

HOW RESEARCHERS REACH IMPACT THROUGH CONTINUOUS PROFESSIONAL EDUCATION WITH AND FOR HEALTHCARE PROFESSIONALS

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ABSTRACT

Creating an impact on healthcare by interweaving research and education is beginning to receive more attention. Researchers are developing and investigating learning opportunities for the continuous professional education of healthcare professionals who can then directly implement this co-created knowledge in a learning healthcare system. In this paper, we present two examples that demonstrate how broader organisational developments that intend to connect impact of research and professional development must address practical challenges.

INTRODUCTION

In the past, (bio)medical research and education for medical professionals were rather separate fields. Researchers published their findings in scientific papers, while learning developers independently and selectively incorporated these findings into educational materials. Plans for disseminating research were typically buried in the research proposal's final section. Fortunately, some new developments have changed this landscape, creating a more interconnected triangle of research, education, and impact on everyday healthcare practice (King *et al.*, 2016).

First, researchers are increasingly expected to create an impact with their work. This expectation is particularly evident in the UK, with other countries following suit. Publishing findings in an academic paper is no longer the endpoint of a research project. Nowadays, researchers strive to achieve different aspects of impact, such as attitudinal or policy impact, and reach out to different stakeholders throughout the research process. In healthcare, participatory approaches are advocated to make the research more relevant for the anticipated audience (Hasson *et al.*, 2020) and thus have greater impact.

Second, partly in response to the challenges with implementation, action and design-based research are becoming popular, allowing for collaborative knowledge generation. Changing practice is increasingly seen as complex: knowledge is not simply 'packaged, transferred, picked up, and then finally used' by clinicians (Uvhagen *et al.*, 2019, p. 9). Nowadays, there is a widely held awareness that research findings are wasteful if they cannot be implemented in (clinical) practice (Greenhalgh *et al.*, 2016).

Furthermore, both developments can facilitate continuing professional development (CPD) and – education (CPE) of medical professionals. Traditional designs used in continuing medical education (CME) are lecture-based, even when modern tools such as e-learning are employed (Hadadgar *et al.*, 2016). To disseminate the latest research findings, CPD and CPE could be more helpful for clinicians to keep up with their knowledge (Dionyssopoulos *et al.*, 2014). For example, general practitioners could explore their own clinical practices as a context for lifelong learning (Stabel *et al.*, 2022) and thus build a learning healthcare system. Other pedagogical approaches for CPE, where reciprocity and co-creation are essential, align well with the changes in (bio)medical research. Implementing recommendations of practice guidelines involves more than just putting them on a website. Educational strategies, previously separated from the research, are now more interwoven and considered research topics in their own right and are respected for their knowledge contributions to clinical practice.

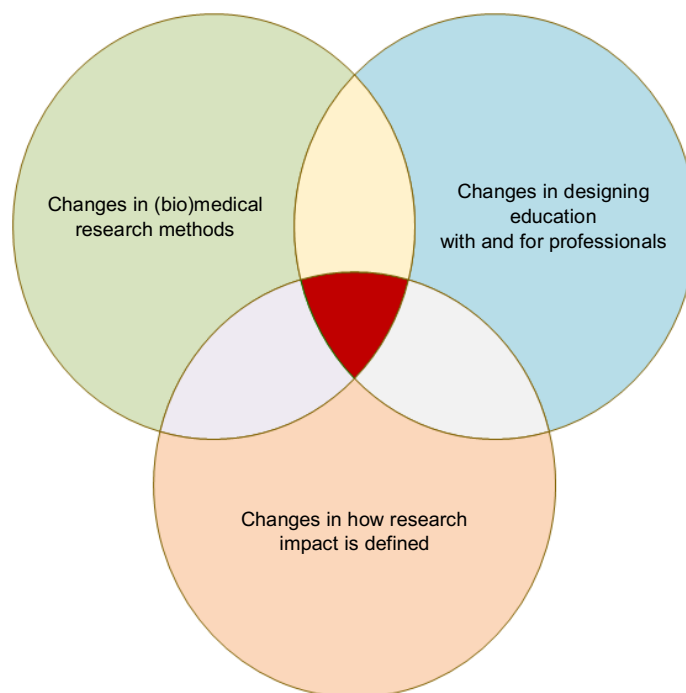


Figure 1: Illustration on how our approach is inspired by the overlap between three different developments described in the text

Researchers of the department of General Practice & Nursing Science at the University Medical Centre Utrecht aim to create research questions that are suitable for participatory approaches, building, developing and maintaining sustainable partnerships between education and research. We highlight two of our projects as case studies; a completed and starting study. Next, we reflect on our cases, discuss how these cases have broader transferability potential and what needs to be done next.

