The Oxford Health Alliance

Confronting the Epidemic of Chronic Disease

The Global Alliance for Chronic Disease

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From talk to an important paper

- Paper prepared by the steering commitee
- Committed to a partnership
- Has been widely read internationally and accepted as a good starting point
- A follow-up paper is underway

Vol 450|22 November 2007

FEATURE

Grand challenges in chronic non-communicable diseases

The top 20 policy and research priorities for conditions such as diabetes, stroke and heart disease.

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Chronic non-communicable diseases (CNCDs) are reaching epidemic proportions worldwide[1–3]. These diseases — which include cardiovascular conditions (mainly heart disease and stroke), some cancers, chronic respiratory conditions and type 2 diabetes — affect people of all ages, nationalities and classes.

The conditions cause the greatest global share of death and disability, accounting for around 60% of all deaths worldwide. Some 80% of chronic disease deaths occur in low- and middle-income countries. They account for 44% of premature deaths worldwide. The number of deaths from these diseases is double the number of deaths that result from a combination of infectious diseases (including HIV/AIDS, tuberculosis and malaria), maternal and perinatal conditions, and nutritional deficiencies.

Over the coming decades the burden from CNCDs is projected to rise particularly fast in the developing world. Without concerted action some 388 million people worldwide will die of one or more CNCDs in the next ten years. With concerted action, we can avert at least 36 million premature deaths by 2015. Some 17 million of these prevented deaths would be among people under the age of 70 (ref. 2).

CNCDs have a huge negative economic impact[3]. In the next 10 years, China, India and the United Kingdom are projected to lose $558 billion, $237 billion and $33 billion, respectively, in national income as a result of heart disease, stroke and diabetes, partly as a result of reduced economic productivity[3].

Several factors are implicated in this increasing burden, including longer average lifespan, tobacco use, decreasing physical activity, and increasing consumption of unhealthy foods. Fortunately, CNCDs are largely preventable[1]. Up to 80% of premature deaths from heart disease, stroke and diabetes can be averted with known behavioural and pharmaceutical interventions[2].

Poor diet and smoking are two factors that contribute to the millions of preventable deaths that occur each year.

Yet the prevention of disability and death from CNCDs gets scant attention worldwide. In sub-Saharan Africa it is understandable that governments, donors and research-funding agencies have channelled most resources into infectious diseases: 5.8% of adults between the ages of 15 and 49 are HIV positive[4] and malaria alone kills a million children per year under the age of five[5]. In most richer countries the focus of biomedical research on CNCDs has been on treatment rather than prevention.

A crucial aspect of establishing programmes for disease control globally is to identify priorities. To galvanize the health, science and public-policy communities into action on this epidemic, we present here an inventory of 20 grand challenges, grouped under 6 goals, arrived at through a global, structured consensus process.

The grand challenges approach

Two previous 'grand challenge' exercises — the historical one by David Hilbert[6] in mathematics more than a century ago, and the 2003 Grand Challenges in Global Health initiative spearheaded by the Bill & Melinda Gates Foundation[7] — showed that the approach focuses significant new attention on an area of study, energizes communities to rise to meet the challenges, and brings new talent to the field. Although there has been interest in CNCDs among governments in developed countries, research-funding agencies and others[8–10], this has been incremental and rare in developing nations.

The Delphi method

The Grand Challenges in CNCDs we describe here are intended to reduce the global epidemic of these diseases by making the case for worldwide debate, support and funding, and by guiding policy and research in an evidence-based manner.

To develop the grand challenges, we used the Delphi method — the structured, sequential questioning of a panel, with controlled feedback[11–13] — to distil knowledge and build reliable consensus among 155 geographically and culturally diverse stakeholders, from 50 countries. We used the following definitions.

A 'grand challenge' was defined as a specific critical barrier that if removed would help to solve an important health problem. The intervention(s) it could lead to might be innovative and, if successfully implemented, would have a high likelihood of impact and feasibility.

