1.2 Strengthening health system equity and efficiency through integration of NCDs into primary health care

By any measure, NCDs account for a large enough share of the disease burden of the poor to merit a serious policy response (World Bank)(16).

Rationale for a core set of NCD interventions

Properly functioning health systems are vital for prevention and control of NCDs (7, 8, 17), and for improving health outcomes in general. In developed countries, launching NCD-specific responses within health systems have contributed considerably to declining NCD trends (17). Such a response is also urgently needed in LMIC to curb the steadily rising NCD epidemic. It is also part of the solution to strengthening equity and efficiency of health systems.

Ensuring fair health opportunities for everyone is crucial if governments want to uphold the values of equal opportunity, social justice and solidarity. There are growing social inequalities in heart disease, stroke, diabetes, asthma and cancer. The reduction of these health inequities is also an ethical imperative (6), although little is known about the best ways to reduce them. There is recent evidence that population-wide interventions to address tobacco use and raised blood pressure, blood cholesterol and blood sugar could significantly reduce the difference in cardiovascular risk between high- and low-socioeconomic groups (18). There is an urgent need to gather similar evidence for what works within health systems to reduce the social inequalities of NCDs. A minimum set of essential interventions targeting vulnerable and disadvantaged groups provides opportunities for data gathering and analysis to produce robust evidence that can better inform the policy dialogue on health equity.
There is also an enduring lack of clarity about what functioning health systems actually entail for prevention and control of NCDs. This lack of clarity is even greater in low-resource settings where there are additional challenges because of the essential need to make choices and to prioritize. Furthermore, where resources are limited (e.g. weak technical capacity, thin finances), the policy environment needs to be even more open to using evidence. Mistakes that result from haphazard policy decisions in such settings where opportunities are few can have extremely serious consequences on the health and well-being of people. The implementation of a core set of essential NCD interventions can also provide a better understanding of the operational aspects of the complex functions of health systems that are vital for NCD prevention and control.

Several approaches are needed to contain the escalating costs of health care required for providing sophisticated medical services for NCDs and their complications. First, there should be more investment in prevention and primary care. Second, the cost of treating CVD, diabetes and COPD can be reduced to a minimum by carefully selecting essential evidence-based interventions. Third, the cost of treating complications of NCDs that require hospitalization (e.g. heart attacks, strokes, amputations, blindness due to diabetic or hypertensive retinopathy, end stage renal disease requiring dialysis) can be reduced (9,14,19).

Despite the existing knowledge, far too few people with NCDs are receiving appropriate services in primary care in resource-constrained settings. At this level of care, either too little is done to address NCDs or what is offered is inappropriate and not evidence based. The situation is compounded by the low per capita health expenditure of many countries that is inadequate to integrate NCD interventions into primary care in a comprehensive manner. The only option available, therefore, is to prioritize a core set of interventions.
Primary Health Care and NCDs

Both the 1978 WHO Declaration on Primary Health Care and the 2008 World Health Report “Primary health care: now more than ever” (1, 20), are underpinned by social justice, equity and solidarity. These fundamental values are threatened by disparities within and between countries and have been worsened by the pressures of globalization. All countries, particularly the LMIC, need to establish strong and efficient primary care as an integral component of their health systems. World Health Report 2008 provides guidance on the four sets of PHC reforms that are required for providing an effective response to health challenges. These reforms address universal coverage, service delivery, leadership and governance and public policy. Many countries and development partners have reaffirmed the relevance and validity, today, of the basic principles of Alma Ata Primary Health Care approach (1,20,21).

The evidence that primary care can deliver better health outcomes at lower cost is strong. People with NCDs or at risk of developing NCDs require long-term care that is proactive, patient centred, community based and sustainable. Such care can be delivered equitably only through health systems based on PHC. The key features of a health system led by primary care include: (i) a person focus across the lifespan rather than a disease focus; (ii) accessibility with no out-of-pocket payments; (iii) distribution of resources according to population needs rather than demand; and (iv) availability of a broad range of services including preventive services and coordination between different levels in the health system (1,22-24).

