High Impact Public Health Interventions for the Philippines

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Wessex Public Health Specialty Training Scheme and Wessex Public Health England Centre

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Background

This work was commissioned by Dr Jim O'Brien, Centre Director for Wessex, Public Health England. Jim was on secondment to the World Health Organisation in the Philippines for 3 months in 2014 in response to Typhoon Yolanda/Haiyan.

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The presentation, interpretation and opinions expressed in this report are solely those of the authors.
Executive Summary

In the Philippines, life-expectancy at birth is 70.1 years, which decrease to 60.3 years when it is adjusted for ‘health’. Lower respiratory tract infections, ischaemic heart disease and cerebrovascular disease are the top causes of premature death.

Low back pain, major depressive disorder, iron-deficiency anaemia, chronic obstructive pulmonary disease and tuberculosis contribute heavily to the disability burden.

Dietary risks, tobacco smoking, high blood pressure, household air pollution and alcohol account for the largest portions of the Philippines’ burden of disease.

The highest impact public health interventions are those that work alongside investments in the wider determinants of health to build opportunity for poor people, whilst also working to reduce health, social and economic inequalities in order to support and promote better health outcomes.

A package of short, medium and long-term measures is perhaps the most effective, ensuring immediate needs are met while establishing a strong, integrated, sustainable health system in the long-term.

Short Term measures should include putting in place appropriate and widely accessible Minimum Essential Clinical Services and Minimum Essential Public Health Interventions packages.

Medium and long term Health Improvement Public Health interventions should focus on dietary risks, tobacco smoking, high blood pressure, household air pollution and alcohol.

Medium and long term wider public health interventions should include policies and interventions that improve the wider determinants of health, and focus on achieving the WHO key health system building blocks.

This document explores these headlines in more detail, presenting the evidence of the impact and value that good public health interventions can play in improving health and the economy in general.
High impact public health interventions for the Philippines

Summary

The highest impact public health interventions are those that work alongside investments in the wider determinants of health which build opportunity for poor people. These include investment in education and nutrition, political stability, good governance, social inclusion, systems to protect rights and property, and economic growth. Investments in these areas also work to reduce health, social and economic inequalities which support and promote health outcomes.

A package of short, medium and long-term measures is perhaps the most effective, ensuring immediate needs are met while establishing a strong, integrated, sustainable health system in the long-term.

Short term interventions

The Alma Ata declaration promotes essential primary health care which must address the main health problems of the target population to provide services that promote health and prevent and treat illness.

The concept of a minimum service package (MSP) or an essential service package (ESP) is rooted in the need to provide a package of public health and clinical interventions that are not only cost effective, socially and economically accessible to the population (especially the poor), but also deal with the priority disease burdens of the population. A minimum service package should be universally available to ensure equity. After covering the minimum for all, the package may later be expanded to include other interventions relevant to the country or specific segments of its population.

The World Bank has delineated what a minimum services package should include (shown in Figures 1 and 2). This package will need to be adapted to the Philippines context and need.

Figure 1: Minimum Essential Public Health Interventions

<table>
<thead>
<tr>
<th>Minimum Essential Public Health Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Immunisation plus (Including Yellow Fever and Hepatitis B vaccines, Vitamin A and Iodine supplements, and in some cases Insecticide Treated Net distribution)</td>
</tr>
<tr>
<td>2. School-based health services (treatment of schistosomiasis, micro-nutrient deficiencies, and de-worming)</td>
</tr>
<tr>
<td>3. Health improvement ['behaviour change'] communication (benefits of breast feeding, family planning, no-smoking messages, and campaigns against alcoholism)</td>
</tr>
<tr>
<td>4. Dissemination of information on hygienic practices (and improvement in water and sanitation)</td>
</tr>
<tr>
<td>5. Check the spread of HIV/AIDS by providing information to promote change in sexual behaviour, distribution of condoms, and treatment of STI (sexually transmitted infections) – targeting high risk groups.</td>
</tr>
</tbody>
</table>
**Figure 2: Minimum Essential Clinical Services**

<table>
<thead>
<tr>
<th>Minimum Essential Clinical Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Services to ensure pregnancy related care (antenatal, delivery, and post partum)</td>
</tr>
<tr>
<td>2. Family Planning</td>
</tr>
<tr>
<td>3. TB control</td>
</tr>
<tr>
<td>4. Control of STIs</td>
</tr>
<tr>
<td>5. Care of common serious illnesses of young children (IMCI) - Pertussis, Polio, Diphtheria, Measles, Tetanus</td>
</tr>
</tbody>
</table>

