Contested innovation: the diffusion of interprofessionalism across a health system

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Abstract

Objectives. Interprofessionalism (IP) has emerged as a new movement in healthcare in response to workforce shortages, quality and safety issues and professional power dynamics. Stakeholders can push for IP (e.g. education providers to the health system) or pull (e.g. the health system to the education provider). Based on innovation theory, we hypothesized that there would be unequal forces within and across stakeholder domains which would work to facilitate or resist IP. The strongest pull pressures would be from the health system and services; push pressures for IP would come from government and higher education; with weaker push forces and levels of resistance, from protectionist professional bodies.

Design, setting and participants. Our model was tested in a geographically bounded health jurisdiction. Information was gathered and analysed via individual (n = 99 participants) and group (n = 372 participants) interviews with stakeholders, and through document analysis.

Results. The health system and services exerted the strongest pull in demanding IP. The strongest push factor was individual champions in positions of power. Professional bodies balanced their support of IP competencies with their role as advocates for their individual professions. A weak push factor came from government support for health workforce reform.

Conclusions. Our hypothesis was supported, as were our predictions that the strongest pull would be from the providers and the strongest push from government and higher education. Our original model should be extended to account for contextual factors such as large-scale workplace and professional reform, which worked both for and against, IP.

Keywords: interprofessionalism, health care system, innovation, education, organization science

Introduction

Over the last decade interprofessionalism (IP) has emerged as a major movement in health care [1]. In this paper we explore the relative strength of the forces which shape this movement within the context of a geographically defined health jurisdiction. By examining IP as a form of contested innovation [2], we consider how individual, group and organizational vectors (including governments, health practitioners, health services, professional bodies and higher education institutions) act to push and or pull, and resist or shape, this innovation as it emerges.

Background

The call for more effective interprofessional practice (IPP) has been taken up internationally by many jurisdictions the World Health Organization [3]. Governments, faced with world-wide shortages of healthcare staff, are supporting IP as a way of reducing duplication of services, utilizing healthcare workers’ skills to more effectively and improving the quality of care [3].

Studies of patient safety have shown that positive workplace relations and effective interprofessional teamwork can contribute to the reduction of errors and improvements in both the quality of care and patient outcomes [4]. IP is said
to achieve these gains by increasing clinicians’ knowledge of others’ disciplines, responsibilities and roles, and by improving communication and collaboration within and across teams [5–8].

IP has been sponsored internationally by health systems and services [3], individual professional bodies [9] and issue-centred healthcare coalitions [10]. IP competencies [11] and undergraduate and post graduate courses intended to produce or develop interprofessional-ready practitioners are now common in educational institutions internationally [12]. While there is a growing body of research on IP within health and education, the evidence base examining the spread of IP across domains remains limited [8, 13, 14].

Viewing IP as a contested innovation in a dynamic system exposes the various forces at play which are attempting to shape its success and direction. The innovation literature identifies characteristics such as organizational and individual readiness [15, 16], leadership [17], supportive management structures [18] and external and internal pressures, including ‘problems, politics and policies’ [19] as key to take up and success of innovations.

A number of conceptual and theoretical frameworks, including the push-pull model [20] used in this paper, have been used to account for the demand for and resistance to, innovation [21]. Push-pull was chosen as an exploratory framework because it has already been tested within the healthcare sector. Push-pull forces have been used to explain behaviour including the adoption of innovations and technology, the flow of information, the uptake of health promotion messages and management development [22, 23]. In classical push-pull theory, goods (information, products, technology) are pushed towards existing or potential clients by source organizations, and are pulled by demand, based on a perceived gap, from these clients [20]. Behaviour is mediated by a number of different factors. Systems have a push-pull boundary or a decoupling point. On one side of this point all goods are pulled by the clients, and therefore demand is variable, with a large number of possible ways to meet that demand. On the other side of the boundary, the push is regulated by predictions of market demand, but the number of possible options are limited by the resources of the supplier [24].

