

**Anthony Paulo Sunjaya and Angela Felicia Sunjaya**  
Faculty of Medicine, Tarumanagara University, Indonesia  
Correspondence to: [anthony@doctors.web.id](mailto:anthony@doctors.web.id)

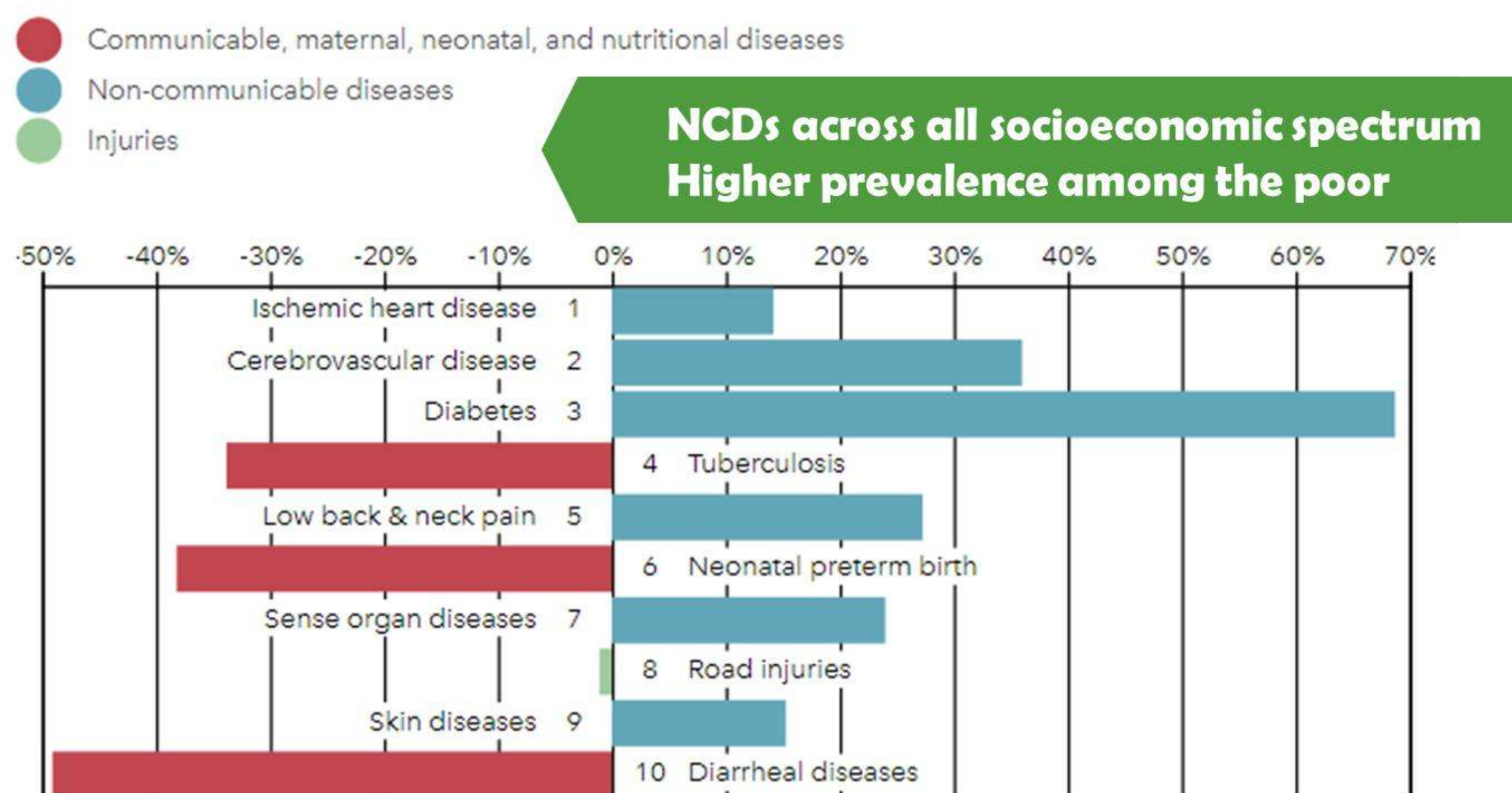
## Introduction

Over 18 million Indonesians suffer from diabetes, with 40% of Indonesians having impaired fasting glucose and 30% having impaired glucose tolerance.

Based on the 2018 National Health Survey:

- Rising prevalence of diabetes from 6.9% in 2013 to 8.5% in 2018.
- Rising prevalence of hypertension from 25.8% in 2013 to 34.1% in 2018.
- Also rising prevalence of smokers, alcohol consumers and sedentary lifestyle.

What causes the most death and disability combined?