There are numerous barriers for delivery of NCD interventions at the primary care level, however, there are a large number of NCD conditions and several hundred interventions to address them. Not all of them can be integrated into “close-to-client” primary care facilities in resource-constrained settings. Apart from the lack of resources, there are many other reasons why this is the case. First, interventions available for some
NCDs are not cost effective. Second, high technology facilities required for diagnosis and treatment may preclude the delivery of such interventions in primary care. Third, the health financing schemes available may not be able to cover all NCD interventions. Fourth, the skills needed for delivery of all NCD interventions are too complex to be learnt by the primary care workforce. Finally, as there are many competing priority conditions that countries need to address at the primary care level, it is unrealistic to expect low-income countries to integrate care of all NCDs into primary care at once.

**How can Ministries of Health (MoHs) respond to the call for effective and equitable care for NCDs in low-resource settings?**

The growing NCD burden is contributing to escalating healthcare costs and widening of disparities. Despite many constraints, Ministries of Health (MoHs) need to respond to the NCD burden to contain its social, economic and health impact. In this context, WHO’s work in this area aims to provide guidance to Ministries of Health address the question; “What can be done for NCD prevention and control in PHC with a modest increase in investment?” As such guidance needs to go well beyond pilot projects and result in sustainable national initiatives. The task at hand is particularly challenging.

The priority conditions that have been selected for this effort include cardiovascular disease, diabetes, chronic respiratory disease and cancer. The selection was based on the following criteria:

- They are major public health issues that contribute the most to the global NCD burden.
- Evidence-based interventions are available for addressing the condition.
- These conditions share behavioural risk factors: tobacco use, unhealthy diet and physical inactivity.
- They are the focus of the Global NCD Action Plan.
As a starting point, a core set of interventions need to be provided to address the major NCDs, starting at the primary care level, followed by the district hospital level. First, the core set should be made accessible to all people based on need and not the ability to pay. Then, it could be expanded to include other NCD areas and other interventions for major NCDs. Every country needs to consider the provision of at least the core set of NCD interventions within the public health sector. This could be the beginning of scaling up health systems for NCD prevention and control.

A minimum set of interventions is defined in the WHO Package of Essential NCD (WHO PEN) interventions. Interventions selected are those that are feasible for implementation even in low-resource settings with a modest increase in investment. They can be delivered by primary care physicians and non-physician health workers in primary care. The interventions are for detection, prevention, treatment and care of CVD and risk factors (heart disease, stroke, hypertension) diabetes, chronic respiratory disease (asthma and COPD) and cancer.

The interventions that comprise WHO PEN are outlined below in Table 2. If effectively integrated into primary care they can make a significant contribution to the reduction of morbidity and premature mortality from major NCDs. Appropriate referral, regular follow up, a core set of technologies and essential medicines (Table 5 and Table 6) and a conducive policy environment to support healthy behaviour are key to their effective implementation.

Depending upon country needs, other conditions for which cost-effective interventions are available could be added on – e.g. vitamin deficiencies, nutritional anemia, epilepsy, sickle cell anemia, thalassaemia, snakebite, organophosphate poisoning and others.

The aim of such a package is to provide an equitable framework for starting work to scale-up primary care as countries strive to achieve universal access in the health sector.
Table 2. A core set of evidence based interventions for reducing morbidity and mortality from major NCDs, that are feasible for implementation in primary care in low resource settings (see Annex A for information on cost effectiveness)

