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Review

# Organizational culture and its implications for infection prevention and control in healthcare institutions

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SUMMARY

*Background:* It is not uncommon for infection prevention and control (IPC) interventions to be successful in one hospital yet fail, or have significantly less success, when implemented in another healthcare institution. Organizational factors have been postulated to be a major reason. As a result, there has been an increasing drive in recent years to understand and address organizational culture (OC) in order to achieve improved healthcare performance.
*Aim:* To examine the inter-relationship between OC and behavioural attitudes by healthcare professionals; to determine whether and how OC may impact on IPC compliance; and to highlight the potential for OC modification interventions to improve IPC practices within hospitals.
*Methods:* Previous literature is reviewed and synthesized, using both IPC journals as well as publications focusing on human behaviour and organizational change.
*Findings:* The article evaluates the theory of OC within healthcare settings and identifies how various elements appear to impact on IPC-related behaviour. It highlights the paucity of well-designed studies but identifies sporadic literature suggesting that well-designed and customized OC change initiatives can have a positive impact on IPC practices, such as hand hygiene.
*Conclusion:* OC change appears to be a promising, albeit challenging, target for IPC improvement campaigns — both from a theoretical perspective as well as from the results of the few available studies. However, more data and quality information are needed to identify effective strategies that can elicit effective and sustained change.
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## Introduction

Healthcare-associated infections (HCAIs) continue to constitute a major challenge to healthcare institutions, in terms of patient mortality and morbidity as well as unnecessary financial expenditure.[1] A significant reduction in HCAI incidence has been shown to be achievable through effective infection prevention and control (IPC) interventions within hospitals and healthcare organizations.[2] To this end, over the past decade, numerous change tools have become available aimed at achieving better IPC compliance.[3-5] Yet, despite being evidence-based and often low cost, the success of these attempts has been far from universal.[6] The Geneva model has been the basis of most international initiatives aimed at improving hand hygiene compliance.[7] However, attempts to introduce it within other healthcare institutions, using a similar methodology, have often failed to replicate success.[8,9] Gould

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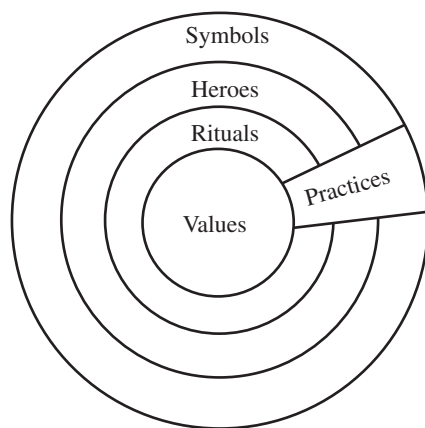*E-mail address:* michael.a.borg@gov.mt (M.A. Borg).

**Figure 1.** Hofstede's representation of organizational culture.[18]

*et al.* attribute this discrepancy to organizational culture (OC) and suggest that 'much of the success in Geneva must be attributed to the attention given to contextual factors within the organization that encouraged hand rub use, especially hospital-wide "ownership" of the initiative by managers and senior health professionals'.[10] They also warn that 'a customized intervention from another country that fails to consider local organizational factors likely to influence the implementation of the campaign is unlikely to be effective.' It is therefore not surprising that an increasing emphasis has been placed during recent years on the need to understand OC and attempt to change it where it is found to hinder optimal healthcare performance, including IPC practices.[11]

## Organizational culture

Organizations are groups of people that generally share some common goals. By working towards these objectives, they form common beliefs and values, which distinguish them from other groups. There is no consensus about the definition of organizational (or corporate) culture but it is widely accepted that it is a learned entity. Suggestions range from the extremely simple: 'the way we do things around here'[12] to highly complex, incorporating shared basic assumptions, external adaptation and internal integration. The latter is evident in Schein's definition of OC as 'the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid, and, therefore to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.'[13] OC encapsulates not only what the members of the organization have learned but also what they believe. It comprises perceptions as well as practices shared within the organization,[14] rather than being solely based on values held by individual members.[15] This pattern of shared beliefs and values gives members of the organization meaning and provides them with the rules for behaviour in their organization.[16] OC promotes the idea that culture is centred on the survival of the group (micro-culture) in conjunction with requirements and constraints that its environment (macro-culture) places on it.[17] OC can also be regarded as a mental software, imprinted on the members of an organization. This approach has been taken by Hofstede *et al.* who define OC as

'collective mental programming' that distinguishes the members of an organization from another.[18] They represent OC using an onion model (Figure 1). At its core are the values, unwritten codes and beliefs held by the members of the organization. These intangibles are then layered by the visible practices: rituals (collective activities which are considered socially essential), heroes (individuals who possess characteristics which are admired and deemed important) and symbols (the most externally visible component incorporating the gestures, objects, words or acts that distinguish the members of that organization from others).[18]

