

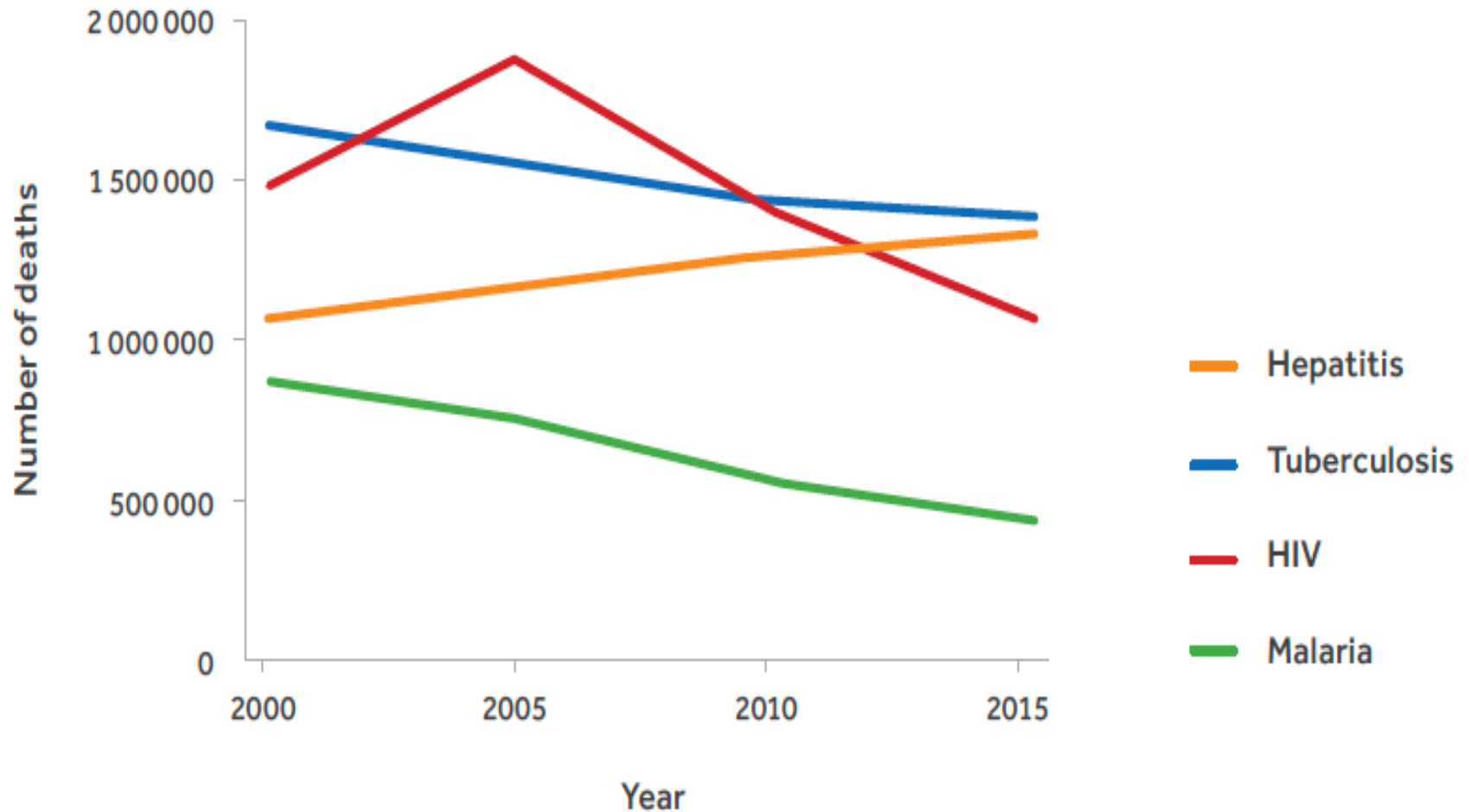
# **ENDING THE SILENT EPIDEMIC OF CHRONIC HEPATITIS IN THE PHILIPPINES**

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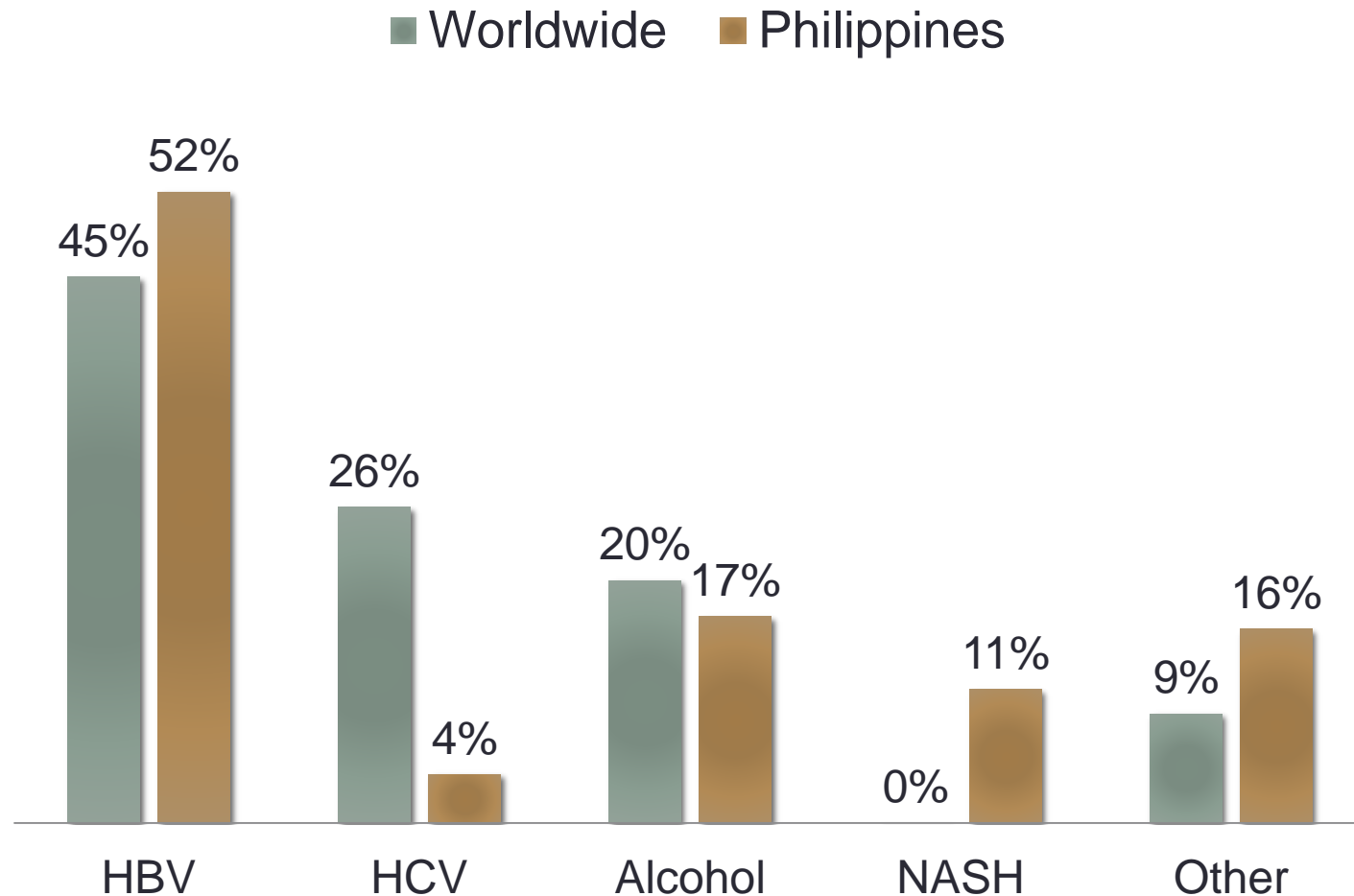
**Establishing the Burden of Chronic Hepatitis in the  
Philippines**

