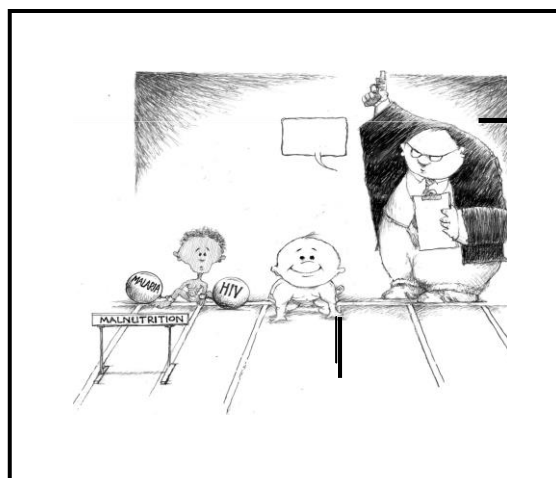
Symposium on Maternal and Child Health and Nutrition in Emerging Markets: Report

Every single child should have an equal start in life

Introduction

A Tale of Two Infants

Imagine a running track. Ahmed and Antonio are on the start line. Both are newborns. Ahmed is emaciated, stunted and shackled to weights. Antonio is well grown, and healthy. There is no doubt who will win the race.



Ten years later, Ahmed, still small and emaciated, is breaking stones in a yard. He has never been to school. He has never seen a doctor. His life is nasty, brutal and may be short. Antonio is doing well at school, is good at games and gets regular health and dental checks. He already sees the world as his oyster.

Twenty years later Ahmed is a casual labourer. He lives with a woman of his own age with whom he has two children, both delivered by a neighbourhood midwife, both emaciated, neither at full-time school. Antonio is an executive in the family firm. He has two children, both born in a state-of-the-art clinic, both healthy, both inoculated against communicable diseases, both visit doctors and dentists whenever necessary, both are in excellent health, both are at good schools, both are thriving.

Thirty years later Antonio is running the family firm. He has a comfortable home, travels frequently and is a prominent member of his community. He has three grandchildren. Ahmed has developed diabetes. He is often unable to work and cannot afford adequate treatment. Before he reaches 50 he is dead.

What may seem an exaggerated contrast is a picture of two lives on different continents. Ahmed was malnourished and poor. Antonio was well-nourished and rich. Many factors explain the contrasts. Nutrition is the initial and irreversible one. Similar contrasts could be drawn on any continent or in any emerging market. The picture is derived from a cartoon[1] in Professor Stephen Kennedy's presentation to the symposium

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[1] See full presentation on http://ems.gtc.ox.ac.uk/maternal-and-child/maternalpressmedia.html.

on January 9. It illustrates the fact that malnourished children born of malnourished, unhealthy mothers are irreversibly handicapped.

Something Wicked This Way Comes

Every political leader grapples with continuous and conflicting demands for time, money and attention. It is not hard to understand why most are reluctant to devote scarce resources to programmes that present short term costs but few (if any) short term benefits. Or why they fight shy of seemingly intractable (or wicked) problems[2] such as how to halt environmental destruction, manage climate change, transform incompetent and corrupt bureaucracies, provide primary and secondary education for every child, end social, ethnic and gender discrimination, alleviate poverty, manage megacities, reduce economic and social inequality, deal with aging and the end of life ... and resolve problems of maternal and child healthcare and nutrition.

In most emerging markets, thirty years of unprecedented growth after c.1980 were associated with remarkable improvements in human welfare. But after three decades, many of the problems they faced in 1980 remain unresolved, some are worse and new ones have emerged.

In some cases (e.g. climate change) that was because solutions lay beyond the reach and remit of any country and demand global cooperation. In others (e.g. communicable diseases such as AIDS-HIV and non-communicable diseases such as cancer, hypertension, chronic lung disease and diabetes), it was because solutions were elusive. In yet others it was because political leaders believed the growth of national and household incomes, consumption and choice would increase access to improved healthcare, nutrition and other aspects of human welfare.

