

COCHRANE CORNER

Healthcare workers' adherence to infection prevention and control guidelines for respiratory infectious diseases: A rapid qualitative evidence synthesis

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COVID-19 spreads easily between people who are in close contact, or through coughs and sneezes. As the number of cases continues to increase, healthcare workers (HCWs) are notably at risk as a result of frequency of contact with suspected cases or infected people. Use of infection prevention and control (IPC) strategies by HCWs is therefore important. We summarise the evidence from a rapid Cochrane qualitative evidence synthesis by Houghton *et al.* on barriers and facilitators to HCWs' adherence to IPC guidelines for respiratory infectious diseases.

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The first case of COVID-19 was reported in China in December 2019, and since then the disease has spread rapidly across the world. Although it was initially slow to reach South Africa (SA), infections are currently rising exponentially, and an increasing number of severe illnesses and deaths are being recorded.^[1] Healthcare workers (HCWs) in contact with or caring for infected persons are most at risk of contracting COVID-19, because transmission takes place through droplets generated when an infected person coughs, sneezes or exhales. Strict implementation and use of infection prevention and control (IPC) strategies by HCWs is necessary to protect themselves and people around them in healthcare settings. IPC strategies include early recognition and source control, administrative controls, environmental and engineering controls and personal protective equipment (PPE). While HCWs rely on these strategies, they sometimes face challenges in implementing IPC guidelines. It is therefore important to understand what enables and/or hinders HCWs from adhering to IPC guidelines, in order to identify strategies that can help them in implementing and using IPC measures, especially during these critical times.

Houghton *et al.*^[2] have explored factors that influence whether HCWs follow IPC guidelines for respiratory infectious diseases. We focus on the implications of the review findings for the SA context as the country responds to the COVID-19 pandemic.

Objectives

The rapid Cochrane qualitative evidence synthesis by Houghton *et al.*^[2] aimed to identify barriers and facilitators to HCWs' adherence to IPC guidelines for respiratory infectious diseases.

Intervention and methods

The review included qualitative and mixed-methods studies (with a distinct qualitative component) on perceptions and experiences of adhering to IPC guidelines, conducted among any type of healthcare

worker or other staff members with responsibility for patient care in a hospital, long-term care, primary care or community setting; and studies on acute respiratory IPC guidelines (statements or recommendations) at local, national or international level and in any type of healthcare setting.

The review team searched Ovid MEDLINE and the reference lists of key articles on 26 March 2020 and thereafter undertook a rigorous and comprehensive scoping exercise and search of the reference lists of key articles. The review authors did not apply any date or language limits. Methodological limitations were assessed with an adapted version of the Critical Appraisal Skills Programme (CASP) assessment tool. Confidence in the review findings was assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Confidence in the Evidence from Reviews of Qualitative Research (CERQual) approach.

Results

The review listed several barriers and facilitators that influenced HCWs' ability to adhere to IPC guidelines. The search process yielded 36 relevant studies, of which 20 were sampled for analysis. These included studies conducted in Asia ($n=10$), Africa ($n=3$ from South Africa and $n=1$ from Uganda), Central and North America ($n=4$) and Australia ($n=2$).

In terms of organisational factors, HCWs felt that their response to guideline protocols was influenced by the level of support they received from their management team (moderate confidence). They had trouble applying guideline protocols that were long, ambiguous or did not reflect international guidance (moderate confidence), or guidelines that they considered impractical (low confidence). Keeping up to date with frequently changing guidelines was also identified as a barrier to HCWs' adherence (moderate confidence), as was the increased workload associated with IPC guidelines, such as wearing PPE and additional cleaning (moderate confidence).

With regard to communication of IPC guidelines, HCWs felt that putting strategies in place to share new information was beneficial (high confidence); for example, using multiple platforms or methods of communication was considered to be a useful way for them to access updated IPC guidelines (low confidence).

HCWs felt that poor adherence to IPC guidelines resulted from lack of training (high confidence) and occurred when performance was not assessed in practice (moderate confidence). They struggled to balance their role as IPC trainer with their existing clinical responsibilities (low confidence).

With regard to environmental factors, problems related to insufficient space to isolate patients (moderate confidence); lack of provision of isolation rooms, anterooms and shower facilities (moderate confidence); and other important practical measures, such as minimising overcrowding, fast-tracking infected patients, restricting visitors, and providing easy access to handwashing facilities (moderate confidence). HCWs' access to handwashing facilities and surface decontamination supplies was also viewed as a key factor in adhering to infection control methods (moderate confidence).

Lack of PPE, and equipment that was of poor quality, was a serious concern for HCWs and managers (moderate confidence). They also pointed to the need to adjust the volume of supplies as infection outbreaks continued (moderate confidence).

Additionally, HCWs' adherence to IPC guidelines was influenced by individual-level factors (i.e. knowledge, attitudes and beliefs). For example, HCWs followed IPC guidance more closely when they saw its value (moderate confidence). They felt motivated to follow the guidance because of fear of infecting themselves or their families, or because they felt responsible for their patients (moderate confidence). Some HCWs found it difficult to use masks and other equipment when doing so made patients feel isolated, frightened or stigmatised (moderate confidence). HCWs also found masks and other PPE uncomfortable to use, and they suggested that ensuring proper fit of PPE could help to overcome this barrier.

