

# PROTECTING HEALTHCARE WORKERS DURING A PANDEMIC WHAT CAN A WHO COLLABORATING CENTRE RESEARCH PARTNERSHIP CONTRIBUTE

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# Protecting healthcare workers during a pandemic: what can a WHO collaborating centre research partnership contribute?

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## ABSTRACT

**Objectives.** To ascertain whether and how working as a partnership of two World Health Organization collaborating centres (WHOCCs), based respectively in the Global North and Global South, can add insights on “what works to protect healthcare workers (HCWs) during a pandemic, in what contexts, using what mechanism, to achieve what outcome”.

**Methods.** A realist synthesis of seven projects in this research program was carried out to characterize context (C) (including researcher positionality), mechanism (M) (including service relationships) and outcome (O) in each project. An assessment was then conducted of the role of the WHOCC partnership in each study and overall.

**Results.** The research found that lower-resourced countries with higher economic disparity, including South Africa, incurred greater occupational health risk and had less acceptable measures to protect HCWs at the onset of the COVID-19 pandemic than higher-income more-equal counterpart countries. It showed that rigorously adopting occupational health measures can indeed protect the healthcare workforce; training and preventive initiatives can reduce workplace stress; information systems are valued; and HCWs most at-risk (including care aides in the Canadian setting) can be readily identified to trigger adoption of protective actions. The C-M-O analysis showed that various ways of working through a WHOCC partnership not only enabled knowledge sharing, but allowed for triangulating results and, ultimately, initiatives for worker protection.

**Conclusions.** The value of an international partnership on a North-South axis especially lies in providing contextualized global evidence regarding protecting HCWs as a pandemic emerges, particularly with bi-directional cross-jurisdiction participation by researchers working with practitioners.

## Keywords

Health occupations; COVID-19; occupational health; health consortia.

In recent decades, North-South research partnerships have been established to address daunting global health challenges and are highlighted by Sustainable Development Goal (SDG) 17 as a way to “strengthen the means of [SDG] implementation” (1). Beyond leveraging additional resources to fortify capacities in low- and middle-income countries (LMICs), such

collaborations can trigger the development and refinement of approaches to previously neglected challenges (2). As the COVID-19 pandemic spread, it quickly drew attention to the need to protect healthcare workers (HCWs) worldwide to care for patients alongside ongoing system demands aggravated by chronic HCW shortages, scarcity of equipment, risk of

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infection, stigmatization, stress, fatigue and burnout (3). However, policies and practices to protect the physical and mental health of HCWs diverged widely (4), with infection prevention and control (IPC) and public health measures that impact HCW protection similarly varying across jurisdictions (5). Differences could be attributed to variable availability of personal protective equipment (PPE); diverse operational needs; lack of test kits or related reagents; and unavailability of trained personnel for HCW exposure monitoring and mitigation as well as testing strategy and contact tracing. Despite the need to protect HCWs globally (6), the value of collaborating across jurisdictions and real-time sharing of place-based contextualized insights has not been well-examined.

A mechanism for forging collaborations to address global health challenges is the World Health Organization (WHO) Collaborating Centre (CC) network (7). Since first connecting at a WHOCC meeting in 2006, a Canadian-based and a South African-based CC, including experts in occupational health (OH) and IPC, have worked together on numerous projects to protect HCWs (8-10), combining researchers and practitioners in both settings (11) and triggering the successful technology transfer of an Occupational Health and Safety Information System (OHA-SIS) (12, 13). Building on this well-established partnership, when the global pandemic was declared, these CCs launched a COVID-19 related collaborative research program, funded by the Canadian-based International Development Research Centre, focusing on *“What works to protect HCWs, in what contexts, using what mechanism, to achieve what outcome?”*. This initiative included: linkage of a WHO-launched online survey to economic data; cohort and nested case-control investigations of HCWs in both countries; workplace assessment of the safety of healthcare facilities; a survey of HCW mental health; and a study of information system implementation. This article aims to ascertain whether and how working together as WHOCCs, based in the Global North and Global South respectively, added insights to inform the global protection of HCWs in emerging pandemics.

