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A multi-level neo-institutional analysis of infection prevention and control in English hospitals: coerced safety culture change?

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ABSTRACT

Despite committed policy, regulative and professional efforts on healthcare safety, little is known about how such macro-interventions permeate organisations and shape culture over time. Informed by neo-institutional theory, we examined how inter-organisational influences shaped safety practices and inter-subjective meanings following efforts for coerced culture change. We traced macro-influences from 2000 to 2015 in infection prevention and control. Safety perceptions and meanings were inductively analysed from 130 in-depth qualitative interviews with senior and middle-level managers from 30 English hospitals. 869 institutional interventions were identified; 69% had a regulative component. In this context of forced implementation of safety practices, staff experienced inherent tensions concerning the scope of safety, their ability to be open, and prioritisation of external mandates over local need. These tensions stemmed from conflicts among three co-existing institutional logics prevalent in the NHS. In response to requests for change, staff flexibly drew from a repertoire of cognitive, material and symbolic resources within and outside their organisations. They crafted ‘strategies of action’, guided by a situated assessment of first-hand practice experiences complementing collective evaluations of interventions as ‘pragmatic’, 'sensible', and also 'legitimate'. Macro-institutional forces exerted influence either directly on individuals or indirectly by enriching the organisational cultural repertoire.

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What is missing from organisational safety culture research in health care?

The importance of promoting and fostering a culture of safe practice has been emphasised in health policy reports (DH 2000; IOM 1999) and pertinent research literature (McCarthy and Blumenthal 2006; Leape and Berwick 2000; Vincent and Amalberti 2016) for nearly two decades. Consistently, inquiries into patient safety failings have recognised the need for cultural as much as structural and operational changes in systems and organisations (Walshe and Shortell 2004). A sociological perspective can offer insights into the wider social, cultural and political contextual factors beyond the narrow technical aspects of providing patient care (Waring et al. 2016).

As with organisational culture (Martin 2002), 'safety culture' may be understood as the taken-for-granted beliefs presented in patterns of thought, language, and behaviour (Martin 2002). Specifically, safety culture has been conceptualised as "the corporate atmosphere or culture in which safety is understood to be, and is accepted as, the number one priority" (Cullen 1990: 300). Using this definition, taken-for-granted beliefs and values that are *shared* among organisational members guide actions by defining appropriate behaviour for various situations (Fiol 1991; Schein 1988). Organisations promote a culture of safety by consistently prioritising safe working practices and behaviours (Reason 1997). Multiple interacting factors, including psychological, structural, and professional, contribute to the development of a safety culture (Flin 2007; Smits et al. 2009).

While failings in healthcare safety are increasingly recognised as a social problem (Dixon-Woods 2010), and many government-led policy and regulative initiatives have been implemented to promote a culture of safety in healthcare organisations worldwide, extant research has yet to fully exploit three major opportunities. First, while contexts of study are, as one would expect primarily organisations, sub-organisational units, or teams (Sexton et al. 2006; Singer et al. 2003; Sorra and Nieva 2004), important wider 'macro' regulative,

professional and policy influences on safety culture are often not accounted for (Charles et al. 2011). This is in spite of repeated calls for attention to the influence of wider societal considerations by researchers in the broader field of healthcare safety (e.g. Braithwaite et al 2015; Herepath and Kitchener 2016). Second, though some emergent work does consider multi-layered and inter-level approaches (i.e. Reiman et al. 2010; Szymczak 2016) most still report single level analyses (Waring 2005). Third, there remains an over-reliance on pragmatic, cross-sectional surveys, and few in-depth, longitudinal studies (Singer et al. 2003; Halligan and Zecevic 2011). A sociological approach which in addition to technical considerations also considers cultural, and wider political and institutional forces can help address some of the above limitations. Furthermore, an in-depth, interpretivist study can elaborate beyond the often inferred empirical experiences reported in the predominantly positivist approaches prevalent in this field.

Theoretical Background: An Institutional Theory Lens on Safety Culture

The institutionalist approach in organisational analysis conceptualises organisations as embedded in a system of broader social structures, the institutions (Meyer and Rowan 1977). Institutions are important in that they offer a high degree of resilience, providing stability and a sense of purpose to social life. This early institutional literature has been critiqued for portraying institutions as overly stabilising and persistent and for paying inadequate attention to change and disregarding the agentic actions of individuals (Aten et al. 2012). In response, the emergence of neo-institutionalism (Powell and DiMaggio 1991) enriched earlier institutionalist conceptualisations by emphasising meaning, interpretation, and culture. In this approach, organisations comprise social systems influenced by wider cultural-cognitive elements, norms, and legal frameworks to which they must conform to be perceived as legitimate entities and receive social support (Scott et al. 2000). The institutions comprise

three main "pillars" of legally sanctioned *regulative* structures (e.g. laws, policies, contracts), morally governed *normative* elements (e.g. professional norms, values, customs, expectations) and *cultural-cognitive* frameworks (such as widely shared beliefs and assumptions in the form of institutional logics) that create a common frame of meaning or definition of a situation.

Neo-institutional theory complements preceding conceptualisations by bringing the third "pillar" of cognition and culture to the forefront of institutional analysis. According to this perspective, individuals often act in certain ways not because they must conform to enforced rules to avoid punishment (regulative influence), or due to feelings of social obligation (normative influence), but rather because they can conceive of no alternative; their mental maps direct their cognition towards a particular way of thinking (cognitive influence). Whereas traditional institutional theory depicts organisations as passive receptors of extra-organisational rules and norms that influence the creation and maintenance of organisational culture, more recently, researchers have begun to present institutional environments beset with dormant ambiguities that social actors can leverage and reinterpret (Phillips et al. 2004).

In this stream of work much of the institutional logics research to date has focused on the macro level of analysis (Thornton et al. 2012), with few empirical studies exploring the microdynamics of logics within organisational life, being short of explaining how logics are negotiated by actors on the ground. The logics perspective offers a way to analyse *"historically situated pluralities"* that shape cultural repertoires and offer organisational participants prescriptions for behaviour (Weber et al. 2003: pp 352). Organisational fields are characterised by institutional complexity due to a plurality of available logics, which are linked to more than one paradigm (Greenwood et al. 2011). For example, in health systems such as the NHS the professional logic of medical care coexists and often conflicts with a market and corporate logic of business-like healthcare (e.g. Scott, et al 2000; Reay and

Hinings 2009). In addition, the NHS being funded and run by the state is subject to strong government influences in the form of policy and legislative mandates, thus a third type of influence in the form of a state logic is also evident (Reay et al 2017). There is growing recognition that pressures stemming from multiple institutional logics create interpretive and strategic ambiguity for organisational participants (Greenwood et al. 2011). When socially embedded actors continually and collectively experience tensions in their immediate social context arising from *institutional contradictions* within and across social systems they can become conscious and reflective (Seo and Creed 2002). Under such conditions of contradiction and tension they can be transformed from passive participants reproducing existing social patterns into active agents undertaking collective action for change. This analytical institutionalist approach closely resembles attempts to reflect on pluralities in other sociologically informed research streams, such as culture studies and the work on repertoires (Swidler 1986), vocabularies in sensemaking (Weick, 1995), or normativity and orders of justification (Boltanski and Thevenot, 2006).

Along a similar line, recent efforts in the organisational culture literature emphasise cultural dynamism and change (Hatch 2010), also evident in select safety culture literature. For instance, based on the model of Berger and Luckmann (1966) taking a constructivist perspective, Antonsen (2009) describes the process of culture creation in three stages of externalisation, institutionalisation/objectification and internalisation. The dialectic relationship between the three processes allow in each cycle for active interpretation and changes in expectations or the 'rules of the game' for future interaction. A stream of work in sociology which focuses on cultural actions and processes as opposed to norms (Swidler 1986) explains cultural change by considering the malleability of symbolic resources. This literature portrays culture not simply as a constraint on action but as a "repertoire of actions" (Kaufman 2004), a resource that can be deployed by actors to design action within

organisations (Howard-Grenville et al. 2011). Symbols are viewed rich and multivocal, which can have more than one meaning for organisational participants; thus, they have the potential to create tensions. In this view, variation in culture arises from different ways of mobilising culture to link it with action (Swidler 2001). This approach opens up the possibility for potentially anyone within an organisation, to change culture. "Social actors draw from the repertoire to enact culturally learned skills and habits. When these skills and habits are part of a larger pattern, typically in response to certain kinds of problems or circumstances, the pattern becomes one of an individual's *'strategies of action'."*(Howard-Grenville et al. 2011: p.524).