Organizational culture reflects assumptions about clients, employees, mission, products and activities. These assumptions have worked in the past and become translated into norms of behaviour and expectations about what are legitimate, desirable ways of thinking and acting.[19] Since OC comprises shared rather than individual values, it is highly complex. Moreover, in multifaceted organizational structures, such as hospitals and healthcare institutions, more than one professional occupational category co-exist different subcultures can subsequently emerge.[20] These may share common orientation and values. However, there may just as likely be disparate subcultures that either clash against each other overtly or else maintain an uneasy co-existence. These subcultures can be (a) enhancing cultures, which represent an organizational enclave in which members hold core values, (b) orthogonal cultures, which tacitly accept the dominant culture of the organization while simultaneously espousing their own traditional values, and (c) countercultures, which promote values directly challenging the dominant culture.[21] OC and behaviour can therefore be looked upon as a patterned system of perception, meanings and beliefs about the organization, which facilitates sense-making among a group of people sharing common experiences and which guides individual behaviour at work.[22]

## Professional culture

The study of OC becomes more complex when the different organizational hierarchical layers — professional, administrative and technical — within a hospital are analysed individually. Traditional professions, such as physicians, nurses and other healthcare workers, have gained professional status over the course of time. They generally create their own culture (and series of subcultures) within the organization. In doing so, members of these various professional groups seek to control their organizational destinies.[23] This may lead to a feeling of superiority that becomes legitimized by a dominating role over other aspects of the organizations' work. Furthermore, there seems to be a consensus that professional subcultures are often stronger than other groupings within an organization. In being so, these professional groups often have extra-organizational associations and peers to help them define new cultures, values and practices.[22]

The specific role of OC is especially meaningful in challenging times. When organizations are going through change, ideology plays an important role in shaping action. When changes are threatening, individuals and groups may challenge the ideological basis for the current system, whereas members likely to benefit from maintaining existing cultural forms may try to legitimate their actions and status in the organization

power structure by reference to tradition.[22] In these situations these professional groups may attempt to ensure that their group interests are well represented at all times.[24]

## Paradox of commons

There is a constant tension in every organization between individual and organizational goals in an effort to achieve collective interest behaviour. The 'paradox of commons' suggests that generally people tend to optimize their own interests prior to those of the organization. The only options for managing these commons are privatization (ownership) on one hand and management (regulation) on the other.[25]

# Organizational culture implications for infection prevention and control

Effective IPC relies directly upon the successful interplay of multiple management systems, which in turn are strongly influenced by corporate culture.[23] One of the most critical components of OC, which has a bearing on general employee behaviour, is the way the organization is designed and how the different jobs are arranged. This is particularly relevant in terms of organizational composition in which adequate numbers of well-trained staff are vital. Not surprisingly, outbreaks or increased endemicity of HCAI have been associated with high staff turnover and vacancies, understaffing, heavy bed occupancy, overcrowding and increased patient turnover.[26—30]

## Leadership roles

Strong leadership, starting from the very top of any healthcare organization, has been advocated as being essential for successful IPC campaigns.[31] A recent study on the relationship between OC and IPC behaviour identified that hospitals with more effective leadership showed better hand hygiene compliance and improved gowning/gloving practices among staff; these institutions were also less likely to report barriers to IPC implementation.[32] Effective leadership styles can also have a strong impact on patient outcomes whereas an excessively strong top-down control can have a negative impact on the nurses' job satisfaction and responsiveness of employees.[30] OC literature suggests that the leader must, above all, take full ownership in shaping OC by reviewing internal structures, policies and rules.[33]

Leadership styles are not uniform. Transformational leadership adopts a more long-term approach built around common relationship and understanding whereas transactional leadership is more focused on short-term contingent rewards. Transformational leadership is based on long-term persuasion and should potentially lead to longer-term sustainable solutions.[33] It appears to be more in line with the general behaviours of professional groups.

