

## EXECUTIVE SUMMARY



### Diabetes Supplies: Are they there when needed?

A global review of the availability and affordability of the 22 essential medicines and technologies for comprehensive diagnosis and treatment of diabetes in low-resource settings.

A PUBLICATION FROM THE *NO EMPTY SHELVES: DIABETES SUPPLIES, THERE WHEN NEEDED* PROJECT.



## RECOGNITIONS

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# Executive Summary

## Noncommunicable diseases and the No Empty Shelves project

Four noncommunicable diseases (NCDs)—diabetes, cardiovascular disease, cancer, and chronic respiratory disease—are now the leading cause of morbidity and mortality worldwide, surpassing infectious diseases such as HIV/AIDS, diarrheal disease, and lower respiratory infections. Almost three-quarters of NCD-related deaths occur in low- and middle-income countries (LMICs), where essential medicines and technologies (EMTs) to diagnose and treat NCDs are often unavailable at health facilities and are less likely to be available than EMTs for acute illnesses.

PATH recognizes the importance of consistently available, quality-assured, affordable medicines and technologies for NCDs, and is applying its long-standing expertise in the field of commodity security—assuring that health products are available when needed, where needed—to advance the NCD agenda and contribute to the World Health Organization’s (WHO) target of achieving 80 percent availability of affordable EMTs in the public and private sectors. The *No Empty Shelves: Diabetes supplies, there when needed* project is an important first step toward this goal. With an initial focus on diabetes, the project will gather evidence and mobilize the NCD and broader global health communities to improve access to EMTs for NCDs in low-resource settings.

The purpose of the report from which this summary is drawn is to raise awareness of availability and affordability of EMTs for diabetes, and inspire a broad range of stakeholders at the global and national levels to take concerted action to address this issue. The report indicates that current approaches and systems for procurement and distribution of diabetes EMTs are not efficient, nor are they meeting existing needs. Diabetes EMTs are rarely available in 80 percent of public or private facilities, and are least available in the public sector, rural areas, and at the lowest levels of care. The full report can be accessed at <http://www.path.org/publications/index.php>.

## Global burden and response

Most deaths from chronic diseases occur in LMICs, where affordable EMTs for diagnosis and treatment are scarce. For the people with NCDs in these settings, this is an untenable situation, because the very nature of these diseases requires regular, often daily, management to prevent or delay complications and extend life expectancy. The rising prevalence of diabetes and other NCDs places a huge burden on working-age populations: more than 80 percent of NCD-related deaths in LMICs occur in people under the age of 70. Time away from work, disabilities, and the costs of treatment severely erode household finances and stifle national economic development. It is estimated that 100 million people in low-resource settings are forced into poverty annually by the high costs of managing NCDs. Central among activities needed to mitigate the effects of these diseases in LMICs is strengthening national health and supply systems to ensure access to affordable EMTs.

The global community is responding to the NCD crisis. Agencies such as the United Nations and WHO are working with national governments and nongovernmental organizations to integrate prevention, care, and treatment for NCDs into broader global development agendas. Chief among the responses is the *WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020* (GAP), which provides guidance to facilitate the development and implementation of national NCD strategies. The GAP has set a target of achieving 80 percent availability of affordable essential medicines



and technologies for NCDs in both public and private health facilities. National governments are stepping up to include NCDs in their health programs: surveillance efforts are increasing, with 112 countries now collecting data on NCD risk factors (representing 63 percent of the 178 countries reporting data). In 2013, eighty-nine countries had an operational plan and dedicated budgets for NCDs.

## Assessing essential medicines and technologies for diabetes

Diabetes is an important sentinel disease for assessing the current environment for the supply of EMTs for NCDs. More than 385 million people worldwide had diabetes in 2014, and this number is expected to increase dramatically, with the greatest increase occurring in the African region. The report presents the current understanding of availability of affordable diabetes EMTs and concludes with recommendations for a range of audiences. We included the EMTs for managing blood glucose, blood pressure, and lipids, along with those required to monitor and screen for diabetes-related complications. We assessed the peer-reviewed literature and reports from organizations involved in NCD interventions, and interviewed thought leaders, researchers, and subject matter experts in the fields of diabetes, NCDs, and health supply chain management.

We sought to answer the following questions about diabetes EMTs in low-resource settings:

- What is the evidence on availability of EMTs?
- What are the factors that affect availability of EMTs?
- What are transferable approaches used in other health sectors to increase availability of affordable EMTs?