THE ZOUT PROJECT

The ZOUT project ('ZOrg op de juiste plek in Utrecht'; Care at the right place in Utrecht) focussed on how general practitioners (GPs) and medical specialists who work in the hospital use clinical practice guidelines. This was done in Utrecht, the Netherlands. First, GPs and medical specialists (MSs) had jointly created collaborative patient care agreements (CPCAs) using clinical practice guidelines in which researchers translate their findings for practice. Based on (bio)medical evidence provided by researchers, these CPCAs describe when patients should be referred to the hospital and when a referral back to the general practitioner should take place. This is intended for patients with (i) diabetes, (ii) chronic obstructive pulmonary disease (COPD), or (iii) who needed cardiovascular risk management. Because compliance with CPCAs is not guaranteed, a learning community was created by bringing together patients, GPs and MSs from different medical disciplines. None of the GPs and MSs had been involved in developing the CPCAs.

In this learning community – called the 'Optimal Care Table' – general practitioners, medical specialists, and patients discuss how the CPCAs could work in practice; an environment of 'learning through discussion' was created. Questions to be answered were: 'Is the patient managed in the right place? Do we know what to expect from each other to make the right choices?' To facilitate the discussions, we used 'mirror information' from routine care of both GPs and MSs (Vermond *et al.*, 2021, Vermond, 2022). Figure 2 shows the IF-THEN scenario as prescribed by the CPCAs that was used as mirror data during the Optimal Care Tables. In the mirror data, findings from research (for example, with which blood pressure values patients should be referred to a specialist in the hospital) are contrasted with actual behaviour within clinical practice. Mirror data is used to support learning processes close to the actual work processes of participating professionals (Vermond, 2022). By linking routine hospital and primary care data, the actual compliance ("are we doing what we agreed upon?") with the agreements in the different CPCAs could be visualised and critically reflected upon. Aiming at cultural and attitudinal impact by stimulating answering questions such as "What do we think about this? What could be done better/differently" How do we achieve this?".

