



Government of Nepal
Ministry of Health and Population

OFFICIAL



Burden of Disease (BoD) and Probability of Premature Death (PPD) in Nepal: Trends and Shifts between 1990 to 2023

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Nepal Health Economics Association



THE LANCET



Introduction

Epidemiological transition

Nepal has undergone an epidemiological transition in last three decades

NCD dominated disease burden

There has been a shift from CMNN diseases to NCDs, with burden shifting from children to older and working-age populations

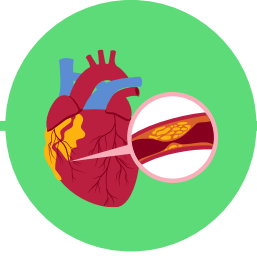
Probability of Premature Deaths

There is need to prevent premature deaths across the life course

Data need for decision making

BoD and PPD analyses support evidence-based priority setting and resource allocation

Methodology



This analysis is based on the Global Burden of Disease (GBD) 2023 methodology to estimate mortality, Disability-Adjusted Life Years (DALYs), and Probability of Premature Death (PPD) for Nepal at both national and sub-national levels.



National estimates are drawn directly from GBD 2023, while provincial estimates are generated using a GBD-anchored approach that distributes national totals geographically based on age-, sex-, and cause-specific mortality patterns from the 2021 National Population and Housing Census.

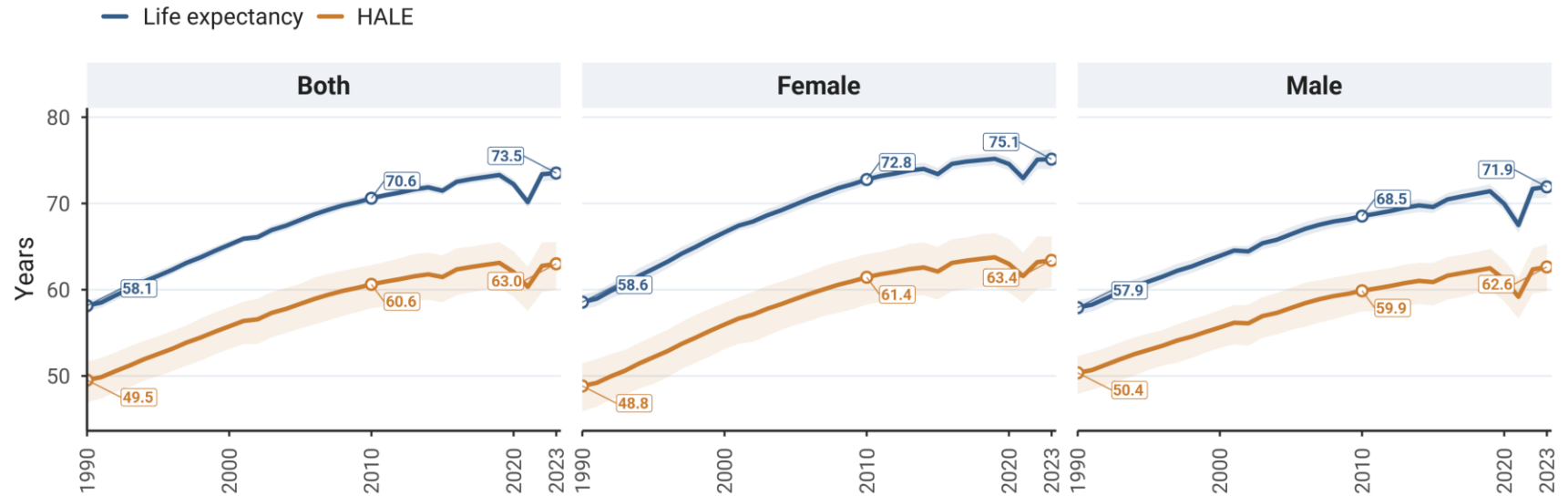
What does increasing life expectancy mean for the health system?

- Increasing demand of health services
- 2 in 7 Nepalese could benefit from rehabilitative services in their lifetime (leading contributor-low back pain)

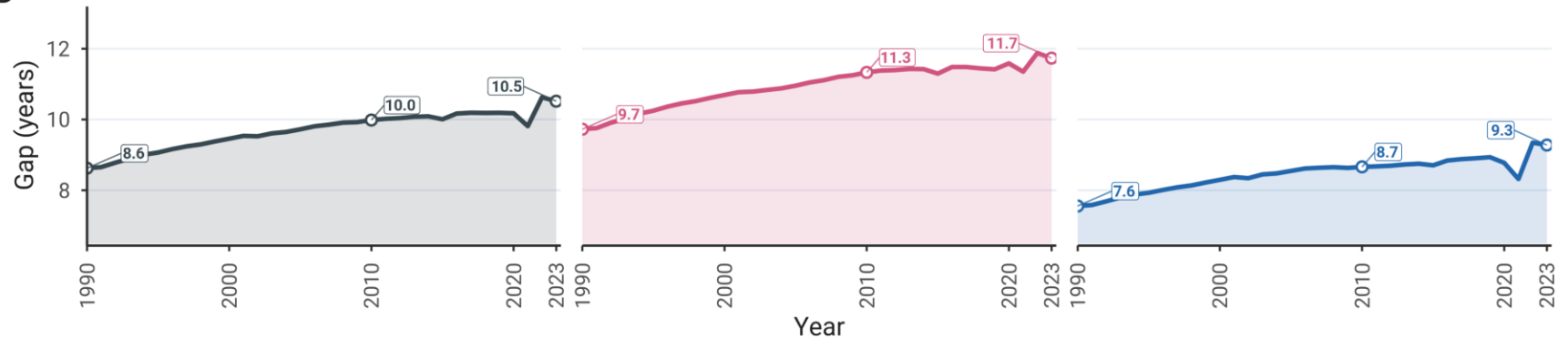
Life expectancy, healthy life expectancy, and the gap by sex, Nepal, 1990-2023

Labels mark 1990, 2010, and 2023. Gap = life expectancy minus HALE.