<table>
<thead>
<tr>
<th>Essential Interventions for primary care (category of evidence)*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary prevention of heart attacks and strokes:</strong></td>
</tr>
<tr>
<td>■ Tobacco cessation (level 1), Regular physical activity 30 minutes a day (level 1), Reduced intake of salt &lt;5 g per day (level 1), Fruits and vegetables at least 400g per day (Level 2)</td>
</tr>
<tr>
<td>■ Aspirin, statins and antihypertensives for people with 10 year cardiovascular risk &gt;30% (Level 1)</td>
</tr>
<tr>
<td>■ Antihypertensives for people with blood pressure ≥160/100</td>
</tr>
<tr>
<td>■ Antihypertensives for people with persistent blood pressure ≥140/90 and 10 year cardiovascular risk &gt;20% unable to lower blood pressure through life style measures (Level 1)</td>
</tr>
<tr>
<td><strong>Acute myocardial infarction:</strong></td>
</tr>
<tr>
<td>■ Aspirin (level 1)</td>
</tr>
<tr>
<td><strong>Secondary prevention (post myocardial infarction):</strong></td>
</tr>
<tr>
<td>■ Tobacco cessation (Level 1), healthy diet and regular physical activity (Level 2).</td>
</tr>
<tr>
<td>■ Aspirin, angiotensin-converting enzyme inhibitor, beta-blocker, statin (Level 1):</td>
</tr>
<tr>
<td><strong>Secondary prevention (post stroke):</strong></td>
</tr>
<tr>
<td>■ Tobacco cessation, healthy diet and regular physical activity (Level 2).</td>
</tr>
<tr>
<td>■ Aspirin, antihypertensive (low dose thiazide, angiotensin-converting enzyme inhibitor), and statin (Level 1)</td>
</tr>
<tr>
<td><strong>Secondary prevention (Rheumatic heart disease):</strong></td>
</tr>
<tr>
<td>■ Regular administration of antibiotics to prevent streptococcal pharyngitis and recurrent acute rheumatic fever (Level 1)</td>
</tr>
<tr>
<td><strong>Type 1 diabetes:</strong></td>
</tr>
<tr>
<td>■ Daily insulin injections (Level 1)</td>
</tr>
</tbody>
</table>
## Conceptual Framework

### Essential Interventions for primary care (category of evidence)*

#### Type 2 diabetes:
- Oral hypoglycemic agents for type 2 diabetes, if glycemic targets are not achieved with modification of diet, maintenance of a healthy body weight and regular physical activity (Level 1)
- Metformin as initial drug in overweight patients (Level 1) and non overweight (Level 4).
- Other classes of antihyperglycemic agents, added to metformin if glycemic targets are not met (Level 3)
- Reduction of cardiovascular risk for those with diabetes and 10 year cardiovascular risk >20% with aspirin, angiotensin converting enzyme inhibitor and statins (Level 1)

#### Prevention of foot complications through examination and monitoring (Level 3)
- Regular (3-6 months) visual inspection and examination of patients’ feet by trained personnel for the detection of risk factors for ulceration (assessment of foot sensation, palpation of foot pulses inspection for any foot deformity, inspection of footwear) and referral as appropriate

#### Prevention of onset and delay in progression of chronic kidney disease:
- Optimal glycemic control in people with type 1 or type 2 diabetes (Level 1)
- Angiotensin converting enzyme inhibitor for persistent albuminuria (Level 1)

#### Prevention of onset and delay of progression of diabetic retinopathy:
- Referral for screening and evaluation for laser treatment for diabetic retinopathy (Level 1)
- Optimal glycemic control (Level 1) and blood pressure control (Level 1)

#### Prevention of onset and progression of neuropathy:
- Optimal glycemic control (Level 1)

#### Bronchial asthma:
- Relief of symptoms: Oral or inhaled short-acting β2 agonists (Level 1)
- Inhaled steroids for moderate/severe asthma to improve lung function, reduce asthma mortality and frequency and severity of exacerbations (Level 1)

#### Prevent exacerbation of COPD and disease progression:
- Smoking cessation in COPD patients (Level 1)
- Relief of breathlessness and improvement in exercise tolerance
  - Short-acting bronchodilators (Level 2)
- Improvement of lung function
  - Inhaled corticosteroids when FEV1 < 50% predicted (Level 2)
  - Long-acting bronchodilators** for patients who remain symptomatic despite treatment with short-acting bronchodilators (Level 1)

#### Cancer:
- Identify presenting features of cancer and refer to next level for confirmation of diagnosis (Level 3)

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* Category of evidence Level 1 = meta-analyses or systemic reviews of randomized controlled trials or randomized controlled trials, Level 2 = Case control studies or cohort studies or systematic reviews of such studies, Level 3 = Case reports and case series, Level 4 = Expert opinion

** **Not in essential medicines list at present
Therefore, WHO PEN should be an integral component of pro-poor primary health care programmes targeting vulnerable and disadvantaged groups.

