



Prioritizing global health resources using cost-effectiveness analysis

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- **Research Team**

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- Joshua Cohen, PhD (Co-I)
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- **Funding source**

- Bill and Melinda Gates Foundation [OPP1171680]:
Increasing use of health economic information for global health

- **Why is resource priority setting important**
- **What are some new tools available to help resource prioritization?**
- **How can these tools be used?**

TARGET 3•8



**ACHIEVE UNIVERSAL
HEALTH COVERAGE**

*“I regard **universal health coverage** as the single most powerful concept that public health has to offer”.*

- Dr. Chan, WHO Director-General

Challenges in achieving UHC

- **No way to cover everything for all people**
- **Understanding trade-offs between benefits and resources**
- **Cost-effectiveness analysis (CEA) can be a useful tool**

Aggregate, curate, and improve the world's
cost-effectiveness information to help
resource allocation decisions in global health



- ☒ Published cost-per-DALY analyses
- ☒ Continually-updated
- ☒ Open access and available for download



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**GLOBAL
HEALTH** | **CEA**
REGISTRY

www.ghcearegistry.org

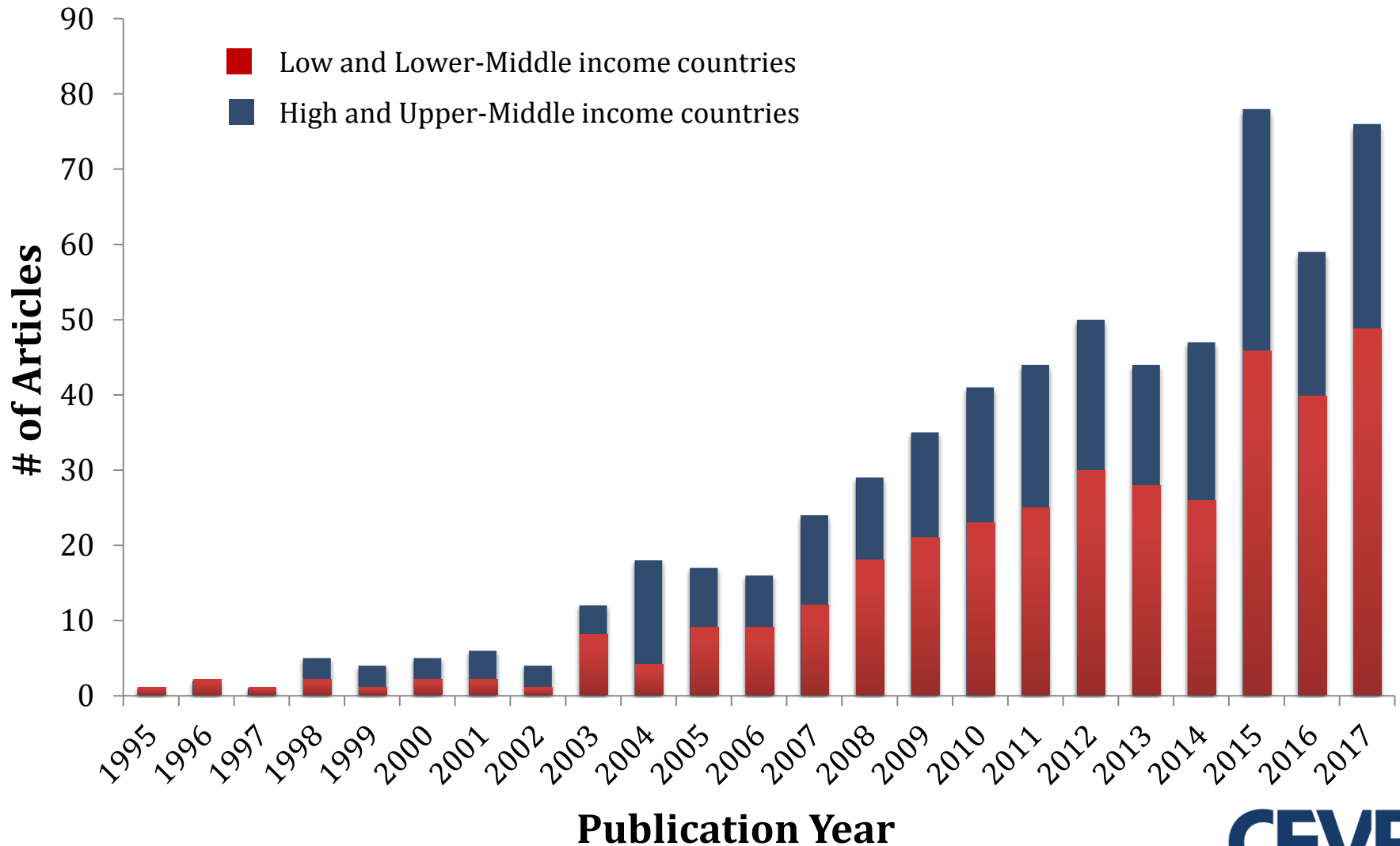
~5,000

Cost-per-DALY ratios
(through 2017)

