Chronic Diseases and the Equity Challenge
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Foreword

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Every day it becomes more essential for us to question, challenge, and pursue health equity. The issues involved with improving health equity are complex and multifaceted, making it imperative that we share expertise across sectors and disciplines as we strive to find solutions to the health inequity crisis worldwide.

Global Health Equity Foundation (GHEF) advocates on behalf of people who lack access to health education, preventive services and health care. Inequities in health are deeply rooted in the determinants of health, including the social, economic, political and environmental. GHEF aspires to become a primary source for knowledge on health equity. The foundation integrates research into advocacy and capacity-building projects for improved health equity.

Since 2007, the foundation has hosted and co-sponsored projects in the United States as a 501(c)(3) organization. In October 2012, GHEF opened its headquarters in Geneva, Switzerland as a registered non-profit organization. At that time, GHEF launched its first annual international symposium, titled, “Global Health Equity in Times of Crisis.” The event brought together leading experts in global health, health equity, and public health to discuss the political, economic, social, and violence issues that influence health equity. The goal of the annual symposium is to harness interdisciplinary knowledge, identify and explore opportunities and challenges, and promote innovative solutions toward health equity.

Following the success of 2012’s symposium, GHEF organized a second symposium in Geneva in 2013 titled, “Chronic Diseases and the Equity Challenge.” Held in the historical John Knox Centre, this symposium offered an opportunity for presenters to define the growing threat of chronic and non-communicable diseases, and offer tools and approaches for the future. The ensuing lively debate of participants highlighted the significance of holistic thinking and cross-discipline approaches.

Committed individuals, governments and non-governmental organizations are innovating and working toward equitable access to health. Our commitment at GHEF is to demonstrate measurable impacts in health equity and to exemplify our integrative strategies. In the United States, for example, GHEF has been researching the high suicide incidence in Montana, and has demonstrated the viability of community-based media projects in advocacy and capacity building. The foundation has worked to enrich practical knowledge there and helped build local capacities to combat depression and halt suicide.

We present you with our first GHEF publication, the 2014 Annals of Global Health Equity Foundation which is a compilation of presenters’ papers from our symposia from 2012 and 2013. Our intention is to release a publication after each annual symposium relating the integrative thinking and knowledge participants accumulated. This will be an open access, publicly available and widely disseminated publication, intended to further GHEF’s international role as a primary source of knowledge on global health equity.

Please enjoy our first publication, and the many more to follow.

Sincerely,

[Signature]
In 2012, the General Assembly of the United Nations adopted the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases. The Declaration acknowledged that the global burden and threat of non-communicable diseases constitutes one of the major challenges for development in the twenty-first century (UN General Assembly, 2012).

At the beginning of 2013 a series from The Lancet on Non Communicable Diseases (NCDs) highlighted the need to integrate the issue in the post-2015 development agenda (Alleyne et al., 2013) and offered an interesting starting point for GHEF’s discussions at its 2013 International Symposium in October.

According to the World Health Organization (WHO) chronic diseases, mainly cardiovascular diseases, cancers, diabetes and chronic lung diseases, are by far the leading cause of mortality in the world, accounting in 2008 for 63 percent of all deaths. Out of those, 25 percent occur in people under 60 years old and 90 percent of these premature deaths occur in low- and middle-income countries. As populations age, annual NCD deaths are projected to continue to rise worldwide, and the greatest increase is expected to be seen in low- and middle-income regions. Nearly 80 percent of NCD deaths already occur in low- and middle-income countries, and NCDs are the most frequent causes of death in most countries, except in Africa. NCDs are rising rapidly and are projected to exceed communicable, maternal, perinatal and nutritional diseases as the most common causes of death by 2030 (Alwan, 2010).

Chronic diseases lead to unfair distribution of opportunities in life and therefore contribute to inequity. NCD rates are higher in disadvantaged and marginalised people and communities than in groups with higher socioeconomic status. Poor people are more likely to be exposed to risk factors for NCDs with a consequently higher burden of disease, yet they have fewer resources and access to deal with them.

Lifestyle is the most important risk factor in a significant number of NCDs, such as malnutrition, cardiovascular diseases (heart disease, hypertension, stroke), diabetes, cancer, osteoporosis and dental diseases, which contribute substantially to the burden of disease, especially in low-income and middle-income countries. Nevertheless, lifestyle is not an individual choice but is highly related to social determinants: the conditions in which people are born, grow, live, work and age and the inequities in power, money and resources that give rise to them; in other words, structural societal drivers (CSDH, 2008).

Major NCD risk factors are increasingly concentrated in low-income and middle-income populations. NCD burden associated with harmful alcohol consumption is highest in Central and Eastern Europe and parts of Latin America. Prevalence of hypertension has decreased in high-income countries, but remains stable or has increased in low-income and middle-income countries. In Oceania, the Middle East, Latin America and southern Africa the current rates of overweight and obesity exceed those of most high-income countries. In addition, conditions that are common in poorest countries, such as foetal and early childhood undernutrition, are risk factors for cardiovascular and metabolic diseases in adult life (Di Cesare et al., 2013).

Although less studied in low-income and middle-income countries and scarcely considered in global NCD discussions, within-country NCD inequalities are equally alarming. Social inequalities in risk factors such blood pressure, cholesterol, glycaemia and diabetes, body-mass index and alcohol use, together with smoking account for more than half of the absolute inequalities in important NCD outcomes, especially for cardiovascular disease (and with smoking for lung cancer). Thus, equitable reductions in risk factor exposure are essential to reduce social inequalities in NCD outcomes. Inequality in education, for example, is associated with NCDs risk factors. Cholesterolemia and body-mass index were shown to have positive associations with education in low-income countries and, for men, in middle-income countries. Systolic blood pressure, which is affected by diet (salt intake and intake of fresh fruits and vegetables), blood-pressure-lowering drug and body-mass index, was inversely associated with education in middle-
income and high-income countries. (Di Cesare et al., 2013) Income inequality is equally related to NCDs. Mental disorders, such as anxiety, impulse-control disorders and severe mental illness are all strongly correlated with inequality; and so is obesity. At least in affluent societies. (Wilkinson & Pickett, 2010) Unfortunately rising inequality in income levels, opportunities and health conditions appears as the social hallmark of the new ‘Post Golden’ era, and the rise of NCDs threaten to widen these gaps even further.

However, as Geof Rayner points out in his contribution to these proceedings of the GHEF Symposium (see chapter 2), a further rising strand of concern is environmental. Nevertheless, environmental thinking is widely lacking in the currently dominant Bio-medical and Social-behavioural traditions of public health intervention. Rayner proposes to reconceptualise the prevention and policy implementation challenge in the perspective of Ecological Public Health, putting the complexity of ‘whole society’ into the picture and understanding the influence of the ideological, political and economic realm.

The long-lasting consequences of environmental deterioration on human health, through interferences with the human genome are presented by Ernesto Burgio’s contribution (see chapter 3). Burgio explores the link between chronic diseases and the epigenetic changes in response to the introduction into the atmosphere, biosphere and food chains of thousands of synthetic molecules and ionizing and non ionizing radiations. The implications of environmental, nutritional and lifestyle factors affecting not only our current condition but that of our descendants by heritably altering their epigenome inevitably leads to consider equity in an intergenerational dimension.

Although lifestyle management has become a key strand of current health policies, in her paper Karen Newbigging (see chapter 4) highlights that positioning lifestyle management as the ‘magic bullet’ fails to recognise the complexity of factors that shape health behaviours, distracting the attention from the fundamental role of social determinants and the need to address inequities across the major life domains of income, education, housing, employment, and access to health and social care.

If on one side, the poor and marginalized are the most exposed to social, economical and environmental determinants of chronic diseases, on the other they are also those who pay the highest price when they fall ill. Due to an increased, long-term need for health services and medications for the chronically ill and their families, expenditure on necessary health care can have an impoverishing effect, particularly for those who are already very close to the poverty line. The absence of adequate social protection payments for health services may lead to ‘catastrophic health expenditure’.

Xenia Scheidl-Adlung illustrated these challenges at the 2013 GHEF Symposium, (see chapter 5), insisting on the need to implement National floors of social protection with a view to create policy coherence across sectors. At the first GHEF Symposium in 2012, Scheidl-Adlung presented the concept of social protection floors providing a framework to address gaps in coverage and access to healthcare, with special emphasis on its relevance in times of crisis (see chapter 6).

The consequences of economic downturn, such as homelessness and inadequate housing, unemployment, social injustice and violations of human rights, are also associated with increased burden of NCDs and additional equity challenges linked to increases in malnutrition, substance abuse, depression and other mental health problems, child health problems, violence, and environmental and occupational health problems (Levy & Sidel, 2009).

Equitable universal access to care is a fundamental health policy objective. Unequal coverage and access is reflected in diseases’ outcome. Indeed, access to care and treatment, especially to primary care, can effectively reduce some NCD risk factors and prevent advanced-stage disease and complications at relatively low cost by early detection and treatment. Universal access to care improves treatment coverage and helps to reduce its socioeconomic gradient. For example, in the USA, universal insurance at 65 years of age was associated with lower racial and educational differences in blood pressure, cholesterol and diabetes control (Di Cesare et al., 2013).

In countries facing rapid demographic change older people are often at the front line of deprivation in access to quality care. There the discourse on universal coverage is a pre-requisite for access to quality health. Kasturi Sen analyses the case of Lebanon, which is not only among the most advanced in the MENA region in terms of demographic and epidemiologic transition, but also struck by decades of endemic conflict (see chapter 7).

Environmental, political and psychosocial factors, health behaviours and proximal risk factors, and healthcare access and quality, all play a role in health inequalities and specifically in NCD inequalities. Thus, an equity based approach should rely on integrated social, economic and environmental policies, advocacy and actions related to diet, lifestyle and health care, developed at all levels.

How equity and chronic disease challenges can be faced at local level in the context of extreme poverty is presented by Helen Bingley and the Abaseen Foundation. They propose a model the Abaseen Foundation developed working with the community in Khyber Pakhtunkhwa (KP) and in the Federally Administered Tribal Areas (FATA) in Northwest Pakistan, one of the world’s most deprived and dangerous areas (see chapter 8).

Another successful experience in facing equity challenges at community level is presented in Sarah Keller’s study that
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seeks to identify risk factors for suicide and to implement strategies to increase awareness and use of suicide prevention resources among youth in an Eastern Montana community (see chapter 9).

Also based on community level intervention, Becky Malby proposes a Fair Chance approach to Social Value. Social Value is created when resources, inputs, processes or policies are combined to generate improvements in the lives of individuals or society as a whole. The Fair chance approach offers a means to discuss and generate a decision-making process on complex conditions and interdependent models of provision, especially helpful for chronic disease management (see chapter 10).

The final topic raised explores the notion of social inclusion as a dimension in health equity from the perspective of networks – specifically social and community networks and the value of these networks in mental health. David Morris explores the role of social and community networks of Connected Communities and identifies the policy context for the emergence of inclusion and for promoting local equity (see chapter 11).

Local practices are an essential starting point, due to the fundamental role of distal determinants of chronic diseases, but pro-equity actions should include national policies, fiscal and regulatory measures, such as ceasing or submitting to strict legal control the production and marketing of known harmful chemical products; mandatory salt, trans-fat and sugar reductions in the food chain; taxes; sales, advertising and marketing restrictions on tobacco, alcohol or foods high in processed carbohydrates and saturated fats.

Similarly, governments should take action to improve financial and physical access of disadvantaged social groups and communities to healthy foods, including fresh fruits and vegetables, healthy fats and whole grains.

Policy approaches from a rights-based standpoint focusing on the social determinants of health need wide political and social support, as well as a strong commitment of researchers and professionals. Unfortunately, although the more upstream interventions that target the systemic drivers might have larger effects, their political implementation is more difficult than health promotion programmes and medical services (Moodie et al., 2013; Swinburn et al., 2011).

Even in the presence of strong political will and committed leadership, policy-making at the national level may be harshly contrasted with market forces, especially in poorer countries with weaker institutions. As Margaret Chan, Director General of the World Health Organization, pointed out, “Efforts to prevent noncommunicable diseases go against the business interests of powerful economic operators.” (Chan, 2013).

Only a wide multi-level global alliance among international and national institutions and civil society organizations committed to the Common Good could overcome those forces. A global framework will enable much needed national policy-making. Professionals and researchers concerned with population’s health and equity have a duty and ethical responsibility to provide evidence, raise awareness and advocate for those policies. GHEF’s 2013 Symposium aimed to contribute to that goal.

References


Chronic Diseases in an Era of Ecological Public Health: Reconceptualising the prevention and policy implementation challenge

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Abstract

We may well look back on the recent half century as Public Health’s Golden Era, a period of steadily improving global health trends. If so, this viewpoint would accord with Abdel Omran’s oft-cited thesis of the Epidemiological Transition of half a century ago. Omran proposed that, as societies economically develop, infectious diseases decline and population survivability increases. Partly in consequence, he said, societies suffer a corresponding rise in degenerative (or chronic) diseases. A later thesis, Robert Fogel’s ‘Technophysio Evolution,’ provides an even more upbeat narrative of society-wide health improvement in which, in contradiction to Omran, chronic diseases are in long-term decline. A third thesis extends Omran’s discussion on the rise of chronic disease. Barry Popkin’s Nutrition Transition thesis suggests that recent dietary and environmental changes result in new patterns of chronic disease, occurring first in the wealthiest societies but spreading even to the poorest as the latter economically develop and adopt new dietary regimes. These three theses all address public health trends over the long term. What they do not address, however, is changing economic, political and ecological circumstances. Public health now has to face a variety of new or pressing health-defining factors, ranging from diminishing ecological resilience to a more complex appreciation of the causative pathways of health and disease. Following the economic near-collapse of 2008, many societies are beset by retreating state capacity, policy dominance by neoliberal economic theory and ever-widening economic and social inequalities. All these factors bear upon the success of public health strategies. Given the reliance on economic growth and state support, this new combination of challenges requires fresh thinking by public health advocates. Given the weaknesses and limits of conventional public health traditions, the Ecological Public Health approach provides a fresh, integrative perspective to emerging health dilemmas.

A Golden Era for Health?

It may be reasonable to cast the latter half of the 20th century, overlapping with the first years of the 21st century, as a Golden Era for public health. Across countries both rich and poor, epidemiologists have reported extending life expectancy from birth, the provision of better, and more widely spread, healthcare options and advances and improvements in the basic means of existence or, in different language, the social determinants of health, including nutrition, potable water, energy, sanitation, housing, etc. Compared to any previous era, population health progress has been remarkable. Global data on mortality among children under five years of age shows that between 1990 and 2011, under-five mortality declined by 41 percent from an estimated rate of 87 to 51 deaths per 1000 live births. Over 1990-2010 maternal deaths fell by almost half, from 543,000 deaths in 1990 to an estimated 287,000 by 2010, an annual rate of decline of 3.1 percent (World Health Organisation, 2013).

Even if much remained to be achieved, assumptions of further improvement project into the future, with proviso that institutions and national political systems continue to make efforts. New circumstances, we later see, might challenge past optimism. In terms of the explanations for population health improvement and patterns of chronic disease, this essay considers three major theses, each of them which presents a long view of the determinants of public health. The differences between them are then considered as well as the new circumstances – economic, political, ecological – beginning to sharply appear in the first decade of the current century but having earlier origins. It is argued, in conclusion, that tackling these rising public health dilemmas and threats, as well as associated inequities, requires not only an ecological public health approach but a rejuvenated public health movement.

Three Longitudinal Perspectives on Health and Chronic Disease

One of the most widely-cited perspectives on changing patterns of health and disease was offered by the American-domiciled, Egyptian-born epidemiologist Abdel Omran (1925-1999) in a series of papers first appearing from the 1960s. In these papers Omran attempted to establish an historical sequence of disease patterns linked to phases of economic, cultural and
societal development. His 1971 paper on the Epidemiological Transition was a clear statement on progress made by the industrialised countries since the 18th century, with the implication that other societies might follow as they too economically developed (Omran, 1971). Omran’s chosen terminology, The Epidemiological Transition, recalls an existing thesis, that of the Demographic Transition. This was a concept drawn from US demography (with a Francophone version), which had sought clarity towards emerging worldwide demographic trends (Notestein, 1945, Kirk, 1986, Landry, 1987). Omran’s contribution, and its point of difference from earlier demographers, was the incorporation of disease patterns, the implication being that demography and disease were essentially matters of public health and not just the mapping of population trends.

It was a theory of three stages, later extended to four. In its first formulation, all societies were presented as experiencing three “ages” in the process of modernisation. Firstly there was the “age of pestilence and famine,” which roughly corresponds to the period from the first formation of human settled existence during which mortality is high and fluctuating, with an average life expectancy under 30 years. This was followed by the “age of receding pandemics,” during which life expectancy begins to steadily rise, from under 30 to over 50 years. And thirdly, there was the “age of degenerative and man-made diseases”, during which the pace of the mortality decrease slackens but continues to extend, and where the disappearance of infectious diseases increases the visibility of degenerative diseases, with man-made diseases becoming more frequent. Omran later suggested that the form in which the Epidemiological Transition occurred was itself shifting. 19th century England and Wales, for example, exhibited what he termed a Classical Transition, characterised by change from high mortality plus high fertility to a state of low mortality. Japan in the early 20th century illustrated a speedier decline in mortality which he called an Accelerated Transition. And in developing countries in the late 20th century, a new Contemporary Transition was now being witnessed characterised by slow and unsteady decline in mortality, high fertility rates and rapid population growth. Note, here was the suggestion that infectious pandemics were being replaced by “degenerative and manmade diseases”, what are termed non-communicable diseases today, with a diverse aetiology; only in 1983, in a supplemental paper, did he specify that these included “radiation injury, mental illness, drug dependency, traffic accidents, occupational hazards” (Omran, 1983).

Omran drew upon a variety of sources, including sociologists and historical economists of his day. In other respects, in particular breadth and focus, his analysis recalls the big thinking of late 18th/early 19th century British political economists Adam Smith and the Robert Malthus, both of whom sought to explain demographic trends in relation to economic, ecological and social conditions. The former, basing his assessment upon the British colonies of North America, defined social prosperity via its rate of population growth, ostensibly linked to the availability of food (and successful farming) while the latter argued that famine, disease, population growth and nutrition were all interlinked. Malthus assumed, incorrectly in the light of later events, that population growth would always tend to outstrip agricultural productivity. Where Smith and Malthus differed from economists who followed them, who increasingly saw the limits imposed by nature as irrelevant, is that they treated economic phenomena as properties of physical nature, never divorced from it (Schabas, 2005).

In fact, Smith and Malthus provide the intellectual baseline for both modern demography and ecological economics. Malthus in particular is critical source for the British social epidemiologist, Thomas McKeown, who postulated that the role of nutrition and the standard of living far exceeded medical intervention as a source of health improvement (McKeown, 1971, McKeown, 1976); for the British-American ecological economist Kenneth Boulding and for the American Nobel laureate Robert Fogel, whose theorisation of the relations between economy, technology and human physiological change is now considered. In fact, all three cite Malthus as a formative influence (Boulding, 1971, McKeown, 1971, Fogel, 1994).

Robert Fogel offers a challenging, but clearly set out thesis, on what some have later called the “biological standard of living” (Komlos & Baten, 1998). Together with Dora Costa, Fogel related changes in body size to shifting economic and technological factors in the 19th century, summarised under the rubric of ‘Technophysio Evolution’ (Fogel & Costa, 1997). Invoking Darwinian evolution as the underlying biological explanation, Fogel suggested that human physiology was the repository of massively changed inputs and influences, nutritional and environmental. In the post-industrial age, he suggested, a new pattern emerged of increased energy availability, improved resistance to infection (in the context of reducing microbiological hazards) and technological development. These allowed the substitution of labour by machines, improved food production and higher incomes. All were modifiable factors, except for genetic pre-potential. It produced a qualitatively new set of circumstances which set humans further apart from animals and “from all previous generations of homo sapiens” (Floud, Fogel et al. 2011, p. 6). The result was a dramatic improvement in the physiological stock of human beings.

Both Omran’s and Fogel’s theses emerge as prime explanations for the emergence of a Golden Era of public health. There are substantial differences between them. Omran’s conceptual net was wider, encompassing culture and energy. He also said that rising levels of degenerative (or chronic disease) were an inevitable outcome of economic and social modernisation. Conversely, Fogel and Costa claim a dramatic
improvement in rates of chronic disease, which also implies that Omran, focusing overwhelmingly on the role of infectious disease in the 19th century, dealt insufficient weight to the chronic disease burden. Fogel's thesis is confirmed by Costa's studies of US Civil War recruits which shows nutrition was the key to chronic disease, alleviated as nutrition improved. Better nutrition, they argued, increased body size by over 50 percent and greatly improved the robustness and capacity of vital organ systems.

Alongside nutrition and the microbial environment Fogel and colleagues give special emphasis to technological change. There is little doubt that technology and nutrition are linked, but a mediating factor may not have been technology per se, but the availability of energy. Vaclav Smil, the energy historian, has noted how a New England farmer in 1800, who employed animal power, had over 600 times the amount of energy under their control as a farmer in 1800, who employed animal power (Smil, 2010). Smil notes that the 1800 farmer's technology – working animals – reproduced themselves, whereas the modern farmer was utterly reliant on fossil fuels. Omran's account gives attention to what he and later others have referred to as the Energy Transition, an emphasis supported by population historian EA Wrigley (Wrigley, 2004).

Nutrition emerges as a critical, if not the key input, to the making of the Golden Era. Over the latter half of the 20th century food supplies reached a previously unimaginable scale, thanks mainly to agrichemicals (fertilisers more than pesticides), new seeds (F1 hybrids), better management (cultivation), equipment (tractors replacing animals) and energy (petroleum to power machinery or to transport commodities around the globe). World data on food production from 1969-2005 showed a steady rise in food output and availability. As a consequence of these factors operating together (and not just 'technology' alone) low income countries increased their calorific intake from meat by 119 percent, sugar by 127 percent and vegetable oils by 199 percent. In China, for centuries afflicted by recurrent famine, consumption rose by 305 percent for sugar, 349 percent for meat and 680 percent for vegetable oils (Foresight, 2011).

Omran foresaw clouds on the horizon in the form of chronic diseases, in absolute contradiction of Fogel's later assessment. How might such a discrepancy occur? In part, they are talking about different diseases, a fact covered over by the vagueness of disease terminology. It was thus left to Barry Popkin, with the concept of the Nutrition Transition, to present a modern thesis in which chronic diseases have a specifically new causality as well as composed of distinctively new disease forms, at least at the mass level. Like all the researchers mentioned so far, Popkin also takes the long view, but he is clear that his conceptualisation is an extension of Omran's.

Two historic processes of change occur simultaneously with, or precede, the 'Nutrition Transition.' One is the Demographic Transition - the shift from a pattern of high fertility and mortality to one of low fertility and mortality (typical of modern industrialized countries). The second is the Epidemiological Transition, first described by Omran; 'the shift from a pattern of high prevalence of infectious disease associated with malnutrition, periodic famine, and poor environmental sanitation to one of high prevalence of chronic and degenerative disease associated with urban--industrial lifestyles'. (Popkin & Gordon-Larsen, 2004)

The Nutrition Transition thesis is an extension of the Epidemiological Transition but one which almost entirely focuses on the association between nutritional changes (in the widest sense, including human activities in which calories are consumed by physical activity) and chronic disease. Essentially, it describes the recent phase in the historical pattern of change in diet and physical activity occurring across the world as people become richer and as food provision systems change their format (Popkin, 2002, Popkin, 2009). In over two decades of work, studying about half the planet's populations, Popkin and colleagues have proposed that as societies modernise they converge towards a new dietary configuration, one which is "high in saturated fats, sugar and refined foods but low in fibre often termed the 'Western diet.'" These changes are reflected in "nutritional outcomes, such as changes in average stature, body composition, and morbidity" (Popkin & Gordon-Larsen, 2004). These latter indicators explain why this is such an important transition for public health; height, weight, girth and the relative (in)appropriateness of intake and output from the body directly affect population and individual disease profiles and social consequences. This new dietary configuration is not nutritional improvement at all; in fact it is the reverse.

The Nutrition Transition thesis seems new, a feature of our time, but it is not; what is new is the name. The argument that humans have been increasingly affected through a nutrition-environmental mismatch was first eloquently expressed by the biologist René Dubos in the 1960s. Ironically, like Fogel, Dubos too emphasised the role of technological change; but for him the results were baleful. The more human life was influenced by technology, he asserted, the more essential it was that choices were made in the light of biological knowledge, noting that "the fundamental biological nature of man has not changed since late Palaeolithic times" (Dubos, 1965). Dubos argued that new nutritional circumstances resulted in new patterns of disease.

Nutritional Mismatch

Perhaps the earliest and best-researched case for evolutionary mismatch in diet nutrition was that of the British and Irish researchers Hugh Trowell and Denis Burkitt over three decades ago, based upon their extensive documentation
of the African diet. They observed differences between patterns of disease in advanced societies compared to African nomadic groups, those who diets were closest to our common ancient forebears. They noted that six common medical diseases - blood pressure rising with age and essential hypertension, obesity, diabetes mellitus, coronary heart diseases, gall stones and renal stones - had never been reported "in any hunter-gatherer nomad group until after some degree of acculturation" (Trowell & Burkitt, 1981, p. 428). They noted how rapid change in diet can occur when people shift from old ways of life and dietary intakes change as a result. They noted, for example, that when the Kenyan Samburu, who previously ate a traditional diet, were drafted into the army their salt intake increased five times and blood pressure levels rose. "Like many Western men they were eating 24 times the sodium requirement of man" (Trowell, 1981).

