

The World Health Organization's Evidenced-Based Approach to Chronic Diseases: Primary Prevention or Caring for End-Stage Disease?

Tom Judd, MS, PE, CCE, CPHQ, FACCE

Introduction

Phillip Tusso, MD's, commentary (page 61) excellently describes the difficult challenge of caring for people in Ethiopia with chronic kidney disease. Dr Tusso raises a very important question: How much should a developing country invest in caring for the end-stage disease state versus extensive revamping of primary care to enhance preventive interventions? On the basis of 20 years of experience as a World Health Organization (WHO) consultant, I would like to discuss how WHO addresses this important question.

World Health Organization's Approach—Comprehensive and Balanced Recommendations

Dr Tusso appropriately points out that, according to WHO, comprehensive and integrated action is the means to prevent and control chronic disease.¹ Dr Tusso also notes that, regardless of the economic limitations in low- and middle-income countries, ongoing dialysis or kidney transplantation is mandatory for the survival of patients with end-stage kidney disease. He also cites the White et al recommendation to develop locally appropriate transplant programs, effective use of nongovernmental sources of funding, service planning, cost containment, use of generic drugs, and local manufacture of dialysis consumables. Also some low- and middle-income countries must rely on education, the development of good public policy, and a supportive international environment. "Prevention of end-stage kidney disease, ideally as part of an integrated approach to chronic vascular diseases, must also be a key objective."²

These kinds of comprehensive and balanced recommendations by WHO also extend to other chronic diseases such as hypertension³ and diabetes⁴ and are consistent with my experiences as a WHO consultant. I have had the privilege of participating in several

WHO evidence-based medicine (EBM) initiatives in developing countries, primarily helping Ministries of Health (MOH) in Asia, Africa, Europe, and Latin America implement improved health resource planning and management.

World Health Organization—Integrated Healthcare Technology Package

Today, as a United Nations organization, WHO is strategically driven by the 2015 Millennium Development Goals (MDG).⁵ For example, the MDG to "scale up HIV/AIDS treatment" requires sustained country support for expanded training, and helping to strengthen physical resources such as laboratories and testing equipment. However, linking the reality "in the field" with these priorities is a huge challenge in WHO's 193 member states.⁶

Regarding proper health resource management driving balanced interventions, the WHO perspective is that "the proper match between the supply of inputs and health system requirements, the balance between capital investments and recurrent costs, and the system's capacity to manage purchased inputs throughout their entire life cycle are vital for the effective delivery of health services and satisfactory performance of the health system."⁷ WHO's Integrated Healthcare Technology Package (IHTP) is a planning methodology and software-based tool that provides guidance on an adequate mix of resource inputs, including human resources, medical devices, pharmaceuticals and facilities, needed to deliver a defined set of health interventions. IHTP integrates in one single tool the health care needs, disease profiles, patient demographics, clinical practice guidelines (CPGs), resources, availability, costs, constraints, and management capacity. The focus throughout is on prevention and caring for the chronic diseases.

Tom Judd, MS, PE, CCE, CPHQ, FACCE, is the National Project Director for Kaiser Permanente Clinical Technology. He has been a consultant to the World Health Organization for 20 years, focusing on assisting Ministries of Health with the Integrated Healthcare Technology Package implementations and other technology management challenges in Kyrgyzstan, Kosovo, Kenya, Mexico, and other countries in those regions. E-mail: tom.judd@kp.org.

[The WHO] approach ... reflects a balance between primary prevention interventions ... [and] investing in ongoing EBM treatment.

Clinical Practice Guidelines—Helping Countries Understand Resource Needs

Several hundred evidence-based national and global CPGs have been mapped in IHTP the past ten years, allowing simulation and analysis of the health services' resource requirements of various countries. Clinical interventions addressed in a dozen pilot countries thus far include WHO programs for maternal and child health and adult chronic diseases, and various surgeries and priority communicable diseases.

Examples of CPGs mapped in IHTP for WHO's Integrated Management of Childhood Illnesses (IMCI) program at primary and secondary levels of care include: pneumonia, cold, bronchiolitis, croup, diphtheria, pertussis, tuberculosis, diarrhea, dehydration, dysentery, malnutrition, typhoid fever, meningitis, measles, malaria, dengue fever, otitis media, urinary tract infections, heart failure, hypothermia, HIV/AIDS in children, pneumocystosis, burns, fractures, and head injuries.

This approach also reflects a balance between primary prevention interventions (eg, as demonstrated for hypertension and diabetes) as well as investing in ongoing EBM treatment.

Here are two examples from my colleagues and my own experience with WHO IHTP initiatives in these countries:

Kyrgyzstan (Central Asia):

The initial MOH focus was optimal resource management and care for hypertension in adults, anemia in pregnancy, tuberculosis, acute respiratory illnesses in children, and brucellosis. Later, over 120 CPGs were developed by clinical experts and approved by the MOH at three levels of care. They were then mapped in IHTP, validated, and implemented leading to increased CPG compliance by practitioners.

