for monitoring and evaluation of a national health system intervention. *BMC Public Health* 8: 205.
80. Mubyazi G, Bloch P, Kamugisha M, Kitua A, Ijumba J (2005) Intermittent preventive treatment of malaria in pregnancy: A qualitative study of knowledge, attitudes and practices of district health managers, antenatal care staff and pregnant women in Korogwe District, North-Eastern Tanzania. *Malaria Journal* 4: 31.
81. Ifakara Health Institute (IHI) (2010) Monitoring and evaluation to improve ITN strategy equity and effectiveness. *Spotlight*, Issue 10.
82. Mubyazi GM, Gonzalez-Block MA (2005) Research influence on antimalarial drug policy change in Tanzania: case study of replacing chloroquine with sulfadoxine-pyrimethamine as the first-line drug. *Malar J* 4: 51.
83. Magoma M, Requejo J, Campbell OM, Cousens S, Filippi V (2010) High ANC coverage and low skilled attendance in a rural Tanzanian district: a case for implementing a birth plan intervention. *BMC Pregnancy Childbirth* 10: 13.
84. Mubyazi GM (2010) Economic and Other Contextual Determinants of Acceptability and Practicability of Intermittent Preventive Treatment of Malaria during Pregnancy in Tanzania: case of Mkuranga and Mufindi districts. PhD Thesis, University of Copenhagen.
85. Mubyazi GM, Makundi EA, Malebo HM, Senkoro KP, Magesa SM et al. Evaluation of performance of local governments in health planning and target achievements under health basket funding system in Phase I Councils in Tanzania. *African J. Health Economics*.
86. Diepeveen S, Ling T, Suhrcke M, Roland M, Marteau TM (2013) Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis. *BMC Public Health* 13: 756.
87. Maluka S, Kamuzora P, San Sebastián M, Byskov J, Olsen ØE, et al. (2010) Decentralized health care priority-setting in Tanzania: evaluating against the accountability for reasonableness framework. *Soc Sci Med* 71: 751-759.
88. Mubyazi G, Kamugisha M, Mushi A, Blas E (2004) Implications of decentralization for the control of tropical diseases in Tanzania: a case study of four districts. *Int J Health Plann Manage* 19 Suppl 1: S167-S185.
89. Mrisho M, Schellenberg JA, Mushi AK, Obrist B, Mshinda H, et al. (2007) Factors affecting home delivery in rural Tanzania. *Trop Med Int Health* 12: 862-872.
90. Exavery A, Lutambi AM, Wilson N, Mubyazi GM, Pemba S, et al. (2013) Gender-based distributional skewness of the United Republic of Tanzania's health workforce cadres: a cross-sectional health facility survey. *Hum Resour Health* 11: 28.
91. Munga MA, Maestad O (2009) Measuring inequalities in the distribution of health workers: the case of Tanzania. *Hum Resour Health* 7: 4.
92. Travis P, Bennett S, Haines A, Pang T, Bhutta Z, et al. (2004) Overcoming health-systems constraints to achieve the Millennium Development Goals. *Lancet* 364: 900-906.