The Nutrition Transition adds a new burden of disease to the traditional problems of hunger and malnutrition. The category of chronic might still be employed but the disease forms differ. In Western societies, although spreading rapidly beyond them, obesity is the most evident - and most visible - consequence. The research literature is now voluminous, although it remains doubtful whether anything at all has been learnt about the (politically feasible) ways of reversing it. Indeed, some have argued, following Dubos and dietary intakes change as a result. They noted, for example, that when the Kenyan Samburu, who previously ate a traditional diet, were drafted into the army their salt intake increased five times and blood pressure levels rose. "Like many Western men they were eating 24 times the sodium requirement of man" (Trowell, 1981).

The Nutrition Transition leads to progressively worsening health outcomes as dietary choices expand. If all the researchers mentioned so far might consider themselves as heirs to Malthus or Darwin, they offer a very different interpretation of the application of its evolutionary logic in terms of substantial disagreement on the impact of the environmental context.

The Obesity 'System' and the Shaping of Public Policy

These longitudinal, or synchronic, analyses form a necessary complement to more diachronic, time-limited, or systems-based analyses of the impact of society and physiology. Perhaps the best known of these has been the British government's Foresight obesity study. In this research, involving more than score of analysts from a variety of specialist fields, societal influences were mapped for their impact on body weight (with energy balance expressed entirely in terms of an abstract individual within the outlying streams of influence). The picture that emerges is that body weight increase has little to do with individual factors but is related to an environment of exceptional complexity (in which both individual genetic and psychological factors or vulnerabilities play a significant selective function). The outcome of the mapping results in what has been characterised as an 'obesity system' (Foresight, 2007). What followed from the Foresight analysis was the English obesity strategy, named 'Healthy Weight Healthy Lives'. The Foresight analysis was distinguishable, albeit lightly, but subsequent developments of the strategy weakened its systemic or societally-based character and placed increasing emphasis on individual factors, eventually shifting the grounds for action away from government to industry, in a framework known as 'Responsibility Deals.' These were introduced by an incoming Conservative-led coalition government against the background of food industry protests against the scope of the previous government regulatory interventions. The new strategies were controversial in many aspects, but particularly because they shifted the focus on intervention to food industry voluntary initiative, with equivocal systems of reporting (Ginn, 2011, O'Dowd, 2011, Bryden, Petticrew et al., 2013, Limb, 2013, Panjwani & Caraher, 2014). Given that companies could increasingly choose how far to be involved or, for example, what food labelling schemes to accept, the publication Marketing Week commented that it showed "just how toothless voluntary regulation can be" (O'Reilly, 2013). Even without the powerful influence of well funded lobbying by food industries, active at governmental or supragovernmental levels (i.e., European Union) the prevention of dietary-related chronic diseases was, in the analyses presented by Foresight advisors, no simple issue. Such were the diversity of perspectives on both causation and policy implication, that one Foresight position paper described the overall situation as that of 'policy cacophony,' multiple analyses and policy prescriptions competing for attention (Lang & Rayner, 2007). Many questions arise from it. How do governments intervene in private supply chains? What scope or legitimacy have governments to take action? How can the public's food habits – the creation of decades of food marketing – be shifted, and by whom? In this cauldron of uncertainties and possibilities commerce has been no neutral bystander. The food industry wields considerable economic and political power: in many societies, it is the largest employer. And the food industry has powerful influence over culture. Dietary education does not happen preponderantly through the state, but through commercial marketing; in the light of this fact, might otherwise nutritionally-rational dietary regimes, such as proposed by health or education departments of government, suffer the rejection of the public wedded to high fat, high salt, sugary foods? In summary,
establishing a process of change to promote nutritional improvement could never have been a rationalistic assembling of evidence to be rolled or ‘delivered’ via public health strategies. On the contrary such an evidence-based approach, although popular with the civil service and ostensibly the goal of modern political thinkers, might be entirely fanciful. In conditions of causal complexity, policy cacophony and industry power such an idealisation of the policy process does not correspond to the real world.

This very brief discussion has largely focused on one society, the UK (England, in particular) with a highly developed political system, a largely open process of information and an active public health movement with strongly research-based tradition. Given the weaknesses exposed by this analysis about the UK’s inability to apply more thorough-going counter-obesity strategies, it raises the question about the success of other societies where either the public health voice or the public scrutiny of industry is less visible. Popkin set a lead in trying to understand the Nutrition Transition worldwide, but tracking these contextual factors and policy pressures is even more formidable in scope. A full review of global dietary futures and patterns of ensuing chronic disease today needs to span many terrains or strands of explanation, including, in particular, foreign direct investments in national food supply chains and terms of trade which have the potential to shift the historic domestic framework of provision and their cultural anchors, replacing it by those offered by transnational food and drink corporations (Rayner, Hawkes et al., 2006). It is not even as if the Golden Era abolished the presence of food insecurity and insufficiency; evidence is that it is rising once again. (FAO, 2011)

**Chronic Diseases, Wealth and the New Global Austerity**

In 2008 the entire post-World War II pattern of growth economics was shaken by global crisis, only to be rescued by massive state intervention in the form of public debt. The short-term impact for countries most exposed to public and private debt has been revealed as rising poverty, suicide rates and levels of infectious disease (Karanikolos, Mladovsky et al., 2013). A similar story of halted progress might also be told in the area of under-nutrition. Until the 2008 global financial crisis, the persistent and positive narrative was of slow but sure progress in tackling under-nutrition and malnutrition. Reversing these expectations, the UN Food and Agriculture Organization (FAO) reported that small, import-dependent countries, especially in Africa, were deeply affected by the economic crises and by a parallel food crisis (FAO, 2011). The latter was stimulated by poor harvests, the diversion of food to other uses and rising prices. The main impact was regional. Between 2007 and 2008, the number of undernourished was essentially constant in economically buoyant Asia (an increase of 0.1 percent), while it increased by 8 percent in Africa. The FAO observed that demand from growing economies in Asia was set to grow but that biofuel production in North America, South America and Europe, placed additional demands on the food system. Linkages between agricultural and energy markets as well as an increased frequency of weather shocks posed additional problems. On the supply side, FAO observed, there were declining rates of yield growth for some commodities. One major consequence for poor countries and communities, they observed, is likely to be continuing food price volatility.

Along with shortages in the food supply, rapid increases have occurred in economic inequality. The financial crisis saw a sharp fall in the share of incomes benefiting the top decile in 2008-2009; this was followed by a strong rebound in 2010 ( Piketty & Saez, 2012). Data from around the world show how inequality is on the rise, even in vaunted ‘welfare states’ like Sweden. According to a report by Credit Suisse, the Swiss bank, average wealth hit a new peak of USD $51,600 per adult, but inequality rose to new heights, with the top 10 percent of the world population owning 86 percent of global wealth, compared to barely 1 percent for the bottom half of all adults (Keating, O’Sullivan et al., 2013). The International Monetary Fund highlighted the threat to social stability posed to the global economy by growing income inequality (Giles, 2014).

If rising inequality appears the social hallmark of the new ‘Post Golden’ era, a further rising strand of concerns is environmental. This is better described in terms of the resilience of ‘ecosystem services,’ in essence the myriad life support functions found in nature, without which human life could not exist. Ecosystem services have often been overlooked or taken for granted; their value implicitly set at zero in economic or political decision-making. At the end of the 20th century, many large-scale analyses offered sober accounts of diminishing ecosystem health, some of which cross over with explanations for improvements in public health, including nutrition and healthcare. These include deteriorating circumstances of biodiversity and ecosystems (Millennium Ecosystem Assessment Program, 2005), food production (Beddington, 2009), climate change (IPCC, 2007) and the effectiveness of antibiotics (WHO, 2012). In the 21st century the environment/nature presents a worrying picture of fragility with the potential for multiple, potentially overlapping, public health feedbacks.

In the light of these new or resurgent trends, where do these big theses on health improvement and chronic disease stand? The central feature – and potential failing – of Fogel’s Technophysio Evolution thesis is its overriding technological optimism. What may have been true in the past – the establishment of a felicitous relationship between commerce and its marketing practices (food industry, soap industries, etc) and health improvement, neatly affirmed by the economic historian Joel Mokyr (2002) - now seems to be fading, indeed reversing. Increasingly, the guiding logic of the food industry is not...
health but maintenance of profitability. In this respect Popkin’s analysis may be far closer to the realities of modern nutritional environment. Popkin documents the massive changes not just in what people eat but in how food systems operate: turning precious food into cheaper calorie commodities which can be marketed and sold in ways which were unimaginable even just decades ago. The Nutrition Transition is therefore a cultural and societal transition and not just an eating one. It is explained, in part, by the culture of mass persuasion, where the marketing expenditures of the world’s leading purveyors of soft drinks exceed the total budgets of United Nations bodies like the World Health Organisation. Nevertheless the Nutrition Transition too falls in its comprehensiveness. If the Technophysiologism Evolution thesis offers, in effect, diminishing returns from technological and economic advance, conversely, the Nutrition Transition gives scant attention to environmental limits and only thin answers to the policy means for halting, or reversing, these business trends.

If past questions of human nutrition turned upon food sufficiency, today’s questions of nutrition, as the Nutrition Transition thesis proposes, are broader in conception. It follows that in the future both lines of concern will coexist. The WHO document heralding improvements in child and maternal health, considered earlier, held that while some critical Millennium Development Goals had yet to be met, those which had been achieved had witnessed considerable variance within and between regions and the pace of improvement also slowed. Amartya Sen has argued that of food sufficiency exposes not only the limited economic power of poor nations and communities but the legitimacy of processes of exchange and notions of social justice (1981). In the modern context, questions of social justice have to be expanded to cover environmental justice and environmental sustainability. The fact that food resources suitable for humans are being diverted to the production of meat, over-consumed in the rich world - as well as a factor in climate change - and, as the Nutrition Transition predicts, also increasing in the economically advancing nations, such as China, shows that questions of sufficiency, dietary balance and environmental sustainability cannot be considered separately but must be interlinked (Smil, 2002, McMichael, Powles et al., 2007). Alongside this is the question of the species which humans consume. As increasingly meat production becomes industrialised, there are ethical questions to be asked about whether humans have the right to determine the life and fate of other species solely for their selfish needs (Foer, 2010). The question of food therefore cannot be reduced to sufficiency (as with Fogel), nor even to its affect on human health (Popkin) but must take account or environmental and planetary feedback.

Conclusion - “Refreshening” Public Health for the 21st Century

Where does this discussion take us in terms of traditions or approaches in the public health field? Classical public health thinking, associated with the Sanitary-Environmental model of public health, centrally considered environmental factors, as the name implies.1 There is far less evidence of environmental thinking in the currently dominant bio-medical and social-behavioural traditions of public health intervention. The emphasis on prevention is sidelined by the priority given to treatment although modern prevention thinking requires ‘whole society’ shifts (Rose, 1992, Rose, 2001). This bias is difficult enough to counteract. Preventive health interventions increasingly have to combat a rising neoliberal paradigm of political governance. This emphasises the role of the ‘free market’ in allocating ‘choices,’ calls for limitations of regulation (over economic factors) or the size of government, ignores inequalities of power between buyers and sellers.

1 For a classification of public health models and traditions see Rayner & Lang, 2012.
was ferocious argument on the causes of infectious disease. Not only is there dispute over causes of chronic disease there is even dispute about whether anything should be done at all. A common refrain is that, even though around a third of society is obese (in the USA, UK and approaching this proportion in other states), this is presented solely a matter for the individuals affected. Given the ideological framing of public health issues it might seem that scientific subtlety gives no assistance to the accomplishment of effective policy change; what matters more perhaps is narrative power - a success presentation of the problem, a positive narrative of change, replete with an evocative dramatization of the consequences of failing to do so.

The case here has been made for taking a long view and to argue for greater clarity between modes of interpretation. Equally, there is an additional case to be made for a reexamination of the grounds of public health thinking, hence the argument for a freshness of perspective. It is not that the conventional traditions or models of public health have outlasted their usefulness but rather than they fail to address the challenges of the new era. In some cases the traditions or models are bogged down by compartmentalisation or limited by a conservatism of outlook which says that evidence must precede action: an approach which, if applied in Victorian era, would have entirely stifled progress, a fact that was remarked upon by the American public health thinker, C-E Winslow (1948).

Part of the difficulty for the emerging period is the term public health itself. It is solely anthropogenic (human-centred) concept; in fact it is simply what the words mean: the health of the public. For public health to be successfully reconceptualised for the 21st century must require the incorporation of the health of ecosystems. This entails no less a focus on the health of the public but rather the incorporation of a perspective on the environment of health. Such a perspective goes beyond the old sanitary-environmental model (and its current applications, for example in smoking cessation) which solely considers the health of humans (or their domestic animals) as a consequence of environments, but takes into account the nature-human exchange or interchange. The new basis for public health acknowledges that we have entered the age of complexity, which has implications which are both extensive and profound. In terms of public health thinking it requires the integration of many perspectives; a shift away from the domination of any one tradition to a deep form of ‘cross-disciplinarity.’ In other respects it augers a return to public health thought activism where the leading public health actors were sanitary engineers, statisticians, novelists or lawmakers.

For the 21st century, therefore, the leading actors, in dealing with the issue of dietary-linked chronic diseases, might not be members of the public health professions at all. They might be celebrity chefs, like Jamie Oliver in Britain or, less famously (if even more effectively) the worldwide campaigners for breast feeding and against the suppliers of breast milk substitutes. Or they might be campaigners for green energy or for bicycling and against new roads or transport by motor vehicles. The public health movement is composed of many strands, many indeed, unrecognisable as public health actors in conventional terms. As with the past, the success of public health rests upon not only evidence but imaginative constructs and the seizing of new opportunities to engineer societal shifts. While it is possible to conceptualise some of its essential parameters – the combating of inequalities, better means of improving the healthiness and sustainability of food supply chains, action on climate, or water resources, or biodiversity, reconnecting culture with healthy food, promoting more active transport and much more - the overall means for combating chronic diseases in the 21st century therefore, substantially needs to be rediscovered in a manner appropriate for the times. The importance for such a process of rediscovery and for its gaining of popular support and approval cannot be overstated.
References


Seven keys towards a paradigm shift in biomedicine: Environmental interference with the human genome and intergenerational equity

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Abstract

Thomas Kuhn’s book The Structure of Scientific Revolutions posited that science proceeds by great leaps forward through sudden paradigm shifts, not only by the slow accumulation of ideas (1962). The continuous accumulation of new scientific data, ideas and theories reveals the inadequacy of dominant paradigms accepted by most of the scientific community. Kuhn’s theory has been heavily contested, however, especially in the field of biology, where dominant paradigms - such as Cricks’ Dogma - have persisted even as biological research moves on. Crick’s Dogma states that information travels only one-way from DNA to RNA to proteins, to phenotype and never back to nucleic acid. However, this is insufficient to represent the complex and essentially epigenetic networks of molecular interactions that modulate the entire process of gene expression. Finally the field of epigenetics is shedding light on how environment, nutrition and social conditions affect gene expression, is convincing many researchers and scientists to refute the Central Dogma of unidirectional information and look for a new conceptual frame - at once molecular and systemic - in biomedicine.

It is within this context and in this perspective that this paper presents seven key concepts which may influence a paradigm shift in biomedicine: epigenetics, environment, foetal programming, developmental plasticity, evolutinary medicine, mismatch / DOHA (Developmental Origins of Health and Diseases) and the XXth Century Epidemiological Transition.

Introduction

Exactly half a century ago the physicist and historian of science Thomas Kuhn published, in the Encyclopedia of Unified Science of the University of Chicago Press, a small book, destined to become a milestone in the debate on the history of scientific ideas: The Structure of Scientific Revolutions (Kuhn, 1962). The main thesis of the book - then extremely controversial - was that science, such as nature itself, and even DNA in its slow self-constructing process, proceeds by great leaps forward through sudden paradigm shifts, not only by the slow accumulation of ideas. The continuous accumulation of new scientific data, ideas and theories, reveals the inadequacy of dominant paradigms accepted by most of the scientific community. Yet scientists who have long based their belief, their reputation and even their power on a dominant paradigm will try to preserve it at all costs. Almost a century ago, Austrian physicist Max Planck claimed that a new and better theoretical model does not triumph for the force of its internal truth, but when the supporters of the old one eventually die (Planck, 1948).

In September 1996, Adam Wilkins, concluded that “[s]cientific ‘revolutions’ in biology have certainly taken place - as recognized even before Kuhn - but do not seem to match the Kuhnian paradigm particularly well.” (Wilkins, 1996). Molecular biologist Richard Strohman echoed Wilkins’ editorial, but shared only part of Wilkins critical reading of Kuhn:

It’s true: many revolutions in biology, in particular the one of Watson and Crick, do not match the Kuhnian model... for the simple reason that it was not a true scientific revolution, but, if possible, one step back. Indeed the famous molecular model of Watson and Crick pushed biology in the direction of a renewed determinism. (Strohman, 1997)

Strohman distanced himself from a dominant reductionist paradigm of
molecular biology, symbolized by “Crick’s Central Dogma,” as an undue generalization, insufficient to represent the complex and essentially epigenetic networks of molecular interactions that modulate the entire process of gene expression. While theoretical physics had experienced a paradigm shift at the beginning of the last century, biology (which is the most systemic and complex field in science) appears limited by some dogmatic concepts and still awaiting for its Kuhnian Revolution.

At the beginning of the twentieth century things had changed a lot in physics, with the advent of quantum mechanics and general relativity, and in theoretical math with the introduction of the chaos theory, which deals with nonlinear phenomena, which captures the infinite complexity of nature.

Yet, quite paradoxically, the reductionist paradigm acquired a central role on molecular biology. Cricks’ Dogma, and the fact that molecular genetics became a predominant focus of biological research, provoked a major shift in biology and most biologists began to interpret life as a molecular process regulated by genetic information (Segrè, 2011). This approach incorporated a number of claims pertaining to classical science, namely ontological level reductionism—the belief that an understanding of the fundamental molecular level is sufficient to explain any cellular or organisinal processes—and unifactorialism, which can be referred to the central dogma according to which DNA is the only causal agent. (Mazzocchi, 2010)

In fact Cricks’ Dogma describes DNA as the seat of an individual’s genetic program, containing all the information necessary for the construction of a phenotype, and stating that information travels only one-way from DNA to RNA to proteins, to phenotype and never back to nucleic acid. Yet biological research has moved on. In 1970, Temin’s discovery of reverse transcriptase showed for first time the existence of a second flow of information, from RNA to DNA, in sharp contrast with the central dogma.

The discovery of alternative splicing, RNA editing, the multiple role of “jumping genes” and non-coding RNAs in “natural genetic engineering” (Shapiro, 1992), added layers of complexity that are not “controlled by genes” (Mazzocchi, 2010). Even the Genome Project - the largest project created with the intention to confirm the theory and to reap the benefits long promised by the linear dominant paradigm of DNA – has given surprising results, providing new and unexpected insights into the organization and regulation of our genes and genome (Encode Project Consortium, 2012) so that the molecular reductionist approach no longer satisfies scientists (Pennisi, 2012). Finally epigenetics is shedding light on how environment, nutrition and social conditions affect genes expression, convincing many researchers and scientists to refute the Central Dogma of unidirectional information flow from DNA to phenotype and to look for a new conceptual frame - at once molecular and systemic - in biomedicine.

It is within this context and in this perspective that the seven key concepts that we will examine here below should be read and interpreted.

The seven keywords

The seven key concepts described below would be the conceptual pillars to build up a molecular and systemic model concerning the processes of pathogenesis and carcinogenesis, and to discuss how humans are building their own phenotype.

1. Epigenetics

We recognize the epigenome as a molecular and systemic network which interacts within itself, with DNA, and with the outside and epigenetics as the most appropriate and powerful tool to build up a new dynamic model of the genome. In such a fluid and systemic model the epigenome (also defined by some scientists as the controlling software of the genes (Dolinoy, Weidman & Jirtle, 2007) behaves as a sort of compensation chamber - the specific place where the flow of information that comes from outside (environment and microenvironment) meets and interacts with the information encoded in the genes for millions of years (i.e. the hardware).

The epigenetic machinery orchestrates all the major biochemical processes that determine the structural and functional expression of our genome, determining and/or conditioning the main transformations in our cells and tissues: every ongoing transformation of our phenotype (both in physiological and pathological contexts) will be modulated and fixed in this way.

2. Environment

In this context, the environment should be considered as the continuous flow of information coming from outside and reaching the epigenome, causing it to activate and to continuously change its molecular and three-dimensional structure. Environment also means the chemical and physical composition of the atmosphere, of the biosphere, of the food chain and its transformations, particularly concerning the many physical agents, the molecules (in particular xenobiotics) and other chemical agents (such as heavy metals) that interfere with the epigenome of our cells. Genes need to be told to switch “off” and “on” and how much expression (protein) is required and where (differently in each cell type). Genes need to be regulated, yet this regulation is not performed by DNA but by many other controls arranged in complex, dynamic epigenetic networks.

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1 A compensation chamber is a device used to reduce large pressure fluctuations between two compartments. Here we use this concept to configure the epigenome as the cellular space deputed for processing the information coming from the environment, putting it in relation with the information encoded in our genome for thousands of years.
Seven keys towards a paradigm shift in biomedicine: Environmental interference with the human genome and intergenerational equity

All of this is a very different way of considering the whole genome. From directing the fate of stem cells to determining how we grow, the genes in our body act in complex networks (Thomas & Chiang, 2006).

3. Foetal Programming

The third key concept is foetal programming, a precise technical term that refers to the capability and, at the same time, the necessity, of embryo-foetal cells to define their epigenetic setting in a predictive and adaptive way, in relation to the information coming from the mother and, through her, from the outer world (Gluckman, Hanson, & Spencer et al., 2005). Cells, during the process of differentiation, are highly plastic from an epigenetic point of view: the different epigenetic marks are indeed those which represent the essence and the product of foetal programming and define the basic program of our individual phenotype (with life-long changes to the individual and even progeny). For instance, human epidemiological and animal model data indicate that susceptibility to adult-onset chronic disease is influenced by persistent adaptations to prenatal and early postnatal nutrition (Low, Gluckman, Hanson, 2012).

In foetal programming environment plays the most important role: to understand in what sense and to what extent, it is important to take into account the next two key concepts.

4. Developmental Plasticity

Developmental plasticity refers to the many possible phenotypes (polyphenisms) that may result from a single genome, on the basis, in the case of mammals, of the information coming from the mother and the environment.

In contrast to what it is often asserted, the DNA does not contain the genetic program of the individual, but simply an enormous amount of potential information. Evolutionary biologists have known for decades that DNA itself contains the information to produce of a huge number of possible phenotypes, and that it is precisely the environment which decides the final phenotype (Fordyce, 2006). There are many examples: for instance, butterflies can program fairly different phenotypes on the basis of information on temperature and light received by their larvae in order to be prepared to best withstand the postnatal environmental and climatic challenges (Brakefield et al., 2007). In this way, (information coming from) the environment plays a direct, instructive role during development in producing variation (adaptive developmental plasticity), leading to the production of distinct phenotypes from the same genotype (Beldade et al., 2011).

Today, it is quite clear (even if hugely underrated) that all this also applies to human beings; the environment is responsible for informing the genome of billions of cells during the process of differentiation, causing it to adapt through predictive programming. (Lucas, 1998; Kuzawa, 2005; Crespi, 2005; Worthman, 2005)

5. Evolutionary Medicine

Evolutionary medicine is a somewhat new concept with particular reference to evolutionary inertia and mismatching that might be the cause of many chronic-degenerative diseases (Williams & Nesse, 2005). Evolutionary or “Darwinian” medicine is generally defined as the use of “an evolutionary perspective to understand why the body is not better designed and why, therefore, diseases exist” (Nesse, 2001).

This essay presents a quite different application of the evolutionary theories for understanding health and disease, taking into greater account the Neo-Lamarckian Medicine model of evolution, driven by epigenetic signals that are inherited across generations. According to the Lamarckian paradigm, environment not only selects, but also actively induces the main changes that shape the evolution of living beings (Gorelick, 2004). One of the most controversial concepts in the context of evolutionary thought - expressed by evolutionist Ernest Haeckel - was known as the fundamental biogenetic law, according to which ontogeny recapitulates phylogeny. It is undeniable that ontogeny and phylogeny processes are somewhat similar and parallel, but it is important to formulate the basic concept in a different way - the ontogeny (a real process) does not recapitulate the phylogeny (a virtual process), but it actually anticipates it. Every single larva or embryo is a kind of laboratory, in which evolution is constantly improving its solutions, unremittingly programming new phenotypes, better adapting to an environment in continuous transformation. Although seldom recognized, environmentally-alterable meiotically-heritable epigenetic marks do exist; in this way environmental, nutritional and lifestyle factors can affect our descendants by heritably altering their epigenome (Handel & Ramagopalan, 2010). Epidemiological studies have provided evidence highly suggestive of acquired epigenetic transgenerational aetiology (Pembrey et al., 2006).

Neo-Lamarckian medicine is the application of these evolutionary epigenetic notions to diseases and could have enormous implications for public health (Gorelick, 2004). It is precisely with this in mind, that one should read and understand the two last keywords that could be considered as an introduction to the expected and necessary paradigm shift in biomedicine.

6. Mismatch / DOHA (Developmental Origins of Health and Diseases)

Mismatch practically refers to a possible failure of foetal programming, that is, a failed or imperfect correspondence between programming in utero and...
postnatal outcome, which could be the cause of several chronic human diseases.

