

WORLD REPORT ON KNOWLEDGE FOR BETTER HEALTH

OUTLINE OF CONTENTS



WORLD HEALTH
ORGANIZATION

This summary represents a **draft** discussion paper of **work-in-progress** and aims to signal the important themes of the Report. We emphasize that the final Report will be developed based on perspectives, comments and suggestions from the various regional consultations to enable critical inputs from a regional and country perspective to be included in the final Report.

SEND COMMENTS AND SUGGESTIONS TO: worldreport@who.int

7 KEY MESSAGES FROM THE REPORT (DRAFT)

1. Science must be turned into action to improve people's health; it must focus more on the "how" rather than the "why", "where" or "what"
2. Knowledge must be accessible to all, in a form which is useful and can be acted upon by different people and groups
3. All countries must create an environment in which research for health is seen as a systematic effort, and will thus flourish
4. Research must be conducted according to universal ethical standards thus ensuring that it will improve equity in health
5. A broader, more inclusive view of health research is needed and civil society has a vital part to play
6. Research is an investment, not a cost, and governments must spend on it
7. Action Plan needed-now!

World Report on Knowledge for Better Health

Annotated Outline

Knowing is not enough, we must apply: willing is not enough, we must do
Goethe

INTRODUCTION

While one-fifth of the world's population enjoys an average life expectancy approaching eighty and a life comparatively free of disability, two-thirds of the world's population, living in the least well-off countries of Africa, Asia and Latin America, suffer overwhelmingly from the world's burden of illness and premature death. Each year, an estimated 15 million children die from infection and malnutrition – 40,000 children per day. The toll in illness and lifelong disability is a critical impediment to economic and social stability. The objective of this report is to describe strategies to reduce global disparities in health through improvements in health research systems at national and international levels and systematic application of evidence-based knowledge. The report builds on formative past reviews, including Commission on Health Research for Development (1990), Ad Hoc Committee on Health Research Relating to Future Intervention Options (1996) and Commission on Macroeconomics and Health (2001).

Health research is attributed to significant gains in life expectancy and health status through the improvement of household knowledge and technical interventions such as vaccines, therapeutics, diagnostics and other public health measures. Moreover, there is increased recognition of the multiplier effects of research innovation on the economy and social well-being through improved labor performance, returns to business and infrastructure, and increased parental investments in children. To underscore the importance of health to development, health objectives are a prominent feature of the Millennium Development Goals (MDGs) agreed by heads of government at the Millennium Summit in 2000. The MDGs present a novel construct by explicitly linking poverty reduction stratagems with health achievement, among other social indicators. Indeed, in many nations, realizing MDG targets related to income poverty and educational enrolment rates will require corresponding improvements in population health status.

At current rates of mortality, Millennium Development Goals will not be realized for a majority of the world's population. There is urgent need to identify structures and means to translate knowledge to effective intervention. This will require the strategic development of new tools as well as delivery strategies that achieve effective and sustained coverage in diverse cultural and economic settings. It also may require new forms of interaction between the research, health service and macroeconomic policymakers.

GLOBAL HEALTH TRENDS: THE RESEARCH CHALLENGES AHEAD

As explicated by the Ad Hoc group, health needs of low- and middle-income nations present a layered challenge. In addition to what is termed the “unfinished agenda,” the burden of avertable disease affecting child and maternal health, populations are faced with persistent and emerging microbial diseases including drug resistant variants, and increasing burdens of non-communicable disease as risk profiles and demographic patterns shift. These problems are compounded by the uneven capacity of health systems to deploy proven and emerging interventions.

Changing Microbial Threats to Health: Our battle to prevent and cure HIV/AIDS is a dramatic example of the need to mobilize scientific resources to address disease threats and reduce health disparities. AIDS has exacted a profound humanitarian toll, reversed gains in child survival in many nations, and threatened the economic stability of emerging markets by reducing the number of working age men and women. Critical to reducing the impact of HIV/AIDS in resource-poor countries, which bear the disproportionate burden of this disease, are strong national commitments and international cooperation and research to develop effective prevention and control strategies. An evolving global strategy for HIV/AIDS is to deploy multiple prevention strategies based on successfully tested interventions: in concept, to prevent HIV at the population level through "combination" approaches. The international health R&D community is positioned to create lower cost "prevention algorithms" to contain HIV in highly impacted countries through the testing of combination interventions to include STD treatments, affordable anti-viral regimens to prevent mother-to-child transmission, topical microbicides, condoms, improved obstetrical practices and behavioral/social interventions. This will require ongoing analysis of intervention efficacy and a focused operational research agenda.