Basic mental health services are not mentioned by the World Bank yet mental illness accounts for a substantial burden of disease globally and in the Philippines (see below). A basic service package for mental health might include treatment and identification services for depression, schizophrenia, substance misuse and epilepsy. Although epilepsy is not technically a mental illness, it is often treated as one in developing countries. For more information see:

http://www.basicneeds.org/
http://r4d.dfid.gov.uk/Project/60851/

**Table 1: Estimated cost and health benefits of minimum essential health service package**

<table>
<thead>
<tr>
<th>Group</th>
<th>COST per capita per Year ($)</th>
<th>COST as % of income per capita</th>
<th>Approximate reduction of burden of disease (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Health</td>
<td>4.2</td>
<td>1.2</td>
<td>8</td>
</tr>
<tr>
<td>Essential services</td>
<td>7.8</td>
<td>2.2</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>3.4</td>
<td>32</td>
</tr>
</tbody>
</table>

A MSP of cost effective public health and clinical interventions that address the major sources of disease burden could be provided in low income countries for about $125 per capita (or less than 4% of income per capita) and could reduce premature mortality in children under 15 by 21 to 38 percent. For an example of how a Minimum Services Package (MSP) for Primary Health Care has been developed for Nigeria, please see: [http://www.healthpartners-int.co.uk/our_projects/documents/MinimumServicepackage.pdf](http://www.healthpartners-int.co.uk/our_projects/documents/MinimumServicepackage.pdf)

**Medium term interventions**

In the medium term, emphasis should be placed on strengthening the national and local health system to ensure that targeted services are effectively delivered and sustained over time.

Implementing an MSP needs to engage political and institutional processes. Interventions need to be planned and delivered in ways that take into account the local context. Successful implementation involves dialogue on purpose and design; decisions on financing.
and delivery arrangements, and adaptation over time. Without adequate national ownership, an MSP is unlikely to be implementediv.

WHOv has defined the key health system building blocks as:

1) A set of effective, safe services;
2) A capable health workforce;
3) Information systems that help map disease and measure health impact;
4) Availability of medical products, vaccines and technologies to prevent and treat disease;
5) The funding needed to provide health services; and
6) The leadership and governance systems to ensure that resources are used to maximum effect.
Developing a Public Health package for the local context

The Local Picture

Death

Life-expectancy at birth is 70.1 years (which decrease to 60.3 years when it is adjusted for ‘health’). The all-cause mortality rate for males and females under 45 has fallen between 1990 and 2010. Above this age there have been some increases in age-specific mortality rates. The greatest increase in mortality rate (14%) was seen in males aged 55 – 59.

The top 3 causes of years of life lost (YLLs) due to premature death in the Philippines in 2010 were lower respiratory tract infections, ischaemic heart disease and cerebrovascular disease.

Figure 3: Ranks for The Philippines top 25 causes of Years of Life Lost (YLL), 1990-2010

Disabilities

The top 5 causes of years lived with disability (YLDs) in the Philippines are low back pain, major depressive disorder, iron-deficiency anaemia, chronic obstructive pulmonary disease and tuberculosis.

The top 3 causes of DALYs in the Philippines in 2010 were lower respiratory tract infections, ischaemic heart disease and tuberculosis. The contribution to DALYs from diabetes had
increased over 200% since 1990. DALYs from chronic kidney disease, hypertensive heart disease, cirrhosis and interpersonal violence\(^1\) had also significantly increased (more than 100% increase from 1990).

The burden of disease for the leading causes of DALYs in the Philippines has been ranked\(^2\) in comparison with 14 other comparator countries. In 2010 the Philippines was ranked in the bottom 5 for lower respiratory tract infections (12), ischaemic heart disease (12), tuberculosis (13), low back pain (13), interpersonal violence (14), asthma (13), hypertensive heart disease (15) and typhoid fevers (13).

**Figure 4:** Ranking of rates of DALYs relative to comparator countries in 2010

<table>
<thead>
<tr>
<th>Country</th>
<th>Lower respiratory tract infections</th>
<th>Ischaemic heart disease</th>
<th>Tuberculosis</th>
<th>Stroke</th>
<th>Lower back pain</th>
<th>Major depressive disorder</th>
<th>Gastrointestinal diseases</th>
<th>COPD</th>
<th>Diabetes</th>
<th>Road traffic accidents</th>
<th>Neck pain</th>
<th>Malignant neoplasms</th>
<th>Chronic kidney disease</th>
<th>Hypertensive heart disease</th>
<th>Interpersonal violence</th>
<th>Asthma</th>
<th>Typhoid fevers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippines</td>
<td>12</td>
<td>13</td>
<td>8</td>
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<td>India</td>
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<td>Vietnam</td>
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<td>Mongolia</td>
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<td>Bangladesh</td>
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<td>Thailand</td>
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<td>Pakistan</td>
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\(^1\) Interpersonal violence was not featured in the top 25 causes of DALYs in 1990.

