



BMJ Open Quality Improving knowledge translation for increased engagement and impact in healthcare

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ABSTRACT

Ineffective knowledge dissemination contributes to clinical practice and service improvements not being realised. Meaningful knowledge translation can occur through the understanding and matching of appropriate communication mediums that are relevant for different stakeholders or audiences. To this end, we present a dissemination instrument, the 'REACH and Diffusion of health iMprovement Evidence' (README) checklist, for the communication of research findings, integrating both traditional and newer communication mediums. Additionally, we propose a 'Strategic Translation and Engagement Planning' (STEP) tool, for use when deciding which mediums to select. The STEP tool challenges the need for communicating complex and simple information against the desire for passive or active stakeholder interaction. Used collaboratively by academics and health professionals, README and STEP can promote co-production of research, subsequent diffusion of knowledge, and develop the capacity and skills of all stakeholders.

INTRODUCTION

Healthcare and university sectors devote substantial resources to researching, publishing and informing best practice for clinical care and the delivery of services. In 2016, Australia committed \$A6.5 billion,¹ the USA US\$171.8 billion² and the UK £755.5 million³ to health and medical research. Flowing from this global investment in research, up to two million papers are published annually.⁴ Consequently, decision makers face the unenviable task of filtering through this ever-evolving mountain of knowledge to identify the right material to underpin policy, service and practice guidelines.⁵ Keeping up-to-date in this environment is a continual, but critical, challenge, if we are to capitalise on the significant investment in research.⁶

Ineffective knowledge dissemination results in clinical practice and service improvements not being realised.⁷ This is due to the incomplete or non-specific targeted reporting of study outcomes.⁸ Typically, research findings are determined by researchers and presented

to healthcare stakeholders.⁹ Traditionally, a research report, such as a thesis or large report, has been the source of information to develop posters, presentations and manuscripts.¹⁰ These methods of dissemination are used, and highly valued, by academics, universities and funding bodies. However, if knowledge is to be more effectively spread to end-users of healthcare, then it must be identified and communicated beyond traditional means.¹¹ Combining traditional and evolving communication methods of knowledge generation and dissemination is key.¹² A successful research study is a repository from which information can be presented through multiple communication methods including research reports, posters, stakeholder and academic conference presentations, peer-reviewed articles, pitches, webinars and podcasts. These different communication methods will be more, or less, relevant to different stakeholders or audiences. The task is understanding and matching the two for meaningful knowledge diffusion.

To achieve an improved return on research investment, involving knowledge users in the research process, including the dissemination of findings, is an important step.¹³ Coproduction, and the subsequent diffusion of knowledge, needs to be undertaken collaboratively by academics and practitioners.¹⁴ Developing the capacity and skills of all stakeholders is driving improvements in the conduct and communication of health research,¹⁵ as witnessed by the emergence of new academic roles, such as the embedded academic,¹⁶ and university-health organisation collaborations in Australia and Canada.¹⁷ Similarly, providing access to study findings and tailoring communication methods for multiple audiences or stakeholders assists with knowledge uptake.^{18 19} To enable innovative knowledge to spread, further work is required to encourage communication of research that is clear and engaging, ensures



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tailored messaging, provides accessible information and promotes dialogue.^{20 21}

The writing of study designs for manuscripts has been formalised with a number of guidelines published.²² These include Consolidated Standards of Reporting Trials (CONSORT) for randomised controlled trials,²³ Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) for observational studies,²⁴ Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for systematic reviews²⁵ and Standards for Quality Improvement Reporting Excellence for quality improvement studies.²⁶ These guidelines provide practical steps to assist researchers to structure and include minimum elements of information in a manuscript, thereby improving rigour, replicability and credibility. To communicate research findings beyond manuscripts, guidelines for reporting research through a variety of communication methods are needed for health studies.

A significant challenge is knowing how to target and structure the dissemination of research to stakeholders through appropriate communication methods. Designing, disseminating and implementing research²⁷ with stakeholders are crucial in the uptake of research. To this end, we present a dissemination instrument, the 'REACH and Diffusion of health iMprovement Evidence' (README) checklist, for the communication of research findings, integrating both traditional and newer communication methods. Additionally, to aid in the dissemination of knowledge, we propose a 'Strategic Translation and Engagement Planning' (STEP) tool. The STEP tool challenges individuals to consider need of communicating simple or complex information against the desire for passive or active stakeholder interaction.