Some emerging market leaders assumed state interventions were unnecessary, unreliable and/or undesirable and that market forces offered the best escapes from the revolving wheel of poverty. Their beliefs were reinforced by declining maternal mortality

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[2] *'Wicked'* problems, are complex and seemingly intractable problems that defy resolution. They are hard to recognize, understand, and define. Information about them is often incomplete and scattered. Criteria for solutions may be contradictory. And efforts to resolve one such problem may create others. Solutions are invariably non-linear and demand complementary knowledge, multi-sectoral (public, private, voluntary) perspectives and multidisciplinary cooperation. Richey suggests that "*Wicked problems are ill-defined, ambiguous and associated with strong moral, political and professional issues. Since they are strongly stakeholder dependent, there is often little consensus about what the problem is, let alone how to resolve it. Furthermore, wicked problems won't keep still: they are sets of complex, interacting issues evolving in a dynamic social context. Often, new forms of wicked problems emerge as a result of trying to understand and solve one of them*". 'Wicked Problems: Modelling Social Messes with Morphological Analysis' Tom Ritchey 2005 (revised 2013), Swedish Morphological Society

ratios, lower rates of child mortality and mounting evidence of increased well-being between c.1980 and c.2010.

Yet few emerging markets relied entirely on the magic of their marketplaces. Some opted for government income transfers. Some launched innovations (e.g. telemedicine and the use of minimally trained health extension workers) to deliver healthcare to previously neglected urban and rural populations. Some focussed on expanding free or subsidized primary and secondary education. Some used fiscal and legislative tools to attack economic and social discrimination. Some created public-private sector initiatives. But most sought long-term change through combinations of macro policies and targeted interventions.

The results were uneven. Multiple measures confirm that household welfare in almost all emerging markets improved - in some cases dramatically - as growth trickled down and some low-income families became middle-income families. Buoyed by evidence of progress, most emerging market governments saw no reason to deviate from courses that seemed to be slowly reducing at least some of the problems they all faced, although those problems were exacerbated when growth coincided with regressive trends in income distribution.

Emerging markets entered the current decade having outgrown the rest of the world. Most expected the future to replay the recent past notwithstanding that many problems had been only partially resolved. Environmental destruction (with global implications) continued. Inequality continued and in some cases increased. Corruption and weak administration remained endemic. Access to education and healthcare remained patchy. Thirty years of sustained growth had produced remarkable progress, many more people were better off than they could have possibly imagined in 1980. Yet few emerging markets had taken aggressive advantage of growth to attack the most deep seated problems, alleviate tensions and manage potential threats.

The exceptions proved the rule. Some emerging markets (e.g. Brazil) traded some growth for improvements in equity. Others (e.g. Colombia, Mexico)[3] ploughed growing fiscal revenues into increasingly robust healthcare and education programmes, showing that (at least with hindsight) growth and equity could be joint pursuits.

Constraints

The good news is that since the early 1980s maternal and child health and nutrition in emerging markets have significantly improved as a result of trickle-down growth, new policies and effective interventions; in most countries the cups of progress are not

[3] See Eduardo J Gomez: *Smart Development: How Colombia, Mexico, and Singapore beat the BRICS* Foreign Affairs, February 5, 2014

running over but are at least half full. The not so good news is that while the incidence of under-nutrition is higher in poorer countries, the scale of under-nutrition is larger in emerging markets than anywhere else. The critical questions - the answers to which are keys to the ultimate question of what can and should be done now - are why problems persist in emerging markets and what can be learned from experience that would help resolve them in the future.

Although explanations for the lack of faster progress towards alleviating or eliminating under-nutrition differ, advocates of each explanation have long known that under-nutrition cannot be eliminated if poverty and ignorance persist. The relationships are cyclical rather than linear. Under-nutrition is both a consequence and cause of poverty[4]. The need for targeted interventions grows as the prevalence of under-nutrition declines[5] Illiteracy, innumeracy and lack of knowledge can contribute to under-nutrition even if food is relatively plentiful.

However, decisions to rely on macro policies or sectoral interventions are not the whole story. Progress was also affected by: difficulties coordinating government action; private and voluntary sector reluctance to accept joint ownership of problems and solutions; mutual distrust between professional groups; problems quantifying costs and benefits; and weak leadership.

