Reducing disease burden with alcohol brief interventions in Columbia, Mexico and Peru: first results from a modelling study

J. Manthey,
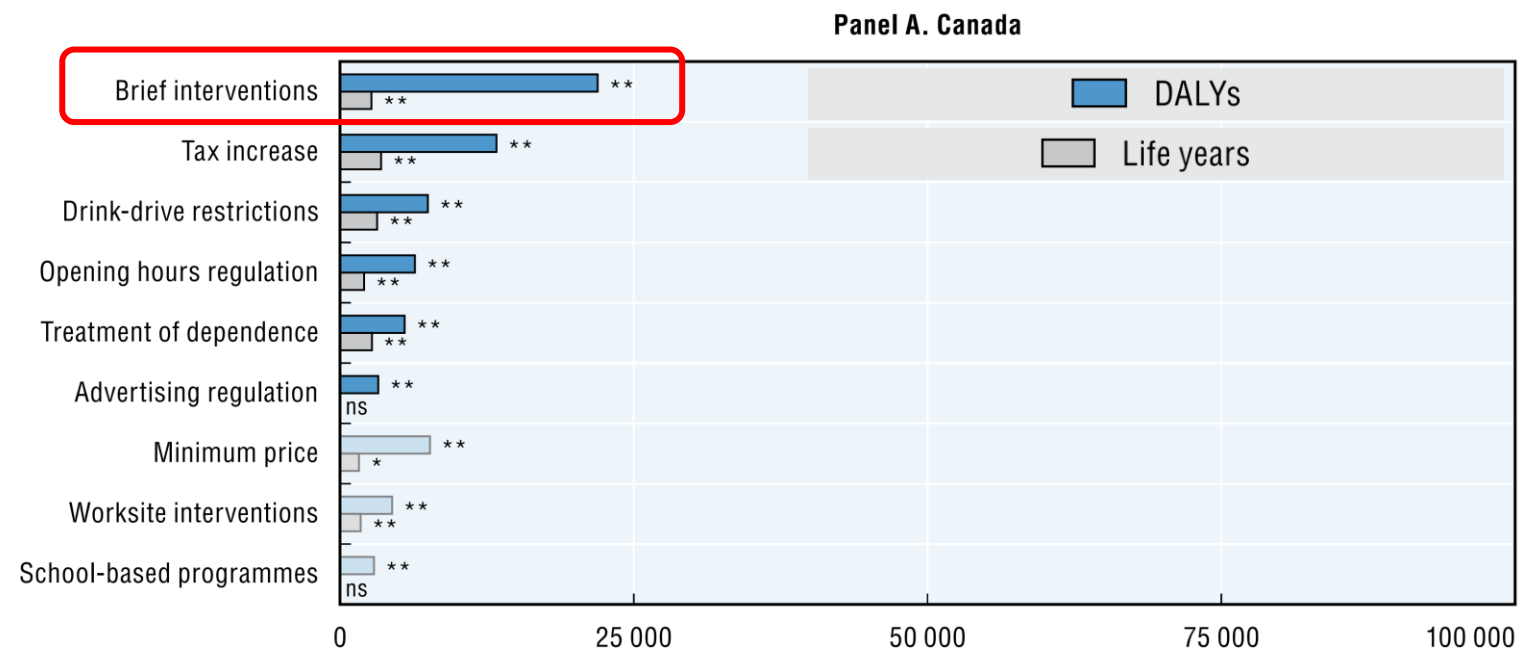A. Solovei, P. Anderson, E.J. Llopis, J. Rehm

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Background

- Brief Interventions (BI): Measurement of alcohol use and subsequent advice

- BI effective means to reduce alcohol consumption among hazardous drinkers

- Meta analysis by Kaner et al. (2007):
  - Weekly reduction of -38 (-54;-23) gram pure alcohol consumption

- Increasing coverage of BI estimated to reduce alcohol-attributable disease burden

- OECD, 2015:

Panel A. Canada

Brief interventions
Tax increase
Drink-drive restrictions
Opening hours regulation
Treatment of dependence
Advertising regulation
Minimum price
Worksite interventions
School-based programmes