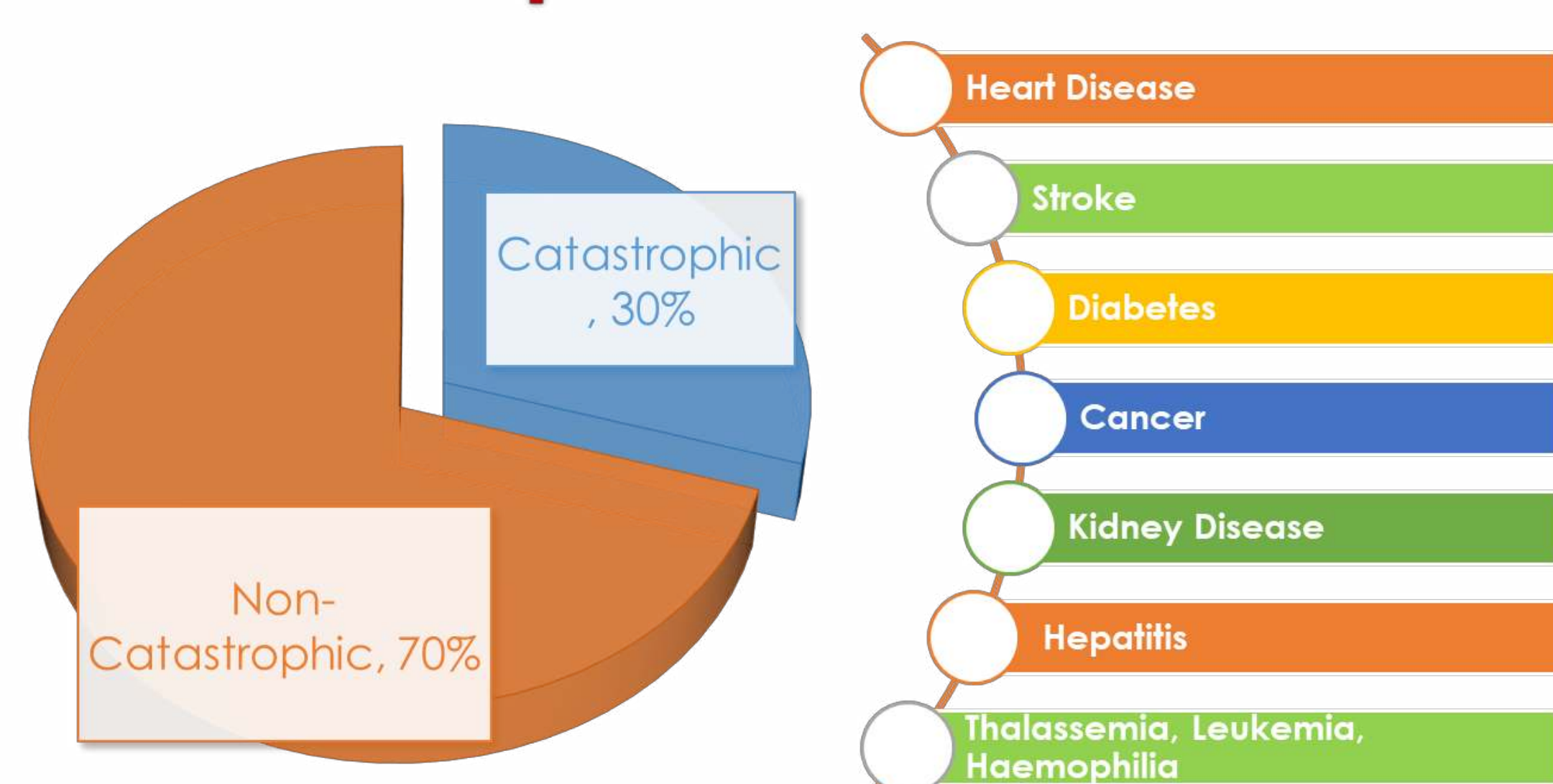


Top 10 causes of disability-adjusted life years (DALYs) in 2016 and percent change, 2005-2016, all ages, number

In 2014, Indonesia started its own Universal Health Coverage, the National Social Health Insurance (JKN) to tackle the issue of rising health costs and improve distribution of services.

However, chronic diseases such as diabetes and their comorbidities currently represent over 30% of the healthcare expenditure, leading to deficits always reported till now.

## High Burden of Catastrophic Diseases



30% = 16.9 trillion (1/3) of JKN's Budget

## Objectives

This article aims to evaluate the potential of telehealth in prevention, improving care and optimizing cost of diabetes management in Indonesia based on experiences of other countries.