Because they are multifaceted and lie beyond the jurisdiction of health ministries, problems of health and public health, including those of maternal and child health and nutrition, cannot be addressed if governments are unwilling or unable to **coordinate** *action* across national and local jurisdictional boundaries[6]. In most emerging markets, accountability for nutrition has been poorly defined, multiple ministries have managed (sometimes incompatible) policies that affect outcomes, and progress has been further constrained by their reluctance to collaborate and by ineffective leadership.

If the private and voluntary sectors are to play important roles in comprehensive action programmes of maternal and child health and nutrition, they must become **co-owners** of problems and solutions. In some emerging markets (as in higher income countries) the private sector has launched wellness initiatives to foster good nutrition in employee families. In others, the voluntary sector has been a force for progress. In a few the

[4] Because under-nourished children cannot learn and are more vulnerable to ill health which hinders the child's capacity to secure work as an adult.

[5] See Block, Masters and Bhagowalia, *Does Child Undernutrition Persist Despite Poverty Reductions in Developing Countries?* Journal of Development Studies, 2012.

[6] At the EMS symposium on *Urbanization, Health and Human Security in Emerging Markets* (2011) Sir Michael Marmot suggested that Ministries of Health alone cannot resolve health problems and so *"every Minister is a Minister of Health*". See Findings, Conclusions and Recommendations at ems.gtc.ox.ac.uk.

private and voluntary sectors have collaborated with government and/or each other[7]. But there too a preference for autonomy has often constrained action.

In many emerging markets inadequate mutual understanding and/or respect between relevant **professional groups** (e.g. physicians and nutritionists) has impeded the development of policies and the implementation of programmes. This problem is not confined to emerging markets; solutions will depend on training and cultural change.

Problems with **quantification** have made it hard to persuade policy makers to act without evidence that action will produce measurable results and yield significant returns. This has left the way open (in this and other fields) to arguments grounded in anecdote, prejudice and personal experience. It has been hard to argue for action if costs - but not benefits - can be measured and even harder for policy makers to build support for change in the public at large, business and civil society.

History reveals that complex problems are rarely resolved without visionary, inspirational and determined **leadership.** The reluctance of *national* leaders (particularly in parliamentary democracies) to tackle problems of maternal and child health and nutrition can be at least partly explained by: lack of public understanding, support and pressure; uncertainty about outcomes; reluctance to spend resources on initiatives with long term payoffs; a tendency to focus on electoral cycles and thus the short term; press and media opposition; the attitudes and behaviours of business and civil society; and the effects of devolved power structures and difficulties of coordinating action across layers and levels of bureaucracy. Reluctance at *local* levels has in some cases been complicated by poor relationships between national, regional and local governments, and centralized decision making and budgetary authority. Local initiatives to resolve problems have often been stymied by lack of autonomy.

The Status Quo

Having failed to resolve problems of maternal and child health and nutrition fully when their economies were booming, emerging markets must now address them in what, for many, may be a period of relatively slower growth. Whereas some intractable problems (e.g. climate change) will continue to demand global cooperation, most, including problems of maternal and child health and nutrition, will continue to demand country-specific solutions.

Today, millions of mothers and children in emerging markets live at or below the poverty

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[7] e.g. The on-going partnership between *GlaxoSmithKline* and *Save the Children* in the UK

line[8] in polluted environments with inadequate housing, water supply and sanitation, with limited if any access to schools and healthcare and little chance of good nutrition. Economically, socially, physically and nutritionally deprived children are likely to have impaired learning capacity, poor lifetime health and poor chances of finding regular or meaningful employment. They are vulnerable to adult chronic diseases (type 2 diabetes, cardiovascular disease, chronic lung and kidney disease), which start at younger ages than in higher income economies, destroy health during the wage-earning years and require expensive but usually unavailable treatment.

Fetal and infant development is shaped by the life-course health and nutrition of mothers. The wrong type of nutrition in the 1000 days between conception and age two adversely affects infant cognition, physical development[9], educability and adult capability, employability and productivity. Under-nutrition in the 1000 day window also has detrimental effects on the next generation. If mothers have a poor start to life their children have a greater risk of low birth weight, stunting and poor cognition and the cycle repeats itself. A mother who has a poor start is at higher risk of developing diabetes during pregnancy, which adds to the risk her child will develop early-onset diabetes in adult life.

