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SPECIAL ISSUE • Creativity and co-production

research

Using Forum Theatre to mobilise knowledge and improve NHS care: the Enhancing Post-injury Psychological Intervention and Care (EPPIC) study

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Background: Evidence regarding the impact of psychological problems on recovery from injury has limited influence on practice. Mindlines show effective practice requires diverse knowledge which is generally socially transmitted.

Aims and objectives: Develop and test a method blending patient, practitioner, and research evidence and using Forum Theatre to enable key stakeholders to interact with it.

Assess this methods; impact on contributing individuals/groups; on behaviour, practice, and research; mechanisms enabling these changes to occur.

Methods: *Stage-1:* captured patient (n=53), practitioner (n=62), and research/expert (n=3) evidence using interviews, focus groups, literature review; combined these strands using framework analysis and conveyed them in a play. *Stage-2:* patients (n=32), carers (n=3), practitioners (n=31), and researchers (n=16) attended Forum Theatre workshops where they shared experiences, watched the play, re-enacted elements, and co-produced service improvements. *Stage-3:* used the Social Impact Framework to analyse study outcome data and establish what changed, how and why.

Findings: This approach enhanced individuals' /group knowledge of post-injury psychopathology, confidence in their knowledge, mutual understanding, creativity, attitudes towards knowledge mobilisation, and research. These cognitive, attitudinal, and relational impacts led to multilevel changes in behaviour, practice, and research. Four key mechanisms enabled this research to occur and create impact: diverse knowledge, drama/storytelling, social interaction, actively altering outcomes.

Discussion and conclusions: Discourse about poor uptake of scientific evidence focuses on methods to aid translation and implementation; this study shows how mindlines can reframe this 'problem' and inform impactful research.

EPPIC demonstrated how productive interaction between diverse stakeholders using creative means bridges gaps between evidence, knowledge, and action.

Key words co-production • forum theatre • mindlines • knowledge mobilisation

Key messages

- Improving healthcare practice by means of research can be problematic.
- Knowledge translation models often neglect healthcare's complexity and gaps between evidence, knowledge and action.
- The mindlines model shows how diverse healthcare knowledge is effectively melded, used, and transmitted.
- Forum Theatre enables key stakeholders to share and co-create knowledge, enhancing mindlines and hence practice.

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Background

Unintentional injuries are a leading cause of disability worldwide (Kendrick et al, 2011). Annually, in the UK, they account for over 800,000 hospital admissions

(Hospital Admitted Patient Care Activity 2019–20). Globally the burden of injury is underestimated, and recovery is frequently prolonged and incomplete (Kendrick et al, 2011; Kellezi et al, 2016). The impact of post-injury psychopathology, for example, Post-Traumatic Stress Disorder (PTSD) on the extent, duration, and cost of recovery is well evidenced (O'Donnell et al, 2009; Bryant et al, 2010; Kendrick et al, 2017). This is not a negligible problem; more than 30% of hospitalised injured adults develop clinically significant psychological disorders within 12 months (Bryant et al, 2010; O'Donnell et al, 2013). However, despite abundant guidelines (for example, NICE, 2016; NICE, 2018) and research regarding effective means to mitigate post-injury psychological morbidity (O'Donnell et al, 2008; Browne et al, 2013; Zatzick et al, 2013), injured adults' psychological needs are poorly addressed (O'Donnell et al, 2013; Beckett et al, 2014). This contributes to under-recognition, delayed treatment, and increased individual, societal and healthcare costs (Haagsma et al, 2011; O'Donnell et al, 2013; Kellezi et al, 2017).

The failure of this evidence to influence practice is not an uncommon problem (Greenhalgh and Wieringa, 2011; Gough and Boaz, 2017; Nutley et al, 2019). Indeed, in the UK much research has little direct impact on patient care (Walshe and Davies, 2010). Consequently, research into factors inhibiting the uptake of scientific evidence and approaches to aid its translation into practice have burgeoned over recent years (Davies et al, 2015; Rycroft-Malone et al, 2016). However, many fail to acknowledge the diverse knowledge required for effective practice, how context determines its flow and use and how it is generally transmitted (Gabbay and le May, 2004; Boaz et al, 2015; Gough and Boaz, 2017). Advances in knowledge mobilisation (KM) stress that co-production (Rycroft-Malone et al, 2016; Beckett et al, 2018), or bringing different communities together to share, create and apply new knowledge in the context of its use, are key to catalysing change (Campbell and Vanderhoven, 2016; Beckett et al, 2018). Similar mechanisms have also emerged as essential to effective clinical decision making (Gabbay and le May, 2004; 2011). Gabbay and le May's original research found clinical decisions and actions are informed by 'mindlines' (or tacitly internalised guidelines) combining multiple sources of evidence, including research. Mindlines are largely socially learned and modified within clinicians' 'communities of practice' in their context of use. Stories and anecdotes provide an essential means to rehearse and revise mindlines, communicate ideas and make sense of complex information. These mechanisms ensure mindlines are not rigid or prescriptive but provide practitioners with the 'contextual adroitness' to flexibly manage healthcare's multiple realities, challenges and demands (Gabbay and le May, 2011).

This model reminds us that practitioner's minds are not empty vessels but are full of complex knowledge with which research evidence must compete (Gabbay and le May, 2011). It shows how/why scientific facts alone are insufficient to transform patient care, and highlights the limitations to traditional means of research generation and dissemination (Gough and Boaz, 2017; Greenhalgh and Papoutsis, 2018; Nutley et al, 2019). It suggests that the challenge for improving healthcare by means of research is to employ methods that replicate (or enhance) those in which mindlines are effectively applied and transmitted, that is, by creating opportunities for practitioners to interrogate and actively test diverse knowledge using social means. Furthermore, understanding mechanisms which effectively enhance practitioner mindlines, and

hence practice, will assist in improving returns on investment in research (Beckett et al, 2018).

Informed by this, the National Institute for Health Research (NIHR) Knowledge Mobilisation Research Fellowship (KMRF) funded the 'Enhancing Post-injury Psychological Intervention and Care' (EPPIC) study (2015–2020)¹, and developed and tested an innovative approach using Forum Theatre (FT) (Boal, 1979, see Box 1).

Box 1: Forum Theatre background, aims and methods (Boal, 1979)

Background: Boal's Forum Theatre (one of three interactive/participatory drama methodologies that sit within a body of work known as 'Theatre of the Oppressed') has its origins in the political upheavals of 1950s–1970s Brazil. His ambition was to transform theatre from a bourgeois activity (which presented a fixed reality to passive spectators) to a dynamic political one aimed at empowering wider audiences to recognise their oppressions and the mechanisms sustaining them, to envision new realities, and to actively alter outcomes (Boal, 1979). His thinking was influenced by Paulo Freire's (1968) 'Pedagogy of the Oppressed', which in contrast to traditional 'banking models' of education (in which students are regarded as passive vessels waiting for knowledge – which often bears little relation to their reality and lives) espoused a pedagogical model emphasising active co-creation. Freire argued that dialogue between teacher and student was essential to raise critical consciousness, enable oppressed people to understand their situation, reclaim their humanity and ultimately liberate themselves – and society. Thinking that fitted well with the progressive governments and communist ideologies of early 1950s–1960s Brazil, but became risky and was brutally stifled by the military dictatorship following the 1964 coup. This rendered Boal an exile, but he continued to develop ideas and techniques to address these new political realities.

