

Benefits And Risks of Patient Participation in Multidisciplinary Tumor Conferences Findings of The Mixed Methods PINTU Study

Lena Ansmann¹, Christian Heuser², Annika Diekmann², Barbara Schellenberger², Nicole Ernstmann²

¹Department of Health Services Research, Carl von Ossietzky University of Oldenburg, ²Center for Health Communication and Health Services Research, University Clinic Bonn

Presenting Author: Lena Ansmann

Background: Multidisciplinary tumor conferences (MTCs) are regular scheduled meetings of a multidisciplinary treatment team, in which the diagnosis and treatment of individual cancer patients are discussed and a treatment recommendation is given. Previous research in breast cancer centers throughout Germany revealed that between 5 to 7% of patients have participated in MTCs during their own case discussion (e.g. Ansmann et al. 2014). Research on this phenomenon and its benefits and risks is rare and has only been conducted in Germany and Australia, yet. The PINTU study (Heuser et al. 2019) aimed to fill this gap by answering the following research questions: A) How do the providers perceive participation of patients in MTCs with regard to feasibility and quality of decision-making? B) How do MTCs with and without patient participation differ with regard to organisation, interaction and patient orientation? C) How do patients experience the participation and what direct cognitive and emotional effects can be observed? Since the PINTU study explores this multifaceted phenomenon from various angles, we aim to provide a synopsis of the findings.

Method: This is an exploratory, observational, prospective multicenter study using mixed methods. MTCs with and without patient participation in 6 breast and gynaecological cancer centres in Germany were examined. First, n=32 interviews with providers were carried out and analysed by means of content analysis. Second, videotaped or audiotaped participatory observations in MTCs were conducted (n=317, n=95 with participation, n=222 patients without participation). Video data, transcribed audio data and data from a structured observation protocol were analysed using quantitative and qualitative approaches. Third, patients with and without participation were surveyed before (T0), directly after MTC (T1, patient with participation only) and 4 weeks after MTC (T2). Survey data were analysed by means of descriptive and multivariate statistics using propensity score matching.

Results: (1) The way patient participation is implemented varies strongly by center. It ranges from inviting the patient to the MTC with a reduced number of providers sitting at a round table after a preliminary case discussion to the patient being present during the complete case discussion in a theater-style hall. (2) Case discussions with patients present took longer and providers mainly doubted that patient participation in MTC is feasible in routine care. (3) Most patients experienced patient participation in MTC as positive, whereas some patients reported negative experiences. (4) Some providers experienced or feared that patient participation inhibits discussions and is emotionally burdensome for patients, whereas other providers valued the involvement of patients and emphasized the positive experiences of patients. (5) The implementation of shared decision making in MTCs seemed difficult under the current circumstances. (6) The development of patient-reported experiences and outcomes such as fear of cancer progression, unmet information needs and health-related quality of life over time did not show substantial differences between patients with or without patient participation.

Implications: The way patient participation is implemented seems to vary greatly. The results show a mixed picture of positive and negative experiences of providers and patients, but also clear limitations regarding shared decision making in MTCs. The prospective study further revealed that patient participation seems to neither improve nor worsen patient-reported experiences or outcomes. The next urgent questions to be answered before recommendations for or against patient participation in MTCs can be made are: Which patients could benefit from participation in MTCs? How can MTC participation be arranged for the patient's benefit?

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Public Involvement in Research Reviews: Practical Guidance from An Evidence Synthesis Centre

Susan Baxter, Duncan Chambers, Andrew Booth, Louise Preston, Joyce Fox
University of Sheffield

Presenting Author: Susan Baxter

Background: The involvement of members of the public as advisors, rather than participants, in research studies is now well established. Guidance from organisations such as INVOLVE recommends the inclusion of public advisors at all stages of the research process. The role of public advisors in primary research studies typically includes input on aspects such as outcome measures, acceptability of interventions, and participant information and methods of recruitment for patients participants. While these roles are clear for primary research many researchers remain unsure of the role and value of public advisory input during systematic reviews and other forms of evidence synthesis. There may be perceptions that public involvement in these studies is not required or is not relevant. We are frequently approached by researchers who are looking for practical help with why, where and how to include public advisors in their reviewing work. This presentation aims to fill the gap in researcher knowledge and understanding of the methods of public involvement, in evidence synthesis forms of research.