While these realities are timeless, emerging market populations that have benefitted from rising real incomes have had increasing access to foodstuffs associated with obesity. In many emerging markets high calorie, low nutrient foods have partially supplanted traditional diets. One result is that more women are overweight when they become pregnant and are also at increased risk of pre-eclampsia and gestational diabetes. They and their children will suffer adverse lifetime health effects.

In most emerging markets the negative impact of under-nutrition and malnutrition has been exacerbated by regressive patterns of income distribution[10]. In countries where the benefits of growth have trickled down or have been partially reallocated through public, private or voluntary sector interventions (e.g. child and adult food programmes, health and nutrition education, income transfers, progressive taxation) absolute poverty has diminished and nutrition standards have improved. In countries where the benefits of growth have flowed disproportionately to high income earners, corporate profits and

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[8] Defined by the United Nations as an income of $1.25 per capita per day in 2005 US$.

[9] A three-decade study showed that Guatemalan men who had better nutrition in the womb and early life went on to secure higher hourly wages than those who had not. See *Effect of a nutrition intervention during early childhood on economic productivity in Guatemalan adults*. John Hoddinott, John A Maluccio, Jere R Behrman, Rafael Flores, Reynaldo Martorell International Food Policy Research Institute, Washington, DC, USA. The Lancet 2008; 371(9610):411-6.

[10] Measured by changes in the Gini Index, which reveals the extent to which the distribution of income or consumption expenditure among individuals or households deviates from a perfectly equal distribution. A Gini Index of 0 represents perfect equality. An index of 100 implies perfect inequality.

returns on investment, absolute poverty has diminished less while relative poverty has increased. The social determinants of health are not a simple function of income distribution but regressive distributive trends contribute to the health consequences described by Sir Michael Marmot at an EMS symposium in 2011.[11]

New developments in epigenetics show that environmental factors, such as poor diet in pregnancy, can alter the regulation of fetal genes, which influences child development. This effect almost certainly persists into adulthood leading to increased risks of diabetes, hypertension and cardiovascular disease that can affect subsequent generations. It is well known that pregnancy and the first two years of postnatal life (the first 1000 days) are crucial to later outcomes; however, (in emerging markets as elsewhere) inadequate attention is generally given to the period leading up to conception when epigenetic effects are critical, and the first few weeks of pregnancy when placentation and organogenesis occur and when better surveillance and treatment are needed.

Consequences

The direct economic benefits of improved maternal and child health and nutrition would be fitter, stronger, healthier, more educable, more adaptable, more productive and more competitive workforces. Although the full payoff would be delayed there would be interim benefits[12] as conditions improved and local and national economies would benefit as workforces became more capable. If action were taken in some emerging markets but not in others, workforces in countries failing to take action would become relatively less productive, less adaptable to technological change, less attractive to foreign investors and less able to contribute to sustained growth.

The critical importance of investment in early childhood was emphasized by Professor James Heckman[13] who told the symposium on January 10: "*The highest rate of return in early childhood development comes from investing as early as possible from birth through age five in disadvantaged families. Starting at three or four is too little, too late as it fails to recognize that skills beget skills in a complementary and dynamic way. Efforts should focus on the first years for the greatest efficiency and effectiveness*"[14].

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[11] See report on symposium on *Urbanization, Health and Human Security* (ems.gtc.ox.ac.uk).

[12] Policies and programmes would benefit all women and not only mothers by providing at least minimal life-course healthcare to all women, irrespective of whether they wish or expect to become pregnant, beginning with culturally appropriate sexual education and guidance for girls of secondary school age.

[13] Professor James Heckman is the Henry Schultz Distinguished Service Professor of Economics at the University of Chicago. He was the Nobel Laureate in Economics in 2000. A video interview with Professor Heckman by Tsung Mei Cheng was presented to participants and an invited audience at a special session of the symposium at the Ashmolean Museum on 10 January 2014.

[14] James Heckman, December 7, 2012. www.theheckmanequation.org.

