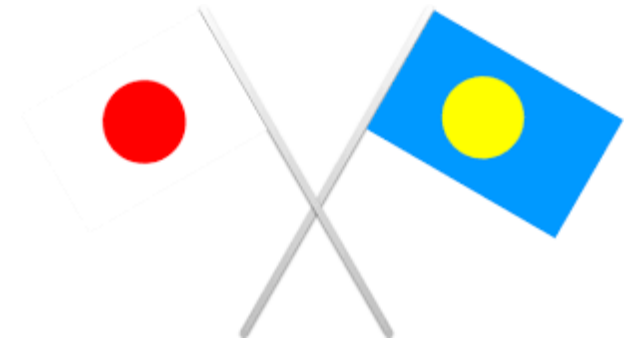


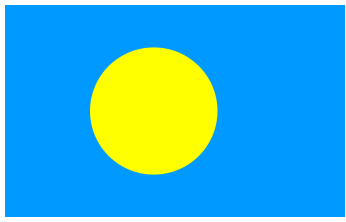
Establishment of an Early Detection/ Diagnostic System against Non-Communicable Diseases (NCDs) in Palau

-a Case Study of Diabetes mellitus



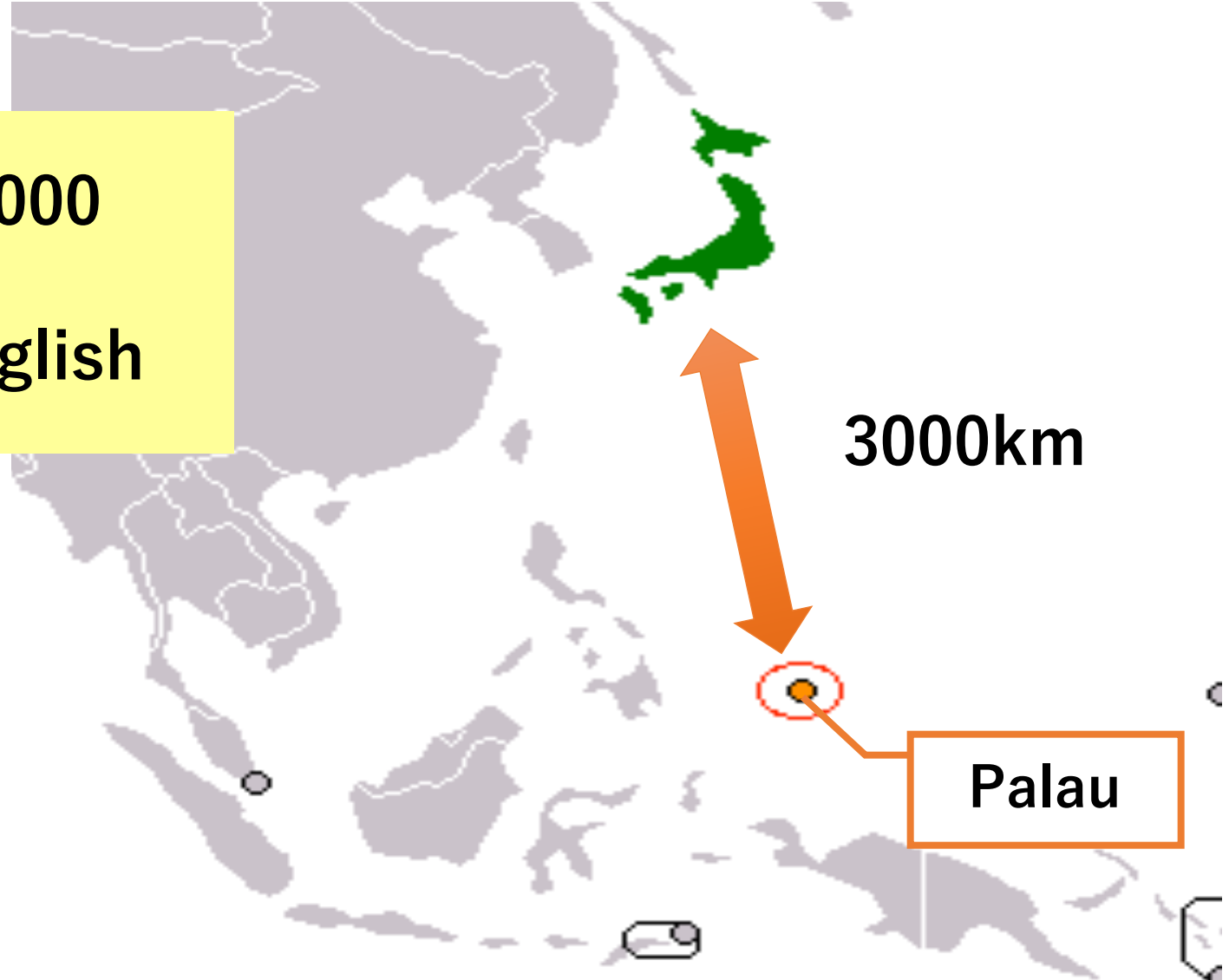
Takatsuki Senior
Highschool





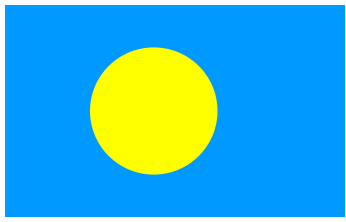
Palau and NCDs

Population : about 18,000