The tools were derived using three iterative processes. First, team members individually scanned the healthcare context to assess how research studies were being disseminated. Second, individuals reviewed their own and colleagues experience of presentations at healthcare and academic seminars, workshops and conferences. Third, the team met to collectively discuss this information and develop the communication methods, outlining the corresponding purpose, forms, structure, key components and style conventions.

The README checklist

To enhance the dissemination of health research findings we present an evidence-based, purpose designed checklist. The README checklist encompasses nine communication methods by which to translate knowledge; that is, research reports, posters, healthcare industry and academic presentations, peer-reviewed articles, pitches, podcasts, webinars and infographics (online supplemental table 1). These nine communication methods present similar information from projects in different ways; hence there is some similarity in structure and main questions across different communication methods.

The checklist is to be used by first identifying the main audience or stakeholders and the primary focus or outcome the researchers are seeking to achieve. This means that the research team can decide on the communication medium/s most appropriate for their goals. This decision then determines the structure of the communication method and the associated questions that need to be considered in developing the dissemination output.

Each communication method is described, along with the main target audience or stakeholders, the primary focus or outcomes, structure and main questions addressed. These criteria allow us to assess and categorise the different communication methods, focusing on who the audience is, what a specific medium can achieve, and providing the structure and key questions to be addressed in the presentation of findings. We include both traditional communication methods, such as peer reviewed journal articles, reports and presentations, and evolving communication methods, such as webinars, podcasts and infographics. Evolving communication methods are being increasingly recognised as important for the dissemination and uptake of research.^{28 29}

Research report

The research report is the most traditional, or formal, of communication methods, with its purpose and structure established in academia. The research report's primary audience is academic and knowledgeable healthcare professionals. These reports are extended documents, with the length varying from an 'organisational report' ranging from 20 000 words, to a 'thesis' of up to 100 000 words. The primary purpose is to communicate the study's theoretical contribution, implications and rigour. Ensuring consistency between the components, building a logical evidence trail and transparency in reporting³⁰ are central qualities of the research report.

Fundamental to the diffusion of report findings are the presentation and writing conventions appropriate for a formal report, including headings, page numbers, graphics, figures, tables, references, using technically appropriate language, and style. Auxiliary materials, such as appendices, provide supplementary evidence through the inclusion of data collection tools and additional analyses. A research report has been a source of information to develop academic posters, presentations and manuscripts.¹⁰

Poster

A poster contains a textual or graphical summary of a research project.³¹ It can be in an electronic or hard copy form, and is displayed at an academic or sector research conference.³² To effectively disseminate research, posters are designed according to the thematic focus and requirements of the target conference. There is an argument that they should be developed in consideration of the interests and preferences of audiences. There is evidence that nurses, for example, may prefer designs which convey complex information in an aesthetically

appealing way.³³ Conversely, doctors show preference for posters which convey complex information in a critical text-based format.³³

Posters can be accompanied by a presentation to aid discussion among researchers and research users,³² and facilitate opportunities for professional networking.³¹ Audiences tend to be smaller groups, as at conferences many posters are presented at the same time in a shared space. The ordering of text and graphics is important, with clarity and structure for readers to easily understand. Demonstrating the stages of research, including the introduction, methods, findings and recommendations is required.

Healthcare industry presentation

Presentations to the healthcare sector are given by practitioners and academics to facilitate translational research and evidence-based practices.^{34 35} Effective presentations succinctly state the research aim, with unbiased reporting of findings that have relevance to practice.³⁶ These presentations allow targeted messaging throughout the stages of knowledge translation,³⁷ and can occur via face-to-face or electronic means. Localised settings are used, such as open forums and research showcases, or more restricted private settings, including meetings with a service or leadership team. Engaging presentations require an appropriate mix of software (ie, PowerPoint or Prezi), colour, animation and images.

Criteria for an effective presentation vary with the types and interests of the audience. For example, if the audience is health professionals, the presentation pitches the relevance of the research findings to practitioner's day-to-day work and, accordingly, the presentation focuses on components of results and organisational implications. Identifying the key messages for the audience is critical to focus the talk appropriately and not overwhelm participants. Additionally, allowing time for clarification and questions enhances engagement and translation of ideas and messages.