HIV/AIDS is a cautionary example. The rapid emergence of new pathogens presents a disturbing new chapter in the grim evolutionary battle between humans and microbes. This is the result of social and demographic trends, and changes in the genetic structure of microbes that increase virulence and transmission and weaken the efficacy of existing drugs. Among major disease pathogens which exhibit these characteristics, tuberculosis accounts for one-quarter of all preventable adult deaths in the developing world. Pneumococcal pneumonia carries almost as great a death toll as tuberculosis and a higher disease burden. Forty-six years after the World Health Assembly initiated a global eradication program, malaria has resurged due to resistance of the parasite to available drugs and resistance of vectors to insecticides. Progress against the persistent burdens of infectious require a new public health paradigm: an integrated approach to prevention and control, incorporating improvements in case management, rational drug use to limit the spread of resistance, monitoring and evaluation of control measures, and development of new diagnostic tools, drug and vaccines. Moreover, preventive strategies to slow the emergence of microbial disease require research on factors that influence the spread of microbial resistance to antibiotics and new technologies to monitor these occurrences.

The Unfinished Health Agenda of Maternal and Child Health: Childhood infections, poor reproductive health and malnutrition account for over one-third of the entire global burden of disease, based on the metric of disability adjusted life years. A root cause of this burden stems from demographic pressures in developing nations. The world's population is now expanding at the unprecedented rate of nearly 1 billion per decade; virtually all of this growth is expected to occur in developing nations of Africa, Asia and Latin America. There is broad consensus that a reduction in rapid population growth in the developing world will enhance the prospects for improved living standards in the decades ahead. Yet ultimately, the effectiveness of family planning is dependent on the improvement of infant and child survival rates. Current child mortality rates in many developing nations result in excess births to ensure that a desired number of children survive to adulthood. Instructively, a recent assessment by the Bellagio Child Survival Study group indicates a stark and representative contrast between evidence and application in resource-poor settings: an estimated two-thirds of under five child mortality could be averted with proven interventions that can be deployed in low-income countries. Embedded in the challenge to improve coverage is a robust research agenda to explicate factors that affect delivery of interventions in differing epidemiological, cultural and health systems contexts.

The Emerging Epidemics of Chronic Disease: The classic burdens of infectious disease are joined by a new class of non-communicable epidemics. By the year 2020, their share is expected

to reach 60 percent on a global scale, with the increase attributable to demographic trends in developing nations. As populations age and risk exposures shift, non-communicable diseases are estimated to become a leading source of disability and premature death in developing nations. In principle, many of these burdens may be averted by adapting cost-effective interventions which have been applied in industrialized nations. These include, for example, primary prevention programs to modify environmental and behavioral risk factors as well as programs for secondary prevention. However, the appropriate transfer of these interventions to developing nations requires expanded efforts to determine risk exposures and culturally-relevant interventions. Among risk factors accompanying industrialization, conditions that may have the most pervasive effects on community health include mental health disorders, tobacco-related diseases and environmental-related diseases.

What do these persisting and emerging epidemiological trends imply for health research policy and practice? Arguably, a “systems” view of the research enterprise is now needed, reflecting a multisectoral approach to diseases and health determinants. In the late twentieth century, evolutionary gains in biology and medicine have resulted from a reductionist investigation of individual components of complex biological systems. Among other achievements, this has brought us rational drug design and the first reference map of the human genome. At the beginning of the new millennium, it is critical to give comparable effort to a holistic view of health determinants and to integrate biomedical, social, environmental and economic considerations in the framing of research pursuits. Complex and often subtle relationships among environment, behavior, societal dynamics and modes of health delivery underlie challenges in reducing the burden of disease. New approaches will require a new breadth of perspective and coordination.