Of the 22 products included in our review we found data on only 15, and very few products were assessed in more than one country report. This paucity of data remains a major impediment to understanding the current environment and designing ways to remedy the situation.

**Table ES1. Essential medicines and technologies for diabetes.**

Medicines	Technologies
Amlodipine	Blood glucose test strips
Bisoprolol	Blood pressure measurement device, with digital reader
Enalapril	Fundoscope
Hydrochlorothiazide	Glucometer
Insulin	Hemoglobin A1c analyzer
Gliclazide or Glibenclamide <sup>i</sup>	Hemoglobin A1c testing consumables
Glucagon injection	Insulin syringes with adult and pediatric needles
Metformin	Monofilament
Simvastatin	Urine glucose test strips
Tropicamide eye drops	Urine ketone test strips
	Urine protein test strips
	Weigh Scale

<sup>i</sup> According to the 19<sup>th</sup> WHO Model List of Essential Medicines, glibenclamide is not recommended for people over the age of 60 years; therefore gliclazide is the preferred sulfonylurea. Data on the availability and affordability of gliclazide is limited, thus we include both medicines to indicate availability of oral hypoglycemic drugs in low- and middle-income countries.

## Availability of essential medicines and technologies for diabetes

Evidence on availability of diabetes medicines and technologies was found primarily in reports using three types of research methodologies, all of which assessed availability at single points in time:

- Rapid Assessment Protocol for Insulin Access (RAPIA): reports from five countries; limited quantitative data were collected in these studies.
- WHO and Health Action International (WHO/HAI) surveys: Seven reports analyzing multiple countries, with the number of countries assessed ranging from six to forty; plus five reports on individual countries. The surveys assessed two to seven medicines from Table ES1. They did not include any technologies.
- WHO Service Availability and Readiness Assessments (SARA): These included more detailed quantitative data than the other two types of surveys. However, only five country reports contained an appropriate breadth and depth of data on diabetes EMTs.

The research shows that availability of EMTs for diabetes is insufficient to meet the needs of the people affected by this disease, based on the WHO GAP target of 80 percent availability of affordable EMTs in public and private facilities. Even facilities offering diabetes diagnosis or treatment had limited availability of these supplies. Median availability of diabetes-specific EMTs in these facilities ranged from a low of 20.5 percent for insulin to a high of 59.5 percent for urine protein test strips (across all countries and both sectors). Multipurpose technologies, such as weigh scales, blood pressure monitoring devices, and syringes, were more available than medicines and technologies specifically used to manage diabetes. Availability was typically higher in the private sector than the public sector.

There was notable disparity in availability of EMTs across and within countries, with typically more availability in urban areas and at higher levels of health systems. As a group, these commodities were least available at the primary care level in the countries assessed—a fundamental problem considering that primary care facilities are closest to where people live and where many first seek care. Diabetes EMTs were far less available than medicines for acute disease, such as the antibiotic amoxicillin, and the greatest disparities appeared in the lowest-income countries, particularly in the African region.

Not all studies assessed technologies; those that did found that diagnostics and monitoring tools were rarely available in the public sector. While many facilities had glucometers, they often did not stock the associated blood glucose test strips, and monitoring tools were rarely available for use in the home. Evidence suggests that consumers often purchased diabetes products at private outlets due to low availability in the public sector, at prices that were substantially higher than the procurement price.

## Barriers to availability of essential medicines and technologies for diabetes

**Financing.** Despite the fact that 68 percent of global mortality in 2012 was attributed to NCDs—and that this proportion is predicted to rise—only 1.2 percent of global development assistance for health went to NCD-related interventions in 2011. The majority of NCD services, including procurement of EMTs, are financed by LMIC government budgets. Few quantitative reports are available on insufficient funding specific to diabetes EMTs in low-resource settings, but considering the low overall funding for NCDs, it is apparent that this is a critical factor, particularly in the public sector. LMICs face many challenges in allocating funds among competing programs, in order to best address local burden of disease, donor priorities, and achievement of milestones such as the Millennium Development Goals and the GAP targets.

**Health systems.** The limited capacity of health systems in general in LMICs contributes to the failure to recognize, prioritize, and plan for adequate supplies of EMTs for diabetes and other NCDs. Many of these health systems evolved from a need to address acute, infectious diseases and have been slow to adapt to the changing nature of the disease burden in their countries. The consensus among reports and stakeholder opinions was that strengthening overall health systems is the best approach for improving supplies of EMTs, and that vertical programs and funding—the current norm—are not the answer.