Academic presentation

An academic presentation is a method of spreading research at local, national or international events. Presentations showcase current or emerging projects, practice challenges or finalised research.³⁸ They can be used to encourage collaboration between research teams, or to define research territory.

Delivered in-person at a conference, as a talk, seminar or workshop, presentations vary in length from short talks—15–20 min, to longer events—60–90 min for seminars, workshops or keynote addresses. Presentations can also be made online, as webinars³⁹ or podcasts. Regardless of format, presentations need to follow ethical conventions, particularly with explicit acknowledgement of all sources of information and images.

Presentations are typically accompanied by multiple images, such as a slideshow, to guide the audience through the talk or discussion. In a talk or keynote address,

the interaction between the speaker and audience is confined to a question and answer session following the presentation.⁴⁰ In a seminar or workshop the format can be flexible, integrating and alternating between material presented, questions and discussion.

Peer-reviewed journal article

Publication through peer-reviewed journals is a formal mechanism for academics to disseminate conceptual and empirical knowledge.⁴¹ The benefits of peer-review are that the written material is assessed by other experts in the field, to ensure transparency in validity, rigour, credibility and reliability of findings.⁴² Journals provide detailed guidelines to authors to assist their manuscript preparation, and for publication these must be strictly followed. Depending on the discipline and manuscript type, articles may vary in length from 1000 to 8000 words. International consortia have established standardised peer-review guidelines to improve the quality of research reporting. These guidelines vary according to the study design; examples include CONSORT, PRISMA and STROBE.²²

Conventions of academic writing style must be adhered to, including use of evidence to support arguments and an acknowledgement of sources. When reporting findings these must be clearly communicated in the accepted convention for the discipline, providing evidence through tables, graphs, figures and quotes.

Elevator pitch

The elevator pitch, when conducted effectively, is an engaging and concise means of explaining, or 'selling' ideas within 30–180s.⁴³ Originating in business and marketing, the elevator pitch explains an idea or project to a target audience, with the aim of attracting interest, participation and, possibly, financial support. The audience is limited to those selected by the 'pitcher' as potential providers of the desired support. Pitches are effectively used as an invitation to a conversation to learn more about a project.⁴³

As a form of research dissemination, the elevator pitch has been reinvented as the Three Minute Thesis (3MT) university competition,^{44–46} and is similar to a poster presentation. The format uses a single slide to focus the audience on the topic, as the presenter finds imaginative ways to inform and entertain the audience about their research. The 3MT format is used to train early career researchers and students to concisely communicate the importance of their work to a non-specialist audience, including healthcare partners.⁴⁶ Audiences are present in-person and online, as high-quality 3MT presentations can be recorded and displayed on the university website⁴⁴ to showcase students' talent beyond their institution.

Podcast

A podcast is a contemporary and now a well-accepted communication method. Podcasts usually involve one form of media; that is, audio. Moreover, podcasts

and webinars are used to educate academics, healthcare providers and patients.⁴⁷ Typically, the length of podcasts are 30–40 min. Podcasts are highly portable and accessible⁴⁴ through different electronic media platforms, including iTunes, Google Play or webpages and networked/computer operating systems. Podcasts are typically audio files, easily downloadable to allow audiences to listen to from personal devices in their own time. They are generally listened to individually and may reach a large audience over time.

Webinar

Webinars are interactive presentations, seminars, lectures or workshops held over the internet in real time, with recordings able to be viewed post event.⁴⁸ Webinars combine audio and visual media. Similar to podcasts, webinars can be used to reach multiple stakeholders for education purposes. Webinars require multi-media features that facilitate engagement and interaction, including question and answer, presenting pictures and graphs, sharing resources and adding notes. Webinars can be upwards of 60 min in length. The interactive nature of webinars enables a two-way dialogue with multiple people at the same time, promoting interaction and relationship building.

Infographics

Infographics, also a contemporary communication method, combine text and images to depict information in a highly engaging format.⁴⁹ They are a means to communicate complex, detailed information in a clear, succinct and visual manner. A mix of text, figures, tables and pictures, linked with arrows and colour coordinated, can produce a highly engaging and compelling visual presentation. Accordingly, infographics present information in a form that is quickly processed and understood, effectively enabling the transfer of knowledge. As an outcome the audience is prompted to seek out further information about the research project.