As mentioned above, the epigenetic programming of the phenotype through the developmental plasticity has an adaptive-predictive value, because it allows the individual to be planned in relation to the information coming from the environment through the mother during the embryo-foetal development. If we come back to the "classic" examples highlighted by evolutionary biologists, we can easily understand that a butterfly that programmed its phenotype on the basis of environmental information will have great difficulty of adaptation if it has to face a different world from the anticipated one. Likewise in humans, if the predictive/adaptive programming in utero correctly anticipates the postnatal environment it will be advantageous in later life. If the environment into which the organism is born differs from the anticipated one, it will result in a mismatch, as pointed out by the classic thrifty phenotype hypothesis. According to this hypothesis, children - programmed for shortage in utero - will easily become glucose intolerant and develop type II diabetes in later life if persistently exposed to rich dietary intakes. (Hales et al., 1992)

Recently, the foetal programming mismatch theory has been transformed from a theory useful to explain the pathogenic mechanisms causing diabetes II and some other diseases of adulthood, into a potentially universal, pathogenic key-model, the Theory of the embryo-fetal origins of adult diseases (DOHA-Developmental Origins of Health and Diseases), by which we could try to explain why most chronic-degenerative and inflammatory diseases greatly increased during the last decades, first in the Western world, then at a global level (Hanson et al., 2011).

Thus we have come to the last of the seven keywords.

7. The XXth Century Epidemiological Transition

The XXth Century Epidemiological Transition is the way in which we could define the epidemiological change we are witnessing all over the world, especially (at first) in the most developed countries: from the dominance of acute and exogenous diseases for millennia (due to infectious and parasitic agents) to a mounting incidence of chronic and endogenous (immuno-mediated, neurodevelopmental and neurodegenerative, neuro-endocrine and metabolic, cardiovascular and neoplastic) diseases (Lim et al., 2012). Many of these diseases could be the result in adults of a developmental mistake, deeply rooted in gametogenesis, in the first critical stages of embryo-foetal development or, occasionally, later in development.

In fact, in the last two centuries, humanity has undergone a real Epidemiological Transition from a condition, characterized by premature mortality and the recurrent and broad spread of dramatic famines and epidemics capable of decimating the entire population to a state of relative health care stability, characterized, in the last decades, by a continuous increase of chronic degenerative and neoplastic diseases typical of older people (largely resulting from the parophysiological processes of aging, i.e. of cellular, tissue and systemic senescence).

This ongoing "transformation of the phenotype of a species" should be included and better understood as part of a more general process of epidemiological transformation characterized by:

- a rapid decrease in acute pathologies due to external causes (i.e. infectious and parasitic diseases)
- and an equally dramatic and parallel increase in chronic-degenerative inflammatory and neoplastic diseases, affecting all the organs, tissues and systems:

endocrine and metabolic disorders (obesity pandemic and diabesity) and immune system disorders (allergies and autoimmune diseases); neurodevelopmental disorders (autism), neuropsychiatric (depression disorders) and neurodegenerative diseases (Alzheimer’s disease), cardiovascular disease, neoplastic diseases etc.

So far, there have been various attempts to explain the significant increase of single diseases (such as autism, asthma or celiac disease) or of some types of pathologies (such as allergies or neurodevelopmental and neurodegenerative diseases), but a sufficiently general mechanism that may have triggered, in just a few decades, such an epidemiological change has not been found and may not have even been defined.

This essay proposes - relying on the 7 key concepts outlined above - that this epidemiological transition should be framed and, to some extent, interpreted, as the product of the dramatic environmental transformation provoked, in a few decades, by Homo sapiens, through the introduction into the atmosphere, biosphere and food chains of thousands of synthetic molecules and ionizing and non ionizing radiations, which interfere with the main signals and mechanisms that preside over our homeostatic systems and, above all, with the epigenetic, adaptive and predictive-programming of our organs and tissues. All this could determine significant variations in our way of reacting to an environment in continuous (and too fast) transformation.

Epigentics, Non-Communicable Diseases and Health Equity

In the last century, many striking technical advances in medicine have produced several noteworthy results: infant mortality has been declining and overall life expectancy and health status has been constantly improving for decades (Weisbrod et al., 1999). The advances have brought humanity to a
time of relative health care stability, but one defined by a continuous increase in chronic degenerative and neoplastic diseases. Nowadays non-communicable diseases (NCDs) are a major cause of death worldwide and underlie almost two-thirds of all global deaths (WHO, 2011). The epidemiological transition first affected the countries of the rich North, but the situation is rapidly changing and low-income and middle-income countries, and the poorest and most vulnerable populations within them, are affected the most due to health inequity (as poverty and malnutrition, sex inequality and lack of education, are notable drivers of social disadvantage and are underlying causes of NCDs).

With regard to cancer, above all, the situation in the South has quickly become dramatic due to a myriad of factors. Incidences of lifestyle-associated cancers are rising in developing countries as populations adopt diets and lifestyles associated with risks of cancer in high-income countries, without commensurate reductions in cancers elicited by preventable infectious disease (e.g., papillomavirus-induced cervical cancer) still occurring (Hanahan, 2013).

A cancer divide exists in incidence and mortality for all treatable or preventable cancers within and across countries. Cancer is a disease of both the rich and the poor, yet the poor bear a disproportionate share of preventable death, suffering, and pain (Farmer, Frenk & Knaul, 2010). Although low-income and middle-income countries account for almost 80 percent of the global cancer burden, they receive only 5 percent of global financial resources for the disease, which results in a "5/80 cancer disequilibrium" (Knaul, Gralow & Atun, 2012). Additionally, the weak health systems in low-income and middle-income countries are ill prepared to meet the challenge of cancer (Atun, Jaffar et al., 2010). Most infection-associated cancers occur in low-income and middle-income countries (Bray, Jemal, Grey, Ferlay & Forman, 2012) — these cancers disproportionately affect the poorest people who also have the most limited access to effective health care and financial protection. The global cancer divide can be understood through the lens of A-availability, B-urden, C-cost effectiveness and D-distributive justice, the "ABCD Determinants" (Sarin, 2010), or interwoven determinants of access.

**A-availability** of infrastructure, equipment, drugs, devices and human resources commensurate with the burden of disease is the key substrate on which cost-effective cancer care delivery models can be developed in a distributive justice system. In developing countries, the handicap of resource constraints is often made worse by poor planning, archaic local or government policies and little interest among multinational companies to promote low-cost drugs, devices and equipment. In the poorest of the countries, widespread non-availability of vital cancer care resources, including skilled manpower, renders discussions of cost effectiveness and distributive justice almost an academic exercise. It is hard to imagine that even in 21st century there are countries in the sub-Saharan Africa without a single radiotherapy machine.

**B-urden** of cancer, measured and reported in terms of its population incidence, prevalence, morbidity, mortality and socio-economic impact, gives social and political weight to greater resource allocation and the monitoring of national cancer plans. The high-income industrialized nations invested significant resources for this specific purpose and now have a comprehensive catalog of various facets of the cancer burden with reliable long-term time trends. The situation in Low- and Middle-Income Countries (LMIC) is very heterogeneous with majority of low-income countries having only cancer spectrum data or at best some sketchy population level cancer incidence data.

**C-cost effectiveness** of cancer care, not always taken into account while making national cancer plans, but turns out to be a key determinant of the reach and sustainability of cancer care measures. The spiraling cost of cancer management will increase disparities, become unsustainable even in affluent countries and cripple fledging cancer control plans in many LMICs. Only a few LMICs with expanding technological base and sustained economic growth like India, China and a few others have found some relief in low-cost generic cancer drugs and indigenous devices and equipment.

**Distributive justice** is an old social concept of fair distribution of limited resources. It assumes new meaning for the complex care required for cancer in a setting of growing disparities. Based on discussions of a group of experts convened by the Office of Minority Health, US Department of Health and Human Services at a conference to address healthcare disparities, Putsch and Pololi argue that the "American healthcare system has developed in a fashion that permits and may support ongoing, widespread inequities based on poverty, race, gender, and ethnicity. Institutional structures also contribute to this problem" (Putsch & Pololi, 2004).

In Britain, Wilmot argues that the National Institute for Health and Clinical Excellence (NICE) is failing to adequately explain and justify its decisions to the British public on which treatments should be provided by the National Health Service, particularly in terms of distributive justice. He argues that this failure arises from the fact that NICE works within the frameworks of positivist science and liberal ethics, largely to the exclusion of other perspectives (Wilmot, 2011).

These ABCD determinants play out in the real world to deny access to those who need it the most. Julian Tudor Hart called this the Inverse Care Law: "the availability of good medical care tends to vary inversely with the need for it in the population served." He added the law operates more completely where medical care is most exposed to market forces (Lancet, 1971).

With availability lacking, burden of disease rising, cost effectiveness losing and distributive justice begging, the stranglehold of the inverse care law will be hard to unshackle.
Conclusion

There is a global imperative to create and implement effective prevention strategies, because the future costs of diagnosis and treatment are likely to be unaffordable.

Prevention efforts for the priority NCDs (obesity and diabesity pandemics, neurodevelopmental and neurodegenerative diseases, cardiovascular diseases, cancer) generally focus on four, mainly adult, risk factors: poor diet, physical inactivity, tobacco use, and alcohol consumption. Conversely, an increasing amount of evidence suggests that developmental exposure to nutritional imbalance, environmental contaminants and maternal stress - all factors adversely influenced by poor social and economical situations - could affect epigenetic changes (foetal programming), playing a large and increasing role in this epidemiological transition. Poverty alleviation, sustainable food production and reductions in exposures to toxic chemicals are all key themes emerging from the Rio+20 UN Conference on Sustainable Development held in Rio de Janeiro (UN, 2012), Brazil, and the development of Sustainable Development Goals (SDGs) and appropriate environmental, nutritional and health indicators provides another opportunity to incorporate NCD prevention into broader, multi-sector programmes. The integration of NCD prevention with the attainment of the MDGs and SDGs could leverage major worldwide investments in health and development.

Looking to the near future, the occurring epidemiological transition raises a new specter of public health concerns: the implications of environmental, nutritional and lifestyle factors affecting not only our current condition but that of our descendants by heritably altering their epigenome are serious and demand greater consideration.

That is why early life interventions of primary prevention are urgently needed worldwide to reduce the risk of a transgenerational amplification of NCDs and cancer (Balbus, 2013).

References


Seven keys towards a paradigm shift in biomedicine: Environmental interference with the human genome and intergenerational equity


Chapter: 3


Chronic disease management from a lifestyle perspective: A critical commentary

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Abstract

Chronic disease is a "global burden," making great demands on health resources. Lifestyle factors including smoking, poor dietary habits, alcohol abuse and physical inactivity have been implicated in a range of chronic diseases including cancers, coronary heart disease, diabetes and more recently mental health and dementia. Middle- and low-income countries are disproportionately affected by this burden, significantly lowering life expectancy compared to high-income countries. NCDs are, however, understood to be preventable and behavioural risk factors have been consistently identified. Lifestyle management has become a key strand of current health policies and there is research interest in implementation of lifestyle management approaches and interventions to promote adherence to lifestyle changes. However, positioning lifestyle management as the 'magic bullet' fails to recognise the complexities of meaning, resources and networks that shape health behaviours. Specifically, this focus (1) ignores the constraints on personal responsibility of structural and material conditions and (2) distracts attention away from both the social determinants of health and the social processes underpinning the unequal distribution of these determinants. The paper concludes with proposals for the way forward.

Introduction

The increasing "global burden" of chronic diseases is well documented and a focus for action for the World Health Organisation (WHO) and increasingly for governments in low and middle-income, as well as high income countries. Particular attention has been paid to Coronary Vascular Disease (CVD), cancer, respiratory diseases, diabetes (WHO, 2010), termed Non-communicable Diseases (NCDs) but the definition of NCDs has been expanded to cover mental health and neurological conditions, including dementia (NCD Alliance, 2012), eye, renal and other diseases. The "burden" of NCDs includes death, long-term disability, and increased costs to individuals and families leading to greater poverty and social costs both in terms of health and social care provision and loss of productivity, threatening the achievement of Millennium Development Goals (WHO, 2011). Middle- and low-income countries are disproportionately affected, significantly lowering life expectancy compared to high-income countries (WHO, 2010). NCDs are, however, understood to be preventable and behavioural risk factors have been consistently identified - tobacco use, physical inactivity, obesity, alcohol abuse. Without any changes in these risk factors the burden of chronic disease is expected to grow: by 15 percent globally, and in middle and low income countries by more than 20 percent by 2020. The association between behavioural risk factors and chronic diseases has, therefore, led to political and social investment in lifestyle management as a key intervention to reduce exposure to health risks.

This paper explores the underpinning rationale for this approach and examines the key themes relating to the evidence for lifestyle management. The problems with the dominance of this approach are explored in terms of (1) the constraints on personal responsibility of structural and material conditions and (2) distracting attention away from both the social determinants of health and the social processes underpinning the unequal distribution of these determinants. The paper concludes with proposals for the way forward, to give greater emphasis to structural inequalities and understanding of the social processes that reinforce them. Global Health Equity Foundation (GHEF) has a critical role to play in advocacy and education that critically examines global policy in this area, and in promoting research and action to address the patterns of social inequality underpinning inequalities in the presentation and treatment of chronic diseases.

The global "burden"

The mortality rate attributed to NCDs is increasing, with 63 percent of all deaths in 2008 as a result of NCDs and
80 percent of these occurred in low- and middle-income countries, which have the highest proportion of deaths for people under the age of 70 from these causes (WHO, 2010). Whilst the NCDs identified in the 2010 WHO report are physical illnesses - cardiovascular diseases, cancer, diabetes and chronic respiratory diseases – global increases in mental health problems have also been identified as a major contributor to the global burden of illness, particularly dementia and depression (WHO, 2012a; WHO 2012b). As well as increased mortality, the weight of this burden is experienced at an individual level as long-term disability, associated with unemployment and increased health and care costs, resulting in poverty and a poorer quality of life, and at a societal level as increased and potentially unsustainable costs to health care systems and, therefore, as a significant barrier to social and economic development (NCD Alliance, 2012).

In its 2010 report, the WHO identified the leading NCD risk factor globally as raised blood pressure (accounting for 13% of global deaths), followed by tobacco use (9%), raised blood glucose (6%), physical inactivity (6%) and overweight and obesity (5%). These risk factors often co-exist and underpin more than one of the NCDs and are also associated with mental health conditions and dementia, alongside other factors. For example, cardiovascular risk factors and physical inactivity are implicated in the etiology of dementia (WHO, 2012; see Heginbotham & Newbigging, 2013 for further discussion). Studies have consistently identified a pattern of lifestyle choices underpinning increased mortality and morbidity from NCDs: an unhealthy diet, lack of physical exercise, tobacco use and harmful alcohol use. It is also important to note, however, that occupational and environmental factors have been identified in low- and middle-income countries in relation to increasing the risk for all cancers, all except cancer of the oesophagus: for example, chronic infections such as the HPV virus. The case for reducing these lifestyle risks and, thus, the individual and collective burden is, therefore, compelling.

**Promoting healthy lifestyles**

The effort for reducing risks arising from lifestyle patterns has been on changing health-related behaviours and attitudes and/or structural barriers and facilitators at an individual and/or population level (Jepson et al, 2010). Thus policies typically included a mix of upstream interventions to change the environment so that health-risking behaviours are prevented and health-promoting behaviours facilitated - as with smoking bans - and downstream interventions to identify and target those whose behaviours put them at risk through targeted programmes and the promotion of healthy lifestyle messages.

**Figure 1: Examples of upstream and downstream approaches to lifestyle management and behaviour change (Adapted from Jepson et al, 2010)**

- Regulation: taxation and restriction on use of tobacco, alcohol and marketing
- Reducing salt content of food and accurate food labelling
- Dissemination of information about health risks – smoking, alcohol abuse, etc
- Social marketing campaigns to promote awareness of behavioural changes for health promotion
- Individual and group support for behaviour change
- Community level interventions e.g., community programmes for physical activity and healthy diets and development of environments to support healthy lifestyle changes
- Screening, early intervention and management e.g., effective management of diabetes

Personal responsibility for health, exercised though lifestyle choices, provides a central discourse for health policy and the introduction of lifestyle programmes and promotion of healthy lifestyle messages at a community and population level and have been enthusiastically adopted by government agencies, particularly in high-income countries, to promote individual behaviour change. Personal responsibility for health is predicated on rational choice, individualism and libertarian egalitarianism with poor choices typically framed as lack of awareness and understanding of the risks of particular lifestyle choices (Cappelen & Norheim, 2005) with increased awareness and education as the solution, providing the focus for lifestyle interventions. Underpinning this is the conceptualisation of health as an achievement: a feature of late modernity, associated with increasing privatisation, information technology and lifestyle cultures (Cockerham, 2005). It positions the individual as a health consumer. This is reflected in the marketing strategies of global companies (as illustrated by Figure 2) to further their commercial interests in low- and middle-income countries, which are unlikely to be synergistic with reducing the identified risks.

**Figure 2: An illustration of lifestyle messages to promote commercial interests**

PepsiCo India launched its first ‘health conscious’ cafe outlet in the southern city of Chennai. The Smart Choice Cafes offer a variety of products: Quaker muffins, Tropicana 100% smoothies and coconut mint mocktails, all billed as healthy alternatives to conventional food choices. The company has tied up with the Centre for Nutrition Counselling, Research and Extension Activities at Women’s Christian College, Chennai and has set up the first such cafe on its campus, with plans to launch similar outlets in other cities in a bid to ‘promote good nutrition and healthy lifestyles.’

(Source: Kumar, 2010; www.psfk.com)
Evidence-base for lifestyle interventions

Alongside the issues raised above, the evidence for the promotion of healthy lifestyle behaviours is promising, although the bulk of this comes from high-income countries (Shroufi et al., 2013). For example, a recent systematic review of lifestyle factors and mortality found that those with a combination of at least four healthy lifestyle factors showed a reduction of 66 percent in all-cause mortality compared with those with an unhealthy lifestyle (smoking, excessive alcohol use, physical inactivity and unhealthy diet or obesity) (Loef & Walach, 2012). Jepson et al. (2010) undertook a review of over 100 systematic reviews, commissioned by the UK National Institute of Health and Clinical Excellence (NICE) to identify effectiveness of lifestyle interventions to change existing patterns of behaviour relating to smoking, physical activity, diet, heavy alcohol use, substance abuse and sexual risk taking. Nearly half of the studies related to smoking, and Jepson and colleagues found that the interventions that were most effective across a range of health behaviours were individual counselling or physician advice and workplace or school-based interventions. Mass media and legislative interventions were found to be moderately effective. Overall, the evidence related to short-term effects, raising questions about the sustainability of the behavioural changes achieved through stop smoking, physical activity and healthy eating programmes.

These and similar reviews highlight a range of methodological problems that raise substantive questions about this evidence base and its uncritical translation from high-income to low- and middle-income countries. First, the quality of studies is variable, as noted in a meta-analysis of interventions to reduce blood pressure in low- and middle-income countries (Baena et al., 2014). Second, there are more reviews evaluating interventions at an individual level than a community level (Jepson et al., 2010). Third, few studies have considered the contribution of socio-economic determinants to the success of the interventions studied (Jepson et al., 2010) with studies often lacking details on participants, settings or socio-economic status (Blaxter, 2007; Laws et al., 2012). Therefore, questions relating to the meaning of specific lifestyle behaviours or the proposed interventions or the contextual factors that may influence access to the programmes, adherence and long-term sustainability of behaviour change, are left unaddressed. Fourth, the exposure to risk factors begins early in life as noted in the review by McEniry (2014), which found a strong association between early life environment (low socio-economic status, poor childhood health including specific childhood illnesses, nutritional status) and adult mortality and morbidity related to NCDs, but the majority of studies focus on lifestyle interventions in adulthood. Finally, studies are typically designed to demonstrate an effect but not the mechanisms by which this is achieved. The existing studies often lack details on the components of interventions and therefore, it is often unclear how the intervention brought about the behaviour change, limiting the potential for generalisability in different contexts (Mitchie et al., 2009). Indeed, the absence of this detail alongside that of participants and context hinders successful implementation as it is unclear which components are effective, under what conditions and in which circumstances.

The gaps in the evidence base and limitations noted above sound a note of caution in terms of the translation of lifestyle management interventions to low- and middle-income countries. Furthermore, a number of studies have pointed to the central role played by meaning and cultural context in understanding and adoption of the recommended behaviour change. For example, a comparison of the illness beliefs and lifestyle changes of South Asian and European coronary patients in the UK identified that causal attributions and the adoption of lifestyle behaviour changes were influenced by cultural priorities, religious beliefs and gender (Darr et al., 2009). Other studies have identified the interaction between material resources, caring responsibilities and the influence of socio-economic status on health beliefs and lifestyle changes reflecting differences in life opportunities and exposure to material hardship across the life course (see for example Wardle & Steptoe, 2002; Graham, 1995).

Lifestyle drift

Personal responsibility for health, for example by not smoking, exercising and eating a good diet, is coupled with rights in a policy discourse that emphasises personal agency. This positions individuals as agents, able to act and take responsibility but in doing so makes assumptions about their personal values and capacity (i.e. knowledge, time, motivation) and resources (money for healthy food and exercise), access to good quality food, open spaces or leisure facilities and high quality health care. The consequences of this are not politically neutral and can be interpreted as shifting the burden of responsibility from governments to individuals for the failure to make the ‘right choices’ or exercise willpower, i.e. failures of rationality such that those with long-term life-limiting conditions are then blamed (Dawson & Morris, 2004; Sassi & Hurst, 2008). The translation of this in health policy terms is the potential for those with poor health, apparently as a consequence of risky behaviour, being deemed ineligible for health treatment. This is a particular risk in a context of limited or shrinking resources, as illustrated by the debate about liver transplants for people who consistently abuse alcohol in the UK and access to specific treatments under Medicaid in the US (Steinbrook, 2006).

The focus on behaviour at an individual level has, however, been widely and consistently critiqued. First, for detracting attention away from the socio-economic determinants of poor health, namely income, education and living and working conditions, as recognised by the WHO (2010, p. 2):
People of lower social and economic positions fare far worse. Vulnerable and socially disadvantaged people get sick and die sooner as a result of NCDs than people of higher social positions; the factors determining social positions are education, occupation, income, gender and ethnicity. There is strong evidence for the correlation between a host of social determinants, especially education, and prevalent levels of NCDs and risk factors.

Second, for its contribution to deepening inequalities between social groups. As Hilary Graham points out, it is not only the social factors that promote or undermine the health of individuals and populations but also the social processes that are at the root of their unequal distribution (2004), for example: access to lifestyle programmes reflecting educational and social advantage, thus increasing the gap between the health of those in high and low-income groups. So, not only do those communities that have persistently experienced social disadvantage or discrimination experience worse health or greater health risks than more advantaged social groups but the social gradient1 between these groups is an ongoing dynamic that contributes to poorer health for the whole population (Wilkinson & Pickett, 2009; Wilkinson & Pickett, 2010). Social inequalities, therefore affect everyone (Wilkinson & Pickett, 2010; WHO, 2014).

A fundamental global challenge is that health policies that start with the intention of addressing social determinants typically regress to a focus on individual behaviour (Graham, 2009). In a background to the Marmot Review, Hunter et al. refer to this as 'lifestyle drift':

[The tendency for policy initiatives on tackling health inequalities to start off with a broad recognition of the need to take action on the wider social determinants of health (upstream), but which, in the course of implementation, drift downstream to focus largely on individual lifestyle factors. Coupled with this is a drift away from recognition of the social gradient towards plans for action that target the most disadvantaged. (2009, p. 3)"

It is easy to see why this happens, as downstream interventions may be “intuitively easier to devise” (Exworthy et al., 2006, p. 82) and consistent with the dominant interests of politicians and health professionals. Tackling preventable social inequalities requires action to improve life chances and addressing inequalities in income, housing, educational, occupational and environmental conditions. The solutions are complex and dependent on political leadership that promote inter-sectoral cooperation, tailored to the particular demographic, political and cultural context. The translation of policy into practical action is never an easy task and the conception of the required change expressed in policies often reflects a linear and rational progression from evidence to implementation, based on an incomplete understanding of the barriers to effective implementation and the recursive nature of the policy process.

Chronic diseases and the equity challenge: implications for advocacy and education

The available data on chronic diseases (i.e. NCDs and mental health problems leading to long-term health problems) indicates that both the distribution and impact of NCDs are inequitable, imposing a greater burden of low-income and middle-income countries (WHO, 2010). These inequities reflect well documented economic and social disadvantages, including poverty, environmental conditions, exposure to occupational hazards and restricted access to health and social care. In this paper, I have argued that the uncritical adoption of lifestyle management in policy by governments as the solution to preventing NCDs is, profoundly problematic not least because of difficulties with the evidence on which this is based, and incomplete understanding of implementation, but because it can serve to distract attention away from the inequitable distribution of social determinants and underpinning social processes that lead to some populations experiencing worse health outcomes. A dominant focus on lifestyle management interventions at an individual and community level is, therefore, far too narrow in the context of the social, economic and environmental challenges faced by the global population.

Preventing the lifestyle drift in global health policy requires action on a number of fronts. First, adopting a life course approach to health that requires improvements in childhood health and life chances as a basis for reducing mortality and morbidity from NCDs. Second, advocating for a shift from lifestyle management to structural and material inequalities to be at the heart of global health policies on NCD. Third, regulation and legislation to promote healthy environments and to limit the power of commercial companies to promote health-damaging products through global compacts (see Magnusson, 2009 for example). Fourth, funding of preventive programmes that increase public awareness of the links between social disadvantage and poor health, and empower communities to take action on lifestyle management. Finally, there is a clear need for research that develops a better understanding of population and community-level interventions to address the global equity challenge not only in relation to NCDs, including mental health and dementia.

