Review Article

Evaluating hospital tools and services that were co-produced with patients: A rapid review

SIEW LIM, HEATHER MORRIS, BENGIANNI PIZZIRANI, DUNCAN KA JEWSKI, WAI KIT LEE, and HELEN SKOUTERIS

Monash Centre for Health Research and Implementation, Monash University, 43-51 Kanooka Grove, Clayton, Melbourne, VIC 3168, Australia

Address reprint requests to: Siew Lim, Monash Centre for Health Research and Implementation, Monash University, 43-51 Kanooka Grove, Clayton, VIC 3168, Australia. E-mail: siew.lim1@monash.edu

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Abstract

Purpose: To describe the process and outcomes of services or products co-produced with patients in hospital settings.


Study selection: Studies that evaluate the products of co-production in hospital settings.

Data extraction: Primary outcome is the individual and organizational outcomes resulting from co-production. Study characteristics, co-production process, level of engagement and intensity of engagement were also extracted.

Results of data synthesis: A total of 13 studies were included. Types of co-produced outputs were health services and care processes, tools and resources, and technology-based products, such as mobile application. Most studies engaged patients at a consultative or involvement level, with only four studies engaging patients as partners. Moderate-to-high acceptability and usability by patients and health services were reported for co-produced outputs. Organizational outcomes were also reported qualitatively as producing various positive effects, such as improved communication and diagnostic process. Positive patient outcomes were reported for co-produced outputs in qualitative (e.g. improved social support) and quantitative results (e.g. reduction of clinic wait time). No patient clinical outcomes were reported.

Conclusion: Co-produced outputs have moderate-to-high acceptability, usability or uptake. There is insufficient evidence on other organizational or patient outcomes due to the lack of reporting of outcomes in co-production. Future research should focus on the outcomes (i.e. effects on patients and health service providers), not just the output of co-production. This is critical to provide feedback to advance the knowledge and implementation of co-production.

Key words: patient engagement, patient involvement, co-production, co-creation, health services

Introduction

Healthcare improvement could occur on many levels, including individual, organizational or governmental, with patients having the ability to contribute to beneficial changes across all of these levels. The National Institute for Health Research in the UK endorse the involvement of patients in healthcare services by using co-production [1]. Co-production is ‘the voluntary or involuntary involvement of public service users in any of the design, management, delivery and/or evaluation of public services’ [2], p. 640. Emerging evidence suggests that engaging patients in quality and safety improvement strategies within hospitals will improve patient outcomes as well as support clinicians in their professional practice [1, 3, 4]. Several systematic reviews have been published in the area of co-production with patients in healthcare [5–9]. These reviews covered...
topics, including the conceptualization of co-production [5]; barriers and facilitators to co-production with patients [5, 6, 9]; the output of co-produced interventions [6]; description of patient engagement [9] and defining optimal engagement [8]. None of these systematic reviews evaluated the healthcare improvement initiative that was developed using co-production. Instead, the co-produced ideas or the development of the co-produced intervention was reported as an endpoint without further evaluation [5–9]. There was also a lack of focus on organizational outcomes or the clinical and health outcomes of the patients in previous reviews [5, 6, 9]; as such, no definitive conclusions about the efficacy of co-produced healthcare improvement initiatives can be made.

While systematic reviews are considered the ‘gold standard’ due to their methodology and rigour, they take a long time to produce. Indeed, the most recent systematic review published in 2018 included papers only up to September 2016 [8]. The current rapid review prioritizes the timeliness of informing the audience on this topic over comprehensiveness of the search, by focusing on publications in the last 10 years and including fewer databases in the search. However, the processes of study selection, extraction and appraisal were conducted with the same rigour as in systematic reviews.

The primary aim of this rapid review was to identify the organizational outcomes and the patients’ clinical and health outcomes from co-produced interventions. The secondary aim was to analyze the methodological limitations within the co-production process (such as the definition of co-production, types of co-production, level and intensity of engagement and co-production strategies) of previous studies in order to inform future research. Five research questions guided our literature search and evaluation of the data:

(i) What interventions or strategies in health services have used co-production?
(ii) What are the patient outcomes from a co-produced intervention or strategy?
(iii) What are the organizational/health service outcomes from a co-produced intervention or strategy?
(iv) What are the methodological limitations within the co-production process (such as definition of co-production, types of co-production, level and intensity of engagement and co-production strategies) of the research conducted to date?
(v) What are the recommendations for future research in this area of co-production?