The following improvements were noted:

Resource Planning and Management

- Typically "siloe" planning was integrated and databases standardized for the following, resulting in:

Human Resources

- More family practice staff were identified and trained
- Standards set and physician/nurse responsibilities clarified

Pharmaceuticals

- VAT fees for externally purchased drugs were removed
- MOH rules were developed allowing medical drugs sold at sites where local pharmacies are not available
- Handling of donated drugs was improved

Facilities

- Coordination with local governments was improved assuring funding for primary and secondary facility renovations

Medical Equipment

- National MOH policy was implemented for rational use of medical devices
- National MOH policy was implemented for purchase of high technology, high cost devices

EBM "ideal" CPGs comparison with current country-level "actual" CPGs using IHTP

- Ideal six CPGs: provided by the Finnish Lung Health Program for Adults
- Actual six CPGs: Acute Bronchitis, Bronchial Asthma, TB, COPD, Pneumonia, and Acute Respiratory Viral Infection were also mapped in IHTP for comparison

IHTP Gaps Analysis

- For five sites in urban and rural areas, at both primary and secondary levels of care
- Cost analysis compared for ideal versus actual CPGs
- Pre-post clinician training showed cost-effectiveness of EBM
- Clinicians began to reduce unnecessary tests, staff, and drugs
- Facilities began to ensure access to vital medical devices for testing results
- MOH began to use ideal CPG costs for Adult Lung Health for national reimbursement through the Kyrgyzstan Mandatory Health Insurance Fund.

Mexico

IHTP was formally introduced to MOH Mexico in 2005. The MOH department responsible for health technology planning and management activities (CENETEC, Mexico, DF, Mexico; www.cenetec.salud.gob.mx), agreed to direct these efforts. CENETEC formed a small team with a project manager and physician partner to pilot use of IHTP for perinatal care. CPGs (four prenatal visits) were evaluated in two Mexico City clinics as part of the Popular Insurance Catalog—90 different procedures—provided by MOH free of charge to Mexico's significant percentage of poor people. This initial work demonstrated IHTP's value in rapid prototyping and cost modeling based on using process maps of clinical procedures and resource databases.

In early 2007, the MOH, on behalf of President Calderon, began a national health initiative: *Caravan*, a traveling primary care outreach clinic allowing timely referrals to hospital care, was sent to several of Mexico's

remote rural areas. Fifty Caravans were sent throughout all states of Mexico that year, and over 400 in 2008. CENETEC using IHTP assisted the MOH planning department in the Caravan implementation, studying optimal ways to deliver care.

The Caravan project team included a project leader (engineer) and two physicians, assisted by the WHO consultant. The team worked with various national physician leaders, assisting with development of 20 evidence-based CPGs including diabetes screening, breast cancer screening, as well as normal care and typical complications in perinatal care (prenatal care, pre-eclampsia, eclampsia, hemorrhage, and newborn care).

Conclusions

In the difficult challenge of caring for people with chronic diseases such as chronic kidney disease, the most important question is how much should a country invest in caring for the end-stage disease state versus extensive revamping of primary care to enhance preventive interventions? Around the world, my experience is that WHO recommends and assists countries in addressing both imperatives. As you can tell from the work in the two countries I highlighted, the WHO approach is very broad and balanced. I hope you now have a glimpse of how the WHO addresses this very complicated challenge in developing countries. ❖

Disclosure Statement

This commentary reflects the opinions and experience of the author, and does not officially represent WHO.

References

1. The world health report 2003: shaping the future [monograph on the Internet]. Geneva: World Health Organization; 2003 [cited 2009 Feb 24]. Available from: www.who.int/whr/2003/en/.
2. White SL, Chadban SJ, Jan S, Chapman JR, Cass A. How can we achieve global equity in provision of renal replacement therapy? *Bull World Health Organ* 2008 Mar;86(3):229-37.
3. WHO/ISH hypertension guidelines [monograph on the Internet]. Geneva: World Health Organization 2003 [cited 2009 Feb 19]. Available from: www.who.int/cardiovascular_diseases/guidelines/hypertension/en/.
4. Goal of the Diabetes Programme [monograph on the Internet]. Geneva: World Health Organization; updated 2008 [cited 2009 Feb 19]. Available from: www.who.int/diabetes/goal/en/index.html.
5. End Poverty 2015 Millennium Development Goals [Web page on the Internet]. New York: United Nations; 2008 [cited 2009 Feb 19]. Available from: www.un.org/millenniumgoals.
6. Countries [Web page on the Internet]. Geneva: World Health Organization; 2009 [cited 2009 Feb 19]. Available from: www.who.int/countries/en.
7. Heimann P. (IHTP 2008). Integrated healthcare technology package: introduction [PowerPoint presentation on the Internet]. Geneva: World Health Organization; 2007 Jun [cited 2009 Feb 18]. Available from: www.ihtp.info/, under "Popular Downloads," click on IHTP Overview Presentation.

The Toll of Chronic Disease

Global deaths from chronic disease are expected to rise
17% worldwide over the next ten years.

— *Working for health. An introduction to the World Health Organization, 2007*