1 Social gradient refers to the difference between the social status of those in high-income groups and those in low-income groups. The social gradient in health refers to the difference in health between low-income groups and high-income groups with universal action needed to reduce the gradient and not solely targeting the most disadvantaged (Marmot, 2010).
Conclusions

Addressing the global health equity challenge has major implications in terms of reframing health policy so that personal agency is understood as inextricably related to social structures and the distribution of social advantage. It is unlikely that health policies that emphasise personal responsibility and lifestyle management will achieve a sustainable reduction in the global burden of chronic diseases. Governments need to sustain their focus on the herculean task of addressing inequities across the major life domains of income, education, housing, employment, and access to health and social care.

The Global Health Equity Foundation (GHEF) has a key role to play through challenging the uncritical adoption of lifestyle interventions as a solution to the global equity challenge in relation to chronic diseases through advocacy and education. Further exploration of the opportunities for governments to sustain a focus on health inequities is needed coupled, with attention to community-level facilitators and action. GHEF also has a significant role to play in advocating for research that is grounded in a developed understanding of the social determinants of health. Sustained, multi-faceted action is, therefore needed, by those committed to the vision of health for all.

References


Lifestyle-Related Chronic Diseases: What are the equity challenges and how to address them?

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Abstract

Lifestyle related chronic illnesses among vulnerable populations are particularly challenging to address given their dual causal relationship with poverty: the poor are more likely to suffer from lifestyle related chronic diseases due to a lack of access to health care, healthy foods, education etc. In turn, those with chronic diseases are more likely to become impoverished from private medical expenditure. In addition to impoverishing effects on households, lifestyle-related chronic disease and the resulting social exclusion have widespread macroeconomic impacts on a country’s productivity, employment and Gross Domestic Product (GDP). Due to the inherently interrelated nature of poverty and lifestyle-related illness, the most appropriate vehicle to address such inequities is to encourage coherent and coordinated policies within and across the health, social and economic sector with a view to address the root causes of inequities. ILO Recommendation 202 (2012) concerning National Floors of Social Protection (SPFs) provides related guidance for governments.

Introduction

Although social health protection coverage has recently undergone encouraging expansion in some countries, major inequities still affect the financial and health status of vulnerable groups, particularly the chronically ill. Lifestyle related chronic illnesses among vulnerable populations are particularly challenging to address given their dual causal relationship with poverty: the poor are more likely to suffer from lifestyle related chronic diseases due to a lack of access to health care, healthy foods, education etc. In turn, those with chronic diseases are more likely to become impoverished from private medical expenditure. In addition to impoverishing effects on households, lifestyle-related chronic disease and the resulting social exclusion have widespread macroeconomic impacts on a country’s productivity, employment and Gross Domestic Product (GDP). Due to the inherently interrelated nature of poverty and lifestyle-related illness, the most appropriate vehicle to address such inequities is to encourage coherent and coordinated policies within and across the health, social and economic sector with a view to address the root causes of inequities. ILO Recommendation 202 (2012) concerning National Floors of Social Protection (SPFs) provides related guidance for governments.

What is the role of poverty in lifestyle-related diseases?

Lifestyle-related chronic diseases such as type-two diabetes, asthma, heart disease, and obesity are becoming increasingly common worldwide. These diseases are correlated with unhealthy behaviours such as physical inactivity, tobacco use, alcohol consumption, and unhealthy diets including excess fat, sugar, and salt. Such behaviours, while frequently assumed to be associated with affluence, are in fact closely related to low incomes and poverty. Both impact a wide variety of health behaviours, as the poor e.g. are less likely to have access to healthy food and the opportunity for physical exercise. The poor are also less likely to have access to education providing information on the health risks associated with unhealthy diet, tobacco use, and alcohol consumption. As a result, we find a significant correlation between low income, poverty, and increased rates of lifestyle related chronic diseases.

Current observations corroborate the fact that the incidence of many lifestyle related diseases is greater among the poor. For example, Figure 1 (see next page) illustrates the results of a study of chronic disease and income in India. At the focus were five chronic diseases associated with lifestyle: angina, hypertension, asthma, vision problems, and depression. The incidence of four of these diseases was highest within the lowest income quintile (Sukumar Vellakkal, 2013).
Similarly, data from Europe demonstrate a positive association between poverty and long-term illness – an indicator of chronic disease. In the European countries observed, the prevalence of long-term illness was higher among the lowest income quintile compared with the highest (EUROSTAT, 2011). This data for selected European countries is demonstrated in Figure 2.

**How does chronic disease influence household poverty?**

Due to an increased, long-term need for health services and medications among those who are chronically ill, lifestyle-related chronic diseases have a negative effect on a household’s financial status. For the chronically ill and their families, expenditure on necessary health care can have an impoverishing effect, particularly for those who are already very close to the poverty line. When those with chronic diseases do not have adequate social health protection, payments for health services and medications must be made directly through out of pocket (OOP) expenditure. OOP expenditures are - due to their regressive nature - “a major factor leading to, maintaining, and sharpening poverty” and inequities (ILO, 2010), particularly in their worst form, “catastrophic health expenditure,” defined as exceeding 40 percent of a household’s income net of subsistence expenditure (ILO, 2010).

OOP can have devastating impacts resulting in increased or deepened poverty, particularly for people suffering from lifestyle-related chronic diseases. In China, a 10.5 percent increase in poverty measures for those with chronic disease was observed after medical payments, as opposed to a 5.1 percent increase for those without chronic illness (Jiang et al., 2012). These poverty impacts sharpen the existing economic divide between those with lifestyle-related chronic disease and the non-chronically ill. This is illustrated in Figure 3 (see next page).
Similarly, in the United States, observations show that OOP is substantial for people with chronic disease in all income groups compared with those without chronic disease and OOP is even twice as high in the lowest income group compared with the expenditure of those without chronic disease (Figure 4). Additional observations from the United States, illustrated in Figure 5 (see next page), demonstrate that OOP for chronic disease increases significantly with age, putting the elderly with one or more chronic diseases at greatest risk of impoverishment. This effect is intensified by the fact that the older workers are more likely to be unemployed due to perceived or actual inability to continue working (Scheil-Adlung, 2013) and thus, many older workers with lifestyle-related chronic diseases will lack the income to afford the increased out of pocket spending.

The extent of the income impact and impoverishment due to lifestyle related chronic disease on household wealth is dependent on the coverage of the vulnerable by social health protections. Legal coverage or affiliation to a health system or scheme is a prerequisite for reduced or no OOP. However, even where rights-based approaches exist, OOP might occur due to limited benefit packages that exclude needed treatments for chronic diseases, low quality of such treatments that force the vulnerable to seek care elsewhere or gaps in the availability of care due to absences in the health workforce.

The extent of legal coverage in social health protection and OOP is demonstrated for selected African countries in Figure 6 (see next page). As we can see in some countries even with high levels of legal coverage, OOP reaches more than 50 percent of total health expenditure, as is the case in Mauritius.

It should be noted that these data reflect OOP only in cases in which private health expenditure did not pose a complete barrier to accessing needed health care. In some cases, however,
OOP is prohibitively high and thus prevents patients from even accessing health services or medication, leading to worsened health status and, as a result, further inequities.

**Macroeconomic impacts: How do lifestyle-related chronic diseases impact productivity?**

In addition to the observed effects on poverty, the existence of lifestyle-related chronic disease has a profound impact on employment and productivity within a country. Chronic disease is often associated with higher rates of absenteeism, reduced working hours, and, for some, may act as a barrier to becoming employed. In addition, given the impact on labour supply, chronic diseases ultimately have a negative impact on national employment rates, productivity, and GDP.

An example is Egypt, where approximately 25 percent of the working age population suffers from chronic disease. On average, chronic disease and disability reduce the probability of being employed by 25 percent. Among the employed with chronic disease the amount of hours worked was reduced to between 7 and 22 hours per week, compared to a full 40 hour week of workers without chronic disease. On a more general scale, estimates indicate that the aggregate labour supply in Egypt is 19 percent lower due to chronic diseases. This results in large productivity reductions and impacts on the GDP, which is estimated to be 12 percent below its potential due to chronic disease (World Bank, 2011).

This indicates inequities for those with chronic diseases, but also worsens existing health and employment inequities. In addition, the employment effect in itself is distributed inequitably, with a much greater impact on the elderly, less educated, and informal workers.

As lifestyle-related chronic diseases increase, particularly among the poor, it is important to consider the economic impact of such diseases as well as the
root causes of the increase. National social protection floors, which address these causes both within the health sector and beyond, can help to address these root causes to ultimately increase equity, health, productivity, and wealth.

What are the equity challenges?

Deficits in social health protection coverage are resulting in inequities in access to health care and can be considered as the key causes of health-related impoverishment due to lifestyle-related chronic diseases. In the absence of rights-based approaches that guarantee access to at least essential health care, OOP regularly occurs, as shown above.

Additional gaps in social health protection, rooted in deficits in the density of the health workforce and underfunding of health care systems, further challenge equitable access to health care for people with chronic diseases (Scheil-Adlung, 2013). This includes gaps in adequacy of benefits, both in terms of scope and quality that might be unavailable.

The situation is worsened by problems beyond the health sector related to existing inequities in race, gender, age, labour market position, income and poverty, and informality of the economy resulting in no or low coverage in social health protection.

Against this backdrop, it is imperative to address root causes of inequities both within and beyond the health sector through coherent and coordinated policies that prioritise closing gaps in social health protection and poverty alleviation.

What policies can be used to address the challenges?

Recognizing the dual causal relationship between poverty and disease, policy recommendations to decrease rates of lifestyle-related chronic diseases should call for coherence between the health and socio-economic policies. National floors of social protection, as outlined in ILO Recommendation 202, emphasize the need to create related policies. They aim at developing and maintaining basic guarantees to access at least essential health care and income support for all in need. Essential health care should meet the criteria of availability, accessibility, acceptability, and quality without financial hardship.

When creating national health floors, the principles of universality, entitlements by law, adequacy, equity, and fair financing should apply. More generally, governments, employers, and employees should work together to facilitate the implementation of formal social protection schemes.

These policies should be complemented by income support provided through social protection schemes and systems for all in need, particularly the poor, disabled and elderly, but also the unemployed and children.

National floors of social protection should be implemented with a view to create policy coherence across sectors. This includes emphasising on poverty alleviation in developmental policies, coordination of health and social protection policies e.g. with labour market policies, and transforming informal into formal labour markets.

Further, it is important to provide vocational training for the chronically ill and eliminate barriers to employment such as discrimination. These approaches should be combined with policies that could alter unhealthy behaviours that contribute to lifestyle-related chronic disease, e.g. through education, access to healthy food, and regulation of tobacco and alcohol.
References


The Recent Global Crisis and Social Health Protection: Addressing inequities in access to health care through national social protection floors

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Abstract

Unprecedented in scale since the Great Depression, the impacts of the global financial crisis were felt fiercely in the fourth quarter of 2008 and in 2009, when the global economy contracted by 0.5 percent. The crisis - started by failures of the financial markets in the United States - transformed into a deep economic recession with major implications for economic development, labour markets and social (health) protection systems. Additionally, the financial crisis had been preceded by significant rises in food and fuel prices, which particularly strained vulnerable households. In times of crisis and beyond, social protection is a key instrument in mitigating the adverse effects of life cycle risks and thus preventing poverty. It also has an important function as an economic stabilizer and can contribute to faster recovery after an economic recession. The following assessment of multi-level socio-economic impacts of the crisis sheds light on the key role of social health protection in that context, and highlights the concept of social protection floors as a proposed means to tackle root causes of inequities in access to healthcare and contributing to universal coverage in social health protection.

Introduction

Socio-economic impacts of the recent global crisis

Unprecedented in scale since the Great Depression, the impacts of the global financial crisis were felt fiercely in the fourth quarter of 2008 and in 2009, when the global economy contracted by 0.5 percent (Bonnet, Saget, & Weber, 2012). In that year, the GDP in European countries fell on average by 4.3 percent with losses ranging from 1.9 percent in Cyprus to 17.7 percent in Latvia (EUROSTAT, 2013). Growth in developing and emerging economies was halved in that same year.

Started by failures of the financial markets in the United States, the crisis transformed into a deep economic recession with major implications for economic development, labour markets and social (health) protection systems. In European countries, it exposed an ongoing financial sovereign-debt related crisis and led to additional austerity measures still in effect that also affect the health sector (Karanikolos et al., 2013).

The financial crisis had been preceded by significant rises in food and fuel prices, which particularly strained vulnerable households, such as the poor, the landless, female-headed households and net food buyers (Ruel, Garret, & Cohen, 2013). Prices rose at least 50 percent above the average of the pre-crisis period, such as in Zimbabwe, where maize prices went up by 36 percent between October 2009 and February 2010 (United Nations [UN], 2011). Together with rising fuel prices, this “triple F” crisis put substantial strains on the population, both in developing and developed countries.

In times of crisis and beyond, social protection is a key instrument in mitigating the adverse effects of life cycle risks and thus preventing poverty. It also has an important function as an economic stabilizer and can contribute to faster recovery after an economic recession (International Labour Organization [ILO], 2010). This was confirmed in an analysis of country responses: those countries with comprehensive social security systems in place were also those best able to diffuse the crisis’ impacts (International Social Security Association, 2012). The following assessment of multi-level socio-economic impacts of the crisis sheds light on the key role of social health protection in that context.

At the household level

The recent economic crisis affected households on multiple dimensions: incomes declined due to job losses or partial unemployment and, at the same time, household expenses increased due to price hikes. The impact of unemployment on household income...
was largely dependent on the social protection system in place providing income support and access to basic social services, such as healthcare. Data from Central and Eastern Europe shows that in countries like Bulgaria over 35 percent of workers were directly affected by the crisis through job losses or reduced earnings (World Bank, 2011). The rise in unemployment was accompanied by gaps in social health protection since breadwinners and their families lost access to employer-based health insurance schemes. In countries with no available income support, workers suffered from severe income reductions.

When facing budget constraints, households need to set priorities for expenditure and reduce demand for one or several goods and services. During a crisis, price hikes for staple goods and services particularly affect the poor and low-income groups in society, as they are less flexible in readjusting expenditures. Subsequently, demand for health services and utilization declined. Assuming that unemployment is conducive to deteriorated physical and mental health, it becomes fairly obvious that medical visits are foregone by those affected by the crisis. In 2010, the International Labour Organisation (ILO) warned that the crisis would result in lower global health and increased mortality rates as long as gaps in social health protection remained open (ILO, 2010).

**Fig 1: Reduction in working hours, wage rates and employment 2007/9 (8)**

![Graph showing reduction in working hours, wage rates and employment](image)

- **Job Loss**
- **Reduced earnings working same or more hours**
- **Reduced earnings working less hours**

For example, in Bulgaria, Montenegro, and Romania:
- Job Loss: 15.0%, 15.4%, 2.7%
- Reduced earnings working same or more hours: 5.1%, 2.2%, 5.3%
- Reduced earnings working less hours: 6.7%, 2.5%, 12.6%

An economic crisis situation puts social protection systems under a double burden: tax revenues as a main funding source decline and a crisis-induced rise in unemployment leads to higher demand for income replacement and social assistance. The most vulnerable groups of the population – workers in the informal economy, the poor, women, children and the elderly – are those most affected by a crisis, with rising poverty levels, loss in income and low access to income support and health services (ILO, 2010) that could cushion the impact of the crisis. Resource constraints in developing countries were sharpened as foreign aid through official development assistance from high-income countries did not match the need for greater expenditure.

Between 2007 and 2009, an estimated 27 million jobs were lost globally and unemployment rates in the most affected countries rose from an average 5.5 to 8.3 percent (ILO & World Bank, 2011). In addition to the surge in unemployment, many people, both in the formal and the informal economy experienced cuts in their working hours or reduced income creating new, ‘working poor’ households. As a result of the crisis, an estimated 100 million additional individuals worldwide slipped into poverty (Bonnet, Saget, & Weber, 2012), leading to rises in national poverty levels. In Egypt, the share of the poor increased from 19.6 percent in 2004-5 to 21.6 percent in 2008-9 (Saget & Yao, 2011). Tax revenues declined as a consequence of the contracting economy and the rise in unemployment, which reduced tax and payroll contributions and also affected the social (health) protection system. Growing inequities within societies were a major consequence of the crisis as it exacerbated existing vulnerabilities. Employment adjustment measures mostly affected workers in vulnerable conditions, such as temporary contracts, low-skilled people and youth: evidence from Spain shows that 90 percent of employment losses concerned temporary workers (Baughan-Whitehead, 2012). Furthermore, low-paid workers as a share of the working population increased. Considering that inequalities in society are a key root cause for inequities in access to healthcare, governments and households likewise were confronted with an increasing population share without effective social health protection coverage.

**At the national level**

An economic crisis situation puts social protection systems under a double burden: tax revenues as a main funding source decline and a crisis-induced rise in unemployment leads to higher demand for income replacement and social assistance. The most vulnerable groups of the population – workers in the informal economy, the poor, women, children and the elderly – are those most affected by a crisis, with rising poverty levels, loss in income and low access to income support and health services (ILO, 2010) that could cushion the impact of the crisis. Resource constraints in developing countries were sharpened as foreign aid through official development assistance from high-income countries did not match the need for greater expenditure.

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The Recent Global Crisis and Social Health Protection: Addressing inequities in access to health care through national social protection floors

National policy responses

The global financial and economic crisis can be classified as an external shock to the health system and confronts policymakers with challenges of low revenue predictability, increased need for health services and issues of inequities, low financial protection and the quality of care (Mladovsky et al., 2012). Falling revenues and rising expenditures required policy responses with possible undesirable impacts on social health protection coverage (ILO, 2010). Social protection expenditure is designed to work in a counter-cyclical manner and thus can act as economic stabilizer on the household and the national level. However, the severity of the financial crisis led many governments to apply a reallocation of funds and partly austerity measures with direct effects on health systems. As the share of the unemployed and working poor increased during the crisis, programs targeting access to healthcare for the chronically poor may get undermined and underfunded.

With regard to social health protection, policy response varied, ranging from severe austerity measures in social health protection systems to stable or even increasing benefit packages and coverage of the poor. On the one hand, an ILO country review shows the extension of health coverage1 in many middle- and high-income countries to vulnerable groups, such as Egypt, Pakistan and the United States. On the other hand, cuts in budgets available for social health protection coverage were widely proposed as part of general cuts in the public spending both in developed and developing countries (ILO, 2010), resulting in reductions in health workforce (see Figure 2 for Estonia) and infrastructure as well as reductions in the covered benefit package.

Compared to other sectors, cuts in health budgets were relatively mild, being lower than GDP decline. For contributory schemes however, governments tended to shift the burden of contributions to social health protection towards the employee. Such measures aimed at faster recovery through relieving a burden from employers but contribute to reduced access to healthcare for low-income groups.

Resulting inequities in access to healthcare and the role of social health protection

Effective access to healthcare is the core precondition of universal coverage in social health protection. While legal coverage through legislation and affiliation to a scheme needs to be ensured, effective access has further dimensions: it needs to be granted physically through accessible quality health service centres with an available health workforce and medications, services need to be affordable and provide financial protection to those in need (Scheil-Adlung & Bonnet, 2012). Equity in access to healthcare ensures that the same quality services are available and affordable to all groups of the population, thus avoiding deprivation of socio-economically vulnerable groups in accessing healthcare.

The recent crisis made governments take austerity measures that also affected health budgets and thus impacted effective coverage through social health protection. Analysis of past economic crises showed that crises lead to a decrease in access to healthcare and coverage, particularly for vulnerable groups, increasing inequities in access to healthcare (ILO, 2010).

In order to understand the impacts of economic crises on access to healthcare and the consequences of increasing inequities, influencing factors within and beyond the health sector need to be considered (see Table 1 - next page).

So far, the research focus on impacts of economic crises on health was placed on health outcomes, such as the relation between unemployment and mental and physical health. Research on impacts on health system social health protection systems has been conducted only recently and with inconclusive results (Karanikolos et al., 2013). This may be due to the traditionally “narrow” perspective that focuses on the health sector itself. However, a broad and holistic approach is needed to give due respect to the root causes of inequities, contributing to an embedded perspective.

Contributing factors beyond and within the health sector are closely interlinked and influence each other. Gaps in these dimensions lead to a vicious cycle in which poverty and informality as root causes reduce access to healthcare. Vice versa, poverty and vulnerable employment are affected by depleted health, foregone treatment and impoverished population due to

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1 It can be assumed that related to issues of data availability, “coverage” refers to legal affiliation to social health protection schemes.
Chapter: 6

Key issues resulting in inequities in access to healthcare

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<th>Factors within the health sector</th>
<th>Factors beyond the health sector</th>
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<td>Socio-economic factors</td>
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<td>Poverty</td>
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<td>Out-of-pocket payments, transport costs</td>
<td>Labour market position (informality)</td>
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<td>Availability</td>
<td>Gaps in income support</td>
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<td>Absence of health workforce and infrastructure</td>
<td>Policy coordination</td>
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<td>Constrained benefit package</td>
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<td>Financing and resource generation</td>
<td>Gaps in social protection (income support)</td>
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<td>Individual biographies</td>
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A household incurs catastrophic health expenditures. An economic crisis can act as a trigger to set this cycle into motion as will be illustrated in the following sections.

Contributing factors within the health sector

As response to the crisis, austerity measures were implemented, which also affected budgets for social health protection. In Europe, cuts in health budgets were not put into place at the initial stage of the crisis, neither in the scope nor in the depths of coverage (3). However, as the crisis tightened, 50 percent of EU member states introduced user fees in order to control utilization among the population and decrease cost. There is widespread consensus that user fees or out-of-pocket payments (OOP) adversely affect the utilization and affordability of health services, particularly for the poorest strata in society (Lagarde & Palmer, 2011). OOP are thus impeaching on the core principles of equity, solidarity and social justice in a social health protection system. In the case of Portugal, co-payments for primary care and emergency visits in primary and secondary care rose by over 100 percent (see Figure 3) in only one year, a measure that was carried out within the austerity measures imposed by the Troika. Further measures encompassed reductions in the benefit package or reductions in the scope of coverage.

If access to healthcare is not affordable to everyone in need, the risk of impoverishment through health expenses increases at a quick pace and further consolidates the linkage between the share of OOP in total health expenditure and national poverty levels.

Budgetary reductions in the health sector also affect the availability of healthcare through reductions in staff, shortages of medical supplies and hospital budget cuts of up to 40 percent, such as in Greece (Kentikelenis, Karanikolos, Papanicolas, Basu, McKee, & Stuckler, 2011).

Through the ILO Staff Access Deficit Indicator (ILO SAD) (Scheil-Adlung, Gonnet, & Ayangbayi, 2010), gaps in availability of healthcare services can be measured. It uses the difference between the national density of staff per population and the median value of low-vulnerable3 countries. This indicator suggests that a third of the world’s population has no access to healthcare because of deficits in availability of health workforce. Austerity measures involving reduction in staff contribute to foregone treatment among a larger share of the population.

Within a national economy, the health sector itself can be an important stabiliser in economically difficult times. Data collected during the 2007-2009 recession in the United States shows that employment in the health sector was relatively robust when compared to other economic sectors (Wood, 2011). This corresponds to observations of the Organization for Economic Cooperation and Development, stating that health and social sectors experienced fewer layoffs than other economic sectors.

Contributing factors beyond the health sector

Root causes of inequities in access to healthcare are found beyond the health sector and comprise poverty, employment conditions, and unemployment as well as policy coherence. While these factors are not solely crisis-induced, they are intensified through the impacts of an economic crisis.

Poverty

In low-income countries, access to healthcare is much lower than in high-income countries and is even scarcer among the poor and vulnerable. Lack of access to healthcare can initiate a vicious cycle of foregone treatment, deteriorated health, lost income and higher health expenses, contributing to deeper poverty (Peters, Garg, Bloom, Walker, Brieger, & Rahman, 2011). A comparison of countries grouped by poverty levels and their respective coverage in social health protection reveals a strong correlation of the two factors (see Figure 4): in countries with more than 75 percent of the population living below the poverty line only 10 percent of that population is affiliated with health protection schemes (ILO, 2010).

2 A household incurs catastrophic health expenditure when it spends at least 40% of its non-food budget on health or above 10% of its total expenditure (WHO, 2010)

3 In this context, low-vulnerability refers to countries with a low combined level of poverty and informality (e.g. Mexico and Brazil) (Scheil-Adlung & Bonnet, 2012).
Poverty and informal employment are closely related; informal employment in many cases provides irregular income with no formal contract and no social benefits such as access to healthcare. Thus, any external health shock has to be borne by the household directly without being cushioned by a universal social health protection system and bearing a risk for impoverishment through catastrophic health expenses (World Health Organization [WHO], 2010).

The crisis exacerbated existing linkages, leading to an increase of vulnerable employment by 23 million. The ILO (ILO, 2012b) counted over 1.5 billion people working under such conditions, in which access to healthcare is rare, and if no social health protection is in place, all health-related costs have to be borne by the individual. In this group, women are overrepresented. This holds especially true for countries where the woman's position is weak and her participation in the formal labour market is low. Thus, crisis-induced increases in vulnerable employment exacerbate existing inequities by further exposing vulnerable groups of the population.