To sum up, these recent efforts in neo-institutional analysis and the plurality of logics which offer points for conversation with research on organisational culture inform our study. Both focus the analytic attention to individuals and their activities and interactions, in which the ongoing work of interpretation, meaning, and sensemaking are central (Zilber 2007). Inspired by the theoretical debate outlined above, we focused our efforts on exploring aspects of safety culture in the realm of infection prevention and control (IPC), which is a constituent element of delivering safe care. Our selection of IPC in England as the setting for an empirical study offered us a unique opportunity to study the dynamics of system-level intentional culture change to promote safety, with sustained pressure exerted over a 15-year period. How was the prolonged extra-organisational pressure to change organisational culture and promote safety, interpreted and enacted 'on the ground' by organisational members?

In this article we adopted a multi-level approach informed by theoretical arguments in neo-institutional and organisational culture literatures to empirically investigate the experiences and interpretations of hospital professionals concerning patient safety within the setting of IPC in England. Infection control has been high on the political agenda and on the agenda of the NHS in England for the last 15 years. A 2000 National Audit Office (NAO)

report was highly critical of the strategic management of HCAIs in England , especially the lack of information about infections and the limited resources allocated to infection control teams. A key problem was that the size and scope of HCAIs was simply unknown. A voluntary scheme for reporting Blood Stream Infections (BSIs) had existed during the 1990s, but suffered from problems of completeness and comparability. More broadly, the report suggested that HCAIs had come to be seen as an intractable problem, regarded by those working in hospitals (clinicians and managers) as an inevitable consequence of providing health care. Such infections were 'regrettable, but were to a large extent tolerated' (Health Foundation, 2015). In 2001, mandatory reporting of MRSA BSI cases in hospitals was introduced, with a few other selected infections included in the surveillance programme in subsequent years (further details of the strategic policy context are provided in the results section).

Given the analytic preference for the role of cognition and culture on behaviour and an emphasis on broader social forces beyond the level of the organisation, neo-institutional theory has the potential to provide needed insights. We aimed to extend understanding of safety culture in NHS hospitals by offering a much-needed nuanced understanding of how organisational culture and neo-institutional theory can synergistically inform collective meaning creation following efforts for intentional cultural change (Hatch and Zilber 2012).

Methods

We employed an inductive qualitative case study design (Creswell 1998; Yin 2003) - an appropriate approach when little is known about a phenomenon. Our empirical case comprises IPC in the English NHS in 2000-2015, which can be considered an exemplar case (Yin 2003) because health policy changes aimed at improving patient safety in this clinical

area over this period were: a) innovative, b) entailed high-magnitude change, and c) unfolded in a relatively short period of time.

To meet the research aims, we first tracked changes in IPC policy and service delivery in acute care at the institutional (NHS), and organisational (NHS hospitals) levels. We then explored how systemic interventions aimed at reducing healthcare-associated infections (HCAIs) and to promote a 'safety culture' in hospitals were perceived and experienced by individuals (staff with managerial responsibilities). Interventions are here defined as initiatives, actions or processes, created, documented and circulated in the public domain by a collective entity.

To capture multi-level influences two main data sources were used; textual sources and qualitative interviews. We purposefully sampled diverse hospitals in terms of size, geography, and university affiliation. Nine NHS Trusts across England comprising 30 different hospitals were included. The interview sample consisted of 130 senior and middle-level managers purposively selected for their organisational role and close involvement in IPC clinical management, quality improvement and patient safety (Table 1). Senior respondents (23% of the sample) included director level and above (Medical Directors, Directors of Nursing, Directors of IPC and senior estates/operational managers).

Participants were first approached via email, with a participant information sheet, and consent form. Our topic guide included questions about professional role, and perceptions and experiences regarding safety issues in IPC and the NHS. We also explored the motivation of staff to engage in safe practices and the perceived sources of pressure to improve IPC hospital performance. The questions asked for reflection on current practices as well as retrospective recounting of the studied period. Interviews were conducted face-to-face, at the respondents' place of work, lasted 60-90 minutes, were digitally recorded and transcribed

verbatim, and conducted between April 2011 and July 2012 with follow up interviews with four of the participants in 2014. NHS research ethics approval was gained.

Insert Table 1 Here

We used an inductive approach to analyse these interviews (cf., Gioia et al. 2012). Three of the authors (YK, RA, MI) independently read and reread the transcripts and coded the data with the help of the NVivo 11 software (QSR International, Cambridge, MA). We began our analysis using open coding to identify first order or empirical themes (Strauss and Corbin 1990), typically describing issues raised by our participants. This first stage coding was followed by axial coding into more abstract cluster themes, assisted by reading relevant literature on institutional logics and organisational culture (ibid). The emerging coding structure was discussed amongst our team of co-authors in two workshop formats and refined. Finally, we aggregated these second order conceptual themes into the aggregate themes that help explain how hospital staff made sense of forceful changes on safety collectively. The multidisciplinary and multi-professional authorship helped with considerations of personal and epistemological reflexivity (Cunliffe 2003). Figure 1 outlines the full code structure. The large number of interviews, the engagement of multiple investigators in data coding and interpretation, as well as the consistency of emergent themes, gave us confidence in the relevance and validity of our findings.

Textual data was used to identify all interventions implemented in the studied period and to reveal institutional dynamics. The search was informed by expertise within the team (Health Foundation, 2015), senior clinicians and policy makers, interview participants . Text generated by a collective entity such as a regulatory agency or professional association reflects the entity's perspective in specific moments in time. Documentary materials are routinely used in healthcare research to delineate institutional influences (e.g. Reay and

Hinings 2005). A total of 1045 textual sources were analysed from four main categories: (1) policy documents, guidelines, and legislation produced by central NHS bodies; (2) hospital human resource documents, board minutes, reports and strategies on IPC; (3) documentary evidence from professional associations; (4) documentary material from outside healthcare, such as newspaper articles concerning HCAIs and antimicrobial resistance. The latter focused on the 'popular' (*The Sun* and *The Daily Mail)* and 'quality' (*The Daily Telegraph* and *The Times)* press, selecting the two highest circulations in each.

Using an iterative process and key word searches the interventions inventory was compiled and then each intervention systematically categorised to the three institutional pillars outlined in our theoretical framework. Categorisation was not mutually exclusive.

Insert Figure 1 Here

Findings

Institutional dynamics

A total of 869 interventions related to IPC, patient safety and antimicrobial stewardship were identified in the period 2000-15 (full list of interventions available upon request). Most interventions (69%) had a regulative component (602), with fewer (40%) entailing normative (349), and 37% cultural-cognitive (324) institutional influences (Figure 2). The most intense activity was seen in two periods, 2006-08 and 2013-14, coinciding with spurs of government-driven regulatory action in this area (e.g. the radical NHS reforms introduced in the Health and Social Care Act 2012 led to a peak of IPC interventions in 2013-

14). A shift towards a higher proportion of normative interventions was observed post 2012. Examples of key interventions are discussed in findings below.