Today's emerging markets have emerged from the ranks of 'developing' countries because they reached escape velocity. They are dynamic. Their collective mantra is change. But if they fail to resolve their most intractable problems they will not maintain recent rates of progress. Today, they are ahead (in many cases far ahead) of currently poorer nations in Africa, Asia and Latin America. But some of those poorer countries are growing fast and have significant resource endowments, large supplies of unskilled but inexpensive labour and are increasingly attractive to foreign investors. They may or may not be the next emerging markets but if the current emerging markets wish to stay ahead they will need to develop technology based industries. They will be unable to do so unless they develop their human assets.

There is compelling evidence to show that efforts to produce better fed, better educated, healthier and more capable populations are associated with improved income distribution and enhanced vertical mobility and social cohesion[15]. Where action is *not* taken circular and cumulative causation would leave those left behind further behind.

There is also compelling evidence to show that emerging markets have achieved degrees of enhanced geo-political stature in the last 30 years: some (e.g. Brazil, China, India) globally, others (e.g. Colombia, Mexico, Peru) regionally. Those gains too could be reversed if emerging markets fail to grow the human capital they will need to consolidate their new-found places in the world.

Recommendations

To Emerging Market Governments

The reach of national and local governments in emerging markets varies from centralized systems (e.g. Russian Federation) to decentralized systems with strong central management (e.g. China), to parliamentary democracies (e.g. Brazil, Chile, Colombia) to constitutional monarchies (e.g. Jordan) to currently unstable systems (e.g. Egypt). Historically, governments have set maternal and child health (and in some cases) nutrition policies, funded and managed interventions and (in some cases) regulated other initiatives. Their power has ranged from dominant to (relatively) marginal. Recognizing that every emerging market faces a plethora of complex and competing claims on its resources the symposium offered the following recommendations to emerging market governments.

[15] Many high income countries, (e.g. Germany, UK, USA, France, Japan) pioneered comparable initiatives in the early and mid 20th century. Some former emerging markets (e.g. Singapore, South Korea) that have graduated from emerging market status to the lower echelon of high income country status have launched effective programmes more recently with impressive results.

Recommendation 1: Nutrition Policies and Practices

Governments should improve (or if they do not now exist) create national nutrition policies that:

- Provide comprehensive frameworks for achieving national nutrition objectives.
- Link nutrition policies with agricultural policies, supply chains and dietary traditions.
- Feature nutrition education and training for both males and females including selecting, cultivating and preparing nutritious foods, emphasizing balanced nutrition rather than caloric intake, stressing the avoidance of fructose and saturated fats and fostering understanding of the risks of excessive consumption of harmful foodstuffs.
- Take account of sectoral policies that (intentionally or unintentionally) may influence nutrition outcomes (e.g. subsidies for bio-fuel production).
- Take account of local food preferences and customs.
- Incorporate interventions that have been shown to have high returns including the provision of vitamins and micronutrients[16] for children and mothers through food fortification and therapeutic feeding with special foods for malnourished children.
- Incorporate interventions based on new research (see Recommendation 6).

Recommendation 2: Health Policies and Practices

Governments should ensure that national health policies provide for:

- Essential healthcare for women, men and children.
- Comprehensive sexual education and support services for women (including adolescent girls) and men (including adolescent boys).
- Effective training for health workers in ante-natal and post-natal care.

Recommendation 3: Objectives

A. Governments should ensure that maternal and child health and nutrition strategies define objectives for **families** by:

- Ensuring nutrition policies and interventions emphasize nutrient composition, exclude empty calories, contain appropriate amounts of carbohydrates, proteins, fats, vitamins, minerals, and appropriate ratios of Omega 3 and 6 fatty acids.
- Coordinating improvements in maternal and child health and nutrition with improvements in primary and secondary healthcare and improvements in basic education, health education and health education.
- Recognizing that men have equal rights to adequate nutrition, healthcare and education in their own right because their capacity for work and fatherhood is linked to their nutrition and health.

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[16] e.g. The guidelines proposed in *Scaling Up Nutrition* (Horton *et al*, The Lancet 2009) included: Breast feeding, complementary feeding for infants after six months, improved hygiene, periodic vitamin A supplements, zinc supplements, micronutrient powders, de-worming drugs, iron-folic acid supplements and iodized oil capsules.

- Exploiting synergies in public, private and voluntary sector collaboration.