Methods: This presentation will draw on over seven years experience of involving patients and the public during a programme of work within a UK National Institute for Health Research funded evidence synthesis centre. The topics of the reviews have been many and varied, relating to all aspects of health and social care service delivery including digital services, emergency care, access to services for particular population groups, safeguarding, and hospital admissions. The review methods have included rapid reviews, systematic reviews, mapping reviews and realist reviews. During this time we have developed and refined our ways of working with public advisors, and the Centre has a structure of three layers, with a public co-applicant, a strategic advisory group, and topic-specific groups. In this presentation we will draw on a selection of completed evidence synthesis projects to outline the structure and methods of public involvement within the Centre. We will present key learning relating to methods of recruitment, group processes including payment systems, and the roles and activities of public advisors during review forms of research studies. During the Covid-19 pandemic our public involvement activities have continued, so we will also discuss virtual methods of input. The presentation will be developed with and include contributions from our group members, to ensure their views and experiences regarding optimal ways of working together are incorporated. The presentation will also address the challenges of evaluating the contributions of public advisors.

Results and Implications: There are a growing number of frameworks and guidance documents relating to patient and public involvement, which are available for researchers to draw upon during evidence synthesis studies. This presentation supplements these available guidelines with practical recommendations drawn from research on wide-ranging health services topics. It provides researchers with answers to the key questions of why, where and how to include public advisors in their evidence synthesis work.

Utilising Patient & Public Involvement in A Consensus Process to Agree Consensus on Clinical Treatment Options (The ARCO Study)

Chloe Beard, Maria Pufulete
Bristol Trials Centre, University of Bristol

Presenting Author: Chloe Beard

Background: Patient and Public Involvement (PPI) has been used in consensus studies to help determine methodological approaches to clinical trials but has not been routinely used in a clinical consensus process which aims to agree consensus on a particular treatment option for a disease/condition. The ARCO study used a novel approach to incorporate PPI into a clinical consensus process to determine the most suitable heart valve replacement options for a range of patient circumstances. Even with the added complexity of a virtual consensus meeting due to the Covid-19 pandemic, Public Contributors provided invaluable insights, particularly with regards to treatment preferences and most important outcomes when deciding between options. Here we provide a summary of our experience.

Methods: The PPI work was facilitated by an experienced PPI researcher. To ensure representation of a broad range of experiences, a UK-wide PPI group was formed with each Public Contributor having had a different type of valve replacement. Prior to the consensus meeting, the PPI group was provided with lay friendly versions of all study documents, including a lay version of the study survey itself. The documents included simplified diagrams of the heart anatomy and each valve replacement option. The group were then invited to attend 2 virtual PPI meetings before the main consensus meeting, in which the consensus process was explained and discussed. The Public Contributors were also asked for their preferences on how they would like to contribute during the meeting ensuring they were comfortable and confident in providing their input. Following this, a WhatsApp group was formed between the Public Contributors and PPI facilitator for discussion during the consensus meeting, allowing Public Contributors to talk freely amongst themselves during the meeting without feeling intimidated by the 'experts'. Public Contributors could then choose if they wished to voice their experiences themselves or if they wished for the PPI facilitator to communicate these on their behalf. Survey results were presented as a box plot and therefore guidance outlining how box plots are interpreted was also provided. A de-brief meeting has been scheduled to follow-up with the Public Contributors following the consensus meeting and an evaluation form has also been sent.