Methods
Data source
Medline, CINAHL and Business Source were the databases searched. Search terms from these concepts were included: (i) co-production (e.g. co-production, co-design, co-production, coproduction, co-creation and cocreation); (ii) healthcare and services (e.g. health services, health care, hospital, healthcare, health service, health system and health sector); (iii) the people who use these services (e.g. patient, user, client, consumer, community and public); and (iv) the process of including the service-users (e.g. engage, participate and involve). The full search strategy is as shown in Supplementary document 1.

Study selection
The inclusion criteria were studies that (i) were published in English from 01 January 2008 to 01 April 2019; (ii) were in adults; (iii) included patients in health service improvement activities; (iv) reported individual or organizational outcomes; and (v) had quantitative, qualitative, mixed-methods or case study designs. Studies reporting on protocol only, abstract only, conference proceedings, letters or editorials, reviews, theses or book chapters were excluded. All paediatric patients and other groups that depended on their carers to participate in co-production (e.g. disability or aged care studies) were also excluded. Titles, abstracts and full texts were screened independently by two reviewers from the author team (H.M., B.P., S.L. and R.S.). Discrepancies were resolved by a third reviewer from the author team (H.M., B.P., S.L. and R.S.).

Data extraction
A data extraction form developed specifically for this study was used to systematically extract study characteristics including the country where the project was conducted, type of service or setting, sample size and definition of co-production. Description and outcomes of co-production were extracted as the level of engagement (individual, organizational and policy), the intensity of engagement (consultative, involvement or partnership), description of co-production strategies, outcomes of co-produced outputs (individual or institutional). The level and intensity of engagement were defined using the patient engagement framework by Carman et al. [10]. The intensity of engagement is described in the following examples: consultation occurs when clinicians obtain lab results directly from patients; involvement occurs when patients have direct access to the results and clinicians’ notes; and partnership occurs when patients can also edit the entries to add their notes [10]. For study characteristics, one author (D.K.) extracted data from all studies, while a second author (S.L.) extracted from 10% of the studies to confirm the internal consistency of the data extraction process. Agreement for data extraction of study characteristics between the reviewers was 95%. The description and outcomes of co-production were also independently extracted by both authors (D.K. and S.L.). Discrepancies were resolved through consensus between the authors (D.K. and S.L.).

Quality appraisal
Studies were appraised using the tool developed by Hawker et al. to evaluate the quality of quantitative and qualitative studies [11]. This tool was selected due to the variety of study designs that were used in the co-production literature. The tool appraises each study on adequate reporting on abstract, title, introduction, aims, methods, sampling, data analysis, ethics approval, researcher’s reflexivity, transferability or generalizability of the population and implications of the findings. One author (W.L.) appraised all studies with a second author (S.L.) examining 10% of the studies. Agreement for data appraisal between the reviewers was 97%. Disagreements (i.e. the remaining 3%) between the two authors were resolved through discussion (S.L., W.L.).

Results
Included studies
The flow of the included studies is shown in Fig. 1. A total of 655 titles and abstracts were initially obtained. Following the removal of 144 duplicates, the remaining 541 titles and abstracts were screened; of which, 59 were considered further as full-texts. In total, 13 papers were included in this rapid review. Reasons for exclusion are shown in Fig. 1.
Study characteristics

The number of stakeholders involved in the co-production process ranged from 10 patients recruited for an Independent Patient Group (IPG) [12] to 813 patients recruited from multiple sites to participate in a survey to describe the health literacy of the patient groups (Table 1) [13]. All of the studies were conducted in high-income countries. Even though we have limited our search to studies published since 2008, 11 out of the 13 studies were published since 2016.

Referenced framework for co-production

The most cited framework for co-production was experience-based co-production [14–16] and participatory research (Table 1) [17, 18]. Other cited frameworks in the co-production process include value co-creation [19], Medical Research Council Complex Intervention Evaluation Framework [20], intervention mapping [13], quality improvement collaborative [13], realist evaluation [13] and user-centred design approach [21].

Types of co-produced services or products

Most studies reporting on co-production in the hospital setting had ‘health services improvements’ as the end-product, either in the form of service improvements or new services. Some examples include introducing ‘teachback’ to help clients to understand instructions [13] or having better access to podiatry services (Table 1) [22]. Co-production was also used to develop ‘tools and resources’ such as the patient incident reporting tool (PIRT) [12], Patient-Oriented Discharge Summaries (PODS) [16] or question prompt list (QPL) [14]. Co-production of ‘technology-based products’ was reported by several studies, including the development of an information and communication technology (ICT) platform for patient-reported symptom [20] or multimodal (Web and application) ICT tool for cancer rehabilitation [21]. In one study, co-production resulted in a working group, which was an experience-based co-production collaborative [23].