**Janus P. Ong, MD, MPH  
Section of Gastroenterology**

# Mortality Rates: Viral Hepatitis, HIV, Malaria, TB, 2000-2015

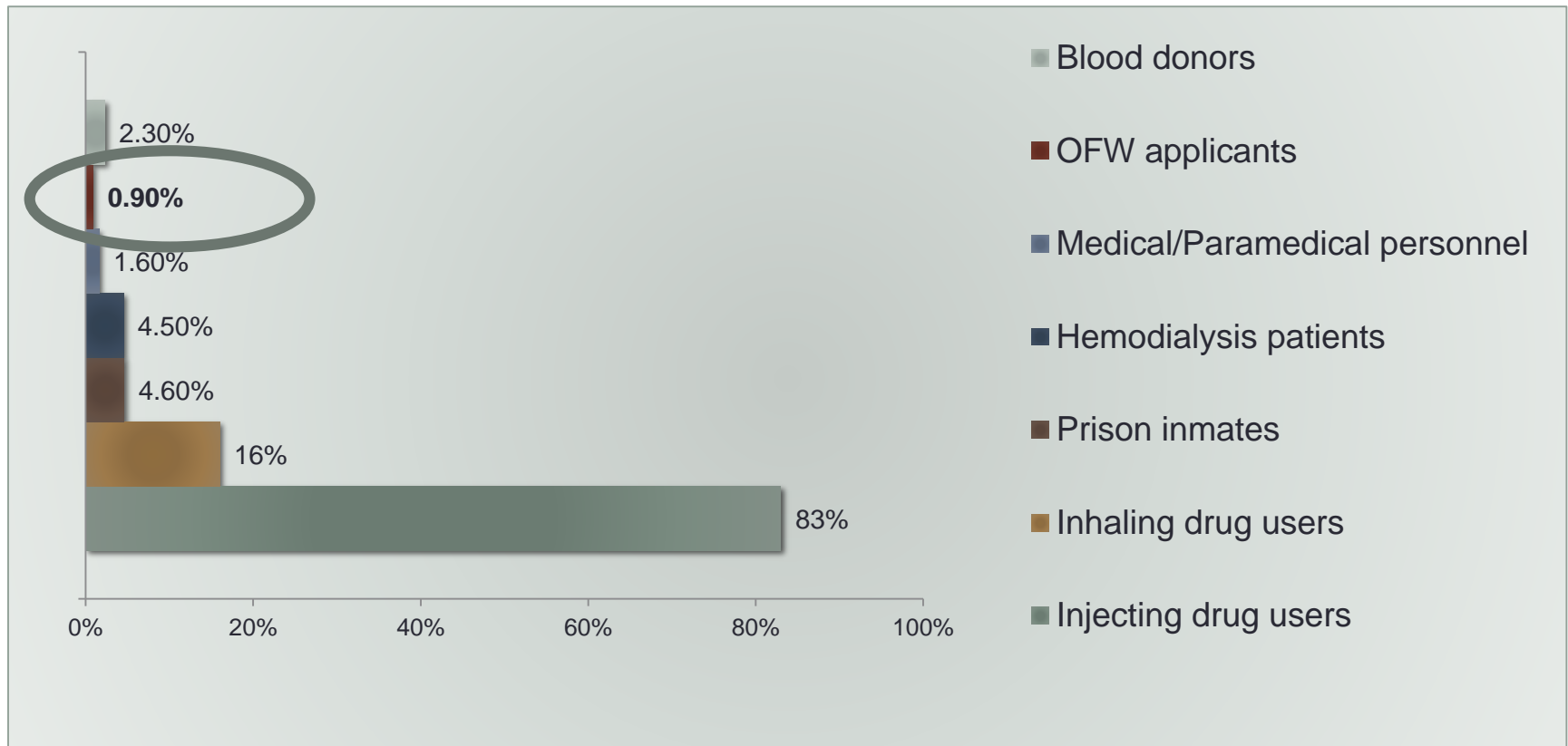


# HBV Is The Leading Cause of Hepatocellular Carcinoma (HCC)



# HCV in the Philippines

- Population subgroups



# Burden of Disease Study

## General Objective

- Estimate the burden of Hepatitis B and C in the Philippines using a mathematical modelling exercise

# Burden of Disease Study

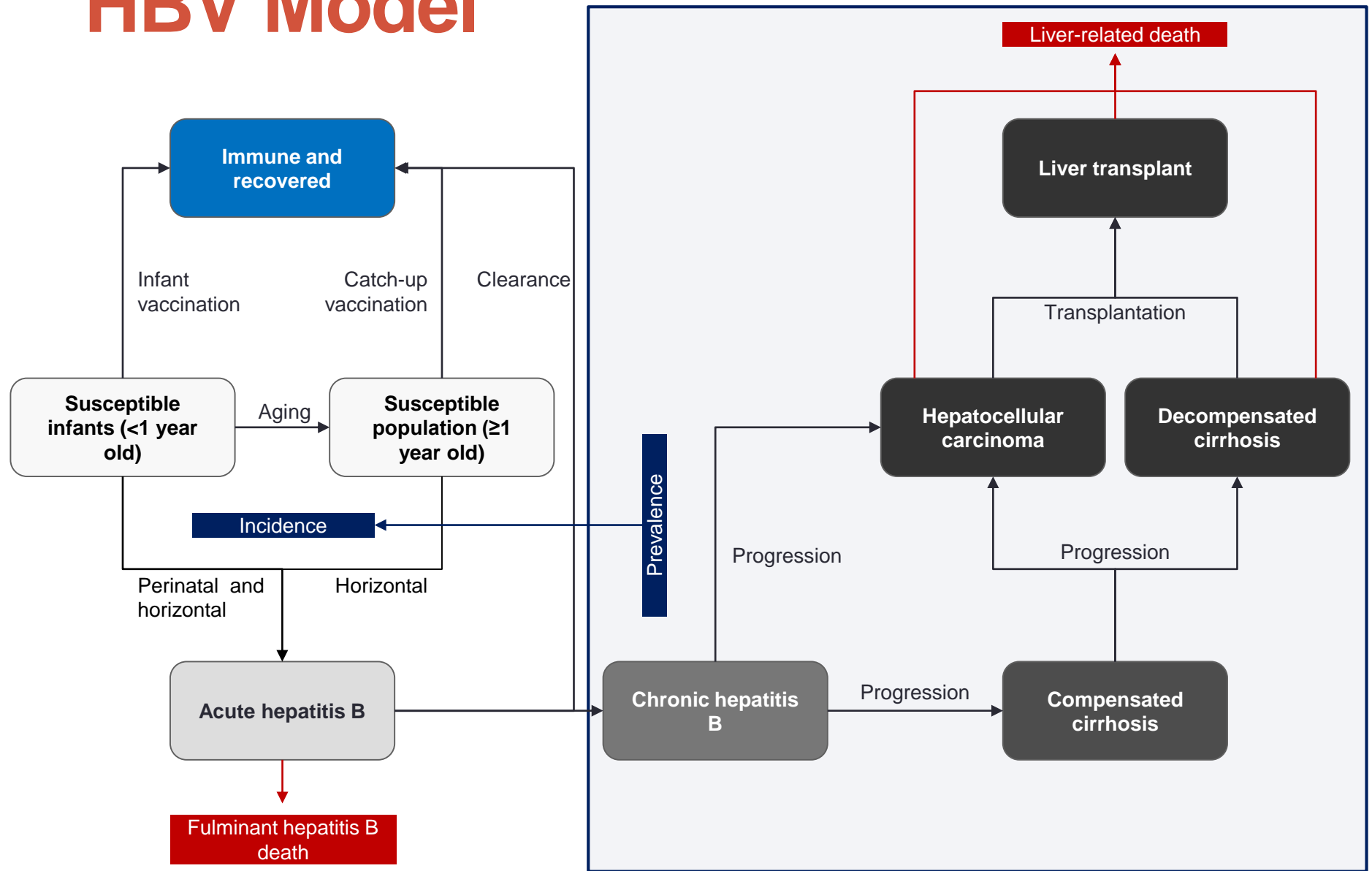
## Specific Objectives

- To adopt the Center for Disease Analysis (CDA) HBV and HCV model to the Philippine setting by using Philippine data as inputs
- To identify possible interventions that address HBV and HCV burden and their corresponding financing modes
- To determine the Incremental Cost-Effectiveness Ratio (ICER) of the identified interventions from the public payer's and societal perspective
- To validate the inputs and the model results
- To identify how HBV and HCV patients acquire health service including medicines from both the private and public sectors

# HEPATITIS B

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# HBV Model





# MODEL INPUTS

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HBV

# Inputs (rates and costs)

- Prevalence of HBsAg+ (Wong 2013)
- Proportion of HBsAg+ persons who are HBeAg+(Taguba 2015)
- Proportion of HBeAg+ and HBeAg- with High Viral Load (Wiseman 2009)
- Population background mortality rates
- HBsAg prevalence by age and gender
- HBV treatment
- Liver transplantation
- HBV vaccination
- Antiviral treatment
- Rescue intervention

# Treatment Costs

- Treatment cost were provided by pharmacies/drug companies
  - Treatment now costs 54,516 pesos per year in the base scenario
  - Treatment is expected to decrease to 2,620 pesos per year in the public setting
  - The cost in the private setting will remain the same.
- Assumed that 48% of the population will be covered by the public health system in 2019. This will increase to 90% coverage over five years.