B. Governments should ensure that maternal and child health and nutrition strategies define objectives for **women** by:

- Ensuring all women, whether mothers or not, have equal rights to sound nutrition and physical, mental and emotional health to enable them to benefit from education, acquire skills needed for employment (including the ability to adapt to changing demands) and play productive roles in communities;

- Designing women's health agendas on the basis of the female life course from adolescence through the end of life to:
  - Improve women's health and well-being.
  - Provide education and advice on contraception, child-spacing and safe abortion with particular attention to sex education, advice and support for adolescent girls including health monitoring, reproductive education and specific interventions (e.g. dietary supplements).
  - Provide gynaecological and obstetric care including ante-natal care (to address the fact that the largest proportion of child deaths occur in the neonatal period[17]); safe abortion, safe childbirth[18] and post-natal care[19].

  - Recognizing the importance of appropriate healthcare during the pre-conception period, ensuring:
    - Equal attention for women who neither wish nor intend to become pregnant
    - Pre-conception interventions benefit women as women and not only as potential mothers
    - Avoiding an excessive focus on women as *incubators.*

  - Embracing the facts that: not all women become mothers; the age of maternity is preceded by fetal, infant, childhood and adolescent life and is followed by midlife and old age; and that active motherhood is concentrated in two or three decades.

  - Adopting a multidimensional index of maternal (and child) health incorporating measures of morbidity as well as measures of maternal and child mortality.

  - Recognizing that expanding medical knowledge has made it increasingly possible to preserve the lives of infant children who not long ago would have died. As that knowledge continues to expand there will be a growing need to:

[17]Multilateral movements (e.g. "Every Newborn") acknowledge the need to improve antenatal and newborn care practices to prevent death and neurosensory disability.
[18] One half of all infant and maternal deaths occur within 48 hours of birth.
[19] Universal Declaration on Human Rights (1948), UN Convention on All Forms of Discrimination Against Women (1979), UN Declaration on the Rights of the Child (1959).

  - Focus on morbidity as well as mortality and the unintended consequences of an exclusive focus on mortality.
  - Recognize that (in emerging markets as elsewhere) pregnancy is not necessarily a result of conscious choice and that sexual violence, lack of access to reliable contraceptive advice and devices and unsafe abortion play a huge role in maternal mortality and morbidity, particularly in impoverished emerging market communities.
  - Recognize that the scientific capacity to preserve life must be balanced against the anticipated quality of life of rescued children and the direct and indirect costs of managing lifetime disabilities.
- Acknowledging that women are both managers of their own health *and* the health of future generations.

C. Governments should ensure that maternal and child health and nutrition strategies define objectives for **Fetuses, Infants and Children** by: (i) Paying special attention to fetal and infant development in the 1000 days between conception and age two; (ii) Employing universal standards of fetal and infant development; and (iii) Considering the unintended consequences of intervention (e.g. rescue of preterm infants leading to an increasing burden of disabilities).

Recommendation 4: Planning and Coordinating Action

Governments should ensure that maternal and child health and nutrition strategies:

- Engage the *private sector* in collaborative initiatives that exploit the comparative advantages of government and business to improve maternal and child health and nutrition.
- Engage *civil society* in collaborative initiatives that exploit the advantages of governments and NGOs to improve maternal and child health and nutrition.
- Promote and encourage collaboration between the private sector and civil society in light of experience gained in successful ventures[20].
- Ensure policies, mechanisms and mandates are in place to facilitate, monitor and enforce cooperation between government departments with functional responsibilities for aspects of maternal and child health and nutrition.
- Ensure policies and programmes incorporate comprehensive metrics on health and nutrition including morbidity *and* mortality, disaggregated data that identifies the most vulnerable women and children measure the costs and benefits of government and other interventions including the impact of antenatal and postnatal interventions.
- Recognizing that solutions in every emerging market may be different, embrace the new fetal and newborn growth standards defined by INTERGROWTH-21st (see Recommendation 6) that complement the globally endorsed WHO Child Growth

[20] e.g. The on-going partnership between *GlaxoSmithKline* and *Save the Children* (UK)

Standards from birth until the age of five. The standards are tools to allow governments to identify subpopulations that could benefit from increased policy efforts in maternal nutrition, health and social care.[21]

- Consider whether nutrition is given appropriate weight in medical education and if not take steps to redress the imbalance.