'Chronic non-communicable diseases' were defined as diseases or conditions that occur in, or are known to affect, individuals over an

A useful beginning

A focus on solutions:

1. Raise public awareness
2. Enhance economic,legal and enviromental policies
3. Modify risk factors
4. Engage businesses and community
5. Mitigate health impacts of poverty and urbanisation
6. Re-orientate health systems

GRAND CHALLENGES IN CHRONIC NON-COMMUNICABLE DISEASES

	Grand Challenges	Research needed to address goals
Goal A Raise public awareness	1 Raise the political priority of non-communicable disease 2 Promote healthy lifestyle and consumption choices through effective education and public engagement 3 Package compelling and valid information to foster widespread, sustained and accurate media coverage and thereby improve awareness of economic, social and public health impacts	• Study how to engage governments in partnerships for disease prevention • Develop research activities for health that bridge government departments (for example, transport, civic planning, health, education and environment) • Identify reasons for low awareness and advocacy of chronic disease in societies • Study how to create public forums that sustainably raise awareness of issues relating to chronic non-communicable diseases
Goal B Enhance economic, legal and environmental policies	4 Study and address the impact of government spending and taxation on health 5 Develop and implement local, national and international policies and trade agreements, including regulatory restraints, to discourage the consumption of alcohol, tobacco and unhealthy foods 6 Study and address the impacts of poor health on economic output and productivity	• Evaluate the health impacts of agricultural policy interventions • Study the health and economic impacts of comprehensive community-based interventions • Create general population metrics and outcome indicators for policy and programme surveillance • Quantify impact of chronic non-communicable diseases on domestic economies • Study the international ramifications of changes in food and tobacco consumption • Probe motivations behind domestic expenditures, and how these affect lifestyle choices • Investigate the impact and effectiveness of food-labelling legislation
Goal C Modify risk factors	7 Deploy universally measures proven to reduce tobacco use and boost resources to implement the WHO Framework Convention on Tobacco Control 8 Increase the availability and consumption of healthy food 9 Promote lifelong physical activity 10 Better understand environmental and cultural factors that change behaviour	• Do prospective cohort studies to identify risk factors, the magnitude of their effects, and the factors that reduce risk in chronic non-communicable diseases • Evaluate fetal and early-life influences on chronic disease risk • Find and evaluate new or combined medical preparations to prevent cardiovascular disease and diabetes or reduce their morbidities • Evaluate behavioural modifications to reduce risks • Establish metrics, and relationships between metrics, that are culturally and ethnically specific • Investigate cultural and ethnic variation in risk factors to refine behavioural interventions • Quantify personal risk related to phenotypes, genotypes and multiplicative risks • Study the interaction of environment and genes in risk factors and in outcomes • Develop new biomarkers and diagnostics for risk and for early disease detection
Goal D Engage businesses and community	11 Make business a key partner in promoting health and preventing disease 12 Develop and monitor codes of responsible conduct with the food, beverage and restaurant industries 13 Empower community resources such as voluntary and faith-based organizations	• Study marketing techniques and marketing data derived from commercial companies on behaviour modification • Investigate mechanisms for consumers and the public to exert a positive influence on the food industry • Research the impact of taste, flavour, packaging, labelling and advertising on choice and health • Create and evaluate community-based strategies to promote healthy living • Identify models of effective public–private partnerships that support health • Develop better understanding of nutrient benefit in foods
Goal E Mitigate health impacts of poverty and urbanization	14 Study and address how poverty increases risk factors 15 Study and address the link between the built environment, urbanization and chronic non-communicable disease	• Investigate the biological basis of health risks related to poverty • Examine the influence of poverty on the adoption of high-risk behaviour • Identify negative effects of economic growth on health • Study how to work with planners, architects and city representatives to enhance the environment for healthier living
Goal F Reorientate health systems	16 Allocate resources within health systems based on burden of disease 17 Move health professional training and practice towards prevention 18 Increase number and skills of professionals who prevent, treat and manage chronic non-communicable diseases, especially in developing countries 19 Build health systems that integrate screening and prevention within health delivery 20 Increase access to medications to prevent complications of chronic non-communicable disease	• Develop strategies to integrate health-system management of communicable and non-communicable disease • Form collaborations to find best practices in delivering affordable and equitable health care • Study how to provide more structured knowledge for health promotion • Develop strategies to ensure that medical training and curricula focus on chronic non-communicable diseases • Develop and provide culturally specific and nationally appropriate resources for training of health-care workers • Study how best to ensure that disadvantaged communities have adequate resource allocations in health care and in preventative practice • Optimize use of electronic health records for predicting disease and measuring the effect of health interventions • Study how best to develop and establish real-time surveillance tools • Discover and develop tools for screening and stratifying populations according to risk

