

National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport

PIF for Policy Analysis

Linking intervention scenarios, risk factor projections and disease burden

2nd European Workshop on Burden of Disease

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Potential Impact Fraction (PIF)

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- The **Potential Impact Fraction (PIF)** quantifies the proportional reduction in disease burden expected under a **changed exposure distribution**, compared with the current distribution.

Why PIF?

- Estimates health impact of *changes* in risk factor exposure
- Suitable for policy scenario analysis
  - *Ozempic for all overweight individuals → expected BMI decrease of X units → impact on disease burden?*

A more dynamic approach to the PIF

- Static approach
  - Assume hypothetical change in current exposure
    - *What would have happened to current burden if we had reduced the number of smokers in the past?*
- Dynamic approach
  - Use future projections as basis for PIF calculations
    - *What would happen in the future if we changed the number of smokers starting now?*

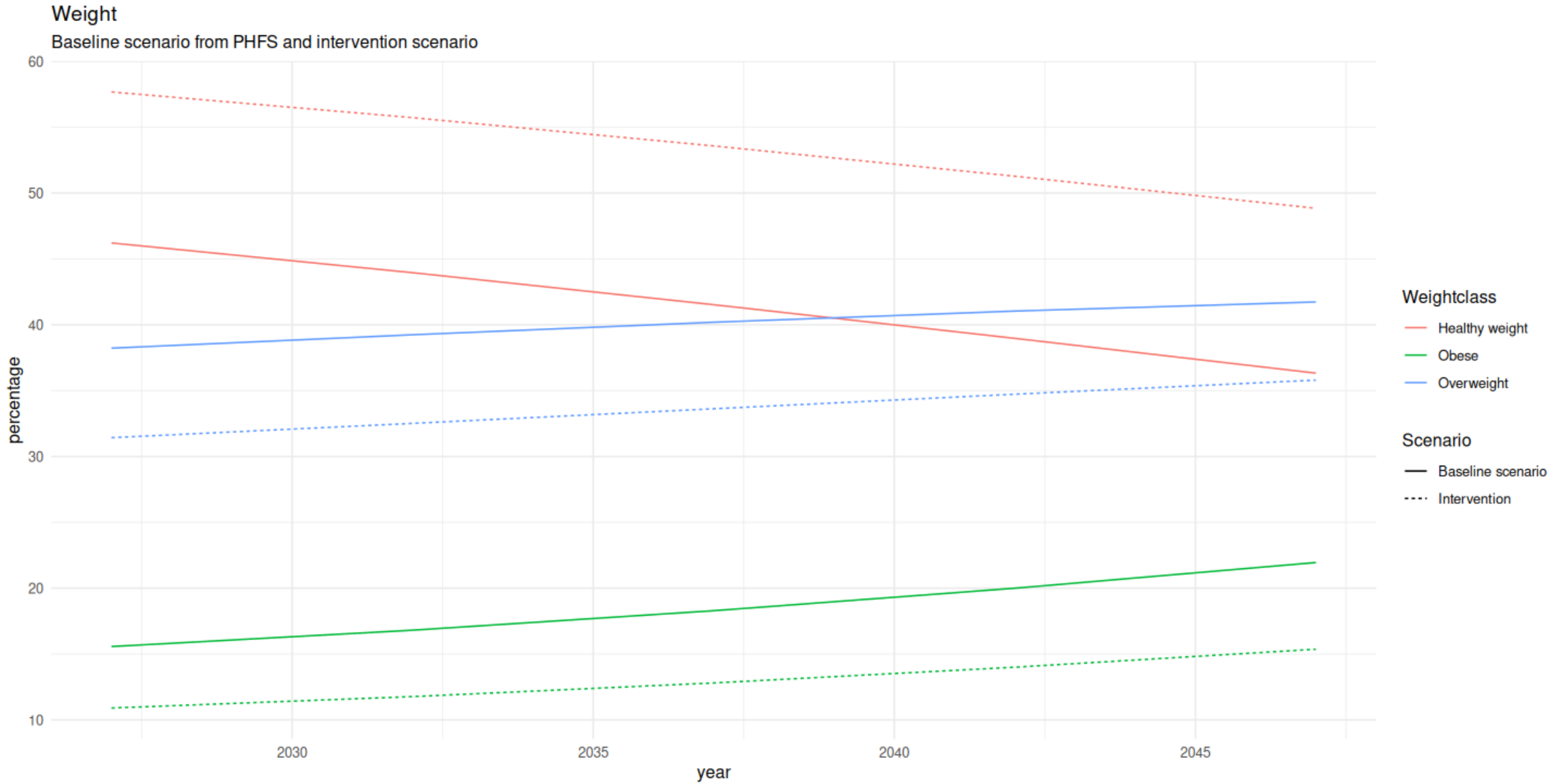
Dynamic approach

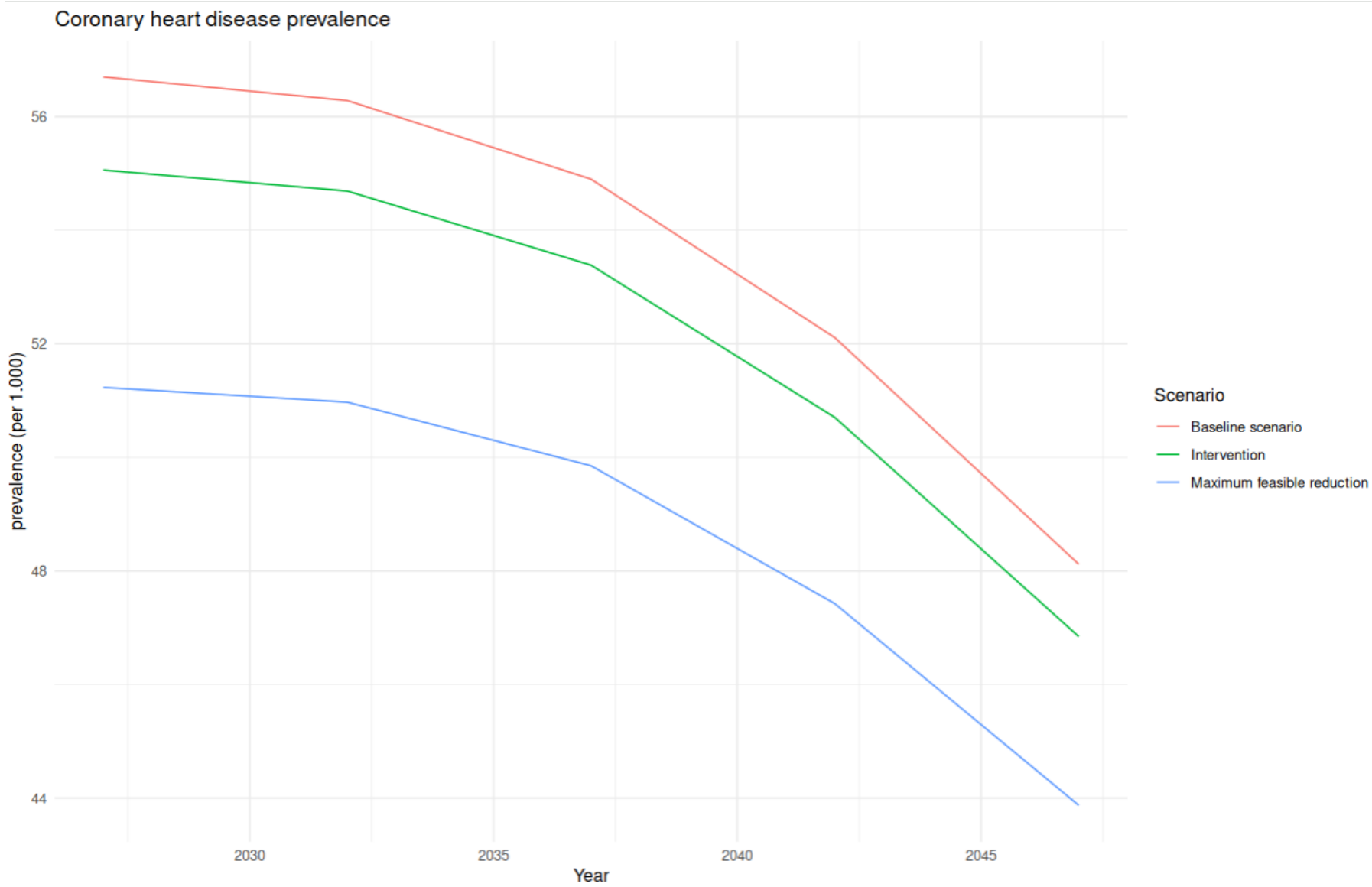
- Baseline scenario: risk factor exposure in the future
- Intervention scenario: changed risk factor exposure compared to baseline scenario
- Outcomes: All diseases linked to this risk factor under the baseline scenario