Insert Figure 2 Here

Institutional influences by governing and funding bodies

The institutional influences on safety culture in NHS hospitals reflected upon by the respondents included regulatory and policy interventions from the Department of Health (DH), arm's-length NHS governing bodies, such as the Care Quality Commission (CQC) regulator, NHS Improvement, Public Health England and the National Institute for Health and Care Excellence (NICE), and government agencies such as the National Audit Office (NAO). Our documentary analysis showed an escalation of such influences, which had stemmed from cumulative pressure for action from politicians, the public, and the media in response to significantly increasing rates of MRSA and *C. difficile* infections in English hospitals in the early 2000s (e.g. MailOnline 2005; Templeton and Leonard 2005). Two NAO reports in 2000 (NAO 2000) and 2004 (NAO 2004) triggered change in the public discourse. They demonstrated that HCAIs, which had received little public attention before this, were the cause of unacceptably high patient disability and mortality and were also a huge cost to the NHS. As infection rates rose, increasingly prescriptive policy directives were produced by the DH (e.g. DH 2004), and this regulatory activity culminated with the introduction of the Hygiene Code in 2006, a pioneering legislative act in Europe (DH 2006). Mandatory surveillance for MRSA was introduced in 2001 and targets to reduce MRSA bloodstream infections in trusts were initially introduced in 2004. Mandatory surveillance of *C. difficile* was introduced in 2004, and targets to reduce the number of cases of *C. difficile* were firstly

introduced in 2007. Over the years, DH continued to raise its expectations and current NHS policy sets stretch targets for each trust, including zero MRSA bloodstream infections.

Professional institutional influences

A subtler external influence on hospital staff stemmed from peer influence via professional networks. Organisational members became increasingly aware of what other trusts were doing and how they were performing. In particular, respondents perceived hospitals or clinicians with reputation or 'kudos' in effectively tackling HCAIs as role models for positive change:

> *I think probably the* ***biggest enabling factor [for prioritising safety] was senior clinicians****, both nursing and doctors, saying: "We've got a problem.* ***They are doing it differently elsewhere they are doing better than us. We need to do it differently".*** [T9M8 – Senior Medical Manager]

Professional associations were another institutional influence which shaped norms and role expectations in IPC. Dedicated professional training, research and practitioner journals, annual conferences in IPC were established. Professional associations expanded their scope and membership, reinforcing the shared narrative *'IPC being everybody's business'*. As an example, the Hospital Infection Society, initiated in the 1980s by Medical Microbiologists to "foster the scientific interests of those hospital doctors who were interested in nosocomial or hospital acquired infections" (HIS 2011) widened its membership, and in 2011 was renamed the Healthcare Infection Society. A similar trajectory towards multi-professional membership was noted in nursing professional associations (IPS 2011) and participants stressed the importance of such institutional changes in shaping expectations for the involvement of diverse healthcare professionals in IPC. Most respondents however reported that nurses' roles remained central to IPC improvement and

attributed this to 'historical ownership of IPC by nurses', pre-dating the intense policy focus seen in the last decade:

> *The infection control agenda was almost entirely run through the nursing staff. So, it was the nursing staff who knew that if an infection occurred on their ward they were going to be held up in front of the senior nurse and have to account why it might have happened.* [T5M5 – Medical Manager]

The novel role of 'Antibiotic Pharmacists' to support prudent hospital antibiotic prescribing also emerged more as a ground up initiative, through on-the-job training in the 1990s, and was later endorsed in key policy documents (i.e. DH 2003) supported with government funding for creating hospital posts.

Intra-organisational dynamics on safety culture

Organisational structures, roles and accountability mechanisms

Institutional influences resulted in organisational-level changes, such as the creation of new *organisational roles*, and *accountability systems* in IPC including transfer of accountability for meeting the mandatorily reported MRSA and C. *difficile* targets to trust Chief Executive Officers (CEOs). New *activity patterns and practices* were enacted including routine hospital leadership 'Walk-Rounds', regular reports to the hospital Board with infection control becoming a permanent Board agenda item, infection control targets built into hospital performance management systems, improvement programmes on cleanliness, hand hygiene, antibiotic prescribing. These organisational changes were interpreted by our participants, as further symbolic and material support for the patient safety agenda, and were cited as gradually shaping a culture of safety:

> ***the way we work in infection prevention has actually influenced*** *and provided innovation to improve* ***patient safety and quality****, particularly in regards to* ***monitoring and surveillance and feedback****, that is a really powerful tool...it's shaped a huge amount, but* ***very softly-softly, it has really I think shaped culture*** *and it is really amazing…I have to sit at* ***every trust board and give a report****. Which is good,*

> *it's the recognition that even* ***the act of doing that data is good, it reinforces processes that you want to happen***. [T1M10– Senior Medical Manager]

Another key organisational change stemming from regulatory action was the introduction of a new senior organisational role, the Director of Infection Prevention and Control (DIPC), reporting directly to the CEO and the Board; in most hospitals also taking Board membership. The role incumbent (doctor or nurse) gained executive power, and status, with the ability to influence hospital strategic decisions. Prior to government intervention, infection control was seen as low profile, often referred to as the NHS 'Cinderella service'. Hospital IPC teams were small, including almost exclusively nurses, with limited organisational influence and no formal representation at senior management. The above organisational changes combined, demonstrate an additional indirect path of influence on hospital staff on safety from the institutional environment via altering the organisational context.

Tensions experienced by staff stemming from conflict of institutional logics

Staff experienced inherent *tensions* with widely held beliefs about what was expected from them in controlling infections, about what comprises safe patient care, or what constituted acceptable levels of risk in tackling HCAIs. The tensions stemmed from conflicting demands of co-existing institutional logics shaping healthcare. A market/corporate logic promoted a business-like rationale guiding organisational decisions and the overall running of hospitals; a state logic prioritised political factors in providing services to satisfy the needs and rights of 'citizens' while safeguarding the NHS as a public good. Such rationalisations where not always aligned with the traditional professional medical-clinical logic.

Tension on the scope of safety: universal vs restricted

Despite resulting in undoubtedly substantial organisational-level change, the sustained 15-year effort by institutional-level governing and funding agencies was variably interpreted for its effects on IPC safety; along a continuum of helpful to inauspicious. Participants often reported that their views had changed over time and fluctuated in both directions along this continuum:

> *For me the infection targets have been the best thing that's ever happened to infection control, and I* ***used to hate targets, but I don't, I think without those there wouldn't have been that driver nationally, so I think they were great****. We're getting into the position where we've made such achievements that* ***targets are becoming slightly unrealistic now*** *because they're* ***placing all these targets on you, but actually can you go any better****? Particularly in an acute teaching hospital that's so specialised, you will get patients with infections, it's inevitable…huge amounts of pressure.* [T9M1 – Nurse Manager]

> *[Targets] can be* ***motivating for some and demotivating for others****. Personally, I'm naturally competitive therefore if you say 'you're 5th from the bottom' that motivates me to try and be better. I cope with the pressure*. [T9M8 – Senior Medical Manager]

On the one hand, through external and coerced efforts to change practices in IPC via laws, regulations, guidelines and standard operating procedures, participants felt that safety was increasingly viewed as a *strategic priority objective across the NHS*. This was in contrast to patchy efforts that had failed in the past. The trusts' performance in reducing HCAIs was regularly monitored and managed and was set as a prerequisite for acquiring Foundation Trust status. The Health Act in 2006, made it a legal requirement for CEOs to put systems in place to minimise the risk of HCAIs. In an increasingly austere NHS context the imposition by NHS regulators of contractual clauses linked to infection control performance and financial penalties when infection targets were not met, helped further rationalise safety as a *top organisational objective*. This sentiment was reinforced by substantial investment in material resources in this area over the years by the NHS.

> *If I'm absolutely honest,* ***it's from an external pressure now [the motivation to change]****.* ***I would like to think most of it came from the fact that we want to do the right things for our patients, and we want to maintain patient safety****. But infection prevention is* ***very high on the agenda at the moment****. And certainly* ***we [as a trust] are very target driven****.* ***In some ways to the detriment of other infection prevention issues****…it's been made very clear, in no uncertain terms, that actually if we don't come in under target, or objective whatever you want to call it now, we will be severely penalised.* [T2M4 – Nurse Manager]

Participants noted that IPC was increasingly pervasive in both the public and organisational discourse, in their daily communications and interactions with colleagues, an experience denoted in the empirical theme '*IPC widely talked about'*. Macro-influences such as media accounts, legislation, policy reports provided organisational members with a continuous supply of discursive resources and rationales for action that were available to staff to draw upon. IPC was widely seen as an organisational priority, commonly phrased as *"Being everybody's business"*.