Results: The ARCO study is able to provide useful insights following our experiences of successfully utilising PPI in a clinical consensus process. We currently await Public Contributor feedback from evaluation forms and outcomes of the de-brief meeting, but here we summarise the main successes to date. Having an experienced PPI facilitator as the main contact for the Public Contributors allowed the process to run smoothly and effectively. Further, the Public Contributors saw a familiar face at every meeting which ensured they felt comfortable throughout. Providing lay summaries of all documentation enabled Public Contributors to understand the terminology and valve replacement procedures being discussed. In particular, the lay study survey was well received as the Public Contributors could understand the process that had been carried out by the expert panellists, and explaining box plots allowed the Public Contributors to understand and interpret the study results. Hosting virtual meetings with the Public Contributors before the main consensus meeting ensured they fully understood what to expect on the day and how/what they were expected to provide input on. The WhatsApp group allowed private discussion amongst the Public Contributors and gave them the opportunity for the PPI facilitator to raise their experiences/opinions if they did not wish to do so. Overall, the PPI aspect of the ARCO study was hugely successful.

Implications: The ARCO study has shown that PPI involvement in clinical consensus processes is possible and valuable, and offers guidance for future clinical consensus work.

Exploring - and Changing - Public Perceptions of Urgent and Emergency Care

Nicola Bowen¹, Scott Wilson-Evans²

¹The NCCU, ²Aneurin Bevan University Health Board/ The NCCU

Presenting Author: Nicola Bowen

Background: Public perceptions of emergency care are varied. Many changes to health care have been engendered by the Covid-19 pandemic, and so understanding patient behaviour and perceptions of care is vital to effectively communicating change and influencing patient behaviour to support appropriate use of care services, particularly emergency care.

Methods: In 2020, the leaders of the Emergency Department Quality and Delivery Framework commissioned the Picker Institute UK to conduct research into public perceptions of emergency care – does the public think of 111 or the pharmacy when they think of accessing emergency care, for example.

Results/ Implications: This twelve-minute presentation shares the results of this research and describes its implications for the care system. The intention is to better understand patient behaviour in order to support behaviour change and a shift towards appropriate use of care systems.

The We Can Quit² Trial Knowledge Exchange and Dissemination Plan: Future Research and Policy Priorities from A Community Perspective

Stefania Castello¹, Catherine Darker¹, Joanne Vance², Elaine Buckley³, Caitriona Reynolds³, Aine Buggy³, Kevin O'Hagan⁴, Norma Cronin⁵, Nadine Dougall⁶, Declan Devane⁷, Linda Bauld⁸, Catherine B Hayes¹

¹Public Health & Primary Care, Institute of Population Health, Trinity College Dublin, Ireland, ²Irish Cancer Society, Ireland, ³Health Service Executive, Ireland, ⁴Irish Cancer Society, Ireland, ⁵PPI, ⁶School of Health and Social Care, Edinburgh Napier University, Scotland, ⁷HRB Trials Methodology Research Network & NUI Galway, Ireland, ⁸Usher Institute and SPECTRUM Consortium, College of Medicine and Veterinary Science, University of Edinburgh, Edinburgh, Scotland

Presenting Author: Stefania Castello

Background: We Can Quit² is a pilot, two-arm, cluster randomised trial developed to assess the feasibility and acceptability of conducting a definitive trial (DT) to evaluate We Can Quit (WCQ), a community-based smoking cessation programme designed for women living in socioeconomically disadvantaged (SED) areas in Ireland. The WCQ intervention comprises group-behavioural support delivered by trained lay community facilitators and access to combination Nicotine Replacement Therapy (NRT) without charge. Trial findings indicated the feasibility of participant recruitment (the primary outcome) which was reliant on active community stakeholders' mobilisation. There was high acceptability of trial-related processes and the WCQ intervention. Participant retention into the study was low and needs to be improved in a DT. A face-to-face workshop formed part of the trial Knowledge Exchange and Dissemination plan, which aimed to inform stakeholders and request their feedback on trial findings, and to inform a future DT of intervention effectiveness.