A

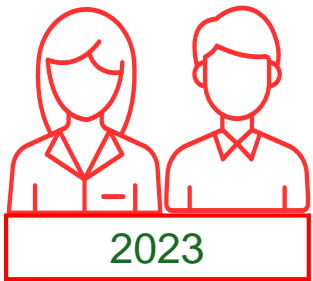


B



Life expectancy

Life expectancy



Life expectancy in 2023 is 73.5 years

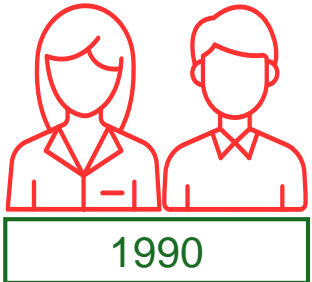
71.9 years in Male

75.13 years in female

Added 0.48 years from control of Injuries

Added 2.35 years from control of NCDs

Added 12.55 years from control of CMNN diseases



Life expectancy in 1990 was 58.14 years

57.9 years in Male

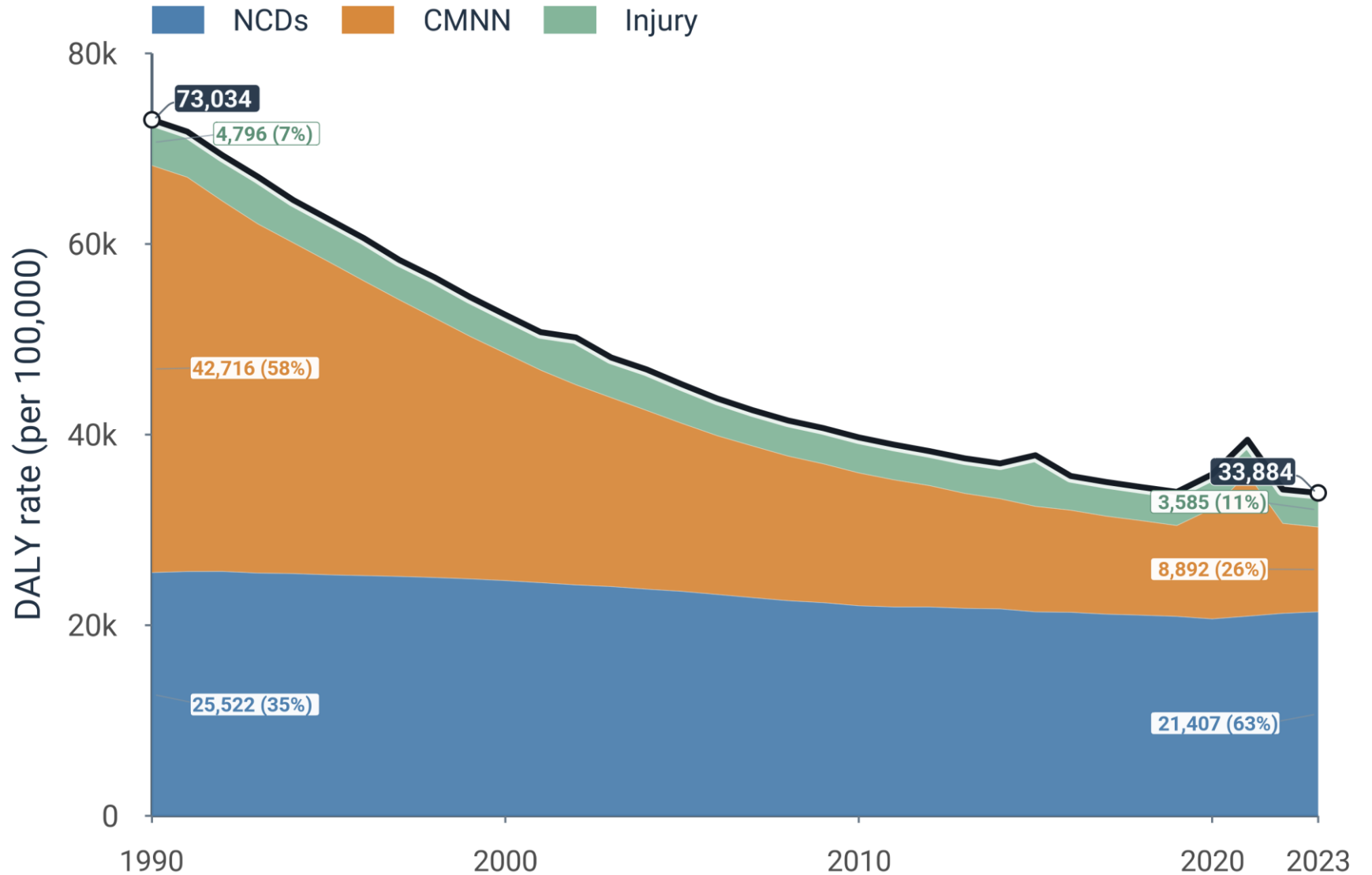
58.56 years in female

- Respiratory infections and TB=3.92 years
- Other infectious = 3.09 years
- Enteric infections= 2.68 years
- Maternal and neonatal disorder = 1.81 years
- Digestive diseases = 0.88 years
- Cardiovascular diseases = 0.87 years
- Nutritional deficiencies= 0.83 years
- Chronic respiratory = 0.52 years
- Unintentional injuries = 0.47 years
- Other NCDs = 0.24 years
- NTD and Malaria= 0.2 years

Neoplasm, diabetes and CKD were the conditions that had net negative impact on life expectancy between 1990 to 2019

While DALYs attributable to CMNN diseases saw a **sharp decline between 1990 and 2023**, those from NCDs and injuries **have remained relatively stable**.

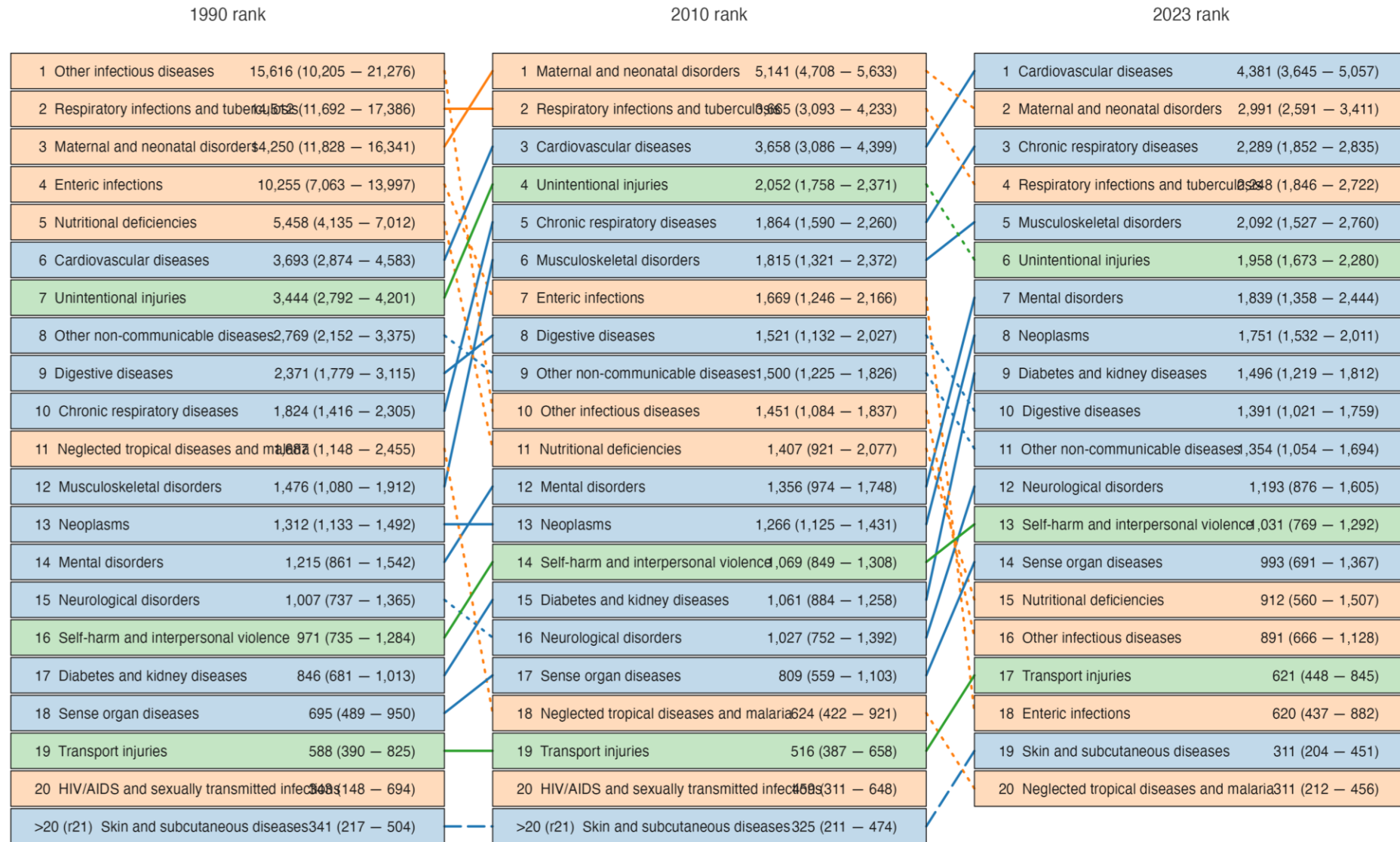
Age-standardized DALY rate by cause group



Cause rank change for DALY rate Nepal, both, all ages, 1990-2010-2023 (Leading level 2 causes)

Should Nepal switch investments from CMNN to NCD?

Nepal is undergoing a slow, protracted epidemiological transition, suggesting the need for better-targeted and more strategic investments rather than a wholesale shift of resources from CMNN to NCDs. A balanced, evidence-driven approach will protect hard-won CMNN gains while strengthening the NCD response.



Rank movement ····· Drop ——— Rise - - - Outside top 20

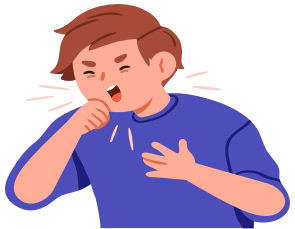
Cause group CMNN NCDs Injury

102,786 Premature Deaths in 2023



34,724 premature deaths (59.2%)

From NCDs



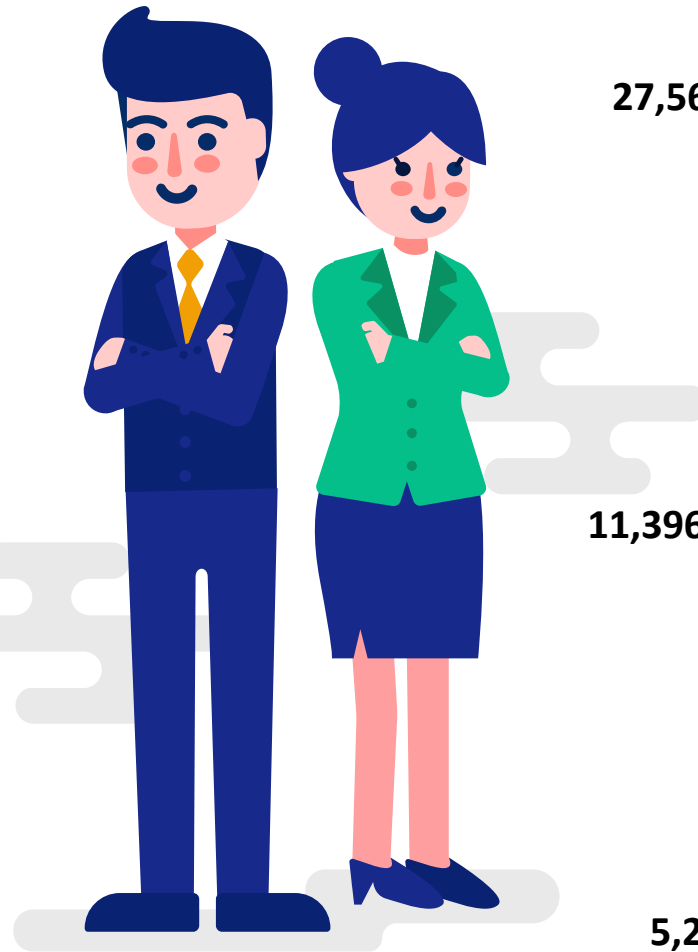
14,355 premature deaths (24.5%)

From CMNN diseases



9,509 premature deaths (16.2%)

From injuries



Male

58,588 premature deaths

Female

44,198 premature deaths

Both sex

27,569 premature deaths (62.4%)

From NCDs



11,396 premature deaths (25.8%)

From CMNN diseases



5,233 premature deaths (11.8%)