\(^2\) Ranking uses age-standardised DALY rates, where 1 is the best performance and 15 is the worst
Top 15 Risk Factors for the Philippines

The factors accounting for the largest portions of the Philippines' burden of disease are:

- dietary risks,
- tobacco smoking and
- high blood pressure.

These are closely followed by household air pollution and alcohol.

Dietary risk factors were the leading risk factors for children under 5 years and adults 15-49 in 2010 vi.

Figure 5: The Philippines Burden of Disease attributable to 15 leading risk factors in 2010, expressed as a percentage of Philippines DALYs
A Public Health Interventions Package for the Philippines

Dietary risks, tobacco smoking, high blood pressure, household air pollution and alcohol should be the focus of medium and long term Health Improvement Public Health interventions, as this will have the largest impact on cardiovascular and other circulatory diseases, respiratory conditions and cancer (especially lung and liver). Interventions which address these risk factors are also likely to have an effect on rates of diabetes, cirrhosis and chronic kidney diseases.

There is also a need for programmes which address mental health and interpersonal violence. This will be necessary in the short term (the mental health impacts of the recent events) and in the long term (activities for prevention alongside prompt diagnosis and appropriate service provision for treatment).

Interventions which promote female empowerment\(^3\) can help to address a range of issues, including interpersonal violence. Empowerment can be promoted using public health interventions targeted at removing health inequalities between genders and creating sustainable income opportunities to allow women to support themselves and their families. Enhancing women’s income, by setting up Women’s saving and credit groups for example, can provide with greater financial autonomy. In Bangladesh, Grameem bank offered 3 million poor women small loans which gave them the ability to spend more on health services for them and their family\(^iv\). A microfinance-based intervention in South Africa, combined with training on understanding HIV infection, gender norms, domestic violence and sexuality, reduced the risk of physical or sexual violence by an intimate partner by more than half in 2 years. Improvements were seen in indicators concerning women empowerment and partner violence\(^viii\).

TB and preterm birth complications are also areas which need to be addressed using appropriate care provision in the short and long term, including appropriate screening and protective measures.

Educating women within communities can empower them to make superior decisions leading to a reduction in disease incidence and improvements in maternal and neonatal mortality. The Gender and Development Centre in Kenya provides literacy teaching, civic and rights education and training in leadership, food production and credit and savings schemes. Women are empowered to assist each other at an individual level also allowing for a greater standing in community interactions\(^ix\).

\(^3\) One of the Millennium Development Goals
**Dietary Risks**

Dietary risks are shown to be the biggest risk factor for the Philippines in the Global Burden of Disease profile 2010.

It is likely that the Philippines, like many developing countries, is in ‘nutrition transition’ and is therefore suffering from a phenomenon known as the ‘double burden of malnutrition’ – when overnutrition and undernutrition exist concurrently. The figure below shows high levels of childhood stunting.

**Figure 6:** The Double Burden of Malnutrition in Southeast Asia

![Double burden of malnutrition in Southeast Asia](image)

WHO has identified obesity as a major cause of disability and premature deaths in less developed countries. This has been attributed to shifts in diet and lifestyle changes.

**Figure 7:** Nutritional Status of Various Age Groups: Philippines, 2003

- **0 – 5 years old:** 27.6% are underweight, 30.4% are short, and 1.4% are overweight.
- **6 – 10 years old:** 26.7% are underweight, 36.5% are short, and 1.3% are overweight.
- **11 – 19 years old:** 15.5% are underweight, and 3.5% are overweight.
- **Pregnant and lactating women:** 26.6% and 11.7%, respectively, are underweight.
- **Adults:** 12.3% are Chronic Energy Deficient (CED) and 23.9% are overweight to obese.

Between 1998 and 2003, undernutrition decreased, while overweight increased in children.

The prevalence of overweight and obesity in 2003 has increased from 1998...
The Nutrition Transition

This describes the situation where there is concurrent underweight and stunting among young children and overweight and obesity in older children, adolescents and adults within the same population. This is a public health problem that leads to increased childhood mortality or a higher risk of chronic disease in later life\textsuperscript{xiii}.

The nutrition transition causing rapid shifts in the composition of diet and activity patterns and subsequent changes in body composition might lead to considerable obesity over the next several decades. It is also possible that such transitions in lifestyle parameters are congenial for increasing the complications related to stunting\textsuperscript{xiv}. Many studies have also shown that nutritional stunting leads to many changes like lower energy metabolism, greater susceptibility to fat rich diets, reduced oxidation of fats, and impaired regulation of food intake\textsuperscript{xv}.

