The economic value of health research

Feasibility study

Commissioned by New Zealanders for Health Research

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Why it matters

Health research

- directly links to wellbeing through its impact on longevity and quality of life
- contributes to achieving economic objectives
  - reducing the financial burden of ill-health
  - more productive population
  - potential for greater equity

Public investment in research has been hampered by concerns about returns on investment

What we did

- NZHR commissioned NZIER to complete a feasibility study
  - Estimate the ‘size of the prize’
  - Review the international literature
  - Assess the suitability of New Zealand data
  - Estimate a ballpark value from published values
  - Make recommendations

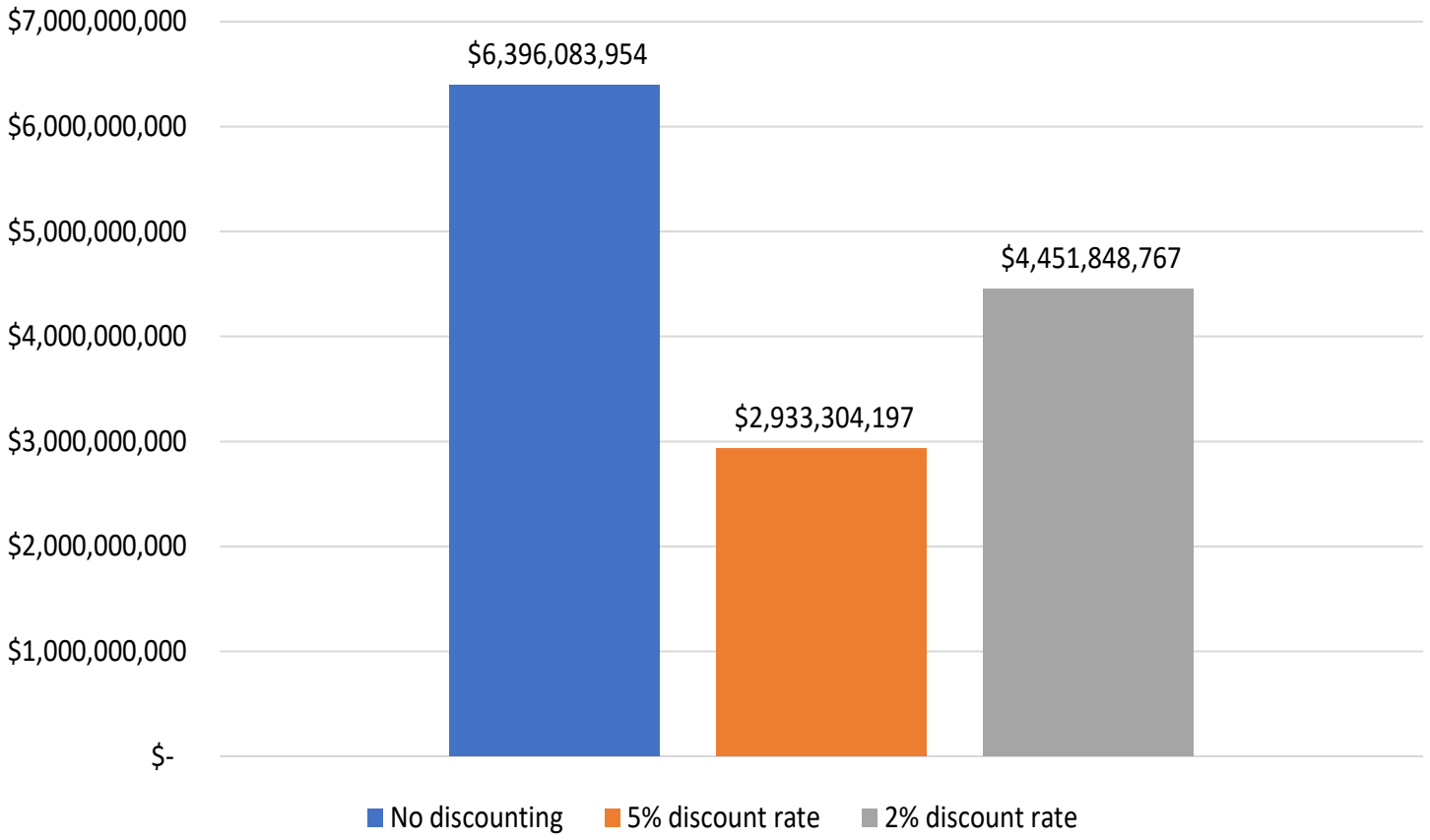
The *potential* value of health research in New Zealand is in the billions annually