> *I think* ***IPC is a top priority;*** *we* ***report our performance on a monthly basis*** *up to board level. So, there is* ***board level commitment*** *in terms of reducing health care associated infection…It's* ***something that is talked about****. I think* ***we all feel devastated if we have a bacteraemia*** *of any sort within the trust. […], we've now managed to get it within the culture and* ***we're beginning to change the culture of the organisation in terms of patient safety.*** [T2M13 – Senior Nurse Manager]

The quote above by the nurse manager shows a more nuanced understanding of how safety principles were translated into performance management mechanisms (e.g. monthly IPC performance reporting), thus further projecting a *"shared commitment".* Also, of note is the informant's description of a strong collective emotional response in the case of IPC safety breaches ("we feel devastated"), indicating that safety had become not simply a priority but part of the shared value system, arguably suggesting the creation of a culture of safety. Overall, there was agreement that the prolonged institutional pressures and the coerced implementation of new practices using sanctions and incentives facilitated a re-thinking of organisational priorities, with more emphasis on IPC and patient safety. They also offered

cognitive, symbolic and material resources which hospital staff flexibly drew upon to interpret, legitimise, and action safety tasks in IPC.

On the other hand, there was also recognition by our participants that safety prioritisation may only last for as long as external pressures persist. Maintaining improvements in IPC requires a great deal of management attention on processes and administration, at a time when other challenges may also draw attention. Participants also cautioned against an often narrow conceptualisation of safety as exemplified by the focus on a limited number of IPC indicators as performance objectives, which only reflect a narrow range of infections. There were no meaningful or robust comparable data routinely collected on other healthcare associated infections, which according to available data, continued to increase (NAO 2009). Particularly from a professional/clinical logic this restricted scope of capturing safety did not sit well with internalised beliefs and values that support delivering safe practice at a universal level – for all infections, across healthcare settings and balancing individual patient needs without compromising public health outcomes. A restricted safety scope aligned well with performance management from a market/corporate logic perspective. Concerted organisational effort on selected centrally managed targets, through close performance monitoring, incentives and financial penalties were perceived realistic and appropriate. A state logic guided by principles of accountability and transparency would also promote a visible response on a selected number of hospital infections. By disseminating key indicators of HCAIs by hospital, this provided a comparable quality mark across the board.

Some informants illustrated examples of what they termed "passive resistance" when people's assumptions about the appropriate way of accomplishing safety in specific situational contexts differed.

> *I think **the biggest obstacle is just the mindset of not wanting to do it really**, and people will present that in all sorts of positive ways **but the bottom line is, and it's***

> ***what I call passive resistance****, every help they could possibly afford you short of any actual real system, and that's hard to spot sometimes* ***because everybody's agreeing and everybody wants to do it and everybody's up for it and nothing happens and you think, how's that then****…it's just experience that teaches you that.* [T5M8 – Senior Nurse Manager]

In such cases there was *"Shared commitment"* on achieving safety in IPC, though staff might have disagreed on the method, or the most appropriate course of action to accomplish it. This observation indicated that talking about safety was an important step which signified change, but at the same time was interpreted by some respondents that it had been used to "mask lack of action", or suggest a false assumption that action was in line with the talking. The evident lack of action in some realms (e.g. improving data collection on hospital prescribing and compliance, tackling the issue in other parts of the health system such as PHC, community, care homes) further reinforced such scepticism.

Tensions about ability to be open: encouraged vs feared

The notion of tackling safety as an issue in IPC was widely accepted and expected in organisational discourse, which empowered individuals to feel confident to challenge behaviours even across hierarchies. Staff felt encouraged to be open to disclose malpractice, air concerns, and point out 'what was not being done' in addition to 'what should be done'. They were encouraged to *'Challenge the norms'* of what is acceptable and what is not. Nurses reported feeling more comfortable in challenging powerful medical staff. In addition to feeling empowered, or encouraged, staff also felt that it was 'right' and 'appropriate' to challenge established expectations, and behaviours where they felt safety had or may have been compromised. Accounts, which openly challenged the observed reality of nurses dominating IPC safety efforts, emerged among senior medical staff:

> ***The infection control agenda was almost entirely run through the nursing staff****. So, it was the* ***nursing staff who knew that if an infection occurred on their ward they were going to be hold up in front of the senior nurse and had to explain why it might have happened. The medical staff we are not subject to that sort of view at all***

> ***and so one of the first questions I would ask is 'well why not?****' Why are the medical staff not part of the analysis of why these things happen?...And I think even the senior nurses in the trust felt it would be counterproductive dragging consultants into these meetings. And the* ***result of that was that the infection control agenda became perceived as a nursing agenda****.* ***And the consultants were able to stand back from it even more and say it's nothing to do with us, it's all to do with the nurses…you could see the implementation of a lot of infection control stuff faltering on that basis****.* [T5M5 – Medical Manager]

Such change in attitudes could be viewed as conducive to a safety culture requiring an active role by everyone. Further, while the infection performance targets were welcomed by many there were just as many who questioned the scientific or other evidence. Also, time pressures when adopting interventions often meant that the formal sifting of evidence through the established hierarchy of evidence did not occur. Repeatedly organisational time and effort were spent on what many believed as unnecessary debates, or requests for supporting evidence were often used to block 'common sense actions' (such as rolling up sleeves).

In contrast to the accounts above participants also reported a felt fear of being open. This was due to organisational pressures, such as criticism by peers or even organisational punishment for deviating from established norms. In line with a market/corporate logic speaking up and whistleblowing may be beneficial for the long-term performance and viability of the organisation, but in the short term might also be disruptive and undermine the organisation's external image and reputation. Fear of litigation might also undermine efforts to be open. From a clinical/professional logic 'being open' would be seen as the only and right thing to do to ensure patient wellbeing. On the other hand, to ensure professional autonomy and protect self-regulation, the medical profession in particular has had major failings in disclosing safety breaches and near misses.

In other words, participants felt both constrained, and confident in *"Challenging" behaviour, the evidence base, and the norm*. Informants reported that the balance depended

significantly on the committed action of senior managers. Extreme examples from the interviews reported signs which may be counter to a culture of safety.

> ***There was a culture of not daring to put bad data because you would be castrated****, so* ***there are some real new answers in there about how you manage data capture and feedback in such a way that it has a positive impact*** *not a negative impact….you can see quite clearly it has had a much more positive impact, some of those factors have been addressed [by the Trust executive team]*. [T1M11 – Nurse Manager]

Prioritising external mandates vs local relevance

Highly prevelant in respondent accounts was a tension between external mandates for organisational productivity and performance, seated within the market/corporate and state logics, versus *'safety being non-negotiable'* emanating from traditional professional norms and clinical standards of practice (characteristic of a professional/clinical logic). Policies, especially on achieving infection and other targets, which many clinicians interpreted as "misguided", were deemed to generate unrealistic expectations among the public and seen as an unwarranted intrusion into clinicians' professional judgement. This area of tension, *"balancing productivity with safety"*, permeated routine organisational activities:

> *Where it becomes an issue is where* ***the pressure to achieve the standard or target goes against what is in the best interest of the patients****. Mid-Staffordshire is the extreme of that.* [T7M1 – Nurse Manager]

Vying for organisational resources, time and attention among different agendas demonstrated in practice 'what was given priority', 'what was seen as important'. This ongoing contestation revealed a highly internal political process, with priorities fluctuating between locally relevant initiatives and external mandates. The latter were often seen as being less pertinent to the local needs.