Leadership extends beyond the formal hierarchical structure. Informal opinion leaders have been shown to exert a major influence on their peers and can potentially be more effective than didactic teaching with respect to informational transmission and influence on staff IPC behaviour.[34] Opinion leaders together with the use of social power and participatory

decision-making have been proposed as key OC initiatives to improve IPC practice.[35]

## Multi-disciplinary teams

There is evidence that healthcare organizations that promote a culture of teamwork (together with leadership, adaptability and support) develop more effective IPC initiatives.[36] The formation of multi-disciplinary clinical teams has been shown to reduce rates of hospital-acquired pneumonia in intensive care units.[37] Studies in 61 acute UK hospital trusts identified that the proportion of staff working in teams was inversely related to adjusted mortality rates.[38] A multidisciplinary approach to improving antibiotic prescribing significantly reduced inappropriate prescriptions and was associated with a significant reduction in infections caused by extended spectrum beta-lactamase (ESBL)-producing Enterobacteriaceae.[39]

## Adherence to organizational policies

An effective OC within a healthcare institution requires compliance of organizational rules and procedures by its employees. However, this is far from universal. Suboptimal compliance rates are consistently reported for even basic interventions such as hand hygiene and antibiotic prophylaxis in surgery.[6] A conceptual seminal investigation carried out by Cabana *et al*. identified that physicians' adherence to guidelines may be hindered by several barriers.[40] These may include (a) lack of awareness, (b) lack of familiarity, (c) lack of agreement, and (d) lack of self-efficacy.

## Job satisfaction and commitment

There are very few studies which have somehow identified the relationship that exists between positive job satisfaction and adherence to IPC. However, a consistent relationship has been shown between low staff satisfaction levels and adverse outcomes such as mortality, although the mechanisms and the direction of causality remain unclear.[29,41]

## Innovation

There is a risk that health professionals may fail to embrace innovative ideas that may go against (or beyond) their perceived general beliefs.[42] Barker refers to this limitation as a 'paradigm paralysis' that blocks innovative solutions.[43] It is critical to note that most of the research on innovations in healthcare has focused on individual doctors working independently in small practices and thus surprisingly little is known about the determinants of innovations in larger healthcare organizations.[44] It may well be that medical professionals prefer to work within known practices and territories rather than identifying new innovative methods. This could be due to medical training being based on empirically tested facts and not on general innovative ideas.

## Communication

Insularity of medical practice has been claimed as a major reason for lack of quality improvement.[45] In the absence of a culture of communication with the healthcare organization, staff, patients and carers will lack awareness about infection

risks and the care pathways required to prevent HCAI.[46] In addition, without multi-organizational communication, it will be difficult to obtain a proper understanding of effective strategies within hospitals showing high levels of performance.[47]

### Behaviour change

In investigating the cultural impact on changes in behaviour of medical personnel, Turnell and White proposed the 'stages of change theory' as a powerful theoretical framework for both educators and targeted participants.[48] In their application of the six-step model of change, as applied to hand hygiene, the authors highlight that educational programmes may fail unless the training provided also addresses the issues of psychological preparedness of medical staff. In addition to dissemination of information, the aim of IPC education should be to empower participants to believe in their ability to bring about the required change through their behaviour.

The self-efficacy theory designates four modalities to influence behaviour change.[49] These include (a) performance enactment which focuses on modifying beliefs about the person's ability to perform the desired behaviour, (b) vicarious learning which modifies self-efficacy by watching others, (c) verbal persuasion which modifies behaviour through significant interaction with others, and (d) emotional arousal which promotes the idea that more relaxed, less aroused participants would be more likely to be aware of the need to consider performing hand hygiene.

Professional adults learn and implement new behaviours more easily than unlearning already present practices.[50] Change forces individuals to move away from their comfort zone, so it is often undesirable. It should therefore be no surprise to find varying degrees of non-compliance to change in IPC behaviour. All sorts of resistance will be observed if the new behaviour is not perceived by individuals as rewarding enough to have it adopted.[51] A major cause of active resistance is the widespread difficulty of integrating habits that result from both previous clinical training and day-to-day workflow. Saint et al. attribute lack of adherence to IPC policies and procedures either to 'active resistors' or to 'organizational constipators'.[44] Active resistance is described as the lack of complete certainty by relevant authorities on their commitment to introduce new practices. On the other hand, organizational constipators are defined as individuals who are generally mid-to-high level executives and who prevent or delay certain actions without overtly and publicly showing active resistance. These (professional) individuals resist change by increasing the effort required to implement evidence-based practices.

### Performance monitoring

The last decade has seen increased pressure for more extensive use of quality indicators and measures in healthcare, especially infection rates.[52] HCAI rates have been proposed as an effective marker of system failure in hospitals, and have been used as proxy indicators of levels of staffing, training, organizational stress, management failure, inadequate systems, reliability and resilience.[27] They offer scope for identifying organizations whose OC has embedded a more comprehensive approach, which fully integrates IPC into hospital management and the quality agenda.[27]

## Organizational culture change

A Cochrane review undertaken by Parmelli et al. attempted to identify publications showing improved healthcare performance following OC change.[53] Only 13 articles were shortlisted, of which just two met the inclusion criteria. It should, however, be noted that the authors attribute one reason for the paucity of data to the fact that this type of research has, up till now, been undertaken mainly in organizational and management literature where norms differ from those in medical science in both epistemological and methodological assumptions. It is very rare to find randomized controlled trials or quasi-experimental studies — a key Cochrane inclusion criterion — in behavioural science texts.[54]

It is nevertheless relevant to highlight that one of the two identified studies was an IPC intervention, undertaken by Larson et al., which focused on a top-level administrative initiative using a framework for changing OC among staff on handwashing.[55] A multi-faceted approach was used that included dissemination of key messages, marketing approaches, education interventions, audit and feedback and the use of opinion leaders. The study reported a change in organizational culture as well as improvement in both processes (handwashing frequency) and outcome (vancomycin-resistant enterococci incidence).