Forum Theatre Aims and Examples: In the 1970s these influences and further dramaturgical exploration led Boal to develop Forum Theatre as a tool for social and political activism (Boal, 1979). Forum Theatre, like Freire's pedagogy, encourages critical reflection and enables people to recognise their individual and collective oppressions – it also allows them to practice and enact change in safe environments – in preparation for the real world. Forum Theatre doesn't seek to create answers but encourages exploration of possibilities and catalyses action. It is now widely used by educationalists, activists, and researchers across the globe to mobilise knowledge and effect change. For example, The Canadian Experience Project (Bleuer, 2018) used theatre to explore and raise awareness about the employment barriers faced by skilled immigrants in Canada. For the past 25 years Cardboard Citizens (cardboardcitizens.org.uk) in the UK has used FT to empower people with lived experience of homelessness and change society's perceptions of them.

Forum Theatre Methods: An authentic and challenging play (or FT model), depicting diverse perspectives on a social issue with unsatisfactory outcomes, is co-developed by key informants. An audience for whom it resonates (from the same stakeholder groups) is invited to a FT workshop including:

- *Performance 1:* the play, in which the outcome for protagonists is poor, is enacted straight through without interruption.

- *Debate and discussion*: the audience is invited to reflect individually/collectively on what they've seen, consider what the key protagonist(s) want/need (to arrive at a better outcome) and what prevents them from getting what they want/need.
 - *Performance 2*: the play is re-performed, only this time the audience is invited to stop it at any point, step onto the stage (and into the story/play), assume a protagonist(s) role and enact their own ideas. The FT facilitator prompts wider discussion about whether this intervention changes anything, and encourages the audience to try out alternatives and co-produce solutions.
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This was intended to simulate the healthcare environment and convey diverse knowledge among key stakeholders (patients, practitioners, and researchers) using social interactive means. FT is a form of participatory drama that brings diverse knowledge to life to stimulate debate and catalyse change (Bleuer et al, 2018; Kukkonen and Cooper, 2019). It encourages individuals/groups to become active transformers rather than passive recipients and to engage mind, body and soul in co-producing ideas (Bleuer et al, 2018). It therefore 'fits' well with KM principles and the mindlines model by providing a social milieu in which diverse forms and sources of knowledge, including research, can be shared, tested and assimilated. However, in contrast to traditional FT models, EPPIC sought to create and test a transferrable multi-use research and/or training intervention depicting generalisable facts about post-injury psychological care. Rather than develop a play for/with a specific community, EPPIC investigated FT's potential to mobilise key stakeholder knowledge (patient, practitioner, and research/expert) garnered through systematic research.

While EPPIC's primary intent was to develop and test a new method to enhance practitioner mindlines/practice, other stakeholders (patients, researchers, and FT practitioners) who contributed to the co-production of new knowledge were also potential change agents. So, this paper investigates:

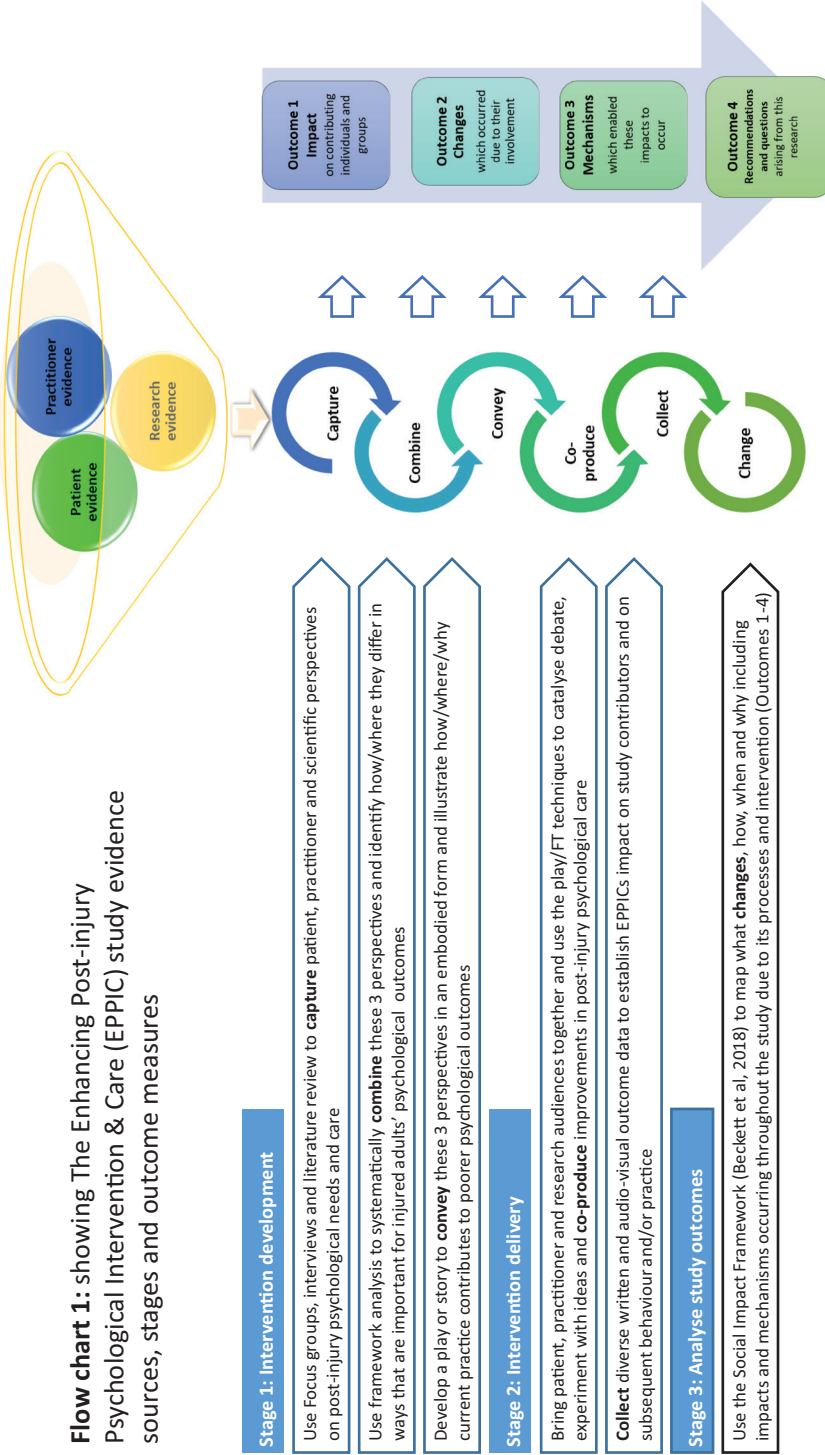
1. the impact of the study on *all* contributing individuals and groups (Outcome 1);
2. changes in behaviour, practice and research that occurred due to their involvement (Outcome 2);
3. mechanisms that enabled these impacts or changes to occur (Outcome 3);
4. recommendations and questions arising from this research (Outcome 4).

Method

EPPIC involved 3-stages: *Stage-1*: 'intervention' or FT workshop development; *Stage-2*: intervention delivery; and *Stage-3*: analysis of outcomes. These stages involved discrete steps that we retrospectively named *Capture*, *Combine*, *Convey*, *Co-produce*, *Collect*, *Change*, to provide an organisational framework to describe and aid replication of this work (see [Flow chart 1](#) below):

While Stage-3 methods and outcomes are the primary focus of this paper, Stages 1 and 2 summaries are included below to aid understanding and supply background information. Stages 1 and 2 methodological details are provided in full as supplementary files, and can also be viewed in a short film entitled 'Altered States';

Flow chart 1: The Enhancing Post-injury Psychological Intervention and Care (EPPIC) study: using Forum Theatre to mobilise knowledge and improve NHS care



using FT to mobilise knowledge and enhance NHS care' (see <https://youtu.be/QWHAb3Y2eKM>).