Vulnerable employment is closely related to the share of workers in the informal economy, amounting to 80 percent in South Asia and Sub-Saharan Africa of the share of non-wage workers (ILO, 2012c). On this account, fiscal policies with regard to health and social health protections may not reach these groups, as long as benefits are tied to formal registration and high out-of-pocket payments. Thus, policy responses do not necessarily positively impact equitable access to healthcare as long as other contributing barriers are still in place. On the contrary, such policies can exacerbate existing inequities if they are not embedded in a coherent policy framework that specifically targets the vulnerable groups and ensures that access is granted. Otherwise, existing inequities are exacerbated because the access for the poor and vulnerable...
outside of formal, non-vulnerable employment becomes disproportionately more difficult than for other groups in the population.

As pointed out, crisis-induced unemployment surged by 22 million in a single year. By 2011, it had not reached its pre-crisis level and in 2012 hovered above 200 million unemployed people worldwide (World Bank, 2012). In a large number of cases, the loss of a formal job comes with the loss of access to employment-sponsored health insurance (Driscoll & Bernstein, 2012), particularly in countries with an employer/private-sector driven health insurance system. Such loss of coverage brings up close linkages with affordability of healthcare, as indicated in Figure 5. The graph is a clear indication of the importance of social health protection for timely medical treatment when in need.

Access to unemployment benefits or other instruments of income replacement, next to financial stimulus measures and job creation measures, demand a coordinated system of policy response in order to fulfill their potential of playing a crucial role during an economic crisis. Policy coherence can be closely associated with poverty prevention on a large scale, as well as sustained access to other social services and benefits, such as healthcare, housing, sanitation and food (Bonnet, Ehmke, & Hagemeyer, 2010). In countries where such systems are not in place or do not operate in a coordinated manner, unemployment, vulnerable labour conditions and poverty are key contributing factors to inequities in access to healthcare.

Addressing the issues through national social protection floors

The full impact of the series of recent economic shocks and crises on access to healthcare will only show over time. Without social (health) protection, however, economic recovery will be more cumbersome and will not permit a country to unlock its full human capital and economic growth (UN, 2011). National social protection floors as postulated in the ILO Recommendation 202 in 2012 (ILO, 2012d) are based on the Human Rights to Health and Social Security and the fact that social (health) protection is an effective tool to prevent poverty, enhance social cohesion and address inequities in access to healthcare.

At the national level, social protection floors guarantee that essential goods and services are accessible and incomes are secured for all in need through in-cash or in-kind social transfers through a defined set of basic social security. At least four essential guarantees are addressed by social protection floors.

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<tr>
<th>Essential guarantees in national social protection floors</th>
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<tr>
<td>1. A nationally defined set of essential healthcare services should be accessible for all citizens and children in need</td>
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<td>2. Access to essential social services such as nutrition, education and healthcare should be granted to children through income support</td>
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<tr>
<td>3. The working age population in need of income support should enjoy a minimum security through social assistance</td>
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<tr>
<td>4. All residents in old age and with disability should be covered by pensions that ensure income security</td>
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The concept of social protection floors: A new paradigm

The concept of social protection floors accounts for the need for a holistic perspective on access to healthcare. It provides policy makers with a framework to address gaps in coverage and access to healthcare. It can simultaneously fulfill the objectives of equity within social health protection systems and addresses the underlying root causes.
beyond the health sector, particularly through built-in income support systems. As healthcare and income support enjoy equal importance in the framework, the concept has the potential to overcome the traditional divide between health and non-health policies.

In order to fulfill their objectives, social protection floors need to be embedded in a coherent and coordinated policy framework that involves economic and labour market policies as well as overarching policies that tackle discrimination and social exclusion. When designed in such a way, social protection floors are more than protection; they are a preventative tool to counter inequities and prepare for future economic recessions. In that sense, social health protection is an investment in a country's population and not a mere redistribution of income. Poverty, ill-health and rising levels of unemployment followed the recent global and financial crisis. Universal and adequate social (health) protection can alleviate these issues, making universal coverage in social health protection a global goal.

As actuarial evidence shows, social protection floors are feasible at any level of GDP (ILO, 2008) and even if they are implemented gradually, the universal and comprehensive nature of social protection floors should be the overarching objective.

Financing of social protection floors in health can be achieved through different approaches and should be based on the principles of burden sharing through solidarity and risk pooling. Possible strategies range from a tax-funded National Health Insurance System to contribution-based social insurance. Private insurances including health microinsurance can act as supplement but need to be publicly mandated and should consider the individual's capacity to pay in order to be considered within a framework of social health protection.

**Implementation and monitoring of SPF for equitable access to healthcare**

The implementation of social protection floors clearly is a national process and should be embedded in country-led and tailored policy approaches. From an overarching perspective, certain steps can be suggested for implementing policies in a conducive manner. Analyzing conducive gaps in coverage and taking stock of existing schemes should be followed by the coordination of policies towards a comprehensive national development strategy. Sustainable financing needs special attention and it is advisable to assess needed fiscal space and reform options for social health protection at an early implementation stage. Spending for social health protection is dependent on priority setting; country cases (such as Rwanda (UN, 2011b) indicate that health can be a priority area even with a low GDP. As regards the granted benefits, an essential benefits package comprised of in-cash and in-kind benefits should be defined nationally.

Monitoring progress towards universal coverage in social health protection is an important instrument for policy makers. The ILO has developed a set of indicators that address the dimensions of effective access to healthcare and support policy makers in measuring gaps in coverage. (Scheil-Adlung & Bonnet, 2012)

- Deficits in population coverage are measured using the difference between the proportion of the population affiliated to a social health protection system or scheme and universal population coverage.
- Gaps in availability of services are measured using the ILO Staff Access Deficit indicator. It is based on the density of the health work force per population on a national level as a difference from the median of low-vulnerability countries.
- Affordability and financial protection relates to financial barriers in accessing healthcare and is measured by shares of OOP in total health expenditure.
- Quality as a function of sufficient resources is measured by a proxy using the public per-capita spending on health

**Conclusions**

The recent economic and financial crisis strained households’ and governments’ budgets. It led to reduced availability, quality and affordability of healthcare, particularly for vulnerable groups, and thus contributed to increased inequities in access to healthcare.

Issues in addressing inequities in access to healthcare encompass health-related gaps in legislation, affiliation, design and financing of social health protection, but also stretch to socio-economic structures in the national context such as unemployment, poverty and lack of policy coherence.

Analyses of health-related crisis response across the globe attribute an important function of social protection systems in cushioning the impacts and acting as economic stabilizer. As a consequence, preserving social budgets (health, education, social benefits) during economic crisis is considered crucial for sustainable recovery and an important investment in human capital (World Bank, 2011).

Countries in which coverage in social health protection schemes is universal should aim at maintaining access, availability and affordability of quality health services. Countries where social health protection systems are not yet in place are encouraged to use the post-crisis recovery phase to put in place countercyclical measures to address gaps in coverage and
simultaneously tackle the structural root causes through a coherent set of policies. The implementation of national social protection floors as endorsed by the ILO Recommendation 202 can support policies aiming at universal coverage and effective access to healthcare. In addressing both essential benefits and income support in equal shares, the concept provides ample scope for tackling root causes of inequities in access to healthcare and contributing to universal coverage in social health protection.

References


Abstract

The discourse on universal coverage as a prerequisite for access to quality health care is far removed from policymaking circles in much of the MENA region where out-of-pocket expenditures (OPE) are predominant. This is most apparent in countries facing rapid demographic change where older people are often at the front line of deprivation in access to quality care.

Evidence of sustained longevity in low and middle收入国家（LMIC） has been apparent for a while as demographic shifts gather pace, but it is increasingly evident that their health systems remain ill-prepared for the growing incidence of chronic conditions and the associated needs for specialised, accessible health and social care. Lebanon is one such case where the scale of the health transition and the cost and quality of care continue to be debated. The debate is set in a context where the relationship between state and citizens requires some reformulation from its current laissez faire mode, so that issues of equity and access to care could be better addressed.

In Lebanon the multiple consequences of demographic change and population ageing continues to place stress on fragmented family structures. Patient empowerment, one avenue for shifting this dynamic, is hindered by the nature of state-society relations and the poor organisation of services but also due to socio and cultural factors. This paper reviews the available evidence and explores the multiple needs of a growing elderly population in Lebanon and discusses their practical implications for individuals, their families and the state. It also opens up an overdue debate for other countries of the region.

Introduction

The past three decades have witnessed major shifts in the demographic structure of populations in the Middle East and North Africa region (MENA). Between 1950 and 2000 the total population in the MENA region more than tripled from around 100 million in 1950 to around 380 million in 2000. Declines in overall mortality and fertility rates demonstrate that the region is undergoing an ageing process with emerging and substantial health and social care needs. Overall improvements in survival rates may only be partially attributed to public health interventions including the use of antibiotics, immunisation and better sanitation (Kalache & Ebrahim, 1996; Sibai et al., 2004; Abyad, 2006; Abyad, 2007).

Whilst on average a third of the MENA population is less than 15 years old, those over 60 years are increasing at a faster rate than the general population (Sibai et al., 2004; The Arab League & Republic of Lebanon Central Administration of Statistics, 2004; Abyad, 2006; Rawaf, 2004; Roudi, 2001; Sen, 2000b). The impact of this increase for health and social care and a balanced family support system are key issues which need to be addressed by policy makers. An integration of preventive, curative and long-term care combined in the health and social sectors are likely to have the most impact (Abyad, 2006; Center for Studies of Aging, 2010; Abyad, 2001).

This paper considers the case of Lebanon, which is among the most advanced in the region in terms of demographic and epidemiologic transition. Set in the context of decades of endemic conflict the health transition creates challenges for health and social care, of older people living alone or in an extended family setting. Currently, the percentage of the population 60 years and above is estimated to be around 10 percent and is the highest in the region, followed by Tunisia (Figure 1), and is expected to almost double to 18 percent by the year 2030.
Rapid ageing in Lebanon has been accompanied by chronic health conditions creating new demands on the health system and on families. In particular, the cost and quality of health care has been frequently challenged due to its emphasis on high tech tertiary care with limited focus on primary care and prevention (Sen & Sibai, 2004; Papadopoulus, 2008; Garelli & Amel, 2011; World Health Organisation, 2011). Lebanon’s pluralistic health system also provides a dominant role for private providers, whose influence on the cost and organisation of services has been considerable. Recently (2000), reforms were initiated by the state to influence the quality and cost of health care in the country and alter the existing balance among providers to better address emerging health need (Ammar, 2009; Sen & Sibai, 2010). This paper provides an analytical overview of some of the challenges posed by demographic shifts for the health system and for existing family support structures and address a trend increasingly common in low- and middle-income countries that has negative implications for equity in old age (Ebrahim, 2002; Lloyd-Sherlock, 2002).

Methodology

We undertook a critical review of the literature and of reports from several data sets available since 1996. These included the Housing and Population Survey (1996), a national probability sample survey covering 61,580 households and 289,457 individuals; the National Household Health Expenditure and Utilization Survey (NHHEUS) of 1998 and the Pan Arab Family Health Survey of 2004 (PAPFAM) a nationally representative sample survey including questions on social, economic and health state of elderly people. We used information from the Population Reference Bureau (PRB) and the US Bureau of Statistics, to cross reference information. The following keywords: Lebanon, ageing, health care, health services and population trends were used to systematically search Google Scholar and Medline databases for journal papers and reports. These were selected by keywords, for the period covering data on DT (1996-2012). We also searched websites of the World Health Organisation EMRO division and UN-ESCWA. Additional relevant sources on ageing and social change were located from the bibliography of reviewed literature and complemented by unpublished reports from Lebanese and international NGOs such as the CSA, AMEL, CRTDA, CESTAS.1

Results

Demographic trends and Prolonged Conflict

A rapid demographic shift in Lebanon places it among countries with the highest rate of ageing in the region (Sibai et al., 2004; Yount & Sibal.A, 2009). Despite persistent and chronic conflict in the country over a period of three decades, life expectancy at birth increased from 54 years in the early 1950s to 74 years in 2006 while the fertility rate decreased from 4.6 percent in 1970 to 2.1 percent in 2005 and the crude mortality rate from 9.1 percent in 1970 to 7.1 percent in 2006. A handful of studies suggest that lengthy conflict in Lebanon (1975-1991) had negative consequences for adult male mortality in particular (Naufal et al., 2005; Murphy, 2006; Sibai et al., 2007) where it is estimated that more than 300,000 people were killed, one quarter of a million injured and one third of the population migrated due to war (Sen & Sibai, 2010). With an average total population of 3.3-3.5 million in 2005, the numbers of dead, injured, missing, displaced and emigrated remain problematic for the sustenance

1 CSA-Centre for Studies of Ageing; AMEL=AMEL (Hope); CRTDA= Collective for Research and Training on Development; CESTAS=Centre of Health Education and Appropriate Health Technologies.
of traditional family structures and for the availability of skilled personnel in the health sector (Garelli & Amel, 2011). The effect of the prolonged conflict has been to contribute to the development of pockets of ageing throughout the country, most notably in the southern regions (Tyre). South Lebanon and the capital city Beirut experienced high levels of war-related emigration and shows among the highest rates of ageing in the country (Sibai et al., 2004).

Table 1 highlights demographic trends in Lebanon between 1970 and 1995 with low and high variants for the period (2005 to 2015). The rate and pace of ageing has important implications for the way health and social services are organised. Other distinguishing features of demographic change in Lebanon include the greater absolute numbers of older women and low levels of literacy among them. Women are twice as likely to be illiterate than older men. A recent study of self-assessment of need confirms these findings (Sibai et al., 2004; Abi Habib et al., 2011) and suggests that 94 percent of older men and women had received less than 5 years of schooling. Poor educational levels and not just poverty alone are considered to be risk factors for poor health status at older ages (MacArthur Foundation Research Network on Ageing, 1998; Sanderson & Scherbov, 2008; Martin, 2007). In Lebanon, elderly women also face arduous working conditions especially in the informal sector where they predominate. Low incomes in this sector are accompanied by poor living and working conditions which also takes a toll on health (Sen, 2000b; Garelli & Amel, 2011).

**Table 1. Trends in demographic indicators, Lebanon 1970-2015**

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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total fertility rate</td>
<td>4.60</td>
<td>2.91</td>
<td>2.37 - 2.91</td>
<td>2.10 - 2.10</td>
</tr>
<tr>
<td>Crude birth rate per 1000 per year</td>
<td>34.40</td>
<td>24.60</td>
<td>19.55 - 23.45</td>
<td>16.40 - 17.12</td>
</tr>
<tr>
<td>Crude death rate per 1000 per year</td>
<td>9.10</td>
<td>7.40</td>
<td>7.11 - 7.10</td>
<td>6.46 - 6.73</td>
</tr>
<tr>
<td>Life expectancy at birth (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Male</td>
<td>63.10</td>
<td>69.00</td>
<td>70.50 - 74.00</td>
<td>72.50 - 76.63</td>
</tr>
<tr>
<td>• Female</td>
<td>67.10</td>
<td>72.00</td>
<td>70.50 - 74.00</td>
<td>72.50 - 76.63</td>
</tr>
<tr>
<td>Proportion of elderly (65+ years)%</td>
<td>4.90</td>
<td>7.10</td>
<td>7.70 - 7.20</td>
<td>7.80 - 8.20</td>
</tr>
<tr>
<td>Index of ageing*</td>
<td>11.40</td>
<td>22.40</td>
<td>26.10 - 23.60</td>
<td>29.4 - 33.2</td>
</tr>
</tbody>
</table>

*Number of people over retirement age (64 yrs) as a proportion of population below 15 years x100

Source: Reproduced from Sibai et al. (2004)

Disease burden and perceived health status

The past two decades witnessed a clear shift to non-communicable disease in Lebanon with chronic conditions of the circulatory system, cancers and musculoskeletal problems, hearing loss and blindness as the most prominent problems (Borthwick & Horton, 2006; Alwan & MacLean, 2009; WHO, 2010; Center for Studies of Aging, 2010). Non-communicable diseases are now the main cause of mortality and morbidity in Lebanon and accounted for 77 percent of all deaths in 2002 (World Health Organisation, 2011). But diseases among older people also include infectious disease such as respiratory tract infections, TB and fevers though chronic conditions predominate. The PAPFAM survey (The Arab League & Republic of Lebanon Central Administration of Statistics, 2004) showed that 19.7 percent of the population over 65 years old reported to suffer from one or more health conditions, with a percentage that was slightly higher in female than in male respondents (22.9 percent versus 16.5 percent), with the majority (76 percent) reporting at least one chronic health condition. The PAPFAM survey also reported that chronic conditions are visible at much earlier ages in the population as a whole, with a third reporting one or more conditions between ages of 40 and 49 and more than 40 percent between 50 and 59 years (The Pan Arab Project for Family Health, 2006).

A survey on household expenditure and utilisation of health care undertaken in 1998-99 (Ministry of Health et al., 2001) focused on a 10.5 percent sample of the entire Lebanese population over 60 years of age (n:30,000) revealed significant information for several population health indicators. These include functional capacity and utilisation of secondary and tertiary care among older adults. The findings reveal that nearly one-third of those over 60 years considered their health status to be poor compared to 6.7 percent among the general population with 84 percent of males and 91 percent of women indicating that they had a health problem. Close to 33 percent of these men and 39 percent...
of these women sought health care to address their need (at least) once in the past month. Despite low utilisation rates in the sample the survey overall reported that this age group made 6.2 visits per year to ambulatory health services which is double the national average (3.1) with higher rates for the less well-off women in particular. In terms of functional capacity, 72 percent of those above the age of 70 reported difficulties with mobility, 77 percent on activities of daily living and 42 percent reporting depression. The life-long risk factors for chronic disease include diet and lifestyle with more than half of males over the age of 50 years being smokers and more than one-third over 60 years compared to about 26 percent of the total population. More recent community based study by Hazzouri et al (Hazzouri et al., 2010) reiterates that poor elderly women show much higher levels of disability than men of the same social category and have fewer care resources at their disposal, an experience that is not uncommon among older women in most regions of the world but in particular for low and middle income countries (Sen, 2000a).

**Hospitalisation**

The elderly population had a hospitalisation rate of 28 percent in contrast with 12 percent of the general population. Older men had a slightly higher rate of hospitalisation (4.9 percent) than women (4.1 percent). However the 60 plus age group had more than doubled the national average of one day hospitalisation (in the past 6 months). The utilisation rates of ambulatory services (in the past one month) and one day hospitalisations did not reveal major differences by insurance coverage. But in the case of hospital admissions, there was a fivefold difference between those insured and uninsured in the rate of admissions (3.6 percent as opposed to 16.6 percent). The cost of treating chronic conditions is by now a well-established factor in the impoverishment of families throughout LMICs and in this region (The World Bank, 2011; WHO Eastern Mediterranean Regional office (EMRO), 2010; Ammar, 2009; Elgazzar et al., 2010; Garelli & Amel, 2011).

**Health services and care of chronic conditions**

While the Ministry of Health (MOH) is the ultimate authority in the health sector in Lebanon and disburses the budget (8.9 percent of GDP in 2005, reduced from 12.9 percent in 2000), more than 80 percent of all health services and 95 percent of hospital services are provided by the for-profit sector (hospital and ambulatory care) and by NGOs (mainly primary care). The limited regulatory role of the state has led to a mushrooming of providers with little control of excessive technological facilities such as CT scanners and kidney dialysis machines, raising the cost of admission. There is limited emphasis on prevention and promotion influencing the culture of health-seeking behavior and reinforcing dependence upon health services (Sen & Sibai, 2004; Papadopoulus, 2008; Ammar, 2009). With a rapidly ageing population and a focus on tertiary care, numerous gaps remain, including an urgent need for trained staff. In 2008, for example, there were only 6 geriatricians in the whole country and even fewer among nurses and social workers. (Majed, 2002; Islamic Health Society, 2008; Majed, 2002). The creation of a National Commission of Ageing (1999) led to commitments to support the training of care workers in health and social care to manage the needs of the emerging elderly population, but these have remained largely dormant. This has been compounded by private sector lobbies which encourage families to buy services from them directly with as little input as possible from the public sector, which has been long weakened by conditions of political instability.

The substantial private component in health services also reflects the power of confessional/privatised lobbies (Sen & Sibai, 2004; Ammar, 2009; Garelli & Amel, 2011). As a result, issues pertaining to health care in the policy discourse are presented as an “individual” rather than a social responsibility. This context is worsened by a lack of trained personnel with knowledge of geriatrics and gerontology. A cultural shift in the existing treatment pattern with a community and preventive focus and with improved linkages between primary and secondary provision would help contain health expenditure and enable families to liaise with public health and social care, to provide quality care for older people (Ammar, 2009; Center for Studies of Aging, 2010; Sen & Sibai, 2010; Garelli & Amel, 2011).

Table 2, on the next page, highlights the excessive out-of-pocket expenditure among older adults in Lebanon (58.9 percent) of which expenditure on medicines falls in the highest category (76.3 percent) and is a key contributor to household stress.

According to the WHO (2007) the unregulated growth of private provision in Lebanon reinforces numerous malfunctions of the public sector, resulting in chronic inefficiency and a poor mix of providers for ambulatory and hospital services. This issue is acknowledged by a number of observers who suggests that not just Lebanon but the whole MENA region suffers from a mismatch between health care need and the nature and quality of health care resources (Al-Jardali et al., 2010; Ammar, 2009; Papadopoulus, 2008; Sen & Sibai, 2010). In Lebanon for example there is a notable emphasis on specialisation with over 70 percent of physicians trained as specialists. The ratio of nurses to doctors is one of the lowest in the world (World Health Organisation, 2008; Ammar, 2009; Sen & Sibai, 2010).

The lack of control of tertiary care expansion is also highlighted by the fact that in the year 2000, despite a declared shift in emphasis to primary health care, an MOH study (Ammar, 2003) found substantial investment in high cost and high tech services. Between 1997 and 2000 the centers for open heart surgery in Lebanon increased from 3 to 8, the numbers of surgeries performed
increased threefold from 600 to 1800 and expenditures increased from 8 billion LP to 25 billion pounds (Formex Regione Campania & CAIMED, 2008). Such investments are concentrated in the capital and surrounding areas. Over the past decade, despite efforts to shift this imbalance, little appears to have changed, to the detriment of population health (Ammar, 2009; Papadopoulus, 2008; Sen & Sibai, 2010). Figure 2, on the next page, highlights the per capita usage of coronary angiography in Lebanon in comparison to selected countries in Europe and North America. For its population of 3.5 million (2005), usage is higher than most developed countries and illustrates inequities of access to rational, quality health care.

Table 2. Percent distribution of national health accounts for older adults in Lebanon

<table>
<thead>
<tr>
<th></th>
<th>Totals</th>
<th>In-patient</th>
<th>Out-patient</th>
<th>Medicines</th>
<th>Others</th>
<th>Admin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out-of-pocket</td>
<td>58.9</td>
<td>35.5</td>
<td>80.4</td>
<td>76.3</td>
<td>31.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Ministry of Health</td>
<td>13.1</td>
<td>31.9</td>
<td>2.5</td>
<td>3.2</td>
<td>18.8</td>
<td>9.1</td>
</tr>
<tr>
<td>National Social Security Fund</td>
<td>9.6</td>
<td>13.8</td>
<td>3.2</td>
<td>5.4</td>
<td>43.8</td>
<td>22.7</td>
</tr>
<tr>
<td>Other public providers</td>
<td>6.5</td>
<td>13.0</td>
<td>3.2</td>
<td>2.2</td>
<td>0.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Private insurance</td>
<td>11.9</td>
<td>6.5</td>
<td>11.4</td>
<td>12.9</td>
<td>6.3</td>
<td>50.0</td>
</tr>
<tr>
<td>Totals</td>
<td>100.0</td>
<td>32.2</td>
<td>36.9</td>
<td>21.7</td>
<td>3.7</td>
<td>5.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Insured</th>
<th>46.7</th>
<th>49.3</th>
<th>45.6</th>
<th>33.3</th>
<th>56.3</th>
<th>90.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-insured</td>
<td>53.3</td>
<td>50.7</td>
<td>55.1</td>
<td>66.7</td>
<td>43.8</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from Mays and Schaefer, 2000

The increasing reduction in family support is further supported by a recent study in south Lebanon which reported that some 15 percent of young males migrated out of the village following the July war of 2006 (Garelli & Amel, 2011). A gradual disintegration of the extended family can leave elderly parents in difficulties due to a gap in practical, but most of all in emotional, support. Both of these play an important role in shaping health state and are closely linked to available family resources. This situation reinforces the need for greater state engagement and cooperation with families and communities for managing and supporting the care of older people (Yount & Sibai, 2009; Chemali et al., 2008; Ebrahim, 2002).