GDP : \$300
Official Language : English



3000km

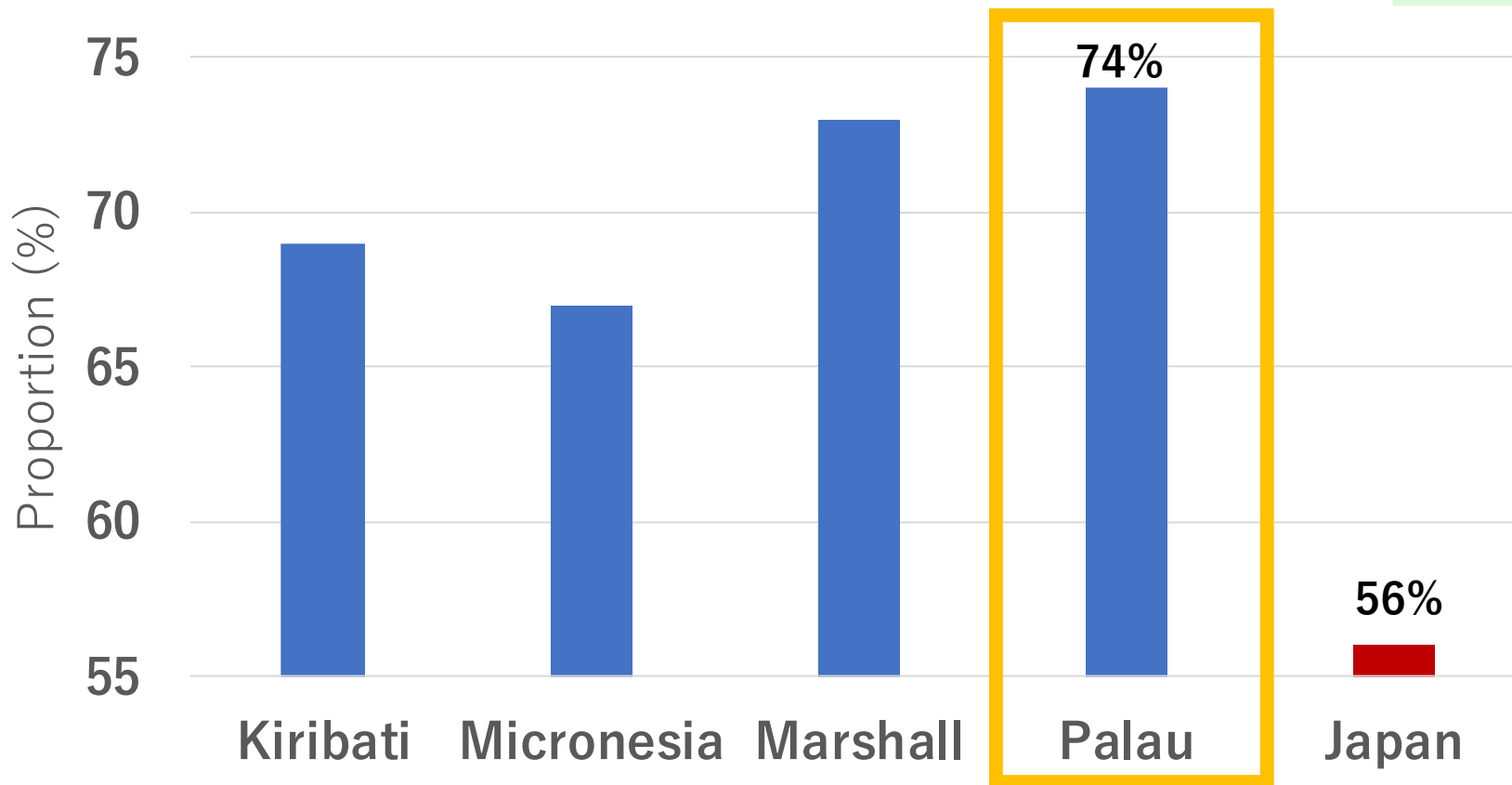
Palau



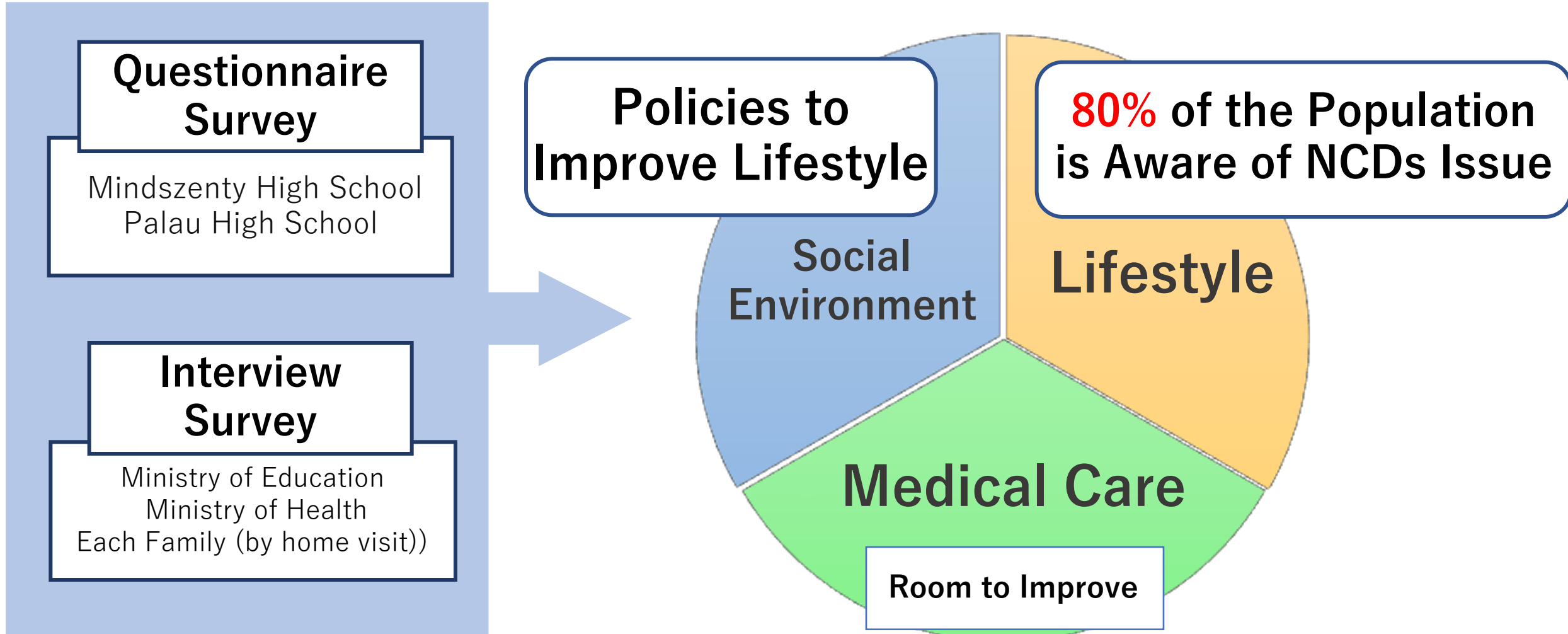
Palau and NCDs (Non-communicable Diseases)