Stage-1 Intervention development

Aim

To systematically capture, combine, and convey patient², practitioner, and research/expert³ evidence about post-injury psychopathology in a play to be delivered within a FT workshop (the intervention).

Capture

We conducted focus groups, interviews and a narrative literature review to comprehensively capture key stakeholder perspectives (patient, practitioner, and research/expert) on the psychological impact of injury and trauma—patients' psychological needs and care in the first year following injury. This stage drew on diverse primary data and secondary analysis of interviews from its parent study, the NIHR Impact of Injuries study (IOIS) 2010–2013 (Kendrick et al, 2011). Combining primary EPPIC and secondary IOIS data (from 4 different UK sites), aimed to ensure the themes elicited in the earlier study persist, broaden understanding, and aid transferability of the intervention and results (see [Supplementary File A](#) for full details).

Combine

We designed a method based on framework analysis (Ritchie and Lewis, 2010; Gale et al, 2013) and the concept of 'key touch points' (emotionally significant events or interactions) from Experience Based Co-design (Bate and Robert, 2006), and used it to systematically synthesise the three perspectives garnered in Stage-1, investigate how/where/why they differed in ways that are important for patients' psychological outcomes, and create a rich contextualised source of evidence about post-injury psychological needs and care (see [Supplementary File B](#)).

Convey

We collaborated with Cardboard Citizens FT practitioners to create a play depicting these three forms of evidence in an authentic embodied form illustrating how current practice can lead to poorer psychological outcomes and what an 'ideal' model based on scientific research might look like (see [Supplementary File C](#)).

Throughout Stage-1 'emergent findings' were also presented to patient, clinical and university audiences (via written summaries and multiple presentations) – with the intention of engaging interest and further triangulating findings.

Stage-2 Intervention delivery

Aim

To run FT workshops for representatives of the same three stakeholder groups.

Co-produce

We invited patients, practitioners, and researchers to attend a facilitated FT workshop, and used the play developed within Stage-1 to catalyse debate and active experimentation and co-produce practice improvements.

Following Workshop-1, we determined its accessibility and impact on target audience(s) – by reviewing participant feedback and study-team debriefing sessions – and revised as required before delivery to a new audience in a different setting (Workshop-2). This step aimed to test whether this research-based intervention, portraying generalisable facts about the psychological impact of injury, could be transferred between contexts/audiences and give rise to locally implementable evidence-informed improvements in post-injury psychological care (see [Supplementary File D](#) for detailed Stage-2 methods).

Collect

Diverse forms and sources of data were collected throughout the study to elicit feedback on immediate and longer-term outcomes of workshop attendance and / or study team membership, and the mechanisms that influenced them (see [Table 1](#)).

Stage-3 Analysis of study outcome measures to see what changed, how, when, and why

Aim

To systematically investigate Outcomes 1–4.

Change

To investigate the extent to which the project had changed anything, we analysed Stage-2 project-generated outcome data using [Beckett et al's \(2018\)](#) 'Social Impact Framework (SIF). This framework is designed to help capture the breadth of impacts that can ensue from knowledge sharing and productive interaction within research co-production. It provides a structured means to investigate the tangible, intellectual, and relational impacts that can occur throughout and beyond co-produced research. Applying the SIF involves mapping answers to the following questions on a simple grid (see [Supplementary File E](#)):

- Who was involved in the research co-production?
- At what level? for example, was it individuals, groups, organisations, societal think tanks/policymakers?
- At what stage and in which research processes were they involved and how?
- What was the impact on them and of their involvement?
- Which essential elements or mechanisms enabled the research to happen and these impact(s) to occur?

This reflective process helps to reveal multi-faceted individual, group, organisational, societal impacts of research co-production and any broader 'paradigmatic impacts'

Table 1: EPPIC study outcome data by activity/source, participant, and data type (with labels used to reference them in the results sections) (see [supplementary file D](#) for further details)

Activity/ source	Participant type	Data Type	Label
Workshops 1 and 2	Patient and practitioner	Post-workshop evaluation form	Workshop 1: WKS1/E Workshop 2: WKS2/E
Workshop 1 (WKS1) only	All participants (patient, practitioner, and researcher)	Film and audio-recordings (WKS1 was independently filmed and audio-recorded throughout - with participant consent)	WKS1/FAR
	Patient	Follow-up phone call within 24 hours of attendance	WKS1/PFU
	Practitioner	3- and 6-month follow-up questionnaires – eliciting micro-macro level changes in understanding or practice that the respondent attributed to WKS1 participation	WKS1/NHSP/F-UP3 WKS1/NHSP/F-UP6
	Non-study team researchers	Post-workshop debrief session	WKS1/RDB
Workshop 2 (WKS2) only	Practitioners and researchers	Post Workshop filmed interviews	WKS2/FI
	Lead clinicians	one-year follow-up emails to participating lead clinicians – exploring longer-term impacts/their barriers	WKS2/F-UP
Study team	Study team patient, clinician, researcher, and theatre practitioner members	individual critical reflections on their contribution to the study, its impact, and mechanisms	STCR
	Study team patient, clinician, researcher, and theatre practitioner members	Post WKS1 debrief session	WKS1/STDB
	Study team patient, clinician, researcher, and theatre practitioner members	Post WKS 2 debrief session	WKS2/STDB
Other feedback	Workshop or 'emergent findings' presentation participants, other involved individuals, and organisations	Unsolicited communication via email, in person or social media	OTHER

Note: These sources are referenced in the results section using the codes in brackets. Most sources are directly quoted with full/explicit participant consent; where consent was only implied, broad themes are referenced instead.

which emerge from their combined interaction with the wider world. See [Beckett et al \(2018\)](#) for full description and guidance on using the SIF KB completed the initial phase of the analysis by mapping EPPIC outcome data onto the SIF grid. TD, ALM and JG provided secondary independent verification, and other members of the study team (AL, TMcB, UK, GW, CW, JT) reviewed their combined findings to further interrogate the validity, interpretation, and representation of the four types of participant data (patient, practitioner, researcher, FT practitioner) from insider perspectives.

Results

Stage-1 Intervention development: summary of results

Stage-1 sample characteristics

Stage-1 findings were drawn from the following sources:

- Patient interviews (n=53)
- Practitioner Interviews (n=40)
- Practitioner Focus groups (x3 with 6–8 participants each, total = 22)
- Expert interviews (n=3)
- A narrative literature review

See [Supplementary File F](#) for full sample and data-collection details.

