

Applicability of relevance index as a burden of disease indicator: Correlation between relevance index and disability adjusted life year

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Introduction

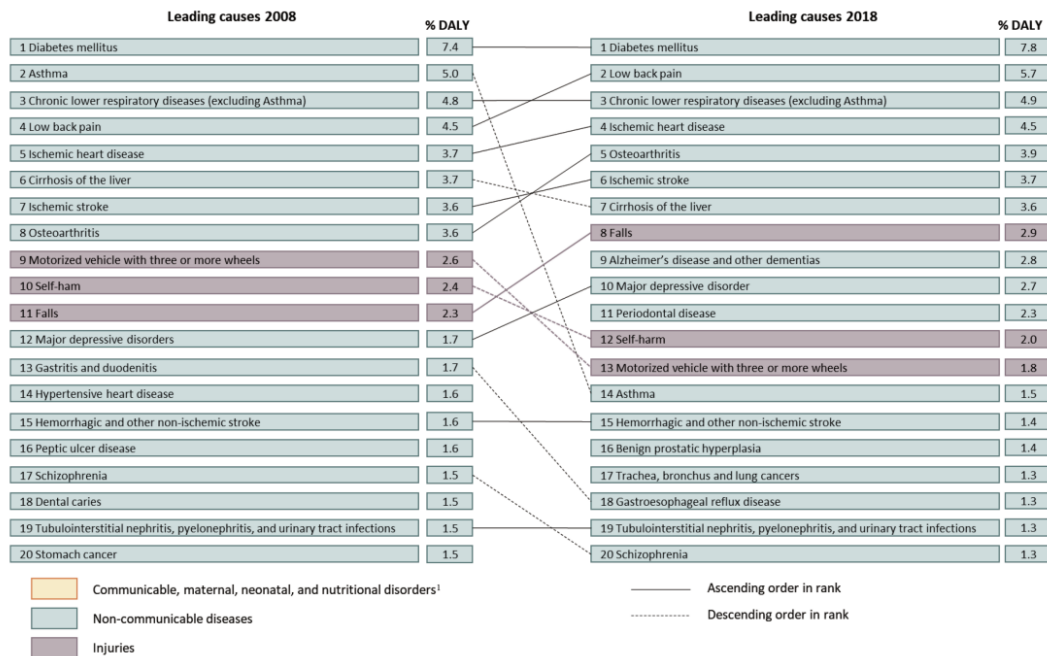
Indicators for measuring the burden of diseases

- Classical indicators of epidemiology
 - Mortality, prevalence, incidence, etc.
- Summary measures of population health (SMPH)
 - An indicator that considers the level of prevalence or incidence along with mortality rate
 - Two types of SMPH
 - Expressed in survival years: disability adjusted life year (DALY), quality adjusted life year (QALY)
 - Expressed as life expectancy: disability adjusted life expectancy (DALE), quality adjusted life expectancy (QALE)