DALYs
Life years

0   25 000   50 000   75 000   100 000

Alcohol per capita consumption (APC)

- WHO: APC most reliable indicator for alcohol consumption in a given country

- Key to international monitoring of Sustainable Development Goals

- Main determinant of alcohol-attributable harm estimations

- Based on sales and taxation statistics
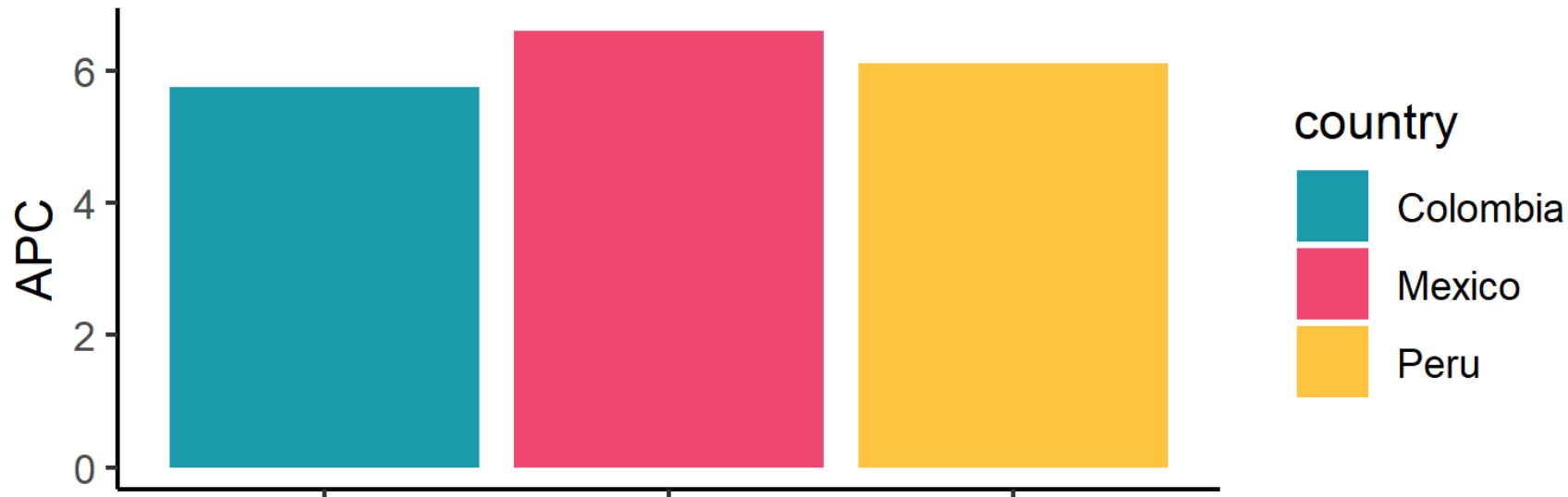
What is the potential of BI implementation in three Latin American countries?

By how much can APC be reduced?