Stage-1 findings

These data revealed considerable consensus on the significance of the topic and its neglect within NHS trauma care, as illustrated by Stage-1 data quotes in [Box 2](#):

Box 2: Patient, practitioner and research evidence regarding the impact of post-injury psychopathology and its management within NHS trauma care

Patient evidence	<ul style="list-style-type: none"> • <i>'I'd sooner have had all this [physical injuries] ten times over rather than the depression that settled in. That's been the one thing that's really done for me to be honest'. (Stage-1 Patient interview)</i> • <i>'They [NHS staff] don't see how low you are... they're just seeing that arm'. (Stage-1 Patient Interview)</i>
Practitioner evidence	<ul style="list-style-type: none"> • <i>'The impact of PTSD and depression can be huge and lead to anxiety, low self-esteem, delayed recovery and return to work'. (Stage-1 Practitioner interview)</i> • <i>'There is no formal psychological support for patients with trauma'. (Stage-1 Practitioner focus group)</i>
Research and expert evidence	<ul style="list-style-type: none"> • <i>'While the physical and pain consequences of injury contribute significantly to enduring disability after injury, psychiatric symptoms play a greater role'. (Stage-1 literature review: O'Donnell et al, 2013)</i> • <i>'It [psychological care] needs to be part of the standard pathway like you would routinely give certain drugs after certain things and if you didn't, people would rightly have their hands slapped because they hadn't followed the protocol'. (Stage-1 Expert interview)</i>

The three sources of evidence provided complementary insights into what is wrong, and how and why it could and/or should be improved. Each strand had strengths and limitations in terms of its potential for improving patient experience and outcomes as summarised below.

Patient evidence

This emphasised that the emotional repercussions of unintended injury often exceed physical ones. Analysis of these accounts suggested eight distinct stages in the recovery journey/passage through NHS services which we named according to their distinct emotional and experiential flavour, for example. Stage-3: 'rescue' (describes the relief when the paramedics arrive) and Stage-5: 'anxious dependence' (loss of control and uncertainty patients experienced within in-patient care). Patients also highlighted experiences and/or events at each stage, for example, inconsistent information and surgical delays, that consistently compounded post-injury stress and which they perceived as contributory factors in the development of psychological morbidity. These accounts provided a powerful and sometimes disturbing insight into the lived experience of recovery from injury and NHS trauma care. However, individual patients had limited insight into population needs, contextual factors and relevant research.

Practitioner evidence

Practitioners described a patient-centred compassionate 'ideal' model of post-injury psychological care that was largely consistent with scientific research, and a contrasting 'real' model that accurately mirrored themes and deficits identified in patient accounts (Beckett et al, 2014). Their knowledge, drawn from experience and research, traversed individual and population needs, clinical and experiential aspects of care, and contextual factors that could support or inhibit effective delivery and innovation. However, despite its breadth, practitioner knowledge was generally applied within narrow clinical settings, and their insight into the whole patient pathway or outcomes was limited. Practitioners also described seemingly insuperable personal, professional, organisational, and societal barriers to improving post-injury psychological care.

Research/expert evidence

The research strand (derived from the literature review and expert interviews) provided evidence regarding risk factors, incidence, effective treatment, and costs of clinically significant disorders such as PTSD. It contained generalisable facts and figures to support or refute different clinical/service delivery options, and established relationships between variables and outcomes. However, its content focused on clinical (not experiential) factors and was fragmented by the interests of different research groups. Consensus on preventative measures and research into iatrogenic risk factors was lacking, as was a psychological pathway for general injury populations in the UK NHS.

These broad themes in the three complementary data sets informed development of a play, 'Altered States', with eight scenes (conforming to the stages in the patients' journey) using direct quotes from the Stage-1 data to aid its authenticity and resonance for the target audience. At this point, in keeping with EPPICs emphasis on storytelling and social means of communication, we invite you to listen to a recorded summary of [Altered States](#) using this SoundCloud link (see [Supplementary File G](#) for a written version).

Stage-2 Deliver intervention

Two EPPIC workshops were delivered nine months apart. Both included the play, *Altered States*, performed by Cardboard Citizens' FT actors and were facilitated, using FT methods, by TMcB and KB. These two workshops' location, duration and audience makeup are summarised below (See [Supplementary File H](#) for sample characteristics and variations between workshops).

Workshop 1

This was delivered in September 2018 in a city centre Community Arts venue located near one of the NHS hospitals involved in the study. It lasted four hours and was attended by: Patients (n=22), NHS Practitioners (n=19), and Researchers (n=10) – Total = 51 participants.

Workshop 2

This was delivered in June 2019 in an NHS Major Trauma Network hospital that had expressed interest in using EPPIC to improve its services. It lasted two hours and was attended by: Patients (n=12), Carers (n=3), NHS Practitioners (n=12), and Researchers (n=6) – Total = 33 participants.

Practitioner participants in both workshops were drawn from diverse settings, professions, and levels in primary and secondary care (including the ambulance service). The photograph below ([Image 1](#)), included with participant consent, shows Workshop-1 participants watching the first performance with scene-relevant research evidence displayed on the screen behind.

Image 1: The Enhancing Post-injury Psychological Intervention and Care (EPPIC) study: using Forum Theatre to mobilise knowledge and improve NHS care



Stage-3 Analyse study outcomes

Sample characteristics

Outcome–data response rates varied; this is illustrated in [Table 2](#) below which lists data sources by numbers received and as a percentage of the total population.

This contributor feedback was supplemented with 12 hours of Workshop–1 audiovisual materials capturing interactions between workshop participants.

Stage-3 findings

Outcome 1, 2 and 3 findings (below) are extrapolated from detailed mapping of study processes, impacts and mechanisms at individual, group, organisational, societal, and paradigmatic (micro–meso–macro) levels using the Social Impact Framework grid (see Supplementary File E).

Outcome 1: impact on contributing individuals and groups

EPPIC's study processes and intervention had a marked impact on contributing individuals and on interpersonal relationships between groups. In keeping with EPPIC's methods, these Outcome 1 impacts are presented as recordings of 'blended stories' using contributors' own words⁴. These 'blended' stories use multiple individuals' words to represent key themes in patient, practitioner, researcher, and FT practitioner outcome data (see [Table 1](#))⁵. This method, more common in phenomenological studies ([Van Mannen, 1997](#)), is used here to immerse the reader in participants' 'felt' experience and the social processes which cumulatively seeded Outcome 2 changes in behaviour, practice, and research. We invite you to listen to these 'stories' before further reading, using the following SoundCloud links: [Patient](#), [Practitioner](#), [Researcher](#), [Forum Theatre Practitioner](#) (these are reproduced in [Supplementary File J](#)).

Table 2: Showing numbers responding by outcome data source and percentage of the total population who could have responded

Outcome data source	Number who responded/ total population	Percentage
Patient and Practitioner evaluation form (WKS1)	35/41	85%
Patient and Practitioner evaluation form (WKS2)	22/27	81%
Patient Follow-up call (WKS1)	20/22	91%
Non-study team researcher debrief (WKS1)	5/7	71%
Practitioner 3-month Follow-up questionnaire (WKS1)	9/19	47%
Practitioner 6-month Follow-up questionnaire (WKS1)	2/19	10%
Post-workshop filmed interviews (WKS2)	6	NA
Study team debrief session (WKS1)	10/10	100%
Study team debrief session (WKS2)	10/10	100%
Study team individual critical reflection	10/10	100%
Other/unsolicited feedback	NA	NA
1-year post Workshop 2, follow-up email to clinical leads	3/5	60%

Outcome 1: summary

These four ‘stories’ demonstrate how EPPIC impacted on contributing individuals and groups by enhancing:

- knowledge of the psychological impact of injury;
- confidence in their own knowledge (and its legitimacy and utility);
- mutual understanding and empathy for each other’s lived experience;
- attitudes towards KM and research;
- and by inspiring creativity and ideas.

These impacts combined to create a powerful individual and collective stimulus for change (see Outcome 2).

Outcome 2: changes in behaviour, practice, and research

Stage-3 analysis confirmed multi-level (individual, group, organisational, societal, and paradigmatic) changes occurred due to study contributors’ involvement in study processes and their impact on them. These changes are illustrated in [Boxes 3–7](#) using broad themes drawn from the outcome data, with specific points emphasised using representative quotes (referenced using [Table 1](#) labels).