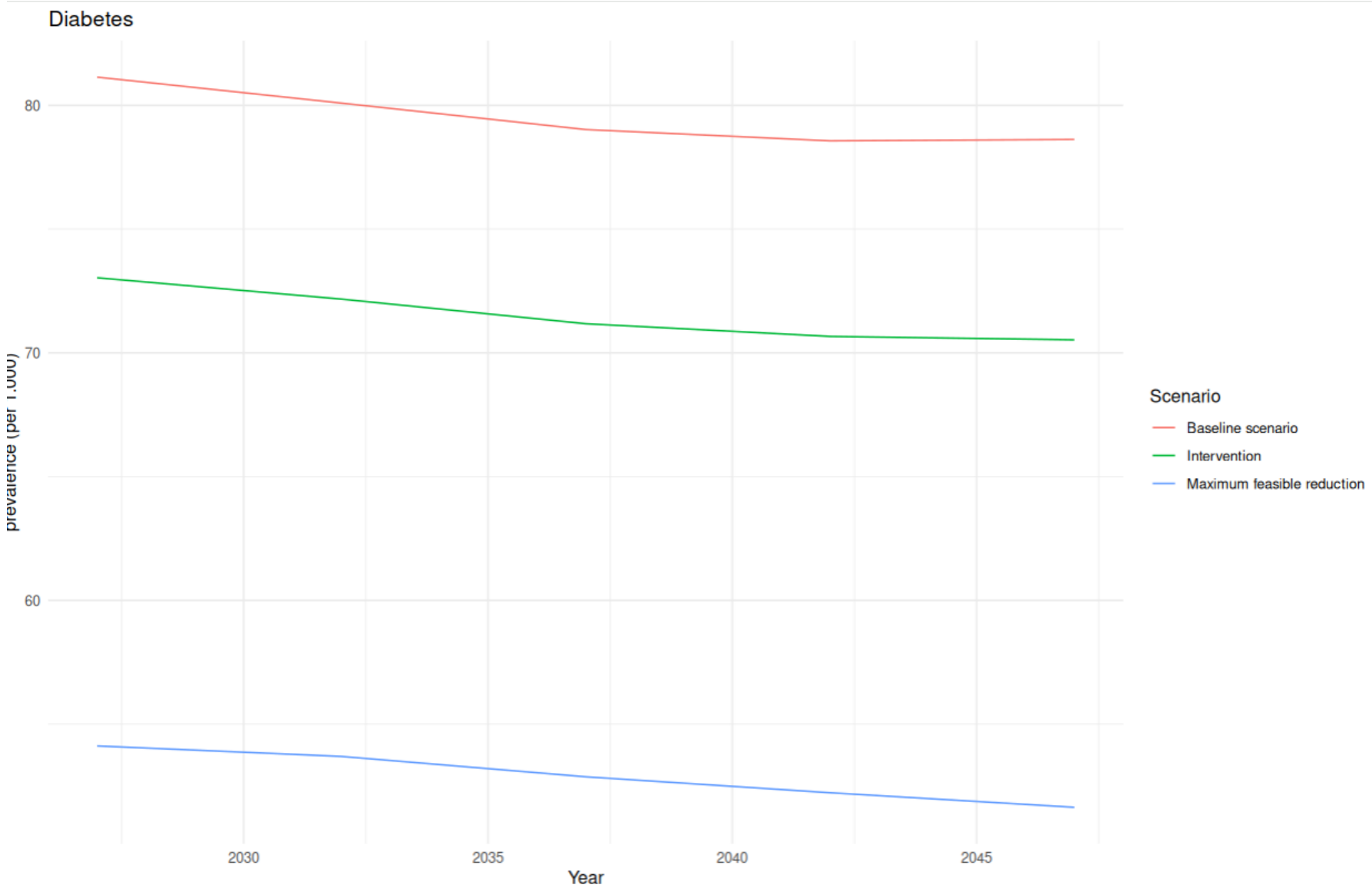
PIFs in the Netherlands 2022-2047

Data

- Baseline scenario
  - PHFS projections of risk factor exposure
- Intervention scenario
  - Reduced exposure to the risk factor compared with the baseline scenario.
- Outcomes
  - Disease projections obtained from PHFS
  - For all diseases linked to the risk factor in the Dutch burden of disease study


Weight
Baseline scenario from PHFS and intervention scenario
60
50
40
30
20
10
percentage
2030
2035
2040
2045
year
Weightclass
Healthy weight
Obese
Overweight
Scenario
Baseline scenario
Intervention


Coronary heart disease prevalence
56
52
48
44
prevalence (per 1.000)
2030
2035
2040
2045
Year
Scenario
Baseline scenario
Intervention
Maximum feasible reduction


Diabetes
80
70
60
prevalence (per 1,000)
2030
2035
2040
2045
Year
Scenario
Baseline scenario
Intervention
Maximum feasible reduction

Next steps

Next steps

- Best step: develop a micro simulation model
  - However, this is difficult and time consuming
  - Instead, validate with an existing microsimulation model (LCDM) for 1 or 2 outcomes
- Expand to other risk factors

Discussion

Discussion

- Validate with another (micro simulation) model
- Competing risks
- Latency period between changes in exposure and changes in disease risk
- How can we develop realistic intervention scenarios based on policy?

Thank you!!

Questions?

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