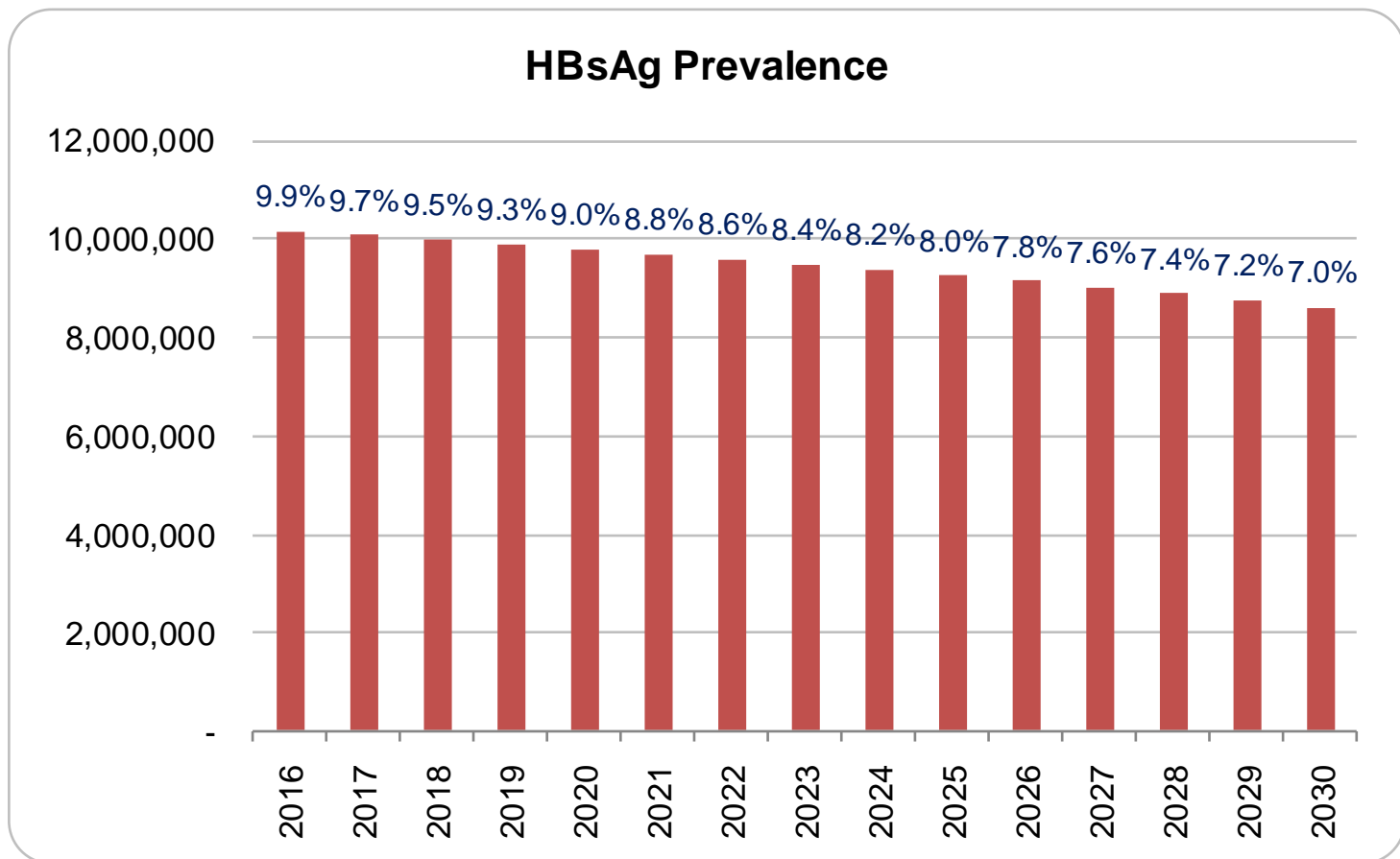
# BASE SCENARIO

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HBV

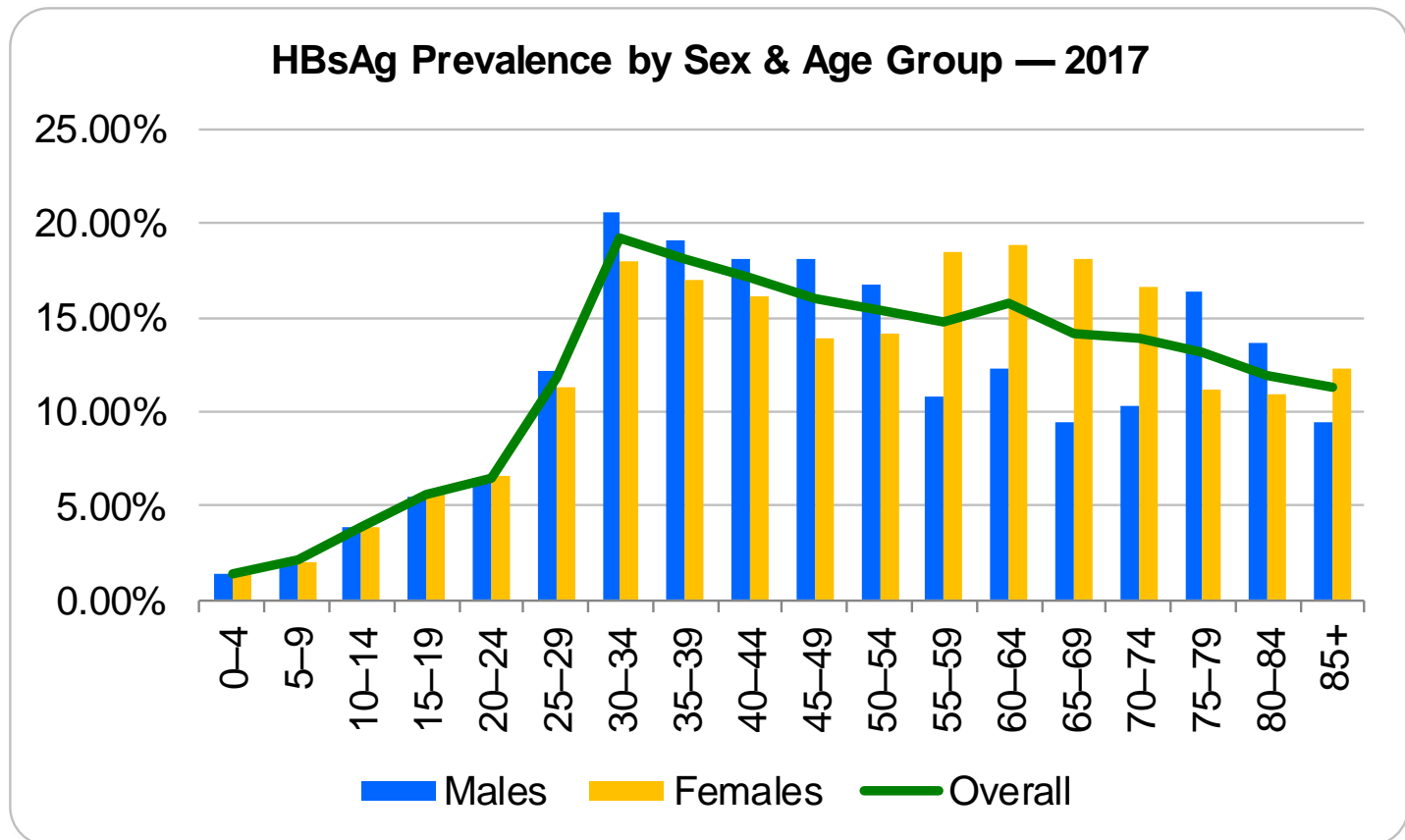
# HBV Seroprevalence - Projections to 2030