It should not be used as a means of rationing care in settings where health-care investment is inadequate despite resource availability, due to poor governance and leadership. As noted, the package should be considered as a minimum standard and only as a starting point for action to address NCDs in primary care in low-resource settings.

WHO PEN is intended primarily for use in low-resource settings that have adopted a national policy framework for prevention and control of NCDs. These essential NCD interventions can have a significant impact on disability, morbidity and premature mortality if operationalized in parallel with the following:

- implementation of tobacco control policies
- consider health impact of all government policies
- policies to promote a healthy diet and physical activity
- community engagement
- health system strengthening.

In addition, this core set of interventions needs to be expanded in a time-bound manner based on the local requirements and available resources.

**Components of WHO PEN**

There is little guidance on integrated approaches to NCD case management at the primary care level. Specialized and hospital-oriented guidelines on specific diseases are difficult to apply to primary care in resource-constrained settings particularly in scenarios with non-physician health workers (25-27). Furthermore, such guidelines fail to take into account both the role and conditions of PC in resource-constrained settings as well as the evaluation of their impact.
WHO PEN includes tools (see example in compact disc) that have been developed and validated to support the implementation of essential NCD interventions and evaluation of their impact:

<table>
<thead>
<tr>
<th></th>
<th>Tool Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tool for assessment of gaps, capacity and utilization of primary care</td>
</tr>
<tr>
<td>2</td>
<td>Tool for assessment of population coverage of NCD care</td>
</tr>
<tr>
<td>3</td>
<td>Templates to collect Health Information</td>
</tr>
<tr>
<td>4</td>
<td>Evidence based protocols for essential NCD interventions for PHC</td>
</tr>
<tr>
<td>5</td>
<td>Core lists of essential technologies and medicines</td>
</tr>
<tr>
<td>6</td>
<td>Tools for cardiovascular risk prediction</td>
</tr>
<tr>
<td>7</td>
<td>Tools for auditing and costing</td>
</tr>
<tr>
<td>8</td>
<td>Tools for monitoring and evaluation</td>
</tr>
<tr>
<td>9</td>
<td>Training material</td>
</tr>
<tr>
<td>10</td>
<td>Aids for self care</td>
</tr>
</tbody>
</table>

Scaling-up primary care for NCD and health system strengthening are mutually reinforcing. WHO PEN will compliment the building blocks of the health system, as outlined in tables 3 and 4).

**Expected benefits of implementing WHO PEN in primary care:**

**For equity and efficiency of Primary Health Care**

Implementation of the package will help to strengthen the health services delivery and the management of the PHC system through the following:

- increasing the proportion of primary health facilities that have trained professional for diagnosis and treatment of NCDs;
- providing feasible and evidence-based technical guidance on diagnosis and treatment of major NCDs among patients attending health posts and health centres;
Table 3. Contribution of WHO PEN to Health System Building Blocks

| Leadership/governance | ■ Assess needs and gaps and facilitate the use of available resources for prevention and control of NCDs efficiently and equitably  
  | ■ Support government efforts to drive the agenda towards universal coverage. |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Financing             | ■ Prioritize NCD interventions to support raising of adequate funds for universal coverage  
  | ■ Facilitate phased-out provision of financial protection for NCDs. |
| Medical products and technologies | ■ Define prerequisites for integrating a core set of essential NCD interventions into primary care  
  | ■ Develop an affordable list of essential medicines and appropriate technologies  
  | ■ Improve access to essential medicines. |
| Health information system | ■ Provide templates to gather reliable health information of people |
| Health workforce | ■ Provide training material to enhance knowledge and skills for NCDs prevention and control  
  | ■ Audit performance |
| Service delivery | ■ Improve access to essential preventive and curative NCD interventions  
  | ■ Provide equitable opportunities for early detection  
  | ■ Define core set of cost-effective NCD interventions  
  | ■ Provide tools for their implementation  
  | ■ Improve quality of care  
  | ■ Improve gate-keeper function of primary care  
  | ■ Reduce costs due to hospital admissions and complications. |
| People | ■ Develop tools for community engagement and empowerment of people for self care  
  | ■ Improve health outcomes. |
Conceptual Framework