**Supply chains.** The most commonly reported downstream obstructions to availability of diabetes EMTs were components of in-country public health supply chains. There is a clear need to improve the forecasting and supply planning processes (i.e., quantification) for diabetes EMTs, especially by collection of surveillance data. Strengthening the procurement capacity of LMICs is also an important task. Although there was evidence that a small sample of diabetes medicines were procured at or near the international reference price, research is needed to determine how countries can be more effective in negotiating purchase prices and limiting mark-ups along the supply chain, ultimately resulting in better prices for the consumer. Pooled procurement is an option for improving availability of these products, but overall strengthening of the supply chain management system may have greater impact.

## Experience across other Health Sectors

A review of strategies undertaken by other health sectors to address availability of EMTs identified some common approaches that have contributed to improved availability of products in areas such as family planning, malaria, tuberculosis, and HIV/AIDS: donor-funded procurement, pooled procurement, and partnerships. The most visible efforts to address commodity security across various health sectors focus on changes to procurement and other elements of the supply chain, with activities occurring at global, regional, and national levels, in both the public and private sectors. While the supply chain is a major focus, these approaches also incorporate activities to address financing, shape markets, strengthen systems, change policy, and raise awareness to improve availability of EMTs. All of these factors influence availability, directly or indirectly, and will be important to consider in future efforts for diabetes and other NCDs. The differences between diabetes (and other NCDs) and infectious diseases, such as the need for lifelong treatment combined with the minimal amount of foreign assistance provided and low national budgets for diabetes programs, may require the adaptation of existing commodity security approaches along with innovation to change the future of supply security for diabetes.

## Discussion

In most LMICs, availability of diabetes EMTs is far below the 80 percent GAP target and is insufficient to meet the diagnostic, monitoring, and treatment needs of people living with diabetes and accessing care in either the public or private sectors. However, published evidence is limited: national-level, representative, quantitative data are needed to improve our understanding and inform innovative solutions. When these assessments are made and the underlying causes of deficiencies are identified at country, regional, or global levels, national governments and the global community can plan appropriate responses.

The documented scarcity of diabetes EMTs in low-resource settings is the result of many factors, with inadequate financing, unprepared health systems, and elements of the in-country supply chain most notable. The limited donor funding environment for diabetes and other NCDs has left the systems for diagnosis and treatment underdeveloped compared with vertical systems such as those for malaria or HIV/AIDS. While donor assistance could help initially to ensure availability of EMTs, a more sustainable



approach may be to advocate with governments to prioritize these medicines and technologies in the annual budgeting process, by using mechanisms such as budget line items for diabetes EMTs, integrating diabetes into universal health care, and integrating consumption data into national health and logistics management information systems.

Health systems in LMICs are currently configured to address infectious and acute illnesses, but as the burden in low-resource settings shifts from infectious to chronic diseases, these systems must adjust and provide care for patients with chronic diseases at all levels, and particularly within primary care facilities. Supply chains must also be strengthened as part of activities to improve health systems; doing so holistically can benefit all health programs, including those for NCDs. Efforts to strengthen the supply chain for these products should be incorporated into broader activities to build the capacity of LMIC health supply chains. There is also potential to integrate NCD services and supplies into existing systems, such as those for HIV/AIDS. Advocacy is needed at the national government level to increase stakeholders' understanding of the burden of disease and the adjustments needed in the health and supply system to ensure that the supply of EMTs meets the demand. Furthermore, advocacy is needed to ensure governments take advantage of the opportunities that exist to leverage the investments made in HIV and other areas of health to strengthen services for people with NCDs.

Experience across other health sectors shows that there are many approaches to address the availability of EMTs. Global partnerships such as the Reproductive Health Supplies Coalition are models for approaches to improve supply security for diabetes EMTs. A similar partnership could provide comparable successes for diabetes and NCDs, and focus on advocating with governments and the private sector, improving data collection and monitoring, and building country capacity to supply these products. However, partnerships require time and financial sponsorship to establish themselves and demonstrate the added value of their role.