## METHODS

Realist review methodology (14) provides an approach to examine factors that influence successful uptake of interventions and has been employed to evaluate processes informing evidence-based health decision-making (15, 16) as well as occupational safety interventions (17). We adapted this methodology to assess the extent and characteristics of knowledge gained from implementing research projects through a WHOCC collaboration, identifying how contextual characteristics interact with specific mechanisms, including collaborative processes themselves, to produce outcomes in “real” circumstances. Contributory factors were examined from the perspective of partnership synergy theory that postulates that combining skills and resources of multiple stakeholders increases the facility of research processes and achievability of results (18). The specific research question, methods, and key results for each of the seven linked projects implemented in this research partnership were assessed with a Context-Mechanism-Outcome (C-M-O) analysis to determine what mechanisms (i.e., research methods, collaborations, knowledge translation) were used in each context (i.e. rationale for the study and scale) to achieve outcomes (i.e. research uptake producing effects on HCW protection and

practice). All the projects described underwent ethical review at the University of British Columbia Behavioural Ethics Board and/or the University of Pretoria Research Ethics Committee or the University of the Witwatersrand Human Research Ethics Committee.

## RESULTS

Table 1 details the study populations, research design, methods, results, conclusions, and limitations of each source study. Below, the C-M-O analysis is presented.

### Study 1: Analysis of economic inequity associations with country response

**Context:** As the COVID-19 pandemic emerged, an Ad Hoc expert group of the WHO, the International Labour Organization (ILO) and the International Commission on Occupational Health (ICOH), including members of the two CCs in question, launched a survey to identify the extent of OH risks being experienced as well as the adequacy of mitigation measures worldwide (19). The CC’s research focused on how country wealth and economic inequality was associated with preparedness (20).

**Mechanism:** An online multi-lingual questionnaire was completed by almost 5 000 participants from 161 countries, recruited through a large array of professional networks and social media. Economic data were obtained from publicly available World Bank sources to enable comparative logistic regression analyses of risk and mitigation adequacy in each country.

**Outcome:** At the pandemic’s onset, risks were consistently deemed unacceptable across all groupings. However, not surprisingly, respondents from lower-middle and low-income countries were much more likely to assess both OH and IPC measures as inadequate, despite much higher COVID-19 rates in wealthier countries at the time of the survey. Importantly, HCWs from countries with less income inequality were less likely to report unacceptable levels of risk regarding both workplace environment and workplace organizational factors compared to counterparts in more unequal national settings. Greater within-country income inequality was also associated with perceptions of less adequate IPC measures. Findings suggested that economic disparity among and within countries threatens the resilience of health systems that rely on HCWs working safely to provide care during pandemics.

**Partnership perspective:** Interest in conducting comparative national analyses to explicitly assess the influence of economic contextual determinants within and between countries was stimulated by this partnered research program grounded in contrasting Northern and Southern global settings.

### Study 2: Workplace assessment study in South Africa

**Context:** To further assess readiness of systems to protect HCWs from COVID-19 in a middle-income high-disparity setting, a health facility assessment was conducted to ascertain the relationship between existence of policies and/or easy-to-use