Some countries face a paradox of families in which children are underweight and the adults are overweight. This has been attributed to the “thrifty phenotype” in which a low birth weight due to poor intrauterine growth followed by a rapid childhood weight gain promotes development of obesity and associated metabolic complications\textsuperscript{xvi}.

Obesity, stunting and dietary changes in Asia

Diets and activity patterns are changing rapidly in low-income countries. Asia has undergone considerable socioeconomic transition in the last three decades which has resulted in increased availability of food, better transport facilities, and better health care facilities. Diets consumed have increased energy content from fats and simple sugars. Consumption of saturated fat has increased, especially from animal fat.

Problems of undernutrition and overnutrition commonly exist side by side in developing regions, such as South Asia and Asia-Pacific, mainly due to wide socioeconomic disparities. In most of the Asian countries the prevalence of overweight and obesity has increased many folds in the past few decades, reaching epidemic proportions in many. The major causative factors are related to the lifestyle changes occurring due to rapid socioeconomic transition\textsuperscript{xvii}.

The Philippines is an example of an Asian country with both undernutrition and overnutrition paradox. While more than 30\% of preschool and school children were underweight, less than 1\% were overweight in 1998. Among adults, prevalence of underweight was 13.2\% while the prevalence of overweight was 20.2\%\textsuperscript{xviii}.

In China higher income levels, particularly in urban areas, are associated with consumption of a diet higher in fat and with problems of obesity. At the same time, undernutrition is a problem in important segments of Chinese society\textsuperscript{xix}.

Thailand have also seen rapid changes in food intake and lifestyle patterns, including a shift from food prepared at home to purchased, ready-to-eat food (in both rural and urban settings) and the replacement of Thai staples with diets containing a higher proportion of fats and animal meat. These changes have coincided with a shifting pattern of disease burden of the population, including a significant increase in the problem of overweight and other risk factors for cardiovascular disease\textsuperscript{x}. Much less documentation on eating pattern shifts exists for lower-income countries, and there seems to be more heterogeneity in terms of the shifts to away-from-home food...
intake. For instance, away-from-home food intake and snacking are as high in the Philippines as in the United States but is rare in Russia and China.

Globalization has had profound effects on lifestyles, including diet and activity, giving rise to an obesity epidemic. One of the central shifts has occurred in the global food system, which is related to the marketing and sales of food. Although many researchers have placed the global food production, marketing, and distribution sectors (including soft drink, fast food, and other multinational food companies) at the center of blame for these changes, there are other profound and equally responsible factors that must be understood to enact effective public policy to address them.

These other factors include:

1) worldwide shifts in the trade of technology innovations that affect energy expenditures during leisure, transportation, and work;
2) globalization of modern food processing, marketing, and distribution techniques (most frequently linked with westernization of the world's diet);
3) vast expansion of the global mass media; and
4) other changes that constitute the rubric of the effects resulting from an increased opening of our world economy.

Stunting, or low height for age, generally occurs before age two, and effects are largely irreversible. These include delayed motor development, impaired cognitive function and poor school performance.

Research also shows that poor growth during childhood also has important long-term consequences in adult life in terms of body size, reduced work capacity and economic productivity and reproductive performances, and risk of chronic diseases.

The importance of reducing childhood undernutrition has been enshrined in the United Nations Millennium Development Goals (MDGs). While MDG1 and MDG4 are most directly related to stunting, its long-term effects are also associated with the achievement of other MDGs, including MDG2 (Achieve universal primary education) and MDG5 (Improve maternal health). Thus, without the reduction of stunting, many of the MDGs will not be met.

On a population basis, high levels of stunting are associated with poor socioeconomic conditions and an increased risk of frequent and early exposure to adverse conditions, such as illness or inappropriate feeding practices.

Of the 10 countries that contribute most to the global burden of stunting among children, six are in Asia, including the Philippines. Recent surveys have shown that stunting in 8 – 12 year olds in the Philippines is around 30%. The Philippine Plan on Action for Nutrition sets a target to reduce the percentage of children under five that are stunted to 20.9% by 2016.

http://www.nnc.gov.ph/plans-and-programs/ppan

The United Nations Standing Committee on Nutrition’s review paper on stunting: “Stunting in children below the age of five is a stronger indicator of hunger and of one of its determinants, poverty, than other anthropometric indicators or estimates of per capita income. This is because stunting indicates the chronic restriction of a child’s potential growth, reflecting the cumulative effects of inadequate food intake and poor health conditions that result from endemic poverty.” Stunting has been recognized as a major public health problem in the...
In the developing world, a significant number of children are not only chronically malnourished now, but are also increasingly at risk of obesity and overweight and connected diseases in later life. This interrelationship occurs when a child’s diet is not optimal in the critical period of early development, yet it survives and undergoes a rapid period of growth. Research also shows that infants with low birth weight due to malnutrition, who then have an inadequate diet, tend to become overweight and obese in adulthood. Finally, children carrying fat around the belly area (abdominal obesity) have also been shown to have a higher risk of chronic diseases later in life. This makes adequate nutrition (in terms of energy and nutrients) crucial in the early period of life — the first 1,000 days from conception (and even before) to two years of age.

