

*The Road to Free Insulin*

# THAILAND CASE STUDY

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September 2017

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*This case study is part of a series entitled “The Road to Free Insulin: Country Case Studies” that was created for the ACCISS Study. They are aimed at understanding the role of government, clinicians, and civil society in enabling insulin to be provided free of charge in some contexts.*

# **The Road to Free Insulin: Thailand Case Study**

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## **Background**

It is estimated that by 1st July 2017, the population of Thailand will grow to 66.1 million (32.4 million males, 33.7 million females). Sixty-five percent of the population is between 15-59 years old, 17 percent of the population is 60 years and over, and 18 percent of the population is under 15. The approximate birth rate per 1,000 persons is 10.8 and the death rate is 8.2. The natural growth rate of population is 0.3 percent (1). Thailand is an upper-middle income country with a gross domestic product (GDP) of US\$395.17 billion in 2015 (2). It is projected that the economy will grow 3.3-3.8 percent in 2017 (3).

## **Thailand's Health Care System**

Thailand's health service delivery system is organised as a multi-level system to ensure extensive geographical coverage. Starting in the fiscal year 2012, the Ministry of Public Health (MoPH) developed a seamless referring health service network where limited health resources are shared across neighboring districts to enable better accessibility and quality, from primary through to tertiary care (4).

The Thai population is covered by three health insurance schemes. Government employees (4.3 million) and their families are entitled to the Civil Servant Medical Benefit Scheme (CSMBS). The working population in private enterprises (11.6 million) is entitled to Social Security Scheme (SSS). The remaining, and by far the largest group of population (48.7 million), are those who are outside the formal workforce, children, elderly, and monks who are entitled to Universal Coverage (UC). Health care expenditure per capita in 2014 was US\$227.5 (5).

The major burden of disease is non-communicable disease (NCDs). The prevalence of cardiovascular risk factors such as hypertension, diabetes and obesity are increasing. The fifth national health examination survey (NHES) in 2014 estimated that 37.5 percent of Thais aged 15 and over were obese, 24.7 percent had hypertension, 8.9 percent had diabetes (6). NCDs are estimated to account for 71 percent of all deaths with cardiovascular diseases representing 29 percent, cancers 17 percent, chronic respiratory diseases 9 percent, and diabetes 4 percent (7).

## **Diabetes in Thailand**

Assessed by fasting plasma glucose (FPG) test and a previous diagnosis, the fifth NHES indicates that prevalence of diabetes in people aged 15 and over increased from 6.9 in 2009 to 8.9 percent in 2014. This is equivalent to 4.8 million Thais living with diabetes, 43.1 percent of which are undiagnosed (6). The number of people with, and at risk of, diabetes is likely to be underestimated because the detection of diabetes and prediabetes using FPG is likely to miss half of the cases (8).

The incidence of type 1 diabetes in Thailand is low as it is estimated that there are 200,000 people living with type 1 diabetes. The Thailand Diabetes Registry (TDR) project in 2003 indicated that 94.6 percent of people with diabetes were type 2 diabetes and 3.4 percent were living with type 1 diabetes (9).

Diabetes is managed in all levels of health care facilities, depending on the condition of the individual. A National Health Security Office (NHSO) cross-sectional study in 2015 reviewed medical records of 32,596 persons with type 2 diabetes in 996 health care facilities. It found that only 38.2 percent controlled FPG within the target and 36.2 percent achieved a HbA1c level of less than seven percent (10). The most common long-term diabetes complications

were nephropathy (43.9 percent), followed by retinopathy (30.7 percent), ischemic heart disease (8.1 percent), and cerebrovascular disease (4.4 percent). The prevalence of all complications was higher in persons with type 2 diabetes than those with type 1 diabetes (9).

Diabetes imposes a large economic burden on the national health care system. Thailand's expenditure on diabetes amongst adults aged 20 – 79 years was expected to total at least US\$509.8 million or 11 percent of the total health expenditure in 2010. The average health expenditure per person with diabetes was estimated at US\$144.1 (11).

## **The Provision of Free Insulin**

Everyone under any of the three health financing schemes described above is entitled to receive free insulin for diabetes treatment, as long as the insulin is on the National Essential Medicines List (NEML), which was first implemented in 1981. Any medicine that has been proven to be cost effective will be included in the UC's comprehensive benefit package, which both SSS and CSMBS share.

The insulins on the NEML that are used as first-line treatments are biphasic isophane insulin (regular insulin + isophane insulin), isophane insulin (intermediate-acting human insulin known as NPH), and regular insulin (short-acting human insulin). Higher priced insulin also on the NEML, such as insulin aspart (fast-acting analogue insulin), insulin aspart, insulin aspart protamine, and insulin glargine (long-acting analogue insulin) are intended for usage by specialists for specific conditions only and drug utilisation evaluation is required (12). Should there be a medical condition where an off-NEML insulin is required, specialists can prescribe and patients do not need to pay.

According to a NHSO cross-sectional study in 2015, 22.6 percent of people with type 2 diabetes are treated with insulin.<sup>10</sup> Insulin is prescribed to patients according to clinical practice guidelines developed by the Diabetes Association of Thailand, the Endocrine Society of Thailand, and the Ministry of Public Health. These guidelines are updated every 3-4 years with the new version scheduled to launch by July 2017. Persons with diabetes under any of the three health financing schemes can receive their prescribed insulin from health facilities which they are registered with. As long as it is prescribed by doctors in charge, there is no limit for insulin reimbursement.