How many deaths and DALYs can be avoided?
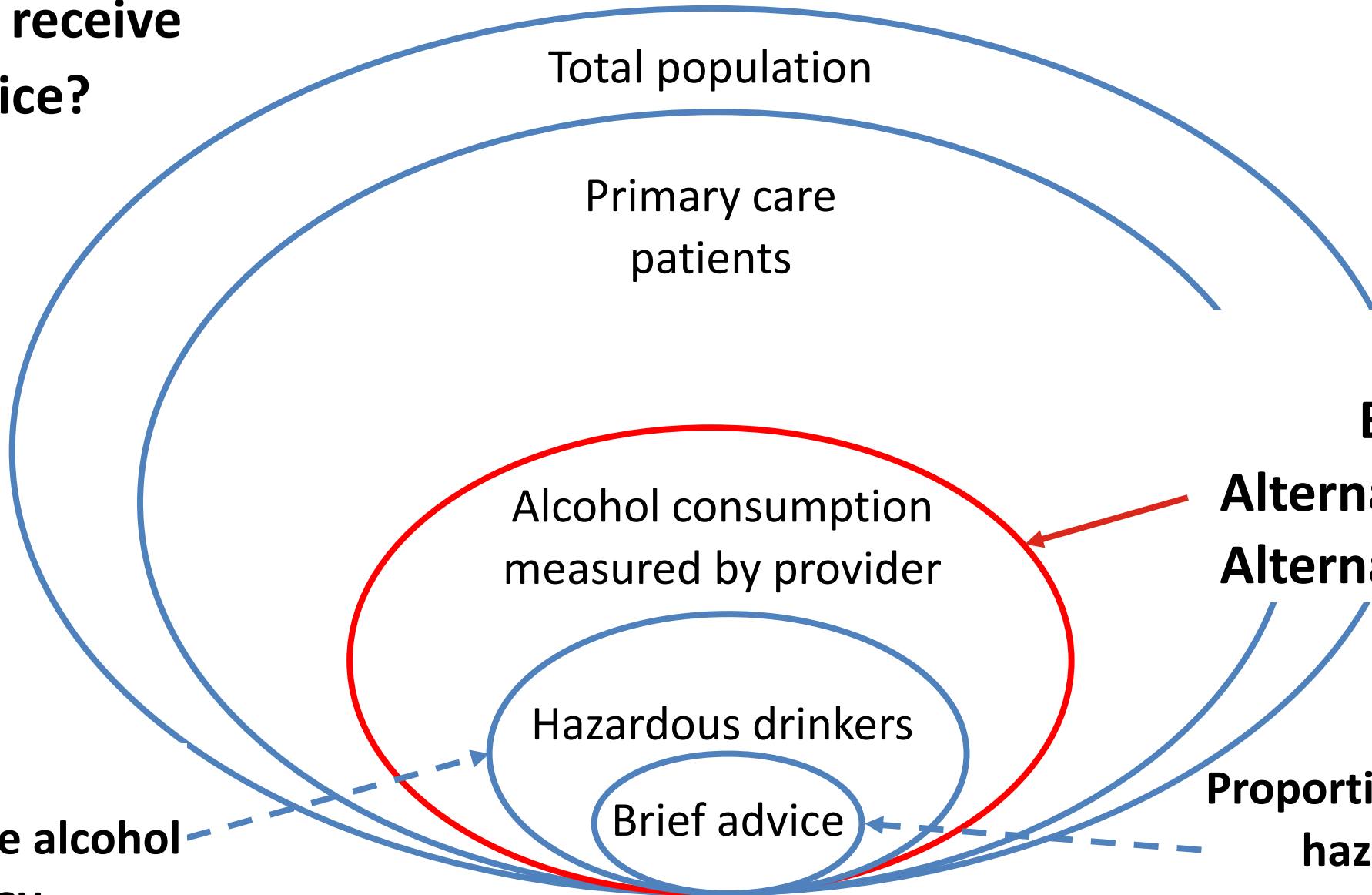
Reduction in APC

1. Draw random (gamma distributed) sample of 10,000 drinkers based on APC

2. Apply effects of BI on subsample of drinkers (based on probability of BI)

3. Recalculate APC from sample of drinkers after BI application ➡ reduced APC

➢Assumptions:

➢BI already implemented to a certain degree (Baseline)

➢Effect size of BI as determined by Kaner et al., 2007

Who will receive brief advice?

Total population

Primary care patients

Alcohol consumption measured by provider

Hazardous drinkers

Brief advice

Null: 0%
Baseline: 10%
Alternative - 1: 20%
Alternative - 2: 40%

Threshold:
40 gram pure alcohol intake per day

Proportion of identified hazardous drinkers receiving advice: 50%

Impact on disease burden

Estimating alcohol-attributable mortality/DALYs via alcohol-attributable fraction (AAF)