TABLE 1. Synopsis of research program studies

Ref.	Design	Methodological details	Key results <sup>a</sup>	Study limitations	Conclusion
20	Country analysis (global)	Online multilingual questionnaire. 4 977 HCWs from 161 countries. - 17 questions on OH risks. - 24 on mitigation measures. Logistic regression using country economic variables.	Income inequality associated with more unacceptable risk rework environment and work organization. HCWs from LMICs much more likely to assess OH and IPC as inadequate. Greater within-country income inequality also associated with perceptions of less adequate IPC.	Convenience sample with different gender and occupation compositions within countries. Small sample sizes in some countries. Different COVID rates at pandemic onset.	Economic disparity among and within countries threatens the resilience of health systems that rely on HCWs working safely to provide care during pandemics. Socio-economic context matters.
21	Workplace assessment (SA)	Observational 'HealthWISE' walk-through audit and online questionnaire of 45 hospitals in 4 provinces in South Africa. Semi-structured interviews with OH managers.	Health facilities in all 4 provinces had COVID-19 plans for general population but not for HCWs. Adequate PPE but often not worn properly. Having an OH policy was significantly associated with higher PPE and ventilation scores. Higher compliance scores significantly associated with lower infection rates.	Possibility of "socially desirable answers" cannot be excluded, despite observational component.	LMICs need more attention to OH systems and should consider using tools, such as ILO/WHO HealthWISE, to protect HCWs.
24	Cohort study (C)	Longitudinal cohort study of entire (~25 000) HCW workforce in VCH, Canada.	Only 3.3% of VCH's HCWs infected in first 14 months of pandemic, mirroring community rates. Nurses, allied health professionals and medical staff had significantly lower COVID rates compared to their age-group community counterparts. Licensed practical nurses and care aides more than double the infection rate of medical staff, although still not greater than comparative community.	Study is in one well-resourced health region, with low COVID cases; caution against generalizability to less well-resourced jurisdictions.	Combined public health, infection control, and occupational health measures, including availability of PPE, and clear communication, was shown to be effective in preventing increased occupational risk.
26	Cohort study (SA)	Workplace surveillance data from first 12 months of pandemic of full 8 121 workforce of National Health Laboratory, South Africa.	Overall COVID-19 infection rate of 25.7%. 46% of COVID-19 cases were in first wave. Job categories with most increased risk were lab managers and laboratory support clerks.	Possible reporting bias, greater reporting by those who are "better" at using system. The results may also be an underestimate of actual overall risk.	Some categories of HCW are at increased risk. Complex interaction between workplace risk, community interaction, socioeconomic status, and behaviours. Targeted interventions recommended.
27	Nested case-control (C)	1 340 HCWs, including 268 who got COVID-19. Vaccination and COVID illness data from VCH, Canada used along with an online or phone questionnaire (HCWs preference).	Providing direct care to COVID-19 patients during the intermediate period and community exposure to a known case in the late associated with higher infection. Suboptimal communication, mental stress, and situations perceived as unsafe were sources of dissatisfaction.	Recall bias is always a concern in case-control studies.	Varying levels of risk between occupational groups call for wider targeting of infection prevention measures. Strategies are needed for mitigating community exposure and supporting HCW resilience.
28	Mental health study (SA)	Cross-sectional study analyzing HCWs' knowledge, attitudes, perceptions, and behavior in one facility in Gauteng, SA.	High degree of psychological distress and a strong association between job-related stressors and psychological distress. Both training and the reported presence of supportive workplace relationships were associated with positive outcomes.	Small sample size from one facility and cross-sectional design.	Positive workplace relationships and more training on emergency procedures can mitigate adverse mental health impacts.
b	Info system study (SA)	Quasi-experimental study on workplace OH management systems post implementation of OHASIS and HealthWISE in 2 healthcare facilities in each of Gauteng and Mpumalanga, SA.	Management and trade union representatives saw value in improving OH info system; comprehensive assessment of changes in OH systems (policy, leadership, coordination; financing; human resources; infrastructure, technology, and medicines; information management; and services)	"New" system may be de facto better because it is not the old system in the eyes of users.	There is considerable interest in implementing good quality occupational health information systems.

**Note:** <sup>a</sup>Full detailed results available in publications referenced in the study description in the Design and Methods column

<sup>b</sup>Study submitted for publication (not yet accepted)

Abbreviations C: Canada SA: South Africa OH: Occupational Health

audit tools, and implementation of OH programs and/or protective measures at the time the pandemic emerged. The study was conducted in public sector facilities in Gauteng, Limpopo, Mpumalanga, and North-West Provinces of South Africa, all run by provincial health departments and included hospitals at district, regional, tertiary, and central levels, as well as specialized psychiatric and community health centres across urban and rural settings.

