INTEGRATIVE MEDICINE IN RESOURCE CONSTRAINED COMMUNITIES IN SOUTH AFRICA: EMBRACING INDIGENOUS KNOWLEDGE AND TRADITIONAL (HERBAL) MEDICINE PRACTICE

Gail D. Hughes[1]

Abstract: There are core health challenges that resource-constrained communities face when accessing primary healthcare for non-communicable diseases. Such and simultaneous challenges to the incorporation of complementary, alternative, indigenous and traditional medicine (CAITM) also exist in certain regions of South Africa. The increasing commitment towards pursuit of the development of CAITM as an inclusive part of the healthcare sector and clinical research will be explored. A pertinent platform, whereby a multi-disciplinary critical investigation is developed for the benefit of practitioners, patients, communities and policymakers, will be discussed. This platform should advance the potential of CAITM and practices in public health and primary healthcare in South Africa, and within the African continent and beyond.

Key-words: Complementary and alternative medicine; traditional herbal medicine; indigenous; primary health care; integration.

MEDICINA COMPLENTAR EM COMUNIDADES COM RECURSOS LIMITADOS NA ÁFRICA DO SUL: ABRANGENDO CONHECIMENTO INDÍGENA E TRADICIONAL COM PRÁTICAS MEDICINAIS (ERVAS)

Resumo: Há desafios fundamentais de saúde que as comunidades com recursos limitados se deparam no acesso aos cuidados de saúde primários para as doenças não-transmissíveis. Esses simultâneos desafios para a incorporação da medicina complementar, alternativa, indígena e tradicional (CAITM) também existem em certas regiões da África do Sul. O compromisso crescente para prossecução do desenvolvimento de CAITM como parte integrante do setor saúde e pesquisa clínica será explorado. Uma plataforma pertinente, para uma investigação crítica multidisciplinar é discutida e desenvolvida para o benefício dos profissionais, pacientes, as comunidades e os responsáveis políticos. Esta plataforma deve avançar o potencial de CAITM e práticas em saúde pública e cuidados de saúde primários na África do Sul, em todo o continente Africano e além.

Palavras-chave: medicina complementar e alternativa; medicina tradicional à base de plantas; cuidados primários de saúde indígena; de integração.

EN ÉTABLISANT PLATEFORME POUR MÉDICINE INTÉGRATIVE DANS COMMUNAUTÉS AVEC RESSOURCES LIMITÉE EN AFRIQUE DU SUD: EN REPPORTANT CONNAISSANCES INDIGÈNE ET TRADITIONNELLES (PHYTOTHÉRAPIE) PRATIQUE DE LA MÉDECINE

Résumé: Il y'a de défis centraux affronté pour les communautés de ressources limitées pour accès des soins de santé primaires pour les maladies non transmissibles; et l'incorporation

[1] Prof. Gail Hughes is the Director of the South African Herbal Science and Medicine Institute at the University of the Western Cape, South Africa. She is an epidemiologist with more than 25 years experience as a public health researcher, and has served in academic departments at various universities, and government and non-governmental organizations.

simultanée de la médecine complémentaire, alternative, indigène et traditionnelles (CAITM) en Afrique du Sud. L'engagement croissant envers la poursuite du développement de CAITM comme une partie compris le secteur de la santé et de la recherche clinique sera explorée. Une plateforme pertinente, en qu'une investigation multidisciplinaire critique est développé pour le bénéfice des patients, des praticiens, des communautés et les décideurs politiques, sera discuté. Cette plateforme devrait favoriser le potentiel de CAITM et les pratiques en santé publique et soins de santé primaires en Afrique du Sud, et dans le continent africain et au-delà.

Mots clés: médecine complémentaire et alternative; la médecine traditionnelle à base de plantes; indigènes; soins de santé primaires; l'intégration.

COMPLENTAR MEDICINA EN COMUNIDADES CON RECURSOS LIMITADOS EN SUDÁFRICA: CONOCIMIENTO INDIGENA Y TRADICIONAL COM PRACTICA MEDICA (HIERBAS)

Resumen: Existen desafíos centrales enfrentados por las comunidades de salud con recursos limitados para que accedan cuidados de salud primarios para las enfermedades no transmisibles; e incorporación simultánea de medicina complementar, alternativa, indígena y tradicional (CAITM) en la África del Sur. El compromiso crecente para la prosecución del desarrollo de CAITM como parte inclusivo del sector de salud y pesquisa clínica serán exploradas. Una plataforma pertinente, para una investigación crítica multidisciplinar es desarrollada para el beneficio de los profesionales, paciente, las comunidades y los responsables políticos, será discutida. Esta plataforma debe avanzar el potencial de CAITM y prácticas en salud pública y cuidados de salud primarios en la África del Sur, y adentro del continente Africano y en otros rincones.

Palabras-clave: Medicina complementar y alternativa; Medicina tradicional a la base de plantas, cuidados primarios de salud indígena; De integración.

INTRODUCTION

The world is facing a global crisis of considerable proportions with regards to its health profile. Almost four decades after the declaration of the Alma-Ata (Who, 1978), the achievement of the set goals seem a mirage for many countries. While old health challenges are still present in the low- and middle-income countries (LMICs) especially in Africa, new challenges have also emerged with the result that the tenets of the Alma-Ata have not been fully achieved. The primary health care system has been projected as the tool to fast-track the attainment of desired goals (Chopra *et al.*, 2009; Lawn *et al.*, 2008; Walley *et al.*, 2008). Primary health care (PHC) has been defined by the World Health Organization (1978, pg 2-3) as essential health care that is "based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of selfreliance and self-determination". This is the

backbone of every country's health-care system and any failure at PHC level may lead to a crumbling of the whole system.

In the face of increasing health challenges, individuals are making their own personal efforts to re-engineer their own PHC, and as a result, are exploring the vast field of complementary and alternative medicine (CAM) treatments. Complementary and alternative medicine refers to any practice of medicine outside the main stream practice of conventional allopathic /western medicine. This includes but is not limited to traditional (herbal) medicine of African and Chinese origin, and of indigenous use, naturopathy, homeopathy and ayurveda to mention a few. These other alternative medical practices are utilized worldwide for preventative and curative properties. The most common and accessible of them all, is the traditional herbal medicine (phytotherapy) approach where plant materials serve as active pharmaceutical ingredients (APIs) for both locally and systemically acting preparations (Beste *et al.*, 2015; Who, 2005).

In pharmacies throughout the world, many products sourced from traditional herbal medicinal plants are available. Between 50 % and 67 % of people in developed countries and up to 80 % in developing countries utilize CAM for various ailments, especially for chronic conditions (Mishra *et al.*, 2015; Chang *et al.*, 2007 and references therein; Eisenberg *et al.*, 1998). This raises questions regarding the safety and appropriateness of concomitant use of these (CAM) measures with allopathic medicine (Bhalerao *et al.*, 2013). Between 29 % and 100 % of physicians are reportedly aware of their chronic patients' use of CAMS in combination with their conventional treatments (Bhalerao *et al.*, 2013). However, the extent of interactions between CAMS and the chronic allopathic medicines used by patients remains largely unknown.

