Co-production of a transdisciplinary assessment by researchers and healthcare professionals: a case study

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Abstract

\textbf{Aim:} One definition of research co-production is a collaboration between researchers and healthcare professionals throughout a research process to facilitate knowledge translation and improve the clinical impact of research findings. In this paper, we present a case study of clinical research co-production and reflect on how the process was facilitated between researchers and healthcare professionals.

\textbf{Type of program or service:} Development of a novel transdisciplinary assessment for implementation in an acute stroke unit (ASU).

\textbf{Methods:} Researchers and healthcare professionals integrated perspectives and co-produced a novel transdisciplinary assessment. Team-based activities were guided by a logic model, including task analysis and simulation testing. A logframe matrix was used to plan implementation strategies to mitigate potential risks.

\textbf{Results:} Research co-production was fundamental to integrating multiple perspectives to develop an effective, novel transdisciplinary assessment for patients with stroke. Preliminary data demonstrated that the transdisciplinary approach could save up to 103 minutes per patient in assessment time.

\textbf{Lessons Learnt:} As the project evolved, the three most important factors for research co-production were 1) the right people to integrate critical disciplinary and pragmatic perspectives; 2) a project leader who was inclusive of perspectives held by researchers and healthcare professionals, and 3) structured and non-biased team discussions using a theoretical tool. We recommend these three factors be considered in future research co-production in healthcare settings.
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Methods

Clinical Setting

The project was carried out at the ASU at the Mater Hospital Brisbane, in Queensland, Australia.

Project Development

Developing a novel transdisciplinary assessment involved research co-production between healthcare professionals and researchers. As the project evolved, we focused on three important factors, summarised in Figure 1.

1. Establishing the team and project

The catalyst for the project was feedback from consumers (in this case ASU staff and patients) identifying that allied health assessments were repetitive. ASU staff agreed to respond to the feedback, and the occupational therapist
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2. Development and testing

Development of the transdisciplinary assessment was supported by a logic model (Figure 3). Logic models allow visualisation of the project process and identification of areas where further planning or evaluation is required.\(^{13}\) The intuitive structure of the logic model guided the project team to identify available resources, activities to complete, and outputs to generate to achieve the desired outcomes. Research co-production supported each stage of the logic model (Figure 3).

The primary resources identified were various stakeholder perspectives. Co-production commenced alongside team formation, where members discussed project roles and objectives. Next, the core group members undertook a series of co-production activities where expert proposed a project to implement a transdisciplinary assessment. At least one member from every discipline in the ASU was invited to join the project. Healthcare professionals (occupational therapists, physiotherapists, speech pathologists, social workers, stroke clinical nurse consultants, nurse educators) and a clinical researcher committed to the project as core group members (see Figure 2). The objective of the core group members was to co-produce a novel transdisciplinary assessment for implementation in the ASU, to reduce allied health assessment duplication and improve time efficiency. The occupational therapist was confirmed as the project leader, a role that involved facilitating fortnightly meetings and learning about research by enrolling in a higher degree by research. Peripheral stakeholders (educators and simulated patients) were involved to contribute their unique perspectives (see Figure 2). Patients will be co-production partners (see Figure 2) in the implementation and evaluation stages of the project (not reported in this case study).

Figure 2. Research co-production team

![Research co-production team diagram](image)

Objective: Efficient transdisciplinary stroke assessment

Core group members
- Acute stroke unit healthcare professionals
- Clinical researcher

Peripheral stakeholders
- Educators
- Simulated patients (actors)

Patients (not involved in the development phase)

Figure 3. Stages of research co-production mapped to a logic model

![Stages of research co-production logic model](image)
benefit identified (e.g. time efficiency), an outcome measure was co-produced to include in the research protocol (e.g. record time taken to complete usual assessments compared to the time taken to complete the transdisciplinary assessment). Collaboration between healthcare professionals and researchers (core group members) was necessary to select outcome measures that were clinically relevant, feasible to collect, and suitable for statistical analysis. The implementation strategies and outcome measures were collated into a research protocol and submitted to the Mater Misericordiae Ltd Human Research Ethics Committee (HREC/MML/66933) and the Research Governance Office (MSSA/MRGO/66933).

Results

The objective of the core group members was achieved. Simulation results showed an improvement in allied health time efficiency of 103 minutes per case, as the median total time to administer the transdisciplinary assessment was 42 minutes, compared with a median total time of 145 minutes for the former model of single-discipline assessments. The novel transdisciplinary assessment was considered appropriate for further testing, and we will progress to assessing implementation in the next phase of the research.

Insights and lessons learnt

As the project evolved, we identified three factors most important for co-production.

1. Perspective integration

It was critical to ensure the right people from a breadth of professional backgrounds were involved. Without their necessary perspectives, gaps in thinking and research planning could have hindered the development of the transdisciplinary assessment. We acknowledge that the patient perspective was not represented in the development phase. While this could be viewed as a limitation of the project, patient perspectives will be captured in the next phase of work (implementation and evaluation).

Researchers and healthcare professionals need to find ways to collaborate and co-produce effectively to facilitate perspective integration. We suggest that strategies might be found in the interprofessional collaboration literature for healthcare settings. Interprofessional collaboration is the partnership of healthcare professionals from different disciplines to deliver coordinated healthcare, which resembles our definition of research co-production. We suggest that co-production can be facilitated by member commitment, open communication, interpersonal relationships, trust, respect and understanding of others’ roles and expertise, sharing knowledge, and shared workspaces. Barriers to co-production can include...
professional culture disparities, role conflicts, power hierarchies, and a sense of competition.4,15,17

2. Project leadership
From our experience, a project leader with a dual perspective was an effective strategy to facilitate co-production, by actively integrating clinical and research perspectives. In this example, the project leader held a clinical perspective and was willing to learn about the research perspective. To reach mutual decisions in project meetings, the project leader encouraged core team members to share their perspectives and used prompts or paraphrasing to integrate missing perspectives. We also suggest that logical alternatives to a project leader with a dual perspective (such as shared leadership between clinicians and researchers) could be trialled in different settings.

3. Planning guided by theory
Theoretical tools were useful to support research co-production by structuring discussions and planning activities. For example, a logic model and logframe matrix were useful for identifying planning activities and guiding group discussions without favouring a healthcare or research perspective. As a result, discussions were structured, less biased, and encouraged contribution from all perspectives. We propose that future research co-production be guided by theory instead of stakeholder agendas or experience, which may be biased towards one perspective.

Conclusion
In this case study, the three most important factors for research co-production included: integration of the right perspectives, inclusive project leadership, and planning guided by neutral theoretical tools. From our experience, we suggest these three elements are essential in future applications of research co-production in healthcare settings.

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Competing interests
None declared.

Author contributions
AM was responsible for the analysis of literature, design, drafting, and editing of the manuscript. TG was responsible for design, reviewing and editing the manuscript. AMc was responsible for design, reviewing, and editing the manuscript. MS was responsible for design, reviewing, and editing the manuscript. LL was responsible for design, reviewing and editing the manuscript.

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