# Adapting an Environmental Scan for 'Insights Reporting': Learnings from an Online Brain Cancer Peer Support Platform

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**Abstract.** When developing a digital health solution, product owners, healthcare professionals, researchers, IT teams, and consumers require timely, accurate contextual information to inform solution development. Insights Reporting can rapidly draw together information from literature, end users and existing technology to inform the development process. This was the case when creating an online brain cancer peer support platform where solution development was conducted in parallel with contextual information synthesis. This paper discusses the novel adaptation of an environmental scan methodology using codesign and multiple layers of qualitative rigor, to create *Insights Reporting*. This seven-step process can be completed in two months and results in salient points of knowledge that can rapidly inform the design of a solution, creating a shared understanding of a digital health phenomenon. Project members noted that Insights Reporting surfaces previously inaccessible knowledge, catalyzes decision-making and allows all stakeholders to influence the report agenda, affirming principles of digital health equity.

**Keywords.** Insights Report; environmental scan; knowledge synthesis; digital health; qualitative methodology; codesign; equity; Validitron.

## 1. Introduction

There is an increasing need in research to quickly develop bodies of evidence and translate that knowledge into practice for digital health projects. Often the speed of development and implementation outpaces the process of research [1]. When generating evidence from literature, systematic and scoping reviews are the most comprehensive techniques to achieve information synthesis; however, when resources or time are limited, rapid reviews can be employed [2, 3]. Criticisms of rapid synthesis and environmental

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scanning are that they lack rigor [4]. Additionally they generally synthesize published information, ignoring user experiences and existing technology. However, development of an online brain cancer support platform can benefit from all these information sources.

Brain cancer accounts for only 1.3% of newly diagnosed cancers in Australia [5] but those affected experience distressing and disabling physical, psychosocial, cognitive, and financial unmet needs [6]. These challenges are compounded by difficulties establishing peer and online support networks [7]. When an online brain cancer peer support platform was commissioned in Australia, solution development was conducted in parallel with information synthesis and a traditional literature review was not feasible. As a result, an existing environmental scan was adapted to create Insights Reporting.

## 2. Methods

Insights reporting is a qualitative technique that draws information, then synthesizes it into "valid, evidence-based information that can be used to inform decisions, strategies, next steps, planning and prioritization activities [8]." It is closely aligned with evidence mapping [9] and like an environmental scan, it brings together existing information to focus a project or policy [10]. When applied to digital health development, this reporting technique provides *insights* or salient points of knowledge that were used to focus development choices. The Insights Reporting approach prescribes a seven-step process:
1. Determine the feasibility of creating an Insights Report
2. Convene a multi-stakeholder meeting to establish the report agenda
3. Establish a multi-disciplinary research team and create a lightweight workplan
4. Collaborative Insight generation
5. Write up the draft Report and conduct Insight reliability checks
6. Dissemination of the final report and identification of any immediate impact
7. Stewardship of the Insights throughout the project

This process was evaluated and adapted during the development of an online brain cancer peer support platform. Feedback was provided by a team of researchers, IT developers, patients, carers, and healthcare professionals experienced with brain cancer.

## 3. Results

Application of Insights Reporting to the online brain cancer platform is described below.

### 3.1. Determine the feasibility of creating an Insights Report

Insights Reporting requires human resources, including the stewardship of the insights throughout a project. A report was considered suitable and feasible due to the time constraints of concurrent development and contextual information synthesis. Resources were allocated to project preparation, a brief literature summary, environmental scanning of existing websites, analysis of interviews with people affected by brain cancer, insight development, and report writing. Searching for, and synthesis of literature required the most resources, utilizing 50% of the 40 working days of the project.

*3.2. Convene a multi-stakeholder meeting to establish the Report agenda*

All members of the research team were present in the first meeting to codesign a report agenda. This meeting was facilitated by the lead author to generate a report purpose, focus, and research questions. When considering an online brain cancer peer support platform, the purpose of the Insights Report was to ensure the safety of users in a peer-moderated community space; the focus of the report was on the practices of established peer-led support spaces; and the research question was 'How do we ensure sustainability and psychosocial safety for users of an online peer-moderated forum?'

*3.3. Establish a multi-disciplinary research team and create a light weight workplan*

Insight development was conducted by a team of three researchers who possessed knowledge of digital health and had complementary research expertise across medicine, human-computer interaction design, codesign, and health sociology. All team members had intermediate skills in data analysis and knowledge synthesis. Table 1 describes the roles, skills, and responsibilities important for Insights Reporting. Roles were assigned based on available skills and once the team was formed, a light workplan was established.

**Table 1.** Roles, skills, and responsibilities.

| Role | Skills | Responsibilities |
| --- | --- | --- |
| Lead author | Project management and report writing | A completed on-time report |
| Data analysis leads | Collect and analyze literature and data, then generate insights | Data summary and development of insights |
| Insight synthesis (done by all data analysis leads) | Synthesis of Insights through inter-rater assessment to agreement. | Finalize 'insights' for the report |
| Knowledge translation lead | Information visualization and communication | Presentation development and delivery |

*3.4. Insight Generation*

An 'insight' is a highly relevant finding based on the triangulation of data from literature, end users, and existing technology contextualized to a digital health project and has undergone inter-rater assessment to agreement. All three researchers generated insights then synthesized them through inter-rater assessment as seen in Figure 1.



**Figure 1.** Insight generation

Credibility, transferability, dependability, and confirmability were addressed to improve qualitative rigor via triangulation of research methodologies, theoretical purposive sampling, a dependability audit, and reflexivity. To achieve Insights grouping an evidence appraisal approach was used [11]. 'Recommendations' had conclusive supporting evidence, with 'considerations' having partial supporting evidence.