Among the populations of resource-limited communities, many products from traditional herbal medicinal plants are also available from pharmacies as well as from traditional herbal medicine (THM) practitioners. In these settings, the products are utilized mostly by indigenous people in many countries, who feel a disconnection with the conventional allopathic medicine system (Hill *et al.*, 2014; Kempe *et al.*, 2013; Naledi *et al.*, 2011; Stephens *et al.*, 2006). Such a disconnect has also been reported in studies where a lack of socio-cultural awareness between allopathic health practitioners and their patients, mostly because of the former's inability to understand the spiritual

and socio-cultural aspects of disease as viewed by the latter, has been reported (Hill *et al.*, 2014; Thomson *et al.*, 2014; Sobiecki, 2014).

The use of CAM may be prompted by dissatisfaction with mainstream conventional practice, as well as a number of other reasons (Thomson *et al.* 2014; Jean & Cyr, 2007). With the recent move to restructure the primary health systems of many developing countries, it is worthwhile for policy makers to deliberate on this emerging trend and seek ways of skilfully and selectively integrating preferred aspects of CAM into the health care agenda. While medicines, which are tools for health optimization, can be compartmentalized into modern or traditional, complementary /alternative or conventional, homeopathic or allopathic, herbal or biomedical, the same cannot be done for health which has a universal connotation (Patwardhan, 2015). If exploration of unconventional means such as allopathy-CAM may improve treatment outcomes, then integration of CAM practices in the health care system may be the way to go. Such integration, since it seeks to improve primary health care coverage, would of course be based on the merits and demerits of each treatment and not just on misrepresentations fuelled by non-validated subjective opinions.

ACKNOWLEDGEMENT OF MEDICAL PLURALISM

The practice of medical pluralism is a common global trend. In existence and on a day-to-day basis, is an integrated version of allopathic and alternative medicines by individuals (Bhalerao *et al.*, 2013; Tovey *et al.*, 2005 a,b). For instance, it has been documented that patients adhering to antiretroviral therapy for HIV/AIDs also use complementary and alternative measures such as homeopathy and herbal medicines for antiretroviral drug side effects, immune system enhancement, and overall well-being, in addition to specific conditions such as colds and flu (Quirk & Sherr, 2015; Hughes *et al.*, 2012; Puoane *et al.*, 2012). Additionally, individuals choose herbal treatment regimens for specific chronic conditions such as diabetes, hypertension, and cancer (Hughes *et al.*, 2013).

In South Africa, the informal system of pluralistic health-care is especially common in the rural areas where accessibility, affordability and cultural dynamics dictate patients' decisions. The country also reflects more access to traditional medicine (TM) practitioners (~180,000) (Levine, 2012) including *sangoma's, inyangas* and other natural medicine practitioners compared to conventional health care practitioners

(~11,300) (Rondganger, 2013) for a range of applications and conditions. Indeed, recent updates document that South Africa will need to address the problem of insufficient health care workers in order to sufficiently meet the health care needs of the people (Mayosi and Benatar, 2014).

BACKGROUND AND STATISTICS ON SOUTH AFRICA RELATED TO THM

Fuelled by social and cultural dynamics of the individual and community as well as the cost of health care and limited access to PHC, the appeal of alternative medicine, and the documented demand and recognition for its use stretches within Africa and beyond. In South Africa, complementary methods of treatment such as traditional herbal remedies/medicines are used for acute and especially chronic illnesses (Marais *et al.*, 2015; Chitindingu *et al.*, 2014). Chronic diseases have been described as a major health and development challenge for the 21st century (Bauer *et al.*, 2014; Epping-Jordan *et al.*, 2003). The mortality from chronic non-communicable diseases was recorded at 38 million in 2012, about 40 % of which could have been prevented (Who, 2014). In the LMICs, there has been a dramatic increase in deaths attributable to NCDs over the last two decades, where they account for about 75 % of all deaths from NCDs (CFR, 2013; Miranda *et al.*, 2008; Gaziano, 2005). South Africa, faced with a burden of infectious diseases attributable to HIV/AIDS and tuberculosis, has not been spared as statistics indicate an epidemiological shift with a large proportion of deaths caused by NCDs (SSA, 2014 a).

To tackle disease challenges, the World Health Organization (Who) (2013 a,b) recommends, among other things, an enabling environment for traditional medicine (TM) practitioners, respect for health disparities between indigenous and non-indigenous populations, preservation and promotion of validated indigenous herbal practices for disease management and acknowledgement of the effective use of these therapies (Who, 2013 a,b). This is a commendable approach especially with the increasing practice of medical pluralism (which is the adoption of more than one medical system) all over the world.

In South Africa as in many other parts of the world, medical pluralism is commonly practiced with a combination of allopathic (Western) and CAM products, mostly the traditional herbal products. Traditional herbal treatment measures are sourced by patients for a number of reasons – they are cheaper, more accessible, and the

practitioners live among the people in the same community (Gqaleni *et al.,* 2012; Nxumalo *et al.,* 2011; Peltzer *et al.,* 2008). The importance of the last point cannot be over-emphasized, since this ensures practitioners are more in touch with their patients' environment, a significant factor when patients need assurance that the socio-cultural context of their illness is understood. A call has been made for the integration of these health systems, such that the patient's socio-cultural belief is accommodated. These are in line with long-standing directives and guidelines from the WHO to assist with such integration (Gavriilidis & Östergren P-O, 2012). The said guidelines are not absolute and can be adapted by different countries for their specific needs. African countries like Burkina Faso, Madagascar, Mali and Tanzania have commenced the integration of traditional practitioners into the health sector by forging partnerships between traditional herbal practitioners and the health sector (Elujoba *et al.*, 2005; Diallo *et al.*, 2003). An integration of unconventional health practices such as TM with conventional health practices will see patients accepting that their own socio-cultural needs are also met.

Traditional African Medicine (TAM), is sometimes negatively perceived among policy makers, and generally dismissed as irrational (Sobiecki, 2014). However, the fact remains that for many South Africans, especially in the rural areas where poverty and socio-cultural values influence health choices; this form of health practice is quite common. TAM is seen by many Africans as their socio-cultural heritage, and a life-saving measure especially in cases where an 'African solution is needed to an African illness'. It ensures that disadvantaged communities (such as those in the remote rural areas) are taken care of, and their health issues properly addressed (Elujoba et al, 2005). There should therefore be a framework in place to assist in the integration of traditional African (herbal) medicine in the health-care system.

In South Africa, official recognition and guidance of the THM sector was initiated with the Traditional Health Practitioners Act of 2004 which was updated, Act No. 22 of 2007, and signed into law in 2008 (Mbatha *et al.*, 2012). This act provides guidance for the formal registration and recognition of TM through acknowledgement of THPs. This effort also provided status for THPs in alignment with other bio-medical, allied health and CAM practitioners.

As a result of the recent interest in traditional treatment practices, South African research scientists conduct studies aimed at validating the use of different plant materials for various pharmacological effects, as a means of new drug discovery (Light *et al.*, 2005). A number of these products derived from herbal plant materials are available in South African pharmacies and used as antibiotics, remedies for coughs and cold, stress-relieving preparations and mostly as nutritional supplements.