Methods: A Policy Brief document summarising trial findings and related policy and research implications was developed and sent to community and research partners, regional and national stakeholders involved in tobacco control policy and related health issues. As a face-to-face workshop was not feasible due to COVID-19, recipients of the policy brief were invited to participate in an online interactive workshop event. Invitees were representatives of the Irish Cancer Society, the Ireland's Health Service Executive, local area partnerships, community organisations and pharmacies, GPs, primary care centres, and other stakeholders who supported women's recruitment and/or assisted in trial planning. Specific objectives were to capture workshop participants' views on key improvements to enhance community engagement, participant recruitment and retention, and the key policy and practice priorities arising from the research. A researcher collected field notes during workshop discussions. Participants were invited to fill in an online, anonymous, open-ended questionnaire after workshop completion to register any further views on the previously discussed topics. Field notes and questionnaire responses were combined to obtain a final list of challenges, barriers and recommendations for policy development and future research from a community perspective.

Results: Forty-one stakeholders attended the workshop and actively engaged in discussion activities. A challenge to achieve successful recruitment was the need for significant time to build relationships with local stakeholders including GPs and "community champions" as key sources of participant referral. The presence of a local coordinator and the development of social prescribing in primary care were suggested as important facilitatory factors to recruitment. Low literacy was highlighted as an issue to women recruitment and retention, which may be addressed by simplifying trial information, measures, consent forms, and providing additional support. Women's stress, life pressures, fear of being judged or unable to quit, family members smoking and lack of support from them were mentioned as reasons to dropout during intervention completion, to encourage women to keep as a group and join other healthy community programmes after trial, have an introduction night with past successful participants, and incorporate family and/friends in the programme for additional support. Key policy priorities were to remove the cost and administrative barriers to access NRT, prioritise support tailored to disadvantaged groups, and recognise and fund the peer-support model.

Implications: The online workshop provided a suitable forum for thorough engagement of a mix of community and statutory stakeholders. These results outlined important strategies to enhance the design of a future DT to assess WCQ effectiveness on smoking cessation from the perspective and needs of women smokers living in SED districts in Ireland. The findings may be also relevant for other community-based health interventions.

Rationale And Design for An Evaluation of a Patient-Led Redesign of An Inflammatory Bowel Disease Service.

Daniel Hind¹, Nikki Totton¹, Danielle Cotton², Elena Sheldon¹, Rachel Ainley³, Alan Lobo²

¹University of Sheffield, ²Sheffield Teaching Hospitals NHS Foundation Trust, ³Crohn's & Colitis UK

Presenting Author: Daniel Hind

Background: Inflammatory Bowel Disease (IBD) is characterised by flares, debility, immunosuppressive medication, psychological morbidity, hospitalisation and surgery. Services tend towards rescue rather than prevention. Many have experienced an increase in admissions, with a disproportionate representation of people from deprived backgrounds. IBD UK's Benchmarking Tool 2019/2020 found excess steroid use, opportunities to improve Shared Decision Making (SDM), lack of education and patient engagement opportunities, and only 9% of patients reporting a personalised care plan. Clinicians tend to focus on guideline adherence and objective measures, whereas patients prioritise subjective wellbeing and experiential outcomes. Crohn's & Colitis UK are working with the Microsystems Coaching Academy (MCA) at Sheffield Teaching Hospitals (STH) to bring patients, clinicians and commissioners together to redesign services in line with patient priorities. A clinical microsystem is a small, frontline unit which provides care. In the MCA approach, improvement coaches work with teams to improve the quality of care, through understanding and redesigning their processes by testing small changes. MCA will train a patient from the Sheffield IBD service as a coach, to lead the microsystem of service users and professionals in the service redesign and implementation between 2021 and 2023. A patient oversight committee will steer the process throughout. This presentation will describe the evaluation.

