Research Square

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Competency framework for faculty facilitation of IPE SIM: A Delphi study

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Research Article

Keywords: Interprofessional Education (IPE), Simulation-Based Education (SBE), Faculty Development, Competency Framework, Delphi Study

Posted Date: May 14th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-9042734/v1

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Additional Declarations: No competing interests reported.

Abstract

Background

Interprofessional simulation-based education (IPE SIM) plays a key role in preparing learners for collaborative practice. However, there is a lack of clarity regarding the competencies required for faculty seeking to design and deliver effective IPE SIM.

Methods

A modified Delphi process was undertaken to determine these essential educator competencies. An initial list of IPE SIM competencies was generated from both interprofessional and simulation research and guidelines for best practice. Two rounds of a Delphi survey were conducted with international IPE SIM experts representing a variety of healthcare professions. Experts provided quantitative and qualitative feedback on the competency framework.

Results

A 40-item competency framework for IPE facilitation was generated, categorised into three core domains (Curriculum and Scenario Design, Facilitating Learning, and Debriefing and Reflective Practice) and three discretionary domains (Learner Assessment, Research and Scholarship, and Management and Leadership).

Conclusions

This study and the resultant competency framework provide guidelines for best practice in IPE SIM facilitation. These competencies should be used to inform the design of faculty development curricula for IPE SIM facilitation.

Introduction

Healthcare delivery is inherently interprofessional, requiring collaboration between doctors, nurses, pharmacists, physiotherapists, and other professionals to ensure safe and effective patient care. Interprofessional collaborative practice is associated with positive patient care outcomes, improved health of communities, and decreased per capita costs of health care. [1] Yet health professions education remains largely siloed, and interprofessional education (IPE) remains under-developed with limited opportunities to develop the teamwork and communication skills essential for collaborative practice.[2]

Combining interprofessional education and simulation-based education (SBE) offers a powerful means to bridge this divide by bringing learners together in realistic clinical scenarios that foster shared decision-making and mutual understanding within a safe environment. [3, 4] The success of interprofessional simulation-based education (IPE SIM) however, depends on educators who are skilled in designing, facilitating, and debriefing interprofessional experiences, with the nuanced application of these facilitation skills crucial to student outcomes.[5, 6] Effective IPE facilitation requires sensitivity to traditional health care hierarchy and power differentials, the creation of psychological safety, and pedagogical expertise to promote equitable participation.[7, 8, 9]

Theoretical and practical insights into the facilitation and implementation of IPE have been well described. [10, 11, 12] Faculty development should be based on a clear competency framework, with an emphasis on group facilitation skills.[1, 13] Babin et al[14] reported that existing IPE faculty-development programs show wide variability in format, content, and assessment methods, and that most do not explicitly align with IPE core competencies. Similarly, Chávez-Valenzuela et al[15] identified faculty training as a recurring barrier in interprofessional simulation-based education (IPE SIM); many programs lacked qualified facilitators capable of guiding interprofessional teams, managing reflection and debriefing, and integrating role clarity across professions.

The absence of a formalised competency framework to guide faculty preparation for IPE SIM limits the ability to develop a comprehensive program of faculty development. There is a need to combine educational theory, facilitation practice, and reflective learning through intentional training initiatives.

This study was conducted by an interprofessional team of researchers from four European medical universities (RCSI University of Medicine and Health Sciences (Ireland), Humanitas University (Italy), Medical University of Vienna (Austria) and Wrocław Medical University (Poland)) as part of an Erasmus-funded Simulation Programme for Interprofessional Readiness and Immersive Training (SPIRIT) project. We sought to define the core competencies required for IPE SIM educator training by achieving consensus from international experts in interprofessional simulation to inform a subsequent faculty-development programme.

Methods

Study Design

In the first instance, a workshop was conducted with the entire project team, consisting of interprofessional and simulation educators from across Europe (n=17). A shared vision and core values for IPE SIM faculty development were proposed, and direction for the Delphi study and establishment of the initial core competencies required of IPE SIM were agreed upon. No outside methodological consultation took place.