ACCESS TO PRIMARY HEALTH CARE AND PHARMACEUTICAL DRUGS

About 15 % of South Africa's population has private health insurance which enables treatment at private health facilities. These facilities are staffed by about 28 % of all nurses, 46 % of general practitioners and 56 % of medical specialists in the country. The other 85 % of South Africans who constitute the majority of the population cannot afford private health-care, and must depend entirely on the public health service, served by the remainder of health professionals who are employed in the public service (Mayosi and Benatar, 2014; Ashmore, 2013). While the public health service is the form of health service utilized by many South Africans, it is grossly underequipped. Currently, frontline health care workers play a great role in the health system in South Africa. This is in an effort to accommodate the large number of people who do not have the option of private care, and to reduce the workload of specialists in the public health sector (Le Roux *et al.*, 2015; Zulliger *et al.*, 2014).

Estimates have put the percentage of black South Africans who utilize THMs at about 70 % (Mander *et al.*, 2007). This proportion is also documented to first seek assistance from traditional health practitioners (THPs) before accessing formal health-care services (Bateman, 2004) though more recent studies indicate otherwise (Alaba & McIntyre, 2012; Peltzer; 2009). Indeed, recent opinions describe publications on prevalence of TM use among black South Africans as "false", "unsubstantiated" and an "urban legend" (Davis, 2013; Wilkinson, 2013). Surveys by Statistics South Africa (2014 b) reports that over 99 % of South Africans report first to a conventional health clinic in the event of an illness or accident, with only about 0.1 % indicating their preference for a traditional health practitioner (THP). A general consensus however is that access to private and adequate health-care varies according to race and location, with black South Africans and people in the rural areas having the least access (Le Roux *et al.*, 2015; Alaba & McIntyre, 2012).

A cursory observation of any public health facility in any part of the country will show how patients wake up before dawn to avoid long waiting queues at the hospitals or healthcare centres. Nevertheless, it may still take time before patients can receive attention from healthcare workers, because the system is understaffed and under enormous strain to cater for all. Rural areas are even more adversely affected by understaffing of health professionals at public hospitals in South Africa (Le Roux *et al.*, 2015). Notwithstanding the incentives of rural allowance, subsidized housing and a few other compensatory measures, many healthcare professionals in South Africa prefer not to practice in the rural areas. The distance from the homesteads to the health facilities is sometimes a deterrent too, as patients agonise over making long trips to stand in a long queue which would give them a chance to be attended to by a qualified healthcare professional. In some instances, there have also been shortages of drugs with the result that patients with chronic conditions were unable to receive medicines as and when due (Le Roux *et al.*, 2015). These may have served as deterrents to conventional healthcare, with many patients then choosing to try self-medication through the use of traditional herbal remedies for treatment of different ailments.

The rising public use of CAM practices in recent times and the ongoing debate on CAM integration in health care is an acknowledgement of the structural changes which may need to be effected in order to improve the efficacy of the health-care system.

A NEED FOR PUBLIC HEALTH AND HEALTH CARE ALIGNMENT WITH INTEGRATIVE MEDICINE

Throughout the world, debates and introspections on the suitability of health systems are on-going. The curative model of disease management as presented by allopathic medicine is being critically analysed on the basis of its affordability, accessibility and availability as well as its suitability for different communities. A restructuring of the healthcare system has been called for; patients and healthcare providers alike have advocated for patient-centred care as a model, with individualization of care to suit each patient (Roberti di Sarsina *et al.*, 2013). This is of importance given complex ailments the world population is prone to (Balducci *et al.*, 2014), especially chronic diseases.

The concept of person-centred healthcare has been proposed as a sustainable healthcare model that reduces health inequality as well as empowers the patient (Morandi *et al.*, 2011), and is supported by The 2014 Declaration of Geneva (Mezzich, 2014). Person-centred care takes note of each person's uniqueness and introduces this into the healthcare program, along with the dynamism of family and community, rather than focusing solely on the illness to be addressed (Ghebrehiwet, 2011).

> Evidence suggests that health care organizations function well when they operate in a person-and people-centered way because that stimulates better coordination, cooperation, and social trust . . . To reduce the burden of disease, integration is needed between the people seeking and delivering care, within the social network of each person, across the trajectory of each person's life, among primary caregivers and specialists, and across multiple sectors of society. For integration to succeed across all these levels, it must foster common values and a shared vision of the future. (Cloninger *et al.*, 2014, Intl. J. Pers. Cent. Med., v. 4, n. 2, p. 69)

Healthcare restructuring is also taking place at the individual level, as can be observed in how people the world over are willing to spend resources on health promotion and maintenance *via* complementary and alternative options, instead of waiting to until disease manifests to find a cure (Gottschling *et al.*, 2013; Mahomoodally, 2013; Puri *et al.*, 2013; Xu *et al.*, 2013; Mahima *et al.*, 2012; Eisenberg *et al.*, 1998).

The African Union (AU), in response to the WHO's longstanding call to integrate traditional treatment measures into the public health care system, adopted an action plan for the integration of (TAM) in the health systems of its member countries by 2010. Post 2010, this has not been fully achieved. African countries, such as Ghana and Mali, are reported to have achieved such integration, along with the non-African countries, India and the UK (Gavriilidis & Östergren, 2012). Further afield in South America, Brazil approved a national policy of medicinal plants and herbal remedies, and established guidelines for the rational use and development of medicinal plants and herbal remedies (Ministry of Health, Brazil, 2006, p. 10); and in Cuba, CAM measures are integrated in the curricula of medical students, and CAM practiced in clincinal settings only by duly trained and certified health professional (Appelbaum *et al.*, 2006). However, only four countries – China, the Democratic People's Republic of Korea, the Republic of Korea and Vietnam – are considered to have attained the desired level of

integration of THM into conventional health systems (Hussain and Malik, 2013; Gqaleni *et al.*, 2007).

EVIDENCE-BASED INTEGRATION

Integration of traditional medicine into the conventional health care system should be accomplished, while recognising the strengths of complementary methods with mindful awareness of their limitations. For such integration, we can begin by creating documentation of the traditional remedies/plants which are reputedly used as treatment for different illnesses. Following such documentation, *in vitro* screening programmes, using the ethno-botanical approach, can be employed to investigate the traditional use of herbal remedies and perhaps to provide leads in the search for new active principles as an aid in drug discovery processes (Willcox *et al.*, 2011; Fabricant & Farnsworth, 2001) through the reverse pharmacology process. However, it is crucial to bear in mind that activity as validated by an *in vitro* biological /pharmacological test does not necessarily confirm that a plant extract is an effective medicine, nor a suitable candidate for drug development. It does provides a basic understanding of a plant's efficacy and, in some cases toxicity, in a herbal remedy. Such validative tests also lend support to the continued practice of THM which may lead to integration of TM in the health-care system as in China, provided thorough toxicological investigations are carried out and sufficient guidelines for regulation are put in place (Patwardhan *et al.*, 2005; Dubey *et al.*, 2004; Sheng-Ji, 2001). The ethno-pharmacological significance of such an approach in the integrative process cannot be overemphasized.

Such integrative measures will further assist in developing quality control and regulatory parameters for these medicines. This is especially important at this time when the South African regulatory authority, the Medicines Control Council (MCC), has called for registration of all products available for health purposes including the natural supplements derived from plant materials (Gibson, 2011). In addition, the South African government through the Ministry of Health is currently re-engineering the PHC to make health care more accessible and affordable for all South Africans. Therefore, it may be a good idea to commence integrative measures for these products at such a time.