Method: An online application will collect data on IBD symptoms (IBD Control, 13-item measure of disease control), knowledge, skills and confidence to self-manage (Patient Activation Measure, 13-item questionnaire: the PAM-13) and an IBD-specific patient-reported experience measure, co-produced through workshops and think aloud interviews. This data will be fed to the IBD service's clinical dashboard, to inform individual consultations, multi-disciplinary team meetings, service improvement and evaluation. Time series analysis will be used to evaluate how outcomes change after quality improvement processes are initiated. Run charts will be used to visualise changes over time and regression analysis used to test the outcomes collected by the online application over time while considering whether this was before or after intervention initiation. An achievable sample size of 234 will enable us to detect a standardised effect size of 0.3 on the IBD Control Patient Reported Symptom Measure (PROM) with 80% power, if one is brought about by service improvement. Separately, mixed-methods case studies will be conducted with patients and clinicians. We will triangulate the PAM with semi-structured interviews, based on the COM-B (Capability, Opportunity, Motivation - Behaviour) system, to understand if and how the new processes are sufficient to improve service access, medication adherence and patient satisfaction, and whether professionals believe service improvements are sustainable.

Implications: Crohn's & Colitis UK will ensure dissemination of learning and outcomes from this project across the UK. We will share results with IBD UK, a partnership of 17 patient and professional organisations, chaired by Crohn's & Colitis UK, who work together to improve standards of care and treatment for everyone affected by IBD. This will allow us to collaborate, share learning, foster innovation, create business and case studies to maximise the potential for improvements in IBD healthcare.

For Whose Benefit? Service User Involvement, Co-Design and Quality Improvement in the NHS

Arbaz Kapadi, Rachael Finn, Diane Burns, Damian Hodgson
University of Sheffield

Presenting Author: Arbaz Kapadi

Background: The last decade has seen renewed impetus for the involvement of service users in the design and delivery of healthcare services, recently described as a 'Zeitgeist' moment (Palmer et al., 2019). At the same time, the spread of quality improvement (QI) methodology continues across healthcare, with QI calling for the combined efforts of multiple stakeholders – that includes patients, families and carers (Batalden, 2018). Seemingly, then, co-production, co-design and QI have much in common, though it could be argued that these have developed in parallel rather than in union (Williams and Caley, 2020). This research forms part of a PhD-level study conducted to explore how concepts of co-production and co-design complemented clinical microsystems (CMS) QI methods.

Methods: This research was conducted in one UK-based Health and Social Care Trust. Semi-structured interviews (n=25) were conducted with 'key informants' involved in QI (individuals positioned in leadership and management roles, front-line healthcare staff and service users). This was primarily to understand how concepts of co-production, co-design and QI were constructed. Additionally, three CMS teams (two teams located in a community brain injury service, one team located in a mental health inpatient rehabilitation unit) were followed over a nine-month period (July '19 – Feb '20), where CMS meetings were observed in practice. Data was analysed using an interpretive, hybrid thematic approach.

Results: The involvement of service users in QI was constructed as being essential, driven by the ability of service users to bring their experiential knowledge to the CMS process. However, over the research period, CMS teams struggled to engage service users. A key barrier cited was the complexity of illness, and a perceived doubt over the ability of service users to understand the various processes and systems of CMS. Moreover, there appeared to be an uncertainty over the roles and responsibilities of service users when involved, whilst there was some indication that front-line staff could feel threatened at the loss of control over the CMS process. Recruitment and selection of service users for CMS could be driven by discourses of the 'right' and 'suitable' service user. As such, QI could be seen to largely remain within the authority of the professional.