- We estimated the value of lost production associated with premature mortality due to non-amenable causes in people aged 20+
  - In terms of labour productivity loss
  - In terms of *potential* loss
- We present results with and without discounting

Total *labour* productivity lost is at least $3 billion annually

Total labour productivity value of premature life years lost under different discounting

2017 deaths, 2022 dollars

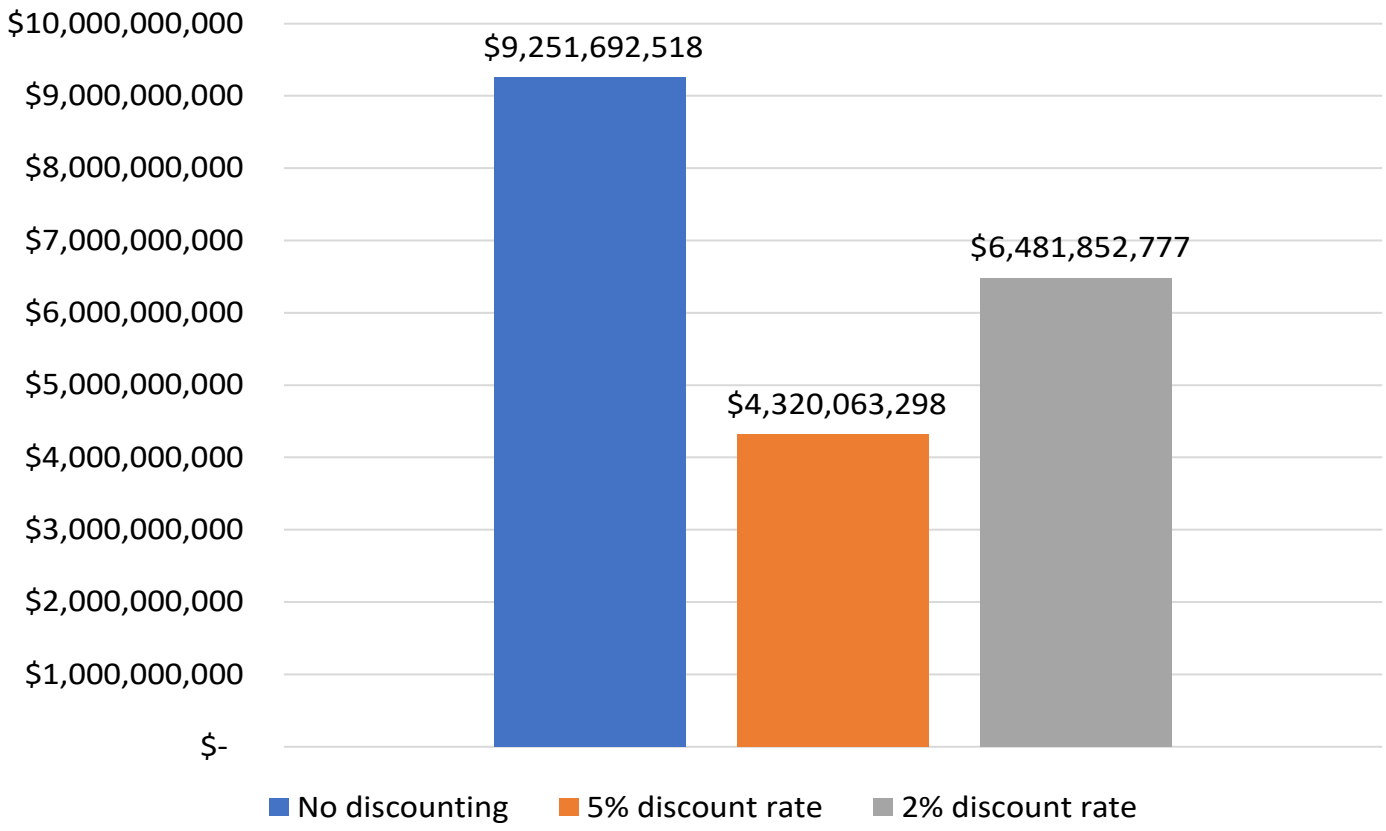


Source: NZIER

Total *potential* productivity lost is at least $4 billion annually

Total potential productivity value of premature life years lost under different discounting

2017 deaths, 2022 dollars



Source: NZIER

Key considerations in published studies

- Context and scope
  - definition of health research
  - source of investment (public/private/charity)
  - extent of economic impacts (health gains, supply chain, employment, commercial returns, spillovers to other sectors, crowding in/crowding out?)
- Data
  - national statistics, research institutes, universities
  - bibliometric data
  - input-output tables
  - previously published estimates
  - non-market values, e.g. value of a QALY/DALY, YLL
- Methods
  - input-output modelling, CGE modelling
  - top-down methods, bottom-up methods