For example, correlates to economic development have been studied vigorously, but little attention has been paid to the relationship between health or demographic status and economic development. Recently, economists and the public health community have begun two broad avenues of investigation: macroeconomic studies to examine the relationship between national growth indicators and health; and microeconomic studies that explore the dynamics of health and productivity at the individual or household levels. These studies suggest that our conceptual understanding of the long-term influences on economic development and the formulation of effective policies rely on a deepened understanding of the determinants and consequences of public health. If governments and donors are to effectively target their investment in health as a component of development plans, expanded research is required on the complex dynamics of health, poverty and productivity

ENHANCING INSTITUTIONAL CAPACITIES AT THE NATIONAL AND GLOBAL LEVEL

Are present institutional structures adequate to marshal R&D efforts? At the national level, multiple systemic challenges face the research enterprise. These include generating an adequate research response to diseases and determinants causing high disease burdens; translating knowledge to health and policy decision-makers and the broader public; measuring the degree of absorption, measuring health status, and addressing both gender and population-based disparities in health. At the international level, there is a persisting need to adopt a highly strategic coordinated approach to global health science. Despite a growing consensus of need, no coordinating mechanism exists to bring together the diverse network of R&D investors and institutions to catalyse efforts and realize economies of scale. As a result, global health research is pursued in a fragmented and often unsustainable manner. There is a need to identify shared scientific priorities that have not generated sufficient R&D support and would benefit from

concerted action. A compelling candidate, among many, is the development of topical microbicides or virucides, which may be the best hope of HIV prevention until the community can deliver an efficacious and affordable vaccine, and which would benefit from coordinated efforts of public and private sector research organizations.

The health research community is not realizing its inherent potential to meet global health needs, based on a range of indicators related to systemic capacity, incentives and financing. As first demonstrated by the Commission on Health Research for Development, the distribution of research resources across the spectrum of health problems reflects a stark imbalance, with some of the most important determinants of disease burden, such as enteric and acute respiratory infections, relatively neglected. Narrowing the resource gap will require strategic commitments both from public agencies in high-income countries, which represent the significant majority of global public expenditure on health research, and counterparts in developing nations.

Moreover, the pharmaceutical and biotechnology industries are deterred from investing in products to reduce disease burdens in low-income countries due to concerns with recouping investment and lack of adequate delivery infrastructure, among other considerations. It is instructive that among therapeutic interventions licensed from 1975-1997, only 1 percent are specific to tropical diseases. Economic constraints also affect the availability of essential drugs in many developing nations. In addition, there is a need to create a more enabling economic environment for the deployment of available vaccines and therapeutics. A key challenge is to assess the potential to deliver additional vaccines within the DPT platform or Expanded Programme on Immunization, which will require both evaluative research and novel funding or cost recovery schemes.

Rectifying these imbalances will require coordinated efforts among the diverse systems of donors and institutions which engage in the global health research enterprise, as well as novel incentive structures to reduce upstream and downstream constraints on the ability of the research community to deliver global public goods. These include the ownership and allocation of intellectual property, data sharing, issues related to manufacturing capacity and regulatory requirements. One of the most progressive developments in addressing neglected diseases is the establishment of public-private partnerships to catalyse research and development. Numerous precedents now exist, such as the Medicines for Malaria Venture, the Global Alliance for TB Drug Development and the International AIDS Vaccine Initiative. Complementary interests should encourage pharmaceutical firms and health research agencies to seek new models of cooperation to spur development of products of critical need to developing nations. Pharmaceutical firms have demonstrated willingness to contribute to such efforts, provided they are not exposed to undue risk. In order to realize the potential benefits of public-private alliances, there is a need to identify and promulgate public-private sector best practices that encourage commercial development while obtaining the broadest public benefit.

THE CHANGING FACE OF HEALTH RESEARCH: INTERDISCIPLINARY REQUIREMENTS

Progress also will require enhanced research capacity in low- and middle-income countries. There is consistent evidence linking productive and equity-based health research systems with favourable national health outcomes. For example, the past 20 years have demonstrated that clinical and epidemiological research capacity is a precondition of effective control of HIV, in addition to unified planning, social inclusion and the capacity to deploy proven interventions on a scale commensurate with the epidemic. Notable examples include substantive reductions in peak HIV seroprevalence across populations in Uganda, the success of Senegal in containing infections rates and the sustained progress in Thailand in containing HIV vulnerability by targeting high-

risk populations. Analogous localized success have been realized in the fields of malaria and TB control, and onchocerciasis among other categorical areas.