Engagement

Six studies engaged patients at a consultative level through surveys and interviews (Table 1) [13, 17, 19–21, 24]. Eight studies engaged the patients at the involvement level which included focus groups and workshops [12, 15, 17, 20–24]. Four studies engaged patients at the partnership level which included a working group [12], experience-based co-production collaborative [23], IPG meetings [22] and workshops [18]. Some studies used more than one engagement strategy across the different phases of intervention development, for example consultation with surveys or interviews and involvement with focus groups [17, 20] or involvement in focus groups and partnership through a working group [12, 22, 23].

Outcomes

Organizational. Most of the organizational or provider outcomes were on acceptability (e.g. satisfaction) [14, 17, 20], usability (e.g. easy to use) [16, 17, 21], uptake and retention among the providers (e.g. number of suggested changes that were implemented and maintained) (Table 1) [18, 23, 24]. Co-produced outputs received high ratings on satisfaction (80–100% satisfaction) [14, 17], moderate ratings on usability (60–100% easy to use) [16, 17] and had moderate-to-high levels of uptake and retention (50–100%) [23, 24] except in Farmer et al., which reported poor uptake and retention of interventions developed from a community-based participatory process [18].

The effects of the co-produced outputs were reported as qualitative statements, such as providers reported the intervention was effective [23], more efficient clinical practice [19], likely to reduce non-attendance rate [22], providers gained knowledge [18] and reduced post-discharge events (Table 1) [16].

One potential adverse outcome was reported, which was the potential increase in clinical workload resulting from a co-produced ICT platform [20].

Patient. Co-produced outputs were reported to have moderate-to-high usability scores (68–95 usability score) [21], moderate levels of patient satisfaction (64% satisfied) [23] and high levels of participation in the product by the patients (85% participated) (Table 1) [20, 24].

The effect of the co-produced outputs was reported, in qualitative statements, to have resulted in improved social support [17], better connection with mental health services [19], better access to allied health services [22], better access to information on mobile apps [22], ‘teachback’ increased client’s understanding [13] and the community gaining a ‘political’ perspective of the health system (Table 1) [18].

The impact of the co-produced outputs was reported, in quantitative data, to have resulted in reduction in clinic wait time [22], improved timely delivery of home medication [22], increased patient understanding of medication [15, 16] and improved in knowledge, confidence and skills (Table 1) [14].

No health outcomes were reported.

Appraisal. All studies were rated good or fair on the presentation of abstract, title, introduction and aim (see Table 2). All studies had
<table>
<thead>
<tr>
<th>Author (year), country, sample size</th>
<th>Co-designed product</th>
<th>Type of service</th>
<th>Referenced definition for co-design</th>
<th>Level of engagement</th>
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<tbody>
<tr>
<td>Armitage et al. [12], England, n = 329</td>
<td><strong>Tool and care process:</strong> PIRT; bedside interviews and patient safety hotline to report safety concerns</td>
<td>For hospitalized patients</td>
<td>EBCD</td>
<td>Organization</td>
<td>Focus groups, interviews, working group (2 patients; 2 researchers)</td>
<td>Involvement, partnership</td>
<td>PIRT identified patient safety incidents that were not identified through other means; 55% PIRT were agreed as patient safety incident by doctor</td>
<td>NA</td>
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<tr>
<td>Bak et al. [23], Canada, n = 104</td>
<td><strong>Group:</strong> EBCD collaborative</td>
<td>For hospitalized patients</td>
<td>EBCD</td>
<td>Organization</td>
<td>Workshop that led to the formation of the EBCD collaborative</td>
<td>Involvement, partnership</td>
<td>50% implemented at least 6 changes from the EBCD process, 36% felt it was very effective in improving patient outcomes</td>
<td>64% of patients or caregivers reported they were very or somewhat satisfied with the outcomes of EBCD</td>
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<td>Beauchamp et al. [13], Australia, n = 813</td>
<td><strong>Service:</strong> various interventions to improve health literacy</td>
<td>In small/large hospitals, community health centres or municipalities</td>
<td>Intervention mapping, quality improvement and realist synthesis</td>
<td>Organization</td>
<td>Survey, workshops</td>
<td>Consultation with patients, partnership with organization</td>
<td>Hospitals: teachback helps client to have accurate understanding, identifies gaps in patient understanding, allow for better rapport</td>
<td>Increased health literacy scores in some sites (NS for hospitals)</td>
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<td>Blanco et al. [17], Spain, unknown number involved in overall co-design process, 26 involved in comparative assessments, 17 300 log Reports analyzed</td>
<td><strong>Tool:</strong> Micro ad hoc Health Social Network (μHSN)</td>
<td>Health social network for patients with chronic disease, evaluated in communities with Parkinson’s disease and stroke</td>
<td>Community-based participatory research</td>
<td>Organization</td>
<td>Surveys, interviews, focus groups, data logs</td>
<td>Consultative, Involvement</td>
<td>Optimized efficiency for healthcare workers, support of long distance rehabilitation, quality of service enhancement; 60-65% felt it was easy to learn to use the tool, 80% satisfied, professionals sent 60% of the messages, patient sent 40% of the messages, 67% health professionals highly valued the tool</td>
<td>Expanded social connectivity (each patient interacted with 82% health professionals and 21% patients); greater emotional, peer and social supports; immediate access to higher quality information</td>
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Table 1 Continued