From paper to working together on action

ties. Providing such priorities is the major goal of this grand challenge exercise. The growing interest in this area of research now being registered by governments and funding agencies suggests that substantial resources may be available in the future.

In the first instance, the main function of the Grand Challenges Global Partnership will be monitoring and reporting. It will provide cross-referencing between agencies to ensure efforts are complementary and that major objectives are not overlooked. We will therefore prepare for the research-funding agencies and foundations an annual progress report, beginning a year from now.

Chronic non-communicable diseases constitute the major burdens of illness and disability in almost all countries of the world. They must urgently receive more resources, research and attention, as mapped out in these grand challenges. Inaction is costing millions of premature deaths throughout the world. ■

- *That was then !*

AN NCD RESEARCH AGENDA FOR WHO: CONCLUDING REMARKS

August 26, Geneva
Richard Horton, *The Lancet*

- We need actor power – that means all of you. Actor power means creating a network, or a network of networks, for all those working in NCDs – the Global Forum, COHRED, NIH, Wellcome Trust, Oxford Health Alliance, Ovations, and others. You need to cohere, to agree about what needs to be done. You need to identify fantastic, articulate, and respected leaders. You need to align your institutions and programmes behind those leaders and your agreed strategy. And you need to root all of this in a mass civil society mobilisation.

Alliance origins and participation in consultations

Origins of the initiative

- The Alliance is a response to strong interest in forging collaborative research opportunities in CNCDs
- It reflects an expected increase in funding flowing to research in CNCDs
- It takes its origin in the Grand Challenges Partnership first announced in Nature in 2007
- An alliance was further explored at the WHO CNCD research conference in August 2008 which called for innovative alliances; and at the December 2008 HIROs meeting

- The founding members of the alliance include UK/MRC, US/NIH, Canada/CIHR, India/ICMR, Australia/NHMRC and China/MOH
- WHO has been invited to participate in an observer capacity

- OXHA and Dalberg in supporting role as preparatory office of the Alliance

Alliance purpose and operational objectives

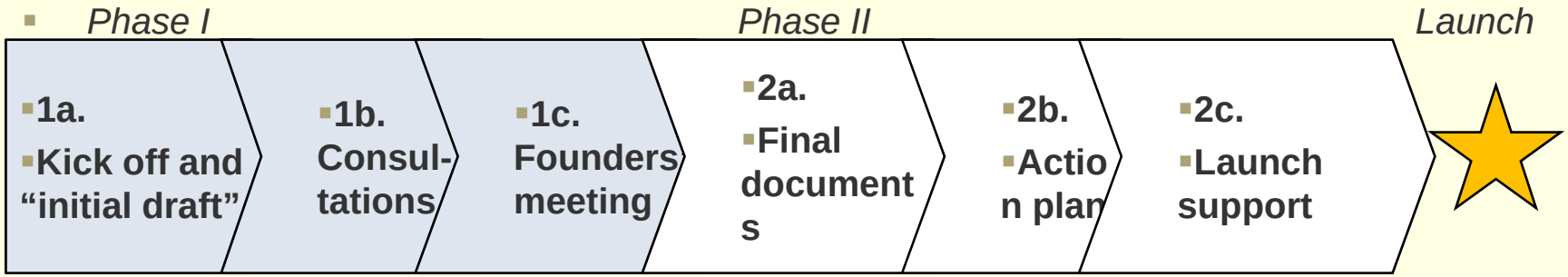
Purpose of the Alliance

- Forge collaborative research funding activities towards chronic diseases globally
- Work together as a new public private partnership – initially an international charity open to a range of member rather than a new international public agency
- Direct research towards building the evidence base to guide policy and developing best practices for fighting chronic diseases
- Thereby contributing to a sustainable and significant reduction of illness, disability and death around the world