Box 3: Individual (micro) changes in behaviour, practice, and research

Patients	<ul style="list-style-type: none"> ~ several patients recognised they had PTSD symptoms and self-referred for counselling (WKS1/PFU) ~ one found ‘<i>the courage to talk to my GP about my mental health</i>’ (WKS1/E) ~ many felt able to ‘<i>move on</i>’. (WKS1/PFU, WKS1/E, WKS2/E)
Practitioners	<ul style="list-style-type: none"> ~ practitioners from diverse professions reported altering their practice, for example, by supplying more information, ‘<i>probing more about sources of support</i>’, and ‘<i>actively listening to post-traumatic concerns</i>’. (WKS1/NHSP/F-UP3) ~ some felt empowered to act as ‘<i>patient advocates</i>’ and to promote change (WKS1/NHSP/F-UP3, WKS1/NHSP/F-UP6)
Researchers	<ul style="list-style-type: none"> ~ many began to actively consider ‘<i>what is the emotional pull</i>’ I can introduce into other research methods/projects? (WKS2/FI, STCR)
FT Practitioners	<ul style="list-style-type: none"> ~ transferred what they had learned about psychological trauma to their work with homeless individuals (STCR)

Box 4: Group (meso) level: changes in interpersonal relationships within and between contributor groups (and with wider professional, occupational, and social groups)

All contributors	<ul style="list-style-type: none"> ~ increased trust and willingness to work together towards ‘<i>a common goal – not to see each other as enemies</i>’ (WKS/FI) ~ improved networking and communication (WKS1/E, STCR, WKS1/NHSP/F-UP3, WKS1/RDB)
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Patients	<ul style="list-style-type: none"> ~ many swapped contact details (WKS1/PFU, WKS1/STDB) ~ some reported more constructive conversations with family and carers (WKS1/PFU)
Practitioners	<ul style="list-style-type: none"> ~ several found it easier to '<i>initiate and sustain conversations</i>' about the topic with, for example, Trust chief executives, managers, colleagues, and trainees (WKS1/NHSP/F-UP3), and felt these interactions' influence and impact improved (WKS1/NHSP/F-UP3) ~ one started: '<i>modelling psychological supportive behaviours to junior staff and trainees</i>' (WKS1/NHSP/F-UP3) ~ many developed links with applied health researchers and collaborated on further research (WKS2/FI, STCR)
Researchers	<ul style="list-style-type: none"> ~ were able to complete a complex multi-disciplinary study as planned, within budget and on time (STCR) ~ some honed their research facilitation and mentoring techniques (STCR) ~ many developed mutually beneficial partnerships with FT practitioners and NHS clinicians (WKS1/RDB, STCR, OTHER)
FT Practitioners	<ul style="list-style-type: none"> ~ developed opportunities to further explore how the impact of trauma and homelessness can be processed using FT techniques (STCR)

Box 5: Organisational (meso) level: EPPIC impacted on involved organisations by

A. Increasing research and service improvement capacity	
All stakeholder groups	<ul style="list-style-type: none"> ~ agreed to further contact about related research ~ are represented in an emergent community of practice spanning health, academia, and creative arts, who are still working together to improve NHS trauma care, for example, by securing funds to co-produce an online training resource based on EPPIC (for HEI and NHS use) and collaborating on a bid using Appreciative Inquiry techniques to embed EPPIC's recommendations in practice (STCR, OTHER)
Patients	<ul style="list-style-type: none"> ~ six volunteered as PPI participants in a study investigating prehospital administration of tranexamic acid ~ one joined the NIHR funded 'Return to Work After Serious Injury (ROWTATE)' study steering group (STCR, OTHER)
Practitioners	<ul style="list-style-type: none"> ~ independently instigated further research into psychological impacts on non-admitted patients (OTHER) ~ were '<i>encouraged to think differently about how we could approach research and quality improvement projects</i>' (OTHER) ~ reported greater success in related funding bids – due to enhanced patient public involvement resulting from this work (OTHER) ~ independently delivered CPD training about the psychological impact of injury (STCR)
Researchers	<ul style="list-style-type: none"> ~ assisted in designing psychological components of the ROWTATE study intervention (STCR, OTHER) ~ expressed interest/sought advice on using FT to research wider social issues, for example, domestic violence and student mental health (STCR, OTHER) ~ were invited to use their Knowledge Mobilisation and PPI skills as co-applicants in related research (STCR, OTHER)
FT practitioners	<ul style="list-style-type: none"> ~ used FT to help homeless people explore/process the psychological impact of trauma (STCR)

B. Altering practice	
NHS practitioners	<p>made direct/indirect changes to post-injury psychological care by:</p> <ul style="list-style-type: none"> ~ revising <i>'trauma patient information materials'</i> (OTHER) ~ inserting a section on psychological wellbeing into trust Occupational Therapy assessment forms (STCR) ~ investigating <i>'resources and signposting opportunities around PTSD'</i> (STCR) ~ successfully persuading managers to commission a <i>'patient/family clinician led liaison service'</i> within a large NHS trust (WKS1/NHSP/F-UP3, WKS1/NSP/F-UP6) ~ incorporating the psychological impact of injury into a university clinical training module (STCR) ~ informing <i>'development of a [previously commissioned] Major Trauma Psychologists role'</i> (OTHER) <p>influenced unrelated services/healthcare provision by:</p> <ul style="list-style-type: none"> ~ enhancing <i>'commissioner/provider conversations about improving patient pathways'</i> (WKS1/NHSP/F-UP3) ~ the direction and development of a <i>'delirium prevention service'</i> (WKS1/NHSP/F-UP3)
Researchers	<ul style="list-style-type: none"> ~ are in consultation with Higher Education Institutions (HEI) about using FT to add value to undergraduate clinical training
C. Enhancing their visibility and value through the following outputs	
<ul style="list-style-type: none"> ~ Study film: <i>'Altered States: using FT to mobilise knowledge and enhance NHS care'</i> was positively received and actively promoted by participating organisations on social media for example, <i>'all healthcare professionals should see this'</i> (NHS OTHER) 	
<ul style="list-style-type: none"> ~ Presentations: to multiple local NHS and HEI groups for example, <i>'Continuous Professional Development (CPD) session'</i> for psychology trainees/clinicians, within a university KM module and to wider audiences, for example, the UK KMb Forum 2021 and ARC EoE Implementation Series ~ Research outputs: papers and reports co-authored by study-team members from diverse organisations. ~ EPPIC online training tool: for HEI, NHS Continuous Professional Development and undergraduate training use (see https://youtu.be/CjcnPT8V88) ~ EPPIC webpage: disseminating outputs of this research (https://www.uwe.ac.uk/research/centres-and-groups/chcr/research-themes/knowledge-mobilisation/eppic) 	

Box 6: Societal (macro) level

<p>While EPPIC's impacts were chiefly at micro-meso level it also enhanced the profile of the post-injury psychopathology and of KM/FT approaches at societal level by widely proliferating its innovative methods and findings in:</p> <ul style="list-style-type: none"> ~ conference workshops and presentations ~ the study film which is publicly available and has been widely shared/positively reviewed on social media, for example, <i>'blown away, the possibilities the power of this' ... 'what a beautifully crafted approach to bringing different perspectives together to improve patients experience. All the voices in the system get heard and resistance melts away'</i> ~ a chapter in a book entitled <i>'Beyond Clinical Mindlines: Putting Them to Work'</i> written by international members of the 'mindlines research group' to be published by Routledge next year
<p>EPPIC's topic and innovative methods also seeded changes (or conceptual ripples) at societal level by:</p> <ul style="list-style-type: none"> ~ influencing further research and activities aimed at exploring and processing psychological trauma – in relation to maternity care and homelessness ~ informing changes in the content of clinical education and CPD training sessions ~ illustrating FT's potential to investigate and address wider social issues, for example, domestic violence and student mental health. ~ introducing drama and storytelling (to enhance PPI representation and dissemination) to a multi-site clinical trial involving young victims of knife crime