Increased risk of developing chronic conditions, such as cardiovascular disease and diabetes, is associated with children who are stunted and underweight in infancy, and then gain weight rapidly in childhood and adult life. This scenario is not uncommon in countries where underweight rates have been reduced, but stunting remains relatively high. This problem is further compounded by the adoption of the diets and lifestyles of developed countries.

In developing countries, the prevalence of stunting starts to rise at about three months of age and then slows at around two years of age. For children in the age group below two to three years, low height-for-age probably reflects a continuing process of failing to grow; for older children, it reflects a state of having failed to grow. This is an important difference when one is planning interventions to address stunting and further emphasizes the critical window of opportunity that exists for optimal nutrition from preconception to two years.

**Figure 8:** Framework for relationships between poverty, food insecurity and other underlying and immediate causes to maternal and child undernutrition and its short-term and long-term consequences (adapted from Black et al 2008xxx)
Stunting is considered to have both immediate and underlying causes. Immediate causes include the lack of sufficient quantity (food security), quality (nutrition security), and diversity of food, frequent attacks of infectious disease, and deficient care. Underlying causes include poverty, lack of equity, gender and social norms, maternal education, and women’s social status. The underlying causes are, in turn, often the result of what are referred to as basic causes, and include the social, economic, and political context, together with a lack of capital. This highlights the complex interrelated factors that not only cause stunting but also need to be considered when developing strategies to address stunting.

**WHO Global targets 2025**

WHO have also set a number of targets for improving maternal, infant and young child nutrition and are committed to monitoring progress. The targets are vital for identifying priority areas for action and catalysing global change.

1. 40% reduction in the number of children under-5 who are stunted
2. 50% reduction of anaemia in women of reproductive age
3. 30% reduction in low birth weight
4. no increase in childhood overweight
5. increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%
6. reduce and maintain childhood wasting to less than 5%

http://www.who.int/nutrition/topics/nutrition_globaltargets2025/en/

Many of these targets relate to the problems that are seen in developing countries and those countries undergoing the nutrition transition.

The most recent UNICEF data for the Philippines related to these targets are shown in Table 2.

**Table 2:** Figures for childhood outcomes for the Philippines, taken from UNICEF ‘The state of the World’s Children 2014’ report.

<table>
<thead>
<tr>
<th>Low birthweight (%)</th>
<th>Early initiation of breastfeeding (%)</th>
<th>Exclusive breastfeeding at &lt;6 months (%)</th>
<th>Underweight+ (%)</th>
<th>Stunting* (%)</th>
<th>Wasting* (%)</th>
<th>Overweight* (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>54</td>
<td>34</td>
<td>22</td>
<td>32</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

Based upon the WHO targets, the Philippines should be aiming to:

- reduce low birth weight to around 24%
- reduce the number of stunted children to around 19%
- reduce the number of children who are wasted to under 5%
- there should be no increase from 4% of children overweight
- increase the number of children exclusively breastfeed in the first 6 months to 50%

These are challenging targets and will require a range of interventions to achieve.

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4 Moderate and severe
Interventions

Obesity

WHO also sets out the key components of population-based approaches to childhood obesity prevention (see Figure 9), emphasising that it is important for a comprehensive strategy to incorporate aspects of all 3 components.

Such primary prevention studies using healthy foods, sustained physical activity, and initiatives to educate the community regarding the benefits of these will help to tackle the global problem of obesity and its associated disorders. Guidelines have been laid down by the WHO for formulating national policies to meet these challenges.

Figure 9 – Schematic model demonstrating the framework for implementation of the Global Strategy on Diet, Physical Activity and Health (DPAS) at member state level.

National programmes targeting public awareness, education and improved structural facilities to facilitate healthy lifestyle are the keys to alleviate the economic and health care burden of the obesity-related disorders.

Population-based strategies to improve social and physical environmental contexts of healthy eating and physical activity are essential for prevention of obesity, overweight and its related health risks.

Lifestyle changes that lead to weight reduction have been demonstrated to reduce the incidence of diabetes and hypertension.

