STUDY PROTOCOL

RapidInfo4U – an online individualised COVID-19 support intervention for nursing and allied health professionals: study protocol [version 1; peer review: awaiting peer review]

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Abstract

Background: The COVID-19 outbreak was declared a pandemic by the World Health Organization on March 11th, 2020. An ongoing challenge in healthcare is ensuring that up-to-date and high-quality research evidence is implemented in practice. In the context of a global pandemic it is assumed, given the increased pressures on healthcare professionals that this problem has the potential to be exacerbated. Furthermore, the COVID-19 pandemic resulted in many health professionals being reassigned to areas outside their usual scope, returning to practice following absence or commencing their career as new entrants in the midst of a major crisis. These professionals are likely to require additional support to assist their confidence and competence.

Aims: This project has two broad aims: to design and deliver an online educational platform to support nursing and allied health professionals in their clinical practice throughout the pandemic and to evaluate that platform and its implementation.

Methods: The research protocol for this study consists of two work streams: the development and delivery of the online platform; and the project evaluation. This research will have a mixed methods approach including website data analytics, quantitative surveys and qualitative data analysis of semi-structured interviews.

Conclusion: Through knowledge brokering and adherence to principles of effective technology-enhanced-learning this project will provide an accessible, individualised online educational resource to effectively meet the needs of individual nurses and allied health
professionals in this unprecedented time. The evaluation of the platform and its implementation will provide key learning for future initiatives and may act as proof-of-concept for other organisations and countries seeking to support healthcare professionals’ knowledge needs during similar future pandemics.

**Keywords**
COVID-19, implementation science, nursing, allied health professionals, training support, online systems, evaluation studies.

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Introduction

COVID-19 is a disease caused by the novel coronavirus SARS-CoV-2. The World Health Organization was first notified of this new virus on the 31st December 2019 and it declared the COVID-19 outbreak as a pandemic on March 11th 2020. As of December 13th 2020, there have been over 70 million cases of COVID-19 reported globally including more than 1.6 million deaths. In Ireland, as of December 12th, there have been 76,185 cases reported and 2,124 deaths.

An ongoing challenge in healthcare is ensuring that up-to-date and high-quality research evidence is implemented in practice, a situation which persists despite the positive attitudes of healthcare professionals to research. Failure to implement evidence-based interventions can result in inefficient use of resources, reduced quality of care and ultimately, poor health outcomes for individuals and communities. In the context of a global pandemic, given the increased pressures on healthcare professionals, it is assumed that this issue has the potential to be exacerbated. Furthermore, the COVID-19 pandemic resulted in many qualified health professionals being reassigned to areas outside their usual scope of practice, returning to practice following absence or commencing their career as new entrants during a major crisis. These professionals are likely to require additional support to assist their confidence and competence during the COVID-19 pandemic.

Knowledge brokers are recommended to facilitate the sharing of knowledge between practitioners, researchers and decision-makers. As part of their remit, knowledge brokers identify and obtain relevant information and create tailored knowledge products. Governments, professional bodies and international agencies have made available a wealth of evidence-based COVID-19 literature, policies, guidelines and algorithms which healthcare professionals must navigate. Within higher education institutions and professional bodies, there are vast repositories of knowledge, expertise and experience that can be harnessed to rapidly support healthcare professionals as they grapple with this new and emerging evidence and practice contexts. Knowledge brokering is needed to manage the shifting body of evidence and facilitate knowledge translation between higher education institutions, professional bodies, policy makers and practitioners during the pandemic.

Technology-enhanced-learning provides continuous professional development for health professionals, with e-learning at least as effective as traditional approaches. Given the ubiquity of mobile devices in clinical settings and the convenience of access to resources as needed, technology-enhanced-learning is ideal for healthcare professionals. Effective interventions in return to work training include a tailored approach and targeting individually identified needs. Technology-enhanced-learning allows for a tailored experience. Through knowledge brokering and adhering to the principles of technology-enhanced-learning, this project aims to provide an accessible, individualised online educational resource to effectively meet the needs of healthcare professionals in this unprecedented time.

This project will develop an online platform with three functions. Firstly, it will house a searchable repository of high-quality evidence, information links and guidance to inform practice during the COVID-19 pandemic. Secondly, it will provide an interactive query submission function, where healthcare professionals can ask clinical questions and receive prompt, evidence-based answers. Finally, it will incorporate structures that allow for the evaluation of the platform and its functions. The target group for this intervention is nursing and allied health professionals, working in Ireland, who have queries either directly related to COVID-19 or about changes to their practice as a consequence of the pandemic. This research will shed light on the education requirements and support needed by this group of healthcare professionals for application in future crises.