- ~ showcasing what NIHR Knowledge Mobilisation Research Fellowships are and what they can achieve
- ~ contributing to KB becoming a founding member of the 'Knowledge Mobilisation Alliance (KMAlliance.co.uk)' an independent national collaboration between past/present NIHR funded KMRF's- aiming to promulgate KM theory and practice and extend the legacy of their research

Outcome 3: mechanisms which enabled these impacts to occur

Analysis of the outcome data suggests four key mechanisms enabled EPPIC's research processes to occur and create these multi-level impacts, namely: 1) drawing on diverse knowledge; 2) drama and storytelling; 3) social interaction; and 4) actively testing ideas and altering outcomes. These inbuilt mechanisms, derived from knowledge mobilisation, mindlines and FT, were integral both to the study processes and its intervention as illustrated below:

1. Drawing on diverse knowledge

Study processes

Patient Practitioner Advisory Group members' diverse knowledge ensured study design, processes and materials were accessible to their target audiences and reflected different stakeholders' needs, challenges, and priorities. FT practitioners' and fellowship mentors' knowledge assisted in making EPPIC creatively and theoretically innovative.

Intervention

Deriving the play from patient and practitioner stories made it simple, accessible, and resonant for all contributor types. This fostered empathy and mutual understanding by: 'creating common ground and a realistic view of both sides of the story' (WKS2/FI). Participants (practitioner and researcher participants in particular) also valued its basis in research: 'The way the research evidence was embedded into the piece, if it was just a story, we would have moved away from the research element but because we kept having it dripped in we kept going back to it, it grounded us in the research evidence' (WKS2/FI). It legitimised the plays' content: 'The fact that it wasn't just a play that anyone had written but [was] based on interviews, it was an evidence-based play – made me want to get involved' (WKS2/E) and made it incontrovertible: 'Clinicians were at times conveyed negatively, but because it was drawn from systematic research and used their own voices you had to acknowledge it happens' (WKS2/FI).

2. Drama/storytelling

Study processes

FT practitioners' expertise and study team collaboration in the play's development were crucial in creating a story that was true to the data, absorbing and believable: 'That actors' portrayal of Steve [the husband] was excellent; you could really identify with him. It opened my eyes to how each other feels' (WKS2/PFU).

Intervention

Using drama to portray the evidence made it more authentic, tangible, and memorable: ‘the messages were... descriptive and colourful... so linger in your mind longer’ (WKS2/E). Participants experienced an emotional and rational reaction ‘as though it were real’ (WKS2/FI), this made it more likely to catalyse change: ‘it enhanced the message, made it more memorable and likely to alter knowledge and actions’ (WKS1/E) and more relatable to everyday practice than written material: ‘You can put your own experience in a play while you’re watching it. Reading a journal article wouldn’t have the same impact... It allows you to reflect on your own experience while you’re watching it, it’s more memorable than if you just read something’ (WKS1/E).

‘It took an individual patient story and expanded it out to explore common themes/ the psychological impact of injury. For a clinician, it’s really important to be able to hang onto an individual patient’s story – that improves the message’s memorability and relevance. If I’d read a review article, would it have had the same impact? No! Because it’s a patient’s story you can recognise those themes that you come across in everyday practice and can’t be captured on a piece of paper’ (WKS2/FI).

3. Social interaction

Study processes

Study team members advocated for the study within their clinical, academic, and wider networks; this resulted in multiple invitations to present emergent findings throughout the study. These interactions enhanced understanding (audience and study team), developed interest and contacts, and were crucial for workshop recruitment.

Intervention

The audience makeup, mix and interaction, ‘between all people and both sides of the situation (patient and NHS) was essential’ (WKS1/E). Furthermore, ‘not being able to always distinguish who was who/not being segregated’ (WKS1/E), helped to create a ‘safe space’ (WKS1/E) to explore the issues, and increased opportunities to challenge beliefs and actively acquire new knowledge and ideas: ‘KM is about bringing different communities together to share knowledge to catalyse change... the co-creation worked well because of the diversity of the audience’ (WKS2/FI); ‘people learned through the process not just its outcomes’ (WKS2/FI).

4. Actively altering outcomes

Study processes

Study team diversity and flexibility enabled us to respond to emergent opportunities and challenges, for example, invitation to run Workshop 2 in a different format within a Major Trauma Network hospital. FT practitioners’ improvisation skills were also key in enabling the audience to see, and feel, the consequences of Performance 2 audience-initiated re-enactments and whether/how they worked.

Intervention

Being able to actively restructure outcomes: ‘created a sense that this was an experiment ... let’s see what we can co-create together’ (WKS1/RDB); it provided: ‘an interactive way of communicating research that acknowledges people have their own take on things and that practical experience is just as important as research’ (WKS2/E); ‘an open engaging approach to reflecting, involving, and empowering people with personal experience in the development of services’ (WKS2 E). Participants enjoyed being able to enact change and to envision (and feel) the results of their actions: ‘reading a report is dull, seeing things in action and engaging with patients is brilliant. You can feel and act on it. A report you read and forget about’ (WKS2/E). It required participants to actively consider and address tensions between individual and population needs, for example, in one re-enactment patients and researchers enthusiastically created an individualised in-patient pathway meeting all ‘Rachel’s’ needs and were suddenly interrupted by a senior clinician who said: ‘I’d love to do all of that, it’s clearly what she needs. [But] what do you suggest I tell the woman who comes in the next day... and the next, for whom I have no bed and whose outcomes are consequently going to be much worse’ (WKS2/STDB). The process continued until an evidence-informed, implementable solution was reached (or the audience concluded that change was not compatible with the current context).

These four mechanisms were crucial in allowing research processes to happen and in creating impact and collective momentum. However, follow-up emails to lead clinicians (WKS2/F-UP) suggested that without external funding and drivers to embed recommendations – or for wider implementation of successful interventions, this energy and enthusiasm can be diluted by other demands. This does not necessarily mean momentum is permanently lost, as evidenced by their subsequent contribution to a cross-disciplinary community of practice who continue to further this work.

The previous sections demonstrate Outcome 1, EPPIC’s impact on study contributors, and Outcome 2, changes resulting from their involvement. Outcome 3 identified four key mechanisms that were instrumental in creating these impacts. Paradigmatic implications arising from this work are listed in Box 7 below.

Box 7: Paradigmatic level: EPPIC questioned the dominant scientific research paradigm by:

- highlighting the effect of experiential factors on the perceived quality and outcomes of care;
- placing experiential, clinical, and contextual realities at the heart of research and treating all forms of evidence as important and necessary to improve care;
- exploring the strengths and limitations of different types of ‘evidence’ for improving services;
- developing and successfully testing an innovative method for melding evidence from diverse sources;
- highlighting how creative practices such as FT can bridge gaps between evidence, knowledge, and action;
- showing how storytelling/drama bring evidence alive and make it relatable to everyday practice;
- highlighting the role of empathy and ‘emotional triggers’ in catalysing change•establishing that FT can be effectively used to convey evidence from systematic research;
- focussing on mindlines’ implications for knowledge mobilisation;
- illustrating the transformative potential of social interaction between diverse groups and knowledge sources.