Socio-economic and cultural features of a population are often critical to setting diseases in their context and in shaping the ability to plan for health care, an issue which has received inadequate attention in Lebanon and elsewhere (Center for Studies of Aging, 2010). Furthermore due to paternalistic attitudes and a lack of awareness it is rare to have the voice of older people shaping policies that affect their lives (Sen, 2000b; van der Gaag, 1995; Lloyd-Sherlock, 2002). Chemali et al (Chemali et al., 2008) suggest that socio-cultural factors pertaining to families can undermine prospects for self-care and management of some chronic conditions by older people which would otherwise reduce pressure on care need to some degree. This is viewed as

Socio-cultural aspects of the demographic transition: household stress

Countries of the MENA region revere elderly parents and view care arrangements as part of affective ties that bind families together. Whilst family resources and support remain crucial for the integration and continuity of care, there is evidence that this situation has changed due to several factors. These include the entry of women into the workforce and the extensive and prolonged migration of younger members of families contributing to the shrinkage of family care resources and placing undue stress on affective ties with risks for long-term support of an ageing population. Whilst these changes have been highlighted by Lebanese observers for some time they continue to evade policymakers. It is increasingly evident that one of the major challenges facing countries experiencing demographic and health shifts like Lebanon is the absence of a “social contract.” Such a contract would acknowledge the health and welfare needs of an ageing population premised on an active relationship between state, households and individuals and one which is not exclusively reliant upon family care (Sibai et al., 2004; Abyad, 2006; Center for Studies of Aging, 2010; Lloyd-Sherlock, 2002).
a missed opportunity for easing health care costs as well as alleviating pressure on the health system. The authors cite factors such as decision making and care arrangements made by the family often under the imperative of religious and cultural values viewed as “duty” within one’s faith; while the intention of the approach is a benevolent one, it increases helplessness and dependency among elderly people (Chemali et al., 2008):

“A vicious circle thus ensues: the elderly person’s health deteriorates, the sense of being a burden increases the unhealthy family dynamic is perpetuated culminating in a decrease in the quality of life of the elderly individual and his/her caregivers.”(Chemali et al., 2008)

Complex health trends coupled with their gender variations have important implications for access to health and social care where NGOs and the private sector have a significant role to play (Papadopoulus, 2008; Garelli & Amel, 2011). To date an assessment of health and social care needs among older populations in Lebanon has largely relied on expert guidance. These in turn have neglected the social, cultural and economic factors that prevent possibilities of home care and self-management of chronic conditions by older adults themselves—a situation often worsened by the aforementioned frequent emigration of younger members of the family.

Social, economic and cultural context factors have an important role to play in the quality of care and on actual usage of health services. They can reinforce the perception among policy makers that the family is the first port of call even though in reality this is increasingly not the case (Center for Studies of Aging, 2010). Furthermore while civil society representation of elderly people is stronger in Lebanon than anywhere else in the region, chronic political instability has meant that the effectiveness of civil society voice for changes to the health and social care agenda is limited because other priorities are viewed to be greater by policy makers (Sen & Sibai, 2004; Papadopoulus, 2008; Chemali et al., 2008; Garelli & Amel, 2011).

### Public sector policies

Taking stock of recent changes in the health sector in Lebanon we find many positive attempts in the health

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**Fig 2: Comparative on Coronary Angiography**

<table>
<thead>
<tr>
<th>Country</th>
<th>Utilization rate of coronary angiography per 10,000 individuals/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>12</td>
</tr>
<tr>
<td>Greece</td>
<td>21</td>
</tr>
<tr>
<td>Spain</td>
<td>22</td>
</tr>
<tr>
<td>UK</td>
<td>26</td>
</tr>
<tr>
<td>France</td>
<td>39</td>
</tr>
<tr>
<td>Austria</td>
<td>48</td>
</tr>
<tr>
<td>Lebanon</td>
<td>53</td>
</tr>
<tr>
<td>Germany</td>
<td>75</td>
</tr>
<tr>
<td>USA</td>
<td>83</td>
</tr>
</tbody>
</table>

Source: Sibai et al., 2008

Directorate to shift the balance between tertiary care and primary and secondary provision. However the ability to shape services is restrained by political and cultural factors and not by their cost and availability alone. Despite a problematic post-conflict context, health sector reforms eventually implemented in Lebanon in 2000 (Ammar, 2010) remain unique to the country, because they attempted to reign in the excesses of a market-led health system by curbing costs and redesigning the nature and quality of public services to compete better with private providers. The reforms included support for health care planners to shift the hitherto emphasis from physical infrastructure (costly building and equipment), to adopting better approaches to care emphasising improved managerial processes and performance linked to accreditation criteria as well as some other indicators of output such as patient-nurse ratios. The hospital accreditation policy implemented in 2002 for example helped to improve the quality of services among public and private providers with an emphasis on integrating NCD care at primary health care level supported by curative care when needed (World Health Organisation, 2008; World Health Organisation, 2011; World Health Organisation Eastern Mediterranean Regional Office, 2011; World Health Organisation: Eastern Mediterranean Regional Office, 2011). But these are yet to be formalised into an integrated service network for chronic conditions, also part of WHO strategy and advocacy for Lebanon and for the region (World Health Organisation, 2007).

From 2005 onwards, special efforts were made by the MOH to improve the public sector primary health care networks and to rationalise the use of medicines) and medical equipment. The accreditation system fixed limits to claims from private sector hospital providers to the state (Ammar, 2009; WHO, 2010). Since the changes, the MOH has been able to better negotiate rates for the services it purchases from private hospitals as well as utilising a database to track the unit rates of
the costs of various providers (Ammar, 2009). This together with reducing charges for hospital admissions in the public sector created a competitive advantage over the well-established private provider. The changes made to public provision are reflected in a reduction in the overall household expenditures on health care from 69.74 percent to 59.82 percent between 1998 and 2005 and a reported increase in the uptake of public services (Ammar, 2009). Table 3, left, shows the changes between public and private health expenditures between 1998 and 2005.

Table 3. Total Population and Health Expenditure by Public and Private Categories (1998; 2005)

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>4,000,000</td>
<td>3,870,000</td>
</tr>
<tr>
<td>Total health expenditures (mln US$)</td>
<td>1,996</td>
<td>1,750</td>
</tr>
<tr>
<td>Per capita health expenditures (US$)</td>
<td>499</td>
<td>452</td>
</tr>
<tr>
<td>Total GDP (min US$)</td>
<td>16,200</td>
<td>21,607</td>
</tr>
<tr>
<td>Health expenditures as percent of GDP</td>
<td>12.32%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Government budget allocated to health</td>
<td>6.6%</td>
<td>5.9%</td>
</tr>
<tr>
<td><strong>Funding sources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>17.98%</td>
<td>28.98%</td>
</tr>
<tr>
<td>Private</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Households</td>
<td>69.74%</td>
<td>59.82%</td>
</tr>
<tr>
<td>Employers</td>
<td>10.32%</td>
<td>11.17%</td>
</tr>
<tr>
<td>Donors/NGOs</td>
<td>1.96%</td>
<td>0.03%</td>
</tr>
<tr>
<td><strong>Distribution of expenditures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public and private hospitals</td>
<td>24.5%</td>
<td>38.0%</td>
</tr>
<tr>
<td>Private non-institutional providers</td>
<td>41.0%</td>
<td>21.0%</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>25.4%</td>
<td>32.0%</td>
</tr>
<tr>
<td>Others</td>
<td>9.1%</td>
<td>9.0%</td>
</tr>
</tbody>
</table>

Source: Ammar, 2009, 14.

Whilst many efforts have been made, to shift the emphasis towards primary health care services through expanding the network of PHC centres, upgrading the skills of workers and contracting NGOs and civil society groups to provide this care, the MOH continues to face an uphill struggle to overturn the decades of bias towards specialised care in hospital settings. There is perhaps a need to formalise functions at the first level of care for gatekeeping, for coordination and follow up and for synthesising user information that will ensure systematic care of chronic conditions (World Health Organisation & Pan American Health Organisation, 2011).

Among the population at large, preventive care remains stigmatised, relegated often to the poor and marginalised (Sen & Sibai, 2004). Many suggest that medical education in Lebanon and elsewhere in the region is strongly science based with strong emphasis on specialisms and on tertiary care (Kronfol, 2002; Abyad, 2006; Khatib, 2006; Borthwick & Horton, 2006; Kronfol, 2002). Few medical schools have curricula dealing with geriatrics or have any focus on health promotion and prevention. In practice, NGOs have been dealing with issues of preventive health care in their own communities and to support some forms of bio psycho social care for adults and elderly people. However this has been in an ad-hoc manner and restricted to a handful of organisations with a geographic
concentration in the capital Beirut and is also reliant upon external funding (Borthwick & Horton, 2006; Sibai & Sen, 2006; Sibai & Sen, 2006).

**Conclusion**

The profile of non-communicable disease and an expanding population of elderly in Lebanon require the health system to adapt to increase its efficacy and efficiency and most of all equity in relation to cost, quality and better access to health and social care. Whilst a number of recent changes have somewhat eased the financial burden and improved quality of care for the population as a whole, the longer term ability of the state to provide a sustainable alternative to a multitude of private providers remains uncertain and will continue to affect equity and the cost of care for adults and older people in Lebanon (Elgazzar et al., 2010).

The health system of Lebanon remains premised on responding to acute problems and the urgent needs of patients for episodic disease, specifically acute care. The missing link is a strategy that would include long-term planning for prevention and integration with community-based services including a social contract between citizen and the state that is pertinent to all ageing societies. Linkages to family and community based services where possible and those additionally available would encompass the basic tenets of accessible, bio-psycho social care, combining first line services with longer term prevention and management of chronic conditions through modifiable behavioral risk factors and community support systems. (Abyad, 2001; World Health Organisation, 2011; Abyad, 2001; Ebrahim, 2002). The most recent country cooperation strategy of the WHO for Lebanon (2007) has stressed the importance of integrating care of chronic patients into a viable primary health care system, strengthening the role of families and communities within the systems of care (World Health Organisation: Eastern Mediterranean Regional Office, 2011) where the first line becomes the entry point to the health system.

A radical shift in health sector strategy is needed—one that is integrated into a publicly led health policy and which is able to cut across the boundaries of vested interests to face the by now well advanced health transition and the onset of chronic conditions.

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How to Reduce Poverty and Improve Health: The Abaseen Foundation model and methodology

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Abstract

The Abaseen Foundation was formed in 2000 to develop and deliver health services, education, humanitarian relief and research projects to benefit people in Khyber Pakhtunkhwa (KP) and the Federally Administered Tribal Areas (FATA) in Northwest Pakistan. The Abaseen Foundation Model and Methodology is a unique model and methodology for interventions to reduce poverty and improve healthcare in parts of the world that face the kinds of challenges Pakistan faces. Based on the substantial impact this methodology has had thus far, this Abaseen Foundation paper details the model in the hope that this could be replicated to benefit other communities.

Introduction

The Abaseen Foundation was formed in 2000 and is a unique partnership - Abaseen Foundation U.K. and Abaseen Foundation Pakistan working to develop and deliver health services, education, humanitarian relief and research projects to benefit people in Khyber Pakhtunkhwa (KP) and the Federally Administered Tribal Areas (FATA) in Northwest Pakistan.

Since 2001, the Abaseen Foundation model and methodology for reducing poverty and improving health have been developed and evaluated in Khyber Pakhtunkhwa in North West Pakistan. The consequences of natural disasters, such as floods and earthquake, and a man-made disaster—global terrorism—have resulted in this being one of the world's most deprived and dangerous areas.

One of the key steps in the systems approach is the delineation and scoping of relevant human activity systems using the pneumonic CATSWORLD.

Working through the CATSWORLD pneumonic:

- Attention to C for Customers, or recipients of the output of the system, reveals how we have been attentive to our intended beneficiaries.
- Attention to A for key Actors has enabled us to identify who might help or hinder the implementation of desirable improvements – the potential assistors and resisters of any proposed interventions.
- Attention to T for Transformation, from inputs to outputs,
Chapter: 8

**The Abaseen Foundation Model and Methodology**

The Abaseen Foundation Model maps the complex interrelationships between nutrition, cognition, education, poverty and health inequity.

Interventions at any point on the circumference of The Abaseen Foundation Model can result in improvements. Moving clockwise round the model, for example, improved nutrition can improve educational performance, can increase prosperity, can improve health and can improve the bodies' ability to absorb nutrients. Moving anti clockwise around the model, improved education can improve nutrition, which improves health, and which can improve prosperity by avoiding loss of a breadwinner or the heavy costs of medical treatment. More prosperous families can often pay for better education for their children. What is less obvious is the way that improvements in cognitive ability, through nutrition, education, employment, or improved health, can improve educational performance, entrepreneurial prosperity, and physical and mental health. Cognitive abilities can be improved through inexpensive interventions such as physical activities, games, or changes in cooking methods to optimize the nutritional value of food. These types of interventions are within the control of the community and are not at risk from corruption or pilferage. Cognitive development increases a person's ability to benefit from education.

The skill set for entrepreneurial activity includes basic skills like numerical thinking, visual thinking and verbal thinking, plus higher order thinking skills, like prediction and critical and creative thinking. When families and communities can think and act entrepreneurially, they can produce prosperity that is sustainable and less dependent on economic aid and grants that can be diverted by corruption, maladministration or terrorism.

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1 A tribal council or grand assembly.
Less obvious, perhaps, is the impact of cognitive development on health. Pharmaceutical treatments for mental impairments are expensive and susceptible to abuse, pilferage and problems of prescription, monitoring and logistics. Where cognitive treatments would be a preferable alternative, they are only effective for those with the cognitive ability to benefit.

The Abaseen Foundation Model illustrates how inconspicuous, low-risk interventions can bring marked improvements, even when local circumstances militate against major programmes of school and hospital building and economic aid.

‘Optimism’ is inherent in the Abaseen Foundation Model in that it is a cycle and a spiral and it doesn’t really matter where you start to intervene, all routes in lead to a positive outcome, which means that adverse situations in the context of a project do not block progress. For example, if it is difficult to intervene economically with resources for aid due to corruption, you don’t have to give up—intervene at the level of nutrition, which can be improved with little or no resources (see example project below).

Crucial to the model is how it is used, so to The Abaseen Methodology.

**The Abaseen Foundation Methodology**

helps fieldworkers to devise and implement practical strategies to improve nutrition, cognition and education, to reduce poverty and inequity in health.

The methodology lists questions to be asked of intended beneficiaries and key stakeholders and describes how the answers need to be thought about and used to devise imaginative solutions and practical strategies that can be implemented.

The model does not distort community problems to fit solutions that have worked elsewhere. Neither does the methodology seek to simplify situations that are inherently complicated. Rather, the methodology describes how to gather information that is accurate, complete and relevant, how to draw conclusions that are reasonable and which check-for-sense; and how to select actions to improve health that are desirable, feasible and ethical.

The methodology prioritises the asking of questions rather than the propounding of policies. Others perceive the people who use the methodology as people who listen and who can be trusted to lead and pioneer new ways of working.

The Abaseen Foundation Methodology is largely concerned with the impact of nutrition, education and health on the cognitive development and economic well being of individuals. In practice, all individuals belong to a community and The Abaseen Foundation Methodology reflects this.

See Info Graphic (next page)

One example of how the Abaseen Foundation Model and Methodology has been used to reduce health inequities is in Khyber Pakhtunkhwa in North West Pakistan.

This project won the Times Higher Education Award (THE), International Collaboration of the Year, 2010, sponsored by the British Council.

**Background and aims of the project**

The project was a collaboration between Abaseen Foundation, researchers at the University of Central Lancashire (UCLan), U.K., and the Khyber Teaching Hospital, Khyber Medical College, Peshawar, Pakistan, to improve the nutrition and health status of communities in Pakistan and the U.K., and to gain an insight into the cultural issues relating to health inequalities amongst our South Asian immigrant populations in the U.K.
This project was based in the Emergency Satellite Hospital (ESH) in Nahaqi, close to Peshawar, that serves a population of 200,000, including 60,000 Afghan refugees. Ninety-five percent of the population is poor and, according to a 2007 survey carried out by Abaseen Foundation PK, 13 percent of under five children had moderate, and 7 percent had severe, acute malnutrition.

The research team worked together with the local community through participatory research methodology to develop a first of its kind in Khyber Pakhtunkhwa, a community-based Nutrition Rehabilitation Unit at ESH. It quickly became apparent that poverty, lack of access to quality food, inadequate health education, illiteracy and gender inequality were the main contributing factors to the high incidence of malnutrition. Possible actions and interventions were agreed in consultation with the community. These included screening for malnourished children below 5 years old and pregnant or lactating women. The malnourished children and pregnant and lactating women (PLW) were registered for long-term care and food supplements were provided to them. The community was educated in nutrition and breast-feeding practices, and a demonstration kitchen was established to teach mothers how to make a balanced meal out of locally available foods.

This project, although started with very modest and limited resources, has successfully changed the beliefs and behaviours of the locals regarding maternal and infant nutrition. This has resulted in decreased child malnutrition, with acute malnutrition falling to 4 percent moderate and 1 percent severe.
**Challenges**

One of the key challenges for this research collaboration is the inability of U.K. based researchers to travel to PK to meet with our collaborators because of security issues. This has been successfully overcome through regular communication by email and Skype, by visits to the U.K. from the PK based research lead, and a video diary of our PK researchers. The video diary of our PK researchers showed a day in the nutrition support clinic. This was invaluable in helping the U.K. team to understand the day to day challenges the PK team face, which include security of female personnel travelling around the area, gaining the trust of the rural communities in which they work, and the practical issues such as loss of electrical power at the hospital.

**Dissemination**

This innovative research has been disseminated through cluster meetings of NGOs operating in Pakistan, which has led to changing the way in which UNICEF operate their nutrition support and humanitarian relief activities in this region (by adoption of this community participatory methodology), through research publication, and through a meeting with the British High Commissioner to Pakistan in April 2010. In the U.K., the research is disseminated through our partner charity activities and meetings with community groups.

This unique and strong partnership operates through the close partnership between the Abaseen Foundation U.K. (AFUK), which pursues its charitable objectives by way of partnership with the Abaseen Foundation Pakistan (AFPK). Staff members from both universities sit on the board of trustees both in the AFUK and AFPK.

After the initial success of this pilot project, UNICEF asked the Abaseen Foundation PK to extend its activities to other districts, including the Swat Valley, affected by the large scale displacement of communities resulting from the political instability.

**Funding support from UNICEF as a direct result of this Nutrition support project 2010: £56,000.** UNICEF Provision of Quality Nutritional Services to Internally Displaced Persons and Host Communities in selected UCs of District Kohat. Pakistan Humanitarian Response Plan (PHRP 2010)

[PKA-10/H/30567/1124] (funds to Abaseen Foundation)

**2010: £130,000. Swat mother and Child**

(funds to Abaseen Foundation) Maternal and Child Health Care (MCHC) Program NWFP (AWP Reference No: [Health (UNICEF-PAK-08/H10)]) Mother and Child Days in selected Union Council of District Swat.

**2009: £300,842 UNICEF** (funds to Abaseen Foundation) Provision of comprehensive health services, including Medical Care, MNCH, Nutrition, EPI and Community mobilisation, to the IDPs and host communities in Daudzai area, District Peshawar.

**Conclusion**

The Abaseen Foundation Model and Methodology is proposed as a model and methodology for interventions in parts of the world that face the kinds of challenges faced in Pakistan and has the potential to contribute towards bringing an end to global inequities in health.
References


Montana Suicide Prevention Consortium

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Abstract

The purpose of this study was to identify risk factors for suicide and to implement strategies to increase awareness and use of suicide prevention resources among youth in an Eastern Montana community. In Spring 2012 and Winter 2013, attitudinal surveys were administered to high school students in Miles City, Montana to evaluate the impact of a community-based media project on youth attitudes towards and awareness of suicide prevention resources. The project involved a youth theatre production, youth photography workshop, art exhibit, and social media website designed to highlight suicide prevention resources and enable young people to discuss emotions related to suicide and depression. Surveys were administered online at baseline (May 2012), with follow-up in January 2013, to approximately 225 (n = 224 at pre-test, n = 217 at post-test) high school youth in Miles City. Questions were designed to assess the impact of the project on awareness, attitudes, and behavioral intentions towards suicide prevention resources. Variables probed on students’ self-reported risk for depression and suicide, awareness of online and local suicide prevention resources, and willingness to engage with such resources and/or communicate with peers, family members or mentors about suicide and depression. A comparison between pre-test and post-test showed high levels of campaign awareness, prompted and unprompted recall, and access of online resources. This evaluation involved interdisciplinary research by professors in psychology, communication, and sociology at Montana State University Billings. The quantitative data reported was supplemented with qualitative research to identify cultural and personal reports on campaign effectiveness and areas for improvement. These results were used to design and implement a similar community-based media project in a larger, more urban community, with a more diverse population. The goal is to develop a self-sustainable curriculum that can be used by communities to administer similar community-based media projects for suicide prevention.

Introduction – Background

Suicide has ravaged eastern Montana, an area known for its sparse population, extreme climate range, and "cowboy up" mentality and culture. In 2005, Montana had the highest suicide rate in the U.S. Montana has ranked the top five in the nation over the past 30 years. The rate of suicide in the U.S. is 11.2 per 100,000 people, according to the most recent statistics by the Centers for Disease Control and Prevention taken in 2006 (Xu et al., 2010). In 2006, Montana ranked the second highest – just behind Wyoming – with 20 suicides per 100,000 people. There were 189 reported suicides statewide that year, according to the U.S. Centers for Disease Control (CDC) (CDC, 2010).

Factors exacerbating the distressingly high suicide rate include a lack of mental health awareness, an inadequate availability of mental health services, widespread use of firearms, and social isolation. While people living in Eastern states experience high stress – congested cities, high crime, and high cost of living – the suicide rates are much lower than rates in Montana. People in the Eastern U.S. are more likely to seek help on mental health issues. The bottom five states – with suicide rates far below the national average – include Rhode Island, Connecticut, Massachusetts, New York, and New Jersey. Washington, D.C., actually had the lowest suicide rate at 5.1 per 100,000 people, the CDC reported. The CDC reports that 66 percent of the suicides in Montana in 2006 involved a firearm (Xu et al. 2010). The average nationally is about 50 percent for firearms used in completed suicides. The U.S. "Mountain States" all share similar qualities that make them ripe for high suicide rates: these states are often socially isolated,
have a lack of public services to help with depression and thoughts of suicide, and there is often easy access to firearms. Statistics in Montana show that more than 80 percent of the suicides are done by men (Montana Department of Public Health and Human Services, 2010). It’s this tough-guy attitude that makes men in Montana unable to admit they need help, experts say (Emeigh 2010).

In order to attenuate the isolation and deficiency of knowledge in the eastern portion of Montana - the nation's fourth-largest state geographically - an increase in suicide awareness and mental health awareness is needed. In the spring of 2000, the Montana Department of Public Health and Human Services (MDPHHS) invited a group of private organizations, concerned citizens, and government officials to begin the development of a statewide plan for suicide prevention (MDPHHS, 2010). Yet, no previous intervention included community-based media projects, which have a proven track record in tackling other sensitive public health issues around the nation. Jepson et al. (2010) reviewed 103 public health interventions and found small to moderate effects across a range of behaviors in studies published between 1995 and 2008. Interventions that were most effective included physician advice or individual counseling and workplace- and school-based activities. Mass media campaigns and legislative interventions also showed small to moderate effects in changing health behaviors.

Examples of success with similar community-based media approaches also exist in the realm of suicide. A community-based intervention for suicide prevention that focused on improving awareness and care for depression performed by the Nuremberg Alliance Against Depression (NAAD) in Europe was found to be effective in reducing suicidal behavior (MetaConnects, 2012). A CD-Rom designed for suicide prevention administered to local leaders in an Inuit community in Northern Canada effectively increasing suicide knowledge and counseling skills, and willingness to use the computer-based video for future training (Haggarty et al., 2012; Substance Abuse and Mental Health Services Administration, 2010).

While not all interventions reviewed by Jepson et al. (2010) involved the extensive community-based involvement described in this study, a few studies have shown positive health outcomes in response to similar approaches. An evidence-based, community participatory process was used to develop Healthy Foods North (HFN), a culturally appropriate nutrition and physical activity intervention program that effectively reduced the risk of chronic disease and improve dietary adequacy amongst Inuit/Inuvialuit in Nunavut and the Northwest Territories in Canada (Sharma et al., 2010). A culturally adapted behavioral intervention designed to lower blood pressure delivered to Latino communities in North Carolina achieved favorable physiological, diet, and exercise outcomes. After 6 weeks of group motivational interviewing sessions, systolic blood pressure decreased an average of 10.4910.6 mmHg, weight decreased 1.593.2 lbs, Body Mass Index decreased 0.390.5, and physical activity increased 40 minutes per week (Rocha-Goldberg et al., 2010).

The Global Health Equity Foundation, an international public health non-profit organization dedicated to closing the gaps in health disparities, launched the first community-based media effort in Miles City in 2012. This project used a three-pronged approach to increasing awareness and access of Montana's suicide prevention resources: 1) A community-based media intervention to promote awareness and use of suicide prevention; 2) A qualitative study of the barriers to public health models for suicide prevention and to identify modifications to improve community interventions; and 3) A quantitative survey to identify the social support factors related to suicide ideation among youth.

In order to address the complexity of suicide and treatment, it is imperative to assess the complexity through a variety of research and intervention strategies. Preliminary results from a pilot intervention using community-based media projects to increase youth suicide awareness and access of prevention resources showed promising results. Yet the community was racially homogenous (93 percent Caucasian) and did not yield significant data on minority youth. Due to the high rates of suicide among American Indian communities in Montana, we are therefore eager to replicate the pilot on a slightly larger scale, in the more diverse community of Billings, Montana. Community-based media interventions have a proven track record in tackling sensitive public health issues around the U.S. (Jepson et al., 2010).