Current medicine is extending welcoming arms to CAM measures, as attested by the number of journals that cover this aspect of treatment. This has led to increased interest and evidently, controversies and counter-arguments, in this field. A search of

PubMed and Science Direct for published articles that deal with complementary and alternative medicine, traditional medicine, traditional African or traditional Chinese medicine for three consecutive periods after the year 2000: 2001 to 2005, 2006 to 2010 and 2011 to date (May 2015) revealed a more than 100 % increase in publications dealing with these forms of healing over subsequent periods. Contrary to what is believed, studies are on-going in many institutions world over to verify traditional medicines though the pace of such research may not be as fast as we need for immediate integration. The questions for which answers are being sought in the bio-medical and socio-cultural settings may well enable the physician's prescription of CAMS in the future.

We must also be cognizant of the fact that such integration will not happen overnight; safety, quality and efficacy studies of THMs will require selection of appropriate markers for such assessment and this may pose challenges given the multi-component nature of herbal medicinal products.

BARRIERS TO INTEGRATION

Despite indications that some physicians have recommended CAM to their patients (Roy *et al.*, 2015; Jean & Cyr, 2007), and incorporated some aspects of CAMS into their conventional allopathic clinical practices (Bellavite, 2015), complementary and alternative health practices such as the THM approach are not clearly recognised by the governments in most countries (Hoff, 1992). As with conventional allopathic medical practice, there are also charlatans in the TM trade, and news of their misdeeds often make sensational headlines, leading to suspicious views of the profession by the public (Chinsembu, 2009). This does not promote the integration desired for different medicine systems. Such news in effect leads to distrust between genuine THPs and governmental health-care workers, a significant barrier to integration (Chinsembu, 2009; Hoff, 1992).

The use of THMs, as with the use of all non-validated complementary and alternative treatment processes, poses risks which should be carefully assessed before any crucial steps towards integration can be made. Treatment with unconventional methods may lead to a masking or non-observation of other diseases, subjectivity in the evaluation of outcome measures, wastage of scarce resources, delay of effective therapy and biased prejudice against allopathic medicine (Bellavite, 2015). These could be

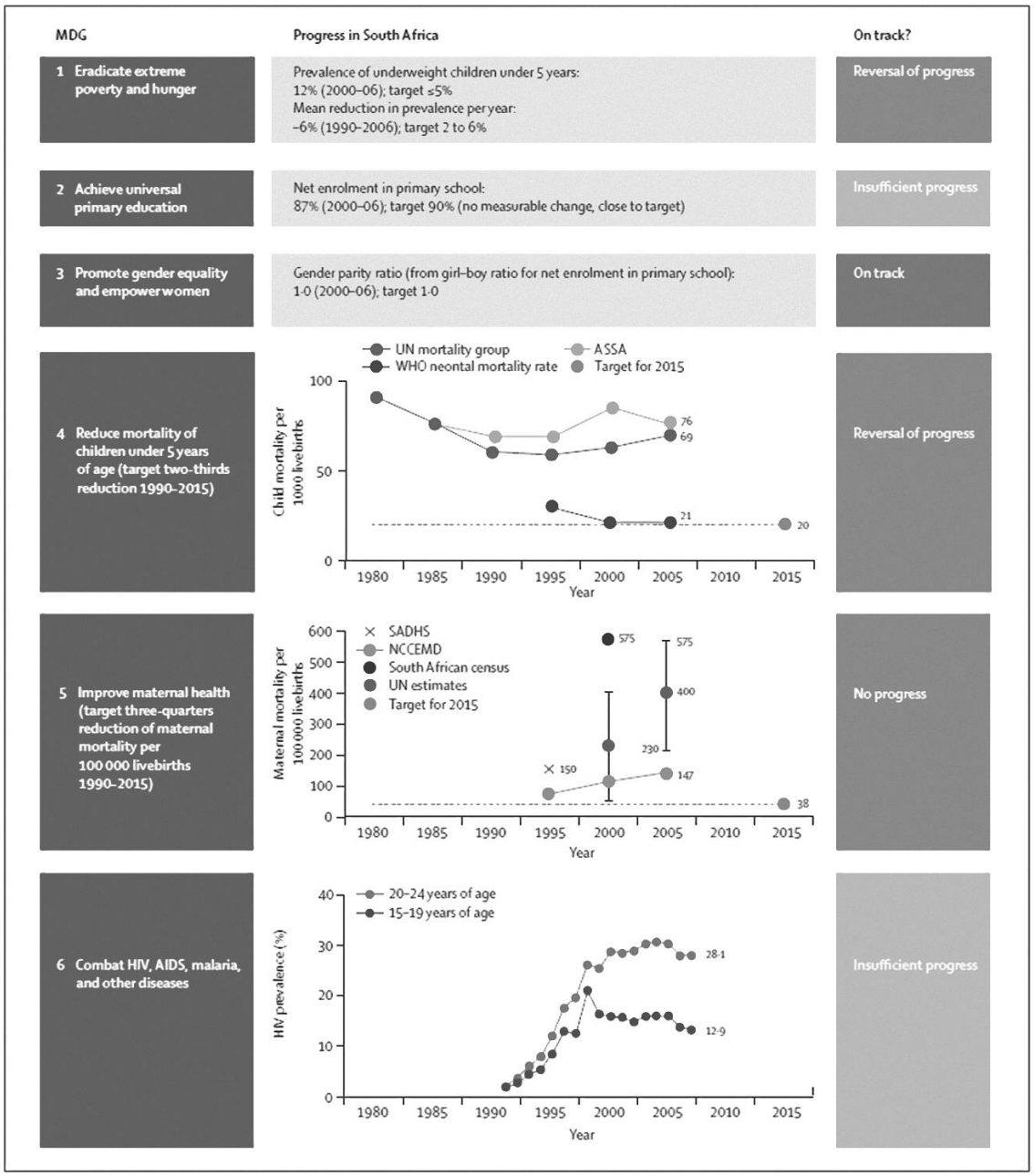
improved /mitigated by appropriate and competent collaborations between the unconventional therapist and objective conventional assessment centres (e.g. centres for hypertension, diabetes, and other diseases) (Bellavite, 2015). Caution is therefore very important; however, such caution should not be at the expense of further research into the pros and cons of what is considered unconventional treatment.

The role of other sectors in the attainment of health should not be belittled and traditional healers, on whom patients rely for many treatments, should be brought on board through appropriate training in PHC restructuring. For scientists to understand and clearly translate all aspects of complementary and TM use is challenging. Acknowledging, yet eliminating practices, which may impede an understanding of the underlying science behind complementary and traditional healing practices, may influence/have an impact on their integration (Sobiecki, 2014). A pluralistic healthcare approach can therefore be considered and integrated in a socially and culturally acceptable manner for different communities to extend healthcare and reach a wide coverage of people (Dookie & Singh, 2012; Kautzky & Tollman, 2009).

RE-ENGINEERING OF SOUTH AFRICA'S HEALTH CARE SYSTEM

South Africa is viewed as an economic powerhouse in Africa. Post democracy, commendable strides have been made in equity, human rights, poverty reduction and sanitation, among other to issues. Yet, despite an investment of 8.7 % of its GDP on health, South Africa's health system lags behind that of comparable countries and has been criticised as inadequate (Naledi *et al.*, 2011; Kleinert & Horton, 2009). The prospects of achieving the Millennium Development Goals (MDGs) in South Africa, as for most LMICs, especially in Africa, seems unlikely (Figure 1) (Chopra *et al.*, 2009).