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<tr>
<th>Author (year), country, sample size</th>
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<tr>
<td>Cheverton et al. [19], Australia, 8 mental health provider agencies forming a Consortium Management Committee</td>
<td>Service: various interventions for mental health, submitted to Australian Government's Partners in Recovery Program</td>
<td>Patients with severe, persistent mental illness and complex needs in primary and secondary carer</td>
<td>Value co-creation</td>
<td>Policy</td>
<td>6-weekly meetings with agency CEOs, managers, consumers and care-representatives; six weekly meetings with service managers; monthly meetings with direct delivery staff</td>
<td>Consultation (although unclear)</td>
<td>Greater understanding of end users' needs, changes to referral practices, improved connection between clinicians and consumer, greater reach to unconnected individuals with mental health issues, more efficient clinical practice</td>
<td>Better connection to mental health services, reduction in unmet consumer need</td>
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<tr>
<td>De Sousa et al. [22], England, 10 patients involved in IPG, as well as a project lead and patient experts</td>
<td>Service and tool: Various interventions by The Group Rheumatology Initiative Involving Patients project, including service changes, patient education sessions and mobile application</td>
<td>Rheumatology outpatients known to a metropolitan hospital</td>
<td>Co-design not formally defined</td>
<td>Organization</td>
<td>10 monthly IPG meetings for the service changes, 2 patient focus groups for the mobile application</td>
<td>Involvement, partnership</td>
<td>More efficient and tidier clinics; mobile app likely to reduce clinic non-attendance as well as track symptoms, monitor lifestyle changes and act as medication reminders</td>
<td>Improved patient experience (e.g. reduction in mean clinic wait time 67 vs 47% seen within 30 min), better access to allied health services, convenient access to information in mobile app, timely delivery of home medication (92 vs 48% received medication on time)</td>
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<td>Farmer et al. [18], Scotland, 22 involved in review of interventions; unknown number involved in CBPAR process</td>
<td>Service: various interventions from the Remote Service Futures CBPAR study</td>
<td>Rural health services</td>
<td>Community-based participatory action research</td>
<td>Organization and policy levels</td>
<td>Workshops, interviews, informal e-mail and telephone conversations</td>
<td>Partnership</td>
<td>Service managers gained knowledge of community participation in designing interventions; less outcomes and interventions eventuated than anticipated (only one actual service change occurred, the service received negative feedback from community)</td>
<td>Community members gained a 'political perspective' of the health system</td>
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<td>Hahn-Goldberg et al. [16], Canada, 44 involved in co-design</td>
<td>Service: PODS</td>
<td>Hospitalized patients post-discharge</td>
<td>EBCD</td>
<td>Organization</td>
<td>Patient experience mapping, interviews, discharge document review, focus groups, surveys, observations and usability tests</td>
<td>Partnership</td>
<td>Reduced patient post-discharge enquiries; potentially fewer adverse post-discharge events, readmissions and non-compliance; 75–100% providers felt PODS was easy to use</td>
<td>Better understanding of discharge instructions which optimizes self-care; 0–18% increase in patients understanding of medication, when to resume normal activities, where to seek help and other discharge information.</td>
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<td>Hjelmfors et al., [14], Sweden, 16 (25 for phase 1; 16 for phase 2)</td>
<td><strong>Tool</strong>: various interventions (QPL for patients; communication course for health professionals)</td>
<td>Heart failure patients and hospital-based cardiac healthcare professionals</td>
<td>EBCD</td>
<td>Organization</td>
