GLOBAL STRATEGIES FOR THE PREVENTION OF DIABETES AND OTHER NONCOMMUNICABLE DISEASES

Ala Alwan
Assistant Director-General
World Health Organization

Workshop on Epidemiology of Diabetes and Other Noncommunicable Diseases
(Bibliotheca Alexandrina, 8 January 2009)
World Health Organization

Who we are

- Specialized agency within the United Nations
- Established in 1948
- 193 Member States
- World Health Assembly and Executive Board as Governing Bodies
- Headquarters in Geneva, Switzerland
- 6 Regional Offices; 6 Regional Committees
- 150 country offices
- 5,431 professional staff
WHO’s Core Functions

• providing leadership on matters critical to health;

• shaping the research agenda and stimulating the generation, translation and dissemination of valuable knowledge;

• setting norms and standards;

• articulating ethical and evidence-based policy options;

• providing technical support and building sustainable institutional capacity; and

• monitoring the health situation and assessing health trends.
1 2 3

• A brief review of the global magnitude of NCDs and their risk factors

• An outline of the global response – The Global Strategy for the Prevention and Control of NCDs and its implementation plan

• Possible implications for national response
The global disease profile is changing at an astonishingly fast rate, with serious implications for health and socio-economic development.
The Noncommunicable Diseases Burden

• Responsible for up to 60% of all deaths: 80% are in low and middle income countries; almost half before 70

• Major noncommunicable diseases:
  – CVDs, Diabetes, Cancer and Chronic Respiratory disease

• Shared preventable risk factors:
  – Tobacco use, unhealthy diet and physical inactivity, harmful use of alcohol

• Major inequalities between and within countries

• NCDs are undermining development
Deaths by cause in the world

Noncommunicable diseases:
- Cardiovascular disease: 30.2%
- Cancer: 15.7%
- Diabetes: 1.9%
- Other chronic diseases: 15.7%

Infectious diseases:
- HIV/AIDS: 4.9%
- Tuberculosis: 2.4%
- Malaria: 1.5%
- Other Infectious Diseases: 20.9%
- Injuries: 9.3%

Total: 58 Million

(WHO, 2004)
Global Distribution of Death: Update for 2004
EMR Mortality trends compared with other regions

Adult mortality rates by major case group and region (2004)
Global burden of disease attributable to 20 leading selected risk factors: in year 2000

- Underweight
- Unsafe sex
- High blood pressure
- Tobacco
- Alcohol
- Unsafe water, S&H
- High cholesterol
- Indoor smoke from solid fuels
- Iron deficiency
- High BMI
- Zinc deficiency
- Low fruit and vegetables
- Vitamin A deficiency
- Physical inactivity
- Occupational injury risks
- Lead exposure
- Illicit drugs
- Unsafe health care injections
- Lack of contraception
- Childhood sexual abuse

Attributable DALYs (% total 1.44 billion)
Tobacco

A risk factor for six of the eight leading causes of death in the world

(WHO, 2008)
Overweight and obesity in people over 15 selected countries

![Graph showing prevalence of overweight (BMI>25) and obesity (BMI>30) in different countries.](image-url)
Examples of countries with high prevalence of diabetes

Top 10

(Source: IDF's Diabetes Atlas)
## Deaths by cause in the world (2004, 2030)