Figure 1: South Africa's progress towards attainment of the millennium development goals



Source: (Chopra *et al.*, 2009, p. 1024)

These problems have been attributed to the burden of HIV/AIDS and tuberculosis coupled with structural failure, a weak primary health care (PHC) system, and limited human resource among other causes (Naledi *et al.*, 2011; Chopra *et al.*, 2009; Kleinert & Horton, 2009). A re-engineering of SA's health system is therefore crucial, though without the necessary cultural changes this alone will not be sufficient to reap any gains (Naledi *et al.*, 2011). In line with the WHO's call for PHC reformation /revival, the South African government has developed a 10-point plan for the

restructuring and subsequent transformation of its health system. This is a very important aspect of which the reinforcement of PHC is the pillar of appropriate health service delivery (English *et al.*, 2011; Naledi *et al.*, 2011). A proper integration of the affordable and accessible traditional herbal medicine practices into the PHC system may contribute to improved health coverage and outcomes.

Plenty can be learned from the TM integrative efforts in the Tuscany region of Italy (Bellavite, 2015). A salient feature is that the process of integration in South Africa can be developed by region. Treatment measures, especially the traditional herbal treatment measures, are known to possibly vary from one location to another. Allowing different regions to take care of their own integrative processes will ensure that procedures peculiar to a locality are sustained, and not at risk of being lost when that of another locality is used. South Africa, recognised as a rich in plant flora, shares similarities with the very biodiverse Brazil. The Ministry of Health in Brazil, using the very diverse heritage of the Amazon juxtaposed with the existence of very poor living conditions as an example, has called for an expansion of treatment options with the rational use of medicinal plants as an important strategy to improve public health and social inclusion (Ministry of Health, Brazil, 2006). However, government is still duty-bound to assess the safety, quality and efficacy of any alternative treatment measures (Bellavite, 2015). This would lead to better management of the integration process as resources can be concentrated in the region undergoing integration, preventing the backlash of mistakes /errors that could have massive effects. In this way, when integration has been successfully conducted in a particular region, it can be applied to another region with mindfulness of the salient differences that may exist between regions.

Medicine still remains a science of experience, the continuous experiment of which is never concluded, and has as well been described as “a science of uncertainty and an art of probability” (Bean & Bean, 1950; Boyd, 1936). At no time has this been truer than in this era where evidence-based medicine is promoted along with appropriate integration of research evidence into patient care (Rysavy, 2013). Therefore, there is a need to open minds to the possibilities of other thoughts/measures, and not be limited in thinking by discarding these before proper evaluations have been conducted.

DISCUSSION AND CONCLUSION

Generally, it can be said that access to viable medicines, specifically for treatment and management of ailments is beneficial to individuals and the community. However, for this to be successful, all interested parties, i.e. individuals, communities, health-care practitioners, or researchers have to be consulted, knowledgeable, and work collaboratively. With the mainstream acknowledgement of phytomedicine use, it is worth acknowledging the growing trend of medical pluralism, especially for management of chronic conditions as well as for overall well-being of patients.

Developing strategic collaborations, being receptive to advancing science through adaptive and appropriate studies, will progressively improve global community access to confirmed efficacious and safe phytomedicines. This must be truly considered and recognized as a viable mechanism towards improving the health-care crisis, pharmacy inadequacy, and aligning these with current existing practices by the many communities utilizing medical pluralism. Such a measure will inevitably be a positive constructive strategy towards furthering health-care access and diminishing disease burden.

The existing literature provides broad and yet a substantial range of developments indicating a way forward with plausibility and evidence. In looking at the progress in other countries, for instance China, there has already been an adaptation and integration of core services for health, so models do exist. In line with this, there is a need to develop an inclusive health agenda contributing to better understanding of complementary medicines' safety, efficacy and cost effectiveness. It will be worthwhile to explore these options not only for treatment but also for disease prevention, and health maintenance and promotion.

Research agenda supporting this should also be developed to provide broad evidence-based patient care, health policy and advocacy measures. Realistically, the readily available treatments for individuals will be seen at local community level and will be based on what is accessible, affordable, available and culturally acceptable. While the mainstream researchers and health-care providers continue to determine the best course for patients through empirical studies, there is a need to understand existing systems being implemented by people self-medicating and negotiating both health systems (formal and informal).

Promising research findings for THM/CAM informing best practice and policy for vast stakeholders should be explored. The training and curriculum of health professionals (medicine, nursing, dentistry, pharmacy, etc.) should be expanded, especially in resource-constrained communities to bridge the disconnect between health-care providers and their patients. Health-care professionals and traditional practitioners should be prepared to work in tandem, which will be a challenge in itself given the incompatibility of the training and systems. However, opportunities exist to bridge the gap and the traditional health practitioner, with appropriate training, can actively contribute to the development of the PHC system. This also creates an opportunity for a new paradigm shift in health care that integrates the best of allopathic and alternative medicine options, and can expand new drug discovery and innovative research.

Acknowledgments

We acknowledge the following: University of the Western Cape Office of Research, Public Health Association of South Africa (PHASA), South African National Research Foundation and the University of Feira de Santana in Brazil. Part of this paper was presented at the Third International Seminar on the Health of the Black Population at the State University of Feira de Santana, Brazil, 29-31 October, 2014.

REFERENCES

ALABA, Olufunke A; MCINTYRE, Di. What do we know about health service utilization in South Africa? Develop. Southern Africa., v. 29, n. 5, 2012, p. 704-724.

APPELBAUM, Diane; KLIGLER, Benjamin; BARRETT, Bruce; FRENKEL, Moshe; GUZERRERA, Mary P; KONDWANI, Kofi A, LEE, Bennett B, TATTELMAN, Ellen. Natural and traditional medicine in Cuba: lessons for U.S. *medical education.* Intl Med Education, v. 81, n. 12, 2006, p. 1098-1103.

ASHMORE, John. 'Going private': a qualitative comparison of medical specialists' job satisfaction in the public and private sectors of South Africa. *Human Resources for Health*, v. 11, n. 1, 2013.

BALDUCCI, Lodovico; AUDISIO, Riccardo; AAPRO, Matti. Complicated and complex*:* the management of older cancer patients, a frame of reference to approach clinical complexity. J. *Med. Person.*, v. 12, 2014, p. 129-136.

BATEMAN, Chris. HIV training of traditional healers limps along. S. *Afr. Med.* J., v. 94, n. 10, 2004, p. 804-806.

BAUER, Ursula E; BRISS, Peter A; GOODMAN, Richard A; BOWMAN, Barbara *A. Prevention of chronic disease in the 21st century:* elimination of the leading preventable causes of premature death and disability in the USA. Lancet., v. 384, n. 9937, 2014, p. 45-52.

BEAN, Robert Bennett; BEAN, William Bennett. *Sir William Osler*: *Aphorisms from his Bedside Teachings and Writings*. New York: H. Schuman: 1950.

BELLAVITE, Paolo. Homeopathy and integrative medicine: keeping an open mind. J. *Med. Person.*, v. 13, 2015, p. 1-6.