Introduction

Studies calculating the burden of diseases in Republic of Korea

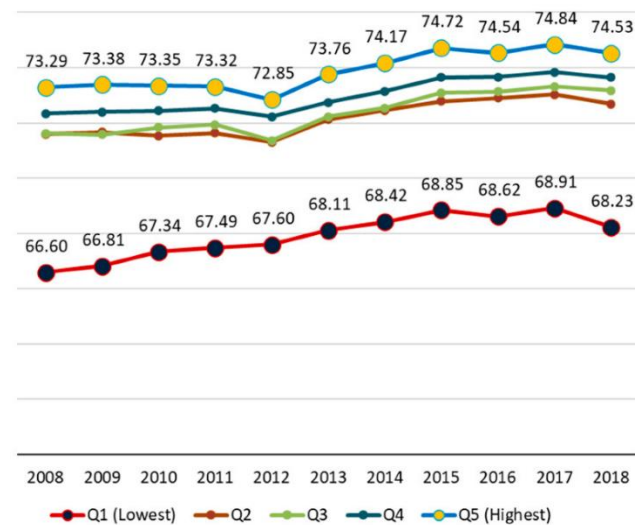
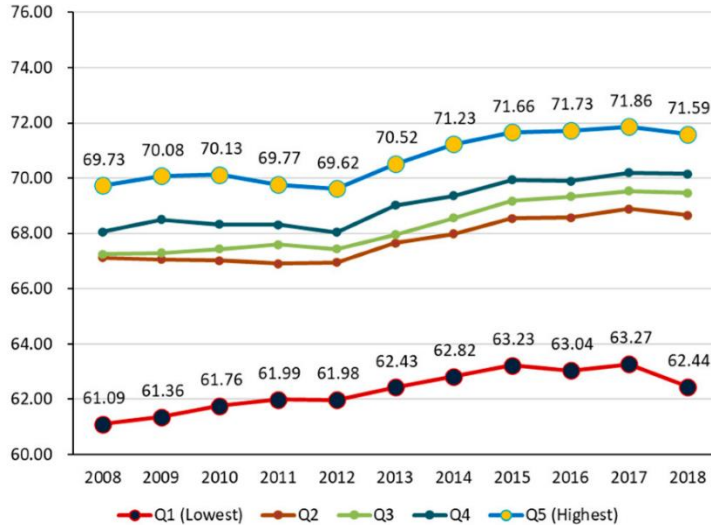
- Republic of Korea is steadily conducting researches on calculating the burden of disease.



Introduction

Studies calculating the burden of diseases in Republic of Korea

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Introduction

Are current disease burden indicators sufficient?

- Can we say that DALY or healthy life expectancy reveals all the problems in the Republic of Korea's healthcare system?

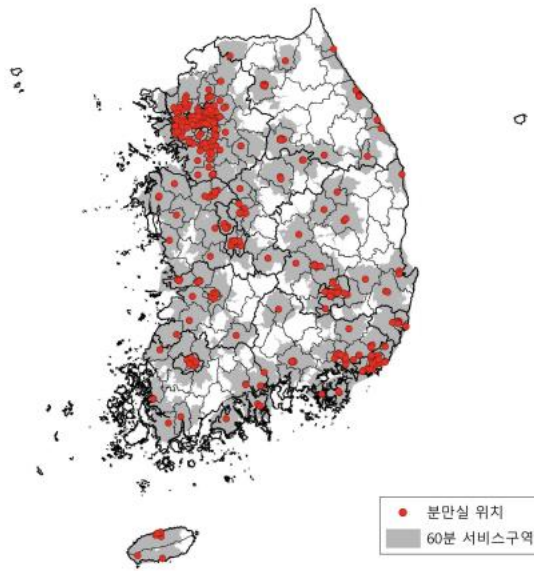


그림 3-3 | 분만실 의료기관 60분 서비스구역

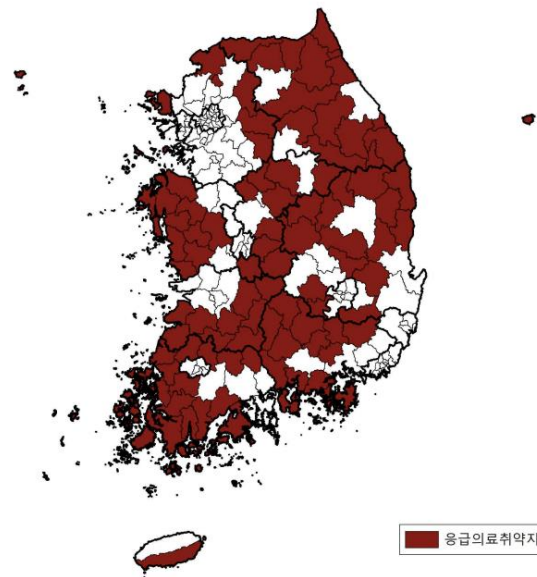


그림 3-21 | 응급의료취약지

Introduction

Purpose of this study

- SMPH, such as DALY, is commonly used to determine the burden of disease rankings, but it is necessary to examine whether this can perfectly capture the burden of disease phenomenon.
- In this study, we introduce the results of the relevance index (RI), which expresses the phenomenon of inequality in medical use, and examine the relationship between RI and DALY to show how RI can help understand the burden of disease phenomenon in Republic of Korea.