With the emergence of molecular and cellular biology, recombinant DNA technology, the computational sciences and refinements of more classical techniques, biomedical science has become more complex and interdisciplinary. Productive research enterprises must embrace multiple core areas, including molecular techniques; clinical research methods and design; medical informatics, and bioethics.

Many developing nations are entering a period of technological change, which will result in a transition from a more traditional library system to reliance on electronic access to international data networks through individual workstations. Technologies such as fiber optics and satellite telecommunication networks ultimately will evolve as the technical backbone to the scientific and health care community in these countries. There is a prescient need to consider how these emergent technologies in developing nations can be applied to such challenges as epidemiologic surveillance, improvements in clinical practice, distance learning, and the construction of scientific "collaboratories" to share information, software and computing capabilities and conduct electronic peer review.

Advances in molecular genetics and medicine already demonstrate that the structure of individual genes and encoded proteins provide a new starting points for diagnosis and therapy to identify and correct defects in the regulation of cellular machinery. These developments have profound implications for our understanding of susceptibility and resistance to polygenic disorders, including diseases related to poverty, and the maintenance of health in the community. This shift will requires the transfer and adaptation of state-of-the- analytic tools and technologies, such as polymerase chain reaction (PCR), hybridization techniques, and other potent tools. Such molecular-based diagnostics as PCR already are deployed in resource-poor settings to identify and monitor viral outbreaks an provide proof of principle of the immediate application on gene-based technologies in low-income nations. In complement with new techniques, competence is required in clinical research methods, including clinical trials and observational study design, pharmacokinetics and data management and analysis. In the epidemiological sciences, there is especial need to promote the capacity to assess multiple factors on incidence, severity and outcome of endemic problems, including behavioral and economic influences.

Moreover, the scientific community and public are presented with complex questions concerning the social and ethical dimensions of research and the application of discoveries. There is need to assist current and future investigators in the pursuit of culturally relevant studies on ethical theory and practice in biomedical and behavioral research and provide expertise to their host institutions, national governments and international bodies to address ethical issues related to the development and conduct of international research. Considerations arising from cross-cultural research is an area of especial need. These issues have been raised most frequently in the conduct of HIV/AIDS research but extend to a broad range of potential interventions that require controlled field evaluations and human investigations.

OVERCOMING TRANSLATIONAL IMPEDIMENTS

A core mission of the health research enterprise at national and transnational levels is to translate findings from the laboratory and clinical setting to evidence-based practice. Impediments in capacity fall into two domains. The first is the transfer of understanding of disease mechanisms

into the development of new methods for diagnosis, treatment and prevention, including testing of innovative therapeutic and preventive strategies among volunteer populations. These translational needs are exacerbated by many factors, including inadequate funding, increased regulatory burdens, fragmented infrastructure, incompatible databases and a shortage of qualified investigators in the clinical sciences and well-characterized patient cohorts. Among other priorities, a key structural need is an integrated, international clinical trials system engaging local investigators, communities, ethical review committees and regulatory bodies in low- and middle-income countries. Due to the constrained capacity of research centers in low-income countries with the capacity to conduct large-scale clinical trials, progress is impeded on several vaccines in development which are urgently needed in these regions, such as vaccines for rotavirus and pneumococcal disease.

The second domain involves the translation of results from clinical and observational studies into health decision-making and clinical practice. One of the most neglected links is operational and health service research, which focuses on the investigation of health interventions in practice, including mode and cost of delivery, patient acceptability and compliance, dosage and toxicity, and methods to adapt interventions to local conditions and integrate them into existing services. For example, despite a rich evidence for the management of cardiovascular diseases, multiple studies demonstrate low levels of compliance with evidence based guidelines for managing common cardiovascular conditions such as high blood pressure. The difficulty of translating clinical trials and observational studies suggest multiple barriers to implementation related to the scientific enterprise, the health profession, the patient and the health system. In low-income countries, this uptake lag can have devastating consequences. For example, the widespread use of vaccines for *Haemophilus influenzae* type b have virtually eliminated Hib related disease over the past decade among industrialized economies. However, due to lack of capacity to characterize the burden Hib-related disease, adapt and deploy the vaccine, an estimated 4.5 million children in developing countries have died from Hib-related respiratory diseases over that ten-year period, mainly childhood pneumonia