BESTE, Jason; ASANTI, Daniel; NSABIMANA, Damien; ANASTOS, Kathryn; MUTIMURA, Eugene; MERKATZ, Irwin; SIROTIN, Nicole; NATHAN, Lisa M. Use of traditional botanical medicines during pregnancy in rural Rwanda. J. *Global Health Perspectives*, Jan 25, 2015, p. 1-10.

BHALERAO, MS; BOLSHETE, PM; SWAR, BD; BANGERA, TA; KOLHE, VR; TAMBE, MJ; WADE, MP; BHOWATE, SD; SONJE, UB; GOGTAY, Nithya J; THATTE, Urrmila M. Use of and satisfaction with complementary and alternative medicine in four chronic diseases: a cross-sectional study from India. *Natl. Med*. J. India., v. 26, n. 2, 2013, p. 75-78.

BOYD, Linn John. *A study of the simile in medicine*. Philadelphia: Boericke & Tafel: 1936.

CFR, Council on Foreign Relations. Non-communicable diseases. Geneva: WHO Press: 2013. Available at: http://www.cfr.org/diseases-noncommunicable/NCDs-interactive/p33802?cid=otr-marketing_use-NCDs_interactive/#!/ Accessed 05/05/2015.

CHANG, Hsiao-yun; WALLIS, Marianne; TIRALONGO, Evelin. Use of complementary and alternative medicine among people living with diabetes: literature review. J. *Adv. Nurs*., v. 58, n. 4, 2007, p. 307-319.

CHITINDINGU, Ethel; GEORGE, Gavin; GOW, Jeff. A review of the integration of traditional, complementary and alternative medicine into the curriculum of South African medical schools. BMC *Med. Educ*., v. 14, n. 40, 2014.

CHINSEMBU, Kazhila C. Model and experiences of initiating collaboration with traditional healers in validation of ethnomedicines for HIV/AIDS in Namibia. J. *Ethnobiol.* Ethnomed., v. 5, n. 30, 2009.

CHOPRA Mickey; LAWN Joy E; SANDERS David; BARRON Peter; ABDOOL KARIM Salim S; BRADSHAW Debbie; JEWKES Rachel; ABDOOL KARIM Quarrasia; FISHER Alan J; MAYOSI Bongani M; TOLLMAN, Stephen M; CHURCHYARD Gavin J; COOVADIA Hoosen; for the Lancet South Africa team. Achieving the health millennium development goals for South Africa: challenges and priorities. *Lancet*., v. 374, 2009, p. 1023-1031.

CLONINGER, Robert C; SALVADOR-CARULLA, Luis; KIRMAYER, Laurence J; SCHWATZ, Michael A; APPLEYARD, James; GOODWIN, Nick; GROVES, JoAnna; HERMANS, Marc HM; MEZZICH, Juan E; VAN STADEN, CW; RAWAF, Salman. A time for action on health inequities: foundations of the 2014 Geneva declaration on person- and people-centered integrated health care for all. Intl. J. *Pers. Cent. Med*., v. 4, n. 2, 2014, p. 69-89.

DAVIS, Rebecca. SA healthcare: some are still more equal than others. Daily Maverick, 17 July 2013. Available at: http://www.dailymaverick.co.za/article/2013-07-17-sa-healthcare-some-are-still-more-equal-than-others/#.VXCu_tKqqkp Accessed 04/06/2015.

DIALLO, Drissa; KOUMARÉ, Mamadou; TRAORÉ, Adama K; SANOGO, Rokia; COULIBALY, D. Collaboration between traditional health practitioners and conventional

health practitioners: the Malian experience. *Africa health monitor: a magazine of the World Health Organization Regional Office for Africa*. v. 4, n. 1, 2003, p. 35-36.

DOOKIE, Sunitha; SINGH, Shenuka. Primary health services at district level in South Africa: a critique of the primary health care approach. *BMC Family Practice*, v. 13, n. 67, 2012.

DUBEY, Nawal K; KUMAR, Rajesh; TRIPATHI, Pramila. Global promotion of herbal medicine: India's opportunity. *Current Science*, v. 86, n. 1, 2004, p. 37-41.

EISENBERG, David M; DAVIS, Roger B; ETTNER, Susan L; APPEL, Scott; WILKEY, Sonja; VAN ROMPAY, Maria; KESSLER, Ronald C. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA.*, v. 280, n. 18, 1998, p. 1569-1575.

ELUJOBA, AA; ODELEYE, OM; OGUNYEMI, CM. Traditional medicine development for medical and dental primary health care delivery system in Africa. *Afr. J. Tradit. Complement. Altern. Med.*, v. 2, n. 1, 2005, p. 46-61.

ENGLISH, René; MASILELA, Thulani; BARRON, Peter; SCHÖNFELDT, Anzél. Health information systems in South Africa. *South Afr. Health Rev.*, 2011, p. 81-89.

EPPING-JORDAN, JoAnne E; BENGOA, Rafael; YACH, Derek. Chronic conditions – the new health challenge. S. *Afr. Med.* J., v. 93, n. 8, 2003, p. 585-590.

FABRICANT, Daniel S., FARNSWORTH, Norman R. The value of plants used in traditional medicine for drug discovery. Environ. *Health Perspect.*, v. 109, Suppl. 1, 2001, p. 69-75.

GAVRIILIDIS, Georgios; ÖSTERGREN, Per-Olof. Evaluating a traditional medicine policy in South Africa: phase 1 development of a policy assessment tool. *Global Health Action*, v. 5, n. 17271, 2012.

GAZIANO, Thomas A. Cardiovascular disease in the developing world and its cost-effective management. *Circulation*, v. 112, n. 23, 2005, p. 3547-3553.

GHEBREHIWET, Tesfamicael. Nurses and person-centred care. *The International Journal of Person Centered Medicine*, v. 1, n. 1, 2011, p. 20-22.

GIBSON, Diana. Ambiguities in the making of an African Medicine: clinical trials of *Sutherlandia frutescens (L.) R.Br.*[1] *(Lessertia frutescens)*. Afr. Sociological Rev., v. 15, n. 1, 2011, p. 124-137.

GOTTSCHLING, Sven; GRONWALD, Benjamin; SCHMITT, Sarah; SCHMITT, Christine; LÄNGLER, Alfred; LEIDIG, Eberhard; MEYER, Scacha; BAAN, Annette; SHAMDEEN, Ghiath M; BERRANG, Jens; GRAF, Norbert. Use of complementary and alternative medicine in healthy children and children with chronic medical conditions in Germany. *Complement. Ther. Med.*, v. 21, n. 1, 2013, p. S61-S69.

GQALENI, Nceba; MOODLEY, Indres; KRUGER, Heidi; NTULI Abigail; MCLEOD Heather. Traditional and complementary medicine. S. *Afr. Health Rev.*, v. 12, 2007, p. 175-188.

GQALENI, Nceba; NGCOBO, Mlungisi; PARBOOSING, Raveen; NAIDOO, Anneta. *In vitro* testing of African traditional medicines for cytotoxic, immune modulatory and anti-HIV activities. Afr. J. Tradit. *Complement. Altern. Med.*, v. 9, Suppl. 3, 2012, p. 2-11.

HILL, Elizabeth; HESS, Rebecca; ABORIGO, Raymond; ADONGO, Philip; HODGSON, Abraham; ENGMANN, Cyril; MOYER, Cheryl A. "I don't know anything anout their culture": the disconnect between allopathic and traditional maternity care providers in rural northern Ghana. Afr. J. *Reprod. Health.*, v. 18, n. 2, 2014, p. 36-45.