The World Health Organisation stated that “The marketing of foods and non-alcoholic beverages with a high content of fat, sugar or salt reaches children throughout the world.”
Efforts must be made to ensure that children everywhere are protected against the impact of such marketing and given the opportunity to grow and develop in an enabling food environment — one that fosters and encourages healthy dietary choices and promotes the maintenance of healthy weight. A total of 12 recommendations were made in this document with an aim of helping member states to design new and / or strengthen existing policies on food marketing communications to children in order to reduce the impact on children of marketing of foods high in saturated fats, trans-fatty acids, free sugars, or salt.

http://www.who.int/dietphysicalactivity/marketing-food-to-children/en/

Developing Asian countries lack proper urban planning, leading to a lack of open space. High population density in cities and towns requires Governments to take measures to improve facilities to enhance physical activities in schools and communities. Immediate impact cannot be seen in the developing countries, as they are in a phase of enjoying the benefits of increasing economy. Public education campaigns, warning on the ill effects of obesity and its related metabolic disorders can produce slow, but gradual impacts. Prevention of obesity is likely to be most effective when implemented in childhood.

Some countries including Pakistan, Singapore, India, and China have initiated national programmes related to obesity and nutrition. Singapore's “Fit and Trim” programme in school children led to a drop in prevalence of obesity.

In Malaysia, guidelines have been produced for reduction of overweight and obesity in children and adolescents. These include: reduction in energy intake by use of conventional food, improving physical activity and thus the energy expenditure, behaviour modification associated with eating habits and activity pattern, and involvement of the family in the process of change. Guidelines are also provided to the parents for healthy feeding of the children and for improving their physical activity levels.

Finland is one example that pointedly shows how intersectoral collaboration with one responsible national agency as the focal point can be very effective. In Finland, national price policy and food-labeling policies were combined with nutrition education programs and the enlistment of voluntary organizations to tackle this effort.

Brazil has limited evidence of a decrease in obesity in one region. This began as a coordinated and systematic initiative to improve dietary patterns including many important legislative and regulatory policies and changes to the national school feeding program.

Stunting

It is critical that interventions consider not only the prevention of undernutrition and stunting, but should also give attention to the prevention of excessive weight gain after infancy. There is evidence that improving growth through adequate and appropriate complementary feeding can have a significant effect on adult wages. An evaluation of one program in Latin America that provided good quality complementary food to infants, found that the wages of males in adulthood increased by 46%, compared to peers who did not participate in the program.

According to Scaling Up Nutrition: A Framework for Action (SUN), “an investment in nutrition during pregnancy and in the earliest years of life will move the world toward the MDG

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5 Guidelines produced by The ministry of Health and the Academy of Medicine in Malaysia (2003)
indicators of success around poverty, hunger, child mortality, maternal mortality and HIV/AIDS, malaria and other diseases. Nutrition is fundamental for health and development. Reducing malnutrition supports individuals and nations seeking to break the cycle of poverty. The effects are lasting, as improving nourishment for today’s infants and young children is actually supporting the growth and development of the next generation of people that will drive the nation’s growth


There is a strong focus on nutrition in early life. Macronutrient supplementation of at-risk women, more specifically, balanced energy-protein supplements provided in the third trimester, appears to improve foetal growth and birth weight. Initiation and maintenance of exclusive breast feeding until at least 6 months of age is recommended by WHO as a key step in tackling childhood malnutrition, especially stunting. Interventions to improve dietary quality during the complimentary feeding phase have been shown to improve linear growth (reduce stunting). These should include interventions to improve dietary diversity and the consumption of animal source foods.

The available research shows that effects on linear growth seem to be best with interventions that also provide specific educational messages to mothers of infants and young children.

A meta-analysis of studies of combinations of zinc and iron; vitamin A and zinc; and iron and folic acid found no significant improvements in child linear growth compared to placebo. Meta-analyses of the effects of single and multiple nutrient interventions on the growth of children under five years of age found that single micronutrient interventions containing iron, vitamin A, or zinc did not result in improvements in linear growth for children under five years of age.

A meta-analysis of multiple micro nutrient interventions (containing at least three or more micronutrients) has shown them to improve linear growth, but the benefits are small. There is currently insufficient evidence on the effect of multiple micronutrients on stunting.

A fundamental need is to focus the attention of policy makers on nutritional status and stunting as one of the main indicators of development. However, to successfully and sustainably address stunting, it is critical that an integrated rather than a vertical approach is applied. While stand-alone nutrition interventions are important, it is equally important to ensure a multi-sectorial approach that tackles, among others, women's empowerment, maternal education, the promotion of exclusive breastfeeding for the first six months, decreasing infections, the disease burden, improved access to healthcare, improved sanitation, and the reduction of indoor air pollution and increased agricultural production. This broad approach is vital in order to maximize the impact of nutrition interventions on stunting, and is a precondition for the socioeconomic advancement of societies.