The literature on faculty development for IPE and SIM was then searched to identify potential competencies.[3, 16, 17, 18, 19] Literature sources were varied and included the Core Competencies for Interprofessional Collaborative Practice[20] and Standards of Best Practice for Simulation-Enhanced Interprofessional Education.[21] Van Diggele et al[9] and Anderson et al[10] offered practical insights into the design, delivery and educator preparation for IPE and the Centre for Advancement of Interprofessional Education (CAIPE) Interprofessional Education Handbook[12] and Freeth et al[11] detailed both useful theoretical frameworks and evaluation strategies. A literature-based infographic from Monash University summarising IPE facilitation strategies[22], the Certified Healthcare Simulation Educator (CHSE) Examination Blueprint[23] and the Debriefing Assessment for Simulation in Healthcare (DASH)[24] further informed the initial list of competencies.

This competency list was then further expanded by two expert researchers, one specializing in SBE (CC) and the other in IPE (FK). This expanded list was then systematically organised according to the Academy of Medical Educators (AoME) domains of medical education: Designing and planning learning, Teaching and facilitating learning, Assessment of learning, Educational scholarship and evidence-based practice, and educational management and leadership.[25] An additional domain, Debriefing and Reflective Practice, was then added, given its importance in IPE SIM facilitation.

Participant recruitment

A combination of purposive and snowball sampling was used to recruit subject matter experts (SMEs) as research participants. This involved inviting known experts in the field as well as each member institution in the SPIRIT consortium identifying experts from their professional networks. For inclusion, SMEs required considerable expertise in IPE SIM as evidenced by professional experience and/or publications in this area. Invitations were extended to SMEs with both academic and clinical backgrounds, representing a variety of healthcare professions across many countries. Additional inclusion criteria required participants to have fluent English and be at least 18 years old. Each participant received an invitation email and information leaflet detailing study background and aims and method.

Data Collection

A Delphi methodology, widely used in healthcare research[26-29], was employed to achieve expert consensus on IPE SIM core competencies. The Delphi method was chosen because it systematically gathers the judgments of different expert groups and can identify agreement and disagreement, as well as capturing unique perspectives from key members in a variety of institutions of practice. Delphi method guidelines were followed[30] and reported in accordance with DELPHISTAR guidelines[31] (see Figure 2). Modifications to the 'classic' Delphi approach consisted of the generation of initial items prior to Round 1 of consensus gathering. This decision to generate initial items prior to Round 1 is a common modification to the classic Delphi process and provides an evidence-based structure to the initial round of consensus gathering.[32] Surveys were hosted online using Survey Monkey software (https://www.surveymonkey.com/) and data was analysed using Microsoft Excel.[33]

Participants were presented with the initial draft of the IPE SIM competency framework and asked to rate each item's relevancy to the delivery of IPE SIM on a 4-point Likert scale (1 – not relevant, 2 – somewhat relevant, 3 – quite relevant, 4 – very relevant). Participants were provided with open-text boxes to comment on existing items, identify duplication, suggest improvements to language clarity, and propose any missing items. All Delphi rounds followed the same structure, gathering quantitative and qualitative consensus on competency items.

Prior to the first round, the survey was piloted to test the survey software, design, clarity and usability. For the initial round of data collection, participants were emailed the survey link and given 15 days to complete the survey, with a reminder email sent on day 12. For subsequent rounds, participants were given 10 days to respond, with reminders sent after 7 days. All of the SMEs who completed the first round were invited to participate in the subsequent round. Data analysis and synthesis was conducted after each round.

Data analysis

Quantitative analysis in this study followed a similar structure to Mossenson et al[34]. A competency was defined as relevant if its median score was greater than or equal to three with >80% agreement and irrelevant if the median score was less than or equal to two with >80% agreement.

Open-text responses were thematically analysed by two authors (AF and FK). These analyses were discussed with the research team to determine what, if any, iterations were required before the competencies were presented in the subsequent round. Dissenting or conflicting feedback was resolved through discussion resulting in the iteration, removal, and addition of items. Principles of Braun & Clarke's reflexive thematic analysis[35] were applied, acknowledging the constructionist nature of inductive analysis. The feedback was not differentiated by group.

After each round, SMEs were presented with a summary of the previous round results, which included which items reached quantitative consensus, a summary of the qualitative feedback, and the number of edited, added and removed items. The stopping criteria, or conditions under which this Delphi process would conclude, was quantitative consensus on all items, with no new items emerging from qualitative analysis. The number of rounds was predefined, with a maximum of three, although consensus was reached after two rounds. There were no deviations from this intended approach.