This research has four aims:

1. To develop a web-based technology-enabled learning platform that provides a searchable repository and incorporates a communication system that allows users to submit clinical questions and receive individualised answers.
2. To provide evidence-based answers to clinical questions for nursing and allied health professionals about practice during the COVID-19 pandemic. This will be achieved through populating the repository with high-quality evidence and guidance, conducting rapid evidence searches and producing summaries and, where necessary, consulting with a panel of experienced clinicians.
3. To evaluate the online platform by determining if it meets the support and information needs of healthcare professionals.
4. To evaluate the implementation process to inform future work by exploring the types of clinical queries posed, identifying what components of the intervention work best and for whom and exploring learning outcomes achieved by the project team.

Protocol

The research protocol for this study consists of two work streams: the development and delivery of the online platform; and the project evaluation. This research will have a mixed methods approach including website data analytics, quantitative surveys and qualitative data analysis of semi-structured interviews.

Work stream 1: Development and delivery

Development of the online platform: RapidInfo4U. Operational systems and access and communication protocols will be developed to support timely, effective and individualised access to required knowledge via a web-based technology-enabled-learning platform.

Populating the repository. The RapidInfo4U repository will be populated with up-to-date high-quality evidence, government and professional body guidance and documentation, as well
as useful links to other resources. The content will be categorized by discipline: nursing, speech and language therapy, occupational therapy, physiotherapy, and human nutrition and dietetics. The interdisciplinary project team will identify key resources for each discipline and the repository will be regularly updated with the most recent and relevant research evidence and guidance as well as the evidence summaries produced in answer to users’ queries.

**Answering questions: rapid evidence search and summary.** The platform will be monitored and questions submitted will be answered within 72 hours. Protocols will be developed for conducting the rapid evidence searches and producing the summaries to send to users. Questions will be triaged and categorised as high, medium and low complexity. Summaries will be produced in an easily understood format and anonymised responses uploaded to the repository for the benefit of all users.

**Establish panel of experienced clinicians.** The project team has successfully secured collaboration from key professional bodies: the Association of Occupational Therapists of Ireland, the Irish Nutritional and Dietetic Institute, the Irish Society of Chartered Physiotherapists, the Irish Association of Speech and Language Therapists and the National Health and Social Care Professionals office. The project team will work with the project collaborators to recruit a panel of clinicians representing the allied health and nursing disciplines. These discipline specialists will complement the work of RapidInfo4U with clinical expertise and will be contacted in the event that the rapid evidence search fails to answer a question submitted by a user.

**Marketing and reach.** A marketing protocol will be developed to effectively advertise RapidInfo4U. A Twitter account will be created to reach those healthcare professional bodies and individuals active on social media. Through professional body networks and other key stakeholder agencies, the aims of the project and the platform will be advertised to ensure a wide reach to target populations (including new graduates, returning or redeployed clinicians). Advertising material, hyperlinks and alerts will be disseminated to relevant bodies and key stakeholders to ensure optimal engagement. The marketing processes will be analysed throughout the project and adapted from feedback received. Completed evidence summaries produced as answers to questions submitted by users will also be used as a marketing tool.

**Work stream 2: Evaluation**

The objectives of the evaluation are:

1. To assess if the platform meets the support and information needs of nursing and allied health professionals including those returning, redeployed or newly entering the workforce during the COVID-19 pandemic.
2. To determine what, if any, contribution the platform makes to assisting healthcare professionals to perform in the COVID-19 context.
3. To determine what components of the platform work best and for whom.
4. To identify what, if any, learning outcomes have been achieved.
5. To systematically feedback data to the intervention team across the life cycle of the project to ensure that the platform is responsive to users’ needs and flexible in its design, delivery, and dissemination.
6. To examine the implementation of the project compared to initial intentions and assumptions.