Monitoring and surveillance

Nationally representative and longitudinal studies are required to monitor secular trends, to study the usefulness of the current cut-off values for predicting long-term health outcomes and also to examine the health and psychosocial outcomes of childhood obesity.
It is also important to introduce monitoring and surveillance for any national policies implemented, in order to evaluate interventions against baseline and against expected outcomes.

**Possible Issues**

Weight-for-age definition of undernutrition without assessment of length will overestimate the dimension of malnutrition and neglect the identification of stunted overweight children. Providing food to low income stunted populations may be beneficial for some, although it may be detrimental for others, inducing obesity especially in urban areas. Defining the right combination of foods/nutrients, education and lifestyle interventions that are required to optimize nutrition and health is a present imperative.

**Related Documents**

WHO have produced a number of documents with recommendations for action on dietary issues:

- Physical Activity and Young People - [http://www.who.int/dietphysicalactivity/factsheet_young_people/en/](http://www.who.int/dietphysicalactivity/factsheet_young_people/en/)
**Smoking and low/middle income countries**

The GBD profile for the Philippines names tobacco smoking as the second highest risk factor contributing to the country’s overall burden of disease. The health effects associated with smoking are well documented and recognised throughout the world.

There have been numerous studies evaluating the success and cost-effectiveness of different options for smoking cessation and prevention in high income countries, particularly Europe and the USA. However, evidence in low and middle income countries is more limited.

**Options for reducing smoking rates in the Philippines**

In general, interventions may be considered as those designed to reduce the demand for tobacco-containing products and those to reduce the supply to a country’s population.

**Reducing demand for tobacco**

1. **Increases in price of tobacco products**
   Evidence for the price-elasticity of tobacco products from high income countries suggests that increases in taxes placed on these products greatly reduce their demand\[^v\]. In low and middle income countries this effect is considered to be even more marked, possibly double that seen in high-income countries. For example, a 10% price increase is estimated to reduce tobacco consumption by 8% in low and middle income countries\[^vi\]. Increases in the taxation levied on tobacco products is a well established method of increasing price and is thought to be particularly effective in reducing demand in younger smokers.

2. **Smoking restrictions to alter the social acceptability of smoking**
   A number of high income countries have introduced smoke-free legislation which has shown to be effective. One key aim of such policies is to alter the social acceptability of smoking amongst the population – something which can only be done in conjunction with other strategies to alter social norms, such as provision of information highlighting the health effects of passive smoking, particularly to children.

3. **Restrictions or bans on tobaccos advertising**
   The evidence for the effectiveness of bans on tobacco advertising remains mixed. However, there is consensus that in order for a positive impact to be seen, total bans, rather than partial bans or restrictions, are required, largely due to the fact that tobacco companies would be likely to merely switch advertising mediums if partial bans were in place\[^v\].

4. **Reducing the cost of smoking cessation treatments**
   The evidence for the effectiveness of nicotine replacement therapies (NRT) is strong, particularly when in combination with other methods of smoking cessation therapy, such as behavioural approaches. However, the cost of NRT is a strong determinant of use in low income countries\[^vi\]. Strategies to reduce the direct cost to individuals, such as via subsidies for non-insured groups are likely to be effective in increasing the use of NRT.
Reducing the supply of tobacco-containing products

The evidence for the effectiveness of restricting the availability of tobacco products, such as via restrictions on the sale of products or subsidies to support crop replacement, is more limited\textsuperscript{xi}. It is also important to highlight that low or middle income countries may not have sufficient infrastructure to monitor and support such interventions.

What is key, however, is that all developing countries should ensure they focus on the prevention of smuggling of tobacco products, which has a direct link to the price of such products\textsuperscript{xi}.

Programmes to reduce smoking prevalence

There is no universal programme aimed at reducing the prevalence of smoking. In general, most countries should consider a comprehensive programme encompassing the options described above.

In addition, low and middle income countries may also benefit from programmes which target the roles and responsibilities of healthcare professionals (reducing their smoking rates and promoting their role in population education), integrating smoking cessation services and policies with other health care services to increase uptake and reduce barriers to access, increasing community participation and changing the social norms which dictate the social acceptability of smoking amongst the population.\textsuperscript{li}

Table 3 provides some estimates of the costs of price intervention and NRT programmes by World Bank region.