Results

Pilot

The Pilot Delphi survey consisted of 43 competency items across six competency domains and was initially piloted with a small group of SME (n=10). No competency item scored under 60% relevancy; however, two competency items were removed due to duplication, one item was added and five items were

edited for improved clarity and specificity. Survey instructions were also modified to improve clarity for the subsequent Delphi.

Round 1

97 participants were invited to participate in this study. Of these, 44 completed responses were recorded in Round 1, with 11 undelivered invitations and 10 out-of-office messages received (57.9% response rate).

42/42 items included in our Round 1 competency framework reached positive relevant quantitative consensus. The main recommendation from round 1 was for greater verb specificity, more explicit inclusion of groups directly involved in or affected by IPE SIM and questions of core versus discretionary competencies. Mixed-methods analysis and discussions led to the inclusion of three new items, the removal of two items (duplication), and 16 items being edited for content and clarity. Five values underpinning IPE SIM were also included for qualitative feedback, with Round 1 resulting in the iteration of three of these items as well as the addition of a sixth value capturing the importance of fostering psychological safety. In addition, our domains were divided into core (Curriculum and Scenario Design, Facilitating Learning, Debriefing and Reflective practice) and discretionary domains (Management and Leadership, Learner Assessment, Research and Scholarship).

Round 2

Each of the 44 participants who responded to Round 1 of the survey received an invitation to Round 2. Of these, 33 completed responses were recorded in Round 2, and 3 out-of-office messages were received (81.2% response rate). Table 1 includes a description of participant demographics.

43/43 items included in our Round 2 competency framework reached positive relevant quantitative consensus. The main qualitative themes from this round were again recommendations for greater verb specificity, minor edits for content specificity, and positive feedback for our items and process. Mixed-methods analysis and discussions led to the removal of three items (duplication), and 16 items being edited for content and clarity. Six values underpinning IPE SIM were also included for qualitative feedback, with Round 1 resulting in the iteration of one of these items. In addition, attention was given to the order in which our items were presented, which was informed by feedback received from SMEs. Stopping criteria were reached through reaching quantitative consensus on all items with no new items emerging from qualitative analysis. Table 2 outlines the finalised values for underpinning IPE SIM facilitation. The final competency framework for IPE SIM facilitation is shown in Table 3. Figure 1 provides an overview of the Delphi process. Table 4 (Appendix B) outlines items added, edited and removed as well as quantitative consensus statistics for Round 1 and Round 2.

Demographic Characteristics of SMEs

Insert: **Table 1**: SME Demographics

Table 2: Values underpinning IPE SIM Facilitation

Insert: **Table 3**: Competency Framework for IPE SIM Facilitation

Discussion

This study details the development of a competency framework for IPE simulation facilitation to guide faculty development. The competency domains in this framework have been carefully aligned with existing IPE and simulation literature, guidelines, and recommendations for best practice.[9-12, 20, 21] Our findings highlight that while facilitator knowledge of key elements of best practice is important, knowledge alone is insufficient without enactment in practice, a principle reflected in the action-oriented language of the competency statements. The Delphi process resulted in consensus across both rounds, with detailed qualitative feedback enhancing the clarity and specificity of items. In addition, consensus was achieved from subject matter experts representing a range of professional backgrounds, academic and clinical settings, and 13 countries, supporting the potential transferability of the framework across diverse IPE SIM contexts.

Core competency domains — Curriculum and Scenario Design, Facilitating Learning, and Debriefing and Reflective Practice — were identified as necessary capabilities for all IPE-Sim facilitators. In contrast, Learner Assessment, Management and Leadership, and Research and Scholarship were more variably endorsed as essential. This delineation reflects the breadth of IPE SIM activity across settings, influenced by learner level, programme scale, and simulation infrastructure. Simulation scholarship recognises differentiated faculty functions spanning design, facilitation, debriefing, and assessment[5, 6], while interprofessional education literature highlights staged implementation processes requiring escalating organisational capability.[36] Interpreted through this lens, discretionary competencies may be understood as role-contingent and programme-dependent rather than optional.