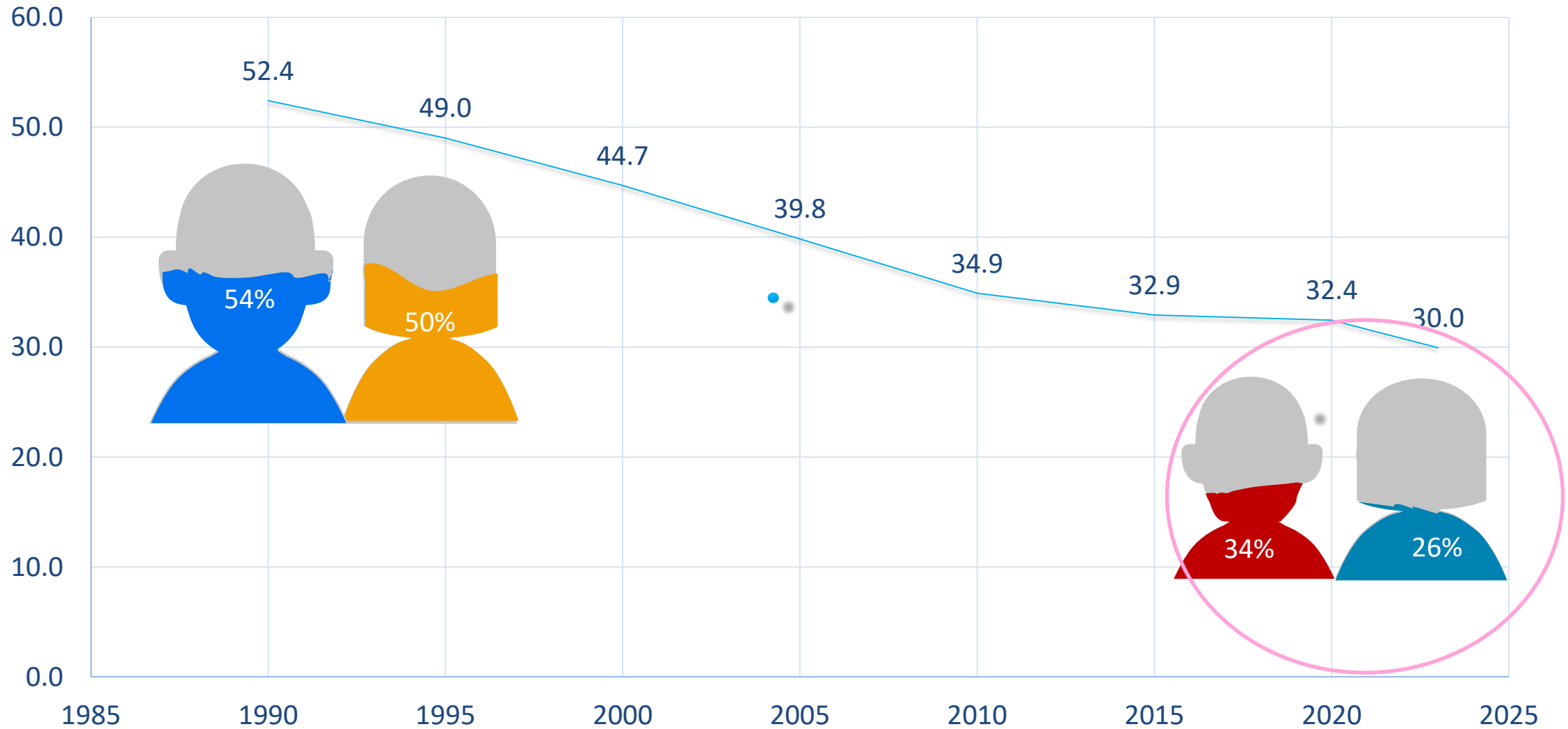
From injuries



60.6% premature deaths from NCDs, **25%** from CMNN diseases, and **14.3%** from Injuries

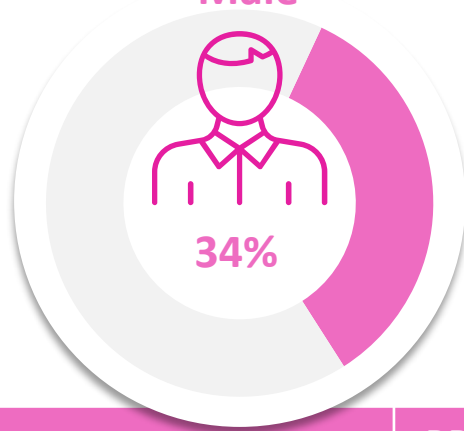
Trend-Probability of Premature Deaths

Probability of premature deaths in %

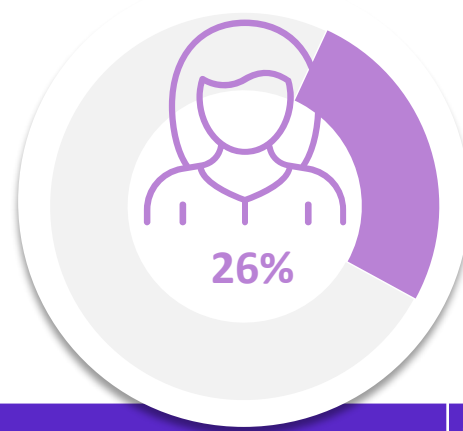


Probability of Premature Deaths and Leading Contributors

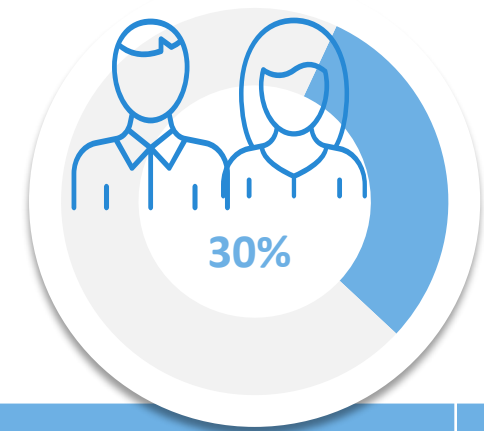
Male



Female



Both Sex



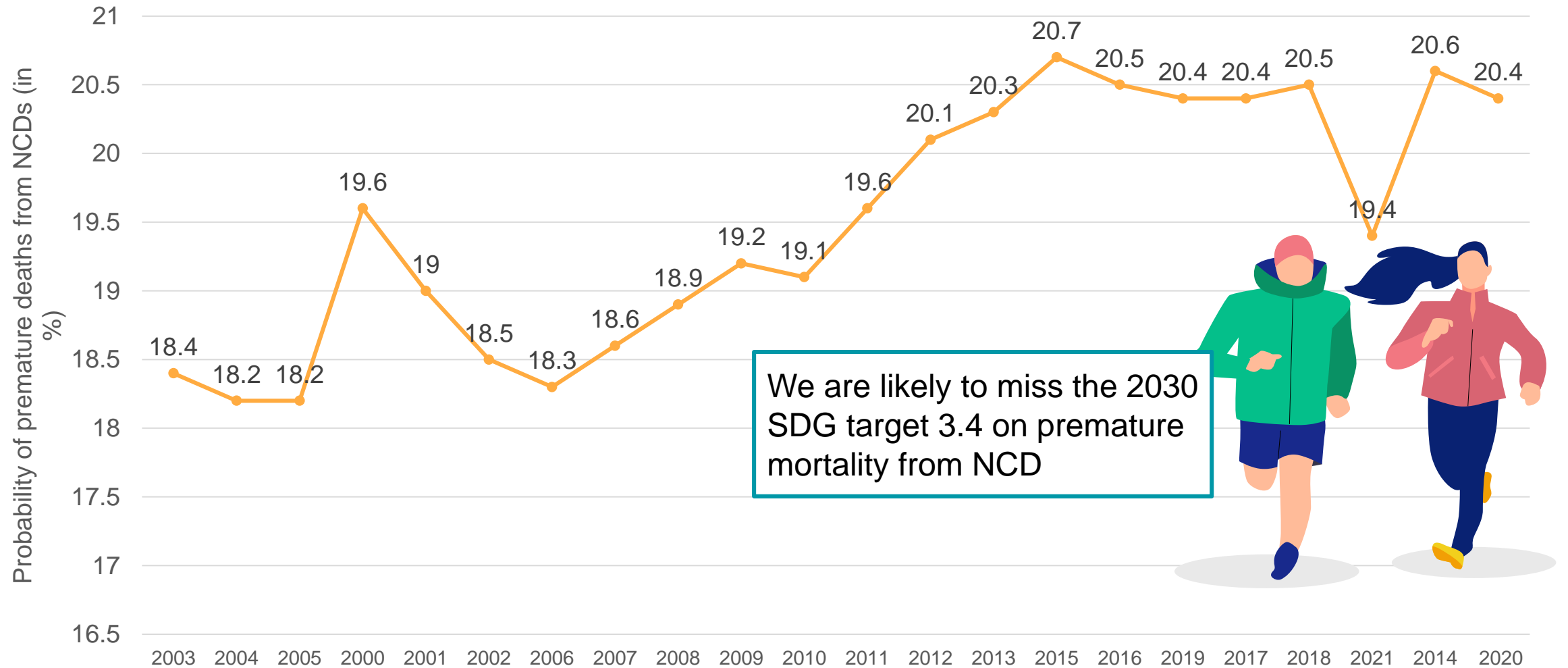
Causes	PPD (%)
Cardiovascular diseases	8
Neoplasms	3
Maternal and neonatal disorders	3
Digestive diseases	3
Respiratory infections and TB	3
Chronic respiratory diseases	3
Unintentional injuries	2
Self-harm and interpersonal violence	2
Diabetes and kidney diseases	2
Transport injuries	1