Key operational objectives

- Jointly shape focus in an area that is becoming top priority for all partners
- Enable improved returns on investment from larger, multi-country, multi-setting studies (e.g. joint calls)
- Help boost the financial resources available to CNCD research, primarily in low and middle income settings
- Improve access to knowledge and expertise
- Build capacity through cost-effective collaborations
- Promote shared learning and innovation: capacity-building, publication and awareness-generation

Timeline for process leading to launch of Global Alliance for Chronic Diseases



Indicative timing	January	Feb / March	April/May	May	May	May/June	June
Outputs	• Kick off meeting in Oxford • Preparation of "initial draft" founding documents	• Consultations with core group of research leaders • Visits to India, China and Australia	• Founders' meeting with follow-up (tele-conference)	• Send draft written version to Founders for further inputs • Incorporate feedback from Founders' meeting • Incorporate further inputs and finalize	• Launch action plan: core secretariat, funding, advocacy, first-step actions • Plans for Scientific Meeting (October)	• Initial phase launch support: registration, recruiting, training, communication • Launch event planning and logistics	

Initial research priorities

Starting point for research focus

- Starting point is Nature Grand Challenges in CNCD paper which identified six research goals, 20 grand challenges and 39 priority research areas
- Goal is to announce 3-5 priority research areas at launch in June. Consultations highlight that initial focus of the alliance should be pragmatic and selective
- There is a need for a process to refine the list of priorities up to June launch (and follow-up publication in Nature)
- Scientific meeting in / around November 2009 to set more detailed priorities

Common focus topics articulated in consultations*

Priority research topics

- Modify risk factors (Goal C)
  - Particular interest in tobacco and obesity in children
  - Focus on public health aspects, capacity-building
- Reorient health systems (Goal F)
  - Particular interest in highly effective CVD/diabetes interventions
  - Focus on health services delivery research
- Also, grand challenges exercise in mental health

- Working group (Mary Phillips MRC, Nancy Edwards Can Stig Pramming OxHA…….)

* "Goals" refer to Nature article on Grand Challenges in Chronic Non-communicable diseases

Source: Preparatory office consultations with founding members

There are others out there

- Ovations initiative
- COHRED
- OxHA CIH
- Lancet (tobacco, BP, salt reduction (diabetes))
- WHO new research initiative
- Country action plans (Aus healthiest nation by 2020)
- Polypills

The 13 priority : NZ have got it rigth!

Population health objectives are to:

- reduce smoking;
- improve nutrition;
- reduce obesity;
- increase the level of physical activity;
- reduce the rate of suicides and suicide attempts;
- minimise harm caused by alcohol and drug use;
- reduce the incidence and impact of cancer;
- reduce the incidence and impact of cardiovascular disease;
- reduce the incidence and impact of diabetes;
- improve oral health; reduce violence in relationships, families, schools and communities;
- improve the health status of people with severe mental illness; and
- ensure access to appropriate child healthcare services.

THE U.S. COMMITMENT TO GLOBAL HEALTH

Recommendations for the New Administration

The committee also asks that by the end of the administration's term, the President and Congress **double annual U.S. commitments to global health between 2008 ($7.5 billion) and 2012 ($15 billion).**

- The committee recommends that the U.S. government commit to $13 billion for the health-related Millennium Development Goals (MDGs) and an additional $2 billion to address the challenges of noncommunicable diseases and injuries.

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THE NATIONAL ACADEMIES PRESS
Washington, D.C.
www.nap.edu

Global fight against infectious disease – 1995-2005 lift-off