Application of a push-pull model of interprofessional learning and practice

In a previous paper we outlined the protocol for an action research project to strengthen system-wide interprofessional learning (IPL) and IPP [14]. In that protocol we described a 4-year, multi-method, multi-domain and multi-collaborator action research project to strengthen IPL and IPP and to examine interprofessional education (IPE) across a geographically and jurisdictionally bounded health and education systems in Australia, comprising ~4996 full time employees. We defined IPE as any ‘...collaborative, interdisciplinary education and learning process designed to produce effective, multidisciplinary patient centred care.’ [14] Within this context, IPL includes those formal and informal activities and processes designed to lead to the same outcome of effective care, and IPP is the enactment of IPL within the professionals’ scope of practice [8].

The push-pull mechanisms driving IP were theorized over four domains: the educational sector, professional bodies (macro, upstream forces), healthcare services (meso, mid-stream forces) and healthcare teams, units and wards (micro, downstream forces). The model is presented in Fig. 1. Our hypothesis was that these mechanisms would work concertedly to produce a demand for IP within the health service jurisdiction (domains C and D) [14].

Our push-pull model is a modification of the social ecological perspective [25]. A push-pull model, like the social ecological perspective, posits that there are multiple spheres of influence which support or inhibit change, or innovation. In the macro sphere, individual agents and teams operate to influence each other, but can also influence those above them in the hierarchy by creating or demanding change. At the meso-level the health system’s activities function as a fulcrum: they can be tipped either by larger upstream forces or by the demands of the micro-level constituents. In the former case at the micro-level change can occur for example through industrial action or social or professional networking. In the case of the macro, educational sphere, both demand and supply can drive change.

Methods

The research protocol outlined four inter-related, prospective studies, to examine the progress of IPL and IPP [14]. We conducted individual and group interviews, observations and document analysis to collect baseline data on IPE, IPL and IPP across the jurisdiction. Here, we extend the application of the push-pull model of IP, by hypothesizing about, and examining the relative strength of forces in, the model.

Sample

Semi-structured interviews were conducted with individuals (n = 99 participants) and groups (n = 372 participants). Participants included clinical, managerial and administrative staff from one or five service streams: aged care and rehabilitation, mental health, community health, acute hospital care and cancer services. The interview schedule included questions relating to: staff wellbeing and organizational climate; communication strategies and mechanisms; team climate; practices in the sharing of ideas and knowledge within and across groups; decision-making processes; leadership and management styles; and perceptions about the standard and quality and safety of care. Interviews lasted on average one hour, during which extensive notes were taken. These notes were subsequently transcribed by the researchers. Researchers conducted interviews independently; results were compared in order to ensure that a systematic approach to data collection and transcription was maintained.

An additional 16 individual and one group interview (n = 3 participants) were held with senior academics at the four
higher education institutions within the jurisdiction. Interviews focused on the types and frequency of interprofessional content and activities provided to students; support available for staff wishing to include interprofessional perspectives and activities in their curriculum; and any interprofessional research being conducted either by staff or students. A document analysis of interprofessional content and activities was conducted with heads of school and senior faculty members. An audit of the interprofessional activities of 71 professional associations, registration bodies and colleges was also conducted via documentary analysis of data available in the public domain. This included a review of educational policies, professional standards and registration legislation.

Analysis

The study used a three-phase model of sequential data analysis [26]. In phase one, the health services’ and academics’ transcripts were subject to a thematic content analysis, [27] by one researcher examining the transcripts for codes and categories which could be extrapolated from the data, and two additional researchers reviewing the results. In phase two the interview data were reviewed again through a second-level filter by all three researchers in order to identify and allocate specific examples of IPP, IPL and IPE to each of the grounded categories.