**Conceptual framework for the evaluation.** A programme theory approach, using a realist evaluation design, underpins the design of the evaluation. Programme theory involves developing causal models, such as logic models, to link programme inputs and activities to a chain of intended or observed outcomes. This model can then be used to guide the evaluation design. Realist evaluations ask what works, in which circumstances, and for whom and are designed to improve our understanding of how programmes work or do not work and in what contexts. Realist evaluations can identify the structures, processes, culture and behaviours that create the enabling conditions for programme results. The realist evaluation approach is underpinned by the Context-Mechanism-Outcome (CMO) configuration. The context in which programmes operate make a difference to the outcomes that are achieved: contexts can both enable and constrain. Mechanisms are understood in terms of the ‘reasoning and resources’ relationship. That is, the interaction between the reasoning of the intended target population, what the programme provides and the outcomes. Understanding this relationship encourages evaluators to consider what resources, opportunities or constraints were provided, and to whom; the ‘reasoning’ that was prompted in response to these; and what, if any, changes in behaviour were generated and outcomes achieved. Outcomes are the intended and unintended consequences of services, resulting from different mechanisms in different contexts. A realist evaluation design is usually composed of four stages:

1. Theorising the programme theory and hypothesising the CMO configurations to be tested.
2. Data collection
3. Data analysis and hypothesis testing
4. Interpretation and refinement of CMO configurations.

The first stage of the realist evaluation design for the current project is complete: the logic model is presented in Figure 1 and the two theorised CMO configurations are presented in Table 1.

**Methods**

Realist evaluations typically use mixed methods, incorporating pluralistic and pragmatic approaches appropriate to the hypothesis being tested. This evaluation will include quantitative data from surveys and website analytics, and qualitative data
**Figure 1. Logic model.**

**Table 1. Theorised Context-Mechanism-Outcome configurations.**

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<th>Contexts</th>
<th>Mechanisms</th>
<th>Outcomes</th>
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<tr>
<td><strong>Practice environment</strong></td>
<td>The users are motivated and able to seek information through the resource. The website is accessible and easy-to-use for users. The users interact positively with knowledgeable senior clinicians while using the resource. The users receive timely, individualised and targeted responses. The users are motivated and capable of using the information provided through the resource.</td>
<td>The RRR is used by the intended target groups of healthcare professionals. The users are satisfied with their experience of using the RRR. The users are satisfied with the evidence provided. The users have implemented the information. The users have gained new/up-to-date knowledge, concepts or skills which makes them feel more confident in their day-to-day practice. The users tell other healthcare professionals about the RRR.</td>
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<td><strong>RRR processes</strong></td>
<td>The work of the project team is guided by clear and shared processes to manage, assign and respond to queries, including when there is no information. There are knowledgeable and skilled senior clinicians and project team members who have the capacity and capability to complete the evidence reviews. There are enough skilled staff to ensure rapid responses to queries and anticipate user needs.</td>
<td>There is fidelity among the project team to the evidence review protocols. The senior clinicians and project team members develop high quality, accurate, clear, acceptable, useful and up-to-date responses which are shared with the users. The bank of open access knowledge on the RRR is accurate and up-to-date.</td>
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from interviews and focus groups. Data will be collected, analysed and fed back systematically to the intervention team across the life cycle of the project, to ensure that the resource is responsive to users’ needs and flexible in its design, delivery, and dissemination. The design of the evaluation takes account of health professionals’ likely limited capacity to engage with evaluation efforts and capitalises on their points of contact with the intervention itself to collect data.

Participants and recruitment
Registered users of the platform who submit queries will be invited to complete a pre-post survey. A sample of these participants will also be invited to take part in interviews. All users of the platform will be invited to complete a short pop-up survey. The project team will take part in a focus group interview. The senior clinicians responsible for completing the rapid evidence reviews will be invited to take part in interviews.

Outcomes
The evaluation will consider if, how and to what extent the following implementation outcomes have been achieved:

1. The users tell other healthcare professionals about the platform.
2. The platform is used by the intended target groups of healthcare professionals.
3. There is fidelity among the project team to the evidence review protocols.
4. The senior clinicians and project team members develop high quality, accurate, clear, acceptable, useful and up-to-date responses which are shared with the users.
5. The bank of open access knowledge on the platform is accurate and up to date.

The following outcomes for users of the resource will be evaluated:

1. The users are satisfied with their experience of using the platform.
2. The users are satisfied with the evidence provided.
3. The users have implemented the information.
4. The users have gained new/up-to-date knowledge, concepts or skills which makes them feel more confident in their day-to-day practice.