Causes	PPD (%)
Cardiovascular diseases	6
Neoplasms	3
Chronic respiratory diseases	3
Maternal and neonatal disorders	2
Respiratory infections and TB	2
Unintentional injuries	2
Digestive diseases	1
Diabetes and kidney diseases	1
Other infectious diseases	1
Self-harm and interpersonal violence	1

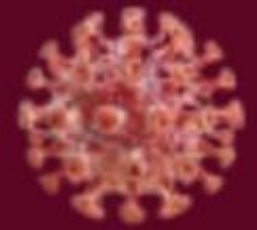
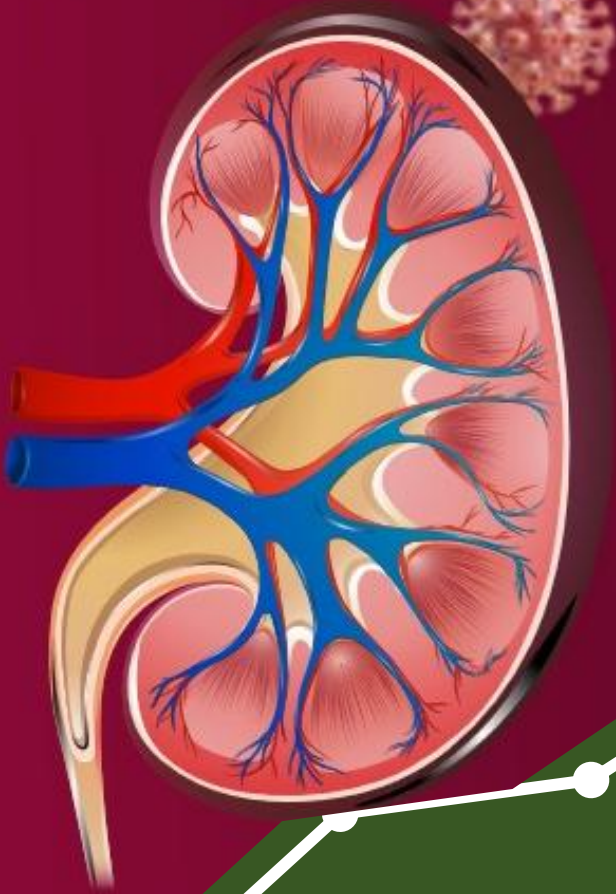
Causes	PPD (%)
Cardiovascular diseases	7
Neoplasms	3
Chronic respiratory diseases	3
Maternal and neonatal disorders	3
Respiratory infections and TB	2
Digestive diseases	2
Unintentional injuries	2
Diabetes and kidney diseases	2
Self-harm and interpersonal violence	1
Other infectious diseases	1

SDG target on premature mortality form NCD (Reduce by one third)

-Cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases (30 to 70 years)

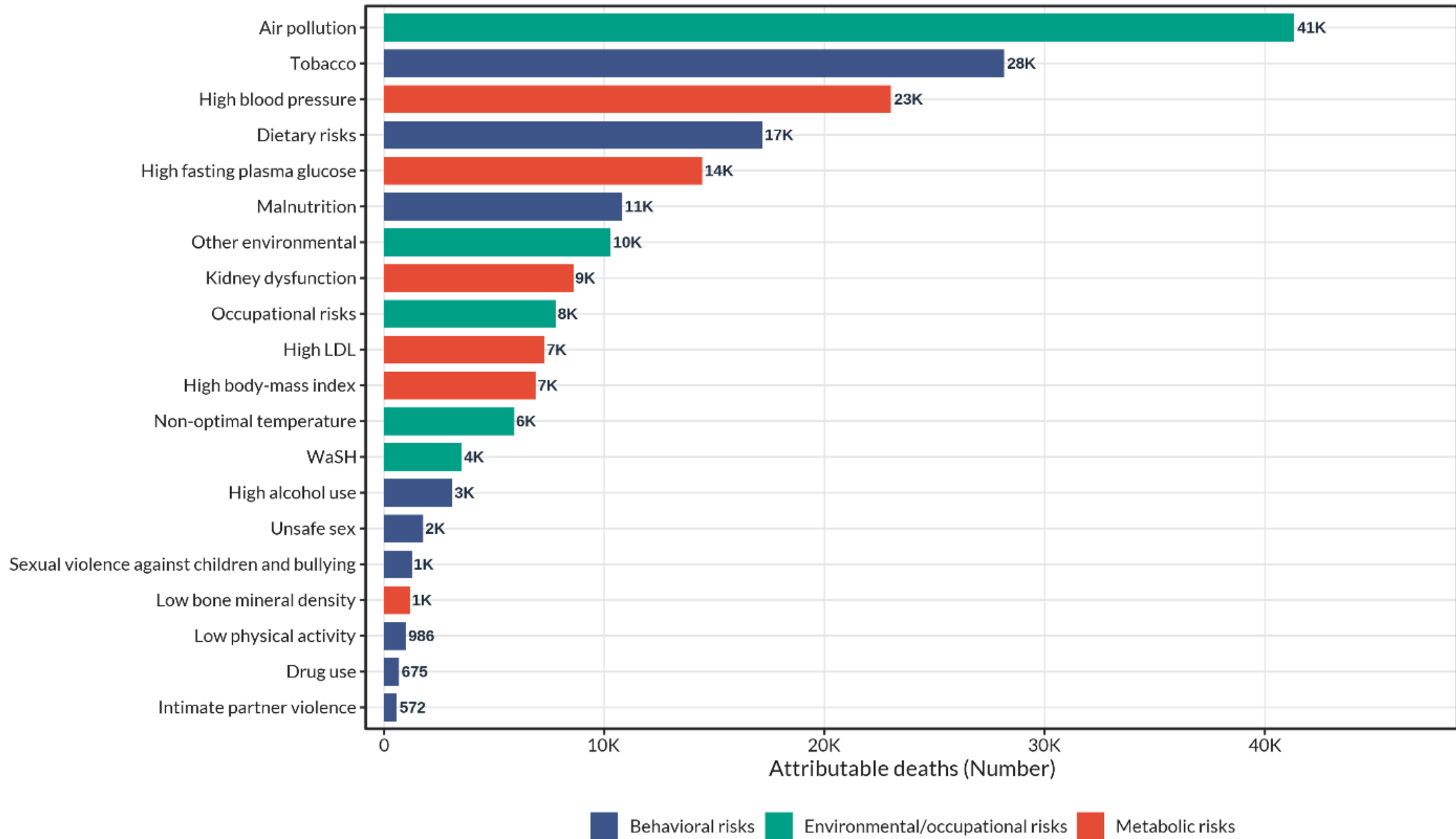


[SDG Target 3.4 | Noncommunicable diseases and mental health: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being](#)



Risk factors

Risk Factors



Mortality number – Risk Level 2 × Cause Level 2, Nepal, 2023

Both sexes • attributable deaths (number) • age: All ages

Attributable number



Unsafe water and sanitation			839				3K												
Air pollution	15K	17K	2K	3K	3K	607	15			1K					7		2		
Non-optimal temperature	3K	2K	797	867			-218			-27		-119							
Other environmental risks	10K		119			94													
Occupational risks		3K				176	3K			2K									
Child/maternal malnutrition				2K	7K			310					1K			311	7	0	
Tobacco	9K	11K	970	3K		4K	65		342	20	59	1					11		
High alcohol use	49		8	260		389	69		2K	70	16	62			263				
Drug use						76			416			14		51	100	18			
Dietary risks	15K		1K	85		1K													
Intimate partner violence					9							549		8	6				
Sexual violence against children...		127	167		1							912		26	45				
Unsafe sex						1K								489					
Low physical activity	409		488	38		51													
High FPG	4K		9K	570		332					473								
High LDL	7K																		
High BP	22K		688																
High BMI	3K	501	3K	304		260			34		22								
Low bone mineral density							955			233		7							
Kidney dysfunction	5K		3K																
	Cardiovascular diseases	Chronic resp. diseases	Diabetes & kidney disease	Resp. infections & TB	Maternal & neonatal	Neoplasms	Unintentional injuries	Enteric infections	Digestive diseases	Transport injuries	Neurological disorders	Self-harm & violence	Nutritional deficiencies	HIV/AIDS & STIs	Substance use disorders	Other infectious diseases	Musculoskeletal disorders	Other NCD	NTDs & malaria

Reduction in premature deaths from air pollution if measures are taken to reach 35 $\mu\text{g}/\text{m}^3$ as per target leads to:

Annual deaths from air pollution is more than combined deaths from

- High blood pressure
- High fasting plasma glucose
- High alcohol use

27,470

Can be prevented
annually

~67%

Reduction in air pollution related deaths

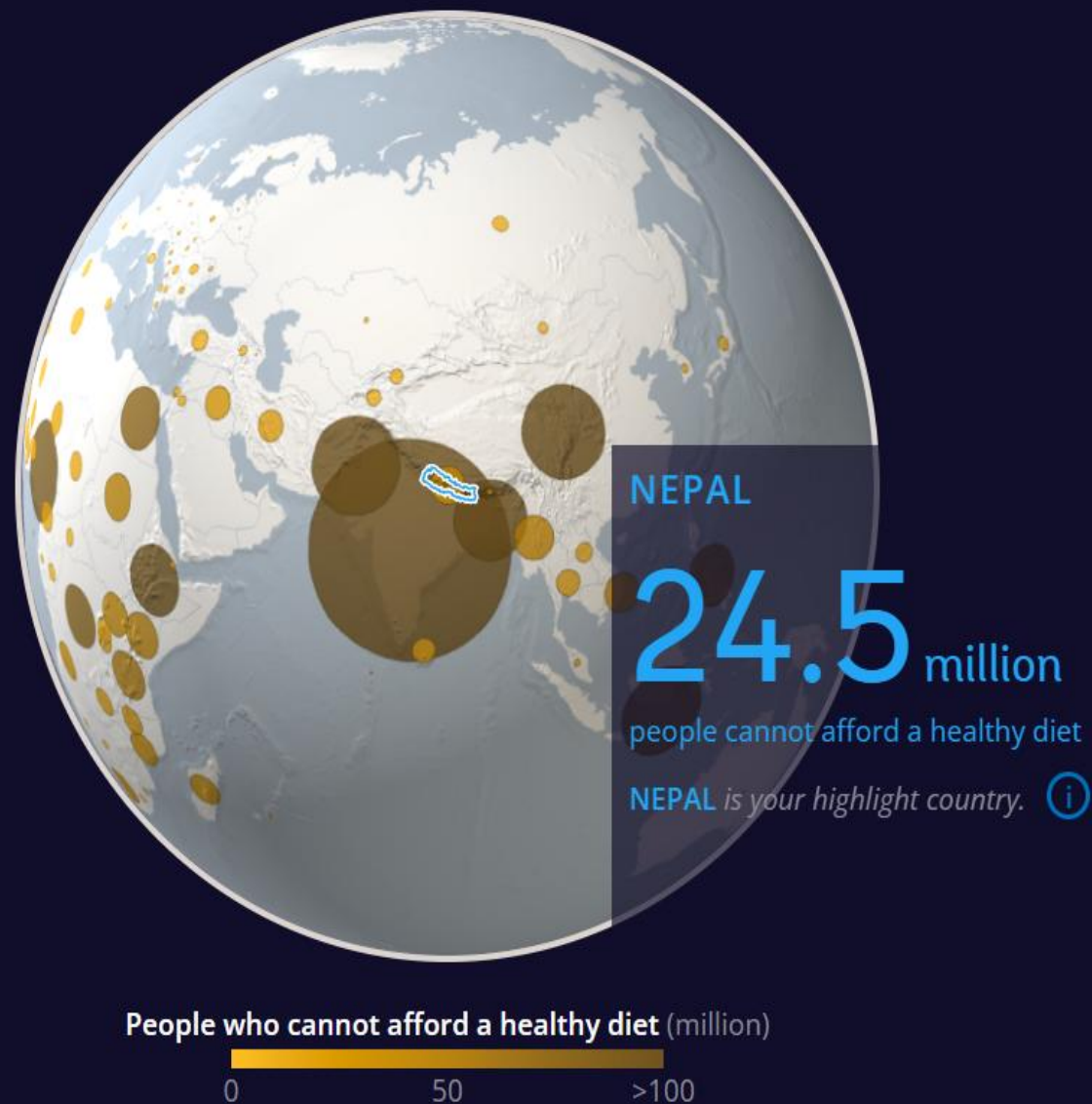
2 ZERO HUNGER

Beyond hunger: A healthy diet for a healthy life

SDG 2 calls for ending hunger and achieving nutrition security for all through increased access to healthy diets. In 2021, nearly 828 million people were undernourished—close to one in every 10 people across the world. Worldwide, 3.1 billion people are unable to afford a healthy diet, a challenge made worse by global crises like Russia's invasion of Ukraine.

SDG Targets covered in this story: **2.1** **2.2**

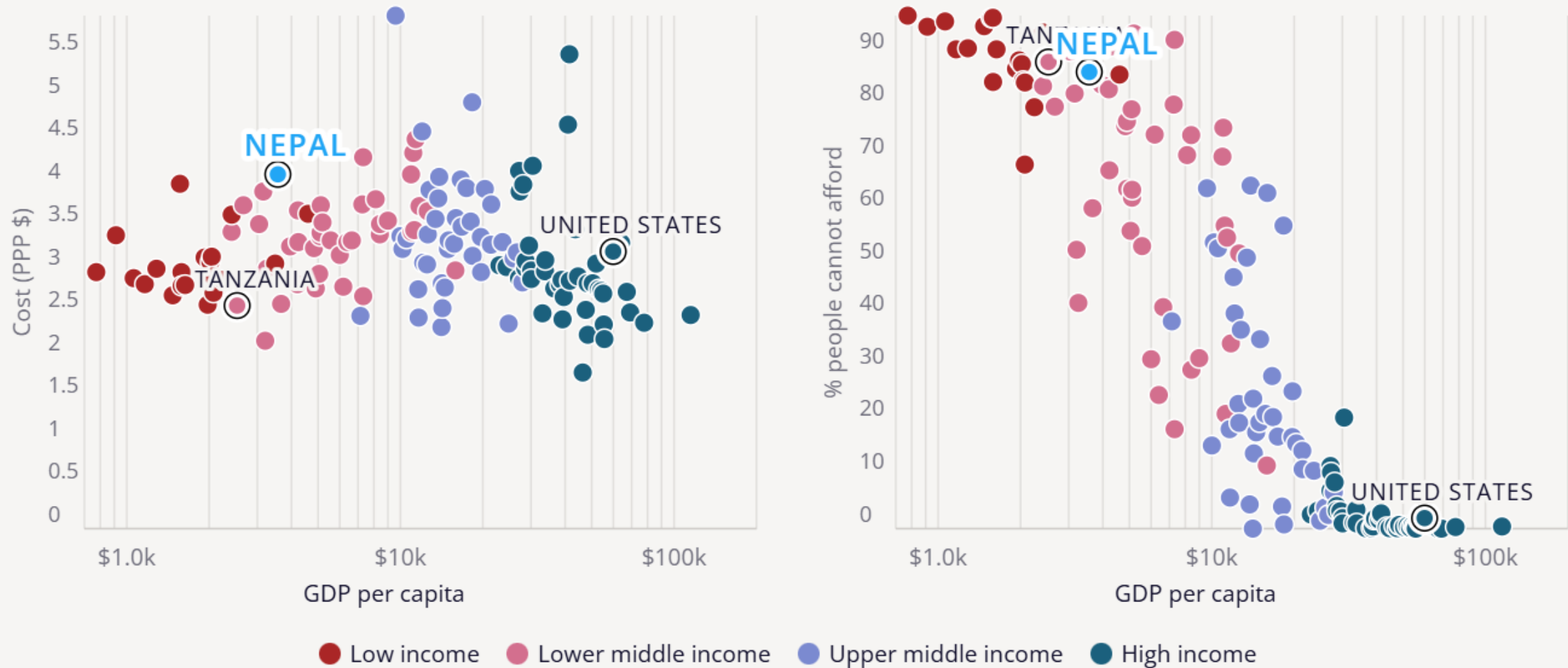
By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round