Methods

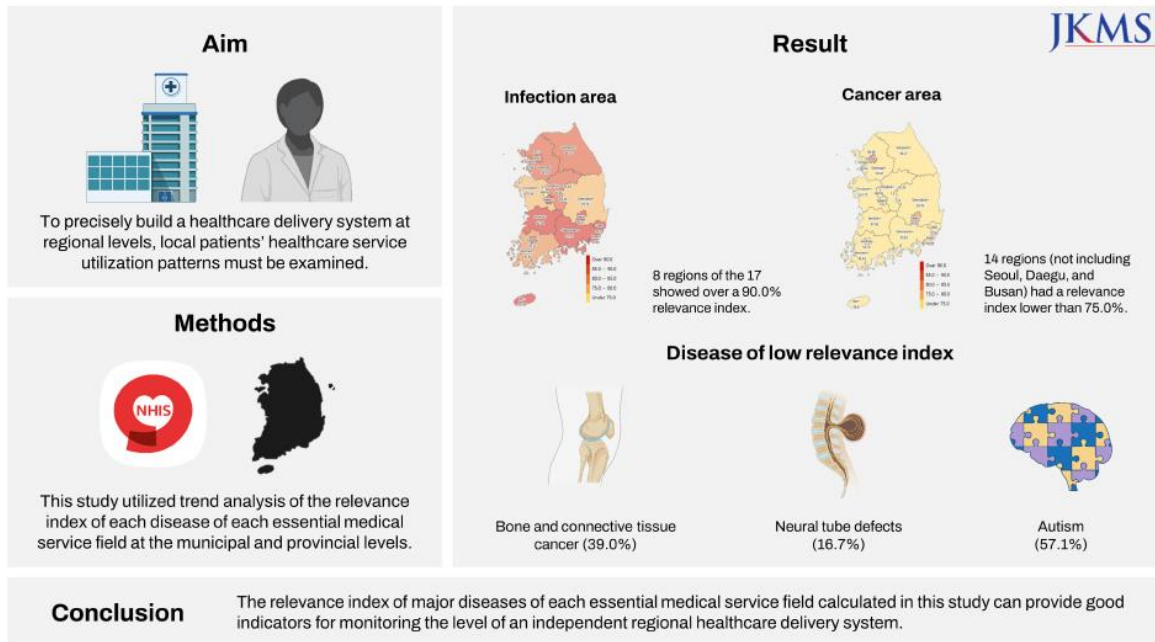
Definition of RI

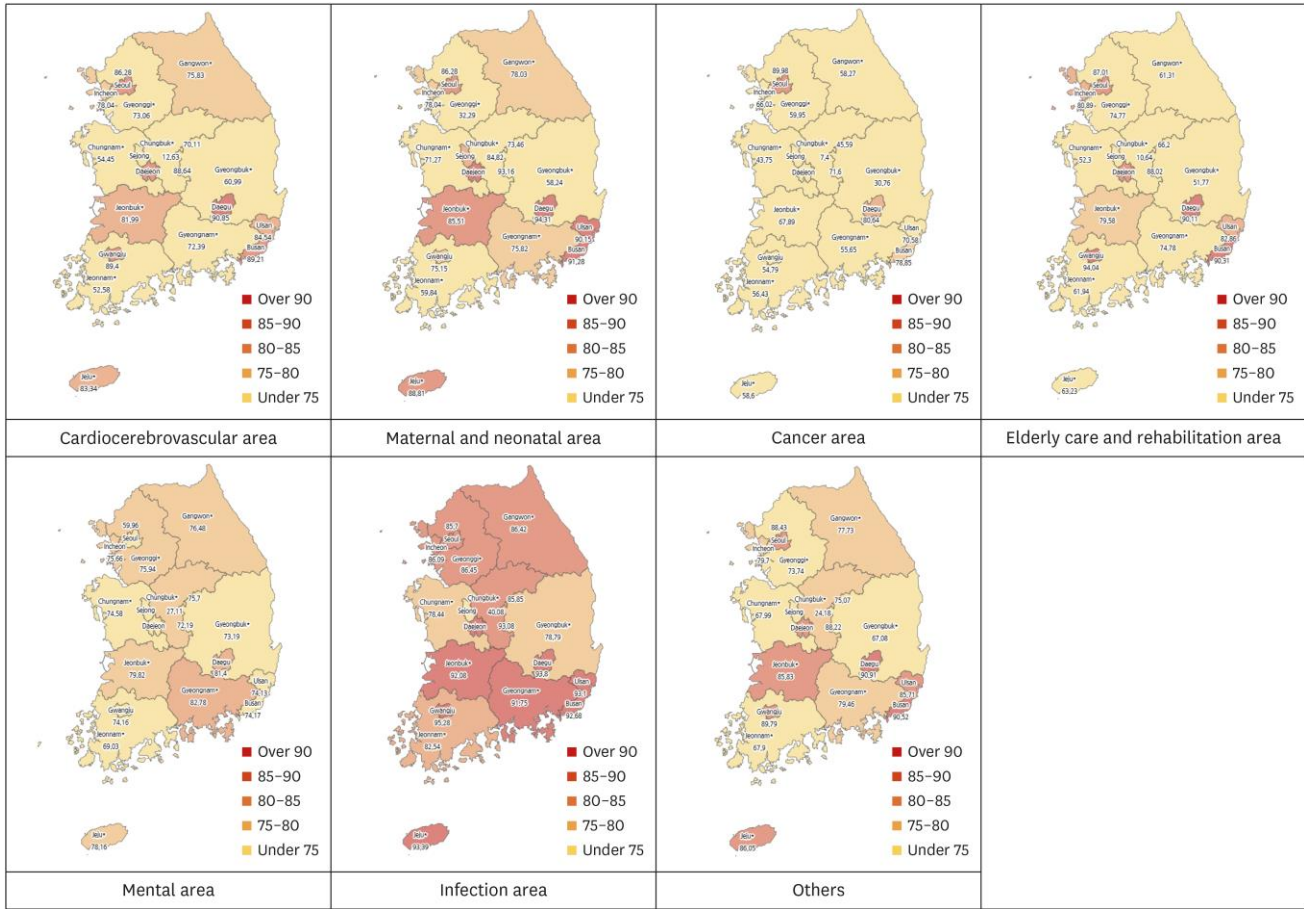
- The RI refers to the percentage of residents' medical service utilization in a region relative to their total medical service utilization.
- This suggests the residents' preference for a specific region for their medical institutions and is often used as an indicator for the patient outflow (medical service utilization in other regions).
- $RI_{ij} = (\text{Amount of medical service utilization in medical institutions in } j \text{ region by a patient living in } i \text{ region}) / (\text{Total amount of medical service utilization by a patient living in } i \text{ region})$