- Decrease in prevalence to **7.0% (8.7 million)** chronic infections 2030



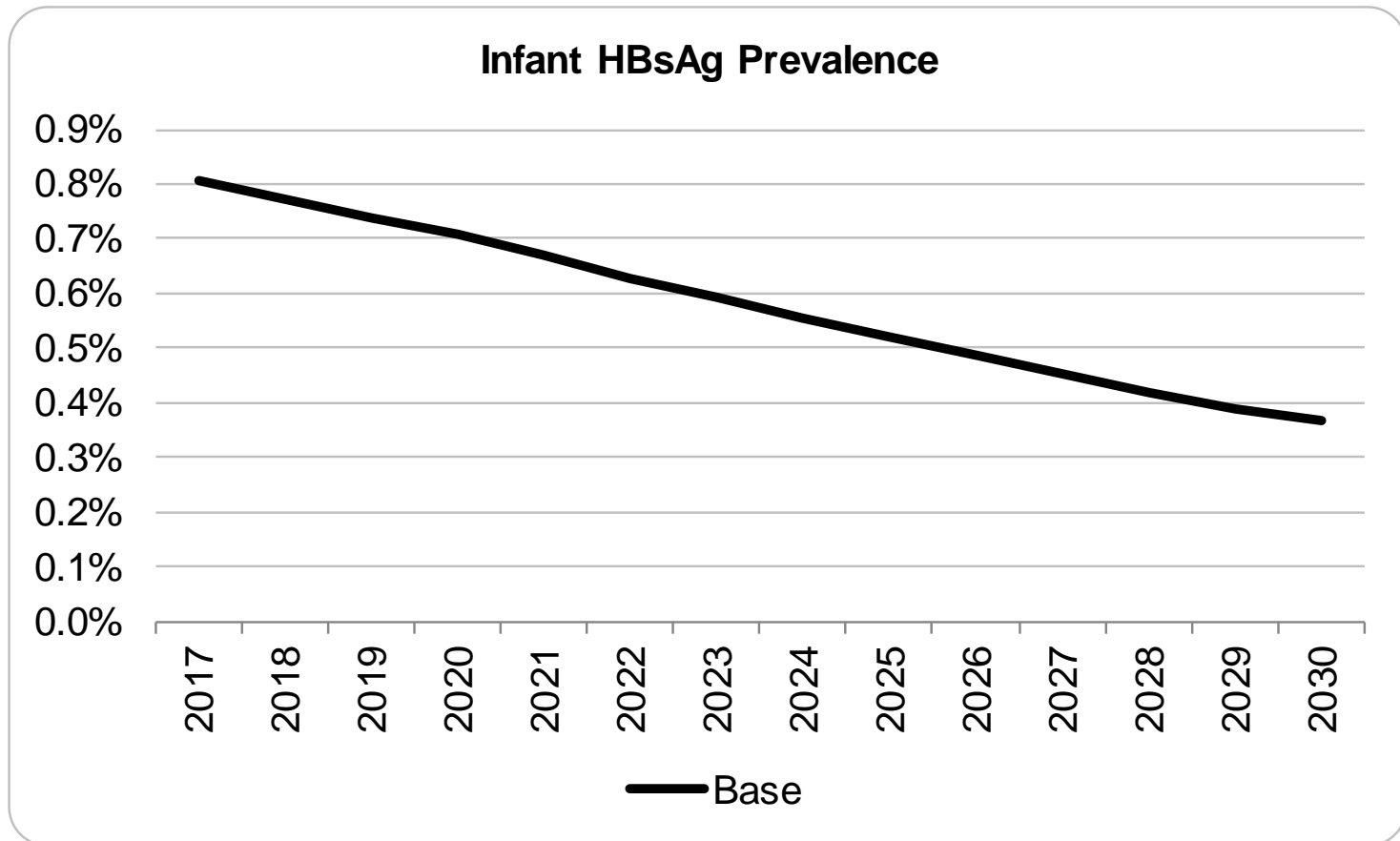
# HBV Seroprevalence By Age and Gender - 2017

- In 2017, it is estimated that the prevalence of chronic hepatitis B in Philippines is **9.7%**, representing **10 million chronic infections**



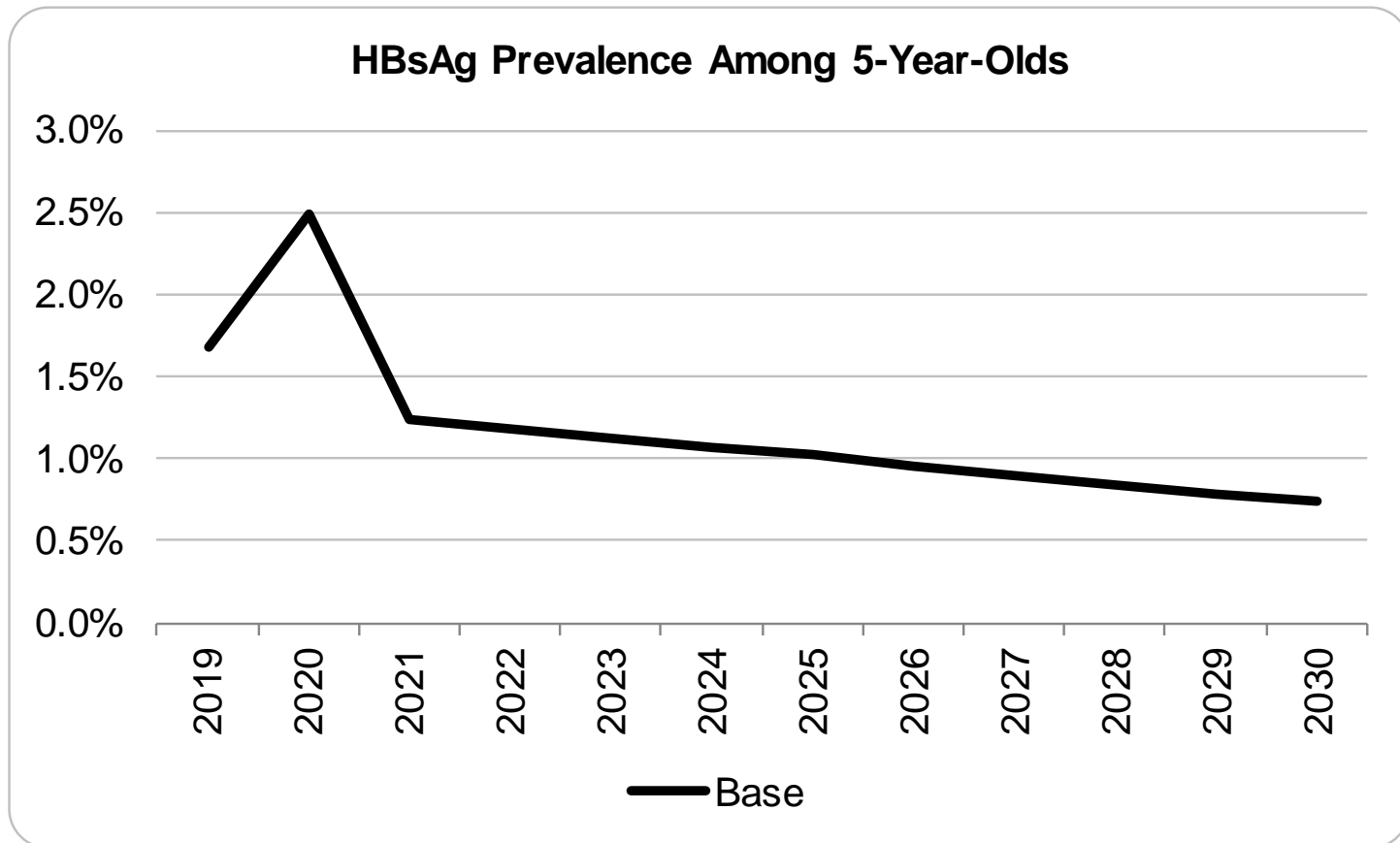
# Infant Prevalence

- In the base scenario, HBsAg prevalence among **infants** will reach **0.4%** in 2030