Phase two of the analysis also included data gathered from a documentary review of higher education and professional bodies’ educational activities. These were subject to content analysis, with the type and number of interprofessional activities for each group recorded [28]. The presence or absence of activities, their scope (i.e. frequency, duration, potential number of participants), content, and the degree to which they were structurally embedded (i.e. whether they were: ad hoc or regularly scheduled; dependent on external or additional resources, including funding; dependent on

Figure 1 Push-pull model of IPL and IPP [14].
external presenters; formally assessed or attracted Continuing Professional Education (CPE) points were assessed.

In phase three the identified categories and examples were compared against the literature on innovation in healthcare, in order to identify illustrations of the relative forces for, and resistance to, IP as a specific type of innovation. In order to ensure the quality of the analysis two additional researchers reviewed the first author’s list of forces, which were modified according to common agreement. All the results from all three phases were reviewed by the last author, who examined them for consistency and coherence. Therefore, individually and collaboratively we accounted for the relative, rather than absolute, strength of the various forces.

Data collection was driven by the broad research questions and not by the push-pull model itself. No direct questions relating to the model were asked. Rather the results were analysed and organized, as discussed above, in order to interrogate the model. We report on the examples of IPL, IPE and IPP and the relative forces for, and resistance to, innovation.

Findings

Macro, upstream: tertiary education providers

IPL and IPE in the educational institutions were driven by champions committed to IP. The spread of their influence across their own and other institutions was largely based on individual, historical-anchored networks and connections. As well as individual champions, IPE and IPP were stimulated through external government and service demand for the development of newly emerging para-professions (such as allied health assistants) to deal with the ageing of both professionals and the general population, and workforce gaps caused by burnout or early exit of professionals.

Various types of formal, informal and incidental IP activities were identified. IPE activities tended to be formally structured. These included guest lectures (from the department of health’s IP Co-ordinator and other representatives) and professional practice courses or units which specifically addressed issues of IPP. IPL was facilitated less formally, and involved opening pedagogical spaces for the consideration of IPL and IPP: Examples of such spaces included: ‘special events’ such as seminars or debates; interprofessional reflection as a part of content or practice courses; and student association meetings concerned with issues such as rural health. IPL could also occur incidentally, largely through generalist courses (either within or external to health faculties) where students from various disciplines collaborate and in which they may or may not explicitly address issues of IPP. IPP was facilitated both formally and informally. Informal IPP was generated through: students’ reflections on the IPP aspects of their placement activities; support of individual placement supervisors, clinical educators and preceptors with an interest in IPP; and through joint student placements.

Forces running against IPE, IPL and IPP included: differences in under and post graduate entry, even within the same institution; timetabling and content demands; location of students; funding for the development and teaching of IPE; continued funding for joint placements; availability of IPE instructors; and confidence and training of clinical supervisors in providing cross-professions supervision and instruction (Table 1).

Macro, midstream: professional education, regulatory and registration bodies

Professional bodies who almost exclusively represented single professions balanced internal forces for and against IPE, IPL and IPP. Forces for innovation within professional bodies included their own competency, graduate and professional standards which universally incorporated IPE and IPP indicators such as effective teamwork and cross-disciplinary communication. Forces against IP were more structural: in the competition for resources and status, professional bodies’ constituencies are the members of their specific profession, with a primary task to represent and advocate for the rights of those members.

While collaboration between professional bodies did occur, cross-professional IPL and IPP was most clearly evident in issue-based coalitions of health professionals, including for example, those associations addressing issues such as geriatrics and gerontology, health promotion and public, rural or women’s health. These coalitions work collaboratively to: develop and further their agenda; respond to government policies, programs and public inquiries; and host joint conferences, seminars and workshops. These associations are generally most inclusive of members of the public.