- providing guidance on essential equipment and medicines for the diagnosis and treatment of major NCDs with due consideration of affordability;
- standardization of treatment that will entail a reduction in the inappropriate use of medicines;
- expanding the use of evidence-based treatment;
- establishing a referral system for the case management of NCDs;
- improving the health management information system;
- promotion of clinical prevention and health education;
- Measurement of gaps, progress and impact.

**For prevention and control of major NCD**

Implementation of the package will help strengthen primary care to address NCD prevention and control through:
- identification of people at risk of NCDs and those with NCDs;
- better quality of diagnosis, case management and follow-up;
- Support for adherence and change of health-related behaviour;
- clear guidance on diagnostic and referral procedures;
- strengthening the health management information system for NCD prevention and control.

**For health-care workforce**

Implementation of the package should convey benefits to the health staff working at first level health facilities. The potential benefits for the health-care workforce are:
- to increase motivation, skills and competence;
- to apply the experience gained in case management of major NCDs to other NCDs;
- to strengthen the connections between health workers at the first level health facilities and medical professionals at the first referral level.
Table 4. WHO PEN for primary care in low-resource settings overview

<table>
<thead>
<tr>
<th>Vision</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Effective and equitable prevention and care for people with NCDs</td>
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</table>

<table>
<thead>
<tr>
<th>Goals</th>
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</thead>
<tbody>
<tr>
<td>Closing the gap between what is needed and what is currently available to reduce the burden, health-care costs and human suffering due to major NCDs by achieving higher coverage of essential interventions in LMIC</td>
<td></td>
</tr>
<tr>
<td>To achieve universal access to high-quality diagnosis and patient-centred treatment</td>
<td></td>
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<tr>
<td>To reduce the suffering and socioeconomic burden associated with major NCDs</td>
<td></td>
</tr>
<tr>
<td>To protect poor and vulnerable populations from heart disease, stroke, hypertension, cancer, diabetes, asthma and chronic respiratory disease</td>
<td></td>
</tr>
<tr>
<td>To provide effective and affordable prevention and treatment through primary care</td>
<td></td>
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<tr>
<td>To support early detection, community engagement and self care</td>
<td></td>
</tr>
</tbody>
</table>
## Objectives

### Equity and efficiency objectives

Improve the efficiency of care of major NCD in primary care through:

- enhanced implementation of human rights standards;
- provision of cost effective interventions based on need rather than ability to pay;
- targeting limited resources to those who are most likely to benefit due to high risk;
- standardization of diagnostic and investigation procedures and drug prescription;
- formulation of referral criteria for further assessment or hospitalization;
- definition of parameters for planning and budget;
- selection of monitoring and evaluation indicators.

### Quality of care objectives

Improve the quality of care of major NCD in primary care through:

- cost effective case management;
- appropriate referral and follow-up;
- prevention, early detection and cost effective case management;
- management of exacerbations and emergencies;
- follow-up of long-term treatment prescribed by the specialist.

### Health impact objectives

Have a beneficial impact on health through:

- reduction of tobacco consumption in NCD patients;
- reduction of the average delay in the diagnosis of NCD by the health services;
- reduction of the risk of heart attacks, strokes, amputations and kidney failure;
- reduction of case fatality of major NCDs;
- prevention of acute events and complications;
- prolongation of the duration of stable clinical periods for CVDs, diabetes, asthma and COPD patients.