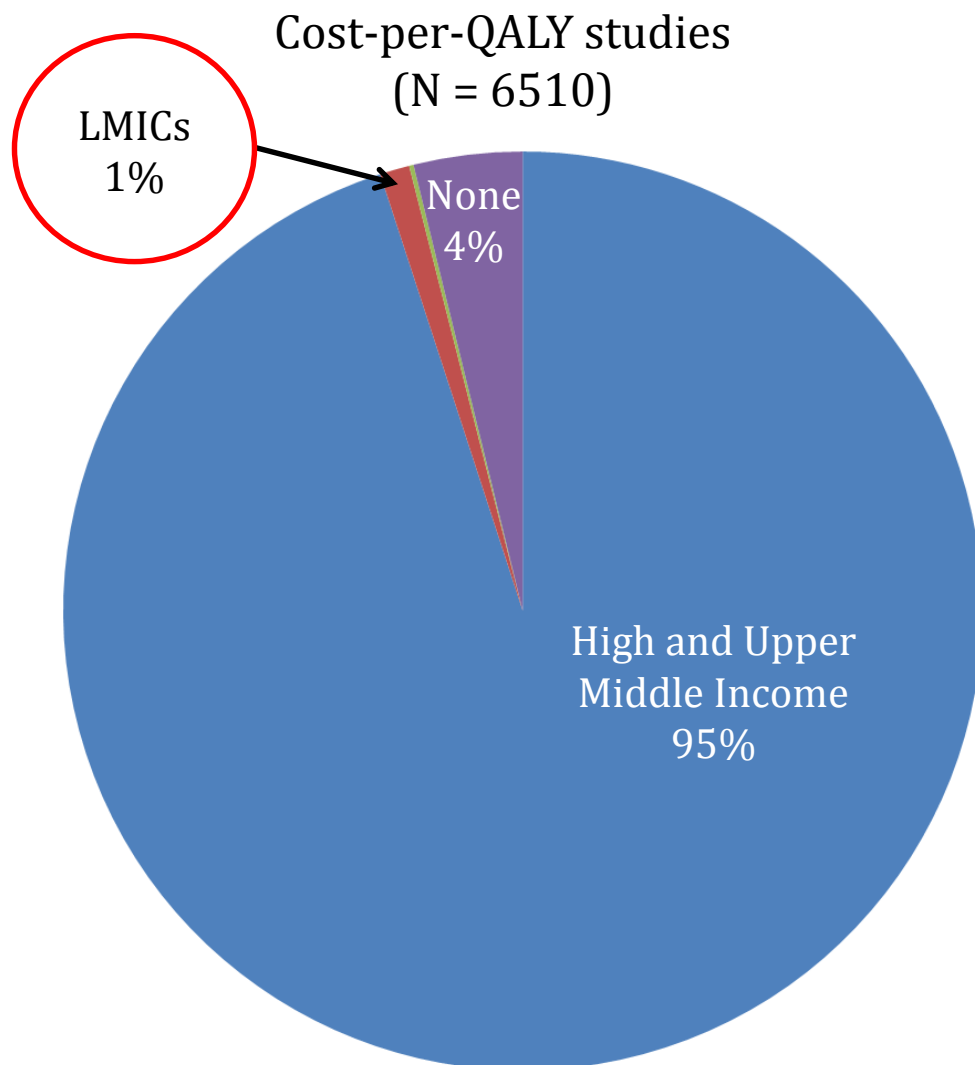
620

English-language
Cost-per-DALY
analyses

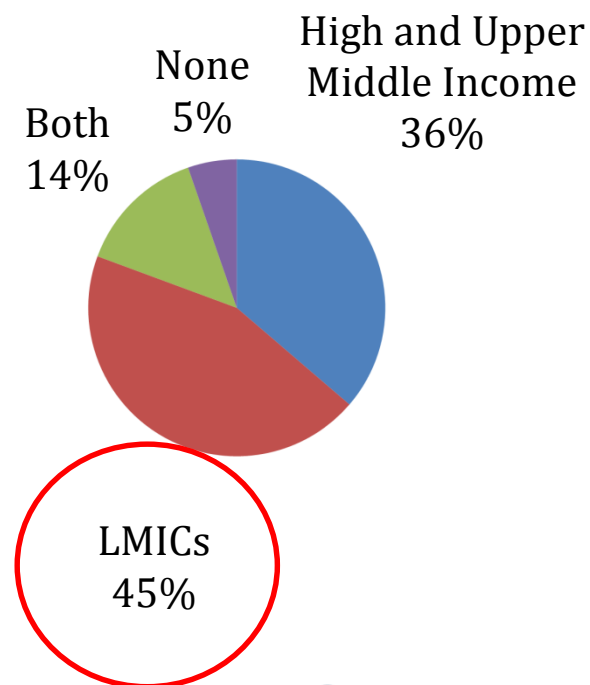
Growth of the cost/DALY literature



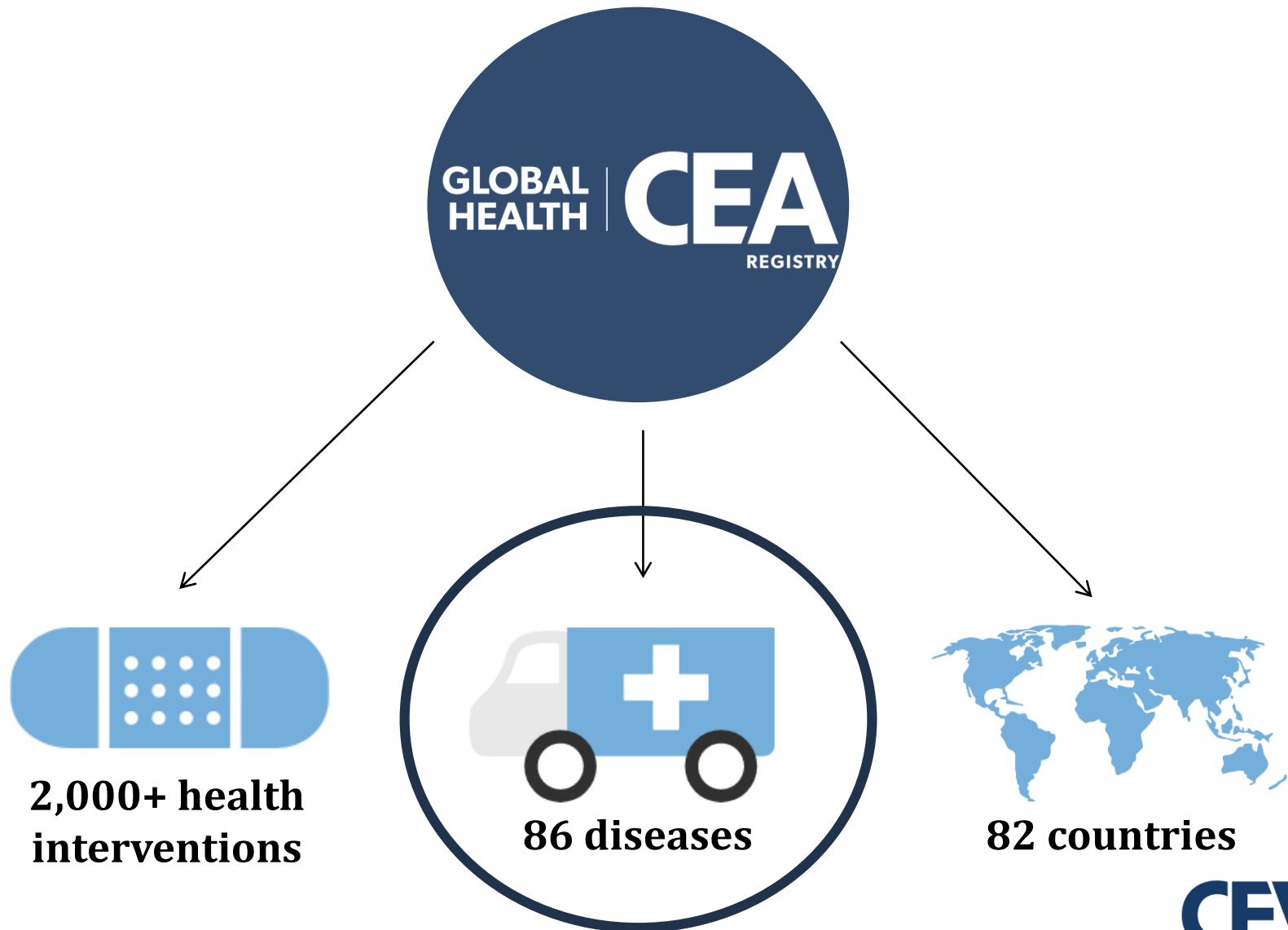
Cost/QALY vs Cost/DALY studies

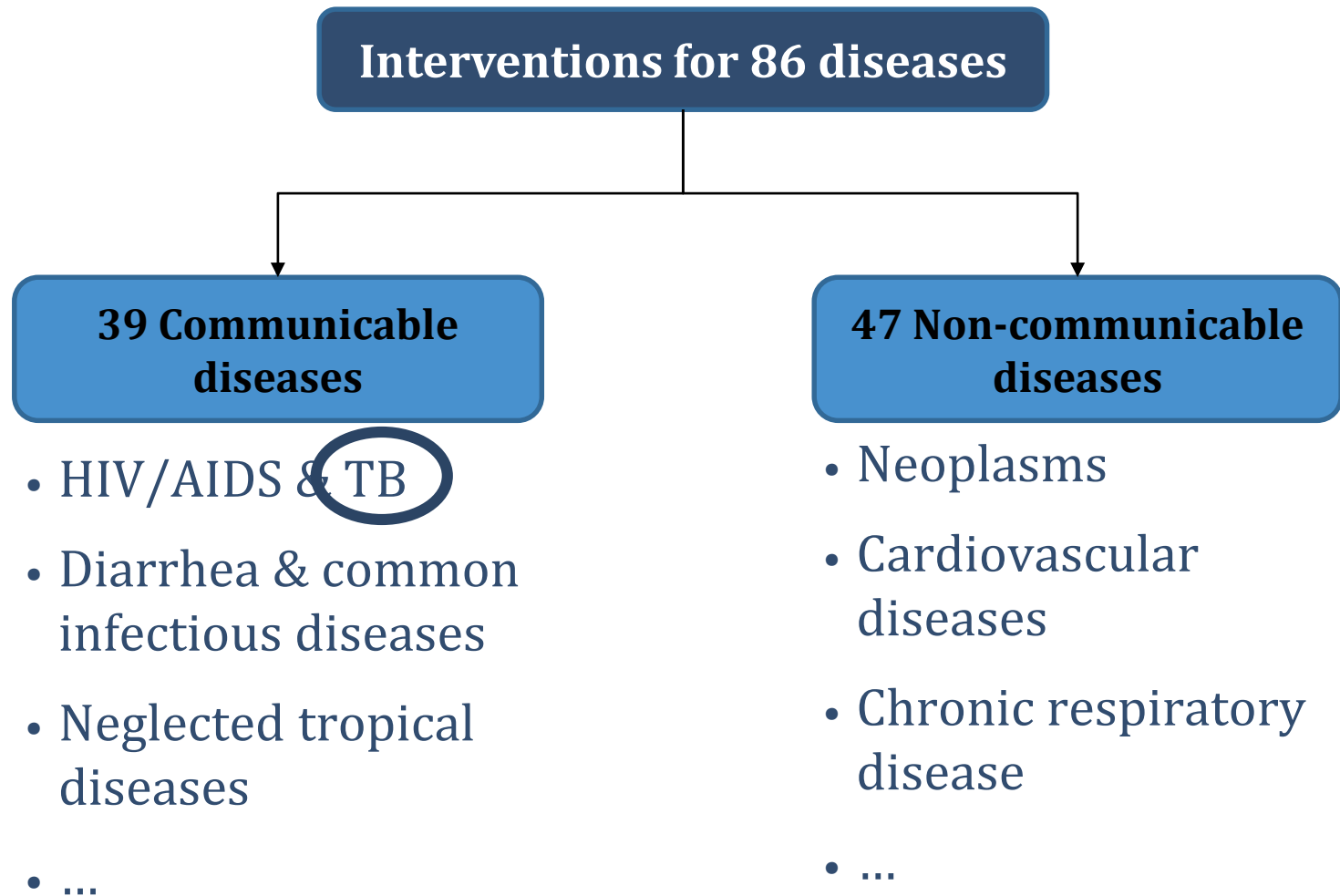


Cost-per-DALY studies
(N = 620)