HOFF, Wilbur. Traditional healers and community health. *World Health Forum*., v. 13, n. 2-3, 1992, p. 182-187.

HUGHES, Gail Denise; PUOANE, Thandi Rose; CLARK, Bobby L; WONDWOSSEN, TL; JOHNSON, Quinton; FOLK, William. Prevalence and predictors of traditional medicine utilization among persons living with AIDS (PLWA) on antiretroviral (ARV) and prophylaxis treatment in both rural and urban areas in South Africa. *Afr. J. Tradit. Complement. Altern. Med*., v. 9, n. 4, 2012, p. 470-484.

HUGHES, Gail Denise; ABOYADE, Oluwaseyi M; CLARK, Bobby L; PUOANE, Thandi Rose. The prevalence of traditional herbal medicine use among hypertensives living in South African communities. *BMC Comp. Alt. Med*., v. 13, n 38, 2013.

HUSSAIN, Shahzad; MALIK, Farnaz. Integration of complementary and traditional medicines in public health care systems: challenges and methodology. J. *Med. Plants Res.*, v. 7, n 40, 2013, p. 2952-2959.

JEAN, D; CYR, C. Use of complementary and alternative medicine in a general pediatric clinic. *Pediatrics*, v. 120, n. 1, 2007, p. e138-e141.

KAUTZKY, Keegan; TOLLMAN, Stephen M. A perspective of Primary Health Care in South Africa. Johannesburg: *School of Public Health Wits University Press*, 2009, p. 17-30.

KEMPE, Annica; THEORELL, Töres; ALWAZER, Fatoon Noor-Aldin; CHRISTENSSON, Kyllike; JOHANSSON, Annika. Yemeni women's perceptions of own authority during childbirth: what does it have to do with achieving the millennium development goals? *Midwifery*, v. 29, n. 10, 2013, p. 1182-1189.

KLEINERT, Sabine; HORTON, Richard. South Africa's health: departing for a better future? *Lancet.*, v. 374, n 9692, 2009, p. 759-760.

LAWN, Joy E; ROHDE, Jon; RIFKIN, Susan; WERE, Miriam; PAUL, Vinod K; CHOPRA, Mickey. Alma-Ata 30 years on: revolutionary, relevant, and time to revitalise. *Lancet*, v. 372, n. 9642, 2008, p. 917-927.

LE ROUX, Karl; LE ROUX, Ingrid M; MBEWU, Nokwanele; DAVIS, Emily. The role of community health workers in the re-engineering of primary health care in rural Eastern Cape. S. *Afr. Fam. Pract*., v. 57, n. 2, 2015, p. 1-5.

LEVINE, Susan. Testing knowledge: legitimacy, healing and medicine in South Africa. *In:* LEVINE, Susan, Ed. *Medicine and the politics of knowledge.* Cape Town, South Africa: HSRC Press, 2012, p. 60.

LIGHT, Marine Elizabeth; SPARG, SG; STAFFORD, Gary Ivan; VAN STADEN, J. Riding the wave: South Africa's contribution to ethnopharmacological research over the last 25 years. J. *Ethnopharmacol.*, v. 100, n 1-2, 2005, p. 127-130.

MAHIMA; RAHAL, Anu; DEB, Rajib; LATHEEF, Shyma K; SAMAD, Hari Abdul; TIWARI, Ruchi; VERMA, Amit Kumar; KUMAR, Amit; DHAMA, K. Immunomodulatory and therapeutic potentials of herbal, traditional/indigenous and ethnoveterinary medicines. *Pak. J. Biol. Sci*., v. 15, n. 16, 2012, p. 754-774.

MAHOMOODALLY, Mohamad Fawzi. Traditional medicines in Africa: an appraisal of ten potent African medicinal plants. Evid. Based Complement. Alternat. *Med*., 2013, p. 1-14.

MANDER, Myles; NTULI, Lungile; DIEDERICHS, Nicci; MAVUNDLA, Khulile K. Economics of the traditional medicine trade in South Africa. *S. Afr. Health Rev*., 2007, p. 189-196.

MARAIS, André; STEENKAMP, Vanessa; DU PLOOY, Wim. Conditions frequently treated with herbal remedies by patients visiting a tertiary hospital in Gauteng, South Africa. *S. Afr. Fam. Pract*., v. 57, n. 1, 2015, p. 8-11.

MAYOSI, Bongani M; BENATAR, Solomon R. Health and health care in South Africa – 20 years after Mandela. *N. Eng. J. Med*., v. 371, 2014, p. 1344-1353.

MBATHA, Nompumelelo; STREET, Renée A; NGCOBO, Mlungisi; GQALENI, Nceba. Sick certificates issued by South African traditional health practitioners: current legislation, challenges and the way forward. *S. Afr. Med. J*., v. 102, n. 3, 2012, p. 129-131.

MEZZICH, Juan. Summary report of the seventh Geneva conference on person-centred medicine. Int. J. *Pers. Cent. Med.*, v. 4, n. 2, 2014, p. 139-144.

MINISTRY OF HEALTH, BRAZIL. *National policy of medicinal plants and herbal remedies*. Brasília – DF, Ministry of Health, 2006.

MIRANDA, JJ; KINRA, S; CASAS, JP; DAVEY SMITH, G; EBRAHIM, S. Non-communicable diseases in low- and middle-income countries: context, determinants and health policy. *Trop. Med. Int. Health*, v. 13, n. 10, 2008, p. 1225-1234.

MISHRA, Shiva Raj; NEUPANE, Dinesh; KALLESTRUP, Per. Integrating complementary and alternative medicine into conventional health care system in developing countries: an example of Amchi. J. Evid. Based Complementary Altern. *Med.*, v. 20, n. 1, 2015, p. 76-79.

MORANDI, Antonio; TOSTO, Carmen; ROBERTI DI SARSINA, Paolo; LIBERA Dacia Dalla. Salutogenesis and ayurveda: indications for public health management. *EPMA Journal*, v. 2, n. 4, 2011, p. 459-465.

NALEDI, Tracey; BARRON, Peter; SCHNEIDER, Helen. Primary health care in SA since 1994 and implications of the new vision for PHC re-engineering. *S. Afr. Health Rev.*, 2011, p. 17-28.

NXUMALO, Nonhlanhla; ALABA, Olufunke; HARRIS, Bronwyn; CHERSICH, Matthew; GOUDGE, Jane. Utilization of traditional healers in South Africa and costs to patients: findings from a national household survey. J. *Public Health Policy*, v. 32, Suppl. 1, 2011, p. S124-S136.

PATWARDHAN, Bhushan. National health policy: need to innovate. J. *Ayurveda Integr. Med.*, v. 6, n. 1, 2015, p. 1-3.

PATWARDHAN, Bhushan; WARUDE, Dnyaneshwar; PUSHPANGADAN, P; BHATT, Narendra. Ayurveda and Traditional Chinese Medicine: a comparative overview. Evid. Based Complement. Alternat. *Med*., v. 2, n. 4, 2005, p. 465-473.