Recommendation 5: Communications

Governments should ensure that maternal and child health and nutrition strategies enhance public, private sector and voluntary sector understanding of problems and solutions and how they affect individuals, families and private and voluntary organizations by:

- Encouraging individuals, families and private and voluntary organizations to align their attitudes and behaviours with the theme of the messages.
- Capturing the attention of the public at large and specific interest groups including women, adolescent girls, men and boys.
- Taking account of lessons learned from other public messaging campaigns[22].
- Reaching disadvantaged communities.
- Promoting action by multilateral and international organizations to address problems and seek solutions including disseminating global experience and lessons learned.

Recommendation 6: Research

A. Governments should ensure that maternal and child health and nutrition strategies encourage, promote and fund research to investigate unresolved questions such as:

- The costs and benefits of interventions versus the cost of doing nothing.
- The value of locally driven research and solutions anchored in local realities versus the value of comparative international studies.
- The dynamics of nature and nurture.
- The impact of external environments and behaviour on health outcomes.

B. Recognizing evidence-based knowledge has dispelled myths, shifted priorities, changed practices and yielded improved maternal and child health and nutrition, governments should ensure that maternal and child health and nutrition strategies:

- Take full advantage of emerging research including the preliminary results of INTERGROWTH-21st, a large, multi-ethnic project conducted in eight defined geographic regions around the world including the conclusions that:

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[21] The INTERGROWTH-21stfindings will help governments identify what should to be done to prevent poor growth in early life and provide benchmarks against which early growth can be measured.

[22] Successful global campaigns to reduce smoking, curb alcoholic consumption and eliminate racial and ethnic discrimination offer useful encouragement and examples.

- Under *optimal* conditions, the growth and development of *all* children in all places is essentially similar *irrespective of nationality and ethnicity.*
- Ethnic and national stereotypes of physical and cognitive attributes that are deeply embedded in many cultures[23] are scientifically groundless and morally wrong. That does **not** mean past or current metrics of physical or cognitive development (e.g. height, weight, intelligence) are invalid. It means that if all mothers, everywhere, enjoyed optimized health and nutrition throughout their lives, and if their babies were born in optimized conditions, all children would have similar life chances.
- If optimized conditions for fetal, infant and child development were created in emerging markets those conditions would produce changes in male and female height, weight, growth and cognitive potential *within a single generation*.
- Fetal and infant health outcomes are primarily attributable to the social, economic, nutritional and physical environments of mothers before, during and after pregnancy.
- If mothers were healthy at the start of pregnancy, lived in environments that were free from external constraints on growth, had access to regular evidence-based healthcare, and breast fed their children, *all* children would have similar linear growth patterns from conception to age five[24].
- Measures of optimal growth from conception through age five valid for *all infants and children from all ethnic groups in all countries* will soon be released by INTERGROWTH-21st which will also release new standards describing, for the first time, how fetuses and newborns *should* grow if their mothers' nutritional and healthcare needs are met (i.e. achieve optimal growth).

- One of the most important determinants of fetal and newborn status is *gestational age,* against which physical growth can be compared throughout pregnancy and at birth. The tools developed by INTERGROWTH-21st provide standardized methods for comparing length/height and head circumference for gestational age within individuals and across populations.

Recommendations to Other Governments

Problems of maternal and child health and nutrition in emerging markets should rightly concern the world at large. First, because, unresolved, they pose growing threats to

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[23] (e.g. *"People in Country A are inherently small"; "People in Country B are inherently unintelligent"; "People of ethnicity 'C' are inherently strong; "People of ethnicity D are inherently intelligent"*).

[24] These findings complement those of the widely-used World Health Organization (WHO) Child Growth Standards for children of 0 to 5 years, derived from the Multicentre-Growth Reference Study [MGRS] (2006).

prosperity, cohesion and stability in emerging markets. Second because emerging markets now play crucial roles in the world economy. Third because emerging market problems are therefore global problems. Accordingly, it is **recommended** that governments of high income countries should:

- Urge multilateral institutions, multinational corporations and global NGOs to provide financial, technical and administrative support to emerging markets in their quest for practical solutions to problems of maternal and child health and nutrition.
- Use their influence and budgetary authority to promote research on problems of maternal and child health in emerging markets.
- Focus bilateral financial and technical assistance programmes on problems of maternal and child health and nutrition in emerging markets.