<table>
<thead>
<tr>
<th>Disease or injury</th>
<th>Deaths (%)</th>
<th>Rank</th>
<th>2030</th>
<th>Deaths (%)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ischaemic heart disease</td>
<td>12.2</td>
<td>1</td>
<td>1</td>
<td>14.2</td>
<td>1</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>9.7</td>
<td>2</td>
<td>2</td>
<td>12.1</td>
<td>2</td>
</tr>
<tr>
<td>Lower respiratory infections</td>
<td>7.0</td>
<td>3</td>
<td>3</td>
<td>8.6</td>
<td>3</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>5.1</td>
<td>4</td>
<td>4</td>
<td>3.8</td>
<td>4</td>
</tr>
<tr>
<td>Diarrhoeal diseases</td>
<td>3.6</td>
<td>5</td>
<td>5</td>
<td>3.6</td>
<td>5</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>3.5</td>
<td>6</td>
<td>6</td>
<td>3.4</td>
<td>6</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>2.5</td>
<td>7</td>
<td>7</td>
<td>3.3</td>
<td>7</td>
</tr>
<tr>
<td>Trachea, bronchus, lung cancers</td>
<td>2.3</td>
<td>8</td>
<td>8</td>
<td>2.1</td>
<td>8</td>
</tr>
<tr>
<td>Road traffic accidents</td>
<td>2.2</td>
<td>9</td>
<td>9</td>
<td>1.9</td>
<td>9</td>
</tr>
<tr>
<td>Prematurity and low birth weight</td>
<td>2.0</td>
<td>10</td>
<td>10</td>
<td>1.8</td>
<td>10</td>
</tr>
<tr>
<td>Neonatal infections and other*</td>
<td>1.9</td>
<td>11</td>
<td>11</td>
<td>1.6</td>
<td>11</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1.9</td>
<td>12</td>
<td>12</td>
<td>1.5</td>
<td>12</td>
</tr>
<tr>
<td>Malaria</td>
<td>1.7</td>
<td>13</td>
<td>13</td>
<td>1.4</td>
<td>13</td>
</tr>
<tr>
<td>Hypertensive heart disease</td>
<td>1.7</td>
<td>14</td>
<td>14</td>
<td>1.4</td>
<td>14</td>
</tr>
<tr>
<td>Birth asphyxia and birth trauma</td>
<td>1.5</td>
<td>15</td>
<td>15</td>
<td>1.3</td>
<td>15</td>
</tr>
<tr>
<td>Self-inflicted injuries</td>
<td>1.4</td>
<td>16</td>
<td>16</td>
<td>1.2</td>
<td>16</td>
</tr>
<tr>
<td>Stomach cancer</td>
<td>1.4</td>
<td>17</td>
<td>17</td>
<td>1.2</td>
<td>17</td>
</tr>
<tr>
<td>Cirrhosis of the liver</td>
<td>1.3</td>
<td>18</td>
<td>18</td>
<td>1.2</td>
<td>18</td>
</tr>
<tr>
<td>Nephritis and nephrosis</td>
<td>1.3</td>
<td>19</td>
<td>19</td>
<td>1.1</td>
<td>19</td>
</tr>
<tr>
<td>Colon and rectum cancers</td>
<td>1.1</td>
<td>20</td>
<td>20</td>
<td>1.0</td>
<td>20</td>
</tr>
<tr>
<td>Violence</td>
<td>1.0</td>
<td>21</td>
<td>21</td>
<td>1.0</td>
<td>21</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>0.9</td>
<td>22</td>
<td>22</td>
<td>0.9</td>
<td>22</td>
</tr>
<tr>
<td>Oesophagus cancer</td>
<td>0.9</td>
<td>23</td>
<td>23</td>
<td>0.9</td>
<td>23</td>
</tr>
<tr>
<td>Alzheimer and other dementias</td>
<td>0.8</td>
<td>24</td>
<td>24</td>
<td>0.7</td>
<td>24</td>
</tr>
</tbody>
</table>

(Source: World Health Statistics, 2008)
Results: global projections for selected causes

*Deaths (millions)*

- Tuberculosis
- HIV/AIDS
- Malaria
- Acute respiratory infections
- Perinatal causes
- Cancers
- Ischaemic heart disease
- Cerebrovascular disease
- Road traffic accidents

*Year*


*DALYs (millions)*

<table>
<thead>
<tr>
<th>Geographical regions (WHO classification)</th>
<th>2005</th>
<th>2006-2015 (cumulative)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total deaths (millions)</td>
<td>NCD deaths (millions)</td>
</tr>
<tr>
<td>Africa</td>
<td>10.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Americas</td>
<td>6.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>4.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Europe</td>
<td>9.8</td>
<td>8.5</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>14.7</td>
<td>8.0</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>12.4</td>
<td>9.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>58.2</strong></td>
<td><strong>35.7</strong></td>
</tr>
</tbody>
</table>

WHO projects that over the next 10 years, the largest increase in deaths from cardiovascular disease, cancer, respiratory disease and diabetes will occur in Africa and the Eastern Mediterranean.

(WHO, Chronic Disease Report, 2005)
A Global Strategy and a six-year Action Plan to address cardiovascular disease, cancer, respiratory disease and diabetes endorsed by countries at the World Health Assembly.
The global response to address NCDs and key risk factors

1. Global strategy on noncommunicable diseases

2. WHO Framework Convention on Tobacco Control

3. Global strategy on diet, physical activity and health

4. Action Plan for the Global strategy on noncommunicable diseases

5. Global strategy on harmful use of alcohol

A six-year Global Action Plan to address cardiovascular disease, cancer, respiratory disease and diabetes was endorsed by the WHO World Health Assembly on 24 May 2008.
Lessons Learned From International Experience

- NCDs are preventable through interventions against the common risk factors and their determinants

- Strategies to reduce exposure to established risk factors should be combined with strategies to prevent the emergence of risk factors in the first place

Early life:
Nutrition in early life

Adolescence:
Smoking
Physical inactivity
Unhealthy diet
Lessons Learned From International Experience

- Strategies should combine population and high risk approaches

- To have an impact, interventions should be of appropriate intensity and sustained over extended periods of time

- Success requires community participation, supportive policy decisions, legislation, intersectoral action and health care reforms

- More health gains are achieved by influencing public policies in other sectors like trade, education, agriculture, food production, urban development and taxation than by changes in health policy alone.