➢ for 25 disease groups

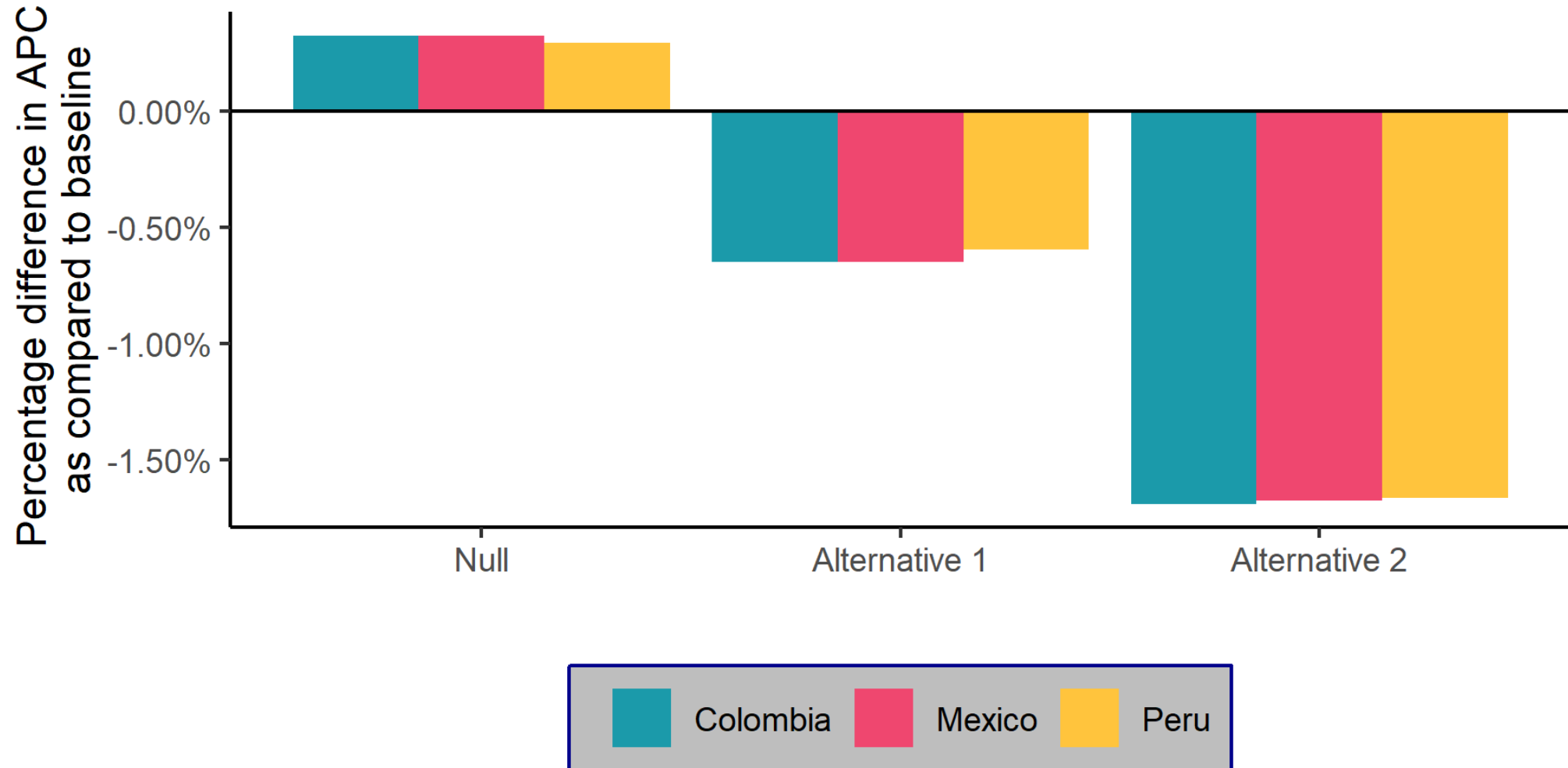➢ Under 4 scenarios (Null, Baseline, Alternative 1, Alternative 2)