The field of translational research has taken on a new urgency due to the expanding scope of international initiatives to deploy interventions. Among these are the Global Fund to Fight AIDS, TB and Malaria, the Global Alliance for Vaccines and Immunization, Stop TB and Roll Back Malaria. A prominent example is the commitment of WHO and partners to deliver HIV anti-retroviral therapies in resource-poor settings, with the intent of reaching 3000 in need by 2005. Operational research is urgently required to identify what types of infrastructure yield the most effective treatment, limit resistance, and ultimately are sustainable and cost-effective. The results of this research and other data gathering efforts will require rapid analysis to that effective practices are widely deployed. Of equal importance, systematic reviews of clinical studies such as those generated by the Cochrane Collaboration hold substantial potentials to the improve public health practice in low-income nations.

ROLE OF THE WORLD HEALTH ORGANIZATION

Achieving the Millennium Development Goals will require a concerted commitment among multiple sectors to generate and effectively disseminate knowledge to improve the capacity of individuals, communities and health systems to improve. Arguably, the international climate has never been so favourable. There is unprecedented recognition of health as instrumental to social and economic well-being and global security. Partnerships are emerging between donors and recipient countries which feature country-led process in the setting of strategic health priorities, incorporation of civil society and greater donor coordination. High throughput technologies and other research tools are now generating unprecedented amounts of health-related information and

accelerating the pace of medical discovery. The diffusion of “best practices” is now readily achievable through new communications technologies and other tools. Indeed, opportunities are unprecedented to extend world wide the culture of peer review as a basis for sustained improvements in clinical practice and public health delivery through information access, and innovative forms of telemedicine and distance learning.

What is required is dynamic and coordinated leadership among diverse sectors of the health research community, effective decision-making processes across and within research organizations, adequate infrastructure to translate research into public health tools critical, creative data sharing and intellectual property schemes, and new incentives for cooperative research. WHO has an authoritative role in evidence-based control of disease, establishment of standards, and promotion of equitable health delivery. It has a unique capacity to convene diverse organizations engaged in global health toward collective actions to close the coverage gap and assumes a critical role in advising member governments on appropriate strategies based on the recommendations of this report. WHO also is positioned to identify needs and opportunities for research investment, making use of available analytic data and assisting to rectify what the “90/10 disequilibrium.

CONTENT AND SCOPE OF REPORT

The content of the report follows the continuum of the research enterprise, beginning with an explication of the structure, dynamics and performance of a model health research system, discussion of synthesis and utilization of research findings in public policy, and concluding with a series of actions to advance the MDGs. Among the questions to be explored are:

- How effective are current control strategies in reducing morbidity and preventing mortality related to health-related MDGs and ensuring equitable coverage among populations groups?
- What are key knowledge gaps or other barriers to effective control at the following levels:
 - a. Household and community
 - b. Health systems sector
 - c. Non-health sector
 - d. National and international governance (e.g., poverty alleviation and macroeconomic strategies)
- What are key operational research needs at the level of the community and health system sector which, if addressed, would have the greatest impact on achieving health-related MDGs?
- What shapes a productive and equity-based research environment? Are new organizational structures, incentives or financing schemes required to facilitate knowledge transfer at national or international levels?
- What might be learned from good practices in the design of previous interventions and how can these be brought to appropriate scale?
- What steps might be taken to improve access to scientific and medical information that may improve clinical practice and delivery of public health, such as more expedient access to primary literature, systematic reviews, or treatment guidelines.

Chapter One: The Benefits of Health Research Investment

Chapter One addresses the benefits of investments in research and presents a systemic perspective on the health research process, including discussion of the structural linkages between the health research enterprise and health systems, and the complex relationship between research and health outcomes. Several descriptive case studies will be offered to demonstrate successful examples of knowledge transfer. The chapter outlines a broadened definition of health research, first introduced by the Commission on Health Research and Development, to include social and management sciences.