Input-output tables and CGE modelling

- Input-output analysis
  - uses static tables tables that identify the economic relationships between sectors
  - identifies how investment flows from one sector to other sectors (economic spillovers)
  - only captures demand side of the economy (no supply constraints)
  - NZ tables are not very granular (research and development – health research approx. 13.5%)
- CGE modelling
  - overcomes demand-side only modelling by introducing supply-side constraints and factor price response
  - but relies on input-output tables for flows

Overall health gains across all diseases and conditions

Attribution to research versus other factors, e.g. improvement in living standards, and time lags based on previous estimates or expert advice

Overall return on investment for all health research

Top-down approach

Expected return on investment for any health research

Estimated return on investment for health research on specific diseases/conditions

Bottom-up approach

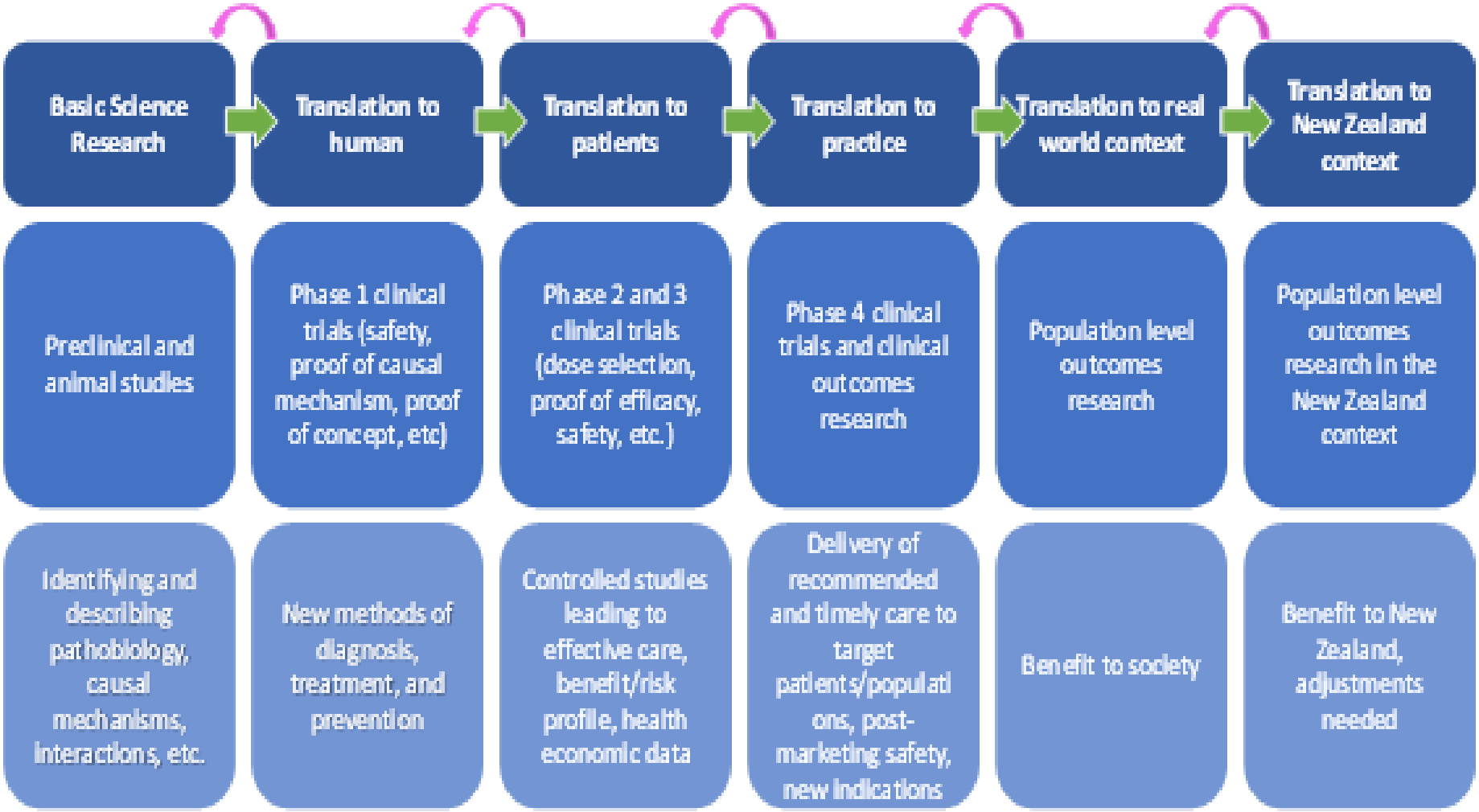
Links from inputs to impact and time lags demonstrated by bibliometric methods or expert advice. Attribution determined in context.