PELTZER, Karl; PREEZ, Natalie Friend-du; RAMLAGAN, Shandir; FOMUNDAM, Henry. Use of traditional complementary and alternative medicine for HIV patients in KwaZulu-Natal, South Africa. *BMC Public Health.*, v**.** 8, n. 255, 2008.

PELTZER, Karl. Utilization and practice of traditional/complementary/alternative medicine (TM/CAM) in South Africa. Afr. J. Tradit. Complement. Altern. *Med*., v. 6, n. 2, 2009, 175-185.

PUOANE, Thandi Rose; HUGHES, Gail Denise; UWIMANA, Jeannine; JOHNSON, Quinton ; FOLK, William R. Why HIV positive patients on antiretroviral treatment and/or cotrimoxazole prophylaxis use traditional medicine: perceptions of health workers, traditional healers and patients: a study in two provinces of South Africa. Afr. J. Tradit. Complement. Altern. *Med.*, v. 9, n. 4, 2012, p. 495-502.

PURI, Anju; SRIVASTAVA, Anuj; BHARDWAJ, Anubhav; TANDON, Jata Shanker; SAXENA, Krishan Chand. Immunostimulant activity of certain plants used in Indian traditional medicine. J. *Med. Plants Res.*, v. 7, n. 44, 2013, p. 3242-3246.

QUIRK, Tina; SHERR, Jeremy. Experiences with an integrative approach to treating HIV/AIDS in East Africa. J. *Med. Pers*., v. 13, n. 1, 2015, p. 55-64.

ROBERTI DI SARSINA, Paolo; ALIVIA, Mauro; GUADAGNI, Paola. Widening the paradigm in medicine and health: the memorandum of understanding between the European Association for Predictive and Personalised Medicine EPMA and the Italian charity "Association for Person Centred Medicine". Altern. Integ. *Med.*, v. 1, n. 2, 2013, p. e107.

RONDGANGER, Lee. SA needs 14 351 doctors, 44 780 nurses. *Daily News*, 2013. Available at: www.iol.co.za/dailynews/sa-needs-14-351-doctors-44-780-nurses-1.1456417#.VWseydKeDGc. Accessed 31/05/2015.

ROY, Vandana; GUPTA, Monica; GHOSH, Raktim Kumar. Perception, attitudes and usage of complementary and alterantive medicine among doctors and patients in a tertiary care hospital in India. *Indian J. Pharmacol.*, v. 47, n. 2, 2015, p. 137-142.

RYSAVY, Matthew. Evidence-based medicine: a science of uncertainty and an art of probability. *Virtual Mentor,* v. 15, n. 1, 2013, p. 4-8.

SHENG-JI, Pei. Ethnobotanical approaches of traditional medicine studies: some experiences from Asia. *Pharm. Biol*., vol. 39, Suppl. 1, 2001, p. 74-79.

SOBIECKI, Jean-Francois. The intersection of culture and science in South African traditional medicine. *Indo-Pacific J. Phenomenol*., v. 14, n. 1, 2014, p. 1-10.

SSA, Statistics South Africa. Mortality and causes of death in South Africa, 2013: findings from death notification. Statistical release P0309.3. Pretoria: Statistics South Africa, 2014 a. Available at: http://beta2.statssa.gov.za/publications/P03093/P030932013.pdf. Accessed 05/05/2015.

SSA, Statistics South Africa. General household survey 2013. Statistical release P0318. Pretoria: Statistics South Africa, 2014 b. Available at: http://www.statssa.gov.za/publications/P0318/P03182013.pdf Accessed 05/06/2015.

STEPHENS, Carolyn; PORTER, John; NETTLETON, Clive; WILLIS, Ruth. Disappearing, displaced, and undervalued: a call to action for Indigenous health worldwide. *Lancet.*, v. 367, n. 9527, 2006, p. 2019-2028.

THOMSON, P; JONES, J; BROWNE, M; LESLIE, SJ. Why people seek complementary and alternative medicine before conventional treatment: a population based study. Complement. *Ther. Clin. Pract.*, v. 20, n. 4, 2014, 339-346.

TOVEY, Philip; BROOM, Alex; CHATWIN, John; HAFEEZ, Muhammad; AHMAD, Salma. Patient assessment of effectiveness and satisfaction with traditional medicine alternative medicines, globalized complementary and alternative medicines, and allopathic medicines for cancer in Pakistan. Integr. *Cancer Ther.*, v. 4, n. 3, 2005a, p. 242-248.

TOVEY, Philip A; BROOM, Alex F; CHATWIN, John; AHMAD, Salma; HAFEEZ, Muhammad. Use of traditional, complementary and allopathic medicines in Pakistan by cancer patients. Rural. *Remote Health.*, v. 5, n. 4, 2005b, p. 447.

WALLEY, John; LAWN, Joy E; TINKER, Anne; DE FRANCISCO, Andres; CHOPRA, Mickey; RUDAN, Igor; BHUTTA, ZulfiqarA; BLACK, Robert E; Lancet Alma-Ata Working Group. Alma-Ata: Rebirth and revision 8 - Primary health care: making Alma-Ata a reality. *Lancet.*, v. 372, n. 9642, 2008, p. 1001-1007.

WHO, World Health Organization. Declaration of Alma-Ata. International Conference on Primary Health Care, Alma-Ata, USSR, 1978, 6-12 September. http://www.who.int/publications/almaata_declaration_en.pdf Accessed 3 June 2015.

WHO, World Health Organization. National policy on traditional medicine and regulation of herbal medicines – report of a World Health Organization global survey. Geneva: WHO, 2005, p. 1-168.

WHO, World Health Organization. Global action plan for the prevention and control of noncommunicable diseases, 2013-2020. 2013a. Available at: http://apps.who.int/iris/bitstream/10665/94384/1/9789241506236_eng.pdf. Accessed 05/05/2015.

WHO, World Health Organization. 2014-2023 Traditional Medicine Strategy. Geneva: *World Health Organization*, 2013b.

WHO, World Health Organization. Global status report on noncommunicable diseases. Geneva: *World Health Organization*, 2014.

WILLCOX, Merlin L; GRAZ, Bertrand; FALQUET, Jacques; DIAKITE, Chiaka; GIANI, Sergio; DIALLO, Drissa. A "reverse pharmacology" approach for determining an anti-malarial phytomedicine. *Malaria Journal*, v. 10, Suppl. 1, 2011, p. S8.

WILKINSON, Kate. Use of traditional healers vastly exaggerated. Mail and Guardian, 1 August 2013. Available at: http://mg.co.za/article/2013-08-01-usage-of-traditional-healers-vastly-exaggerated Accessed 04/06/2015.

XU, Jun; HAN, Quan-Bin; LI, Song-Lin; CHEN, Xiao-Jia; WANG, Xiao-Ning; ZHAO, Zhong-Zhen; CHEN, Hu-Biao. Chemistry, bioactivity and quality control of *Dendrobium*, a commonly use tonic herb in traditional Chinese medicine. *Phytochemistry Reviews*, v. 12, n. 2, 2013, p. 341-367.

ZULLIGER, Rose Ellen; MOSHABELA, Mosa; SCHNEIDER, Helen. "She is my teacher and if it was not for her I would be dead": exploration of rural South African community health workers' information, education and communication activities. *AIDS Care*, v. 26, n. 5, 2014, p. 626-632.

Recebido em Janeiro de 2015
Aprovado em Maio de 2015