Data sources and methods

1. APC = WHO and forecasts (Manthey et al., 2019)

2. Mortality/DALYs envelope = Global Burden of Disease Study (2018)

3. Burden estimation using InterMAHP (Sherk et al., 2019)

4. Estimations done for 2017
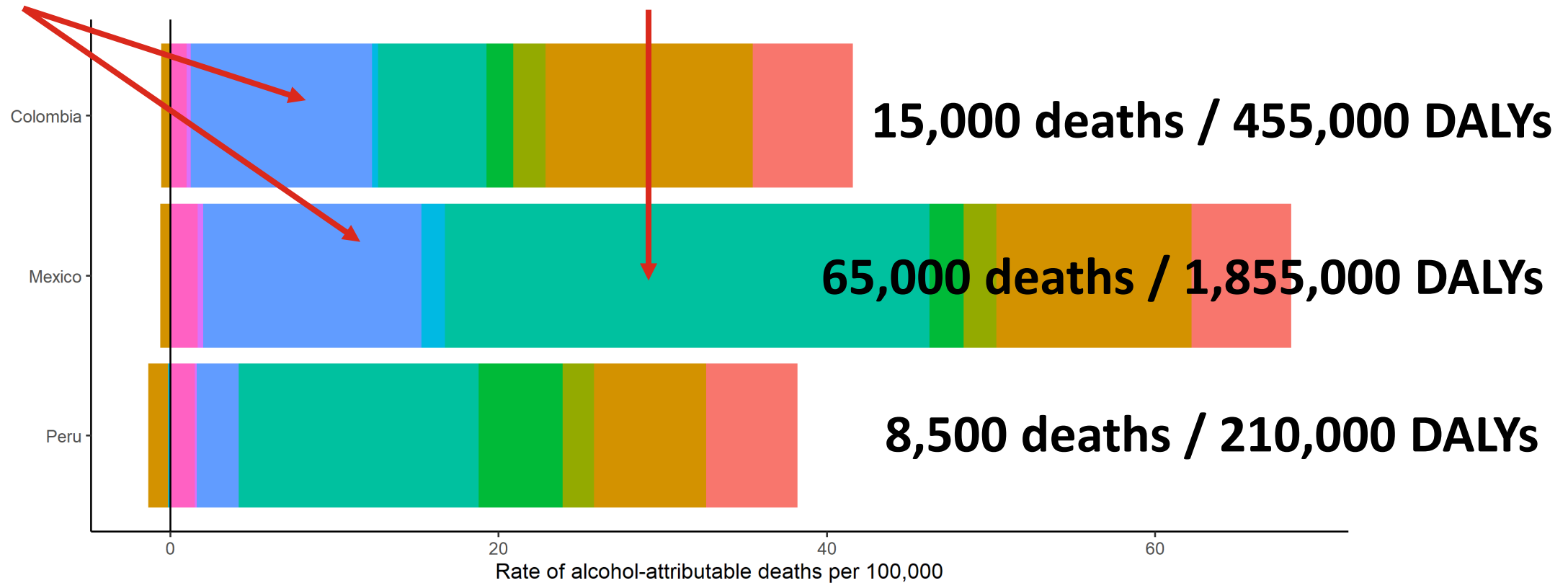
Impact on APC – as compared to Baseline scenario:

Baseline: alcohol-attributable disease burden in 2017

Gun violence

Liver cirrhosis

15,000 deaths / 455,000 DALYs

65,000 deaths / 1,855,000 DALYs

8,500 deaths / 210,000 DALYs

Rate of alcohol-attributable deaths per 100,000

Legend: Cancer, Cardio, Collisions, Communicable, Digestive, Endocrine, Intentional, Neuro, Unintentional