> *I think [IPC being priority] is* ***demonstrated in things, like finances, staffing, in terms of cutbacks, time on things like board committees****, and simply how much the trust actually pushes that particular agenda. And what certainly happens here is* ***we only seem to be capable about pushing one agenda at a time, so if it's not yours you tend to drop back****, and if it is yours you do very well because you put a lot of effort into it.* [T4M7 – Nurse Manager]

Respondents cited an incompatibility of the rhetoric and expectation of 'patient safety being the top priority' with the reality in practice where operational targets got in the way:

> *Maybe there are **4 hour waiting times in A&E** because people are waiting for side rooms. Maybe they are **affecting elective admissions** because people are being isolated every time they have a bit of diarrhoea and probably there are other reasons for their diarrhoea. **So, the focus that everybody has C. diff. until proven otherwise means a lot of people get side-rooms maybe blocking up areas, blocking up beds**.* [T1M17 – Medical Manager]

This tension of what was seen as a political or corporate versus a professional priority for action reflected different worldviews on what safety entails and how to respond to infection risk. That culminated into a battle of perceived credibility and relevance between what is externally valued by political pressures and business priorities and what the professionals felt was relevant, valued and credible in the local context, enabling or hindering them 'to do their job':

> *It's really **important for one's own credibility that you sometimes separate yourself from what's valued externally**. It's not all about MRSA all the time but unfortunately that is the target that's what we have to talk about all the time. But that is such a tiny part of everything that is going on, such a tiny part. And can we deal with all the external stuff that's lost its credibility. How do we balance the external, like commissioning, ... this is top down. So, you have to make sure you deal with some local, **never lose sight that you need to do things that are locally credibl**e and relevant to your patient population. Because **if you just do the things that the government mandates, you are just not doing your job.** But you have to talk about this stuff that is external all the time*. [T1M10 – Senior Medical Manager]

Macro-level interventions were problematic due to lack of flexibility and adaptability to the evolving situation on the ground. The early motivation that *"Targets were perceived as realistic"* because they had been seen to be achieved by other trusts, then became less credible and unachievable for the higher performing hospitals:

> ***It's somewhat irritating** really, we have a million patients come to us a year because our MRSA absolute number was about six. They said we need to half that. You say hang on a minute there you have given an organisation somewhere else the same size as us a target of 106, how does that stack up? **They said it's about improving on your own performance. That's right but there is a point when you say actually if we hit***

> ***three in total how are we gonna get to one out of a million patient contacts per year?*** [T5M15 – Senior Medical Manager]

How did organisational members make sense of forceful changes collectively?

Our respondents individually and collectively reconciled daily ground-up and top-down pressures for change. They reflected on an evolving environment of coerced change in IPC stemming from institutional influences which demanded engagement with practices promoting safety. Examples of such routine practices included prescriptive audit programmes to monitor compliance to policy standards on hand hygiene; enacting cleaning schedules and monitoring cleaning standards in environmental hygiene; performing infection Root Cause Analyses; consistently applying patient health questionnaires and pre-assessment screening to detect infection risks and patient decolonisation prior to admission (*Clostridium difficile*, MRSA). Staff also reflected on the practical implications of coerced changes in decreasing rates of HCAIs in NHS hospitals during the studied period, which we also verified via analysing reported clinical data for the hospitals in our sample. Many staff that reflected on such improvements reported a nuanced understanding of key principles that underpin a culture of safety:

> *I think that the pressure comes from* ***any patient that contracts a health care associated infection. We are harming patients and it's a patient safety issue****. And at board level this is how we view it.* ***Our level of health care associated infection should be zero within the organisation****. We have demonstrated since 2007 a year on year improvement but we have not quite got to zero as yet.* ***We're on that journey*** *but we've not quite got there. So, I think* ***patient safety is paramount*** *and that's a paramount driver for the trust.* [T2M13 – Senior Nurse Manager]

The forced implementation of new safety practices (e.g. hospital targets to reduce MRSA and *C. difficile* infections) required staff to engage in new patterns of behaviour (e.g. mandatory regular monitoring and reporting of MRSA and *C. difficile* infections) that sensitised organisational members to new values (e.g. having MRSA or *C. difficile* infections is not right, 'we are harming patients') and new ways of thinking (e.g. "safety is top priority"

“our level of health care associated infection should be zero”, “IPC is patient safety”, “low infections is productivity gain”). The repeated engagement in new patterns of behaviour resulted in new accepted forms of interaction and an associated new cultural mindset about risk and safety, as staff progressively changed the way they did things not because “they had to”, but because “it was sensible”, “it was appropriate”, or “it worked” and they reviewed their basic beliefs accordingly. These experiences structured future behaviours and interactions with others.

Collective sensemaking involved interpretive assessments of ‘safety sensibility’, ‘safety legitimacy’ and ‘safety pragmatism’ in response to requests for change such as “this is what you have to do”, “this is how we do things from now on”. As organisational members were progressively experiencing the consequences of engaging with new organisational structures and practices in their work environment they were assessing whether the outcome was positive or negative on safety performance. They were also assessing the relevance of public discourse on safety and whether this fitted with prior and individualised understandings of what safe practice constituted as they experienced it daily at work in their localities. The resultant experienced tensions and collective sensemaking on safety issues reflected whether staff would successfully craft new *strategies of action*, thus changing their skills, habits, and beliefs or whether they would stick to pre-existing shared assumptions and patterns of behaviour.

When such strategies of action were successful we observed two ways in which organisational members gradually changed their cultural beliefs as they realised the actual impact of change in their local and immediate surroundings. In some instances, they accepted the value and appropriateness of new policies and practices which they linked to positive outcomes (e.g. hand washing linked to improved hygiene and lower rates of infections). This

positive assessment was reinforced when staff could convincingly find cognitive resources and language in the environment to justify a positive effect:

> *I think, we recognise that minimising hospital acquired infections and having* ***low rates of infection*** *is a* ***very positive productivity gain****. So, if you haven't got patients with pressure sores, if you haven't got patients who are falling and hurting themselves, if you haven't got patients who are acquiring hospital-based infections, then the length of stay in hospital will be reduced or not prolonged, and you can use the capacity and resources you have more effectively. So, there's a really positive thing around that.* [T9M5 – Senior Nurse Manager]

Staff experiencing a positive situated assessment were able to instil new meaning into old cultural forms and practices. For example, safety was increasingly linked to not only the provision of optimal care (i.e. improved patient outcomes, increased user satisfaction) but also to sound organisational management; the realisation by hospital management and staff that care costs could increase substantially when control of HCAIs failed. Such emerging rationalisations were further supported by features of the environment that participants could refer to as shown in the quote by a medical manager:

> *I think that there are obviously financial imperatives, both in terms of* ***genuine penalties or incentives in contracts with commissioners****, but also* ***just things like the more HCAIs we have the longer the stay is****, so the less patients we can get through the door.* ***There is a massive financial imperative to get control of HCAIs***. [T5M9 – Medical Manager]

On other occasions they rejected as inappropriate and illegitimate those prescriptions that were perceived as having a negative impact on safety (e.g. leadership pushing forward a business agenda was seen as posing a risk to patient safety). In the latter case, the negative assessment was the result of staff having experienced a perceived tension or conflict with deeply held and internalised elements of shared beliefs and professional values (e.g. the tensions outlined above), which was not resolved by their experiences and interactions in their immediate context. From our observations, managers with a clinical background in our sample expressed such tensions or conflicts more often, which can be explained due to a

common value system and code of practice internalised by clinicians through their socialisation in the profession.

In sum, the collective sensemaking occurred in a social context in which professional norms, policy rules and organisational expectations affected rationalisation, which justified and legitimised specific conceptualisations of safety and associated patterns of behaviour. When interventions were perceived as justified (practical, sensible) and legitimised (appropriate) within the professional, policy and public discourses, and these articulations were further reinforced by first-hand experience of enacting safety practices in the workplace, safety priorities were reappraised. Without such alignment, changes in cultural dynamics would be less likely.