Pilot Study

In Spring 2012 and Winter 2013, attitudinal surveys were administered to high school students in Miles City, Montana to evaluate the impact of a community-based media project on youth attitudes towards and awareness of suicide prevention resources. The project involved a youth theater production, youth photography workshop, art exhibit, a social media page, and a project website designed to highlight suicide prevention resources and enable young people to discuss emotions related to suicide and depression. Surveys were administered online at baseline (May 2012), with a follow-up in January 2013, to approximately 225 (n = 224 at pre-test; n = 217 at post-test) high school students in Miles City. Questions were designed to assess the impact of the project on awareness, attitudes, and behavioral intentions towards suicide prevention resources. Variables probed on students' self-reported risk for depression and suicide, awareness of online and local suicide prevention resources, and willingness to engage with such resources and/or communicate with peers, family members or mentors about suicide and depression. The intervention

Chapter: 9
took place June – September 2012. This evaluation involved interdisciplinary research by professors in psychology, communication, and sociology at Montana State University Billings (MSUB). The quantitative data reported was supplemented with qualitative research to identify cultural and personal reports on campaign effectiveness and areas for improvement.

Methods

Questionnaire

An online questionnaire was administered to Miles City High School students ages 14-18 (who have participant assent and parental consent) to assess self-reported history of depression and suicidal thoughts, awareness of suicide prevention resources, awareness of interpersonal resources for suicide prevention, willingness to access resources, and willingness to engage in interpersonal communication about suicide or depression. After the first round of data collection was completed, a 3-month community-based media intervention was administered to self-selected Miles City youth to raise awareness and self-efficacy around suicide and suicide prevention resources. After the intervention, a second round of data collection was conducted, asking similar questions, alongside exposure questions to assess reach of the intervention. The procedure for the second survey was identical to the first.

Measures

Variables for the survey included Likert scales to assess self-reported experience with suicide and depression; self-reported awareness of online and community-based suicide prevention resources; self-reported self-efficacy to access online and/or community-based resources; and self-reported self-efficacy to communicate interpersonally about suicide and depression.

Questions probed on students’ self-reported risk for depression and suicide, awareness of online and local suicide prevention resources, and willingness to engage with such resources and/or communicate with peers, family members or mentors about suicide and depression. A measure of stress was given to understand the quantity and quality of life stressors that each individual is experiencing. Second, a measure of depression and suicidal ideation were given to understand each adolescents’ individual risk level for psychopathology. Finally, a measure for social support was given to assess each individual’s quantity and quality of support persons available. With the combination of these measures, a multiple regression analysis was conducted to determine whether or not social support buffers the effects of stress upon depressive and suicidal ideation symptoms.

Sample

Due to the small size of the community of Miles City, and the opportunity to access all teenagers currently attending high school, the sample will include all current students (est. 400) enrolled in Miles City High School (est. ages 14-18), who have both parental consent and participant assent to take part in the study. The justification for inclusion is to gain better insight into the factors related to the high risk of suicide among young people state-wide, specifically in rural communities in Eastern Montana, in order to identify effective strategies for suicide prevention among youth. “Seniors,” students in their final year of high school, were excluded from the pre-test in order to ensure the same students would be around for the follow-up. Hence, 224 students (Freshmen, Sophomores, and Juniors) were surveyed at pre-test, in spring 2012, and 217 students (Sophomores, Juniors, and Seniors) were surveyed 9 months later, in winter 2013, after the intervention.

Analysis

Descriptive frequencies on all constructs were compared at baseline and post-test to assess changes in attitudes and behavioral attentions before and after the campaign. In addition, bivariate analysis assessed for relationships between campaign exposure and all descriptive variables. Demographic variables collected were controlled to assess campaign affects beyond pre-existing variations within the sample.

In-Depth Qualitative Interviews

Due to the desire to incorporate qualitative findings into the survey and intervention design, in-depth interviews were conducted with key stakeholders to study the issue of youth suicide and depression from a qualitative standpoint. This part of the combined project was designed to explore attitudes among youth in a Montana community toward various treatment/intervention options for depression and/or suicidal ideation. Among adult populations research indicates that social stigma attached to mental illness, the lack of availability of services, and the cultural pervasiveness of the medical model of mental illness shape treatment preferences and behaviors. While the data explore differences across lines of race, class, and gender, little research has been conducted among adolescent populations, despite recognition of the prevalence of depression in teen populations.

This qualitative study consisted of in-depth interviews with 15-20 adolescents focusing on the following primary issues: a) attitudes toward help-seeking behaviors, b) barriers to help-seeking behaviors, c) knowledge about treatment options, d) preferences for particular treatment options, and e) reasons for stated treatment preferences. Interviews
were conducted in the spring/summer 2012, with independent coding and data analysis occurring in fall 2012. The findings from this project have the potential to assist in the development of effective public health campaign messages, to inform local and state organizations about the availability of mental health services in the community, and to add to the body of data in the literature on patient attitudes and their relationship to treatment efficacy.

Results

Survey Results

Demographics In both samples:
- 95% (n = 200) described themselves as White or Caucasian;
- 1.9% American Indian or Alaska Native;
- 1.9% Hispanic, 0.9% African American;
- and 0.5% Asian or Pacific Islander.

The age distribution was fairly even. At baseline
- 39% (n = 77) were 17 or older;
- 34% (n = 75) were 16;
- 21% (n = 46) were 15;
- and 7% (n = 15) were 14.

The age break for post-test was slightly younger:
- 22% (n = 47) age 17;
- 33% (n = 77) age 16;
- 25% (n = 53) age 15;
- 20% (n = 42) age 14;
- and 0.5% (n = 1) age 13.

There were slightly more females (61%) than males (39%) in both surveys.

Suicide Exposure

Responses obtained from both surveys showed consistently high levels of suicide and depression, although exposure to suicide and suicidal thoughts was slightly lower in the post-test survey (possibly explained by the younger age of participants):

- 81% (n = 182) at baseline and 74% (n = 160) at post-test said they knew someone who had committed suicide;
- 12% (n = 27) at pre-test and 10% (n = 22) at post-test said they were currently being treated for depression;
- 22% (n = 49) at pre-test and 19% (n = 41) at post-test said they had sought help for depression in the past;
- 14% (n = 32) at pre-test and 12% (n = 27) at post-test reported having had suicidal thoughts in the past.
- 18% (n = 41) at pre-test and 13% (n = 29) at post-test admitted they had considered killing themselves in the past year.
- Five percent (n = 11) at pre-test and 4% (n = 9) at post-test said they had actually attempted suicide.

Interpersonal Communication

Most, 67% (n = 151) at pre-test and 71% (n = 153) at post-test said they would feel comfortable talking to someone if they felt suicidal or depressed. The most likely person respondents said they would talk to were (in descending order): parent/family members, friends, teacher/school counselors, health care providers, social workers, or church leaders. Most students (86%, n = 192 at pre-test; 79%, n = 187 at post-test) said they would “very likely” or “likely” tell someone else if a friend approached them about wanting to commit suicide. The most likely people a student would tell were a family member/parent or a teacher/school counselor.

Campaign Exposure

Post-test results showed high levels of campaign awareness, prompted and unprompted recall, and access of online resources: 66% (n = 144) of students at post-test had heard of a suicide prevention media project in Miles City; 36% (n = 76) could correctly identify the campaign name (without prompting) as Let’s Talk or Let’s Talk Miles City (Table 1 - next page).

Table 1 displays the three items that were used to measure campaign awareness.

- A majority, 66%, reported having heard of a suicide prevention campaign.
- 35.2% of respondents claimed to know the name of the campaign, and
- 55% said that they had specifically heard of the “Let’s Talk” campaign.

Interestingly, there were no negative responses to this question which, with 44.9% of the data missing, indicates that many respondents preferred not to answer the question. Overall it appears that awareness of the campaign was very high:

- 40% (n = 60) of respondents reported that the campaign had increased their awareness of suicide prevention resources.
- 62% (n = 224) said they would go to the Internet for information on suicide or depression.
- 32% (n = 139) said they knew of specific resources to visit about suicide and depression online.

Prevention Resources

Many (49%, n = 105), although not most, students reported using the Internet to access health information over the past
year. Nutrition, followed by substance abuse and depression, were the most likely topics a teenager had searched. Most (48%, n = 102) said they would use the Internet to find information about suicide or depression. Only 18% (n = 39) said they knew of a suicide prevention organization online.

Differences Between Groups

ANOVA comparison of means showed few significant differences between the pre- and post-test groups.

- A slight increase occurred in the percentage who said they would feel comfortable talking to someone else if a friend confided in them about suicidal thoughts or intentions (pre-test mean = 1.56, SD = 1.39; post-test mean = 1.96, SD = 1.02; p ≤ .01).

- A strongly significant increase occurred in the number of students who knew of a suicide prevention resource online (pre-test mean = 1.55, SD = 0.5; post-test mean = 1.81, SD = 0.4; p ≤ .001).

Outcome Variables. Two outcome variables of interest (self-efficacy and response efficacy) were associated with campaign exposure. Table 2 through Table 5 examine mean scores for five point Likert scaled items ranging from 1 to 5, with the higher number indicating greater agreement or affirmation for the item.

Table 2 [12.1-12.6] - SELF-EFFICACY (SELF)

If I were suicidal I would feel comfortable talking to

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre-test</th>
<th></th>
<th></th>
<th>Post-test</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Parent/family member</td>
<td>215</td>
<td>3.26</td>
<td>1.44</td>
<td>161</td>
<td>3.37</td>
<td>1.39</td>
</tr>
<tr>
<td>Friend</td>
<td>222</td>
<td>3.72</td>
<td>1.31</td>
<td>160</td>
<td>3.83</td>
<td>1.20</td>
</tr>
<tr>
<td>Teacher/school counselor</td>
<td>215</td>
<td>2.80</td>
<td>1.43</td>
<td>161</td>
<td>3.07</td>
<td>1.70</td>
</tr>
<tr>
<td>Church leader</td>
<td>211</td>
<td>2.71</td>
<td>1.51</td>
<td>159</td>
<td>2.93</td>
<td>1.40</td>
</tr>
<tr>
<td>Doctor/nurse/healthcare provider</td>
<td>211</td>
<td>2.76</td>
<td>1.41</td>
<td>161</td>
<td>2.93</td>
<td>1.23</td>
</tr>
<tr>
<td>Social worker</td>
<td>209</td>
<td>2.22</td>
<td>1.28</td>
<td>158</td>
<td>2.54</td>
<td>1.18</td>
</tr>
</tbody>
</table>

Table 1 [q 1,2,3] - AWARENESS

<table>
<thead>
<tr>
<th>Item</th>
<th>Frequency</th>
<th>Percent</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you heard of a suicide prevention campaign?</td>
<td>71</td>
<td>32.9</td>
<td>144</td>
<td>66.7</td>
</tr>
<tr>
<td>Do you know the campaign name?</td>
<td>138</td>
<td>63.9</td>
<td>76</td>
<td>35.2</td>
</tr>
<tr>
<td>Have you heard of the “let’s talk” campaign?</td>
<td>0</td>
<td>0</td>
<td>119</td>
<td>55.1</td>
</tr>
</tbody>
</table>

Notes: Discrepancies are due to missing data.
Table 3 examines the pre- and post-test means and standard deviations of six additional items also used to measure self-efficacy (the confidence in one’s own ability to achieve goals and accomplish tasks). Rather than measuring self-efficacy in response to one’s own thoughts about suicide, these items explored (as in Table 2) this response in relation to the knowledge of someone else considering suicide. The means of four of the items were higher in the post-test than in the pre-test. Teacher/school counselor and social worker were higher in the pre-test. Those answering the survey indicated that if someone talked to them about wanting to commit suicide they would be most comfortable speaking with a teacher/school counselor (=3.94) followed by a parent/family member (=3.90). The lowest scores in the post-test were Church leader (=2.23) and social worker (=2.29). Once again campaign exposure appears to have increased self-efficacy among respondents.

Table 3 - SELF-EFFICACY (OTHERS) 14.1-14.5

<table>
<thead>
<tr>
<th>If someone talked to me about being suicidal I would feel comfortable talking to</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Parent/family member</td>
<td>218</td>
<td>3.72</td>
</tr>
<tr>
<td>Friend</td>
<td>212</td>
<td>3.56</td>
</tr>
<tr>
<td>Teacher/school counselor</td>
<td>217</td>
<td>3.63</td>
</tr>
<tr>
<td>Church leader</td>
<td>207</td>
<td>3.10</td>
</tr>
<tr>
<td>Doctor/nurse/healthcare provider</td>
<td>207</td>
<td>2.99</td>
</tr>
<tr>
<td>Social worker</td>
<td>204</td>
<td>2.65</td>
</tr>
</tbody>
</table>

Table 4 examines the pre- and post-test means and standard deviations of five items used to measure response efficacy (extent to which a response effectively addresses a threat) by asking respondents to rate how helpful various people or occupational groups would be in assisting young people with depression and/or suicide. Higher post-test means were found with two items (parent/friend and teacher/counselor), while two items had lower post-test means (church leader, social worker) and one was the same (doctor/nurse/healthcare provider). In the post-test response efficacy was greatest for parent/friend (=4.15) and teacher/school counselor (=3.75), indicating that respondents believed these categories were the most able to help young people dealing with depression or suicidal thoughts.

Table 4 - RESPONSE EFFICACY 15.1-15.5

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>The following individuals can help young people deal with depression and/or suicide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent/friend</td>
<td>219</td>
<td>4.00</td>
</tr>
<tr>
<td>Teacher/school counselor</td>
<td>222</td>
<td>3.59</td>
</tr>
<tr>
<td>Church leader</td>
<td>219</td>
<td>3.58</td>
</tr>
<tr>
<td>Doctor/nurse/healthcare provider</td>
<td>219</td>
<td>3.69</td>
</tr>
<tr>
<td>Social worker</td>
<td>218</td>
<td>3.34</td>
</tr>
</tbody>
</table>
Table 5 examines the pre- and post-test means and standard deviations of five items used as a general measure of self-efficacy as it relates to the willingness and ability of respondents to access the Internet for health-related information. Interestingly, the means of all five items were lower in the post-test than they were in the pre-test. Moreover, the means for both categories were low, indicating that the Internet is used infrequently as a means of accessing information about health-related issues. This is notable considering that the Internet is the primary way that young people gain information.

**Interview Results**

Qualitative results indicated students had a strong desire to learn more about how to peer counsel their friends and get help independently of adults. More attention will therefore be placed on peer-to-peer communication in the upcoming intervention. No changes were observed in the number who reported using the Internet for suicide or depression.

Preliminary results from this study also suggest that the medicalization of depression and suicidal ideation among teens might actually prevent help-seeking behavior. Among high school students ranging from age 14 to 18, interview data reveal reluctance among respondents to label depression as illness. Subjects much preferred to conceptualize depression and thoughts of suicide as within the range of "normal" behavior for adolescents. In addition, they expressed a reluctance to seek help from professionals (either physicians or therapists) because, if friends and family learned of their help-seeking, they worried that they would be seen as different, strange, or abnormal. Subjects reported that they would prefer to confide in friends and if they did seek out an adult, they preferred to couch the interaction as "talking about normal problems." In contrast to data on adults, the teens emphatically rejected medication as a treatment option, on the grounds that it would make it seem like they were "sick." These findings suggest that schools, family, peers, and mental health practitioners might have more success in encouraging teens to seek help for thoughts of suicide by de-

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**Table 5 - RESPONSE EFFICACY 17.1-17.5**

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre-test</th>
<th></th>
<th></th>
<th>Post-test</th>
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<td>Mean</td>
<td>SD</td>
<td>N</td>
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<td>1.17</td>
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<tr>
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<td>216</td>
<td>2.39</td>
<td>1.19</td>
<td>211</td>
<td>2.23</td>
<td>1.22</td>
</tr>
</tbody>
</table>

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The findings of this project have the potential to inform future suicide prevention campaigns including the benefits of social support for adolescents in similar areas. Such interventions could include family, friends, schools, communities, and social networking sites to implement the intervention. In addition, the potential findings from this study may generalize to other parts of Montana, which could be beneficial for many of our communities. Results may be disseminated via academic conferences and journals.

Future research will analyze effects of the intervention on such outcome variables of interest as self-efficacy, response-efficacy, awareness of suicide prevention resources, and self-reported access of health-related Internet web sites. Campaign exposure will be treated as an independent variable, allowing for a comparison of means from pre-test to post-test for each of the outcome variables listed above, controlling for campaign exposure.

Preliminary results show significant increases in students’ self-efficacy (self-reported confidence for specific behaviors). Students exposed to the campaign were more willing to talk to an adult (family member, teacher, social worker, health professional, pastor) about suicide and depression. As noted in the results presented here, students gained confidence in the use of social workers and high school counselors for communicating about these sensitive topics.

The interdisciplinary approach to understanding the relationship between youth suicide and available prevention resources will hopefully enrich our understanding of how, when, and why students access or fail to access the help medicalizing depression and normalizing mental health interventions. This might alleviate the fear among teens that they will be seen as “outsiders” if they acknowledge feeling depressed.

**Conclusions and Implications**

The findings of this project have the potential to inform future suicide prevention campaigns including the benefits of social support for adolescents in similar areas. Such interventions could include family, friends, schools, communities, and social networking sites to implement the intervention. In addition, the potential findings from this study may generalize to other parts of Montana, which could be beneficial for many of our communities. Results may be disseminated via academic conferences and journals.

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available, and which kind of prevention resources would be more useful to them and why. Specifically, pilot qualitative data indicated potential differences in gender preferences and barriers to accessing school counselors and psychologists.

Some basic logistical recommendations may be implemented by school administrations to increase the use of counselors by both genders. Similarly, pilot results showing a preference among adolescents for handling suicidal complaints among themselves may require more formal instruction and resources for youth disseminated by trained youth leaders/educators. The early results on this creative approach to prevention are promising. Clearly, more information is needed about how to reach under-served populations and how to implement this creative approach on a larger scale. It is our hope that an integration of data from the disciplines of sociology, communication, and psychology will not only shed further light on how to engage youth populations around suicide prevention, but will deliver a highly useful approach that can be replicated in other communities.

The results described here are currently being used to implement a new intervention with a more diverse audience in a larger city in south-central Montana, Billings. The Billings intervention will also involve a youth theater production, youth photography workshop, art exhibit, and project website designed to highlight suicide prevention resources and enable young people to discuss emotions related to suicide and depression. It will be administered to high school youth in Billings by students and professionals from Montana State University Billings and the Global Health Equity Foundation, in conjunction with key stakeholders from Billings.

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Substance Abuse and Mental Health Services Administration (SAMHSA). (2010). To Live to See the Great Day that Dawns: Preventing Suicide by American Indian and Alaska Native Youth and Young Adults. Publication no. SMA 10-4480. Rockville, MD: U.S. Department of Health Human Services, SAMHSA, Center for Mental Health Services.


Teenage actors pose for a group portrait before performing in vignettes related to the subject of suicide prevention and awareness.

Sarah Mosdal took part in the photography workshop sponsored by GHEF for local teens in 2012.
Let’s Talk Billings is a Community Based Media Project in Billings, Montana designed to help people become comfortable communicating with each other about suicide and depression and expressing their own feelings, or listening to the feelings of others. Through media workshops, trainings, and performances, GHEF teaches teens to spread the message that talking about your feelings and seeking help for depression or suicidal thoughts is healthy and important.

Montana has ranked among the top five U.S. states with the highest suicide rates for over three decades. Among Montana’s youth aged 14-25 and Native American populations, the suicide rates are even higher than state rate. A sparse population, extreme climate range, and “cowboy up” mentality and culture – which discourages discussing personal issues or feelings – are all drivers of the high rate of suicide in this state. In response to this crisis, GHEF created an awareness campaign called Let’s Talk, and ran its first pilot project in Eastern Montana’s Miles City.

After a successful campaign in Miles City, GHEF initiated Let’s Talk Billings in Billings in Fall 2013 in collaboration with Montana State University Billings and with outside support from the National Institute of General Medical Sciences of the National Institutes of Health. Local organizations, local leaders, individual school administrators, and the press enthusiastically welcomed the project to Billings as a pro-active approach to a hard-felt public health challenge.

Let’s Talk Billings engaged three teen groups, including a Native American teen group, to develop and write original stories and performances pieces that would generate community conversation about depression and suicide. They learned how to lead audience participation and share available support service information. They translated their works into stage performances for the public and have performed at least once a month since January 2014 bringing important a positive mental health message to Billings and its surroundings.

**Successful Performances and Recognition:**

- **August 2013** The Billings Gazette editorial team called *Let’s Talk Billings* “an innovative, youth suicide prevention project,” “a concrete step that transcends lip service” and a “significant starting point” for addressing youth suicide

- **January 2014** The Billings Gazette features *Let’s Talk Billings* several times in the lead up to the first performance, including articles about the Native American teen group, the three teen-original plays, and the performance premier.

- **February 2014** *Let’s Talk Billings* is invited to perform among professional performers at the Billings Fringe Festival at NOVA Center for the Performing Arts.

- **April 2014** Yellowstone Valley Woman Magazine writes a full-feature on *Let’s Talk Billings* “Shining the Spotlight on Teen Suicide and Depression”.

- **April 15, 2014** *Let’s Talk Billings* and *Let’s Talk Miles City* teens performed together in a “Mash Up” for County Custer High School students; bringing their message to a high-risk population

- **May 13, 2014** The Eastern Service Area Authority (ESAA) invited *Let’s Talk Billings* to perform at its annual congress for healthcare and government representatives. ESAA works with the Department of Public Health and Human Services to assist in the management of public mental health care.

- **May 14, 2014** Montana State University Billings celebrates the teens involved in *Let’s Talk Billings* and high-profile mental health advocate Dr. Donald Harr shows his support for the project

- **May 14, 2014** Let’s Talk Billings holds Lodge Grass Performance, with special guests Dr. Donald Harr, Professor Adrian Heidenreich, and Anna Decrane.

**Monitoring and Evaluation**

A team at Montana State University Billings, directed by Dr. Sarah Keller, is monitoring and evaluating the impact of this approach on suicide ideation and willingness to seek help by the teens involved in the project and teens exposed to the project through their school or attending the public performances.
Determining Social Value

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Abstract

Often in the health sector, especially in resource-limited settings, well-intentioned programs operate and expand without any rigorous assessment of their impact. The tendency is to predicate the funder as the one to whom the programme deliverer is accountable, rather than the end user. What gets measured in these circumstances is what the funder requires to justify its investment. It generates a false sense of the whole and distributes wealth inequitably. Under these conditions, programme implementers, beneficiaries and other stakeholders cannot understand the true, often multidimensional impact of the given programme. This rules out any chance of improving the intervention in a way that better meets the target group's needs. It makes attracting donors, who are interested in predicting the intervention's anticipated outcomes, very difficult. Identifying effective components that can be applied to other communities becomes extremely tough. Social value is created when resources, inputs, processes or policies are combined to generate improvements in the lives of individuals or society as a whole.

Introduction

Too often in the health sector, especially in resource-limited settings, well-intentioned programs operate and expand without any rigorous assessment of their impact. Over-burdened staff lacks time and motivation to conduct assessments that dig beneath the surface. Instead they focus on easily quantifiable outputs such as coverage figures and utilisation. Moreover, the tendency is to predicate the funder as the one to whom the programme deliverer is accountable, rather than the end user (i.e. the health insurer, the state, the grant giver). What gets measured in these circumstances is what the funder requires to justify its investment. It generates a false sense of the whole and distributes wealth inequitably.

Under these conditions, programme implementers, beneficiaries and other stakeholders cannot understand the true, often multidimensional impact of the given programme. This rules out any chance of improving the intervention in a way that better meets the target group's needs. It makes attracting donors, who are interested in predicting the intervention's anticipated outcomes, very difficult. Identifying effective components that can be applied to other communities becomes extremely tough.

Social value is created when resources, inputs, processes or policies are combined to generate improvements in the lives of individuals or society as a whole. Most approaches to social value are linear and based on financial return. They do not sufficiently reflect non-empirical considerations, for example how health innovations improve people's lives. Nor do they capture the importance of process - the way we do the work - to outcomes. Here are two rich examples of interventions with social value potential, but within which the social value factors are undervalued, untapped or just unnoticed:

Case 1: Public Enemy Number 1, U.K.

This case study concerns a man with a 30-year history of frequent arrests for violent crime and burglary. He has been working with the social enterprise 'Open Door,' in Grimsby in the U.K., for three years and has kept out of trouble for all of that time. Open Door is a social enterprise that works with the U.K. National Health Services to provide primary and community care to people who may have never received any
healthcare - the homeless, criminals or those with mental health problems.

This is a man who used to be arrested on average every two weeks - six to eight police officers were needed every time as he always resisted. He would then be put in a cell, go through the court system and receive a custodial sentence of varying duration.

Two years ago his partner became pregnant and social services predicted the baby would go straight to adoption. Open Door worked with him on anger management and how to present himself. As a result his baby never went into care of any kind and Open Door considers him a brilliant father.

A Social Return on Investment (SROI) map created by Open Door for this man showed that the organisation received £140 per annum to care for him, but their work with him generated £48,000 of public savings.

The U.K.’s Treasury and Cabinet Office are delighted with this, but it misses the point – this man does not modify his behaviour to save the State £48,000. He does it to ensure his son has better opportunities than he did. If he achieves that outcome, the savings to the State will be manifold, as it is with any luck that his son will not follow his father’s career path and will cost society much less (Malby, Masi, Parris, Childress, & Liang, 2010).

**Case 2: Football team, U.K.**

Another example from mental health services in the U.K. is the ‘Good Mood’ Football League. This involved the development of a network of small five-a-side football teams in a league across the three districts of Calderdale, Kirklees and Wakefield, which lie just south of Leeds.

The league was based on work undertaken in Hackney, London. Significant health improvements and broader community benefits were being reported as a result of the development of a football league in which service users participated.