Key Messages

- *In an increasingly globalized world with an ever expanding pool of information, the ability of scientists to obtain and utilize knowledge for public benefit is a hallmark and critical attribute of knowledge societies*
- *The societal and economic costs of ill health far outweigh investment in health research to reduce disease burdens. Expanded investment needs to be made at the national and global level to bridge inequities in health status*
- *As a key element of improving health status, countries should ensure that health research systems inform health sector reform*

Chapter Two: Principles of Equity and the Ethics of the Health Research Enterprise

Chapter Two addresses societal values that underpin a productive and equity-based health research enterprise. This chapter will address the large and growing inequities in health, which exists between sub-groups of populations across countries and within countries. It will discuss how more research needs to be done on inequalities in health and health care delivery, and also addresses the fact that there are also imbalances in the research process itself at both global and national levels. The chapter will also highlight the need to develop a common conceptual framework for equity and ethics in public health research and policy. Close attention to the fundamental principles of ethics in the design and execution of health research is key in ensuring that an equity focus remains central to the research at all stages.

Key messages

- *Health research in general and research on health inequalities in particular, should play a central role in creating such knowledge to inform policy and practice and thereby contribute to the eradication of disparities in health and the acceleration of progress toward equity.*
- *Since many of the causes of inequities in health are social in origin, systematic research is needed on the social causes of illness. These social causes or determinants often need to be tackled on the societal level, requiring actions from a broad range of sectors, not just from the health care sector. Research on inequities in health and its key determinants makes it easier for different sectors in society to understand their role and responsibility for producing, maintaining or reducing inequities in health.*

- *The importance of addressing gender equity in health is increasingly recognized in both health research and policy. However progress is uneven, and results in terms of changes in research practice is only now emerging. The prerequisites for conducting gendered health research are the collection of sex-disaggregated data by individual research projects or through larger data systems, attention to the possibility that data may reflect systematic gender biases, and the use of methodologies that are sensitive to capture adequately gender dimensions.*
- *In keeping a focus on promoting equity and justice in research it is necessary to develop and undertake research according to universal ethical standards and principles. The role of bioethics in health services and research is based on the recognition of the fundamental principles of human rights, beneficence and non-maleficence.*
- *International guidelines are available and widely used but in rapidly emerging areas such as genomics and biotechnology, there is need for further development of guidelines which take into account the interests of developing countries. Mechanisms need to be found to ensure compliance with safeguards and guidelines.*
- *While ethical guidelines exist for planning and conduct of research on individuals, the ethical regulation of research in public health settings is unclear.*

Chapter Three: Creating an Enabling Environment-Health research, health information and health systems strengthening

Chapter Three addresses the necessary vision and resources for knowledge – what is required to create an enabling environment for generating, disseminating and utilizing knowledge at the community, national, regional and global levels to improve health, equity and overall development. Research will be discussed as international public good and the need for collective responses among the dispersed system of investors, networks and institutions. Based on findings from the Health Research Systems Analysis Initiative, the chapter outlines indications of best practice in establishing priorities at national levels responsive to public need and scientific opportunity, research management and advocacy. The chapter also addresses issues which surround access to knowledge and the benefits of research, given the increasingly proprietary nature of research-based knowledge. Equitable and universal access to healthcare and health research information is an important component of an enabling environment and key issues need to be identified and addressed. Innovative public-private partnerships are noted that have emerged over the past several years to engage the private sector in the public health priorities of low- and middle income nations. It also emphasizes the important role of civil society in the research process.

Key Messages

- *Solutions to national health systems challenges need to be refined and tested within countries and in collaboration with regional and international efforts. National efforts must take stock of external knowledge and technologies*
- *Health research within each country and collaboration internationally should be organized from a system's perspective with a heavy emphasis on ethics and equity*
- *A people-centered approach in the process and distribution of benefits of health research and health systems activities requires much greater engagement of civil society*

- *An enabling environment for producing research requires vision, concrete institutional support, adequate funds, appropriate training and attractive career pathways*
- *Access to relevant, reliable and up-to-date health and health research information to the developing world must be improved and must take into account the needs of a diverse group of constituencies and stakeholders.*
- *Although indicators of increasing research quality and broader sectoral involvement are found in many countries and regions, there is an untapped potential for strengthening collaboration nationally, regionally and globally*
- *Within and across countries, health research embedded within health systems needs to be enhanced*