Discussion

In our empirical examples all actors agreed on the overarching goal of establishing a culture of safety observing the moral principle that "no health professional intends to harm patients". But how can safety be accomplished in IPC by organisational members in their daily work in the light of forced change? Our analysis identified a repertoire of cognitive, material and symbolic resources available to hospital staff to action and interpret safety tasks in IPC. Staff flexibly drew upon the available resources from both the institutional and organisational environments to support different 'strategies of action' (i.e. Howard-Grenville et al 2011), which were informed by respondents' localised assessments about the appropriate way of accomplishing safety in their specific situational contexts.

The article advances knowledge by offering a nuanced understanding of how the organisational cultural repertoire can be enriched by the wider institutional environment. Our grounded study contributes to unpacking elements of the externalisation process of safety culture change (Antonsen 2009). Specifically, it extends our understanding of the process of 'culture infusion' (Harrison and Corley 2011) by elaborating an emergent model of situated

sensemaking following prolonged coerced pressures for culture change (Figure 1). In doing so, it offers conceptual clarity on how extra-organisational cognitive, symbolic and material resources are imported into the organisational culture, enabling and legitimising sustained collective action. The identified 'tensions' stemming from conflicting aspects of co-existing institutional logics in the NHS and 'strategies of action' crafted by staff across the hospitals in our study provided organisational members with discursive, legitimating and symbolic material to elaborate on the effectiveness, appropriateness and collective meaning of imposed changes.

Our study makes a further contribution as it sought to address the missing level of extra-organisational institutional influences on safety culture in organisations. We offer an empirically grounded account on the microdynamics of logics, explaining how logics are negotiated collectively by actors on the ground and how they influence the crafting of organisational culture. Further, our analysis suggests that the institutional environment can shape organisational culture by conveying influence along a dual trajectory: a) via a direct macro-micro path, as organisational members reflect upon and negotiate cognitive, material and symbolic resources (e.g. changes in the professional associations or the code of practice impacting clinical managers), and b) an indirect macro-meso-micro path, whereby institutional dynamics shaped organisation-level arrangements that further influenced individuals' interpretations, actions and interactions (e.g. legislation creating the DIPC role impacting reporting lines in hospitals and symbolising importance of IPC). Changes in organisational processes, structures and roles also constituted the indirect influence path by helping or restraining organisational actors to openly challenge some existing beliefs, and draw attention to new ones (Schein 2010). Macro-level institutional influences were drawn upon by hospital staff in tandem with own first-hand work experiences. Such reflections led to the development of new accepted justifications, making policies and behaviours

meaningful and explainable. The lack of justification following such situated collective sensemaking might help partially explain the findings in Public Inquiries which report fundamental deficits in safety culture despite proliferation of safety regulatory bodies (Francis 2013). As reported in reflections and re-analyses of high profile Public Inquiries (e.g. Francis 2015 ; Weick and Sutcliffe 2003), the mindset that something was sufficiently practical and reasonable could explain away both poor performance and the need to learn. The additional situated assessment of new policies or practices being also seen as legitimate and appropriate and thus justified adds an extra layer of re-assurance. As our empirical observations suggested, different interpretations and tensions will continue to exist among members of organisations. Thus, the focus of safety culture promotion should not be on achieving a conflict-free organisation, but on facilitating staff to rationalise new behaviours and translate fragmented experiences into a coherent new worldview (Antonsen 2009).

While our research approach has advantages, notably rich, first-hand accounts in which abstract interventions and changes were rendered personally meaningful to our respondents, our work is not without limitations. Our empirical study focuses on IPC in the context of patient safety in English hospitals; in contrast to the central role of governmental bodies in funding health services within the NHS, such governmental organisations might be less able to intervene in health systems which are funded through more diverse sources, or governed less centrally as elsewhere in Europe (Birgand et al. 2018), or in the USA. Our primary data derive from interviews which explored views, perceptions, and experiences of respondents, self-reports on activities and practices. We were not able to observe first-hand differences in behavioural patterns; depth ethnographic studies have the power to reveal individual and group behaviours (e.g. Dixon-Woods et al. 2012; Charani et al. 2018).

Conclusions

Organisational safety culture in IPC involves multilevel phenomena and by considering how institutional forces enrich the organisational cultural repertoire, this study advances knowledge on coerced culture change. The study elaborates a dual trajectory of macro-institutional influences via the organisation and direct to individuals. Sustainable cultural change, especially in professionalised settings such as healthcare, we argue, happens when institutions also change but this is a slow process requiring sustained efforts in clinical practice, policy, regulation, media, patient forums and professional arenas.

Cultivating a safety culture in healthcare organisations requires the wider institutional environment to support and justify revised professional roles, organisational strategies, governance structures, and a new collective cognitive frame that makes such changes appear meaningful, sensible, workable, and appropriate also to the local context. It follows that such changes will then be seen as legitimate and worthwhile. Whether changes in cultural expectations and the mindset actually happen depend both on NHS professional norms, policy rules, discourses and organisational expectations, but also on what people experience in their local and immediate surroundings. In addition, this is a dynamic process which needs to be constantly reinforced and maintained over time to lead to sustainable outcomes. If for example the NHS stops investing in this area cultural changes achieved can be undermined.

The opportunities and constraints arising from the institutional context can assist policy makers, managers and clinicians to recognise the boundaries of their action. They can also utilise this layer of influence as part of their 'toolkit' for safety improvements.