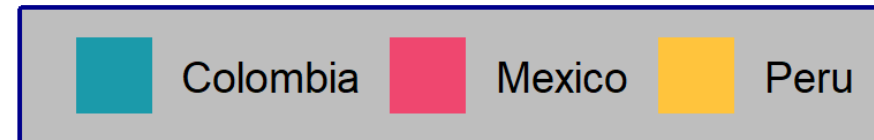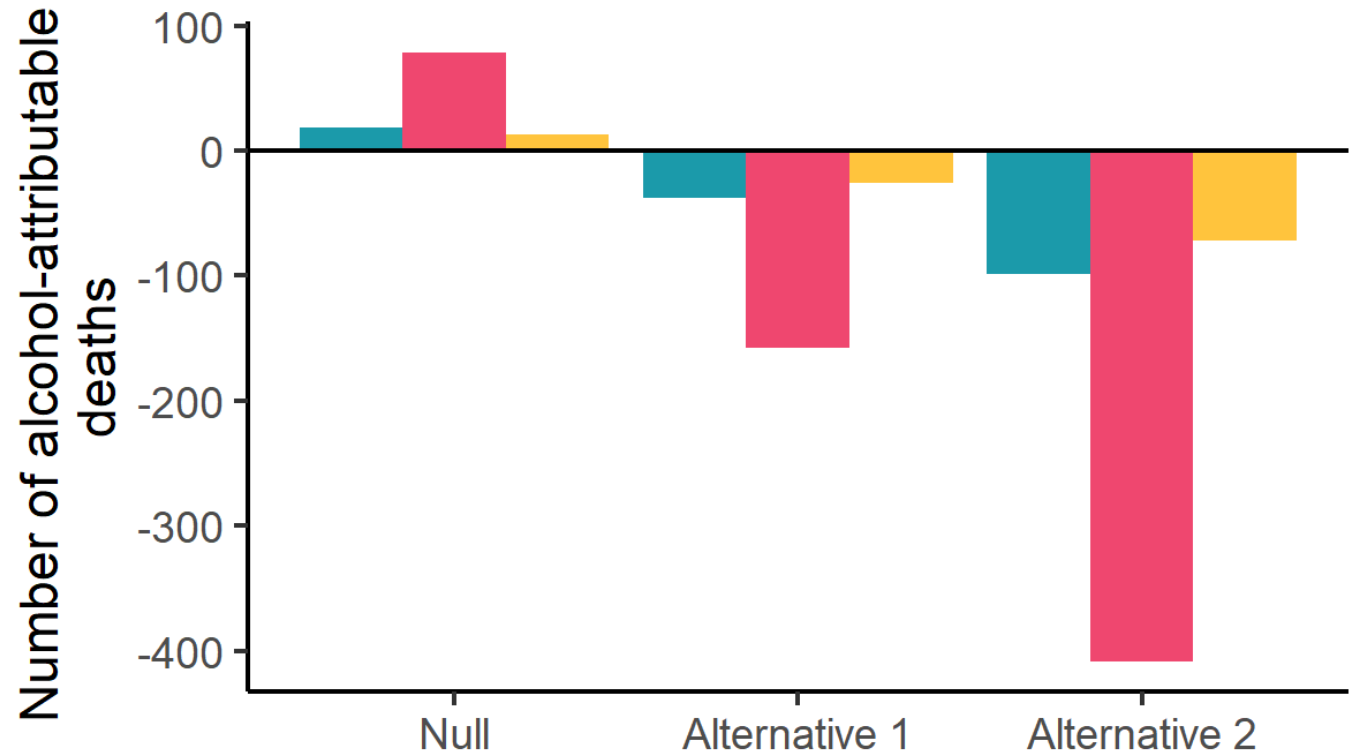
Impact on disease burden

Compared to Baseline:

➤ Null: + 1.2% deaths

➤ Alternative 1: -0.2% deaths

➤ Alternative 2: -0.7% deaths

➤ **Doubling the screening rate:**

220 deaths / 6700 DALYs avoided

➤ **At 40% screening rate:**

**580 deaths / 17,500 DALYs avoided**

Improving the model

➢ Replace assumptions with data collected in course of study

➢ Include other interventions (referral to treatment for AUD/Depression)

➢ Extend model from 1-year to 10-year model

➔ Need to project APC impact

➔ Need to project health impact

   ➢ cause-specific forecasting of mortality and morbidity (hospitalizations)