......
Key Components of the Global Strategy

1. **Surveillance**: to quantify and track NCDs and their risk factors and determinants to provide the foundation for advocacy, national policy and global action
   - Integrating monitoring of NCD trends into the national surveillance system

2. **Promotion** of health across the life course and **prevention** of risk factors
   - Nationwide risk factors reduction through intersectoral action
   - Community-based primary prevention programmes

3. Improving access to, and quality of, **health care**, focusing on cost-effective and equitable interventions for people with chronic diseases (PHC reforms)
   - Integrating health care for NCDs into PHC
   - Strengthening health systems for more effective chronic care
... glaring omission ... MDGs ... failed to identify the NCDs, in spite of the fact that these diseases account for fully 60% of the global mortalities ... most of the morbidity and mortality caused by the NCDs are preventable ... a serious omission ... I propose we seriously consider an MDG+, which would set goals for the NCDs, as we have done for other ... challenges.
Global NCD Strategy and Action Plan

Copies are available at http://www.who.int/gb
Six Objectives for the Global NCD Action Plan

1. Integrating NCD prevention into the development agenda
2. Establishing/strengthening national policies and programmes
3. Reducing /preventing risk factors
4. Prioritizing research on prevention and health care
5. Strengthening partnerships
6. Monitoring NCD trends and assessing progress made at country level

Under each of the 6 objectives, there are sets of actions for member states, another set for WHO and a third one for international partners.

Download:
Implications for Countries
Objective 1
NCDs and Development

• Assess and monitor the public-health burden imposed by NCDs with special reference to poor and marginalized populations.

• Incorporate the prevention and control of noncommunicable diseases explicitly in all relevant social and economic policies.

• Adopt approaches to policy development that involve all government departments, ensuring that public-health issues receive an appropriate cross-sectoral response.

• Implement programmes that tackle the social determinants of noncommunicable diseases with particular reference to the following: health in early childhood, the health of the urban poor, fair financing and equitable access to primary health care services.
Urbanisation and NCDs
Implications for Urban Planning

Diabetes Prevalence (%)

- Poor Rural: 1.7
- Rich Rural: 2.65
- Poor Town: 2.8
- Rich Town: 3.3
- Middle City: 3.4
- Provincial Capital: 4.6

Social Determinants of Health
Three Broad recommendations

- Improve daily living conditions
- Tackle inequitable distribution of power and resources
- Monitor inequalities and assess response
Objective 2: Establishing and strengthening national programmes with emphasis on PHC

Developing a national multisectoral framework for NCD prevention
- Mechanisms of ISA for Health
- Legislation and fiscal policies

Integrating NCD prevention into the national health development plan
- Comprehensive policy and plan
- Infrastructure
- NCD Surveillance and monitoring system
- Evidence-based and cost-effective interventions in primary and secondary prevention (packages)

Reorienting/strengthening health systems to address chronic care
- Ensure that Health System Strengthening covers basic elements: appropriate policies based on PHC and integrated care, trained human resources, access to medicines and standards of care as well as a well functioning referral systems
- Address obstacles to continuity of care like patients records
Health reforms are driven by the challenges of a changing world


- A globalized, urbanized and ageing world
- Widening health gaps and unequal health outcomes
- Trends undermining health systems: hospital centrism, fragmentation, unregulated commercialization
Underpinning principles for integrating NCD prevention and control into PHC

**Universal coverage reforms:**
- Ensure availability and eliminate barriers to access

**Service delivery reforms:**
- Organizing primary care networks accordingly

**Leadership reforms:**
- Recognition of the key role and responsibilities of government
- Matching growth in health expenditure with massive reinvestment in capacity for leading and governing the health sector

**Public policy reforms:**
- Health systems
- Public health
- Cross-government: Health in All Policies
Integrating NCD Management into PHC

Three dimensions for universal coverage and financing of essential NCD interventions

- Cover the uninsured
- Reduce cost sharing for NCD Services
- Provide NCD services