Chapter Four: Research Synthesis -- An Enabling Step Towards Application

Chapter Four addresses the new set of research needs that emerge following generation of new knowledge. Focus is placed on the growing requirement to share and synthesize available evidence and bring to scale effective local programs. Although there are robust examples of effective interventions in such areas as IMCI, HIV prevention and childhood vaccine coverage, disconcertingly few have been generalized to broader populations. Moreover, knowledge is required on how to combine interventions to achieve maximum effect, address co-morbidities and realize new efficiencies. The chapter provide an overview of the role and unrealized potential of systematic review.

Key Messages

- *New research should be carried out and subsequently reported in the light of scientific syntheses of relevant existing research*
- *Whenever possible, health care decision makers should use research syntheses to inform policy and practice*
- *Failure to take research synthesis seriously leads to serious consequences for consumers of health care and to inefficient use of limited resources for health care and research.*
- *Greater attention needs to be given to synthesizing research focusing on health problems associated with the highest global burden.*
- *Progress towards closing the “know-do gap” relies upon relevant and reliable research information being shared with a range of potential decision-makers in an appropriate format.*

Chapter Five: Bridging the Know-Do Gap -- Pathways to Evidence Based Practice and Policy

Chapter Five examines the utilization of research for public health and addresses policy needs to bridge the “know-do” gap. The research-to-policy-to-practice pathway is described as well as appropriate “receptors” to facilitate the process. The chapter addresses effective practices in translating and utilizing knowledge and provides an organizing framework for knowledge transfer. Emphasis is placed on the importance of actionable messages for policymakers,

cultivating knowledge uptake skills among target audiences and improving knowledge transfer skills within research organizations.

Key Messages:

- *The producers of research can more effectively transfer and facilitate the uptake of research knowledge by: developing an actionable message based on a body of research knowledge that has been systematically reviewed; 2) identifying the most appropriate target audience(s); identifying and working with or through the most credible messenger(s); employing proven approaches to transferring and facilitating the uptake of the messages; and evaluating the impact of producer-push efforts and sharing evaluation experiences with others.*
- *The many users of research can be more effectively supported to use research knowledge in their decision-making by developing their or their representatives' capacity to: acquire relevant research, assess its quality and applicability, adapt it so that it can be understood locally, and apply it; commission research or research syntheses when none exist; and combine research knowledge with other types of knowledge about priority problems, proven solutions, the local context and proven mechanisms to bring about change.*
- *The producers and users of research can work towards the creation of a more research-attuned culture among the users of research and a more decision-relevant culture among the producers of research by investing in long-term knowledge exchange relationships with one another that involve shared responsibility for setting research priorities and for transferring and facilitating the uptake of research knowledge, the development of a greater awareness of the realities and constraints of each other's worlds, the development of mutual respect for the knowledge that different people bring to the table, and the development of jointly "owned" knowledge about how to improve health systems and achieve health equity.*

Chapter Six: A Framework for a Health Policy and Systems Research Agenda

Chapter Six outlines a series of *recommendations and policy options* to address the evidence gap and improve capacity and integration of health and research systems. A summary assessment also is provided on gaps in the evidence base for diseases and conditions relevant to MDG plus, encompassing four distinctive categories of knowledge -- epidemiology and monitoring, needed tools and technologies, impediments to delivery, and equity of access. The chapter will draw together conclusions from a broad base of consultations with the scientific community, health policy makers, civil society and the donor community. Collectively, they offer a broad agenda for more effectively harnessing knowledge to advance the MDGs related to health.