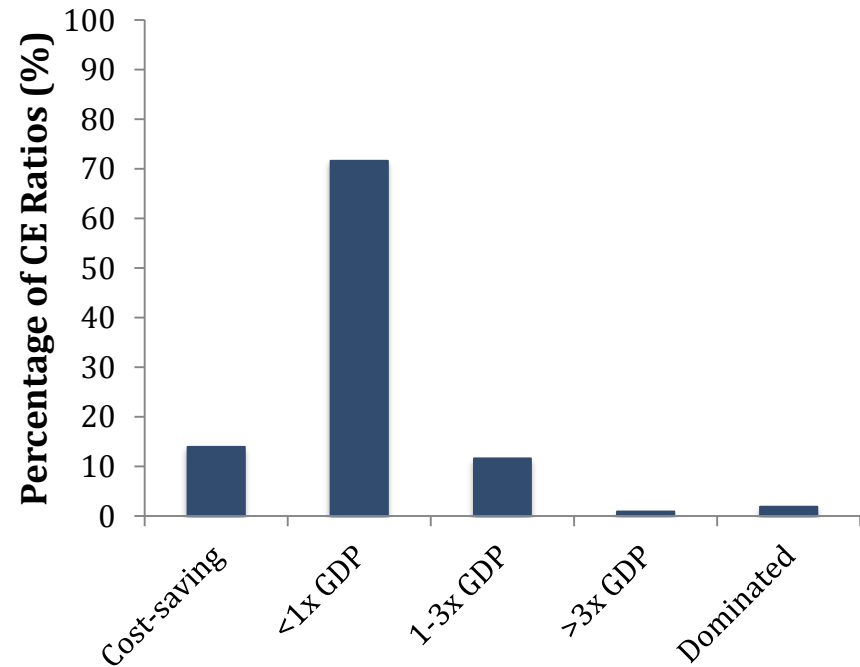
Source: Neumann et al., Gates Open Research (2018)





616
Cost-per-DALY
ratios
(through 2017)

44
Cost-per-
DALY
analyses



Cost-effectiveness of selected TB interventions **Tufts** Medical Center

Cost-saving

<\$200/DALY averted

\$200-1000/DALY averted

>\$1000/DALY averted

Drug susceptibility testing (DST) for MDR-TB patients in Peru

MDR treatment as per WHO guidelines in Russian patients
\$770/DALY averted

Xpert rapid TB test in South Africa
\$30/DALY averted

Expanded access to TB treatment in China

BCG vaccination for low-TB prevalence groups in the Netherlands
\$7000/DALY averted