Discussion

EPPIC's methods synthesised principles drawn from KM (Davies et al, 2015; Ward, 2017; Beckett et al, 2018), the concept of mindlines (Gabbay and le May, 2011), and FT (Boal, 1979) to create a unique model of research co-production and implementation. The results show how this approach impacted on involved individuals and groups (Outcome 1) and how, in turn, these cognitive, attitudinal, and relational impacts led to multilevel changes in behaviour, practice, and research (Outcome 2). Four mechanisms: 1) drawing on diverse knowledge; 2) drama/storytelling; 3) social interaction; and 4), actively altering outcomes, were key in enabling this research to occur and create these impacts (Outcome 3). These mechanisms, built into EPPIC's processes and intervention, were derived from those known to maintain mindlines' content, effectiveness, and flexibility. However, in the NHS, opportunities for social interaction, sharing stories, training, and for accessing alternative and/or reliable evidence sources, are often constrained by organisational demands and silos in care. Practitioners rarely see the outcomes of what they do or encounter patients or professionals outside their clinical setting. So mindlines can sustain good practice *and* bad. EPPIC did not simply replicate but purposively enhanced key mechanisms by which mindlines are acquired, modified, and transmitted. For example, by purposively constructing a social milieu that spanned the whole patient journey; combining diverse evidence garnered from research; using drama to create a rich and safe multi-sensory experience, and inviting experimentation with different ideas in ways not possible in the real world. This approach also spawned an emergent community of practice spanning health, academia and creative arts, who continue to share their knowledge and skills to improve NHS trauma care.

Bringing together diverse tacit, non-formalised and research-based knowledge was pivotal in building momentum and trust. So too was EPPIC's explicit stance on the importance of different forms of evidence and on 'open, honest, respectful' (WKS1/E, WKS2/E) and 'intellectually curious' (STCR) collaboration. Other powerful stimuli included alignment between varied knowledge forms and stakeholder priorities (Langley et al, 2018) and consensus on the topic's importance. These attributes, which are essential to effective co-production, take time and commitment to develop (Rycroft-Malone et al, 2016; Beckett et al, 2018).

Current discourse about the poor uptake of scientific evidence focuses on improving methods to aid its translation and implementation into practice (Davies et al, 2015; Nutley et al, 2019). EPPIC illustrates how (and why) mindlines and theatre-based KM approaches can reframe this 'problem' and inform contextually-situated, impactful research. This study suggests that no single source of evidence has all the answers; combining externally generated research evidence with patient and practitioner contextualised knowledge can work. It also raises significant questions about the validity and utility of different evidence sources for transforming care, and how using creative means to enable diverse communities to actively interact with rich, blended evidence can improve the impact of research. This process democratises knowledge, blurs boundaries between knowledge users and generators (Beckett et al, 2018), expands intra- and extra- organisational capacity for knowledge mobilisation and research (Kislov et al, 2014), and encourages all stakeholders to become active agents in improving their own and others' care (Beckett et al, 2018; Kings Fund, 2018).

Research generates generalisable facts to inform effective care, often with the naïve expectation that this information will be seamlessly and spontaneously absorbed into practice without being changed (Beckett et al, 2018). EPPIC acknowledged and embraced the reality that knowledge is not a fixed product but is constantly altered by its context of use (Andrews et al, 2020; Greenhalgh and Papoutsi, 2018; Nutley et al, 2019). The consequences of this are that those who receive and deliver care need to actively mould knowledge to make it work – for the individual – and in the specific context of their care (Gabbay and le May, 2011). Combining evidence sources can assist diverse audiences from different contexts to critically reflect on each other's realities and the mechanisms sustaining them, and to derive locally implementable recommendations that remain grounded in the evidence on which they were formed.

Theatre-based knowledge mobilisation activities ideally create an aesthetic balance between emotional and cognitive processing, leading to 'optimal' stress levels for learning and transformation (Bleuer et al, 2018). Too much stress can stimulate 'defensiveness' while too little can result in 'disinterest', neither of which are conducive to change (Bleuer et al, 2018). FT enabled EPPIC's participants to collectively deal with 'uncomfortable knowledge' (Greenhalgh and Papoutsi, 2018: 5) without becoming overly defensive. It provided a powerful reminder that healthcare practice is a social endeavour made up of multiple interactions between individuals who give and receive care. It revealed how both are dehumanised by a system with priorities often at odds with their own, affirmed their shared humanity and stimulated mutual understanding and empathy, 'the most powerful weapon' in catalysing change (Boal, 1979). The play, 'Altered States', resonated with complex sometimes conflicting human realities. Reductive methods cannot adequately capture and inform the entirety of what this involves (Nutley et al, 2019). Subsequent debate and re-enactments enabled the audience to rehearse alternative ways of doing things and co-produce new knowledge and narratives. It transformed them from spectators into active protagonists (Boal, 1979) and highlighted systemic factors that sustain the status quo. It also provided further confirmation that research is, and needs to be, 'a creative enterprise with human experience at its core' (Langley et al, 2018: 2).

EPPIC's findings support research that shows being able to actively enact change and see its consequences is key to authentic and successful co-production methods (Langley et al, 2018). Furthermore, co-producing practical actionable tools, or in this case 'recommendations', makes them more likely to be 'fit for purpose' and implementable in the real world (Langley et al, 2018; Greenhalgh and Papoutsi, 2018).

Use of terms such as 'evidence-to-practice' or 'implementation gap' to describe the poor uptake of research suggest a cognitive, linear, and relatively simple issue in terms of improving returns on investment in research (Rycroft-Malone et al, 2016; Beckett et al, 2018; Oliver and Boaz, 2019). EPPIC showed that a 'knowledge deficit' (Wieringa and Greenhalgh, 2015) is not the primary reason for poor post-injury psychological care, and illustrated multiple gaps between evidence, knowledge, and action, and how they are articulated from all sides. It demonstrated how interaction between stakeholder groups and their complementary knowledge can gradually remove barriers inhibiting effective knowledge mobilisation (Greenhalgh and Papoutsi, 2018; Beckett et al, 2018; Langley et al, 2018) to seed new ideas, practices – and conceptual ripples – from bottom-up. While top-down initiatives, for example, policy or guideline changes, are important tools in improving healthcare quality, this

study underlines the potential of bottom-up initiatives to transform individuals into agents for change.

Strengths and limitations

EPPIC was a small-budget project involving diverse individuals and organisations with different expertise and skills. They formed a close-knit study team who respected each other's knowledge and experience, and were also unusual in that many had prior experience of each other's worlds; for example, researchers were all also NHS clinicians, patient and practitioner representatives had research experience, and many had direct or indirect experience of accidental injury/hospital care. The opportunity offered by the NIHR KMRF funding stream to experiment with ideas and develop innovative means to move knowledge where it needs to be, was also key. KB's KMRF role assisted in brokering knowledge and creating bridges between different worlds (Wye et al, 2019). Adherence to the principles and practice of co-production (Campbell and Vanderhoven, 2016; Beckett et al, 2018) within study processes and intervention were also crucial in enabling everyone to flourish, develop and co-create new ideas. EPPIC's origins in The IOIS (Kendrick et al, 2011) enabled it to draw on a rich source of evidence and on its expertise. Acknowledgement of the significance of IOIS findings and of factors inhibiting their implementation were pivotal in bringing IOIS patients, practitioners, and researchers together to design EPPIC and its successful funding bid. Furthermore, the topic lent itself to the use of creative arts which can facilitate exploration and processing of psychological trauma (Van der Kolk, 2015). Deriving our play from systematic research rather than directly from lived experience (as in traditional Forum Theatre models) enhanced rather than detracted from our purpose. It improved its perceived legitimacy, revealed generalisable truths about the topic, showed endemic factors sustaining the status quo, and created an intervention which could be widely used. However, by particularising this complex data to a fictional patient and context we managed to portray a story which was authentic, resonant, and real.