Support for innovation in this domain was affected by two key factors. The first was the federal government’s workforce reform agenda which was implemented during the research period, and which included the restructuring of registration boards and processes. The second was the negotiation of pay scales, a process which resulted in markedly different outcomes for the various professional groups, even when they are employed in the same position. As a result, several respondents (clinicians speaking as members, as well as representatives of professional bodies) expressed a degree of concern about a perceived hidden agenda from state and federal departments for the creation of a ‘generic health worker’ (Table 2).

Meso, midstream: health system

The staff of the health system were in a unique position: located at the meso-level of the push-pull chain, they were both clients and providers of IPE, IPL and IPP. They demonstrated both strong push and pull characteristics in attempting to influence interprofessional innovation across the four domains.

The health system displayed the greatest level of structural support, i.e. push forces for IP, across all the domains. The senior management IP sponsor collaborated with champions in other domains to open up inter- and intra-organizational spaces for interprofessional collaboration. This included a
think-tank workshop which engaged participants from across the four domains, and which ultimately set the agenda for IPP across the health system. This collaboration was also displayed through a major federal Government funded research project into IP, co-sponsored and co-funded by the health system.

Other structural responses at the meso-level of the health system included the creation and funding of a dedicated IP Co-ordinator’s position. This role was intended to influence policy across the health system, support interprofessional innovation through projects and research, and develop, facilitate and support IPE and IPL. Through this position, an IP policy which supported the inclusion of IP competencies such as selection criteria for staff, was developed and distributed across the health system. This structural support was given symbolic impetus through the formal inclusion of IP (denoted as ‘collaboration’) in the health system’s values statement. This statement is prominently displayed throughout the organization and within staff email signatures.

The pull forces exhibited at the meso-level reflected those at the micro level. These included leadership support for IP by senior staff, and the presence of local champions, particularly those in positions of influence (e.g. managers and opinion leaders). A strong meso factor was the provision of in-house training, education and development sessions run by the IPL Co-ordinator. The Co-ordinator supported both

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**Table 1** Forces for and against IP innovation in tertiary education providers

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<thead>
<tr>
<th>Examples of IPE and IPL</th>
<th>Forces for innovation</th>
<th>Resistance to innovation</th>
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<tr>
<td>Intra-institutional</td>
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<tr>
<td>• Three guest lectures on IPL and IPP</td>
<td>• Individual champions</td>
<td>• Location of health service programs at different institutions and campuses</td>
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<td>• Reflective journaling on teamwork, IPL and IPP</td>
<td>• Networks</td>
<td>• Mixture of under and post graduate courses (no common level of progression)</td>
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<tr>
<td>• Year long course on health professional practice (including elements of interprofessional ethics and IPP)</td>
<td>• Student interest and demand</td>
<td>• Primary focus on successful delivery (academics) and completion (students) of, profession-specific curriculum</td>
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<tr>
<td>Inter-institutional</td>
<td></td>
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<tr>
<td>• Joint rural student placement program</td>
<td>• Post graduate entry</td>
<td>• Demands of registration bodies and associations for profession-specific content within the curriculum</td>
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<tr>
<td>• One cross faculty/discipline seminar (law and pharmacy)</td>
<td>• Special project funding</td>
<td>• Pressure from funding bodies including federal government for profession-specific content in the curriculum</td>
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<tr>
<td>• One cross faculty/discipline unit (medicine and pharmacy)</td>
<td>• Demand for para-professionals</td>
<td>• Limited funding for IPL or IPE activities including curriculum development or interprofessional placements</td>
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<td>Issue specific conferences, collaborations, and projects</td>
<td>Australian government health workforce reforms</td>
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<tr>
<td>Teamwork and collaboration competencies within professional standards</td>
<td>Creation of a single national registration board</td>
<td>Primacy of constituency</td>
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<tr>
<td>Limited number of practice placement places and supervisors</td>
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<td>Fear of ‘generic’ health worker</td>
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<td>Increase in the scope of practice in other professionals</td>
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**Table 2** Forces for and against IP innovation in professional education, regulatory and registration bodies