Data analysis
Survey data will be analysed in Excel to generate descriptive statistics. Statistical analysis, using dependent t-tests, of pre- and post-intervention data will be used to assess if, and what learning outcomes have been achieved for users of the platform. All qualitative data from interviews and focus groups will be analysed using MAXQDA and Excel. All transcripts will be read by at least two members of the evaluation team. For the initial first reading of the transcripts, the evaluation team dyads will code the data using an a priori coding frame that reflects the high-level contexts, mechanisms and outcomes originally theorised. The dyads will review their partner’s coding and any discrepancies or differences in the coding will be discussed and agreed. Inductive thematic analysis of qualitative data will be carried out, in conjunction with the use of a framework for deductive coding, to identify categories, codes and sub-codes within the CMO configurations. This approach will allow the evaluation team to analyse the data against the CMO configurations while simultaneously allowing new themes to be generated. Any new and emerging contexts, mechanisms and outcomes will be identified, and the coding frame will be refined further. A hierarchical set of codes, with up to four levels of coding, will be agreed (Table 2).

Data will be triangulated across sources, e.g. users, experienced clinicians and project team members, and across data types, e.g. survey data, interview and focus group data and documents.

Ethics
The project has received ethical approval from the Faculty of Education and Health Sciences, University of Limerick, Research Ethics Committee. Risks to individual participants will be minimised by informed consent and anonymising data collected. Participants will have the option of opting in or out of the intervention evaluation and will be informed of the nature of their participation in the evaluation, confidentiality, and freedom to withdraw at any time without any risk. General Data Protection Regulations will pertain at all times.

Compliance with Data Protection Regulations
A data management plan has been developed in partnership with the UL Institutional data steward and in line with HRB policy on the management and sharing of research data. The principles of the General Data Protection Regulation (GDPR) 2018 and UL Data Protection Policy will be adhered to throughout this research. The Lead applicant and co-applicants based at the University of Limerick have previously completed

<table>
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<th>Table 2. Hierarchy of codes.</th>
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<tr>
<td><strong>Level 1: Concept</strong></td>
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<td><strong>Level 2: Category/theme</strong></td>
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<td><strong>Level 3: Code</strong></td>
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<td><strong>Level 4: Sub-codes</strong></td>
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GDPR and Research Integrity training at the University of Limerick. All data generated in this project will adhere to the FAIR principles with open access to the University of Limerick’s research output in conjunction with the University of Limerick Institutional Repository (ULIR). Only authorised study personnel will have access to personal data. This research does not involve the transfer of data outside the EU.

**Dissemination plan**

- A summary report from the baseline and needs assessment data generated over time will be shared with relevant professional bodies. To date this includes the following who have agreed to collaborate with the project: Association of Occupational Therapists of Ireland, Irish Nutrition and Dietetic Institute, Irish Society of Chartered Physiotherapists, Irish Association of Speech and Language Therapists: Office for Nursing and Midwifery Planning and Development; National Clinical Programme for Older People, with others to be added as appropriate.

- Findings will be shared with the national Health and Social Care Professions office and the World Health Organisation to complement their work on healthcare workers’ training needs.

- Interim data on impact of learning experiences will be published as a policy brief in an accessible infographic format.

- The baseline and needs assessment data, data gathered from participants accessing the platform (via surveys and interviews), with the study protocols, survey and interview guides and information documents will be available on publication in peer-reviewed papers. This will be facilitated by uploading of relevant documents as supplementary information.

- The rapid evidence search and summaries produced in answer to questions submitted to RapidInfo4U will be uploaded to the repository and circulated to email networks and on social media.

**Study status**

To date (December 2020) the online platform has been developed and launched: https://rapidinfo4u.healthcare/. Protocols have been developed. Users have searched the repository for evidence and guidance related to their practice, submitted questions and received individualised answers. The research team have received feedback from the external advisory group and undertaken an externally facilitated interim review of the project.

**Conclusion**

In the COVID-19 pandemic healthcare professionals are faced with the constant development of new/emerging evidence and practice contexts. Access to reliable, evidence-based information is paramount for identification, assessment, intervention and monitoring of patients across healthcare settings. Through knowledge brokering and adherence to principles of effective technology-enhanced-learning, this project will provide an accessible, individualised online educational resource to effectively meet the needs of individual nurses and allied health professionals in this unprecedented time. The evaluation of the platform and its implementation will provide key learning for future initiatives and may act as proof-of-concept for other organisations and countries seeking to support healthcare professionals’ knowledge needs during similar future pandemics.

**Data availability**

No data are associated with this article.

**References**


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