Proportion of People who died from NCDs in Micronesian Countries

- Diabetes
- Chronic Illness



Current Countermeasures against NCDs in Palau



- 3rd grade of Takatsuki High School Kaname Miyasako(2020) 「The Ideal Model of Medical Service in the Case of Diabetes in Palau and its Social Background」
- 3rd grade of Takatsuki High School Kota Kuraba (2020) 「The Regional Health Disparity Resulted from a Lack of Medical Staff and the Vulnerability of Medical services and Medical Systems in Palau」

Challenges to solve the Issues of NCDs in Palau

Only 40% of the People Have Changed Their Lifestyles

➤ **How to Intervene in Individual's Lifestyle?**



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Disease Progression (in the case of **Diabetes**)

40%

Rate of Diabetic People in Palau

40%

20%

Healthy

Pre-Diabetes

Diabetes

Complications
Death

Not Well-detected

Preventive
Medicine

Palau Ministry
of Health Policy

Early Detection
and
Lifestyle Improvement
Countermeasure
is Not Enough

Advanced
Medical Care

Not
Sufficient

National Center for Global health and Medicine (<http://dmic.ncgm.go.jp/>)

Prevalence and predictors of prediabetes and diabetes among adults in Palau: population-based national STEPS survey 2016

Research Question

**How Can We Establish
the Early Detection System
against Diabetes in Palau ?**



Proposal

At Hospital

Checkups

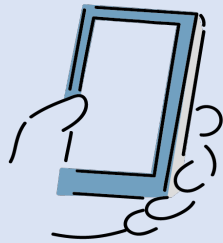


Not All the People Can Have Health Checkups in Palau



At Home

Self-Check



Prevention of Disease Progression



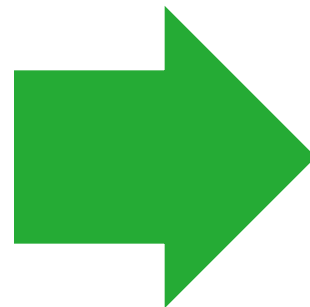
Create a Free Smartphone App for Diabetes Self-check

What to Expect from the Widespread Use of the App

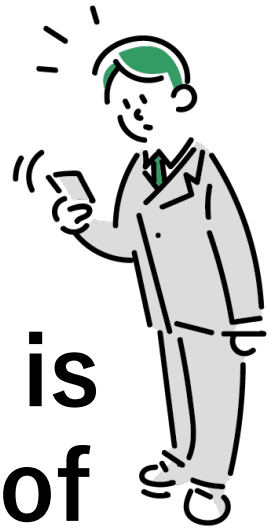
① More Accessible to Medical Care

Mobile Media
Penetration

94%



Almost Everyone is
a Potential User of
the App



Create a Free Smartphone App for Diabetes Self-check

What to Expect from the Widespread Use of the App

② Lower Medical Costs (Estimated Cost per year in Japan)

Severe Diabetic Case

$$\begin{array}{l} \text{(2 Weeks of Hospitalization)} + \text{(Regular Visits)} + \text{(Dialysis)} \\ \$4,000 + \$150 \times 12 + \$4,000 \doteq \underline{\$10,000} \end{array}$$

Pre-diabetic Case

$$\begin{array}{l} \text{(Initial test fee)} + \text{(Regular Visits)} \\ \$2,000 + \$150 \times 6 \doteq \underline{\$3,000} \end{array}$$