# Prevalence among 5 year olds

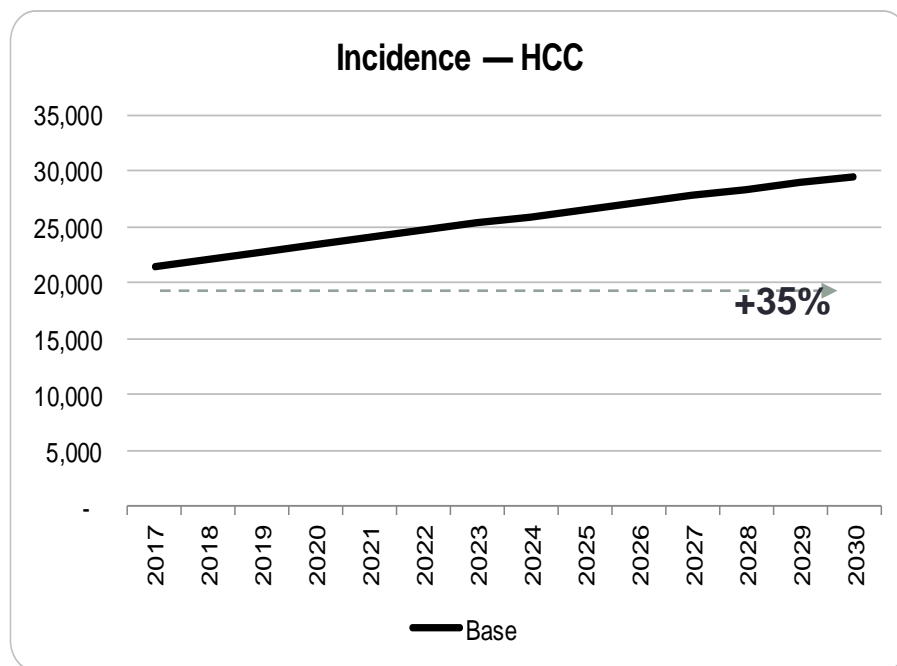
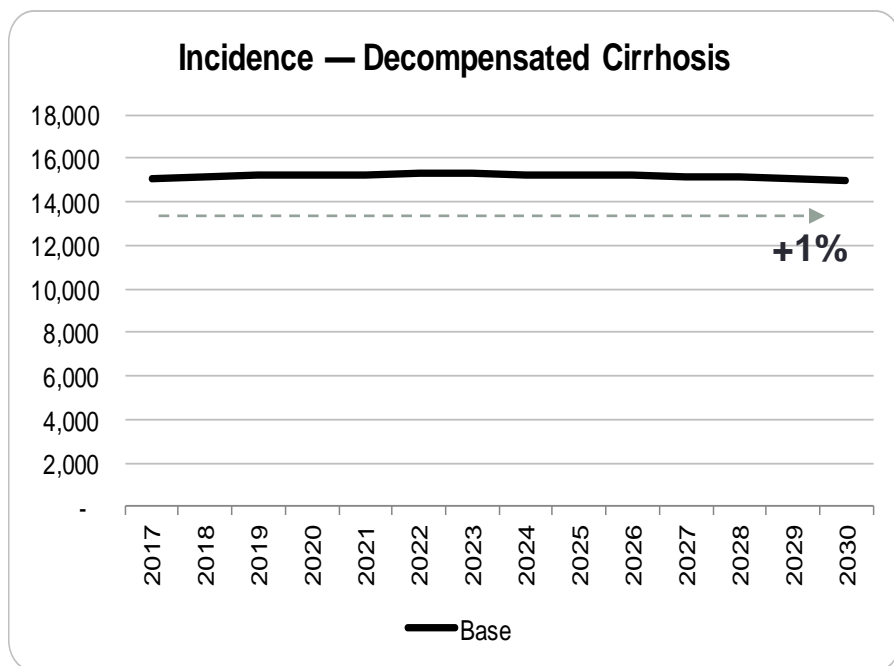
- In the base scenario, HBsAg prevalence among 5-year-olds will reach **0.6%** in 2030