What emerges from this study is that strategies aimed at achieving long-term improvement in IPC performance need to be multi-modal in order to both reflect and address the multi-dimensionality of the structure and the dynamic of OC.[33] It confirms that OC is indeed a complex and important factor in altering IPC compliance, which needs to be empirically investigated in different scenarios.[56]

This in turn poses several difficulties. In the first instance, reported behaviour often is significantly different from observed behaviour. What people say they accomplish may be quite different from what they really do. Not surprisingly, low correlation is often reported between self-reported and observed compliance of IPC practices such as hand hygiene.[57] This highly optimistic 'self-serving' bias is also evident in other research in compliance behaviour.[58] A certain degree of social desirability is normal, but it makes reported behaviour results spurious and difficult to identify and interpret. Second, most of the direct and indirect relationships are rather fragmented. To this effect, several 'identified' factors, which at face value appear to be relevant for changes in behaviour, may not be directly related to OC as a determining factor itself. Leadership, for instance, plays an important supportive role; nevertheless it is not clear what exact style of leadership will promote or discourage compliance in IPC behaviour.[59] Finally, most of the correlations identified in the literature are quite tenuous. The link between compliant behaviour and OC may seem to be plausible and sometimes obvious. But when empirically measured, the relationship might be weaker than expected, probably due to a long chain of mitigating factors and confounders.

The role of OC can be biased, abused and contaminated. Whenever any phenomenon in the context of organizational behaviour cannot be directly explained, the factor 'culture' is taken as a 'deus ex machina' for explanation.[41] This pseudo-

culture or perceived culture is nowhere and nobody owns it, consequently there is no one to be accountable. Additionally, researchers may at times fail to acknowledge that culture also stands for the contextual atmosphere within which certain behaviour is either manifested, or not manifested at all, thus promoting the general idea that context may either facilitate or inhibit IPC behaviour. It is essential to contextualize how OC impacts organizational behaviour and vice versa.

Furthermore, any assessment also needs take into account divergent values which have been shown to change from country to country and which in turn impact on risk-based behaviour.[18] These national cultural differences have been correlated with the incidence of healthcare infections such as meticillin-resistant *Staphylococcus aureus* and therefore conceivably with IPC behaviour.[60] Furthermore, organizations are often structured differently in different countries. For example, those in Anglo-Saxon countries (where most IPC research originates from) are primarily based on adhocracy and market-based concepts. However, Latin organizations tend to be much more bureaucratic, hierarchical and pyramidal in structure.[18,61] These differences in turn will almost certainly require diverse strategies in achieving OC change. To this end, one may note Bate's caveat that there is little to differentiate between strategy and culture. He proposes that 'culture is a strategic phenomenon; strategy is a culture phenomenon'.[21] In other words, strategy formulation is just a cultural development and all attempts at OC change should be viewed as strategic changes.

## Conclusion

It seems reasonable to postulate that OC should be a highly relevant factor in achieving more effective IPC performance. However, articulating the nature of this relationship is not straightforward. Simplistic correlations such as 'a strong culture leads to good performance' have not yet been scientifically supported.[62] On the other hand, there appears to be a consensus that OC is historically and socially constructed, holistic and difficult to change.[22] As a result, changing OC elements that are unconducive for effective IPC practice promises to be a formidable task.

Change management literature promotes the idea that collective behaviour requires breaking away from group patterns or habits, or — more explicitly — replacing existing behavioural patterns (habits) with new ones. It is logical to surmise that, in order to modify OC, one needs to introduce a series of intermediating variables such as mind-set, values, attitude, knowledge and practices, among others. These new variables will eventually help in addressing the variance in the relationship between OC and IPC-compliant behaviour. It is therefore crucial to understand the most effective ways of addressing cultures that hinder (or promote) correct IPC implementation; after all, IPC implementation deals as much with behavioural science as it does with biomedical. This knowledge base is notably lacking. The current gap in the literature highlights the need for more research that looks into how collective IPC behaviour within the organizational context can be changed or modified to meet new standards. We urgently need more data and quality information about effective and generalizable strategies that can achieve OC change and lead to improved IPC interventions.

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