Extension of the model

➤ Preliminary findings of 10-year model on APC change
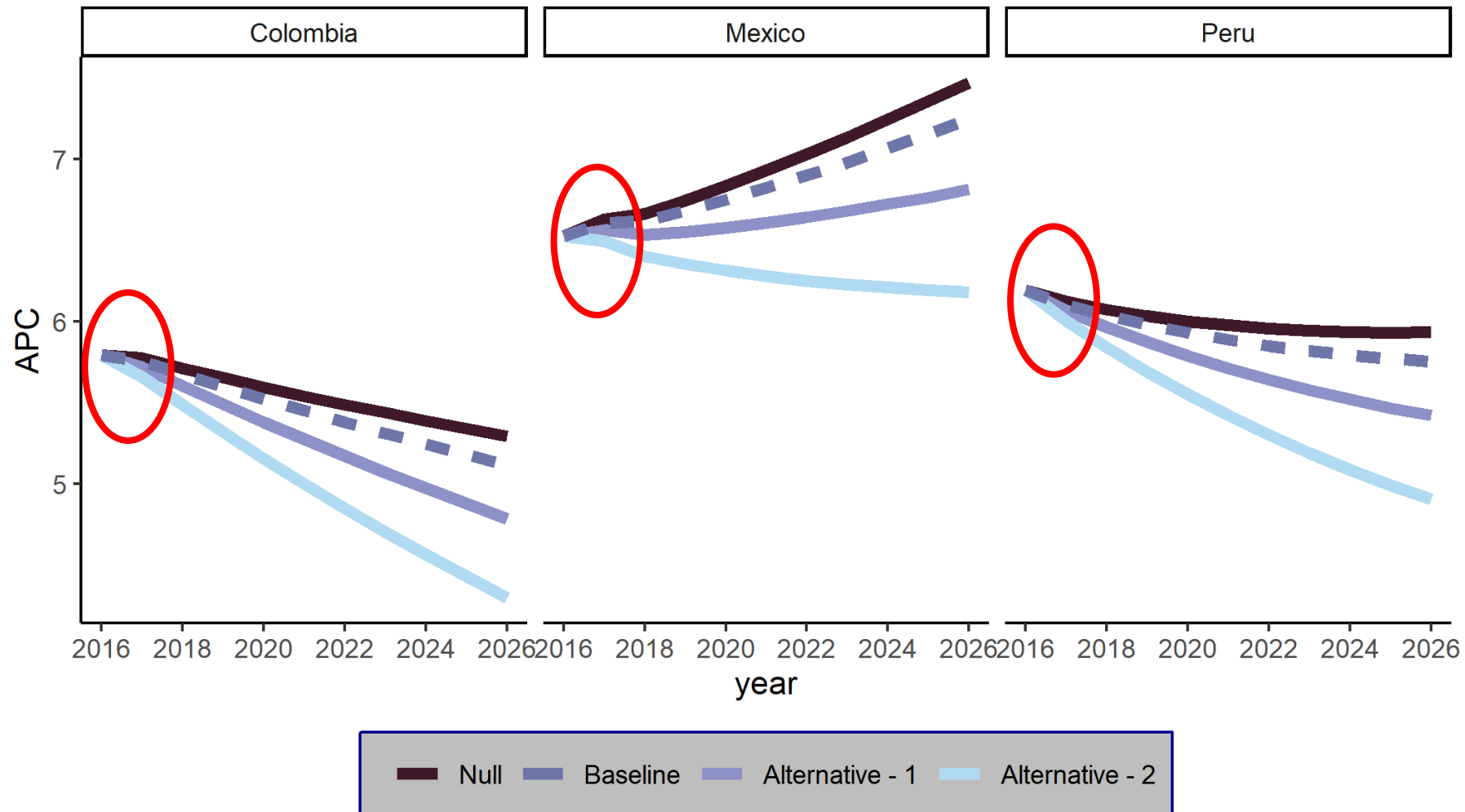
What do we expect?

➔ Determining *cumulative* effects of BI implementation

➔ What is required to reverse trends (e.g. Mexico)?

➔ Providing the basis for economic evaluation, i.e. Return-of-Investment analyses

Many thanks!

References

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- Sherk, A. (2019). The International Model of Alcohol Harms and Policies. Retrieved from https://www.uvic.ca/research/centres/cisur/projects/intermahp/index.php