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<td>Increase in the scope of practice in other professionals</td>
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Table 3 Forces for and against IP innovation across the health system

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<th>Examples of IPE and IPL</th>
<th>Forces for innovation</th>
<th>Resistance to innovation</th>
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<tbody>
<tr>
<td>Think-tank comprising representatives from all four domains and ongoing consultation</td>
<td>Executive sponsorship and leadership</td>
<td>Competing organizational priorities</td>
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<td>with key stakeholders</td>
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<tr>
<td>Dedicated funding for IPL positions and research</td>
<td>Collaboration embedded as one of the four health system values</td>
<td>Competing demands for organizational resources</td>
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<tr>
<td>IPL training across the organization</td>
<td>System-wide IPL policy encouraging the use of ability to undertake IPP as a criteria for employment</td>
<td>Organizational and cultural silos within and across the service</td>
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<td></td>
<td>Staff turnover</td>
<td>Profession-specific legal and policy requirements, including ‘sign-off’ of patients by medical practitioners</td>
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individual champions and IP networks, and acted, as did the executive IP Sponsor, as a boundary spanner across the health, education and professional domains. This aspect of the roles included advising on, advocating for, and facilitating the inclusion of IP perspectives their participation in policy and planning committees, including in the values statement and in the physical design of new learning spaces.

Resistance to IP came largely from two sources. The first was existing organizational and cultural silos. The second source of resistance was competing organization and resource demands (Table 3).

**Micro, downstream: healthcare teams, units and wards**

Support for innovation at local levels was based on a combination of historical and cultural factors, as well as individual leadership. The strength of demand for engagement with interprofessional activities varied with service and client type. Non-acute services (particularly those involving longer term treatment times, such as rehabilitation and mental health) and services for vulnerable patients had stronger traditions and cultures of IP. However, even in cases where IPP was naturalized, there was evidence that the local culture was mediated either for or against IPP by local management.

Structural support for IP was evident through formalized interprofessional meetings and reviews and joint decision-making, planning and service provision. Collaborative workplace practices were facilitated by co-location, both within and across teams and services. Effective leadership was seen as paramount to ensure the effectiveness of IP teams. This, along with mutual trust and respect of individuals’ professional skills and abilities within their own disciplines, and effective communication skills, were considered the essential underpinnings of IPP. The development of IP was seen as a combination of natural selection and acculturation. Specific services were considered to attract the type of people who could or would work collaboratively. This selection could then be reinforced by the culture of the service.

Support for innovative practice was often affected by broader workforce issues. Levels of interest and support for IPL and IPP differed across professional groups, with the strongest support from allied health and nursing staff. Time and workload pressures were identified as limiting clinicians’ ability to connect, network and practice in interprofessionally, when this was not the standard approach. The inclusion of administrative and ancillary staff as members of IP teams differed markedly depending on the teams and individuals involved, even within the same service or division. This was also evident in teams’ collaboration with external organizations which varied by service type, but was dependent on relationships between individual clinicians and external service providers.

The resistance identified in the professional bodies was evident at the local level: differences in pay scales for the same role, based on professional background was raised as a source of IP resentment, as were variations in the funds available for professional supervision and training. Staff who noted these concerns were universally careful to indicate that this was not about their ‘specific colleagues’, but rather an issue of principle. The most significant structural barrier to IPP progress identified by some staff was the legal requirement to admit and discharge patients by doctors. This could constraint meant that doctors could, if they chose, over-ride all input from other staff (Table 4).

**Discussion**

In our research protocol [14] we foreshadowed that the bi-directional push-pull model of IP would be tested. In that model we hypothesized that the four domains, tertiary education bodies, professional associations, the health system, and individual teams and units would work together to push and pull the innovation of IPL and IPP through the system and into the daily practice of health professionals.