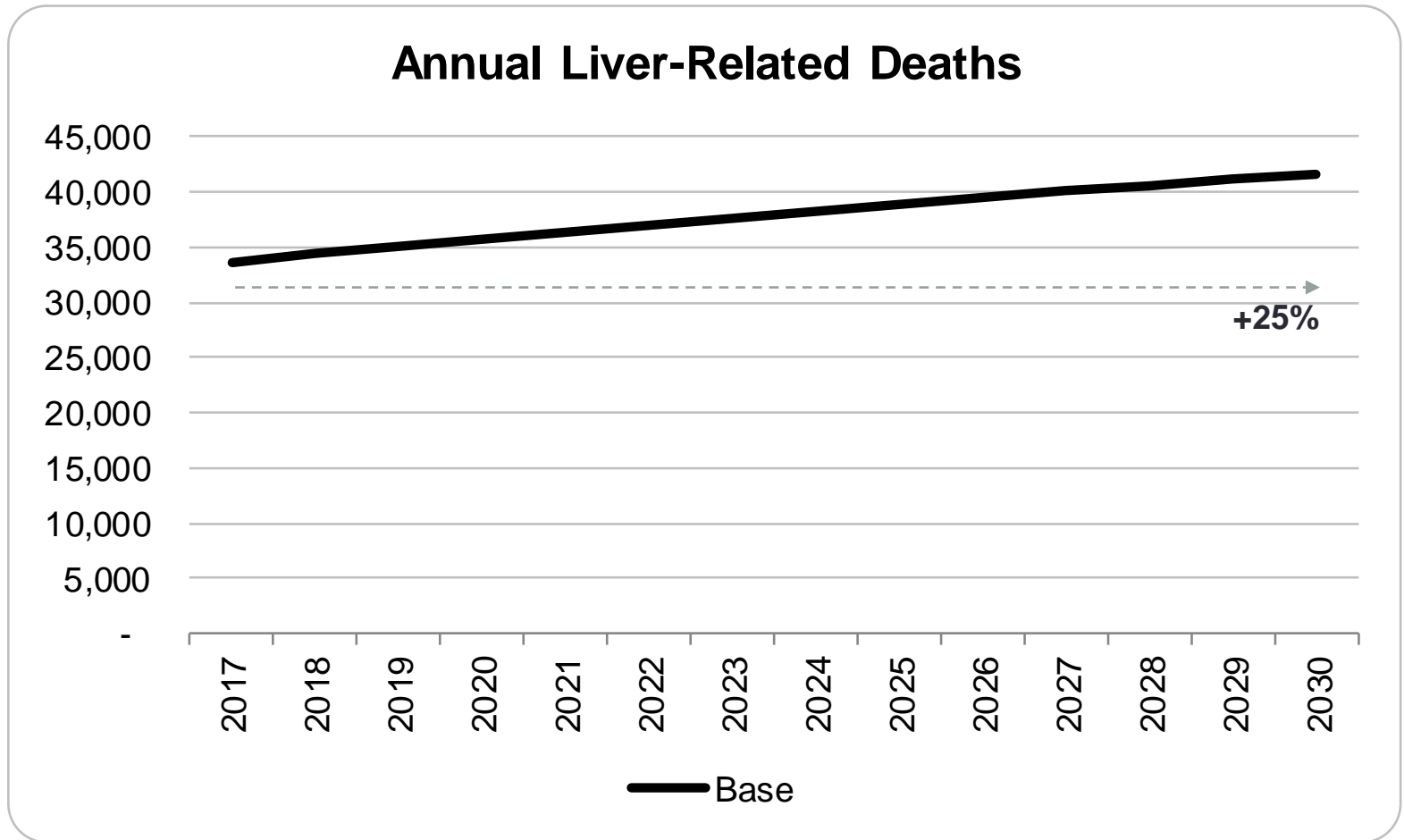


# HBV-related Morbidity

- HBV related morbidity and mortality are projected to **increase 1% to 35%**



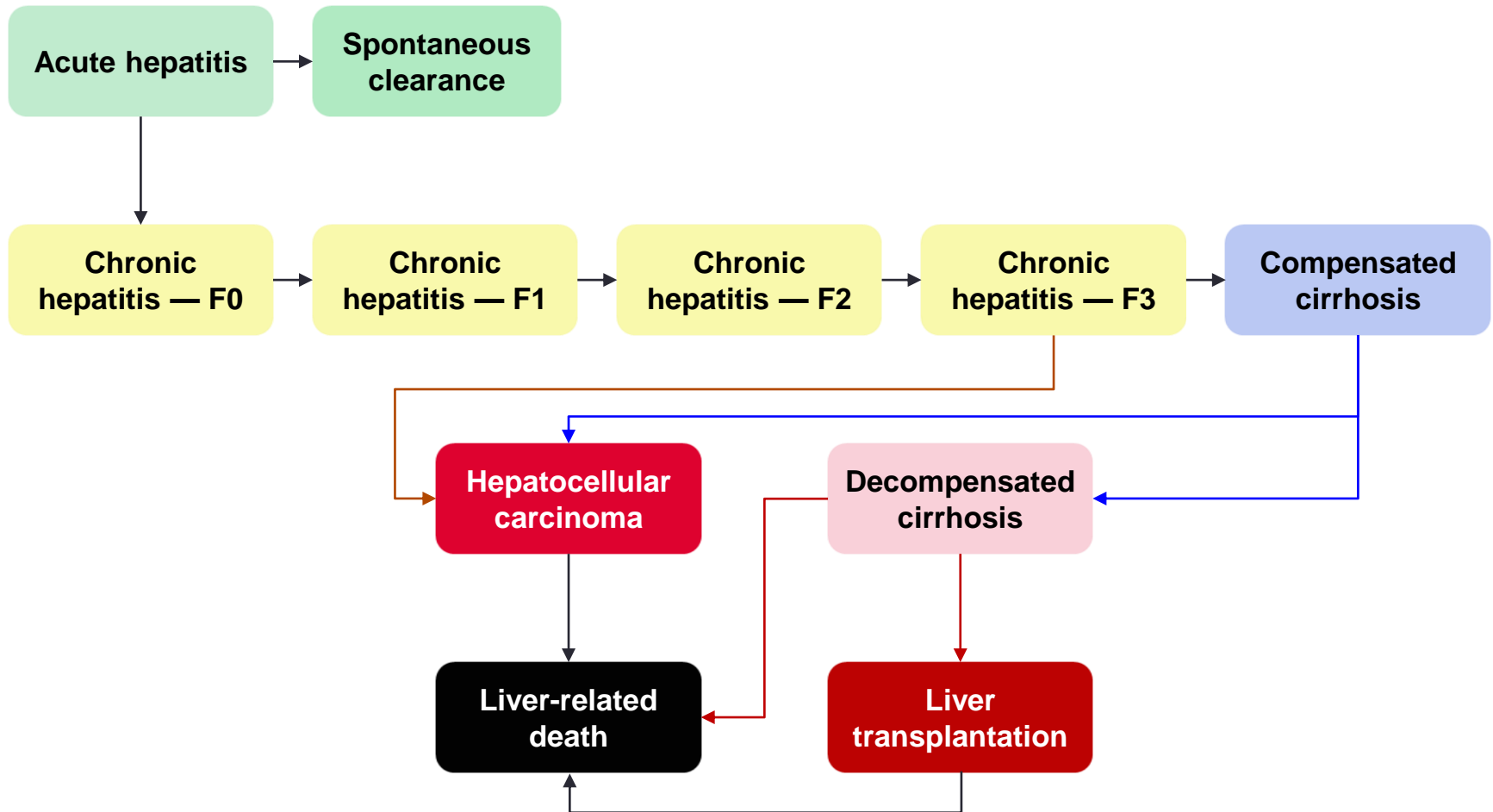
# HBV-related Mortality



# HEPATITIS C

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# HCV Model



# MODEL INPUTS

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HCV

# Inputs (rates and costs)

- Prevalence (Yanase 2007)
- Age and sex distribution
- Genotype distributions
- Treatment Rates
- Transplantations
- Transfusions and IDU rates and risks
- Screening rates
- Intervention rates

# Treatment Costs

- Treatment cost were provided by experts [PHP]:
  - Sofosbuvir/Daclatasvir is PHP 13,000 per bottle and used for G2/3
  - Sofosbuvir/Ledipasvir is PHP 13,000 per bottle and used for all other genotypes
  - Sofosbuvir/Velpatasvir is PHP 17,500 per bottle and for all other genotypes
- Treatment duration will be longer (2x) for decompensated cirrhotic patients
- In future, the cost of treatment could be as low as PHP 2,500 to P 4,576 per bottle in the public setting
  - The cost in the private setting will remain the same.
- Assumed that 48% of the population will be covered by the public health system in 2019. This will increase to 90% coverage over five years.

# BASE SCENARIO

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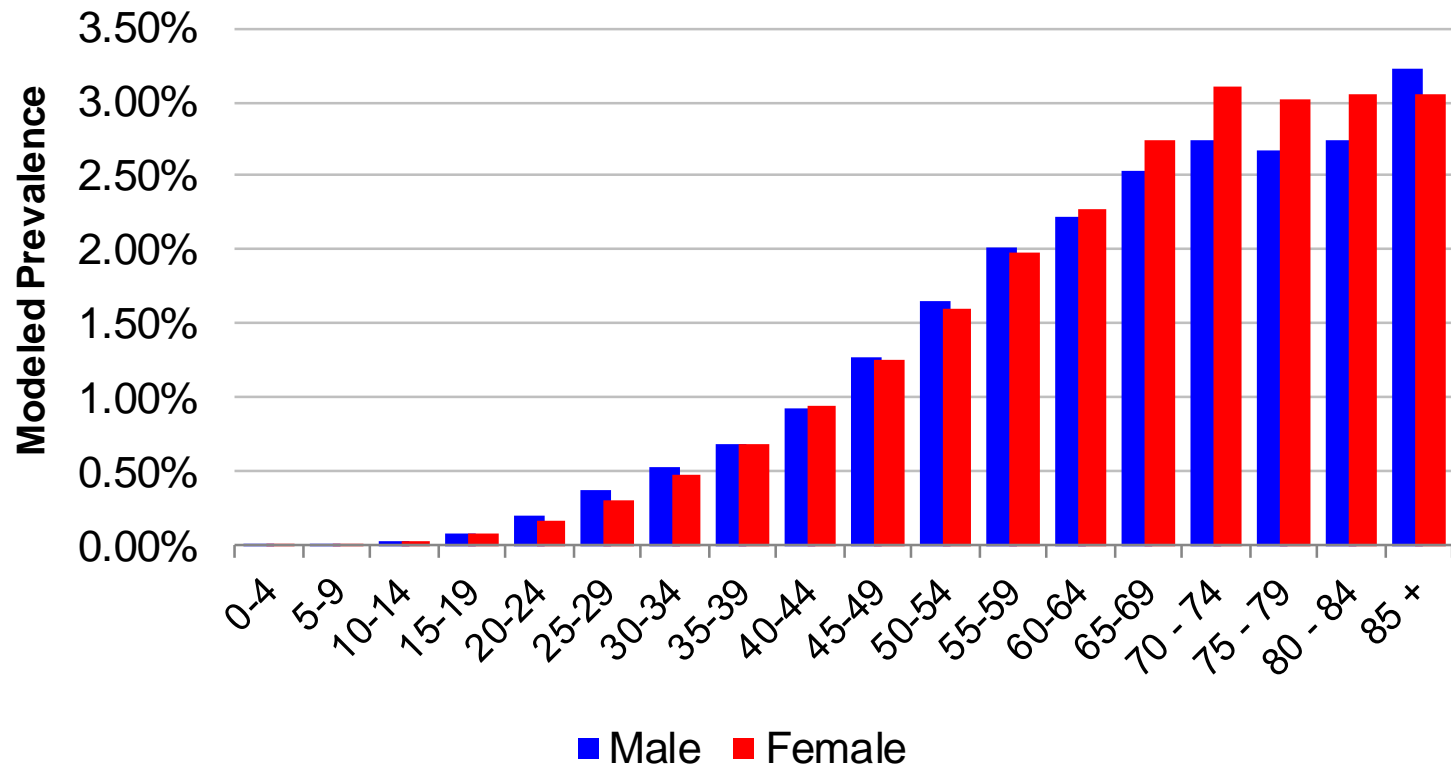
HCV