With the increasing prevalence of diabetes—and likely, improved diagnosis—in the future, the growing demand for diabetes EMTs is likely to outpace availability even further. Systemic and structural changes are needed to improve country capacity to respond to demand for these commodities. It is time to put chronic diseases on the same level as infectious diseases and approach health care from a holistic perspective. This requires a multisectoral, multipronged approach, including engagement and investment from the foreign aid and global health communities and the private sector to jumpstart the process. The commitment of national governments is essential to ensure that the supply of affordable diabetes EMTs is sufficient to meet the need, to help their populations suffering from diabetes and other NCDs, and to achieve goals they aspire to such as universal health care, the GAP, and the Sustainable Development Goals.

Turn the page to view recommended actions for improving the availability of affordable diabetes EMTs in low-resource settings.

## Recommendations

The following recommendations are drawn from the literature and stakeholder opinions, and are intended to facilitate improved availability and affordability of EMTs for diabetes in low-resource settings. They are intended for a range of audiences who will facilitate improved access to these critical health products. There is natural overlap across audiences, which presents opportunities where groups and organizations can work together to achieve the GAP target of 80 percent availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities. Priority recommendations are noted with bold text.

### **POLICY-MAKERS IN LOW- AND MIDDLE-INCOME COUNTRIES**

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**Priority:** Integrate diabetes and other NCDs into activities to strengthen the health and supply systems in the public and private sectors, including strategies to achieve universal health coverage. Specifically:

- Integrate diabetes and NCDs into existing surveillance and monitoring systems that provide data for the continuous supply of health commodities.
- Integrate EMTs for diabetes and other NCDs into national health and logistics management information systems, including committees focused on supply security for other sectors—consider refreshing their focus to encompass all EMTs to address the country’s particular disease burden.
- Build the capacity of supply chain managers to better understand the dynamics of diabetes EMTs and the need for ensured availability of these health products on a consistent, long-term basis.
- Ensure clinical providers and health technologists are properly trained and equipped to diagnose, treat and monitor diabetes.
- Collect evidence necessary to prioritize access to diabetes EMTs and related quality health services at the primary care level, specifically providing screening, diagnosis and treatment for these health conditions.

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Ensure adequate and sustainable financing for the supply of diabetes EMTs, including consideration of a separate budget line item for diabetes EMTs and development of a national health insurance scheme for people living with diabetes.

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Strengthen regulatory authorities to ensure that diabetes EMTs are safe and quality-assured.

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Adopt the list of EMTs from Table ES1 and incorporate into the national essential medicines list.

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Integrate and prioritize diabetes and other NCDs into health partnership programs, including those with the private sector and bilateral and multilateral donors.

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Engage with civil society to ensure diabetes and NCD programs are meeting the needs of communities.

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### **MULTILATERAL INSTITUTIONS AND TECHNICAL PARTNERS**

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**Priority:** Build the evidence base to support policy and systems change. Specifically:

- Conduct country-specific assessments on the availability, price and affordability of EMTs for diabetes and investigate the driving forces behind the findings.
- Assess private sector supply chains for diabetes EMTs, including factors affecting availability and price.
- Pilot the integration of diabetes and other NCDs into existing health systems and service delivery platforms, including supply mechanisms.
- Pilot successful approaches from other health sectors to assess their feasibility for diabetes and their impact on availability and affordability of diabetes EMTs.

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Integrate and prioritize diabetes and other chronic diseases within programs focused on improving access to medicines in LMICs.

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Convene global, regional and national forums to raise the profile of this issue, present and discuss evidence, and formulate strategies to minimize obstructions.

### **FINANCIAL CONTRIBUTORS**

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**Priority:** Include and prioritize diabetes and other NCDs within programs that support strengthening of health systems, regulatory authorities, and supply chains.

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Support research to build the evidence base on availability and affordability of EMTs for diabetes and other NCDs.

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Explore public private partnerships—identify where there is shared value and pilot collaborative projects to address access to EMTs and services for diabetes.

### **ADVOCATES**

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**Priority:** Engage civil society and empower people living with diabetes to advocate for themselves with their community leaders, policy makers and governments.

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Utilize existing and future evidence as an advocacy tool to engage policy makers and drive changes in policies, systems, and financing to support improved access to affordable diabetes EMTs.

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Raise awareness of poor and inconsistent availability of affordable diabetes EMTs, at both the global and national levels.

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Identify country champions and build their capacity to advocate for improved availability and affordability of diabetes EMTs.

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Connect the availability and affordability of diabetes EMTs to national and global development goals, such as universal health coverage, the Sustainable Development Goals, and WHO global diabetes programs, and target global networks where it may be appropriate to integrate NCDs into their mission