Implications: Recognising co-production and QI as spaces where multiple stakeholders with their respective forms of knowledge can converge, results of this study suggest that further attention is needed to help reframe many of the challenges into opportunities. In particular, how can principles of co-production, co-design and QI be established or sustained in contexts that are seen as traditionally 'challenging' e.g. mental health. This is in recognition that established ideas and assumptions continue to drive what knowledge is deemed suitable and what knowledge is not. There is also a broader discussion required on how the involvement of the service user is viewed within QI and the level of importance assigned. This particularly extends to clarification over roles and responsibilities, and recognition of the spatial dimensions that may help facilitate the involvement of service users in QI.

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Insider Views from The Lay Majority Regulatory Boardroom: Experiences of The Nursing and Midwifery Board of Ireland

Denis Murphy¹, Derek Watson²

¹Nursing and Midwifery Board of Ireland, ²University of Sunderland

Presenting Author: Denis Murphy

Background: Ireland's 2011 Nurses and Midwives Act introduced a stakeholder board with a non-registered lay-majority for the professions of Nursing and Midwifery in Ireland. This signalled a significant change in the regulation of the professions with an increased focus on the public interest. It also shifted board membership from a 59 to a 35% directly elected body. Much debate on the value of or need for this change occurred prior to enactment. 10 years on, this Professional Doctoral research project explores the experiences of board members both lay and registered professionals of regulating as a lay-majority. The project aims to uncover the perceptions and experiences of board members within the lay-majority by exploring the narrative and rationale behind the lay-majority and how board members experiences of it compare with their practice upon appointment. From a professional practice perspective the project's output will inform member induction process going forward.

Methods: An action research approach is used to structure this insider research. Action research cycles deploy mixed methods to collect data from board appointees since the 2011 Act. All appointees are invited to participate. The specific data collection methods deployed are an online survey assessing appointees' understandings of professional regulatory governance and their understanding of the change from a self-regulation to a stakeholder model. The data from this is then used to inform focus group and one to one interviews to explore in more depth board members' experiences of the concept of board member identity.

Five Action Research cycles are applied:

1. Moves the project from a personal to an organisational supported project
2. Focus in the collaborative creation of a survey, gaining insight into member experiences of working with or being part of the lay majority
3. Uses the data from the survey to start a dialogue around board composition and achieve a Board consensus enabling reframing the lay majority definition and narrative
4. Is concerned with the capturing of board members' past experiences to inform 'on boarding' practice
5. The project concludes with wider dissemination to other professional regulators in the Irish context and internationally.

Results: Data collection is expected to complete by early quarter two of 2021. Evolving results will be shared as available.

Implications: Despite the influential role played by the regulatory board within the professions, it is an under researched entity in the Irish context. This particular research takes a step towards uncovering experiences from within the boardroom of those appointed to regulate the nursing and midwifery professions. Upon completion, this project will provide insight into boardroom experience contextually bound in the regulatory frame of the 2011 Act. The output will provide insight for future board member induction and enable greater clarity around their expectations and the formation of board member identity through an empirically created induction model. It will also enable the board to take ownership of the narrative around its membership composition. Sharing output with the professions and with wider stakeholders will enable better communication and understanding of the board member role and identity.

The Stakeholder Engagement Tailoring Model (STEM) For Implementing Evidence-Based Practices

Sebastian Potthoff¹, Tracy Finch², Leah Bührmann³, Anne Etzelmüller⁴, Claire van Genugten⁵, Melissa Girling², Carl May⁶, Neil Perkins², Christiaan Vis³, Tim Rapley⁷

¹Department of Social Work, Education and Community Wellbeing, Northumbria University, ²Department of Nursing, Midwifery and Health, Northumbria University, ³Department of Clinical, Neuro-, & Developmental Psychology, Faculty of Behavioural and Movement Sciences, VU Amsterdam, ⁴GET.ON Institute/HelloBetter, ⁵Department of Research and Innovation, GGZ inGeest Specialized Mental Health Care, ⁶Department of Health Services Research and Policy, London School of Hygiene and Tropical Medicine & NIHR North Thames ARC, ⁷Department of Social Work, Education, and Community Wellbeing, Northumbria University