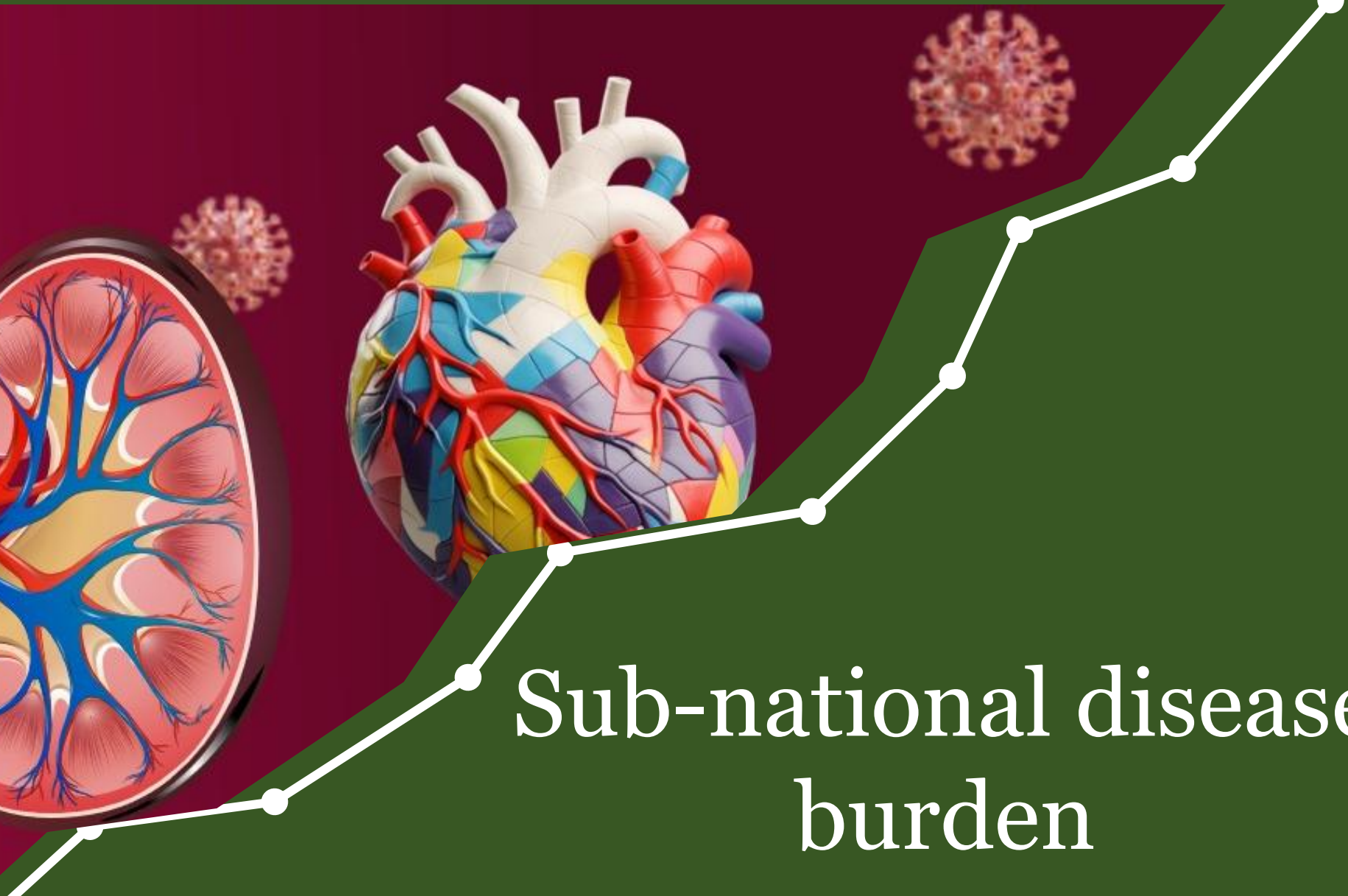
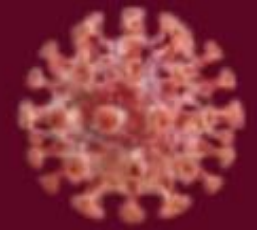
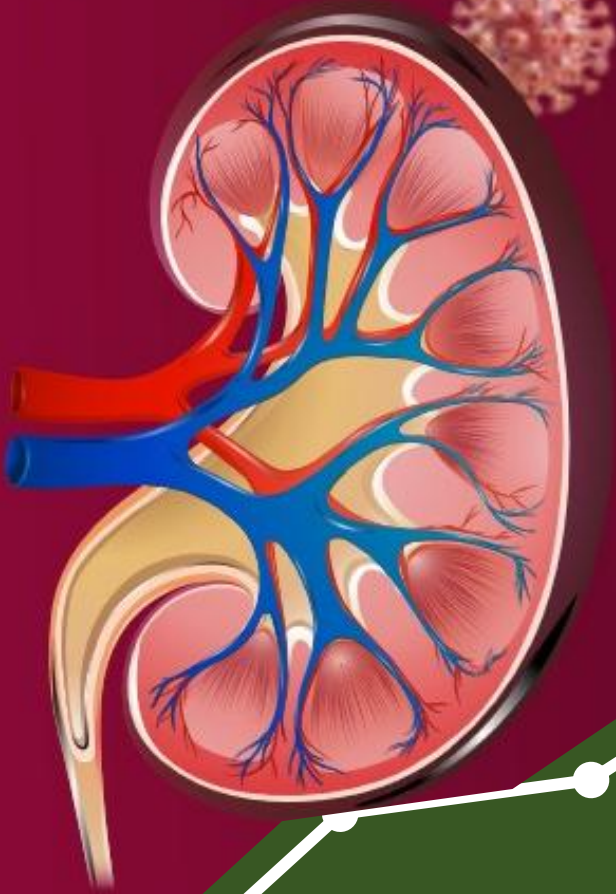


Affordability of a diet depends on cost and income

Cost (PPP \$) and affordability (% of country's population) for energy-sufficient, nutrient-adequate, and healthy diets

Healthy diet

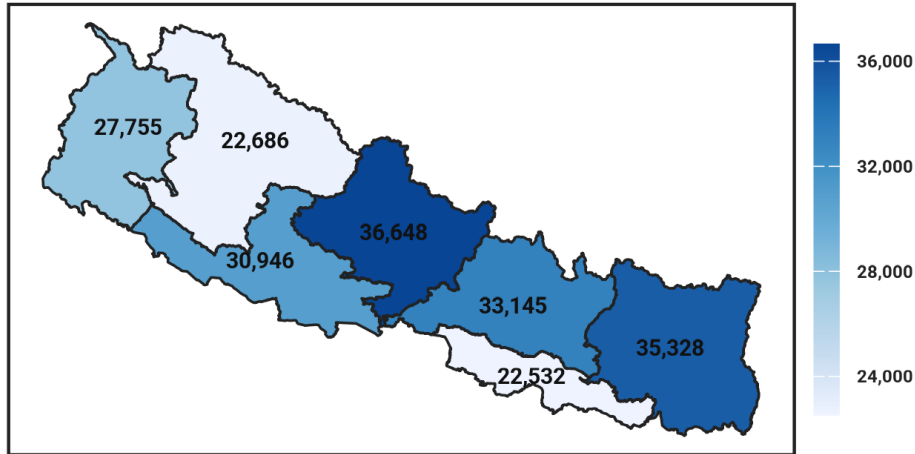




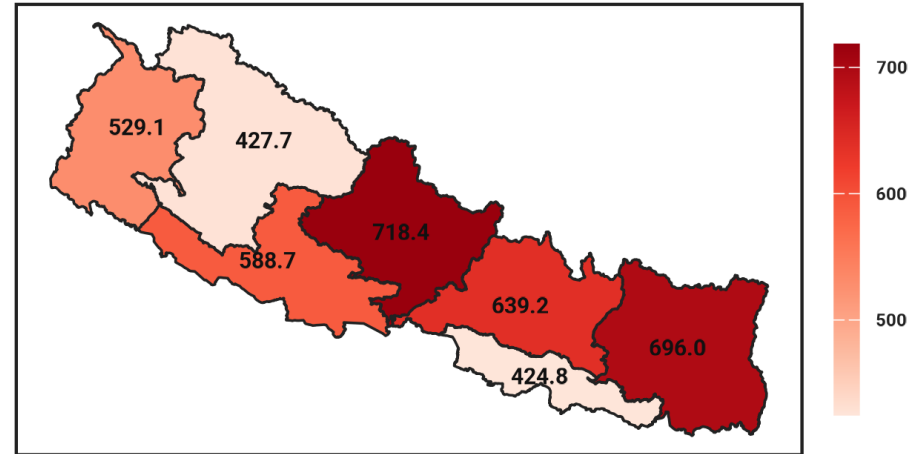
Sub-national disease burden

All Causes Disease Burden by Province

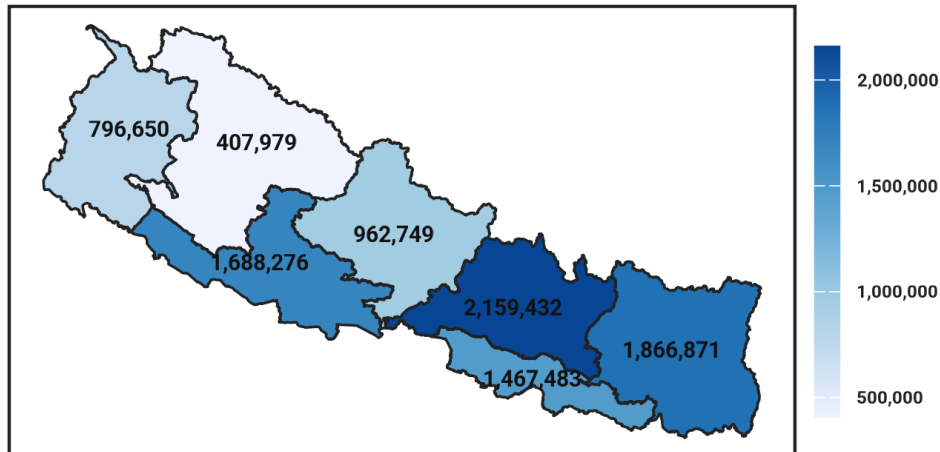
DALY Rate (per 100k)



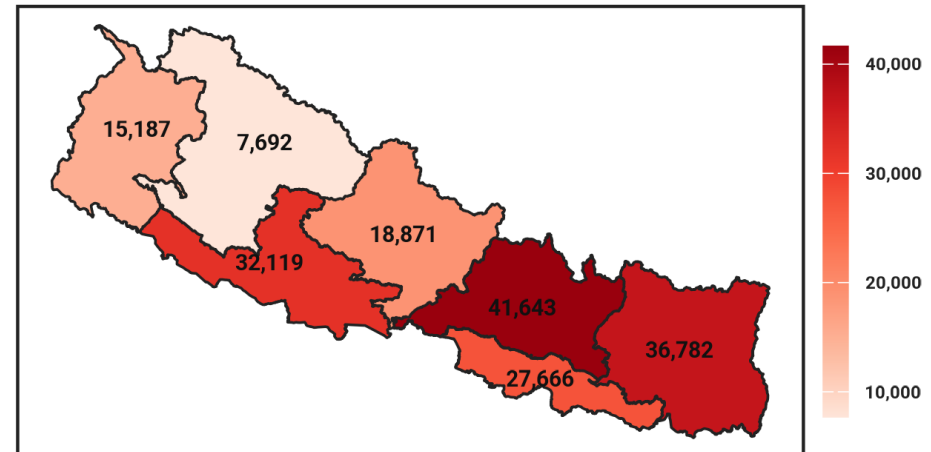
Mortality Rate (per 100k)