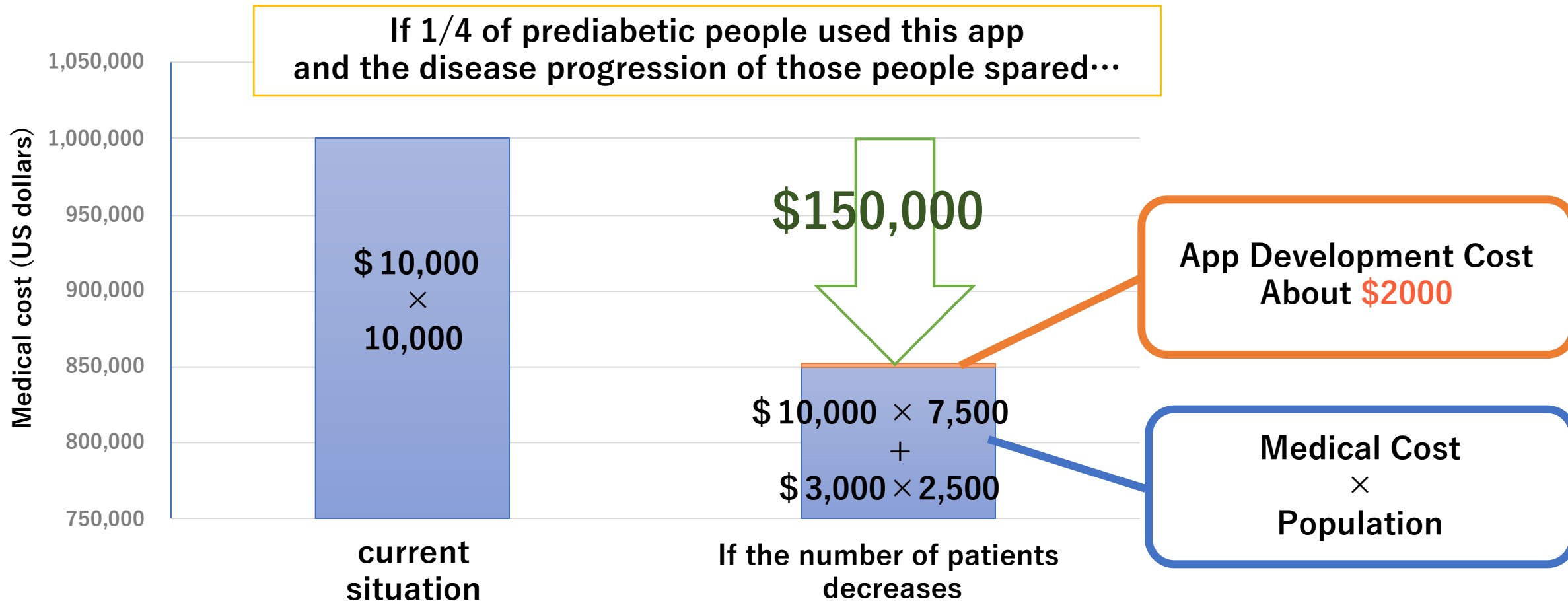
Much Lower Costs

*The insurance system is not considered.

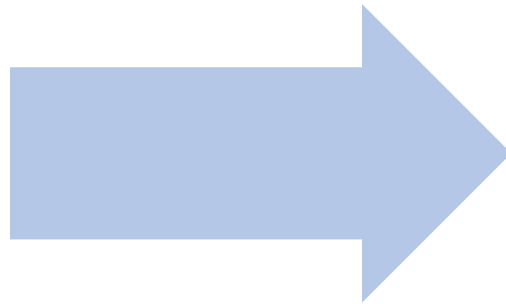
Create a Free Smartphone App for Diabetes Self-check

What to Expect from the Widespread Use of the App

② Lower Medical Costs (Estimated Cost per year in Japan)



Conclusion



**Earlier Intervention
to Pre-diabetes**

**More accessible to
Medical Care**

3 GOOD HEALTH
AND WELL-BEING



Lower Medical Cost

References

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- 『Over View of the state –Palau- 2020』 (<https://mchb.tvisdata.hrsa.gov/Narratives/Overview/1f589dfe-e49b-48f7-8890-567fb7a6d71b>)
- Henry M Ichiho他 (2013) 「An Assessment of Non-Communicable Diseases, Diabetes, and Related Risk Factors in the Republic of Palau: A Systems Perspective」 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3689453/>)
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- Morigami Internal Medicine and Diabetes Clinic HP (<https://morigaminaika.jp/>)
- Japan Preventive Association of Life-style related Disease HP (<http://www.seikatsusyukanbyo.com/>)
- Ooba Internal Medicine Clinic HP (<https://obanaika.com/>)
- Prevalence and predictors of prediabetes and diabetes among adults in Palau: population-based national STEPS survey 2016