Cost-per-
DALY averted
studies

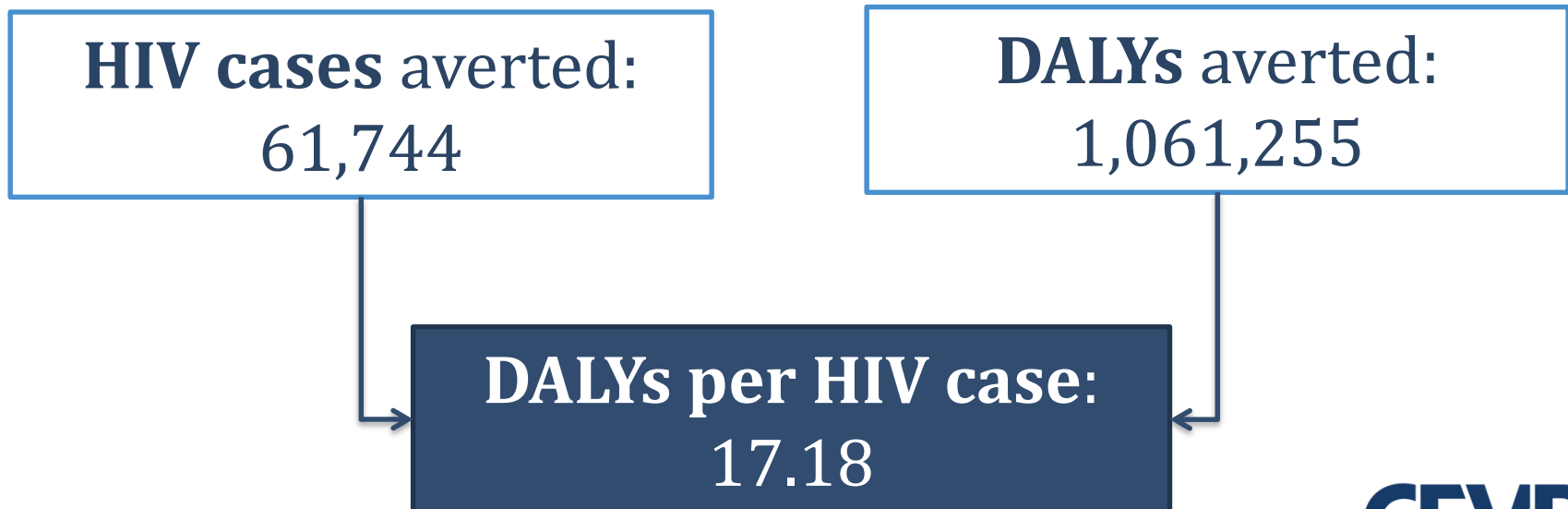
Economic Evaluation Literature

- **Help users to calculate disease burdens in DALYs**
- **Help users to convert non-DALY metrics to DALYs**

