

# Evaluating the long-term impact of improving care for patients with type 2 diabetes in China

1. **Limin Wang**  
National Center for Chronic and Noncommunicable Diseases Control and Prevention, Chinese Center for Disease Control and Prevention (China CDC), Beijing, China
2. **Qing Ye**  
Novo Nordisk A/S, Copenhagen, Denmark
3. **Ole Kjerkegaard Nielsen**  
Novo Nordisk A/S, Copenhagen, Denmark
4. **Anne Gadegaard**  
Novo Nordisk A/S, Copenhagen, Denmark
5. **William Valentine**  
Ossian Health Economics and Communications, Basel, Switzerland
6. **Barnaby Hunt**  
Ossian Health Economics and Communications, Basel, Switzerland
7. **Linhong Wang**  
National Center for Chronic and Noncommunicable Diseases Control and Prevention, Chinese Center for Disease Control and Prevention (China CDC), Beijing, China

## Introduction

- In 2015, the United Nations member states launched the Sustainable Development Goals (SDGs), and SDG target 3.4 is to reduce premature mortality from noncommunicable diseases by one-third by 2030 through prevention and treatment and to promote mental health and well-being.<sup>1</sup>
- In 2015, 109 million people with diabetes were living in China, and this is predicted to increase to 130 million by 2030.<sup>2</sup>
- The present analysis examined the impact of bringing people with type 2 diabetes to recommended treatment targets, compared with current care. The impact on clinical outcomes, cost savings for health care payers, and on how to achieve SDG target 3.4 was quantified.

## Methods

- Long-term outcomes were projected using the QuintilesIMS CORE Diabetes Model.<sup>3</sup>
- The baseline cohort characteristics were based on the average person with type 2 diabetes in China, thereby reflecting current care.<sup>4,5</sup>
- In the treatment targets arm, people were assumed to receive optimal treatment, achieving all treatment targets recommended by the Chinese Diabetes Society (Table 1), while in the current care arm, physiological parameters remained unchanged from baseline.<sup>6</sup>
- Costs were accounted in 2015 Chinese Yuan (CNY) from a healthcare payer perspective.

**Table 1 Recommended treatment targets for people with type 2 diabetes**

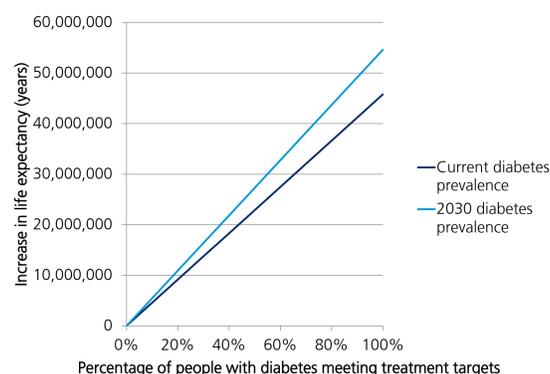
Parameter	Treatment target
HbA1c (%)	7.0
Systolic blood pressure (mmHg)	140
Diastolic blood pressure (mmHg)	80
Total cholesterol (mg/dL)	74.0
LDL cholesterol (mg/dL)	100.5
HDL cholesterol (mg/dL)	38.7
Triglycerides (mg/dL)	150.5
BMI (kg/m <sup>2</sup> )	24.0

BMI, body mass index; HbA1c, glycated hemoglobin; HDL, high-density lipoprotein; LDL, low-density lipoprotein. Treatment targets were based on recommendations released by the Chinese Diabetes Society in 2016.<sup>5</sup>

## Results

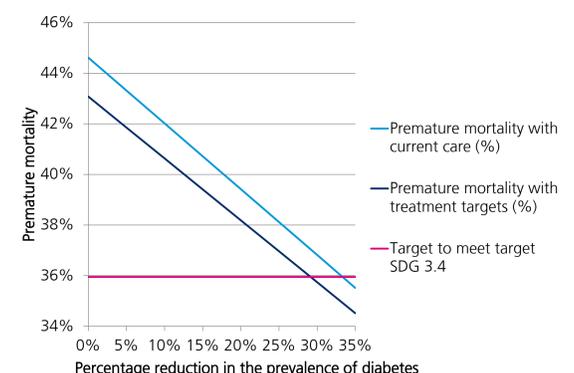
- Improving care and bringing all people with type 2 diabetes in China to recommended treatment targets resulted in improved clinical outcomes compared with current care, with undiscounted life expectancy increased by 0.42 years per patient
- At current diabetes prevalence, this could result in a gain of 46 million life years nationally, and a gain of up to 55 million life years across China at the estimated prevalence of diabetes in 2030 (Figure 1).

**Figure 1 National gains in life expectancy with improved treatment**



- Discounted lifetime cost savings of CNY 4,937 per person were identified when all people with type 2 diabetes received optimal treatment, with the largest cost savings resulting from avoided diabetic foot and neuropathy complications (cost savings of CNY 3,373 per person).
- At the current prevalence of diabetes, improving treatment could result in national cost savings of CNY 540 billion, and at the prevalence estimate for 2030, national cost savings would increase to CNY 640 billion.
- Overall premature mortality with current care was 44.6%, of which 26.0% was due to diabetes, and a one-third reduction in this would lead to overall premature mortality of 35.9%.
- Bringing people with type 2 diabetes to treatment targets reduced overall premature mortality to 43.1%, and while this is an important improvement, optimizing treatment for people with diabetes alone is not sufficient to achieve SDG target 3.4
- To achieve a one-third reduction in premature mortality due to diabetes required a 29.1% reduction in diabetes prevalence in addition to meeting recommended treatment targets (Figure 2).

**Figure 2 Reduction in the prevalence of diabetes required to meet the Sustainable Development Goal target 3.4**



## Discussion

- Improving care for people with type 2 diabetes in China resulted in improved clinical outcomes.
- Nationally, individual benefits resulted in substantial gains in total life expectancy, reductions in premature mortality, and reduced costs for healthcare payers.
- The cost saving of CNY 540 billion represents the budget available for improving care without increasing overall healthcare costs.
- Improving care for people with diabetes alone is not sufficient to achieve SDG target 3.4, and a substantial reduction in the prevalence of diabetes is also required.
- The primary limitation of the analysis was projecting outcomes using computer simulation, as no equivalent clinical studies have been conducted in China.

## References

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## Conclusions

- Long-term projections suggested that bringing people with diabetes in China to treatment targets resulted in improved life expectancy and significant cost-savings.
- However, improving treatment alone was not sufficient to meet SDG target 3.4.
- Diabetes prevention should form a key objective in China in order to improve outcomes and meet SDG target 3.4.