Methods

RI reporting in Republic of Korea

- Previous study has reported RI for 260 diseases from 2016 to 2020¹⁾





Methods

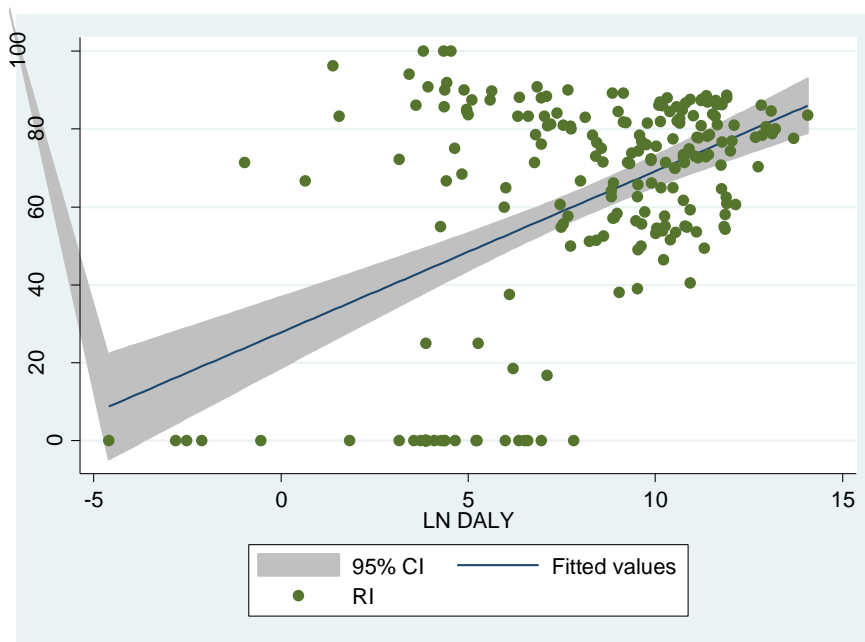
Data analysis

- Comparison of results between DALY from the Korea burden of disease study and RI calculated from previous study
 - A total of 209 causes of disease overlapping between the two studies were analyzed.
 - As of 2020
 - Review the correlation between RI and DALY (after applying natural log) by cause of disease using Pearson correlation coefficient.

Results

RI & DALY

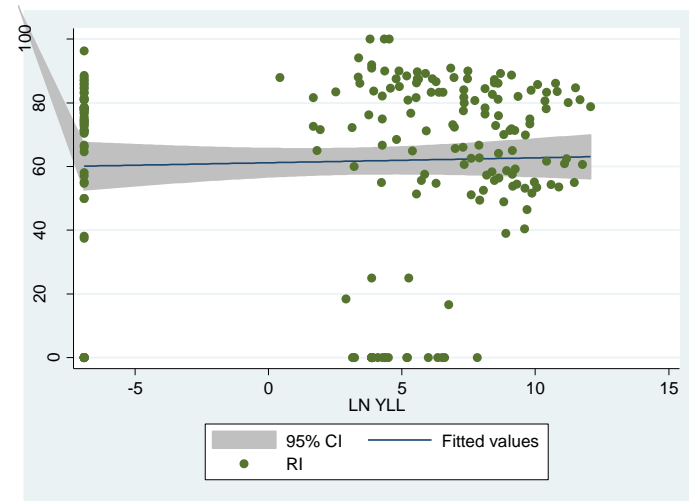
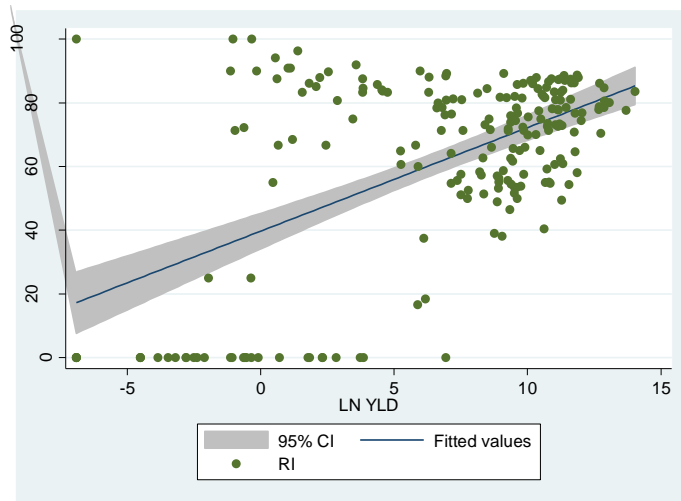
- There was a positive correlation between RI and DALY ($r = 0.483$, $P\text{-value} < 0.001$)