Insulin procurement is decentralised with ceiling prices announced by the National Committee of Drug System Development. Often when there are needs for a specific brand (such as when an insulin cartridge must match with a pen device) several provinces jointly negotiate with suppliers for better prices. For insulin with only one supplier, such as insulin aspart, MoPH would do the negotiation, allowing all hospitals under MoPH to buy at one price. For higher priced insulin such as insulin glargine, hospitals individually negotiate prices with suppliers.

The government is currently buying 28 different forms of insulin (i.e. some insulins are the same type, but come in different delivery devices), and nine separate types of insulin. The prices range from US\$2 for Actrapid HM and Mixtard HM to US\$80.72 for five Levemir flexpens (exchange rate as of September 30, 2016: US\$1= THB 34.705, for more on prices see Thai procurement prices).

Insulin-related items for managing diabetes, such as pens, needles, syringes, laboratory tests and consultations, are provided to people with diabetes for free. Nowadays several hospitals prescribe insulin in cartridges and pens, instead of insulin in vials and syringes, for convenience and to reduce the risk of an incorrect dosage. Starting in fiscal year 2010, the free distribution of glucometer and strips took place for people with type 1 diabetes, gestational diabetes, and people with type 2 diabetes whose doctors see a need for self-

monitoring. Some health care facilities make glucometers and test strips available at a centre where people living in the same neighborhood can share them.

## History of the Provision

Prior to 2002 a large number of Thais were not covered by CSMBS nor SSS, hence they had to pay for health services out of their own pockets. For those who could not afford it, the government had the Social Welfare Scheme to assist. The Social Welfare Scheme had a limitation on types of medication and medical supplies they provided. Health reform led to significant investment in health care infrastructure. There was an expansion of health care facilities at all levels, primary health care centers, district hospitals, provincial hospitals, and regional hospitals. There was also an increase in health care personnel and distribution of these personnel to needed, faraway areas.

CSMBS for government employees has been in place for a long time in Thailand. SSS for employees of private enterprises was put in place in 1990. In 2002, UC came into place, making all Thai nationals entitled to free essential health services. All people with diabetes were then entitled to the same care according to clinical practice guidelines.

Together with the UC system, Thailand has a National Drug Policy with a National Drug System Development Committee appointed by the government. The Committee and working group members represent all stakeholders from government, private, and public sectors. The purpose of this committee is to make safe and quality medications available for all Thais at a reasonable price. With this firm management structure, it is certain that the free provision of insulin to people with diabetes will be sustainable.

### *Roles in Ensuring Free Provision of Insulin*

- **MoPH** – Responsible for setting and steering the country's health policy, developing and monitoring health care services to run according to standards and guidelines for diabetes treatment.
- **NHSO** – Responsible for controlling the country's health expenditure while ensuring accessibility to quality health services. Starting from designing health benefit packages with inputs from various public forums, to cooperating with academic and clinicians to follow changes in research and clinical practice guidelines, and adjusting health benefit packages for people living with diabetes accordingly.
- **Civil Society** – Participate in committees and working groups related to free provision of insulin.
- **Clinicians** – Practice according to clinical practice guidelines and prescribe appropriate, and sufficient, insulin for people with diabetes.

## Challenges/ Lessons Learned

The provision of free insulin allows people who use insulin access to needed care. The decentralised procurement system allows all insulin types to be available for doctors to prescribe as they see appropriate. Even though Thailand has its own diabetes treatment guidelines, there is no evidence of how many doctors follow these guidelines when prescribing insulin, nor how well insulin users adhere to their prescriptions or control their diabetes.

Although insulin in cartridges and pens is widely prescribed, several hospitals still continue to prescribe insulin in vials. Insulin in vials is cheaper, but in some cases makes insulin self-injection more difficult, or inconvenient, for the insulin user.

While pens and cartridges are typically the most expensive delivery form of insulin in the country, all insulin is expensive. The provision of free insulin helps relieve the financial burden of those who need it and their families. Allowing prescriptions without quota or limitations ensures that people don't have to worry about accessing the amount of insulin they need. However, it also takes away the sense of responsibility to fully use what is given. It is not unusual to find a large amount of unused insulin (or other medication and supplies) lying around in houses. Therefore, it is vital for medical professionals to pay attention and assess the insulin usage of each patient, prescribe only the necessary amount, educate patients not only on insulin but also on behavior modification for better diabetes control, and avoid the need to increase insulin dosages unnecessarily. There should also be a study commissioned on the cost of insulin treatment.

Currently, in Thailand, there are very few who are able to perform self-monitoring of blood glucose. There is evidence that the distribution of glucometers and test strips to people living with diabetes in the community, together with self-management education, schedules for blood testing, insulin dosage adjustment, and access to consultations and follow-up by medical professionals, can effectively assist patients with appropriate insulin use and diabetes control. Within the country there is still a need for additional diabetes educators and diabetes educational support, in order to effectively enhance diabetes self-management.

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