### 3.5. Write up the draft Report and conduct Insight reliability checks

A draft report containing Insights and a brief literature review were provided to the report team for reliability checks. Feedback was sought and incorporated, to increase the trustworthiness of the findings. To increase transferability, original data sources were cited. A user-friendly presentation was provided for diverse audiences [9].

### 3.6. Disseminate the final report and identify any immediate impact

Four recommendations (1-4) and three considerations (5-7) were reported when developing an online brain cancer peer support platform:
1. Online peer support services for brain cancer should clearly define and communicate their intended audience, and work to promote diversity of participation within that audience
2. Reducing fatigue should be a principle that guides all aspects of online service design for brain cancer survivors
3. Online peer support services should formalize the key roles that users can play, considering both offline and online roles.
4. Online peer support services should support a range of interaction formats that can be used flexibly to accommodate differing appetites for privacy and safety.
5. The extent and nature of moderation and governance mechanisms should be an early consideration because they affect the technical and operational design.
6. Supporting end-of-life (EoL) discussions and transitions is an under-addressed aspect of cancer-focused peer support forums.
7. Assessments of impact could incorporate consumer-directed evaluation and focus on psychosocial outcomes.

Feedback from project members included that the report surfaced previously inaccessible knowledge and was a catalyst for informed decision-making. This report led to the creation of an EoL working group, formation of clear moderation guidelines, informed the development of an online community 'code of conduct' and informed design decisions for customizing user privacy settings.

### 3.7. Stewardship of the generated knowledge

Once Insights were established, they were championed throughout the project development and implementation phase and were used to help evaluate project success.

## 4. Discussion

Digital health projects are inherently multidisciplinary, with varying levels of pre-existing knowledge. This methodology successfully surfaces unobserved insights, creates a common understanding, and focuses decision-making on a digital health development project. Insight Reporting allows multi-stakeholder participation and influence, thereby embodying principles of codesign and digital health equity [12].

## 5. Conclusions

Insights Reporting is a novel, rigorous, codesigned form of environmental scanning when traditional research methods are unfeasible. Limitations include that the theoretical foundation for environmental scanning is still evolving [13] and as the method relies on qualitative synthesis, risk of bias must be addressed in multiple ways. More applications are needed to assess method usefulness, and an expert review is required to assess rigor.

## References

[1] Torous J, Stern AD, Bourgeois FT. Regulatory considerations to keep pace with innovation in digital health products. NPJ Digit Med. 2022;5(1):121, doi:10.1038/s41746-022-00668-9.

[2] Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int J Soc Res Methodol. 2005;8(1):19-32, doi:10.1080/1364557032000119616.

[3] Garritty C, Gartlehner G, Nussbaumer-Streit B, King VJ, Hamel C, Kamel C, et al. Cochrane Rapid Reviews Methods Group offers evidence-informed guidance to conduct rapid reviews. J Clin Epidemiol. 2021;130:13-22, doi:10.1016/j.jclinepi.2020.10.007.

[4] Varker T, Forbes D, Dell L, Weston A, Merlin T, Hodson S, et al. Rapid evidence assessment: increasing the transparency of an emerging methodology. J Eval Clin Pract. 2015;21(6):1199-204, doi:10.1111/jep.12405.

[5] McAlpine H, Joubert L, Martin-Sanchez F, Merolli M, Drummond KJ. A systematic review of types and efficacy of online interventions for cancer patients. Patient Educ Couns. 2015;98(3):283-95, doi:10.1016/j.pec.2014.11.002.

[6] Nahm ES, Miller K, McQuaige M, Corbitt N, Jaidar N, Rosenblatt P, et al. Testing the impact of a cancer survivorship patient engagement toolkit on selected health outcomes. Oncol Nurs Forum. 2019;46(5):572-84, doi:10.1188/19.Onf.572-584.

[7] Zhang S, Bantum EO, Owen J, Bakken S, Elhadad N. Online cancer communities as informatics intervention for social support: conceptualization, characterization, and impact. J Am Med Inform Assoc. 2017;24(2):451-9, doi:10.1093/jamia/ocw093.

[8] Victoria. Insights Report [Melbourne, Victoria, Australia]: Victorian Government; 2020. Available from: https://www.vic.gov.au/insights-report.

[9] Miake-Lye IM, Hempel S, Shanman R, Shekelle PG. What is an evidence map? A systematic review of published evidence maps and their definitions, methods, and products. Syst Rev. 2016;5:28, doi:10.1186/s13643-016-0204-x.

[10] Wilburn A, Vanderpool RC, Knight JR. Environmental scanning as a public health tool: Kentucky's human papillomavirus vaccination project. Prev Chronic Dis. 2016;13:E109, doi:10.5888/pcd13.160165.

[11] Lewin S, Bohren M, Rashidian A, Munthe-Kaas H, Glenton C, Colvin CJ, et al. Applying GRADE-CERQual to qualitative evidence synthesis findings-paper 2: How to make an overall CERQual assessment of confidence and create a Summary of Qualitative Findings table. Implement Sci. 2018;13(Suppl 1):10, doi:10.1186/s13012-017-0689-2.

[12] Richardson S, Lawrence K, Schoenthaler AM, Mann D. A framework for digital health equity. NPJ Digit Med. 2022;5(1):119, doi:10.1038/s41746-022-00663-0.

[13] Charlton P, Kean T, Liu RH, Nagel DA, Azar R, Doucet S, et al. Use of environmental scans in health services delivery research: a scoping review. BMJ Open. 2021;11(11):e050284, doi:10.1136/bmjopen-2021-050284.

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