<td>Focus groups (ideas groups), questionnaires</td>
<td>Involvement</td>
<td>Augmented the knowledge and communication skills of cardiac healthcare professionals in counselling HF patients and family (85–100% satisfaction with the course)</td>
<td>Improved communication of HF trajectory and end-of-life care; most had improvements in knowledge, confidence and skills following the QPL</td>
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<td>Rawson et al., [15], England, 30 patients involved in co-design; 2 independent researchers and 3 research facilitators also involved; 15 in the pilot study</td>
<td><strong>Tool</strong>: patient-specific information module, embedded within an electronic decision support tool (CDSS)</td>
<td>Hospitalized patients receiving antibiotic therapy</td>
<td>EBCD</td>
<td>Organization</td>
<td>Workshops, focus groups, questionnaires during pilot phase</td>
<td>Involvement</td>
<td>Ability of all healthcare professionals to deliver antibiotic education; potential to reduce medication errors and improve patient outcomes. No organizational evaluation on the product</td>
<td>Improvement of patients’ short-term understanding of antibiotic therapy and their infection (scores improved from 3.2–8.5); personalized informative sheets</td>
</tr>
<tr>
<td>Sundberg et al., [20], Sweden, 9 patients involved in trial of intervention, unknown number involved in co-design of product</td>
<td><strong>Tool</strong>: ICT platform for patient reported symptoms</td>
<td>Prostate cancer outpatients receiving radiotherapy treatment, one in a large city and the other in a rural area</td>
<td>Co-design based on the Medical Research Council’s complex intervention evaluation framework</td>
<td>Organization</td>
<td>Focus groups, interviews, Consultation in design phase, involvement in evaluation of intervention</td>
<td>Some nurses reported concerns with potential increase in clinical workload</td>
<td>85% participants accessed self-care advice, ~10 symptom assessment reports submitted by each patient during 2-week period. Qualitative study reports patients felt it was easy to use, content was relevant, one patient expressed it facilitated timely response to symptoms of concern. Moderate to high system usability score among patients (68–95); all intended to use the symptom monitoring module, half intended to use the Web-based exercise module</td>
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<tr>
<td>Timmerman et al., [21], Netherlands, 43 (17 of these involved in evaluation of intervention)</td>
<td><strong>Tool</strong>: multimodal ICT-supported (telehealthcare application) cancer rehabilitation program</td>
<td>Lung cancer patients in rehabilitation post lung resection</td>
<td>User-centred design approach</td>
<td>Organization</td>
<td>Semi-structured interviews, focus groups and scenarios</td>
<td>Involvement</td>
<td>Moderate to high system usability score among health professionals (63–78)</td>
<td>Moderate to high system usability score among patients (68–95); all intended to use the symptom monitoring module, half intended to use the Web-based exercise module</td>
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appropriate methods, sampling and data collection that were clearly described. These included clear details on who was studied, how they were recruited and why the groups were targeted. Data analysis was sufficiently rigorous in all studies except three [16, 19, 22], which had minimal or no discussion on analysis. Issues with ethics and bias were adequately addressed in all studies except in five studies which did not mention these issues [16, 17, 19, 22, 23]. Results were clearly and logically presented in all studies. All the studies had sufficient data to support the findings with the exception of three studies for which findings could be made clearer with further explanations [16, 19, 22]. The contexts and settings were described sufficiently to allow for generalisability in all studies except one [19]. All the studies except for one [16] contributed to the generation of new knowledge that can inform ideas for research, policy or practice.