The addition of Debriefing and Reflective Practice as a core domain, extending beyond those mapped from AoME standards, was strongly endorsed by participants. There is extensive literature describing the importance of debriefing within IPE SIM for developing communication practices, collaborative behaviours, and professional identity formation.[37, 38] More specifically, the facilitator's role is central in promoting reflective dialogue, with the creation of psychologically safe learning environments critical to learner engagement and interprofessional participation.[39, 40] Debriefing also offers a bidirectional learning opportunity, whereby facilitators may position themselves as co-learners to support shared inquiry.[41] At the same time, facilitation must remain developmentally responsive; novice learners may require more structured or directive feedback approaches.[42] Reflective practice extends beyond learner development, with evidence suggesting that facilitators themselves derive interprofessional insight and pedagogical growth through reflective engagement.[43,44] Collectively, these findings support the positioning of Debriefing and Reflective Practice as a core competency domain within IPE SIM facilitation.

While summative assessment may support reflective processes and benchmark interprofessional capability[45], its role within IPE SIM is context-dependent. Learners may experience discomfort when observed or evaluated within interprofessional contexts[46], reinforcing the discretionary positioning of assessment competencies. Where assessment is employed, the use of validated tools aligned to learner level and intended outcomes remains essential.

Although many facilitation competencies identified align with established simulation pedagogy, a subset reflects the distinctive boundary-crossing work required in interprofessional simulation. IPE SIM brings together learners situated within different professional identities and hierarchies, meaning that participation, legitimacy of voice, and role negotiation become central learning mechanisms rather than background conditions. Within this framework, educators are expected not only to foster psychologically safe environments but to actively manage cross-professional dynamics throughout the simulation learning cycle. Competencies relating to structuring pre-briefings that promote interprofessional collaboration, co-facilitating to ensure equitable participation, and addressing power dynamics and ethical tensions position hierarchy and identity as facilitation responsibilities. During debriefing, competencies such as analysing interprofessional interactions, facilitating mutual reflection, adapting to complex group dynamics, and managing conflict render professional boundaries visible and discussable. In this way, interprofessional relational dynamics become legitimate subjects of reflective inquiry rather than implicit influences on learning.

The prominence of these competencies across both facilitation and debriefing domains suggests that interprofessional boundary-work is not confined to reflective discussion alone. Rather, it must be intentionally scaffolded through scenario design, enacted during facilitation, and interrogated during debriefing. This framing positions interprofessional collaboration not solely as an outcome of simulation but as an explicit pedagogical focus shaped by educator capability

In conclusion, this study addressed the need for a competency framework to assist faculty preparation for IPE SIM. This framework provides a synthesis of research findings and expert opinions which provides guidelines of best practice for the design, implementation and facilitation of IPE SIM. Future research is currently being undertaken to implement these findings into a curriculum for IPE SIM facilitator development.

Strengths and Limitations

SME feedback was de-identified from their sociodemographic data prior to review ensuring the equal treatment of all perspectives.[27] Similarly, due to the maintenance of anonymity between SMEs and the asynchronous nature of data collection, the potential for inequality of contribution was mitigated.

It is difficult to assess the generalisability of these findings, a common limitation with Delphi methods.[47] The international panel of experts in IPE SIM helps with mitigating this issue, although a greater geographical spread would have further improved the generalisability of the framework produced here. Our total attrition rate of 25% between round 1 and round 2 introduces some risk of bias[48], however, this is a common challenge with online Delphi methods.[49]

Abbreviations

Interprofessional education- IPE

Simulation-based education- SBE

Interprofessional simulation-based education- IPE SIM

Simulation Programme for Interprofessional Readiness and Immersive Training- SPIRIT

Centre for Advancement of Interprofessional Education - CAIPE

Certified Healthcare Simulation Educator- CHSE

Debriefing Assessment for Simulation in Healthcare- DASH

Academy of Medical Educators- AoME

Subject matter expert- SME

Declarations

Ethics Approval and consent to participate

Ethical approval for this study was obtained from the Royal College of Surgeons in Ireland Research Ethics Committee 2025 (REC No. 202504023). The approved study protocol is available as part of the additional materials provided (Additional file 1). Informed consent was gathered online using Survey Monkey software (https://www.surveymonkey.com/).

Consent for publication

Not applicable.