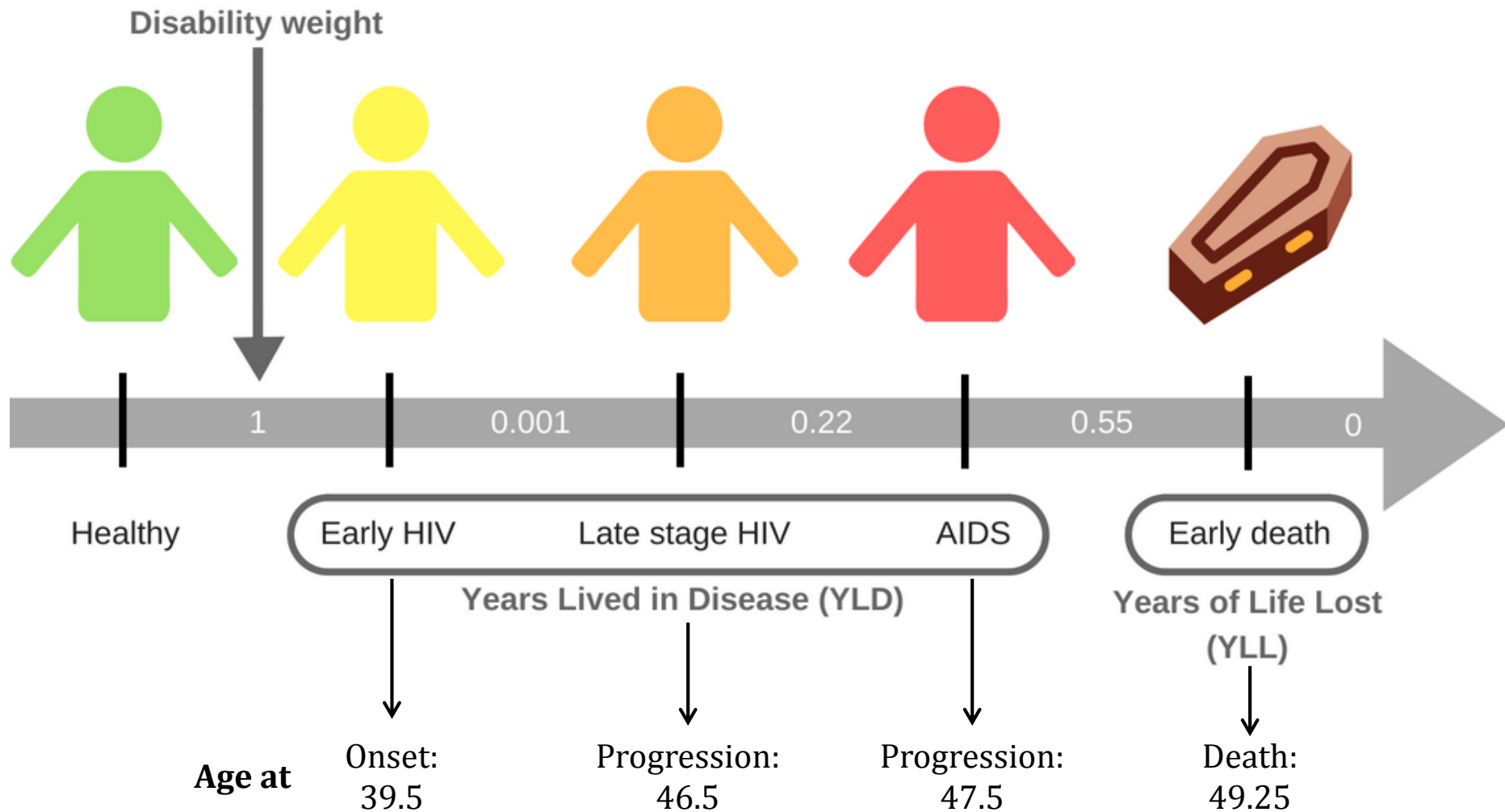
Cost-effectiveness of HIV prevention for high-risk groups at scale: an economic evaluation of the Avahan programme in south India