For a very small outlay, which includes procurement of a football kit and the hiring of leisure premises, there have been huge returns. Service users report significant mental and physical health benefits, resulting in reduced drug dependency, fewer admissions to hospital and less contact with the criminal justice system. As a result, service users are able to lead a full life with improved health, improved social network and ultimately less reliance on the state for support.

Generally speaking, social valuation approaches endeavour to ascribe value to otherwise qualitative occurrences in society (i.e. happiness, quality of life, security, etc.). Thusly, quantifying such a measure would first infer that we are aware of which practices/components of economics, politics and society create social value. Moreover, there are several interventions that could increase or decrease social value creation. As an example, a 20 percent increase in one’s salary will likely increase happiness, quality of life and security. Although it is easy to quantify the amount by which the individual’s income increases, it is difficult to estimate the amount by which income enhances the social value indicators listed above. What is more, even in the event that these social value indicators can be quantified, it would be premature to assume causality and attribute all social value creation to an increase in income. To that end, social value is not only evidenced in response to economic initiatives. Social value can be found in anti-racism efforts, aspects of community organizing, animal rights advocacy and folk art. It has intrinsic value, but can be difficult to agree upon or quantify.

Alternatively, it is suggested that measures of economic value are standardized and support the basis for most economic activity in the world. Economic value relishes absolute indicators, which are not subject to interpretation or subjectivity. Such measurements are often completely unequivocal and are not capable of being viewed as partial or relative. Conversely, it is to be acknowledged that in the Social Value arena there are factors that are indeed beyond measurement, yet clearly are of value and worth affirming.

**The Fair Chance Approach to Social Value**

The International Shaping Health Systems Network designed The Fair Chance Approach to Social Value (Malby, Masi, Parris, Childress, & Liang, 2010), a toolkit that:

- Generates better understanding of the processes by which social value is created
- Boosts funding for projects and organisations that have added the most social value
- Helps investors see how to create social value
- Improves social value added by all organisations and projects that use this toolkit

Fair Chance is honest, it recognises programme deliverers and implementers do not have control and everyone has to keep trying. This approach is a shift to a living dynamic, requiring continuous effort; it is not just done and passed on.

This model makes it possible to generate a conversation and decision-making process about conditions that are complex and models of provision that are interdependent, which is the case for most chronic disease management. Because its difficult to count the impact of chronic disease management; and because there is an intermit interplay between the patient, service provider and commissioner, with effective care being dependent on the relationship between all three, we need a different way of measuring value than the usual SROI or project management methodologies. This approach enables systems, organisations or projects to:
• Demonstrate your social value

• Review your social value – are you doing as much as you could be?

• Create social value – through the process of both of the above

• Allow future initiatives to learn what really happened, and how

• Create the conditions for reliable rather than predictable outcomes - they will be reliable in the sense that they move in the direction you need or desire, even unintended outcomes

• Make adjustments to process and design in an ongoing process of knowing

Co-production - designing and delivering services in partnership with users and communities - is at the heart of the approach. Except in very simple situations, social value cannot be created any other way. The process described is also iterative.

You as service providers may have agreed upon an approach with your funders, but as you develop metrics and understand the service users you are working with, you might decide what you were planning to do isn’t good enough. Now you’ve got choices to make and you’ve got to make them collectively because (a) you have changed the plan and (b) other stakeholders might have different views about what needs to be changed in the plan. It isn’t for you as a service provider to go off and make those decisions in isolation, then have them challenged. (Malby, 2010)

Social Value Intent Model of Inquiry

The methodology has the following steps:

Step A: Determining Social Value
Here you work with your stakeholders to determine what you intend this program or project to do – what is the social value you are trying to create? Stakeholders are those providing, using or influencing and shaping services. They are funders, commissioners and anyone else who can say ‘yes’ or ‘no’ to your plans.

Step B: Measuring Output Value
Here you design a process for determining what output metrics you are going to gather and ways of capturing any unintended consequences of the program.

Step C: Measuring Process Value
Here you measure how well you are working within the project in order to get the best possible outcomes.

Step D: Making Sense
Here you interpret the data to make sense of whether you achieved your intended outcomes, what unintended outcomes emerged and how well you worked together. This generates a report on impact and creates options for the future.

Step E: Making judgements
Here you work with your stakeholder group again - the ones in Step A and any others you now think you need - to decide which options are the ones to pursue now.

Step A and D are conversational conferences bringing together the stakeholders to determine the intended impact (Step A) and reviewing the impact (Step D). Step A brings the stakeholders together to agree on the topics for the inquiry (helping us answer the question ‘How do we know we have achieved what we wanted to achieve?’). This is augmented by a workshop with a smaller stakeholder group to co-produce the principles for the data collection (how we are going to collect data – the methods of the inquiry).

Step D is strategic review and sense-making process which can be further advanced through strategic decision making workshops.

Step B requires development of metrics related to outcomes and costs. Outcome metrics are developed based on the current in-use performance metrics for the system and new metrics developed to answer specific questions related to the intended impact. Data collection can be through current channels, but will also be augmented with both qualitative (programme diaries, interviews, participant observation) and quantitative (surveys, questionnaires) approaches. The metrics relate to:

Health and social care outcomes – categorised by impact on physical, mental, health and wellbeing and social health. A bank of metrics associated with these dimensions is available and the metrics in use in the system are scrutinised to utilise those. Where there are gaps, specific metric sets need to be developed. These can be qualitative
or quantitative and we will be using a participatory research approach, so that data is collected by participants in the change process including service users.

Economic outcomes – impact at personal (service user) level on their own economic wealth, as well as at system and project/programme level to determine impact on overall costs and specific project costs. This should include:

- Gather and analyse whatever objective data is available on the subject communities (from Census or other sources, at the micro scale especially);
- Gather and have available for analysis, whatever economic data is needed to evaluate relative outcomes (for the cases being examined and if possible for ‘null-hypothesis’ procedures/outcomes);
- Asking recipients – where as appropriate – about their subjective valuation of services generated and received: wellbeing, sense of community, etc. There is no need to pretend this can be reduced to ‘pounds and pence’ if it is crude reductionism to do so.

Step C takes place through a series of workshops which develops the discipline of feedback and review across the partners, itself developing capacity to learn and adapt. The model for reviewing adaptive capacity is a research based model developed by the Centre for Innovation in Health Management. This is a particularly experiential and discursive part of the process (Malby, 2010).

An example of The Fair Chance Approach in action for Chronic Disease services, Leeds Community Trust (Leeds Community NHS Trust, 2012)

Leeds Community Trust provides care in the community primarily for people with long-term conditions, as well as babies and children.

Our first social value workshop elicited through storytelling what service users and carers found valuable about the services they used or worked in and what they saw as the essence of generating social value.

The Process of the Day

The workshop was attended by 16 voluntary sector stakeholders, 48 public/service users, 2 commissioners, 58 Leeds Community Health (LCH) staff, 13 other stakeholders (137 in total).

Participants were seated at tables of five or six, each having at least one representative from each group. Each table was asked to listen to one or two tell a story about an experience with LCH services and based on this, came up with a number of statements as to what adds value. These statements were written on post-it notes and pinned to a large notice board grouped into themes.

Twenty themes were identified, each one of these themes was assigned to a table and participants were asked to move to a table which had the theme they individually felt was important to them. Each table then had to come up with a statement which expressed what needed to be done in line with the theme.

Through a process of experiences and review we assimilated all the views into five statements:

5 key statements of intent for Leeds Community Services

- To provide services that are easy to access and the information about them is easy to understand, accurate and utilises technology
- To centre care around the individual so that he or she is in control
- Communication is two way, so that services really listen to what users and families want and need
- Effective partnerships between users, families and services for the benefit of the best possible care
- For LCH to have the right staff working for the organisation, who have the values that can really empower service users

From these the Leeds Community Trust developed metrics to determine how they would know if they were achieving these statements; developed innovations to improve their performance against those statements and returned to talk with the community a year later to review together how well they were achieving their intended value.

Conclusion

Social value is created when resources, inputs, processes or policies are combined to generate improvements in the lives of individuals or society as a whole. In the social value arena there are factors that are indeed beyond measurement – and are often overlooked in favor of metrics the funder requires - yet are clearly of value and worth affirming. The Fair Chance approach to social value offers a means to discuss and generate a decision-making process on complex conditions and interdependent models of provision, especially helpful for chronic disease management.

We have found that having real conversations between stakeholders intimately involved in the commissioning, delivery and uptake of services for people with chronic disease (long-term conditions) has the potential to:

- Release the assets of service users and their carers to self-manage
- Get clear on service users’ real priorities and needs, to tailor services (and funding)
Generate collaboration between commissioners and providers of health services

Generate a more equitable distribution of wealth to services for those whose care is difficult to measure

References


Health Equity and Community Networks: The Connected Communities approach to inclusion in mental health

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Abstract
This paper proposes the importance of community and social networks in addressing social exclusion at the community level and the inequalities with which exclusion is associated. The potential for clinical services to work with communities themselves in new service formations is explored with particular reference to a current programme - “Connected Communities” - a collaborative action research study in seven UK sites in which inclusion and wellbeing interventions are designed and delivered based on the assets of local networks identified through community engagement and social network mapping.

Introduction
This paper explores the notion of social inclusion as a dimension in health equity from the perspective of networks – specifically social and community networks and the value of these networks in mental health. It identifies the policy context for the emergence of inclusion and describes Connected Communities – an approach to social and community networks based interventions which integrates deliberative community engagement and network mapping.

In tapping into the hidden wealth of service users, their families, friends and wider communities, the Connected Communities approach illuminates and advances the important idea that mental wellbeing is multi-dimensional. It is also concerned to maximise the positive personal outcomes associated with health equity. Additionally, it invites a consideration of the role of public services in relation to social and community networks, suggesting that services that enable co-production are a necessary condition for the hidden wealth of communities to be effectively tapped and that in turn, this implies very significant change in service design and organisational culture.

The Centre for Citizenship and Community
The work described in the presentation is that of the Centre for Citizenship and Community (CCC). The Centre was established in 2013 to take forward work on social inclusion and connected communities that had been in progress since the inception of the National Social Inclusion Programme in 2004, established to oversee implementation of the recommendations of the report of the Social Exclusion Unit: Mental Health and Social Exclusion (2004). Based in London and Preston Lancashire, CCC is a partnership between the University of Central Lancashire (UCLan) and the Royal Society of Arts (RSA) with the Royal Society of Public Health and the Personal Social Services Research Unit at the London School of Economics.

The CCC brings together an Expert Associate network from Health, Social Care, and wider public service sectors with senior experience and profile in areas including commissioning, management, strategy, leadership, service improvement, and design with academics from all the partner organisations. This provides the Centre with a wide ranging skills mix, including action research, network analysis, policy development, leadership, and organisational development, curriculum design, public health, arts, and cultural perspectives, economic modeling, and financial analysis. The involvement of RSA enables the work of the Centre to link to and build on the knowledge and interests of RSA Fellows – a national and international network of Individuals
with professional and lay expertise in a vast range of disciplines.

The mission of the Centre is to support the ‘thinking and action’ needed in policy, research, learning, and innovation to achieve the vision of services that are designed to integrate, in everyday practice, the social value of empowered communities and their assets and networks to enable good wellbeing and inclusion outcomes. Its framework for this mission is defined with reference to four key ideas:

- **Change through networks** Imaginative community networks are key to social action and new approaches to governance at all levels (Tapscott, 2013).
- **Community engagement** Community engagement is imperative to local empowerment and to unlocking the social value – the unseen assets – of community.
- **Organising for inter-dependence** Building from the principle of reciprocal ties; bonding and bridging communities.
- **A culture of co-production** Public service organisations with a ‘literacy of community,’ capable in respect of complexity, co-production, and innovation in design, development and delivery.

**Community assets, bringing an established tradition to contemporary policy**

The precepts on which the Centre’s role has been built are of course well established, drawing significantly for example on the familiar work of John McKnight on the importance of community assets:

> The less a community knows about itself and its citizens’ capacities, the easier it is to fall into a pattern of seeing the community and its people only through a ‘needs’ perspective. The more a community becomes familiar with itself and its citizens, the more obvious it becomes that what is good about a community far outweighs whatever needs it might have. (Kretzmann & McKnight, 1997)

And contemporary health and social care policy with its close attention to integration also recognises the value in a community assets perspective:

> Professionals need to recognise that the personal assets that patients and their families bring to the care planning process are as important as the clinical information in the medical record. They must also be aware of the capacity of local community and self-help groups to provide appropriate support. (Coulter, 2013)

However, while the idea of community assets is well embedded in public health policy, there is little evidence beyond acknowledgements such as these, that action on the integration of services is explicitly geared either to incorporating the perspectives of communities or to recognising that the assets of communities should be the starting point for individual programmes of health and social support. Equally, although ‘personalisation’ is now a widely accepted principle for health and social care service design and delivery, there is little sign of ‘personalised’ services incorporating the integration of community assets in any systematic way.

To redress this, would be to more closely align health and social care with broader developments on civil society and the ways in which – in contemporary policy, civil society activity – utilising the inter-connectivity associated with shared interests to advance collective activity as a source of future wellbeing – has become a central tenet:

> We need to set our sights far beyond the narrow arguments about contracts or fiscal treatment for the voluntary sector, and look instead at how civil society activity can shape our world and how we can make the transition from an age of ‘me’ to an age of ‘we.’ (Mulgan, 2010)

In seeking to draw the principles of engaged civil society more closely into the conduct of public policy activity, we do, however, need to attend to how such engagement can be turned to the task of challenging inequalities whose growth appears as an inevitable consequence of neo-liberal economic models. In these conditions, communities of shared interest may represent a significantly greater potential risk for marginalised groups and individuals than might be the case in more just economic conditions. This was recognised in the Commission of Inquiry’s report on the future of Civil Society in the UK:

> There is a strong sense … that economic polarisation between the rich and the poor and the associated growing social divides are likely to significantly affect civil society. The challenge for civil society associations is to support and empower the most marginalised and not to replicate inequalities in their own structures. (Carnegie UK Trust, 2007)

**Connected Communities and mental health**

If social connection has an established association with community mental health and wellbeing (Aked et al., 2008; Bowling, 2011; Brugha et al., 2005; Webber, Huxley, Harris, 2011), it has a particular relevance to individuals with mental health problems, who in being amongst the most isolated or marginalised in society (Department of Health, 2010), frequently have restricted social networks (Bigby, 2008). Social networks are key aspects of social capital (Kawachi, Subramanian, & Kim, 2007) and so reducing the barriers faced by people with mental health problems to social capital can, in turn, promote access to these social networks as well as the improved personal, occupational, status, and activity outcomes associated
with positive social capital, (Lin, 2001), inclusion, and greater equality.

Work in the UK on the evidence of social exclusion of people with mental health problems had identified the multi-dimensional nature of the issue (Social Exclusion Unit, 2004) and in addressing it, highlighted the importance of integrated social approaches that conceive the individual and their support or recovery goals in the whole system context of their social and community links (National Social Inclusion Programme, 2009). There was thus an imperative to think about how to model these links and assess the ways in which they might work as the basis for interventions. This led to 'Connected Communities' with its focus on exploring how community development could be extended to a model that would provide for a different way of looking at the possible behavioural change and influence associated with networks, with their dynamic quality, often untapped capacity, their positive relationship to social capital and, in turn, to enhanced health, education, and economic outcomes (Rowson, Broome, & Jones, 2010).

The rationale for Connected Communities; for thinking about communities as networks - about individuals and groups and how the former become the latter was that of considering how better understanding the complexity and the diverse and emergent properties of networks could enhance the possibilities for working with networks as part of public service delivery (Morris & Gilchrist, 2011).

Central to the Connected Communities approach is understanding how to work with the grain of peoples' lives in their communities. It is with services that ask themselves: 'Do we know enough about the people that we serve outside of their responses to service provision? ...Do we know how to work with the grain of their lives and support their aspirations?... Do we really understand communities, and what generates pride, resilience and social capital? Given that in most cases, services would either not ask these questions or anyway, be unable to provide answers to them, the model had developed a methodology based on network analysis, to enable an understanding of people's connections: who they know, where they go, and how the capacity of the 'connectors' revealed by the work – individuals, outside traditional service delivery patterns, such as postal delivery workers or pub quizmasters - could be 'leveraged' to enhance service outcomes.

*Connected Communities* – a programme in seven sites

Early Connected Communities work in South London and Bristol found that:

- 'Familiar strangers' are an under-used community resource – in RSA research, more people recognised the postman than the ward councillor;
- Community hubs – including pubs & sports clubs – are an important source of resilience & social capital;
- Bridging institutions – public, private, social – are key conduits for information, connectivity and job opportunities.

In its approach, Connected Communities was acknowledging that large 'set-piece' interventions (such as community regeneration schemes and zones) had failed to address social regeneration challenges and had failed to adequately close health and employment gaps. We wished instead to explore the possibilities for an organic, multiple policy domain perspective that would blend social, economic, and health outcomes and that also could provide the future social structure to create more resilient communities capable of meeting their own needs.

Beginning to understand the value of networks in this way has revealed further questions on how we should develop the skills, tools, and dispositions for these 'new public servants,' or service entrepreneurs; what policies, processes and performance management and metrics are needed to support service providers who are in effect community connectors?

From the early investigation of these questions, the programme was extended, becoming in 2010, a study in seven sites with the objectives of:

- examining ways in which community-based networks are formed, their purpose and function;
- mapping the inter-personal and collective behaviour of these networks in each site at different points in time;
- identifying ways of understanding the essential characteristics and dynamic effects of these local networks;
- designing community level interventions to capture these effects;
- synthesising study site outcomes for overall programme outcomes;
- applying social return on investment analysis to programme.

**Methodology and scope**

Since we were seeking to analyse how different interventions build resilient, inclusive communities and empower individuals to take greater control of their lives in diverse settings, the selection of study sites was itself diverse, incorporating a wide demographic range in which five regions of England were represented. In each site, the community was identified through a lead community membership 'umbrella' organisation and then engaged deliberatively through local community researchers. Local people engaged in this way were asked a series of questions – based on a survey tool produced by RSA. These included:
What resources, places and groups are used/visited locally?

From where do you get your information, are there any local barriers to this?

On whom from within your social networks do you rely and in whom do you place your trust?

To whom do you go for help?

Who are the known activists locally?

Who links local people to authority?

By way of a ‘door knocking’ approach, the project aimed in each site to secure 500 completed surveys through the work of volunteer community researchers who were recruited by the umbrella community organisation and trained using materials produced by UCLan for community researchers engaged in local community surveys. Taking as an example Murton in the northeast region, recruitment produced 25 Community Researchers, 18 of whom received UCLan’s two day certificated training. Each spent 10 days on connecting with their community, collecting their 500 survey questionnaires.

The brief of the researchers was firstly to establish the degree to which individual residents were socially connected in an area of social and economic disadvantage and secondly to establish possible intervention strategies for those identified as disconnected.

The seven neighbourhoods all had different network structures and assets that impacted on life satisfaction in different ways. In one locality, life satisfaction was most closely linked to having a small number of trusted confidantes and being considered by others as a confidante; in another it was driven principally by whether people felt they had to avoid certain local places, while in a third it was linked to whether or not a resilient structure was a local network feature.

On the basis of the data, the nature and design of the proposed intervention is elaborated and an evaluation questionnaire produced to measure intervention effectiveness within the individual site, and subsequently across all sites in order to facilitate dissemination and promote good practice and sustainability.

A particular value of the social network mapping approach is that of enabling a local ‘re-visualisation’ of networks; a fresh appreciation of who people are to each other. Depicting responses in this way offers a vivid way of understanding connection.

Figure 1 for example, presents data based on answers to the question ‘please tell me what types of groups, activities, and organisations you take part in’. (The size of the nodes reflects the number of answers; the greater the number of respondents in respect of each setting, the larger the node, while the red arrows highlight the more popular settings, in this case cricket, gardening, helping others, and the Internet, and the spidery lines at the end of the network image depict settings to which people reported going alone). In this case, as for several others, the map illuminates a level and extent of activity connection-based activity that is significantly greater than participants had anticipated.

Network images reveal the extent to which respondents were from the same family and friendship groups, leading thereby to particular individuals becoming multiply ‘depended upon’ (Figure 2); provide a vivid picture of the inter-relationships associated with personal support or advice seeking (Figure 3) and provide a comparison of trusting relationships rooted in friends and family with those provided by wider circles of neighbourly trust (Figure 4).
They demonstrate inter-relationships which would otherwise remain invisible, revealing the potential of these positive social assets for care and support planning and recovery.

Note the large cluster of very interconnected people in the centre. This shows how many respondents were from the same extended families and friendship groups, leading to particular individuals becoming multiply ‘depended upon.’ The large blue dots in the middle represent people whose company was valued by a number of respondents.

This network image represents the response to the question, “Who are the people you go to for advice or emotional support - for example, to discuss important matters or life choices such as a new job or moving house?” It gives a vivid picture of inter-relationships, which would otherwise be ‘invisible’ and therefore playing little part in constructing a care or recovery plan in which advice and emotional support could well be key elements. At the same time, it shows that advice systems in this locality are rather disjointed, highlighting the need for a more effective approach to providing advice.

FIG 4 (see next page)

This depicts the response to the questions:

- “Who would you ask if you were away for an extended period of time and needed someone to look after the house/flat and water plants/feed pets/get your post for you?”

- “Who would you ask if you needed practical help such as help with jobs around the house, or picking up a prescription?”

Whilst we still have the cluster of friends and extended family in the centre, the far bigger circle around the edges shows that there is a good level of neighbourly trust in the area, or that at least that a
significant number of people ‘help each other out’.

**Conclusion, what have we found so far?**

At a strategic level, we have found that:

- Any policy area benefits from understanding and using networks;
- Networks offer potentially big effects through small interventions;
- Network-orientated services require different approaches towards risk and evaluation, as some fail;
- Understanding patterns of connectivity and the transmission of social values and behaviours offers a new approach to policy;
- Visualizing networks can in itself prompt individual and social reflexivity and pro-social behaviour.

Equally, the programme has highlighted some challenges:

- A focus on multi-dimensional mental wellbeing is needed; this is key to maximizing positive outcomes in numerous domains;
- Services should be socially productive, not thin, transactional relationships; they should embody a blurring of boundary between the state and civil society - well designed public services can encourage and support, rather than crowd out, efforts of families and communities;
- Services should make more of the unseen, untapped capacity in communities – isolated/vulnerable citizens may have personal/social assets that are unrecognized and un-utilised and there is a need to develop ways of mapping and connecting social supply and demand.

The importance of public services

Notwithstanding the evidence that Connected Communities provides for models of health and social care reformulated to blend with formal provision – models that tap into the hidden wealth of service users, their families and friends and their communities – another key finding from our work to date concerns the importance of public services to the generation of networks. In this regard, we found that 84 percent of study participants have some connection to the public sector in their (potential) inclusion and mental wellbeing networks; in most areas, those who did not cite the public sector in their networks had lower subjective wellbeing, mental wellbeing, and/or life satisfaction. We conclude therefore that the role of public service facilities is a crucial one in enabling new models of service co-production.

In summary, Connected Communities is an approach to second order change – it is not a new way of doing things within the existing framework of how we understand communities, but an approach to changing the way we understand communities and their potential, when systematically and patiently engaged, for co-designing, developing, and deploying services that are based on realising the value of their own assets for wellbeing and inclusion, and for promoting local equity.

An important, if secondary outcome of the community engagement process...
involved in Connected Communities was that two community researchers were enabled by their experience to move to employment. This outcome strongly associated with the our work on deliberative community engagement more generally, could be seen as an additional equalities impact factor for community research based on the Connected Communities principle and method.

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Dr. Sarah N. Keller has developed a service learning curriculum that has been well attended by students and enthusiastically received by the community at Montana State University - Billings. Dr. Keller began this process at Emerson College, where she taught in a master’s program in Health Communication. The curriculum allows her to apply professional experiences from overseas entertainment education and health communication campaigns with Population Communication International, USAID, and Family Health International. Her students have collectively produced annual social marketing campaigns over the past 10 years, including: 1) "Get Tested!" to promote HIV testing; 2) "Open Your Eyes" to prevent domestic violence; 3) "Go Play!" to promote physical activity and nutrition; and, most recently, 4) "Let’s Talk" to prevent suicide and depression. Each campaign has been supported by external grants and in-kind services from area broadcast and media professionals, solicited by the professor. Her media work is informed by her background as a professional newspaper reporter for several small- and mid-sized daily newspapers around the country, and as a freelance reporter internationally for McGraw Hill, the Washington Post, and United Press International.

Research on her campaigns has resulted in papers appearing in the Journal of Marketing Education, Nursing & Health Sciences, Journal of Advertising, and Health Knowledge, Attitudes and Practices by Nova Press. Her ongoing research agenda centers on examining the use of mass media to promote health behavior and attitude change on a variety of public health topics.

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David has founded and led a number of programmes in the field of inclusion and health inequalities and contributes widely both nationally and internationally in a range of advisory and consultative roles to the development of policy and practice on social inclusion.

With a professional background in social work and management of Mental Health services in social care, David’s career has spanned statutory and voluntary sectors, central and local government, social care, health and academia. He is a Fellow of the Royal Society of Arts with whom he is working on ‘Connected Communities,’ a five-year programme on social networks and community capital. PhD, BA, CQSW, DASS, FRSA

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A cross-disciplinary, cross-sector approach provides the best solution to this crisis. The foundation shares expertise and seeks to translate basic knowledge of the causes and consequences of health inequities into practical and innovative solutions. Global Health Equity Foundation integrates its research into advocacy and capacity-building projects for improving health equity worldwide.

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