Table 1 Continued

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<tr>
<td>Author (year), country, sample size</td>
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<tr>
<td>Wright et al. [24], England, 178 in co-design of PIRT; 77 in the evaluation of PIRT; 578 patients and staff recruited in assessing feasibility of patient reporting and action for a safe environment (PRASE); 2471 patients across 33 wards over 12 months involved in RCT</td>
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Discussion

The interventions (outputs) in health services that were co-produced were new services or tools. Most studies on co-production did not report the outcomes or effects of the co-produced interventions on the organization or patients. Of the organizational outcomes, the most commonly reported were acceptability, usability and uptake of the co-produced product. No patient health outcomes were reported.

Definition of co-production

In the literature, the processes of involving patients in the development or improvement of health services are described using various terms including consumer involvement, public involvement, patient involvement, patient engagement, co-creation, co-production, co-production and others [2, 25, 26]. The definition of these terms is context-dependent and there is currently no consensus on the definition of these terms. The lack of clarity in defining and organizing these concepts can be a cause for confusion for patients, health professionals, managers and healthcare organizations engaging in co-production activities. It is also difficult to research and understand what works within co-production when the meaning of the term continues to evolve without consistency in every case study. We set out to compile the working definition used by various authors when this or the related terms were used in reports. We found a range of definitions and frameworks cited by the authors, including experience-based co-design, intervention mapping, quality improvement and others. This reflected the epistemology of co-production which includes a wide range of disciplines, such as marketing, business, management, systems thinking, design science, computer science, community development and others [27]. The lack of consensus on the definition of co-production could lead to nominal efforts by organizations that may not truly reflect the principles of equity and participation; this presents a clear limitation in the field. Considering the included studies in the current review, we propose a working definition of co-production with patients in the hospital setting as ‘the engagement of patients to produce tools or processes for clinical service through consultative, involvement or partnership activities’.

Outputs of co-production with patients

The types of products that were co-produced were care processes, tools and resources used to deliver healthcare to patients. The involvement of patients as end-users of these products facilitates human-centred design, in which the people impacted by the change are placed at the centre of the decisions [28]. In the studies included
in this review, co-production of outputs involved various engagement methodologies, including consultation, involvement and partnership, as defined by Carman et al. [10]. We were unable to evaluate the effectiveness of these different engagement methodologies on the patient or organizational outcomes in co-production due to the lack of reporting on outcomes in general.

The outcomes of the co-produced outputs

There was very sparse evidence on patient outcomes, as consistent with previous reviews [5, 6, 8]. Moreover, most of the reported organizational or patient outcomes were in the form of general, qualitative statements instead of quantitative measures. The lack of objectively measured outcomes makes it difficult to determine the absolute effectiveness of the co-produced outputs or relative effectiveness compared with non-co-produced, top-down innovations. Health organizations should seek to evaluate their co-produced services based on health outcomes achieved in addition to what and how the co-produced service was developed and delivered [29]. Indeed, evaluation has been highlighted as an important step in co-production in the existing framework for patient engagement [28]. Given that co-production is often implemented as part of the planned-study-act quality improvement cycle in health services, evaluation of the co-produced tool or service is also critical to inform areas for improvement in the next cycle [30]. Without outcomes, there is no feedback loop to inform the learning and improvement in co-production as a process, or on the effectiveness of its products.

Limitations

As a rapid review, we limited our sources of search and did not include grey literature. This may have precluded many case studies of co-production that were not published in peer-reviewed journals. The limited number of included studies in the current review highlights the need for peer-reviewed research in this area. We also limited our search to the text words of terms relating to co-production. There may be other instances where some of the principles of co-production were applied without the presence of these key terms. Generalizability of these findings is also limited by the small set of countries that contributed to the data, and the exclusion of certain population groups, e.g. paediatrics. Furthermore, none of the included studies were randomized controlled trials, which limits our ability to draw empirical conclusions on the effects of co-production. The heterogeneity on the types of outcomes also limits our ability to pool the results quantitatively.

Recommendation for future research: a growing area

Although the search was limited to the last 10 years, we found that most of the included studies (11/13) were published within the last 3 years. This provides further evidence on the growing prevalence of co-production in health services. This trend suggests that co-production in health services is a relatively ‘young’ area of science with the potential for growth in the coming years. Being true to its typological roots in phenomenology [27], perhaps the best definition and framework could only be determined inductively over time by studying live examples of effective strategies in co-production instead of deductively through conceptualized theories and frameworks. The process of co-production can only lead to continuous improvement if the co-produced output is evaluated. As co-production is emergent and adaptive in nature to respond to the changing needs of stakeholders, pre-specification of outcome measures could be difficult [31]. We acknowledge this difficulty and suggest that evaluation could focus on how well the co-produced tool or service resolves the original problem that led to its conception.

Conclusions

Co-produced outputs have moderate-to-high acceptability, usability or uptake. There is insufficient evidence to draw a conclusion about the effect of these products on organizational or patient outcomes. Future effort in co-production should focus on the outcomes (i.e. effects on patients and health service providers), not just the output of co-production. This is critical to provide feedback to advance the knowledge and implementation of co-production.

Acknowledgements

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References
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