Key Messages

- *In order to achieve MDG targets, support is required for research to improve the efficiency, equity and quality of health systems, to include priority setting, financing, decentralization, standards and quality of care, and community involvement, among other areas.*

- *New capacities are needed to collect data at the national and sub-national level with regard to epidemiological trends, health systems capacities and community preferences. Where needed, attention should be given to the development of monitoring and impact indicators, including measures to ensure equitable allocation.*
- *Incentive structures and staffing policies should be explored that strengthen recruitment and retention of the workforce, as a basis for improved interventions, including such schemes as quality improvement management.*
- *The establishment of a linked network of health policy and systems research centers may be the most effective means of generating generic and comparative studies of broad applicability and building research capacities*

Recommendations in relation to priorities for action are as follows:

1. *A systematic and sustainable program of research is required on factors that affect delivery and achievement of high and equitable coverage. Area of emphasis should include operational studies on health systems, including outcomes of health system reforms and development of standardized indicators to monitor performance. As means to advance these objectives, a linked network of institutions should be formed to serve as regional research and training centers on health systems research.*
2. *Capacity should be strengthened at all levels of the operational and health systems research, with especial attention given to fields of medical and social epidemiology, demography, statistics, health economics and management sciences. Incentive structures should be established to limit the emigration of health research professionals from low-income countries.*
3. *Concerted efforts are required to address strategic information needs related to the MDGs, to include data on coverage of program interventions, quality of service delivery, patterns of disease incidence and prevalence, disease and mortality, equity dimensions, and data relevant to scaling-up. The newly formed Health Metrics Network provides an effective vehicle for generating and disseminating health information at the district and national levels and linking data collection and analysis to scale-up priorities. Emphasis also should be placed on better integrating existing current monitoring inputs generated through vertical programs, integrate them within national and sub-national health systems and ensure horizontal sharing.*
4. *A global initiative should be developed to improve access to healthcare and health research information in the developing world, to be formulated and implemented by an international collaborative group convened by WHO and its partners. The international collaborative group should aim to draft a declaration of universal access to relevant, reliable and up-to-date healthcare and health research information by 2015.*
5. *Based on ongoing evaluation, a common conceptual framework should be developed to assist decision-makers and program planners to design high coverage strategies of MDG health related interventions. The adaptable framework should take into account epidemiological profiles, public and private health service capacities, current coverage and utilization. A key element will be mechanisms for financing schemes to ensure broad access to interventions that essential interventions are incorporated into the primary health care package and to minimize out-of-pocket expenditures at point of delivery.*

6. *Efforts should be initiated to improve clinical research capacity at the international level. As an essential tool, priority should be placed on the need for an international clinical trials registry to improve dissemination of information and rates of enrolment, and overcome publication bias.*
7. *To facilitate greater public-private sector interaction on neglected diseases of the poor, a task force should be convened under the Millennium Project to consider novel incentive structures for the development of priority diagnostics, vaccines and therapeutics. Analysis might include the feasibility of carefully designed tax relief schemes, financial incentives within the existing patent system or schemes to pool patents/enabling technologies and make them available to public institutions and the private sector for commercial licensing for designated humanitarian use.*
8. *Efforts should be made to establish a Global Observatory for Research Transfer under the aegis of the World Health Organization to promote the application of research findings through analysis and dissemination. The Observatory would be charged to work in concert with member states to examine emerging knowledge relevant to strategic decision-making and planning, provide evidence based advice to policymakers regarding application of findings from population based research into clinical practice, and engage all key constituencies. The Observatory also would promote more innovative approaches to generating health information that is more easily comprehensible to critical stakeholders, to include finance and education ministries, parliamentarians and the media.*
9. *A Forum of Health Research and Development Partners should be established among research agencies, development agencies and donors, and private industry to identify and work in concert on select strategic priority related to the MDGs. A Task Force should be established by interested parties to consider structural models, as well as potential initiatives.*
10. *As first proposed by the Commission on Health Research and Development (1990), countries should allocate at least 2% of national health expenditure and 5% of health project assistance on health research and related capacity building. The global compact represented by the Millennium Development Goals and obligations to improve population health give these threshold commitment levels a new urgency.*
11. *The international community should establish mechanisms to assist countries to formulate a long-term program of horizontal strengthening of health systems and related research capacities as part of the overall framework of the Poverty Reduction Strategy Paper. Where needed, assistance should be provided to establish epidemiological baselines, operational targets and a framework for long-term donor financing. Working with emerging National Macroeconomics Commissions and other bodies, emphasis also should be placed on mechanisms for deciding how to allocate resources for relevant interventions, including data on efficacy and cost-effectiveness of interventions, cost-analysis of strategies to reduce system barriers and other key analytic needs*