# General Population

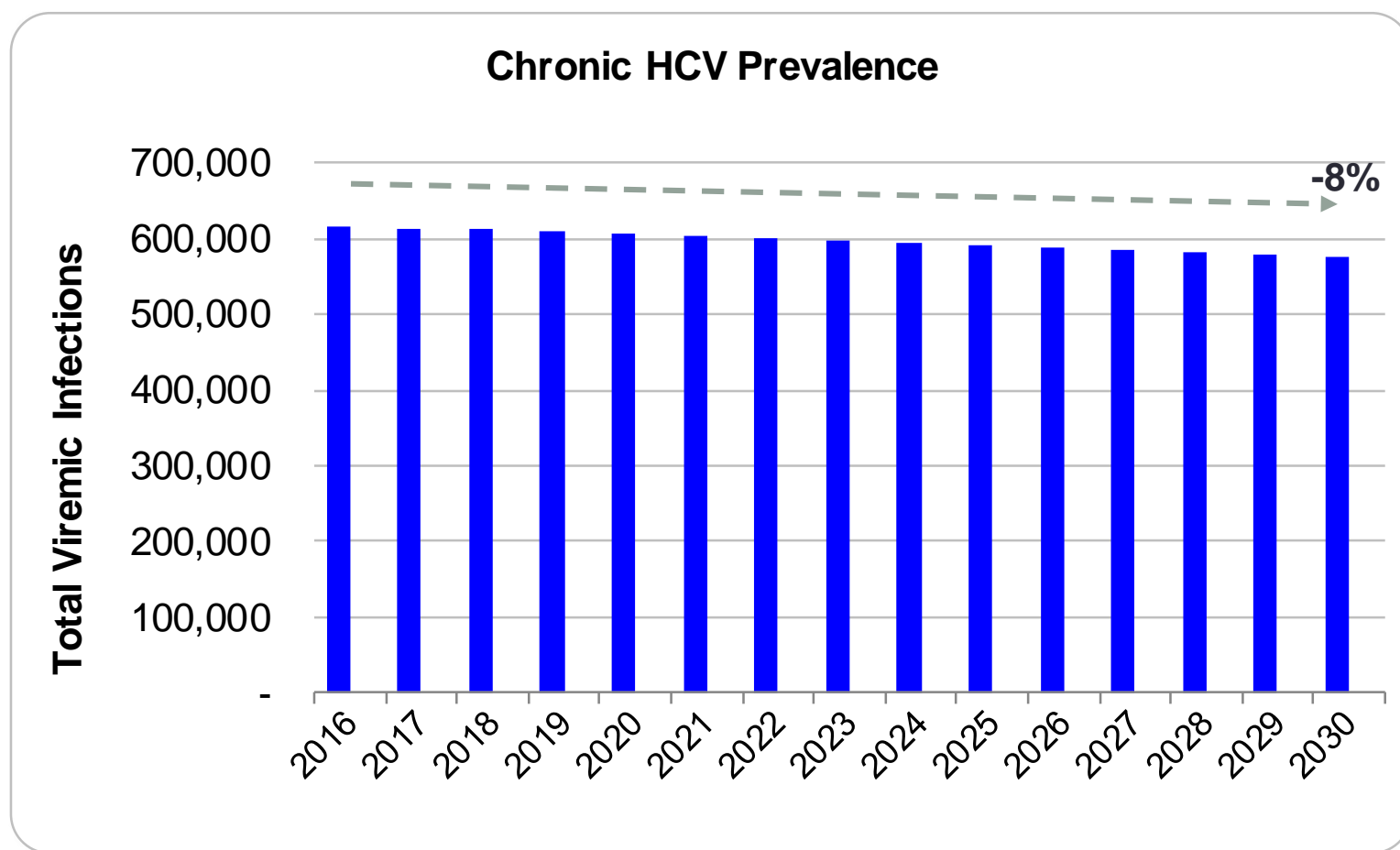
- In 2017, it is estimated that the prevalence of chronic hepatitis C in Philippines is **0.58%**, representing **614,000 infections**