**Mechanism:** Led by a South African CC investigator in partnership with provincial health departments and local facilities, this cross-sectional study applied a participatory action research methodology (21). Adapting the ILO and WHO HealthWISE tool, compliance scores were compiled through walkthrough surveys, with logistic regression used to analyze relationships between readiness indicators and implementation of protective measures. The mechanism that facilitated this research was

the service role of the South African researchers as well as the North-South partnership previously having together applied the HealthWISE tool in various regional facilities (9). The fact that the tool and methods were WHO-developed increased cooperation from local authorities.

**Outcome:** Health facilities in all four provinces had COVID-19 plans for the general population but no comprehensive OH plan for HCWs. While the supply of PPE was adequate, it was often not worn properly. Having an OH COVID-19 policy was significantly associated with higher PPE and ventilation scores. Additionally, hospitals with higher compliance scores had significantly lower infection rates. Study results were conveyed to relevant decision-makers at facility, provincial and national levels, leading to the South African partners conducting similar assessments in 850 facilities across all provinces in South Africa, the development of guidelines, and numerous recommendations to address concerns.

**Partnership perspective:** The study conducted in South Africa, partnered with Canadians, drew attention to the importance of workplace readiness for pandemics, starting with OH policies. A prevention-oriented workplace-level study was not able to be implemented in the Canadian setting, as HealthWISE had not been previously introduced and the jurisdictional responsibilities differed, so a more informal approach to ascertaining perception of hazards was undertaken instead (see Study 5). The South African analysis not only informed policy and procedure changes in South Africa but is serving as an impetus for similar future assessments in Canada.

### Study 3: Cohort study, Canada

**Context:** Despite evidence that vaccination lowered disease severity (22), vaccine uptake remained an ongoing concern with substantial numbers of HCWs globally remaining vulnerable (23). This cohort study aimed first to assess the risk of COVID-19 infections in a cohort of HCWs in a high-income setting compared to its general population, including identifying risk by subsector and occupational group; and secondly, to assess impacts of vaccination on COVID-19 infection in HCWs. The study was conducted in Vancouver Coastal Health (VCH), British Columbia, Canada, where healthcare facility resources are generally very high in a country with universal access to healthcare.

**Mechanism:** This longitudinal study of the entire VCH healthcare workforce was conducted using comprehensive surveillance data which were very reliable as all COVID-19 PCR tests and all vaccinations provided anywhere in the province were recorded centrally (24). The study was conducted by the Canadian team; the mechanism that facilitated this study was the service role of the researchers within VCH, knitting strong relationships with personnel from IPC and Public Health as well as data stewards for the databases used.

**Outcome:** Only 3.3% of VCH's almost 25 000 HCWs had become infected in the first 14 months of the pandemic, mirroring community rates (24). Nurses, allied health professionals and medical staff in this jurisdiction had significantly lower rates of infection compared to their age-group community counterparts.

This was partly due to very high levels of vaccination in HCWs, considerably above their community counterparts, but even controlling for vaccine-attributable reductions, the protective impact of workplace measures was substantial. Licensed practical nurses and care aides nonetheless had more than double the infection rate as medical staff. However, even considering differences in vaccination rates, no increase in COVID-19 infection was found compared to community rates. The research provided some reassurance that measures adopted to protect HCWs in this setting were working well, with some exceptions, such as workers in the long-term care sector – an area flagged for further attention.

**Partnership perspective:** This study shone a light on what could be achieved if similar rates of vaccination were achieved, and control measures implemented. While the research product was authored without direct involvement of Southern researchers, a parallel study was conducted in the South African context, as discussed next, and served as a useful comparator, contributing to overall conclusions of the research program.