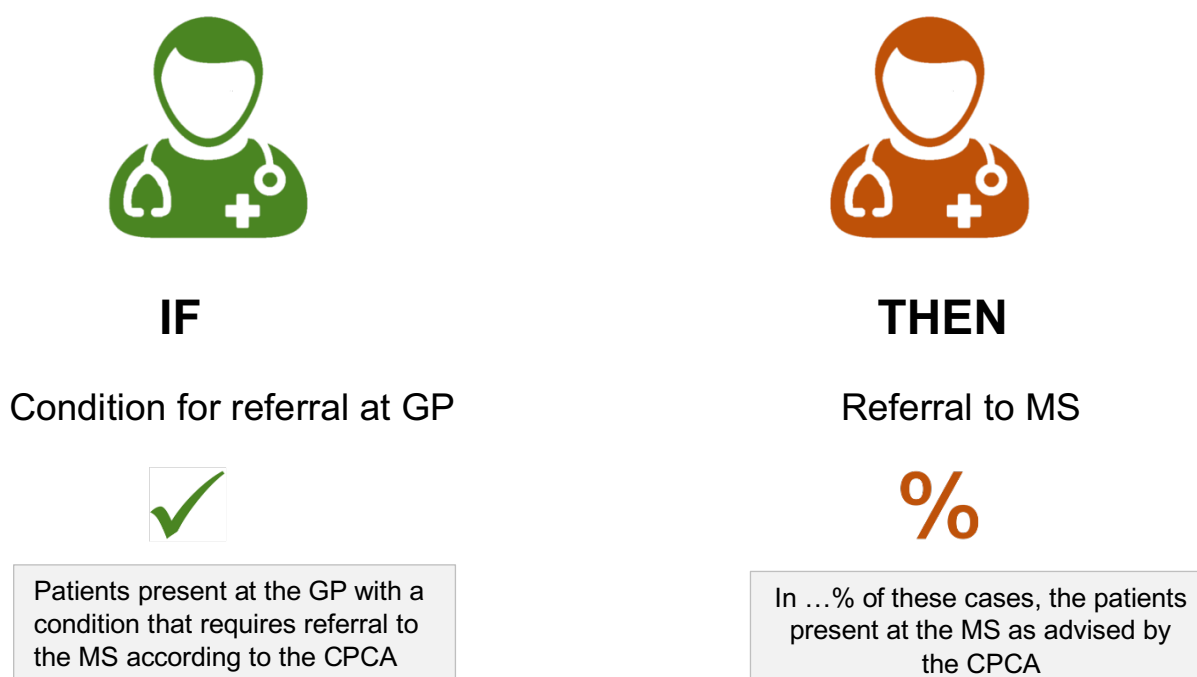


Figure 2: Illustration of the IF-THEN scenario used as mirror data.
GP = general practitioner; MS = medical specialist in the hospital

Using mirror data from linked patient records is not a new concept and has been used in the design of the Optimal Care Tables based on change lab design (Vermond, 2022). What is new however, is the use of mirror data to better understand and improve the use of collaborative patient care agreements. Within each 'Optimal Care Table,' the mirror data served as a framework to reflect on the CPCAs. This helped GPs, MSs and patients to learn from each other and, at the same time, improve regional collaboration. For example, the CPCA for type 2 diabetes patients recommended referring a specific class of patients with foot problems to the surgeon. The mirror routine care data provided insight into whether this happened. If these patients were referred to a different discipline, is this wrong or should the CPCA be adjusted? What circumstances should be considered for non-compliance? How could we solve this problem; who needs to do what?

The key is that these and other new insights can be quickly applied in daily practice. Therefore, every Optimal Care Table is set up in an action-oriented way: participants concluded each meeting with concrete actions that they could carry out themselves 'tomorrow' in their own practice. As a result, the 'Optimal Care Table' concept is not a refresher course with 'just in case' knowledge, as is often happening in many CME courses, but a methodology that is closely intertwined with a regional, learning healthcare system. After experimenting with the Optimal Care Table for one year (with 33 professionals in a first round of six sessions and more than 200 participants in an online form during Covid), the long-term ambition is that regional healthcare organisations ensure that their GPs and MSs participate in Optimal Care Tables once or twice a year (Vermond, 2022). Implementation of this ambition is integrated in a large project within our hospital on collaboration in the region where research, care, and education meet. The lessons learned in the ZOUT project provide valuable input for this project (especially the importance of stakeholder involvement), even though new Optimal Care Tables have not yet taken place.

THE SAFETY FIRST ACTION PROJECT

This project is about telephone triage during out-of-hours services in primary care (OHS-PC) in patients with chest discomfort or neurological deficit. The Safety First Action project is a sequel of the Safety First project (Erkelens et al., 2019). Within the Safety First project, approximately 4000 phone calls were reviewed, scored, and analysed for a variety of endpoints. This data was used to analyse the safety and efficacy of decisions made that were guided by the semi-automatic computer-based clinical decision support system used at the OHS-PC; the Netherlands Triage Standard (NTS) (Erkelens et al., 2020, Wouters et al., 2020). A new, well-performing diagnostic model for ACS was developed (Wouters, 2022). Furthermore, conversation analysis was used to interpret recordings and identify challenges in the communication between triage nurses and callers (Erkelens et al., 2020). Finally, the workability of the NTS was investigated through an interview study with triage nurses (Wouters et al., 2020).

The Safety First Action project aims to improve the telephone triage at OHS-PC nationally by implementing, through action research (Hampshire, 2000), the findings from Safety First in the daily work of triage nurses, eventually in all OHS-PCs in the Netherlands. In agreement with NTS, a team of directly involved stakeholders (e.g., GPs, triage nurses, patients) will cyclically contribute to evaluating the process and change of the study workflow to improve the acceptability and workability of NTS in daily practice. Each action research cycle will consist of the four conventional phases: plan, do, study and act (Hampshire, 2000). In each phase, we will collect data and evaluate whether adjustments are necessary. This approach will allow us to develop further the adoption of the results from the Safety First project while simultaneously studying and improving the process itself.