Availability of data and materials

The datasets supporting the conclusions of this article are available in the Open Science Framework repository, https://osf.io/5tgfp.

Competing Interests

The authors declare that they have no competing interests

Funding

This study was funded through the Erasmus+ Key Action 2 (KA220) Cooperation Partnerships scheme.

Author Contributions

CC co-led conception and contributed to the design of the work, the acquisition of data, analysis and interpretation of data and substantively revised the manuscript. AF led design of the work and contributed to the acquisition of data, analysis and interpretation of data, drafted the work and substantively revised the manuscript. AD contributed to the conception and design of the work, the acquisition of data and substantively revised the manuscript. CM contributed to the conception and design of the work and substantively revised the manuscript. MH contributed to the analysis and interpretation of data. AH, ACDP and MB substantively revised the manuscript. FK co-led conception and contributed to the design of the work, the acquisition of data, analysis and interpretation of data and substantively revised the manuscript. All authors read and approved the final manuscript.

Acknowledgements

We would like to acknowledge the contributions of all of the members of the SPIRIT consortium, from the RCSI Medical University of Health Science (Dr Marwa Aly, Prof. Jan Illing), from Humanitas University (Dr Stefania Brusia, Prof. Giovanni Luigi Capretti, Silvia Odani, Prof. Ferdinando Carlo Maria Cananzi, Ilaria Fava), from the Medical University of Vienna (Prof. Michael Wagner, Dr. Katharina Bibl), and from Wroclaw Medical University (Mariusz Koral, Natalie Pospiech, Magdalena Roszkowska-Lwow, Dr Paweł Gawłowski, Dr Irena Dus-Ilnicka).

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Tables

Table 1
SME Demographics

Country	Round one		Round two
	Ireland	**15**	**9**
	Italy	9	9
	United Kingdom	3	2
	United States	3	2
	Bahrain	2	1
	Canada	2	2
	Germany	2	1
	Poland	2	2
	Switzerland	2	1
	Australia	1	1
	Austria	1	1
	Chile	1	1
	Singapore	1	1
Profession			
	Physician	16	12
	Educationalist	13	10
	Nurse	6	3
	Pharmacist	2	2
	Physiotherapist	1	1
	Other	6	5
Employment			
	Academic	27	20
	Clinician	5	4
	Both	10	8
	Other	2	1
Years of Experience (Healthcare Education)			
	More than 10 years	35	27
	8–10 years	4	4
	4–7 years	2	0
	1–3 years	3	2
Years of Experience (IPE Simulation Educator)			
	More than 10 years	17	13
	8–10 years	6	5
	4–7 years	16	11
	1–3 years	3	3
	Less than 1 year	2	1
Years of Experience (Interprofessional Education)			
	More than 10 years	21	16
	8–10 years	4	3

Country	Round one		Round two
	Ireland	**15**	**9**
	4–7 years	13	10
	1–3 years	6	4
Learner level (IPE Simulation)			
	Undergraduate	37	28
	Postgraduate	29	21
	Continuing Professional Development	23	17
	Faculty Development	21	16

Table 2
Values underpinning IPE SIM Facilitation

- Promotes safety and quality for patients
- Values diverse perspectives
- Partners with patients, carers, families and communities
- Recognises and respects professional and team identity
- Fosters psychological safety
- Advocates for interprofessional education and practice