Three levels of Public Policies

1. Systems Policies to achieve universal coverage
   • Essential drugs and basic technologies
   • Human resources

2. Public health policies to address priority NCDs
   • Health promotion policies
   • Monitoring health risks and behaviours; better information & evidence
   • Secondary prevention; a package of cost-effective interventions

3. Policies in other sectors (Health in All Policies)
   • Intersectoral Action for Health
   • Healthy settings and healthy urbanization
Objective 3
Addressing the main shared modifiable risk factors

• Actions for:
  – Tobacco control
  – Promoting healthy diet
  – Promoting physical activity
  – Reducing the harmful use of alcohol
Example 1: Tobacco Control

Six proven interventions building on the WHO FCTC demand reduction measures
Six proven interventions building on WHO FCTC measures for reducing demand

- Monitor tobacco use and tobacco-prevention policies
- Protect people from tobacco smoke in public places and workplaces
- Offer help to people who want to stop using tobacco
- Warn people about the dangers of tobacco
- Enforce bans on tobacco advertising, promotion and sponsorship
- Raise tobacco taxes and prices
The Global Strategy on Diet Physical Activity and Health (DPAS)

www.who.int/dietphysicalactivity
Example: Policies to promote healthy diet and prevent obesity
Based on the Global Strategy on Diet Physical Activity and Health

- Reducing salt and trans fatty acids
- Restricting availability of sugar sweetened beverages
- Restricting availability of other high calorie snack foods: chips, chocolates and other sweets
- Increasing availability of healthier foods
- Protecting children from marketing and promotion practices
- Reshaping industry supply and consumer demands
- Labelling and calorie information
- Pricing measures

www.who.int/dietphysicalactivity
Policies to promote physical activity and prevent obesity

What works: Based on the Global Strategy on Diet, Physical Activity and Health

- Urban design and land use to encourage PA as part of transportation
- Street design that make walking and biking safe and enjoyable (side lanes, bike lanes, improved lighting, public parks)
- Encourage use of stair (burn calories and not electricity)
- Physical education as an important part of the school curriculum
- Facilities for sports for adults including women
Objective 4: To promote research for the prevention and control of noncommunicable diseases

Proposed action for Member States:

- Invest in epidemiological, behavioural, and health-system research as part of national programmes and develop – jointly with academic and research institutions – a shared agenda for research, based on national priorities.
- Encourage the establishment of national reference centres and networks to conduct research on socio-economic determinants, gender, the cost-effectiveness of interventions, affordable technology, health system reorientation and workforce development.
Objective 4: To promote research for the prevention and control of noncommunicable diseases

**Action for the WHO Secretariat:**

- Develop a research agenda for NCDs in line with WHO's global research strategy, collaborate with partners and the research community and involve major relevant constituencies in prioritizing, implementing, and funding research projects.
- Encourage WHO collaborating centres to incorporate the research agenda into their plans and facilitate collaborative research through bilateral and multilateral collaboration and multicentre projects.
Global NCD Action Plan 2008-2013

Objective 4: To promote research for the prevention and control of noncommunicable diseases

ACHR May 2008

WHO Meeting on A Prioritized Research Agenda for Prevention and Control of NCDs (Geneva, 25-26 August 2008)

Global Ministerial Forum on Research for Health (Bamako, 17-19 November 2008)

- Circulate a draft NCD agenda
- Peer reviews and publish series
- Consultation to finalize (May 2009)

A Prioritized NCD Research Agenda (2009)
Objective 5
Partnerships

• Establish effective partnerships for NCD prevention and develop collaborative networks, involving key stakeholders, as appropriate
Objective 6
Monitoring & Evaluation

– Strengthen surveillance systems and standardized data collection of risk factors, disease incidence and mortality by cause, using existing WHO tools (action for Member States)

– Develop and maintain information system to collect, analyse and disseminate information on trends in mortality, disease burden, risk factors, policies, plans, and programmes (action for WHO)
Some Conclusions…

• Diabetes and other NCDs are already leading health problems and their magnitude is still increasing

• As countries continue to develop, market forces will further promote unhealthy patterns. Action is urgently needed.

• Risk factors prevention is not just an issue of personal choices & behaviours. The Role of the Government is key and action by various sectors is mandatory

• Cost-effective interventions exist and can be implemented at the PHC level. Initial response should always include establishment of a surveillance system and initiate policy changes as early as possible

• Integrating interventions into PHC is effective and feasible even in low-income countries but health systems needs to be strengthened

• All the four sets of PHC reforms specifically address the gaps in diabetes prevention and control