In reporting on impacts it can be difficult to distinguish between 'intention' and 'action'. We have endeavoured to differentiate between them by recounting any changes using participants' own words. This was an experimental project with a small team; we would ideally have liked further time and funding to revise and trial the workshop more widely. In recruiting workshop participants, we purposively recruited from different professions, settings, and seniority levels to ensure a good mix of those with authority to effect change (Kothari et al, 2017) and those who spend more time with patients. However, while several healthcare commissioners attended Workshop-1 it was hard to recruit senior managers and from some settings, for example, primary care. Having more managers and commissioners, and better representation from primary care, might have resulted in more systemic change. The Stage-1 data included some positive stories and experiences. These, though important, tell us what already works and does not need fixing. So, in keeping with the principles of FT (Boal, 1979) EPPIC focused on more negative instances, where experiences and outcomes are poor, and something needs to change. There were several less positive reactions to the Stage-2 intervention, for example a few individuals felt it was overly skewed towards patient and/or practitioner issues, and many felt workshops should be longer to enable deeper exploration. However, feedback was overwhelmingly positive. Outcome data

response rates varied and some sources, for example, Practitioner six-month follow-up questionnaire rates were poor (due to participant attrition and logistical problems in the way they were circulated and collected). It is possible that those who did not reply had less positive outcomes to report. Finally, we acknowledge not all clinical problems are amenable to these methods, and some can only be resolved by traditional trials and top-down measures.

Outcome 4

Recommendations and questions arising from this research are summarised in Box 8 below.

Box 8: Outcome 4 recommendations and questions arising from this research

The following recommendations and questions are offered for further debate and consideration:

At the level of practice and service delivery: remarkably, all parties agreed that, to optimise recovery from injury and reduce costs, trauma services need to:

- simultaneously address physical injuries and their psychological concomitants;
- introduce measures to actively support psychological wellbeing and positive coping (for example, practice informed by the principles of Psychological First Aid ([McCabe et al, 2014](#)));
- adopt integrated pathways for those who develop more problematic symptoms/psychological disease;
- improve practitioner understanding of post-injury psychopathology risk factors and their ability to monitor signs and symptoms in all trauma patients regardless of the severity of injury;
- recognise the significance of experiential and clinical factors to patient wellbeing and outcomes;
- acknowledge the softer skills that cannot be measured, for example, compassion and listening, are not optional extras but key in promoting positive coping and resilience following trauma;
- be aware of the key touch points or events, interactions, and interventions in the trauma pathway that add to patient's burden of stress;
- EPPIC also revealed how service constraints and trauma (direct and vicarious) impact on both NHS patients and practitioners and on the quality of care.

Question: how can these insights be used to improve care and sustain such improvements?

At the level of health-services research: EPPIC suggests that:

- since healthcare is delivered by individuals to individuals within complex ecosystems, generalisable research evidence informed by linear reductive methods must be augmented by other forms of knowledge to make it useful in practice ([Greenhalgh and Papoutsis, 2018](#); [Andrews et al, 2020](#));
- improving healthcare by means of research requires methods that replicate and enhance those in which clinical mindlines are effectively learned, modified, and applied.;

- researchers should actively consider how to introduce an emotional trigger into their work for example by using creative methods that engage research users' rational and emotional processing capabilities (Bleuer et al, 2018);
- conveying research findings through drama/storytelling can be an effective way to do this;
- it is time for a paradigm shift (Greenhalgh and Papoutsis, 2018: 1), to one fostering new agile research methods that embrace and utilise the complexity of the real world.

Question: how can we achieve complexity-informed, emotionally-charged, impactful research?

To transform health at societal and cultural levels: EPPICs outcomes highlight the benefits of:

- bringing together key stakeholder groups;
- sharing and melding their diverse types and sources of knowledge (Andrews et al, 2020);
- using techniques that promote social interaction and actively encourage experimentation with alternative ideas and actions;
- mobilising the momentum, skills, and experience of all parties to help seed innovation and transformation and catalyse change from the bottom-up;
- reducing the cultural stigma regarding mental health and emphasising the interdependence of mental and physical wellbeing;
- fostering shared responsibility (Kings Fund, 2018) for health and healthcare and ownership of resultant decisions.

Question: how can we embed these key mechanisms into service improvement initiatives and within health research?

Conclusion

EPPIC illustrated the transformative potential of using social processes and diverse knowledge to actively seed new ideas and practices from micro to macro level. It demonstrated how creative arts-based techniques can aid that process, and showed how combining hard facts with social and experiential realities renders evidence more tangible, memorable, and relatable to practice. It conforms with the ways in which practitioner mindlines are developed, modified, and applied, and helps bridge multiple gaps between evidence, knowledge, and action.

Notes

¹ EPPIC was a collaboration between multiple patients, practitioners, NHS trusts, universities and Cardboard Citizens (the UK's leading FT proponents). It was co-produced throughout by a 'study team' including a Patient Practitioner Advisory Group (PPAG: with patient, trauma practitioner and researcher representatives), KB's academic and clinical Fellowship Mentors, and TMcB FT director.

² The term 'patient' is used as shorthand to describe an adult who has experienced an unintentional injury for which they required in-patient hospital care.

³ The term 'expert' is used as shorthand to describe individuals with international recognition in the field of post-traumatic psychopathology; no hierarchy of evidence is implied.

⁴ These recordings are narrated by Forum Theatre actors and members of the study team

⁵ As only three carers took part in the study, and film makers recorded what occurred rather than being actively involved in study processes. Impacts on these individuals and groups are not included.

Research ethics statement

Stage-1 data collection materials and methods were co-produced by the patient-practitioner advisory group to ensure their ethical suitability and accessibility for the target audiences. Stage-1 research ethics approval was also sought and granted by participating NHS trusts, the Health Research Authority and North East–York Research Ethics committee (IRAS ID 200268, REC reference 16/NE/0257, date of approval: 27/07/2016). Stage-4 data collection materials and methods were co-produced by the patient-practitioner advisory group to ensure their ethical suitability and accessibility for the target audiences. Stage-2 (previously referred to as Stage-4) research ethics approval was also sought and granted by participating NHS trusts, the Health Research Authority and North East: Newcastle and North Tyneside 2 Research Ethics Committee (IRAS ID 244832, REC reference: 18/NE/0116, date of approval 18/04/2018) A substantial amendment to add an additional NHS recruitment site was also approved by the same REC committee on 10/07/2018).

Contributor statement

All authors made substantial contributions to the conception or design of this work; and/or to the acquisition, analysis, or interpretation of data. KB, TD, TM, AlM, JG, UK, AL, CW, GW, DK were involved throughout in the design and implementation of this study while LC, FS, and JT made substantial contributions to essential elements of its organisation and data acquisition. KB, AlM, JG, TD drafted this work with versions being critically revised for their intellectual content by other co-Authors. The final version was approved by all Authors who are all also accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Conflict of interest

The authors declare that there is no conflict of interest.

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