We found in this analysis that while all four domains exhibited activities which pertained to IPL and IPP, the forces for
this innovation were complex and nuanced. Relatively speaking, macro upstream forces were the weakest, with the meso (healthcare system) and micro (healthcare teams and professionals) exerting the strongest comparative force for both IPL and IPP. Historical, structural and locational differences, legal requirements and professional and organizational rivalries all mitigated the push force, despite growing interest in developing common interprofessional interaction.

Similar factors can be seen to be contributing at different levels as forces for change. In the case of both push and pull, the presence of strong leadership, individual champions and opinion leaders proved the most potent forces for innovation. This does not mean that the strength of the forces of individuals was sufficient to overcome countervailing forces. Competing demands (including for resources) and lack of organizational readiness (marked by lack of management sponsorship, policy and guidelines, training and resource allocation) were the prevalent resistance variables, as might be predicted by classic push-pull theory [24].

Our original model did not hypothesize in detail about the influence of both positive and negative external and contextual forces. Resistance emerged at all levels, for different reasons. At the macro level it occurred both as a response to concerns about practice boundaries, and in some institutions, due to the competing demands from a seemingly overburdened curriculum. In both the cases of professional bodies and some educational associations, this resistance was further bolstered at a micro (practitioner, educator and student) level by concerns about providing effective multi-disciplinary training. At the meso-level, other change agendas (most notably organizational restructuring) coupled with structural barriers, such as legal requirements for doctors to take responsibility for patients, limited the extent of IPP.

One factor we had not identified at the commencement of this project was the force of the federal government’s health workforce reform illustrates. This potentially provides a strong pull factor, based on reformers’ perceptions of a gap in practice-ready interprofessionally trained health professionals, through the funding of cross-disciplinary clinical placements, and rewarding and supporting expanded scopes of practice for multidisciplinary teams [3].

A limitation of this study is that it draws on results from the first year of a 3-year, action research program. A complex model such as this one might need to be tested over a longer timeframe.

### Conclusion

Our push-pull model of IPL, IPE and IPP provided a high-level representation of the domains involved in the diffusion of IP. This analysis exposes a greater range than envisaged of nuanced forces in the development and spread of this innovation. We demonstrated several important findings based on our empirical data. First, we have shown that the types of forces are variable and dynamic. Second, our work supports the predictions of innovation theory [21], including the importance of sponsorship and resources allocated to supporting the innovation. Third, we have demonstrated that similar forces were able to work both for and against innovation, depending on stakeholders’ perspectives and organizational positions. Finally, we have extrapolated that a fifth element, contextual forces, in this case exemplified by government reforms, needs to be explicitly incorporated into the model.

Our findings indicate that internal organizational change remains largely dependent upon the agency of groups and individuals, but in particular transformative leaders. It is difficult to embed change of this kind within an organization. Communities of interest (for example in mental health and public health) and formal collaborations (for example advisory committees) can facilitate joint action. The impetus for innovation both within and across systems, however, remains

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<tr>
<td>Interprofessional rounds, team meetings, case conferences, handovers etc</td>
<td>History and culture of service or unit</td>
<td>Time and workload pressures</td>
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<tr>
<td>Joint quality improvement activities</td>
<td>Individual team and unit leaders</td>
<td>Lack of knowledge of other professions, teams or activities</td>
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<td></td>
<td>Professional champions</td>
<td>Structural issues: e.g. different rates of pay based on professional qualification rather than professional competence</td>
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<td>Collocation: physical and organizational</td>
<td>Perception of ultimate legal responsibility for patient belonging to doctors</td>
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<td></td>
<td>Concerns about patient complexity and workload</td>
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<td></td>
<td>Need for increased number of clinical placement places</td>
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<td>Responses to increasing complexity in disease types</td>
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constrained by structural barriers, competing interests, historic networks and associations, and localized concerns. While these latter two can be remediated through the further development of opportunities for joint action, it is the first two which currently form the greatest barriers to the spread of innovation across systems.

Ethics approval

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