Health gains associated with specific interventions in specific disease/conditions

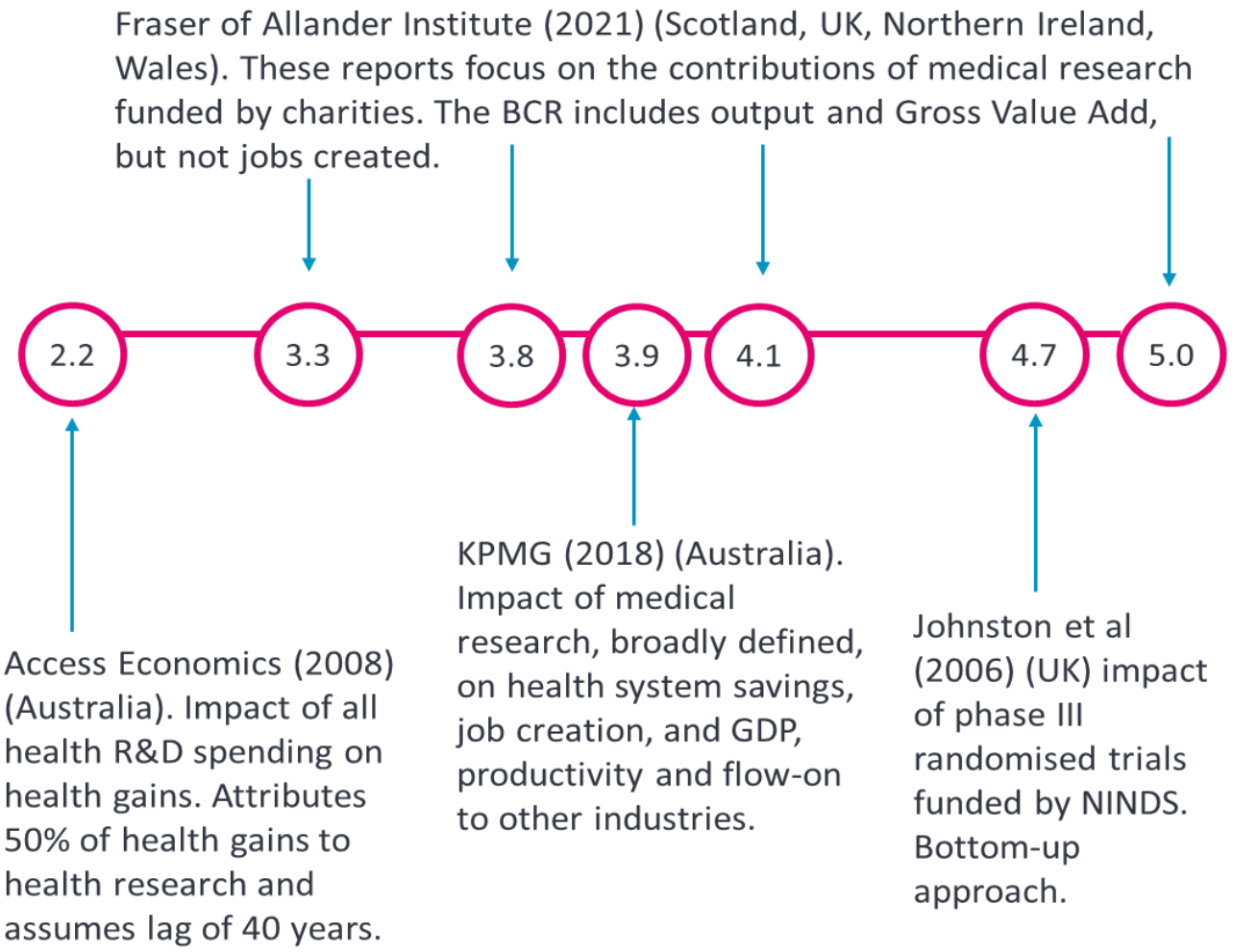
Common to all studies assessed

- Heavy use of assumptions, expert opinion, benefit transfer
  - lots of data needed, little data collected
- Time-consuming process ➡ short-cuts
  - Eg bottom-up approach: Grant and Buxton (2018b) estimated a UK study of this type would take 18–24 months (single case study)
- High degree of uncertainty
- Highly sensitive results
  - value of health gain has a significant impact