### Study 4: Cohort study, South Africa

**Context:** Laboratory workers incur risk for occupational exposure to COVID-19, including through aerosol-generating procedures, surface contamination on primary specimen containers and specimen carrier bags, as well as environmental contamination in laboratories where samples are collected (25). The cohort included all medical laboratory workers within South Africa for the first 12 months of the pandemic in the country (26).

**Mechanism:** COVID-19 PCR test positive data and demographic data were extracted from the OHASIS database. As for the Canadian cohort study, the service role of the researchers within the country's laboratory system was the mechanism that facilitated the study, as reflected in research authorship. Notably, however, the study built on the partnership's previous work developing the OHASIS database (21), which was adapted from the information system used in Canada (12).

**Outcome:** The overall infection rate was 25.7%. This was considerably higher than rates found in the Canadian setting. Recommendations were made to address risk factors identified.

**Partnership perspective:** The study, facilitated by the information system jointly developed by the partnered CCs, shed light on the risk to laboratory workers. The disparity between Canadian and South African HCWs became quite evident by comparing these results with those in Study 3, albeit the Canadian cohort study was from all health facilities in one region, whereas the South African cohort comprised health laboratory workers across the country. The differing cohorts reflected the different service roles of the two teams.

### Study 5: Nested case-control study, Canada

**Context:** Aiming to deepen understanding of determinants of COVID-19 infection in HCWs and their perceptions of their safety, in VCH, a setting with resources generally very high compared to the Global South.

**Mechanism:** This nested case-control study was conducted through an online survey or telephone interview (27). The mechanism that facilitated the study, again, was the service role of the researchers, which built trust within the workforce and enabled recruitment. An African research trainee based in Canada led the study; both African and Canadian researchers were involved in the analysis, pooling collective insights.

**Outcome:** Providing direct care to COVID-19 patients during the intermediate phase of the pandemic, and community exposure to a known case in the later period, were each associated with higher infection odds. Availability of PPE, and clear communication, were both shown to be important for enhancing a sense of safety among HCWs at work (27). As for the other studies in this research program, the results were widely shared with decision-makers and helped focus attention for prevention measures.

**Partnership perspective:** This study, although based in Canada, included input from South African colleagues to share strategies and findings for cross-fertilization of ideas on mechanisms for supporting HCW resilience.

### Study 6: Mental health study

**Context:** Aiming to gain insight on determinants of mental stress of HCWs during the pandemic, this study also analyzed the relationships between HCW knowledge, attitudes, perceptions and behaviour (28).

**Mechanism:** The fieldwork, led by a South African CC investigator, was a cross-sectional survey of HCWs in one Johannesburg hospital, with questions on stress; perception, attitudes, and behaviour; psychological well-being; stress management; and physical health and social support. The analysis was led by a research trainee from the Global South based in Canada, facilitating greater international dissemination.

**Outcome:** A high degree of psychological distress was found with a strong association between job-related stressors and psychological distress. Importantly, both training and perceived supportive workplace relationships were associated with positive outcomes.

**Partnership perspective:** Previous research by the partnership allowed this critically important area of mental health to be included in the research program. Triangulation of these findings with those from Study 1 and Study 4 reinforced the global nature of the concerns, with this study highlighting mitigating factors worthy of implementation. A new program to combat causes of mental health, including workplace violence, has now been started in the Canadian setting, partly encouraged by the work conducted in this partnered research.

### Study 7: Information system implementation study

**Context:** The usefulness of comprehensive OH information systems is increasingly well-documented (12, 13). To further explore this in the South African context, two sets of healthcare facilities in Gauteng and Mpumalanga Provincial Departments of Health were chosen for study.

**Mechanism:** Building on previous collaborations, this study, led by a South African investigator in partnership with healthcare facilities and provincial health departments, is a quasi-experimental study examining changes in workplace OH management systems following the concurrent implementation of OHASIS (see Study 4) and the HealthWISE risk management system (described in Study 2). Designed as a mixed method pre and post-intervention study, the first phase saw the system introduced and assessments of readiness and preferences completed; the 2<sup>nd</sup> phase will assess outcomes following full implementation.

