

The Union - NAR Postgraduate Course Implementation Science 101

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Implementation Science

- Implementation science: study of methods to promote the systematic delivery of a service in routine clinical practice
- Time from discovery to implementation
 - Hand hygiene: 150 years
 - TPT: recommended by WHO for >20 years (1998 guidelines)
 - Estimated median of 17 years from scientific advance to systematic uptake
 - Even if implementation is good at each step result can be under implementation
 - TB screening 90%; TB test sensitivity 90%; TB treatment initiation 90%; TB treatment completion / cure 90% → 65% of people with TB completion/cure

Elements of implementation science

- Challenges in bringing innovations to scale
- Why and how something works or fails with scale-up is important
- Increase the impact of innovation / evidence based interventions
- Close gap between evidence and practice
- Real world context
- Generalizability
- Partnership with implementing organizations

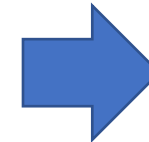
Knowledge /
intervention

1. What is the intervention

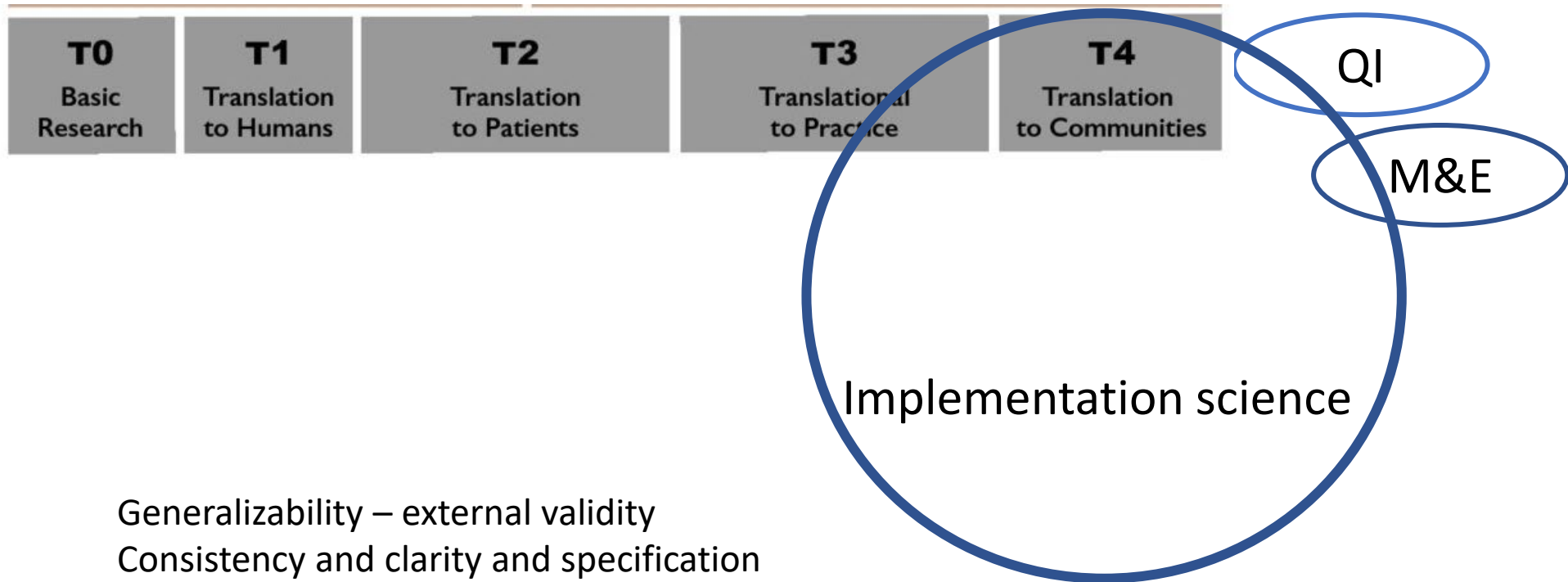
- 2. What are the barrier(s) to scale-up (implementation determinants)
- 3. What are the most critical determinants to scale-up