Time lags, including ‘translational gaps’ are most often subject to assumption

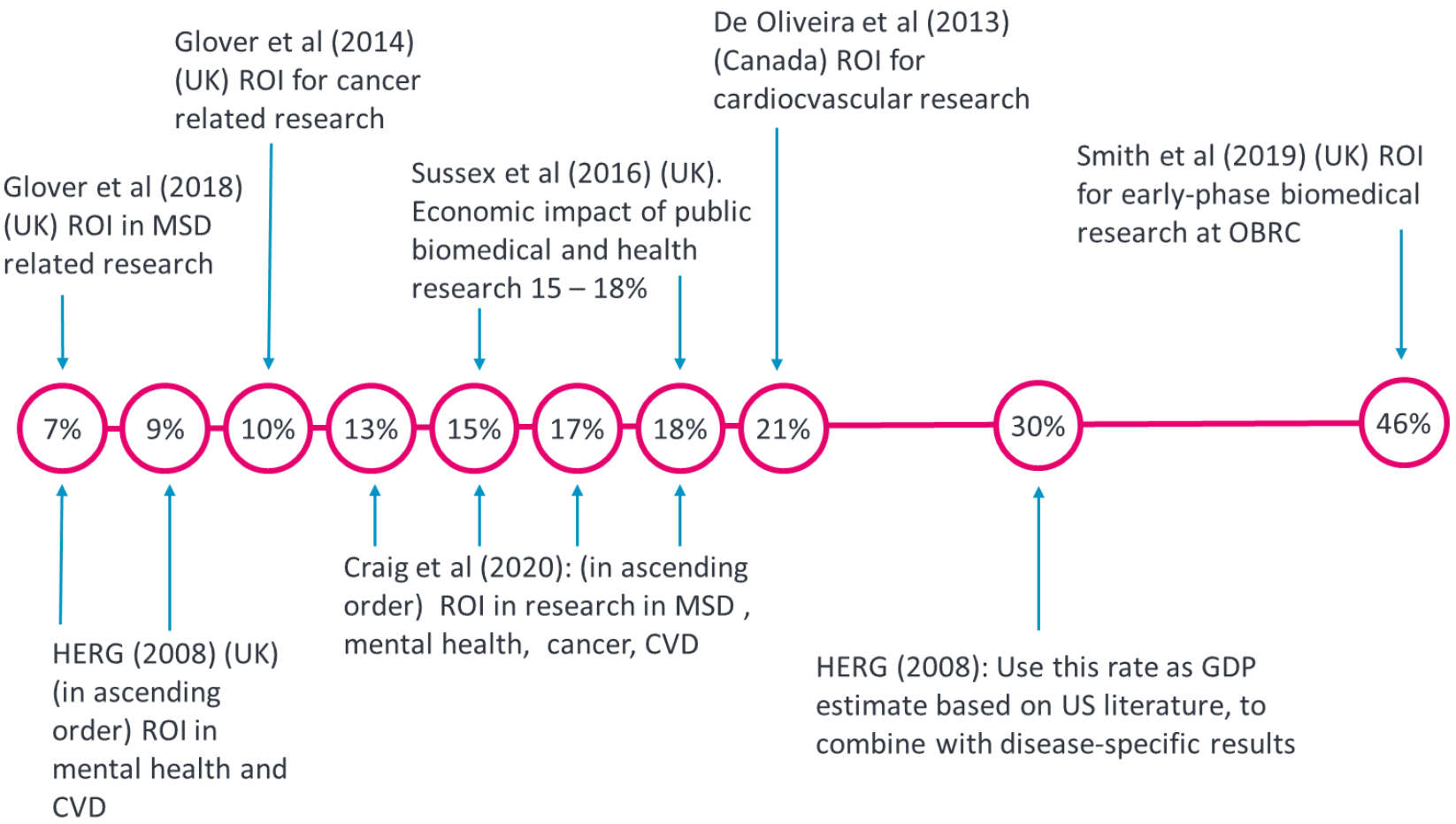


Benefit-cost ratios range from 2.2 to 5.0



Estimate for New Zealand:
2.2 to 3.9 BCR (20-30 years) – total of $1.1b - $1.9b

ROIs (or IRRs) range from 7% to 46%



Estimate for New Zealand: 13-30% annual return (20-36 years) - $64 million and $148 million per annum

New Zealand should address data gaps

- Agreeing on a framework for data collection on health research investment
- Development of a centralised bibliometric database to facilitate investment tracking