**Outcome:** Initial findings revealed that among the workplace parties applying information to manage OH concerns (namely management and trade union representatives), 44% thought the previous system was poor and saw value in improving it. A comprehensive assessment of changes (policy, leadership, coordination, financing, human resources, infrastructure, and technology as well as information management) and outcomes in health facilities will be conducted once OHASIS has been fully implemented in the test facilities. As the study builds on previous work by the two collaborating CCs working together, and is of keen interest to both CCs, the plan is for subsequent outputs to be co-produced as well.

**Partnership perspective:** While Study 3 (cohort study) was able to be conducted in the Canadian setting because of a comprehensive healthcare worker database, the Canadian system lacked workplace-level prevention audit information as was used in Study 2 (workplace assessment study in South Africa). As the Canadian system focuses on monitoring worker health, unlike the South African OH information system, its use in assessing workplace safety concerns was underutilized. Ironically, the South African information system was adapted from one originally developed for British Columbia (12). The use of OHASIS for prevention of workplace hazards has shone new light on what the Canadian setting could now be doing as well. Currently decision-makers at facility and provincial levels are actively discussing improvements in the information system, spurred by this research.

## DISCUSSION

While previous examinations of WHO collaborating centres focused on knowledge gained in particular subject areas (29, 30), this manuscript is one of the first to examine how conducting studies as part of a collaborative research program within an international network can itself stimulate insights. Findings here also vividly illustrate the benefits of “co-construction of research through partnerships between researchers and people affected by and/or responsible for action on the issues” (31).

Findings from this WHOCC collaboration underlined the universality of mental and physical health risks for HCWs while also calling attention to the reality that workplace risks during the COVID-19 pandemic are not equally borne. Similar to findings of others (32, 33), the research showed that facilities in LMICs were less prepared for the pandemic than their wealthier counterparts and that HCWs of lower socioeconomic status (SES) (such as nursing aides) were at higher risk for COVID-19 than higher SES populations (such as medical staff) both from workplace and community SE-related factors (27).

This collaborative work also underlined the consequence of social determinants of health across the regions and globally both within and amongst different countries, noting the value of a comprehensive information system to monitor workforce and workplace health progress. Importantly, the findings showed that studies in both countries are cross-fertilizing and synergizing evidence for policies and practices, not only within the country where the studies were conducted but also the counterpart. Additionally, the WHO has been kept abreast of this research, and is participating in disseminating insights. As such, the lessons learned have been multi-directional. Thus, with respect to the research question that aimed to ascertain how and to what extent, working together as WHOCCs, based in the Global North and Global South respectively, added insight to inform the global protection of HCWs in emerging pandemics, it can be concluded that the synergy was considerable, generating impact bilaterally and indeed multilaterally. This furthermore contributes to addressing a strategic research gap regarding influence of the societal contexts in which healthcare work is embedded (34).

The source studies were limited by the different methods used and their constraints. These included cross-sectional rather than longitudinal designs of some studies; single hospital rather than several; convenience rather than random sampling; potential volunteer and recall bias; and other methodological limitations. Additionally, comparisons are limited by the lack of comparability of the two national settings and studies conducted within. This relates not only to differing definitions of cohorts but also different methods. However, a major point of this study was precisely to draw attention to the fact that differing positionalities, relationships, and circumstances dictate methodological opportunities and limitations. Realist evaluation – a method to ascertain context-mechanism-outcome configurations – focuses on the importance of context both with respect to the research process and the findings of research. In this evaluation, context related not only to where the research was conducted but also relationships and partnerships which facilitated launching of the studies. An appreciation of the fluidity of C-M-O assignments is, however, essential, as positionality influences not only the chosen research contexts, but the relationships built and the tools co-created are also crucial *mechanisms* for the studies; the *outcome* – here being the uptake of the findings and implementation of changes in policy and practice to protect HCWs – also depended strongly on multi-scalar networks established. Strengths of the research presented here can be attributed not only to the WHOCC relationship but to the locally specific relationship-building enabled by the service roles of the researchers and facilitated by previous international collaborations which helped build the needed research tools. Some of the studies were facilitated by the direct involvement of both North and South researchers in the data gathering and/or analysis; others were conducted more unilaterally but with prior collaborative input to tools and methods used. In all cases, the knowledge sharing deepened the insight and allowed for triangulation of findings.