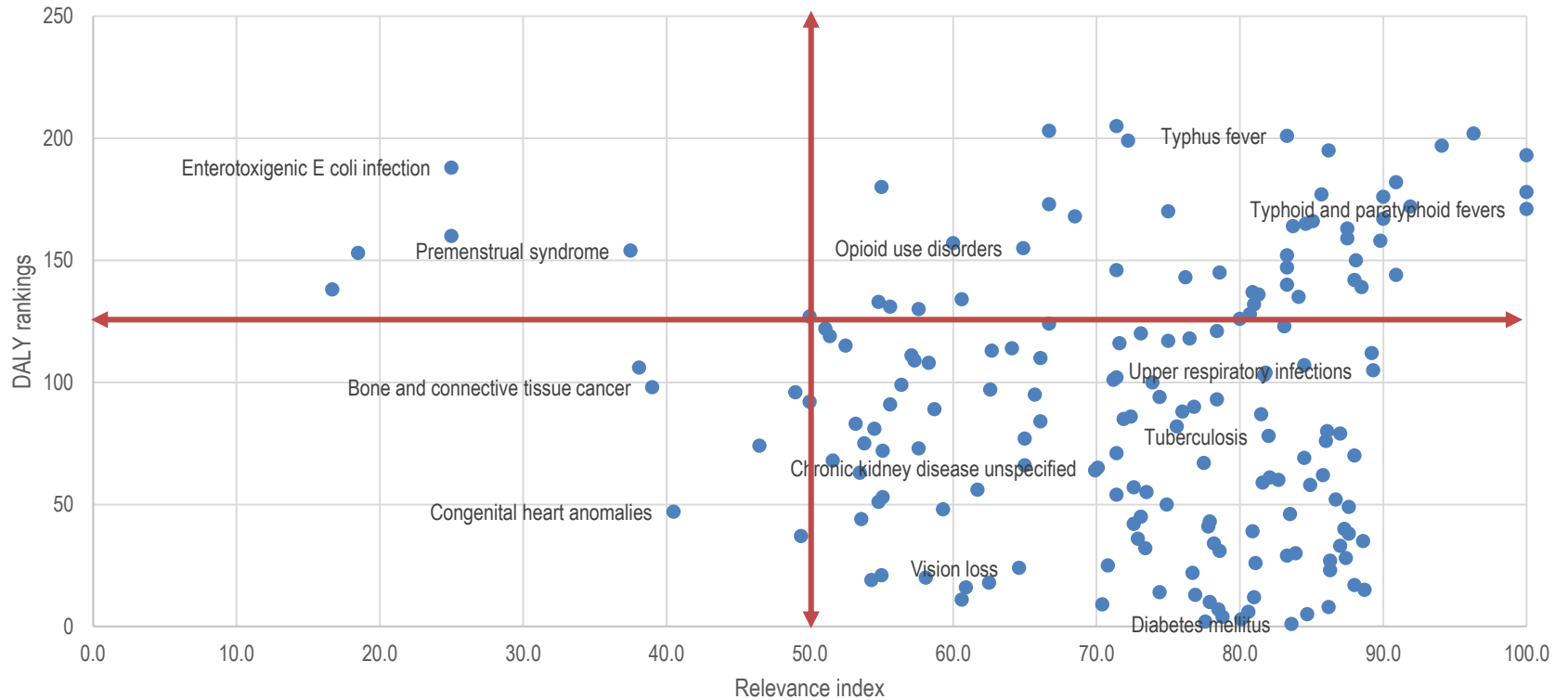
Results

RI & DALY

- There was also a positive correlation between RI and YLD ($r = 0.558$, $P\text{-value} < 0.001$).
- No correlation could be confirmed between RI and YLL ($r = 0.033$, $P\text{-value} = 0.622$).