Presenting Author: Sebastian Potthoff

Background: There is a wide recognition that the development of new innovations does not guarantee uptake in routine practice. Implementation science applies a set of methods, theories and frameworks to support the spread and normalisation of innovations. Work within the implementation literature has focused on tailoring of implementation strategies to prospectively identified determinants of practice. The importance of engaging effectively with stakeholders as part of the tailoring process is acknowledged. The literature currently reports minimal or focused stakeholder engagement, where stakeholders are engaged, generally through single methods, in either barrier identification and/or barrier prioritisation. Here we draw on an international large-scale empirical study to illustrate the development of a model of stakeholder engagement in tailoring implementation strategies the Stakeholder Engagement Tailoring Model (STEM).

Methods: The STEM was developed as part of the international ImpleMentAll (IMA) study. IMA aims to evaluate the effectiveness of tailored implementation in integrating and embedding evidence-based eHealth interventions in routine care in Europe and beyond. Tailored implementation is operationalised in the ItFits-toolkit, a self-guided online platform to support implementers in developing, applying, and monitoring tailored implementation strategies. The toolkit includes a range of resources (e.g., guiding principles and surveying tool) to facilitate comprehensive stakeholder engagement. The IMA study applied a stepped-wedge randomised controlled trial design to evaluate the effectiveness of the ItFits-toolkit compared to usual implementation activities. Over a trial period of 30 months, the ItFits-toolkit was introduced sequentially in twelve implementation sites across nine countries in Europe and Australia. A qualitative process evaluation was carried out to understand the underlying theoretical mechanisms of tailored implementation. The process evaluation involved interviews with members of the implementation teams and observations of toolkit support calls. The design of the process evaluation was informed by principles of Grounded Theory and data was analysed using the constant comparative method, which occurred concurrently with data collection, and through a team based approach. The STEM model was derived from the analytical work undertaken in the process evaluation.

Results: We conducted 55 interviews and collected observational data during 19 toolkit support calls. Our analysis highlighted the importance of a systematic and continuous approach to stakeholder engagement. The final outcome of our analytical process is expressed in the substantive, generalisable Stakeholder Engagement Tailoring Model, consisting of five interrelated concepts: *engagement objectives*, *stakeholder mapping*, *engagement approaches*, *engagement qualities*, and *engagement outcomes*. *Engagement objectives* are goals that implementers hope to achieve by working with stakeholder in the implementation process. *Stakeholder mapping* involves identifying a range of organisations, groups, or people who may be instrumental in achieving the engagement objectives. *Engagement approaches* define the type of work that is undertaken with stakeholders to achieve the engagement objectives. *Engagement qualities* define the logistics of the engagement approach. Lastly, every engagement activity may result in a range of *engagement outcomes*. These five concepts are operationalised in four practical steps that can be applied when engaging with stakeholders in tailoring implementation strategies (see Figure 1).

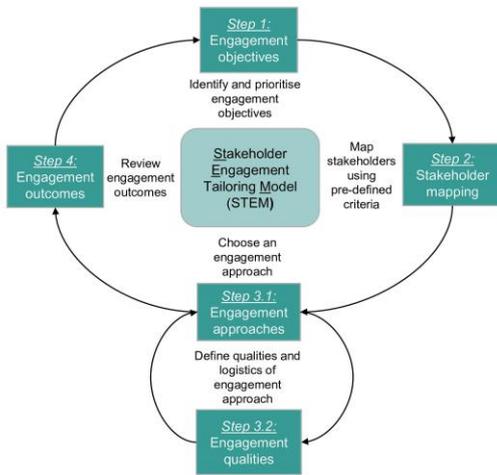


Figure 1. Stakeholder Engagement Tailoring Model

Implications: The ItFits-toolkit process evaluation provides first evidence that comprehensive engagement of stakeholders in all aspects of tailoring is feasible. The proposed Stakeholder Engagement Tailoring Model is the outcome of the iterative analyses carried out as part of the qualitative process evaluation of the ItFits-toolkit and builds on the idea that implementation success may be increased by engaging closely, and understanding the views, priorities, and experiences of stakeholders, those who actually undertake the day-to-day work. The model provides a generalisable, step-by-step approach to engaging with stakeholders when tailoring implementation strategies to increase the uptake of evidence-based practices.