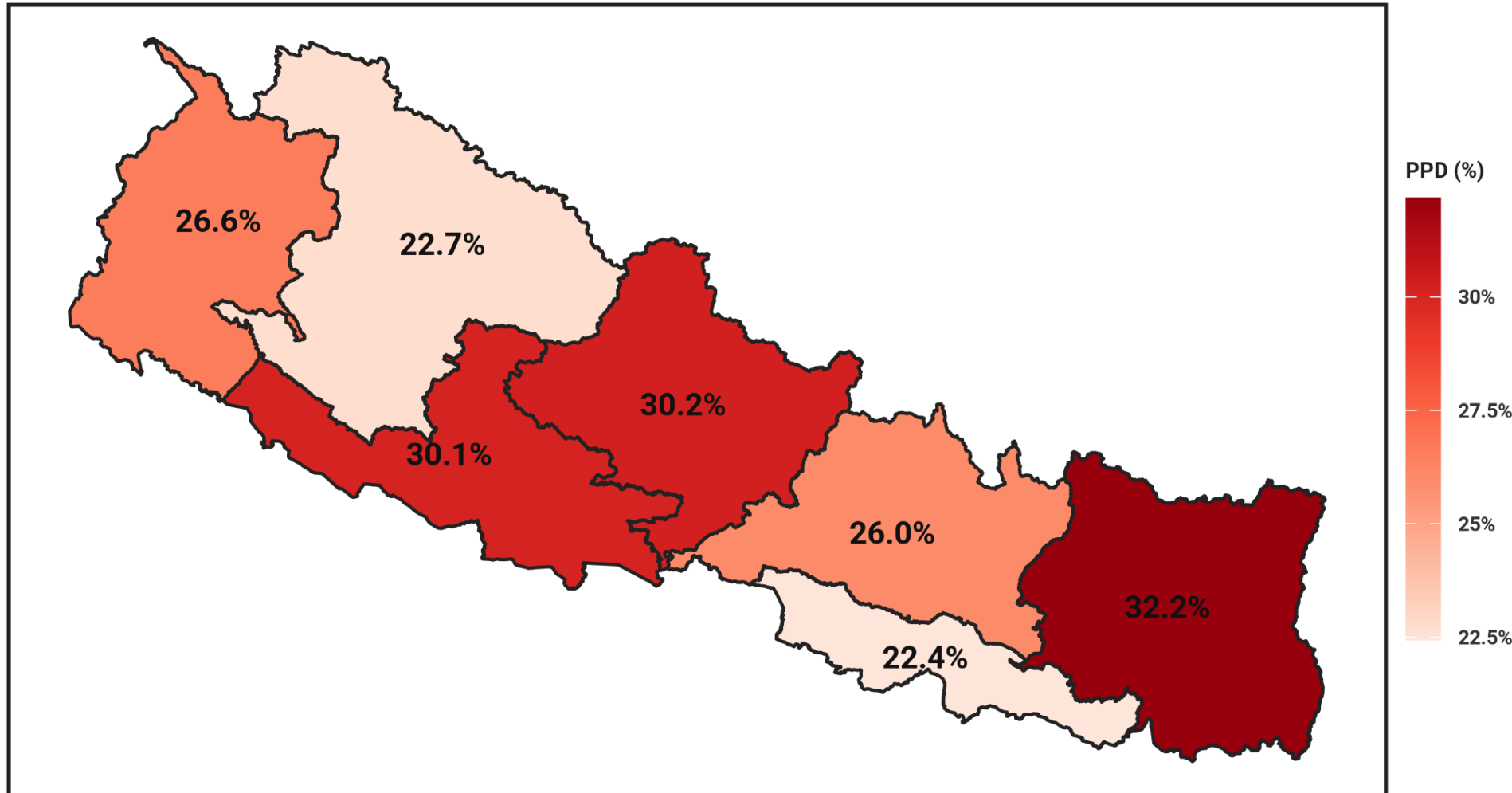
DALY Number

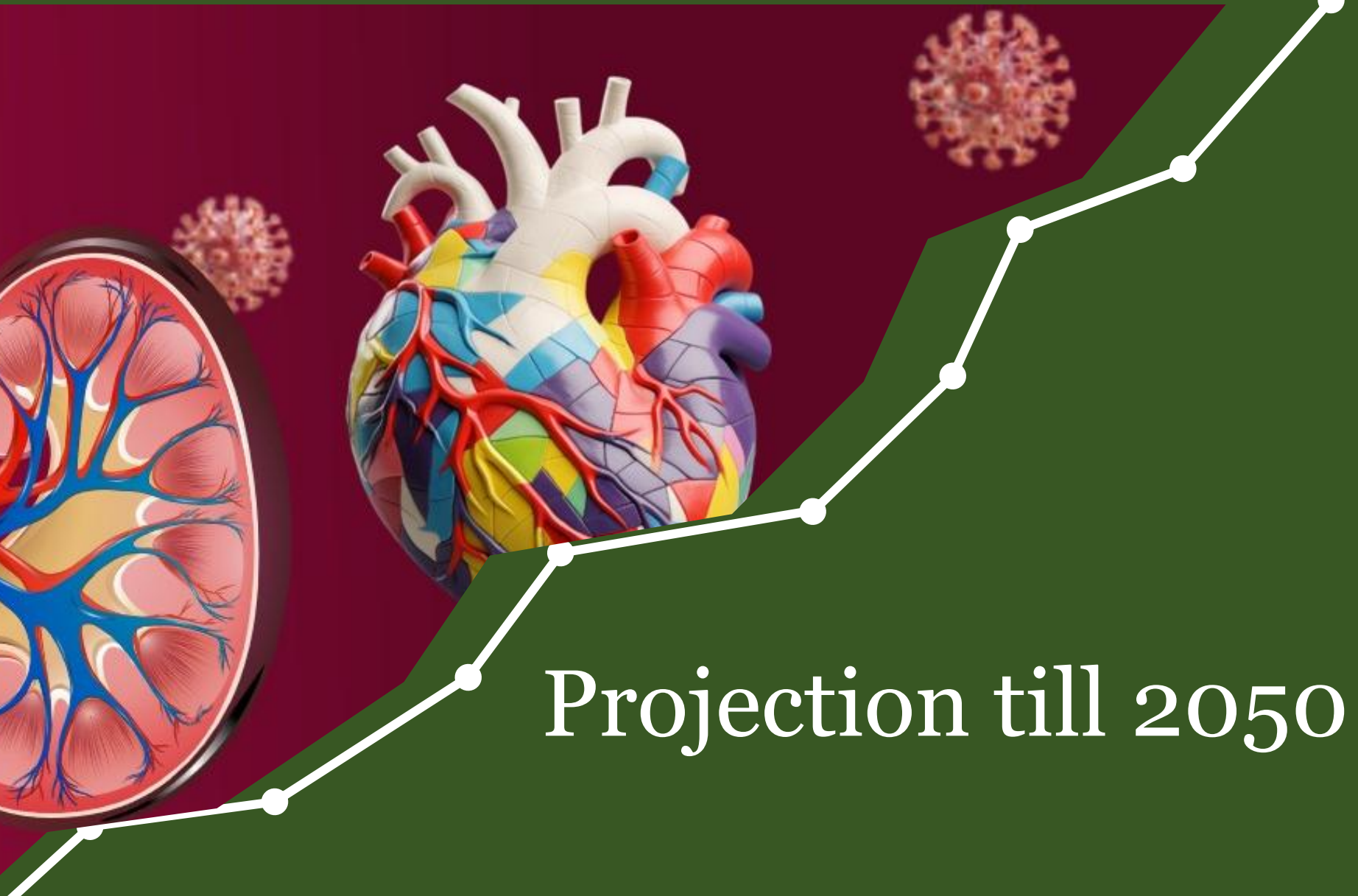
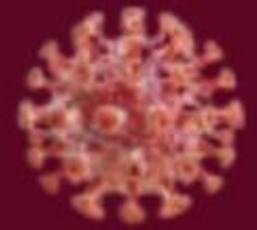
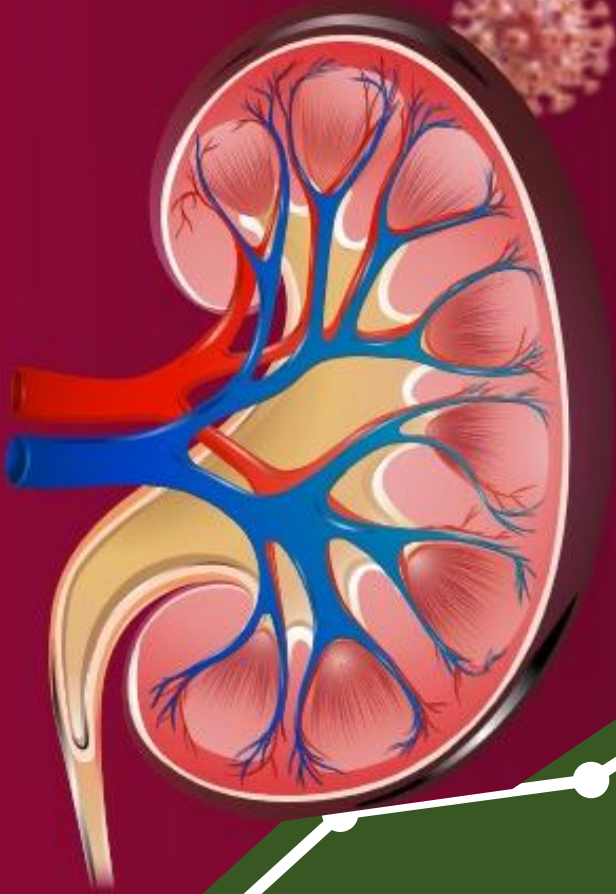