Anna Vassall, Michael Pickles, Sudhashree Chandrashekar, Marie-Claude Boily, Govindraj Shetty, Lorna Guinness, Catherine M Lowndes, Janet Bradley, Stephen Moses, Michel Alary, Charme India Group, Peter Vickerman*

Vassall et al., (2014) Lancet Global health



Case study



Inputs:

Disease:

AIDS without antiretroviral
treatment ▼

Age of onset of disease (years):

39.5

Age of premature death due to
disease (years):

49.25

☒ Discount rate?

Discount rate:

0.03

☐ Include age weighting?

Calculate!

Outputs:

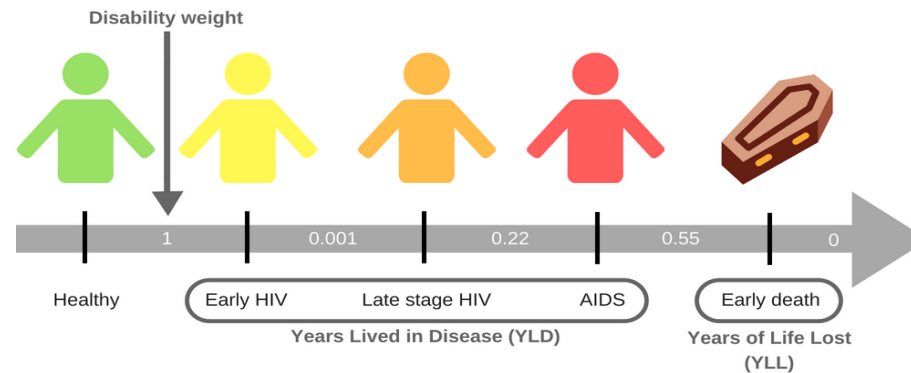
Disability weight = 0.55

Years lived with disease = 10

Life expectancy at age of premature death = 26.5

Years of Life Lost (YLLs),
Years Lived in Disability (YLDs),
and total Disability Adjusted Life Years (DALYs):

Contribution of YLLs	18.28
Contribution of YLDs	0.92
Total DALYs	19.2



Years Lived in Disease (YLD)

Early HIV	0.1
Late stage HIV	0.22
AIDS	0.92

+ Years of Life Lost (YLL) 18.28

Total DALYs 19.52

Reported
DALYs per HIV case:
17.18

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cost-effectiveness information to help
resource allocation decisions in global health



- ☒ **Update the cost/DALY studies**
- ☒ **Add other data sources**
- ☒ **Model clearinghouse**

Thank you!

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