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Figure 1 Coding Structure

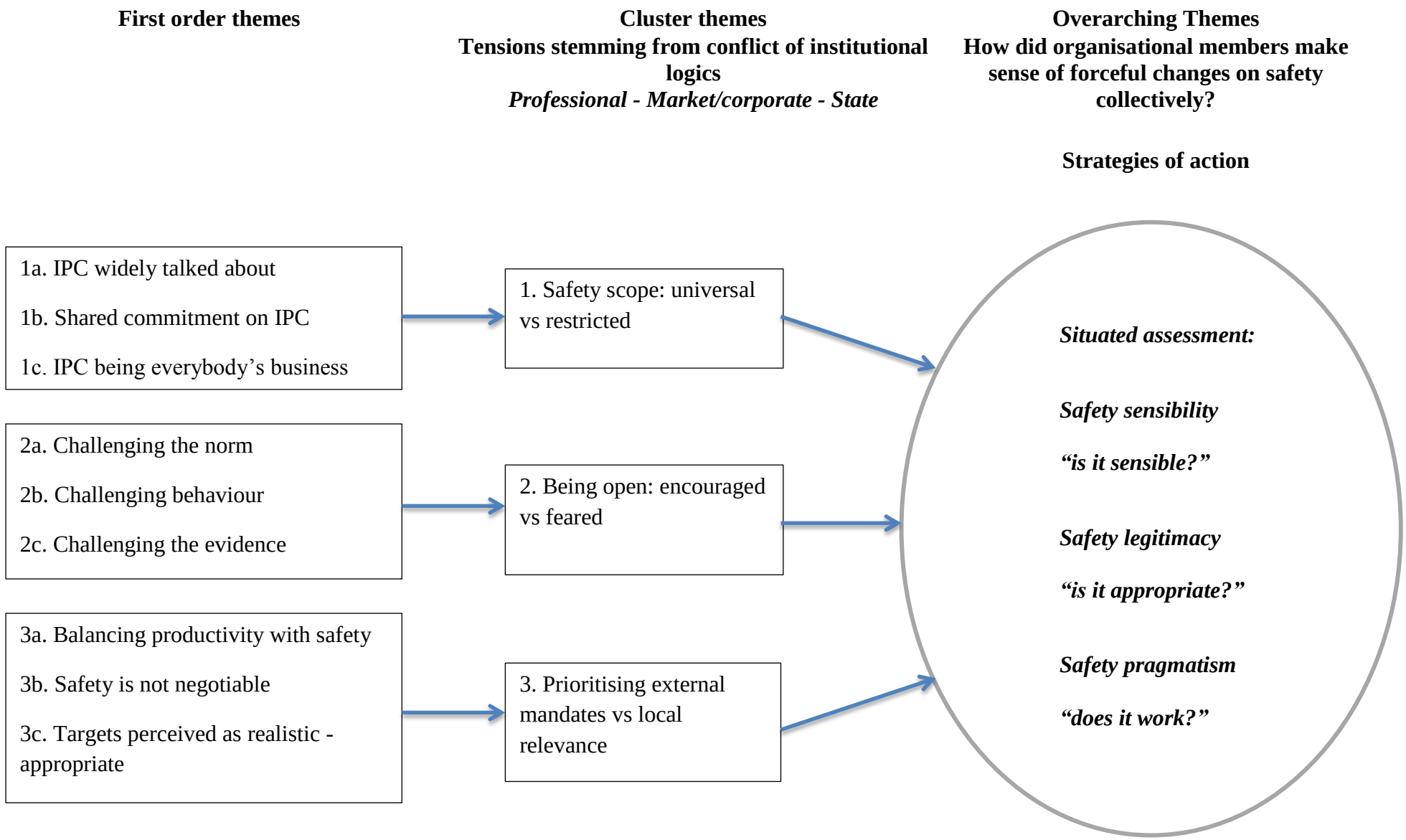
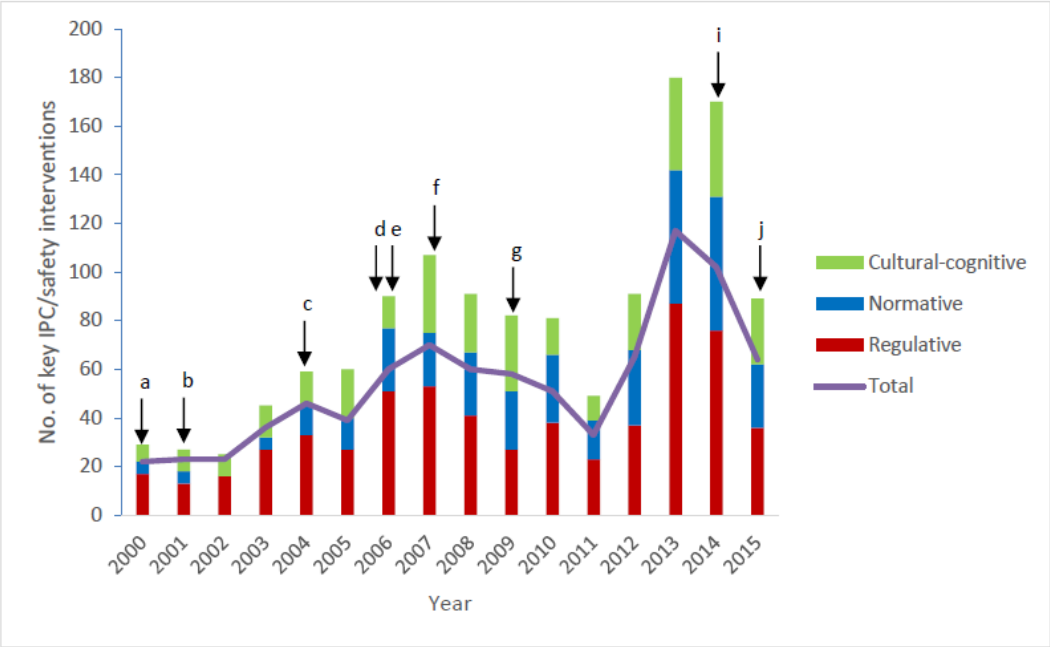


Figure 2 Classification of Institutional Influences 2000-2015 in IPC in the English NHS



Key: R, regulative; **N**, normative; **CC**, cultural-cognitive.
Abbreviations: DH, Department of Health; NHS, National Health Service; MRSA, meticillin-resistant *Staphylococcus aureus*; *C. difficile, Clostridium difficile.*

a: [CC] DH issued *An organisation with a memory*: *report of an expert group on learning from adverse events in the NHS chaired by the Chief Medical Officer* (June 2000).
b: **[R]** Mandatory surveillance of MRSA bacteraemia cases (April 2001-).
c: **[N]** National Patient Safety Agency launched clean**your**hands campaign to implement near patient alcohol hand rubs (September 2004).
d: **[CC & R]** Chief Medical Officer made NHS trust chief executives personally responsible for the accuracy and punctuality of MRSA data submitted by their trusts (with their 'formal sign-off') (March 2006).
e: **[R]** DH issued *The Health Act 2006: Code of Practice for the Prevention and Control of Healthcare Associated Infections* (October 2006).
f: **[R]** Mandatory surveillance extended to *C. difficile* infections in all cases, including patients aged two years and over (April 2007-).
g: **[R]** DH issued *Health and Social Care Act 2008: Code of Practice for health and adult social care on the prevention and control of infections and related guidance* (December 2009); it required all NHS healthcare providers to register and provided Care Quality Commission with assessment criteria.
h: **[CC]** Robert Francis *Report of the Mid-Staffordshire NHS Foundation Trust Public Inquiry* (February 2013).
i: [R & N] *epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England* (January 2014).
j: [R] DH issued *The Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance* (July 2015).

Table 1 Informants break down by trust and professional background

Professional background of manager informants (NHS Trust Code)	**T1**	**T2**	**T3**	**T4**	**T5**	**T6**	**T7**	**T8**	**T9**	**Total**
Medical	5	2	5	2	3	2	6	1	2	**28**
Nurse	10	9	8	5	5	8	6	1	9	**61**
Non-clinical	3	4	4	3	4	3	3	0	1	**25**
Allied health professional	1	0	1	1	2	0	1	0	0	**6**
Pharmacist	1	1	1	2	1	1	1	1	1	**10**
Total	**20**	**16**	**19**	**13**	**15**	**14**	**17**	**3**	**13**	**130**

*T8 – access issues due to an infection outbreak during the study period*Senior and middle-level managers

DIPC, Medical Director and senior estates/operation are the ‘senior’ respondents

Split overall: 23% senior and 77% middle

Supplementary Table. Extensive summary of quote examples of first order themes

First order theme	Exemplar quotes
1a. IPC widely talked about	*I think* ***infection prevention has become more known about really. It's more prominent now [in the NHS] than it ever was before.*** [T9M13 – Nurse Manager] *The nurses were very quick to adopt things that other places were doing. [...] there is a lot of scepticism from consultants that the various things they were asked to do were irrelevant, why do I need to do it? These infections are nothing to do with me?* [T5M5 – Medical Manager]
1b. Shared commitment on IPC	*To my mind it was about a very committed team behind it and a lot of engagement with the area in which it was being introduced.* [T1M8 – Medical Manager] *We have a weekly infection control meeting which is actually chaired by the chief executive – it is the only meeting he does chair, as far as I'm aware. So, it's a very, very high priority in the trust.* [T3M12- Nurse Manager] *If we had then got a trust-wide issue then you might call, what they tend to call a mere Summit where they are developing trust-wide issue we now want all of the matrons in the room at the same time discussing what they are going to do. And there are some summits going on at the minute in respect of management of C. diff.* [T7M1- Nurse Manager]
1c. IPC being everybody's business	*IPC is on everybody's mind all the time…everybody knows this is the priority that is embedded into people's thinking.* [T3M11 – Nurse Manager] *I think it has changed greatly over the last few years, I think [IPC] has become a much more widely talked about topic at all levels of the trust. Whereas before it was quite a nurse centric kind of area to look at, it was mainly nurses that were on the team and involved in it. But I think over the last few years things have changed dramatically, and I think most of the groups that I go to in the trust will be aware of the importance of infection control and will take that into consideration when they talk about things.* [T4M11 – Nurse Manager] *Everybody has infection prevention in their job description they have to have it reviewed annually and do a job performance review and I think everyone is aware of the goals of the infection prevention team.* [T9M13- Nurse Manager]
2a. Challenging the norm	*Competition is quite a strong motivating force for most doctors, because ironically, we still select our medical students on the basis of competition. We take the people who have performed best in their 'A' levels and GCSE's. Throughout medical school, not intentionally, but they compete with each other. Then they leave medical school and they compete for the best jobs. And when they finally get to the point of being a GP or a consultant then what we value most is team work, and they have all been trained not to work in teams for the whole of their career they*