Real world scale-up

- 4. What strategy / strategies may work to address the determinants & achieve implementation
- 5. How is this strategy expected to work (mechanism of action)



- 6. How will this strategy be tested
- 7. How will implementation be measured

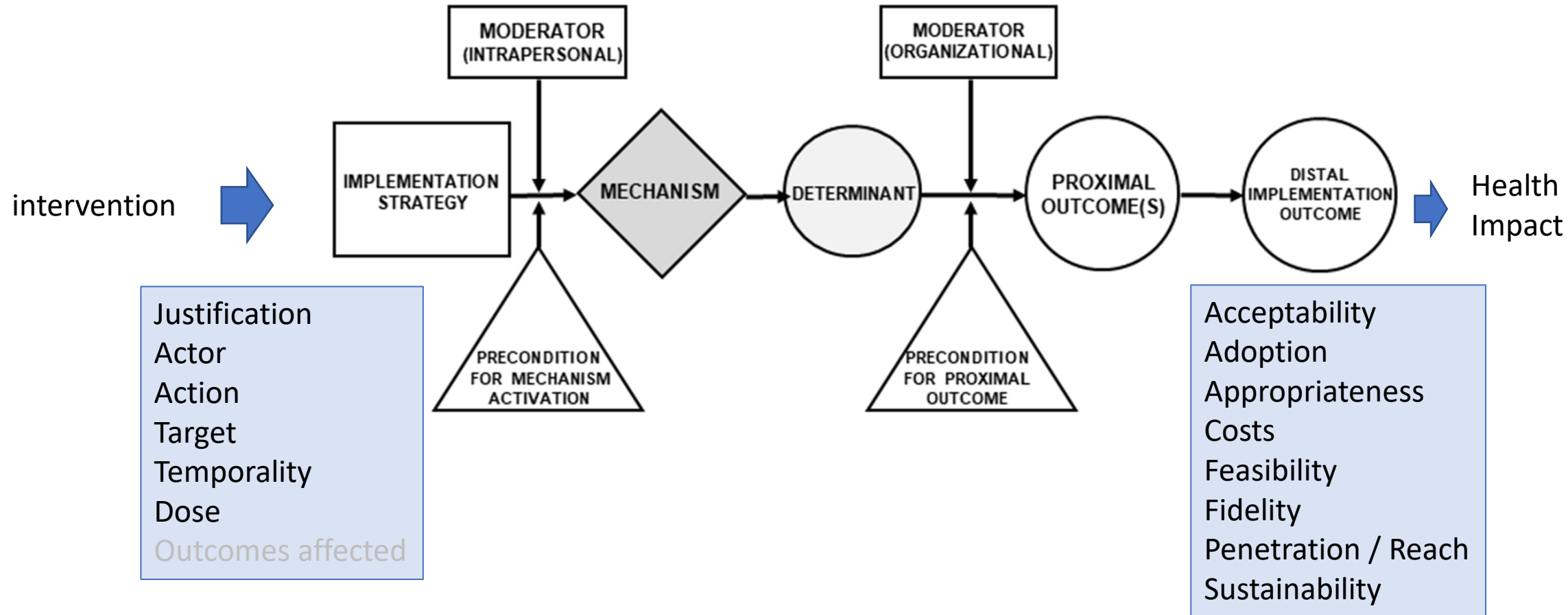


Generalizability – external validity
Consistency and clarity and specification
Robust measurement
Theory / mechanism of change

Some definitions

- **Intervention:** the evidence-based health service that is expected to improve individual or population-level health (TPT, TB screening, infection control, etc.)
- **implementation strategy:** the (theory-based) approach to achieve implementation of the intervention to a specific population or location (by affecting a specific determinant or determinants)

Causal model diagrams



Lewis et al. Imp Sci Com 2021; Proctor et al 2013; Proctor et al 2011

Actor

- Who is providing the implementation strategy
 - Trainer
 - Administrator
 - Payor / regulator