Engaging Communities in Addressing Air Quality: Learning from A Scoping Review

Fiona Ward¹, Hayley J Lowther², Emma Halliday¹, Keith Dooley³, Neil Joseph⁴, Ruth Livesey⁵, Paul Moran⁴, Simon Kirby⁶, Jane Cloke⁷, Sian Guy⁷

¹Lancaster University, ²University of Central Lancashire, ³Liverpool City Council, ⁴Public Adviser ARC-NWC, ⁵Regenerus, ⁶Blackburn with Darwen Borough Council, ⁷University of Liverpool

Presenting Author: Fiona Ward

Background: Exposure to air pollution has a detrimental effect on health. Long-term effects include heart disease, lung cancer, and reduced life expectancy. It can also exacerbate conditions such as asthma. Evidence suggests people living in disadvantaged areas are disproportionately affected, facing a so-called '*triple jeopardy*'¹ where exposure to air pollution, poor health and psychosocial stressors are likely to have a greater negative impact on quality of life. It is acknowledged that local authorities engaging with communities and neighbourhood groups to identify concerns and produce solutions can improve environmental decision-making and widen understanding of air quality issues associated with public health.² This scoping review aimed to explore what approaches have previously been used to engage communities in air quality projects both in the UK and internationally.

Methods: Five electronic databases (Academic Search Complete, CABI, GreenFILE, MEDLINE, Web of Science) were searched up to June 2020. Studies were included if they described the participation of groups or individuals in activities related to air quality or pollution in their living environment. Study characteristics, the approach to community engagement, and outcomes were extracted from included studies. The review process, data extraction and findings from the literature were discussed with a review working group, which included lay participants and practitioners.

Findings: Thirty-nine papers describing 30 studies were included, the majority framed in a health inequalities context. Engaging communities in conducting air quality monitoring was the most common method adopted. Other approaches used included members of the community participating in education and training, developing and reviewing policies, and undertaking environmental or health assessments. The underlying motivations for community engagement were associated with raising awareness of air quality and the health effects, encouraging individuals to act and advocate for better air quality, and increasing community participation in environmental decision-making. Community engagement was facilitated through researchers working with established community-based organisations and the formation of dedicated multi-stakeholder steering groups. Flexible working methods and involvement in all stages of the project were also cited as facilitators. Key barriers to community engagement included the use of technical language and the capacity of members of the community (e.g. lack of time, confidence, and access to equipment). Outcomes for participating community members included increased knowledge and awareness, increased self-efficacy, the development of skills and extended networks. 'Empowerment' was frequently cited as an outcome. Few negative outcomes were identified in the studies, most notably communities experiencing '*frustration*' at organisational responses. The impact of engagement for organisations included policy and practice development, and the reallocation of resources. Studies also described how organisations put in place new or enhanced structures for ongoing community engagement and utilised their access to new sources of information. There was limited discussion on the impact of community engagement on local air quality or health outcomes.

Implications: This review identified a range of approaches that have been used to engage communities in local air quality projects, including in disadvantaged communities, which can inform planned work in this area. The findings suggest that positive individual, community and organisational outcomes can be achieved through collaborations between communities, researchers, statutory organisations, and industry. The potential for engagement to increase health literacy and empower communities was evident in the included studies. There was limited discussion of health-related outcomes: further work is needed to explore the longer-term impact of community engagement in air quality projects on health.

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