Conclusions

This review points to several factors that influence HCWs' ability and willingness to comply with IPC guidelines to manage respiratory infectious diseases, including COVID-19, in healthcare settings. Although only three studies conducted in SA were included in the review, the key lesson is that HCWs need to be regarded as primary partners when developing and implementing IPC guidelines.

Implications for practice

Although more qualitative research on this topic is needed in SA, the findings from this rapid review are relevant to the local context. An immediate tool from this review is a list of questions that may help health managers, healthcare facilities and other stakeholders (including those in SA) plan, implement or manage IPC strategies for respiratory infectious diseases.^[2]

The review found various individual-level barriers to HCWs applying IPC guidelines. Some of these can be overcome through training and education interventions that impart knowledge about the virus and how to use PPE. An overview of systematic reviews identified several strategies (including training and educational interventions) useful for implementation in health systems in low- and middle-income settings.^[3] Moreover, various randomised trials in SA have demonstrated the effectiveness of educational outreach for building skills and knowledge in primary care settings, including for primary care of respiratory illness.^[4,5] These approaches could be drawn upon to inform the development and implementation of COVID-19 IPC training and educational measures.

The level of support from management teams was found to be a key organisational factor influencing HCWs' response to guideline protocols. Studies in SA have revealed that support and supervision for HCWs are currently inadequate, with many HCWs feeling unsupported by supervisors to provide best-quality clinical care.^[6,7] Finding ways to enhance team morale and build clinical support for HCWs is essential if COVID-19 IPC measures are to be effectively implemented and sustained.

Addressing the healthcare system barriers that prevent HCWs from fully applying IPC guidelines is essential and urgent. Budgetary and supply constraints, including stock-outs of medicines and lack of necessary equipment, are ongoing and well-described health system challenges that hinder delivery of health services in SA.^[8,9] These enduring issues are likely to be exacerbated in the current COVID-19 context, as shortages of appropriate PPE (such as surgical masks, N95 respirators, gowns and goggles) is currently a global issue.^[8,10] The SA government therefore needs to continue making significant investments and allocating dedicated resources to urgently acquire equipment, supplies and amenities necessary for COVID-19 IPC activities. Global recommendations for optimising available resources should be drawn upon and appropriately tailored to local contexts.^[3] Recent calls by Health Minister Zweli Mkhize for better co-ordination and resource-sharing between the public and private healthcare sectors to respond to the coronavirus crisis could facilitate the optimisation of resources and help pave the way for a more equitable SA healthcare system beyond the pandemic.

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1. Wiysonge CS. South Africa's war on COVID-19. *Think Global Health*, 20 April 2020. <https://www.thinkglobalhealth.org/article/south-africas-war-covid-19> (accessed 3 May 2020).
2. Houghton C, Meskell P, Delaney H, et al. Barriers and facilitators to HCWs' adherence with infection prevention and control (IPC) guidelines for respiratory infectious diseases: A rapid qualitative evidence synthesis. *Cochrane Database Syst Rev* 2020, Issue 4. Art. No.: CD013582. <https://doi.org/10.1002/14651858.CD013582>
3. Pantoja T, Opiyo N, Lewin S, et al. Implementation strategies for health systems in low-income countries: An overview of systematic reviews. *Cochrane Database Syst Rev* 2017, Issue 9. Art. No.: CD011086. <https://doi.org/10.1002/14651858.CD011086.pub2>
4. Fairall LR, Zwarenstein M, Bateman ED, et al. Effect of educational outreach to nurses on tuberculosis case detection and primary care of respiratory illness: Pragmatic cluster randomised controlled trial. *BMJ* 2005;331(7519):750-754. <https://doi.org/10.1136/bmj.331.7519.750>
5. Zwarenstein M, Fairall LR, Lombard C, et al. Outreach education for integration of HIV/AIDS care, antiretroviral treatment, and tuberculosis care in primary care clinics in South Africa: PALSA PLUS pragmatic cluster randomised trial. *BMJ* 2011;342:d2022. <https://doi.org/10.1136/bmj.d2022>
6. Munyewende PO, Rispel LC, Chirwa T. Positive practice environments influence job satisfaction of primary health care clinic nursing managers in two South African provinces. *Hum Resour Health* 2014;12:27. <https://doi.org/10.1186/1478-4491-12-27>
7. Dizon JM, Grimmer K, Louw Q, Machingaidze S, Parker H, Pillen H. Barriers and enablers for the development and implementation of allied health clinical practice guidelines in South African primary healthcare settings: A qualitative study. *Health Res Policy Syst* 2017;15(1):79. <https://doi.org/10.1186/s12961-017-0243-3>
8. Mayosi BM, Lawn JE, van Niekerk A, Bradshaw D, Abdool Karim SS, Coovadia HM. Health in South Africa: Changes and challenges since 2009. *Lancet* 2012;380(9858):2029-2043. [https://doi.org/10.1016/S0140-6736\(12\)61814-5](https://doi.org/10.1016/S0140-6736(12)61814-5)
9. Maphumulo WT, Bhengu BR. Challenges of quality improvement in the healthcare of South Africa post-apartheid: A critical review. *Curatation* 2019;42(1):e1-e9. <https://doi.org/10.4102/curatation.v42i1.1901>
10. World Health Organization. Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19). 19 March 2020. https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPE_use-2020.2-eng.pdf?sequence=1&isAllowed=y (accessed 11 April 2020).

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