HCV Prevalence by Age and Sex - Philippines, 2017



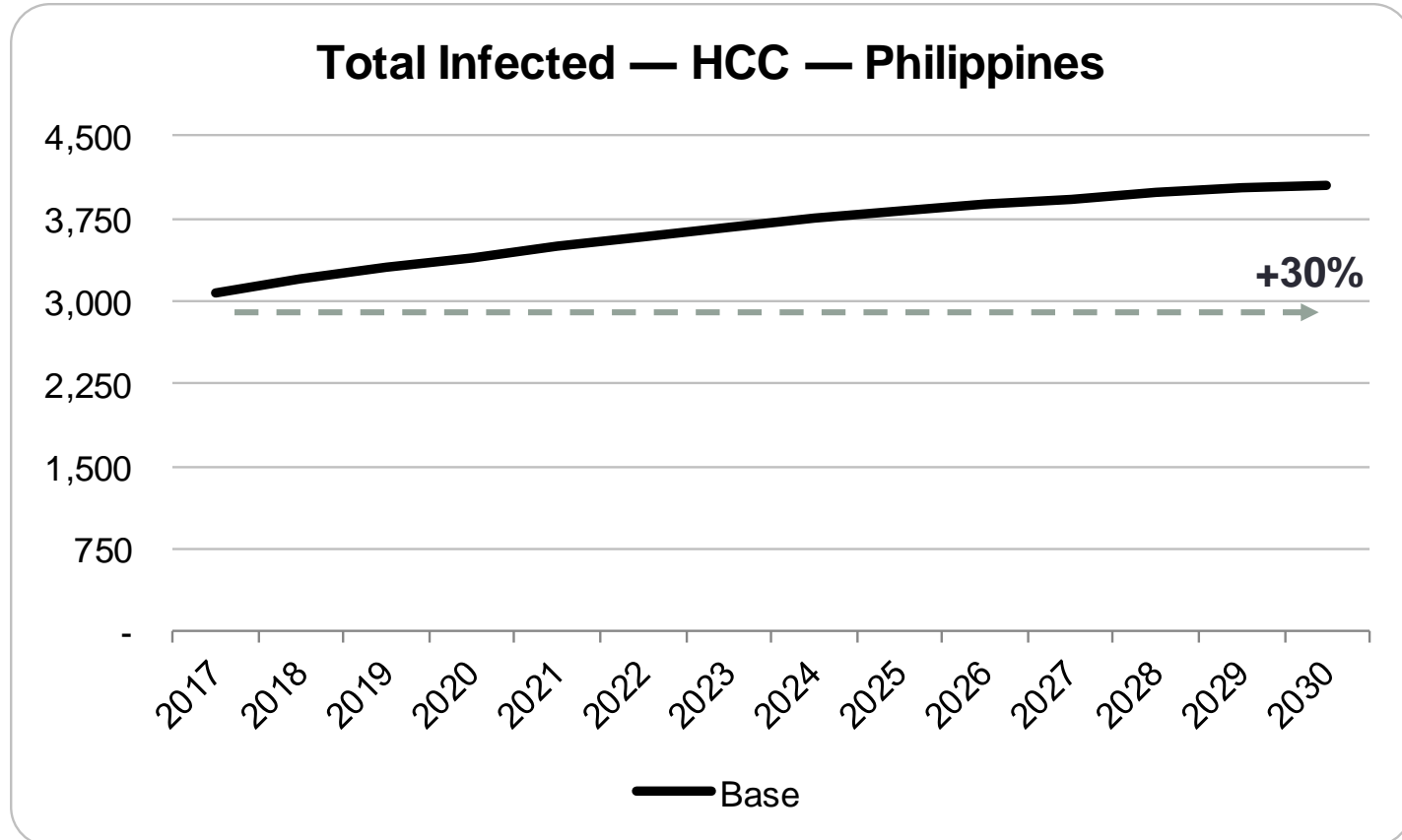
# Projections to 2030

- Decrease to **0.45% (576,000)** chronic infections by 2030



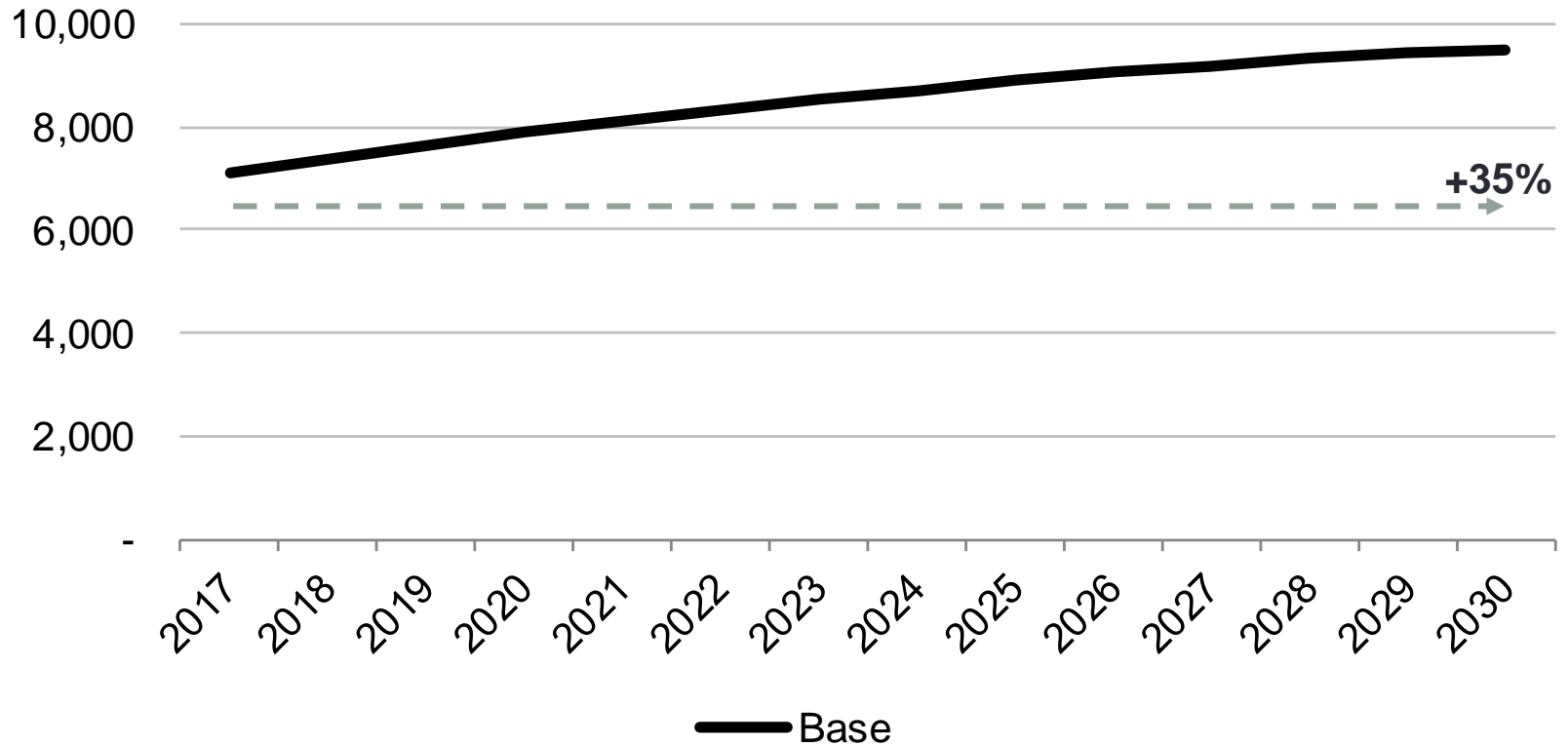
# Morbidity

- **30% increase** in incidence of HCC



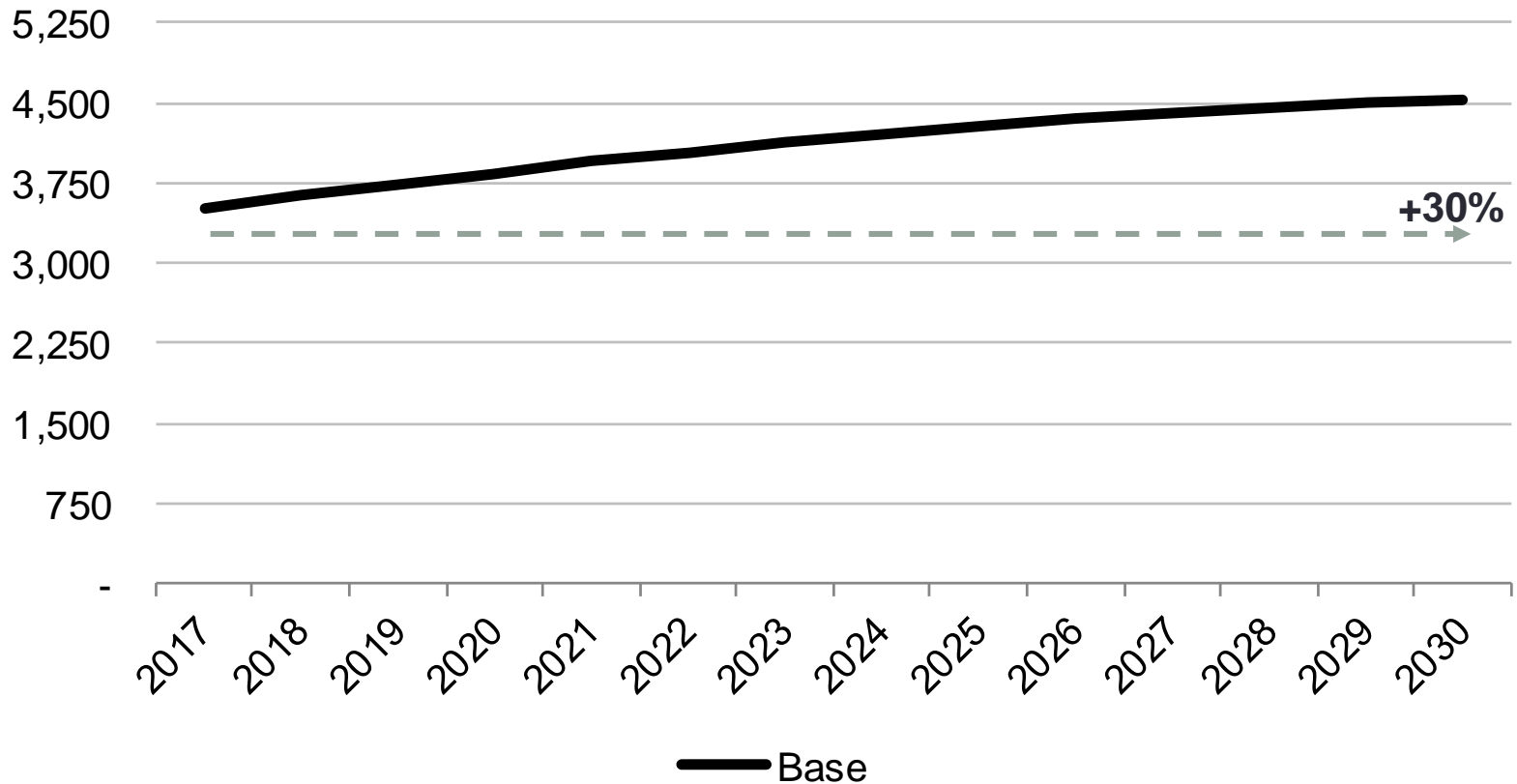
# Morbidity

**Total Infected — Decompensated Cirrhosis —  
Philippines**



# Mortality

## Liver-Related Deaths — Philippines



# NEXT STEPS

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# Next steps

**Complete validation of model outputs**

**Incorporate WHO strategies to reduce HBV and HCV**

**Compute ICER for the strategies**

**Explore financing models for direct interventions**

**HBV:  $10\text{M} * \text{P}2,620 * 30\text{yrs} = 786\text{T} * 30\% = \text{P}235.8\text{T}$**

**HCV:  $614,000 * \text{P}6,480 = \text{P}3.9\text{B}$**

Thank You