Action

- The action taking place
 - Training
 - Audit and feedback
 - Regulatory change



Action target

- Clinicians
 - Ideally specify further – i.e. clinician knowledge
- Managers
- Policy makers

Temporality

- When and in what sequence

Dose

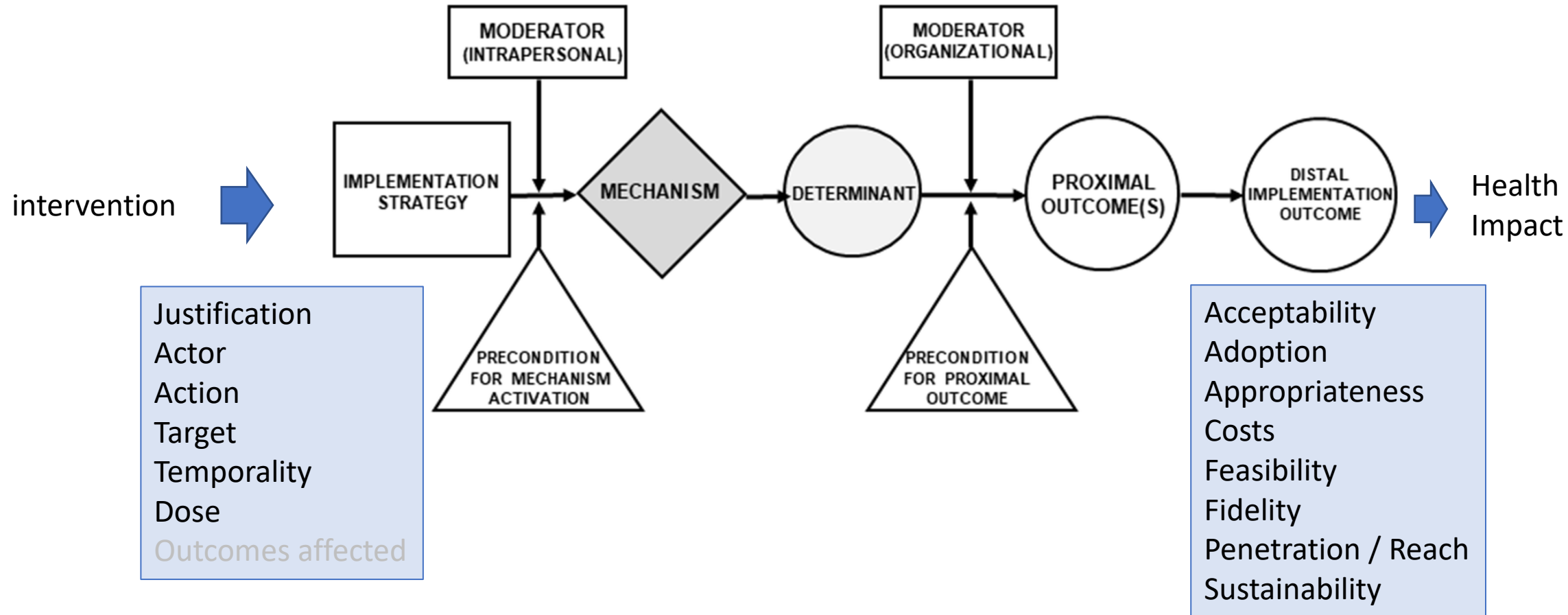
- How much
- How long – i.e. training session
- How frequent – i.e. audit and feedback

Justification

- Which implementation determinant is being targeted
- what is the proposed mechanism of change



Causal model diagrams



Lewis et al. Imp Sci Com 2021; Proctor et al 2013; Proctor et al 2011

Implementation outcomes

- Acceptability
- Adoption
- Appropriateness
- Costs
- Feasibility
- Fidelity
- Penetration / Reach
- Sustainability

Summary

- Collaborative
- Systematic
- Characterize implementation determinants
- Collaboratively develop an acceptable strategy to address a determinant(s)
- Specify the strategy
- Specify the mechanism of change
- Identify relevant and measurable implementation outcomes