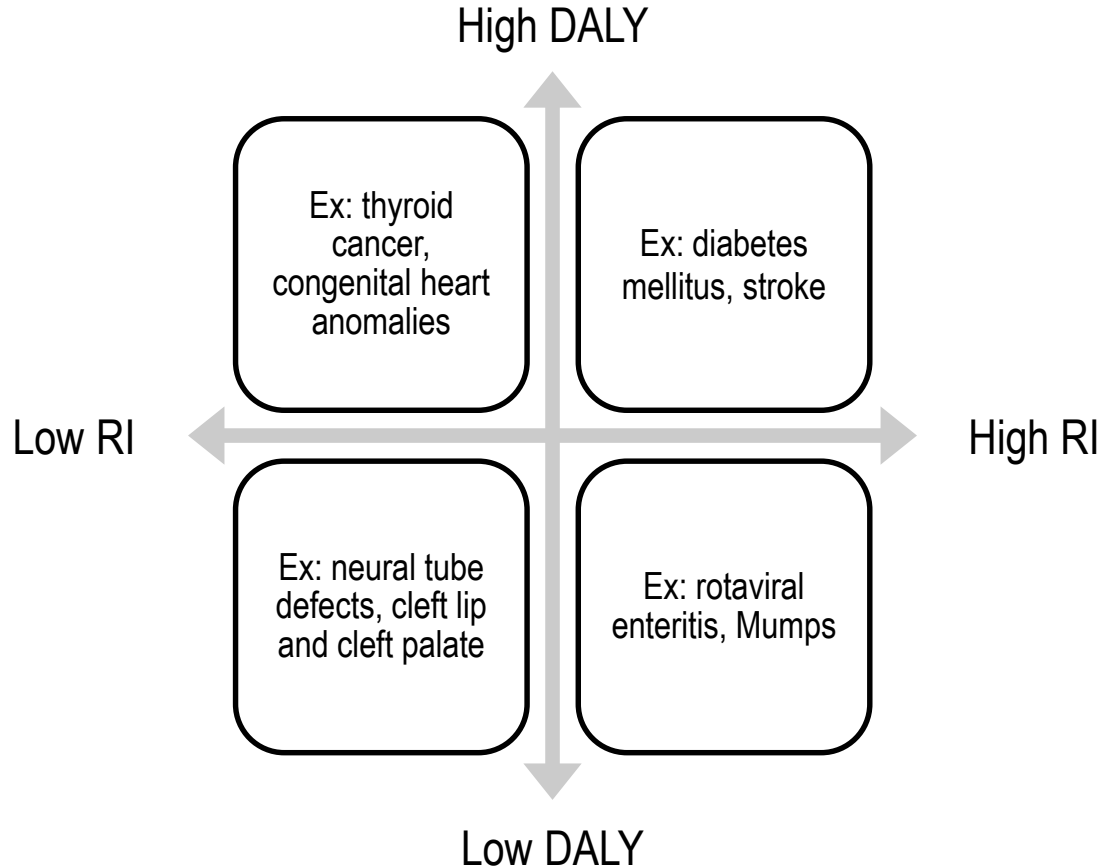
Results



Results

RI & DALY

- Among the top 50 DALY rankings, major diseases with low RI should be considered as priority policy targets.
 - Thyroid cancer (37th, 49.4)
 - Breast cancer (19th, 54.3)



Discussion and Conclusion

Main significance of the study

- Among the causes of diseases with relatively high DALY, rare cancers, maternal and neonatal diseases require urgent RI improvement.
- There is a need to examine whether it is necessary to improve inequality in medical use by using RI even for causes of disease with relatively small DALY.
- By using RI and DALY together, the burden of disease can be examined from a more diverse perspective.
 - RI is a by-product that can be confirmed during the DALY calculation process.
 - Supporting the need for national burden of disease study

Thank you for listening!

감사합니다!

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