Within Safety First Action, continuous professional development of triage nurses is important, as it is essential for the researchers involved to reach impact with the results of earlier studies. The training sessions with triage nurses will be used as an explicit strategy for impact, and these are also subject to research as in their own right, as the design of the training of a diverse group of triage nurses will take part in co-creation. This strategy of using co-creation in higher education is gaining interest (Bovill & Woolmer, 2019). Several articles have explored co-creation in various medical-educational fields, such as general medical education (Könings *et al.*, 2021), nurse mentorship (Frøiland *et al.*, 2023), and medical faculty development (Iqbal *et al.*, 2023). However, knowledge about co-creation in (continuous) training of experienced medical professionals is lacking. Thus, the Safety First Action project will likely offer interesting new perspectives.

The participating triage nurses are already fully trained and qualified for their jobs, using decision support systems without the research-based changes. Their working experience allows them to identify difficulties in telephone triage which may provide material for developing education relevant to their daily practice. Because they are active professionals, they can directly apply new skills and knowledge into practice and thus determine the usefulness and efficacy of the education. Triage nurses' specific input along with the knowledge gained by developing the education, aligned with modern ideas about educating professionals, will very much help the uptake and workability of the adjusted NTS. Because the professional training of triage nurses will be provided by other triage nurses there is no hindrance of power imbalance that can be an obstacle for co-creation. This imbalance is a common problem between students and teachers (Könings *et al.*, 2021).

Naturally, we can expect to encounter several challenges. We need to be aware that the knowledge of the triage nurses in the educational design and the researchers' scientific findings from previous projects will both be considered legitimate knowledge. Another challenge might be that triage nurses have to switch from their customary role as participants in CME to developers of CME. Finally, in contrast to other co-creation studies – where students are mostly “full-time” students – our participants already have a job and education is just a tiny part of their daily work. The continuous professional education for most triage nurses in The Netherlands consists of several hours each year, and they create their own lifelong training environment. The Safety First Action project can help to guide future research implementations and education in similar settings.

BROADER TRANSFER POTENTIAL AND CRITICAL REFLECTION

This paper describes two projects where the focus is on the innovative design approach. The innovativeness is to be found in the combination of developments (knowledge translation by researchers, design of CPD, new research approaches) that were previously treated as separate activities, where building a network with stakeholders is key to ensure participation of busy professions. In Figure 1, the red intersection illustrates this innovative development approach of CPE, even though the content and the pedagogies build on existing models (in ZOUT, the foundation was a change lab design). This approach is relevant for universities where researchers not only teach students within the university but increasingly also teach lifelong learners outside of their institutions.

Upon critical reflection of our cases, we see that involvement of stakeholders in our network is essential in ensuring an agile curriculum of CPE activities whose content is better aligned with findings from recent research. However, in distributing this approach to a wider audience, such involvement is challenging and time consuming. We need to make newly developed pedagogical designs sustainable and incorporate the multi-disciplinary learning health care system approach in the regular training programme of professionals (Terry *et al.*, 2022). For this, a change in governance of education is needed, an aspect addressed

recently by Vereijken et al. (2022) for interdisciplinary education. With a focus on the higher education setting, they recommend more flexible ways of organising interdisciplinary education (Vereijken *et al.*, 2022). We argue that the same flexibility is necessary for continuous professional education and development in which researchers aiming for impact are involved.

CONCLUSIONS

These case examples describe how researchers can create impact by adjoining education and research, and how circulation of knowledge is facilitated by bringing diverse medical professionals together. Bridging theoretical ideals with practical challenges is needed to create a triangle of research, education, and impact and let it flourish. Outcome evaluations will provide added value in the future. At present, these examples have broader transfer potential because of their co-creation approach, with a focus on research impact that bridges the gap between researchers, practitioners, and educational specialists. Our approach brings forward new ways of sustainable lifelong learning.

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