## Materials and Methods

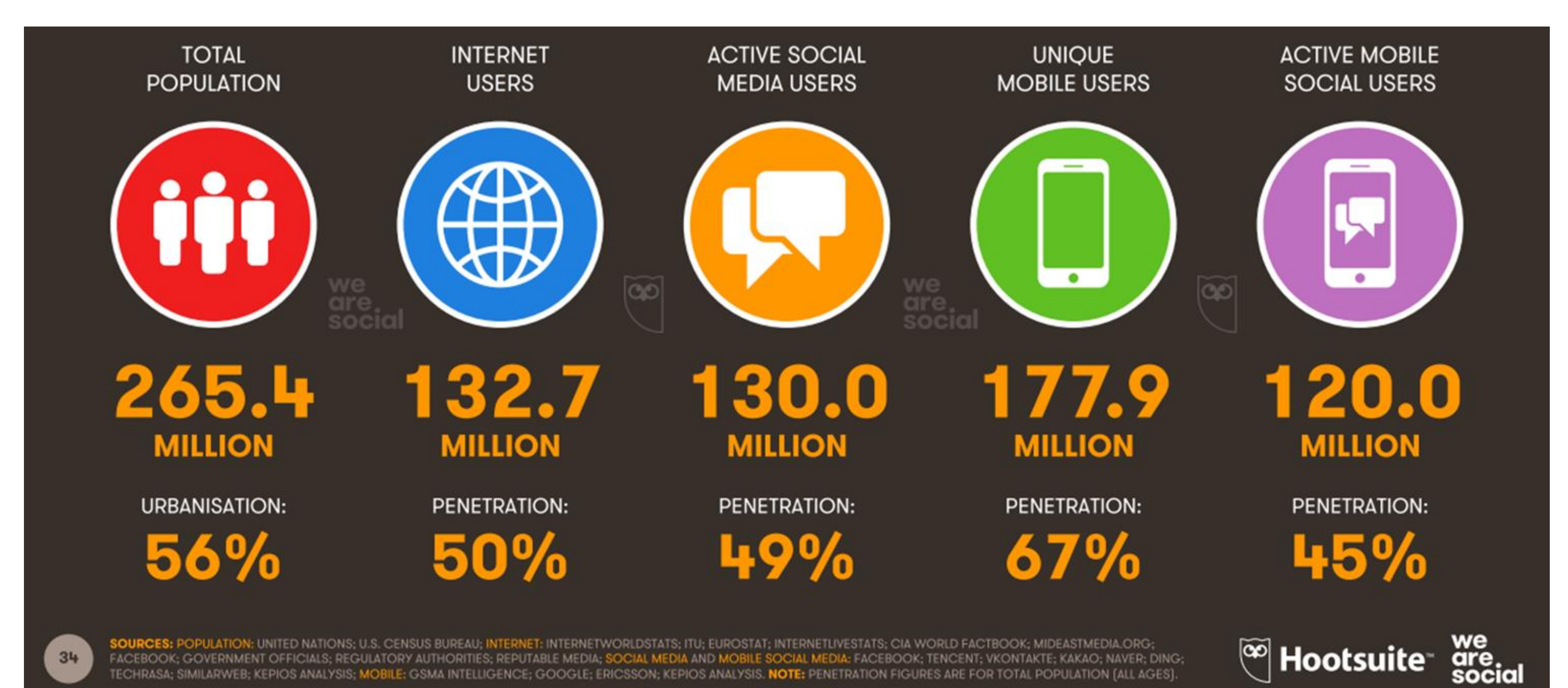
Articles were obtained through Pubmed, Science Direct, Google Scholar, and Elsevier Clinical Key using the keywords "telehealth or synonyms" AND "diabetes or synonyms" written in English from January 1, 2005 till date.

## Results and Discussion

Indonesia currently houses the **third largest smartphone user in Asia-Pacific** with 100% internet penetration among students.

Utilizing these existing technologies for healthcare is referred as **telehealth**.

In a recent survey by Sunjaya AP it was found that majority of respondents (80%) are open to using technology in managing their health and 60% agrees on telehealth replacing face-to-face consults.



Technology driven diabetes prevention programs has been found to led to clinically significant weight loss among prediabetics with greater average weight loss compared to traditional programs.

Telediabetes care has also been reported to lead to significant reductions in HbA1c in patients with persistently poor glycemic control. It has also been found to improve screening rates for diabetic complications such as diabetic retinopathy with lower costs and waiting times.

They are also effective especially in improving care in remote areas.

Meta-Analysis by Bian et al. (Journal of Medical Internet Research 2017)

- Technology driven diabetes prevention programs led to clinically significant weight loss among prediabetics
- Technology-mediated programs that delivered real-time lifestyle, diet and exercise interventions lost more weight on average than traditional programs

Daskivich et al. (JAMA Intern. Med 2017)

- Remote Screening for Diabetic Retinopathy
- improved annual screening rates by 16%,
- reduced wait times by 89% and
- eliminated more than 14,000 specialty-care visits by identifying patients at the highest risk for complications.

Ciemins et al. (Telemed J E Health 2011)

- effective mode for the provision of diabetes care to rural patients.
- Few differences were detected in the delivery of a team approach to diabetes management via telehealth compared with face-to-face visits on receipt of preventive care services, vascular risk factor control, patient satisfaction, and patient self-management.

Current barriers to implementation remain including illiteracy and lack of a telehealth law in Indonesia.

## Conclusions

Various studies have shown tele diabetes care as an effective and efficient solution for prevention and delivering care to diabetics at low cost and with high quality equally effective to that of traditional care. Better prevention and management of diabetics is expected to reduce its burden on healthcare in Indonesia.

## References

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