**Table 3:** Estimated Cost of Price Intervention and NRT Programmes in US dollars (2002), copied from Table 46.6 from Jha et al, 2006\textsuperscript{li}

<table>
<thead>
<tr>
<th>World Bank region</th>
<th>GDP (billions)</th>
<th>Cost for price increase (millions)</th>
<th>Cost of NRT (US$25 to US$150) (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low-end estimate (0.02 percent GDP)</td>
<td>High-end estimate (0.05 percent GDP)</td>
</tr>
<tr>
<td>East Asia and the Pacific</td>
<td>1,802</td>
<td>360</td>
<td>901</td>
</tr>
<tr>
<td>Europe and Central Asia</td>
<td>1,136</td>
<td>227</td>
<td>568</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>1,673</td>
<td>335</td>
<td>836</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>694</td>
<td>139</td>
<td>347</td>
</tr>
<tr>
<td>South Asia</td>
<td>655</td>
<td>131</td>
<td>327</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>319</td>
<td>64</td>
<td>159</td>
</tr>
<tr>
<td>Low- and middle-income countries</td>
<td>6,279</td>
<td>1,256</td>
<td>3,138</td>
</tr>
</tbody>
</table>
## Cost of NRT (US$25 to US$150) (millions)

<table>
<thead>
<tr>
<th>World Bank region</th>
<th>GDP (billions)</th>
<th>Low-end estimate (0.02 percent GDP)</th>
<th>High-end estimate (0.05 percent GDP)</th>
<th>Cost for price increase (millions)</th>
<th>To treat 1 percent of current smokers</th>
<th>To treat 5 percent of current smokers</th>
</tr>
</thead>
</table>
HIV and Antiretroviral Treatment

Prevalence of HIV in the South-East Asia region

Although the Philippines is considered to be a low HIV-prevalent country, there has been a 79% increase in newly reported HIV cases in 2013 compared to the same period in 2012. The number of people of all ages living with HIV has increased over the past decade and is becoming of increasing concern.

Table 4: HIV prevalence in the Philippines 2001-2012\textsuperscript{lvii}

<table>
<thead>
<tr>
<th>Year</th>
<th>2001</th>
<th>2006</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated number of people of all ages living with HIV</td>
<td>5400</td>
<td>7200</td>
<td>15000</td>
</tr>
</tbody>
</table>

Antiretroviral Therapy (ART)

ARTs have been shown to be effective in reducing morbidity and mortality in patients infected with HIV in developing countries\textsuperscript{lviii}. HIV treatment can be costly and cost-effectiveness data within clinical settings is limited.

Antiretroviral drugs inhibit enzymes that facilitate the replication of HIV. When a patient starts taking these drugs, the viral load drops very quickly however if treatment is stopped, HIV concentration can rise back to pre-treatment levels. Without ART, HIV progressively weakens the immune system which is detected using the patient’s CD4+ lymphocyte count.

HIV can mutate to develop resistance to antiretroviral drugs which are normally administered as one or two drugs. The rate of resistance can be reduced when taking three drugs but eventually resistance will occur. Only two combinations of the three drugs are affective and can be used sequentially. Once resistance to the second combination has occurred, HIV progresses to AIDS and eventually death.

Guidelines

New guidelines on treating and preventing HIV infection have been published by WHO this year which are set out as ‘recommendations for a public health approach’. They are targeted at programme managers working in this field and can be found at the following site:


Therapy Coverage

There has been an increase in the number of people receiving ART which is illustrated below. It is projected to increase in the future but current data shows that coverage of antiretroviral treatment for eligible individuals in the South East Asia region stands at 46%.
In the Philippines, Antiretroviral treatment has been given to only five percent of HIV-positive women to prevent transmission of the virus during pregnancy or breastfeeding. Furthermore, no people considered to be ‘at-risk’ under the age of 18 have been tested for HIV.

Figure 10: Retroviral treatment coverage by WHO region

Cost-Effectiveness of ARTs

Models of cost effectiveness have been published for treating HIV-positive mothers, serodiscordant couples and HIV patients with a very low CD4+ count. Table 5 shows costs of an ART programme to prevent mother-to-child transmission. The results can be used to estimate cost-effectiveness of programmes in other developing countries such as the Philippines where prevention of new HIV diagnoses must be prevented.
Table 5: A cost-effectiveness analysis of antiretroviral treatment in Uganda compared to other treatment options or none, 2011

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1a: 18-month ART, relative to SDNVP</td>
</tr>
<tr>
<td>Cost difference per patient (US$)</td>
<td>482</td>
</tr>
<tr>
<td>Cost offset per patient (US$)</td>
<td>240</td>
</tr>
<tr>
<td>Incremental cost per patient (US$)</td>
<td>242</td>
</tr>
<tr>
<td>DALYs averted per patient</td>
<td>5.21</td>
</tr>
<tr>
<td>Incremental cost per DALY averted (US$)</td>
<td>46</td>
</tr>
</tbody>
</table>

DALY, disability-adjusted life year; DT, dual therapy; NT, no treatment; SDNVP, single-dose nevirapine; US$, United States dollar.

* Calculated by subtracting the cost offset from the cost difference.
References

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