Mortality Number



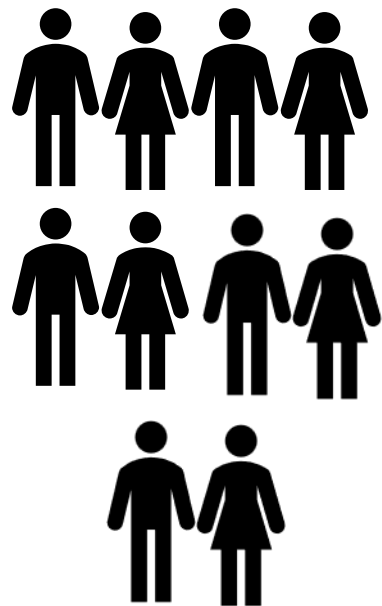
Probability of Premature Deaths



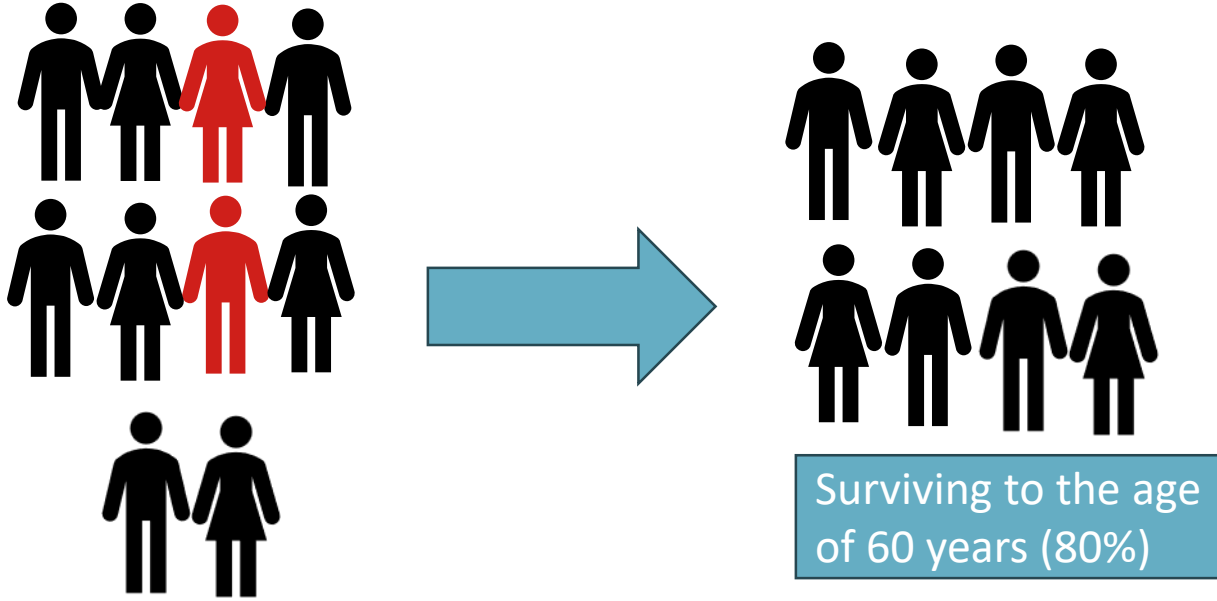


Projection till 2050

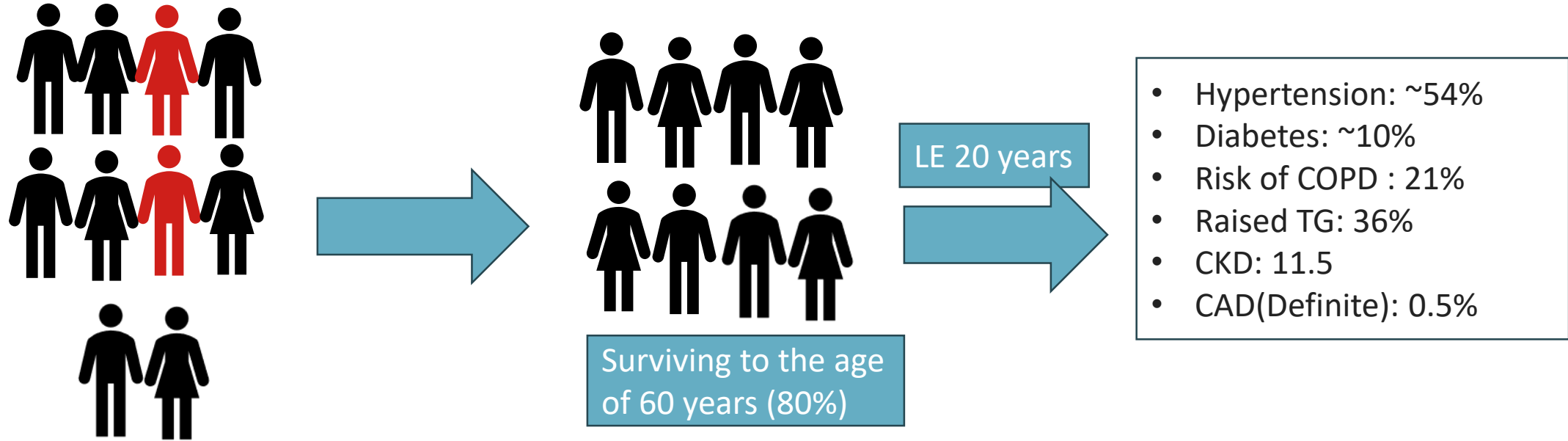
What these data mean for health system?



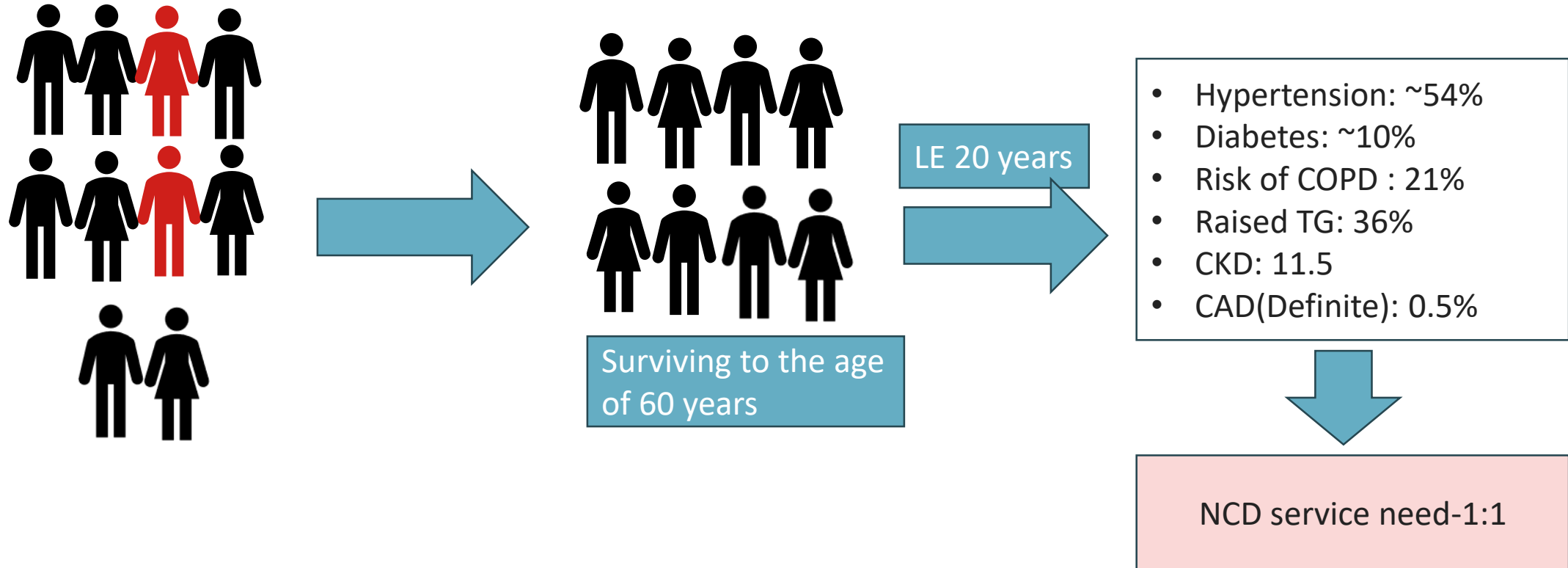
What these data mean for health system?



What these data mean for health system?



What these data mean for health system?



Conclusions and Policy Directions

- Nepal has extended life expectancy, but many extra years are lived in poor health, increasing **demand for chronic-care services**.
 - The NCD burden is driven by determinants beyond the health sector, **requiring strong prevention and coordinated intersectoral action**.
 - With one in three Nepalis dying before age 70, achieving SDG and “50 by 50” targets demands **accelerated efforts, innovations, and more efficient health spending, supported by Health Technology Assessment**.
- **Reorient the health system** to reflect epidemiological and demographic shifts, moving from episodic acute care toward integrated, life-course prevention and chronic-disease management.
 - **Strengthen workplace health interventions** through screening, risk-reduction initiatives, healthier food environments, and infrastructure that promotes physical activity.
 - **Adopt stronger regulatory measures** to reduce metabolic risk factors, including policies on sugar-sweetened beverages, sodium, trans fats, alcohol, and tobacco.
 - **Promote multisectoral collaboration** to address the broader social, environmental, and commercial determinants.



Acknowledgement: This initiative has been funded by UK International Development from the UK government; however, the views expressed do not necessarily reflect the UK government's official policies.



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