Infographics promote several advantages for research dissemination in organisational environments. They are easy to comprehend when compared with traditional, text-based formats, as less cognitive load is required to process visually-descriptive information.⁵⁰ Many stakeholders, both professional and community members, can have little time to read the vast amount of published literature in their field, specialty or area of interest.^{51 52} A well designed infographic overcomes both these challenges.

STEP TOOL

To determine the appropriate communication methods to use to promote the knowledge translation requires an assessment of the complexity of information to be communicated, balanced against the level of interaction with stakeholders or audience (figure 1). The STEP tool can be used by individuals and teams to make decisions about the purpose(s), and therefore, appropriate communication methods for knowledge

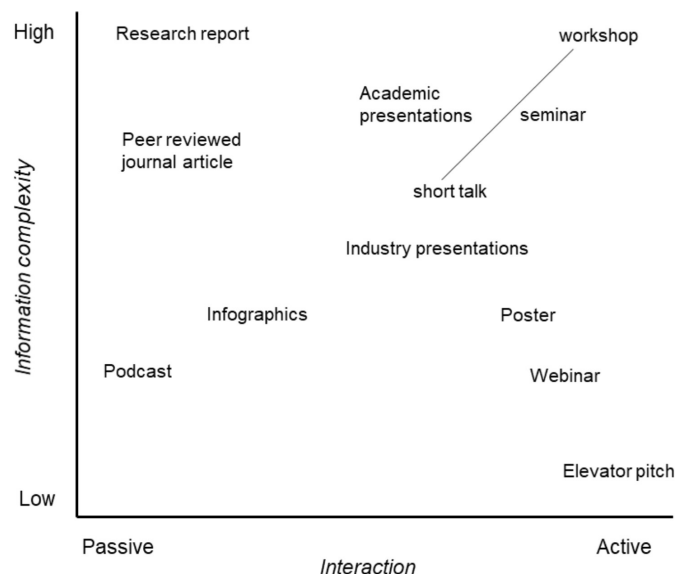


Figure 1 Strategic Translation and Engagement Planning tool.

diffusion. There is alignment and overlap between different communication methods levels of information complexity transfer or interaction. The research report, for example, is high in information complexity but is a passive means of engaging or interacting with audiences and stakeholders. The podcast is a similarly passive engagement communication method but has a lower level of information complexity. By contrast, the webinar also has low information complexity, but allows for a more active interaction and engagement with the audience through visual aids, and question and answer opportunities.

Audiences are known to retain more details from engaging communication methods, such as infographics, than from passive ones, such as text-only dissemination formats.⁵¹ Integrating communication methods together offers a strategy by which to combine their strengths. Increasing the number of communication methods used to disseminate research increases the likelihood of knowledge uptake.¹⁰ Infographics can be used in posters and journal publications, to promote higher engagement while maintaining the required level of information complexity. Alternatively, using high information complexity communication methods, such as reports and publications, in blogs⁵³ and podcasts can enhance their promotion and relevance to different audiences. The ongoing evolution of technology is driving change in the flow and access of information to and from stakeholders. Consequently, passive forms of knowledge dissemination are being challenged for relevance. Social media platforms are now used as appropriate ways to conveying messages to healthcare audiences.⁵⁴ Hence, creative approaches are necessary to be effective in disseminating knowledge to stakeholders through social media, such as Twitter or Facebook.^{53 55}

CONCLUSION

Effective dissemination of research findings to relevant stakeholders is necessary to achieve clinical and service improvements. Translating knowledge to multiple stakeholders or audiences is aided by making explicit the purpose and structure of communication methods. The README checklist and STEP tool, used individually or in combination, can enable the effective dissemination of research findings, providing increased opportunities for return on investment. Used collaboratively, by academics and health professionals, they can promote the coproduction of research, subsequent diffusion of knowledge, and develop the capacities and skills of all stakeholders.

For the research community, both experienced and novice researchers, these tools provide a clear pathway for targeted knowledge diffusion. For healthcare practitioners, and particularly those who engage in research activities, the tools provide an easy *aide-memoire* of what and how to communicate effectively. For professionals in educational roles, including those in academic and health service positions, the tools are a resource that can be built into teaching, research and professional development programmes to enhance knowledge translation.

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