First order theme	Exemplar quotes
	have been trained not to work in teams, and then suddenly you want them to work in teams. And of course, it just doesn't happen because we have trained a group of individuals. And I think things are changing in that respect... So, competition is a real driver and that actually was what I utilised, apart from personal relationships, the way in which we pushed the infection control agenda forward by me presenting people with data saying, look this hospital has managed to do this over the last 12 months and here are our infection rates they are still here. And to take it down even to wards, and say, look your ward is really good, or your ward is really bad, I never have to say that, I just show the data. Here is the data – this is where you are, do you think you can do anything about? Everybody usually says, of course we can, [...] that really brings about engagement from consultants, which otherwise extraordinary to get. [T5M5 – Medical Manager] *Yes, the thing is we're all responsible for it. So, what these infection control meetings that we have, you know they're quite* ***intense meetings and no prisoners taken really so you're made to account for your actions and the actions of your department****. So, I think that helps from a top down approach a bit more sort of a* ***zero-tolerance policy to it because it's a serious business*** *really.* [T5M14 – Senior Pharmacist Manager]
2b. Challenging behaviour	*I'd spoke to XXX before, our Medical Director, and said, look XXX,* ***this is my approach now****, I just want to make sure you're OK with this, but my view is that this is a clear evidence base that this works, we've got adoption now across 80% of the group, my view now is that to not apply this 100% in terms of our practice is actually negligent and that to not have 20% of our patient cohort not having access to what we know is best practice and will improve their outcomes and reduce their lengths of stay and get them out of hospital so much quicker and enhance their experience and manage their pain and all those things, to not do that is to be deliberately disadvantaging that group of patients. And* ***if those surgeons who are responsible for that group of patients can't comply with the programme then we stop them doing those procedures, because it's not acceptable for them to practice in a way that we know is less than optimal*** *...And that's where it gets to in terms of translating the evidence base, through implementation, through adoption, into performance management, into delivery on the ground.* ***And with that there are improvements, praise, and all of that but there's also sanctions, and if people won't adopt the evidence then we will take them, we will take whatever action is necessary. And certainly, around infection control we said years ago, we would never ever sanction somebody who let someone go to theatre without taking consent, and said oh well, OK, it was all right, it was lucky we did the right operation today****.* [T5M8 – Senior Nurse Manager] *… the main problem is* ***the clinicians and the main problem with them I think is simply their working patterns and their priorities****. it worked well when you can engage one influential clinician informally and sell the concept and they can act as the champion within their own peer group. But if you can't do that then and you are taking the*

First order theme	Exemplar quotes
	concept instead to a regular meeting or forum then you've got a number of them around the table and ***if 2 or 3 decide to react negatively that can quite often be enough to destroy***. [T7M14 – Non-Clinical Manager] *Well the formal markers published infectious rates, we don't actually compare well to some other trusts…so if you judge it on that level we're not good. I think in ways, and there are loads of reasons for that, tutorial political reasons. In terms of how our team is beginning to function and that judgement is just based upon talking to colleagues in other trusts and sharing experiences. So, the hard published data is one method, simplistic but I don't think it gives the picture of everything. So that other evidence is based more on the experiences of talking with others' judgements and rather than hard published data. And also because of the relationships, personally I think, that having system on site does begin to simulate thoughts around others and gives a more questioning attitude to some things we do. Better education, I think in that having an environment and culture, where people can discuss different types of evidence. And there is no pressure to dismiss, I think in that in a way, that is why we are beginning to become good here.* [T1M5 – Nurse Manager]
2c. Challenging the evidence	*I think one of the other challenges we get frequently and the best example I can give you is bare below the elbow. What we would say this is a good thing to do it because it inspires patient confidence. Patients like to see health care workers washing their hands but the challenge back to us particularly from medical staff there is no evidence base.* ***And then it's how you, if one person in a directorate starts saying there is poor evidence base that grows like toxic in that directorate. And it's about how do you get to that to say it's not just evidence it's about confidence, so there is a communication challenge there****. By the time you hear about that challenge there's no evidence base it spreads throughout a group of who say we don't agree with this. There is no evidence base, so we're not doing it.* [T7M5 - Senior Nurse Manager] *Infection control is very anecdotal and there is not that much solid evidence, it is just best practice. And a lot of the research that is out there is generally quite old. You could say 'yes we do that' you know anecdotally that it works but there is no research around that subject.* ***And we're constantly getting asked by the medical teams you know you're telling me to do that, take my tie off, you're telling me I've got to roll my sleeves up and be bare below the elbows give me the evidence it works. And that is the problem in infection control there is not the evidence out there that is statistically significant that will give the medical teams the evidence that they need***. [T6 M5 – Nurse Manager]
3a. Balancing productivity with safety	***It is a really complicated mixture of political imperative feeling that we were getting a bad name and so that is where you get the support of management saying, "You have got to implement this regardless.*** [T3M3 – Medical Manager]
3b. Safety is not	*You've had a needle stick injury, or you've left something lying and you owned up to it, but you haven't been*

First order theme	Exemplar quotes
negotiable	*disciplined or anything like that, it's a lesson learning culture rather than trying to penalise people. People do make mistakes and people need to learn from mistakes and I think if it's too much a stick culture people will, human beings will, human nature and they'll try and hide and therefore you don't get the evidence. Because you could be doing something that you've done for years and suddenly someone inherently sees there's a problem with it, in actually someone, by a different pair of eyes looking at it. Well we've always done it the same, well it's not the right way.* [T4M6- Senior Non-Clinical Manager]
3c. Targets perceived as realistic - appropriate	*Absolutely. It is, it is, for me, about ensuring that you pitch the information at, at the right level.* ***So, if you say to a physician, you need to wash your hands and your patients will have far less infections, and they say, my infection rate is zero, what, where do you go from there? How do you, how do you do that?*** [T9M4 – Nurse Manager] *It's all down to targets……* [T4M1 – Medical Manager]

Supplementary Table. Collective sensemaking - Additional quotes

You've got a good reputation in your area, I know that, I come in and you've had a patient that's fallen, and I think at that point you're quite susceptible because there's kind of all the ***guilt and the emotional side*** *of you've had a patient that's been harmed, I come in, I kept you at a vulnerable moment to talk about your practice, I hopefully start to show you what is good practice, and that then influences you to start to* ***change your behaviour, which then spreads to the next people working around you****.* [T3M16 – Non Clinical Manager]
I think, in terms of moving that forward, there was a high profile focus from the infection prevention team, almost to the point of aggressive at times, and in terms of […] Aggressive championship that ***sometimes could be perceived as being over challenging from some of the ward areas of, and I think for a period of time we almost developed a blame culture around why patients weren't isolated quickly enough****, which left it wobbly for a short while. But a raised profile, I think as people then started to* ***get the education from the infection team that went along with that high profile drive****, and I think a lot of this was down to the fact* ***a number of other trusts had been hit quite hard nationally and were being very publicly berated for their poor infection performance****. So I think the very dynamic, very enthusiastic, high powered approach was probably a result of high stress coming in at an executive level in the beginning****, but as that got rolled out and communication improved and people started to understand.*** [T9M3 - Nurse]
No, infection control is not lucky. We shouldn't be touching wood when we don't have a bacteremia, that's clearly unacceptable. ***We don't touch wood that we did the operation all right did we? That's just, it's a bizarre frame of mind that people treat infection control in a way that somehow is negotiable****, you might do it, you might not, you might practice safe, it might be consistent, it might not. Get that sorted. So that's the way we run it here.* [T5M8 - Senior Nurse]