Table 3
Competency Framework for IPE SIM Facilitation

Domain	Features
Curriculum and Scenario Design This domain outlines the expectations for educators involved in the co-design of interprofessional simulation.	• Develop interprofessional learning outcomes aligned to an interprofessional competency framework. • Describe learning theories relevant to interprofessional simulation. • Recognise the roles of each profession and interdependence for simulation co-design. • Design interprofessional simulation activities to align with curricular goals and learner levels. • Co-design simulation scenarios that reflect authentic, collaborative clinical practice. • Evaluate the effectiveness of designed scenarios using feedback and assessment outcomes. • Consider interprofessional group dynamics in the design of curricula.
Facilitating Learning This domain details the ability to introduce, prebrief and facilitate simulation activities that promote collaborative and reflective practice. It includes the ability to foster psychological safety, while addressing power dynamics and supporting learner well-being.	• Describe the purpose and structure of interprofessional simulation. • Structure pre-brief that motivates learners to foster interprofessional collaboration and psychological safety. • Use educational methods and technologies aligned to intended learning outcomes. • Demonstrate how to co-facilitate interprofessional simulation to promote equitable participation. • Apply strategies to manage ethical issues and power dynamics during interprofessional simulation. • Foster an inclusive and respectful learning environment to promote psychological safety. • Evaluate facilitation strategies that support effective interprofessional teamwork and learning. • Evaluate scenarios for potential bias, cultural insensitivity, or inequity in learner experience. • Reflect on and analyse the interprofessional simulation.
Debriefing and Reflective Practice This domain describes the ability to lead reflective conversations after simulation to promote critical thinking, interprofessional collaboration and emotional processing.	• Apply appropriate models and frameworks to interprofessional simulation debriefing. • Foster learner-centred and psychologically safe debriefing. • Share evidence for learners to link theory to interprofessional practice. • Facilitate debriefing conversations to support interprofessional reflection and mutual learning. • Use questioning techniques to promote critical thinking and emotional processing by learners. • Analyse interprofessional interactions during simulation to guide meaningful debrief discussions. • Adapt debriefing strategies to the needs of diverse learners and complex group dynamics. • Manage potential conflict and disagreement in a supportive and respectful manner.
Learner Assessment (discretionary) This domain describes the ability to select valid and reliable tools to assess interprofessional simulation-based education and to guide decisions about achievement.	• Explain how the components of any assessment address the interprofessional learning outcomes. • Select valid assessment methods to align with the purpose, content and level of the learner and their requirements for interprofessional collaboration. • Conduct assessment in a structured, objective, and constructive manner. • Use assessment outcomes to guide feedback and support learner development.

Domain	Features
Management and Leadership (discretionary) This domain outlines the expected standards for educators who engage in the management, leadership and governance of interprofessional simulation activities.	• Manage educational programmes and resources for sustainability, including coordination of diverse professional and educational roles. • Develop and maintain an inclusive learning environment. • Draw upon a range of leadership theories for effective educational change. • Support the interprofessional educational development of others within a local team, educators or department. • Facilitate educational governance through reducing duplication, quality control and quality improvement of interprofessional simulation education. • Promote a culture of interprofessional collaboration, modelling inclusive leadership behaviours. • Advocate for education, systems and practices to support integration across professions.
Research and Scholarship (discretionary) This domain outlines the expectations relating to research and scholarship involving interprofessional simulation.	• Integrate interprofessional simulation research into practice. • Engage in collaborative scholarship with colleagues of other professions to advance interprofessional simulation education. • Employ appropriate research methodologies relevant to interprofessional simulation research. • Disseminate findings through peer-reviewed publications, conference presentations, and knowledge-sharing platforms. • Advocate for inclusive, ethical, learner and patient-centered perspectives in interprofessional simulation research.

Figures

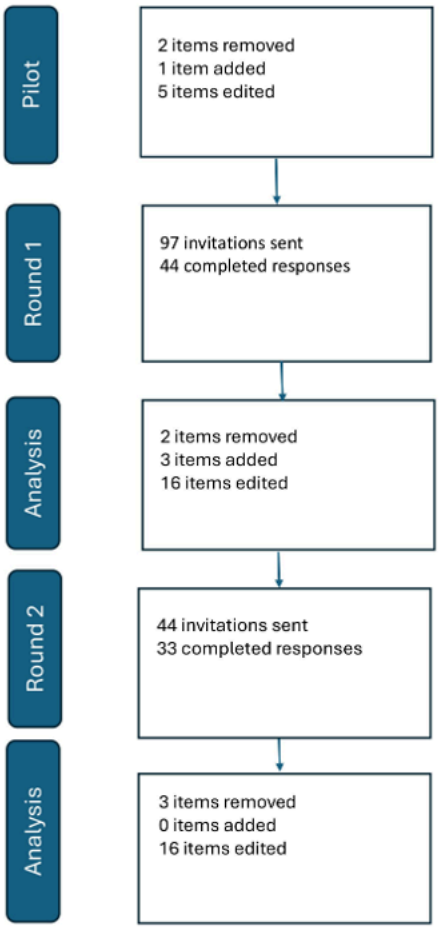


Figure 1

Delphi flow Chart

Supplementary Files

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- AppendixA.docx