Recommendations to Institutions of Global Governance

Although WHO, FAO, UNICEF, WFP, UNFPA, the World Bank, regional development banks and other multilateral agencies and institutions have made important contributions to improved maternal and child health and nutrition since 1945, *The Lancet* concluded in 2008 that: "The international nutrition system is broken ... (and) leadership is absent". Since then (see *Scaling Up Nutrition: A Framework for Action*)[25] global and regional institutions and private sector and civil society organizations have created a coalition of support for further initiatives. Against this background and in light of its own conclusions, the symposium r**ecommends** that institutions of global governance should:

- Prioritize improved maternal and child health and nutrition in the 2015 Millennium Development Goals (MDG15) and the post-2015 Sustainable Development Goals.
- Develop a comprehensive global index of fetal and child development (including potential life years lost) for monitoring programme effectiveness.
- Consider a commitment to help emerging markets create optimal conditions for fetal and child development in a single generation (by 2030) through macro-economic policies and evidence based interventions.

Recommendations to Private Sectors

In some emerging markets[26] businesses can rely on external sources of labour[27]. Most rely on domestic sources and therefore have vital interests in improving maternal and

[25] Scaling Up Nutrition: A Framework for Action, Reprint 2011.
[26] e.g. Subject to national and regional (e.g. European Community) immigration constraints.

child health and nutrition. Their future growth will partly depend on their capacity to compete with high income countries in higher value added goods and services and their capacity to make that transition will partly depend on industrial and business practices that demand healthy, educable workforces.

Simultaneously, some poorer countries (e.g. Bangladesh, Ethiopia, Kenya) with labour cost advantages and *relatively* stable political and economic conditions that have, until recently, relied on primary industries, are attracting foreign investment in secondary and tertiary industries. That may not be an imminent threat to emerging markets but is a timely warning that if emerging markets do not accelerate the development of human assets they will find it hard to compete with high income countries while seeing off potential threats from poorer countries.

Faced with these realities it is **recommended** that private sectors in emerging markets:

- Urge governments to improve maternal and child health and nutrition to ensure long term supplies of employees with the capacity to learn new skills.
- Expand production of foods fortified with micro-nutrients.
- Develop public-private partnerships for food fortification to complement public and voluntary sector programmes.
- Use their marketing skills to support public sector nutrition campaigns.
- Collaborate with government and civil society to develop multi-sectoral programmes to improve maternal and child health and nutrition.
- Mimic examples set by multinational and other corporations in other fields[28] by launching in-house nutrition and healthcare solutions leading to productivity gains, enhanced employee loyalty and retention and improved reputations.

Recommendations to Civil Society

Civil society has played important roles in improving maternal and child health and nutrition in emerging markets. International (e.g. *Save the Children*) and national (e.g. India's *Akshaya Patra*) organizations have launched and sustained extensive and effective initiatives; persuaded governments to adopt, modify and implement maternal and child health and nutrition strategies and programmes; and by monitoring and publicizing objective measures of public and private sector performance.

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[27] e.g. Dubai and other Gulf States are not emerging markets (using EMS criteria) but rely largely on imported labour and are relatively independent of the nutrition, health and education of local workforces.

[28] A major recommendation of the 2013 symposium on *Gender Inequality in Emerging Markets* was that private sector businesses with large numbers of employees should emulate examples such as Sri Lanka based clothing manufacturer MAS Holdings (see Findings and Recommendations at ems.gtc.ox.ac.uk) See also Steinfield, Parks, Gomes and Estrin *Unleashing the Tigress: 'Business and Female Talent in Emerging Economies'* in *Business Strategy Review* (forthcoming).

In light of these achievements it is **recommended** that local and international NGOs should collaborate to:

- Increase past efforts to persuade governments to act.
- Increase past efforts to monitor results.
- Disseminate objective information.
- Facilitate mutual learning by developing and publishing inventories of relevant voluntary sector NGO strategies, policies, plans, policies and programmes to improve maternal and child health and nutrition.