This assessment thus contributes to the call for North-South partnered research in which researchers from the South participate in studies in the North as well as vice-versa, noting that such participation can help lead to more nuanced and robust understanding of measures to be implemented. Such collaborations within the Pan American Health Organization region or across WHO regions – and whether, for example, to bolster improvements in global vaccine accessibility and availability of PPE, or to share lessons on the approach to workplace OH information tools – are not only useful for improving local implementation of protective approaches but also to promote the solidarity needed to protect the well-being of the healthcare workforce globally. Recommendations from this evaluation include providing continued support for international collaborations and promoting researcher input from both North and South in studies that are conducted in either setting.

**Authors contributions.** AY and KL prepared the initial draft. MZ and JS prepared initial revisions. AY, JS, KL, KSW, DJ, NS, AIO and MZ are all responsible for writing, editing and approval of the final version of this manuscript. JMS led preparation of the final version. AY and MZ are co-Principal Investigators of the grant providing funding.

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## Protección de los trabajadores de salud durante una pandemia: ¿qué puede aportar una alianza para la investigación entre centros colaboradores de la OMS?

### RESUMEN

**Objetivos.** Determinar si la asociación de dos centros colaboradores de la Organización Mundial de la Salud, ubicados uno en el hemisferio norte y el otro en el hemisferio sur, puede aportar información sobre “qué es necesario para proteger a los trabajadores de salud durante una pandemia, en qué contextos, con qué mecanismos, con el objetivo de lograr qué resultados”.

**Métodos.** Se realizó una síntesis realista de siete proyectos en este programa de investigación para caracterizar el contexto (C) (incluida la posición del investigador), el mecanismo (M) (incluidas las relaciones de servicio) y el resultado (R) en cada proyecto. A continuación, se realizó una evaluación del papel que desempeñó la alianza de centros colaboradores de la OMS en términos generales y en cada estudio.

**Resultados.** En la investigación se encontró que los países de escasos recursos con mayor disparidad económica, como Sudáfrica, incurrieron en un mayor riesgo para la salud ocupacional y tenían medidas menos aceptables para proteger a los trabajadores de salud al inicio de la pandemia de COVID-19 que los países homólogos de mayores ingresos y mayor equidad. Se demostró que la adopción rigurosa de medidas de salud ocupacional puede proteger al personal de salud; la capacitación y las iniciativas preventivas pueden reducir el estrés en el lugar de trabajo; los sistemas de información se consideran valiosos; y los trabajadores de salud de mayor riesgo (como los asistentes de atención en el entorno canadiense) pueden identificarse con facilidad para la adopción de medidas de protección. El análisis de C-M-R mostró que las diferentes formas de trabajar por medio de una alianza de centros colaboradores de la OMS no solo facilitaron el intercambio de conocimientos, sino que además permitieron triangular los resultados y, en última instancia, las iniciativas para la protección de los trabajadores.

**Conclusiones.** El valor de una alianza internacional radica especialmente en proporcionar evidencia mundial contextualizada sobre la protección de los trabajadores de salud cuando surge una situación de pandemia, particularmente con la participación bidireccional entre distintas jurisdicciones de investigadores que trabajan con el personal de salud.

**Palabras clave** Empleos en salud; COVID-19; salud laboral; consorcios de salud.

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## Proteção dos trabalhadores da saúde em uma pandemia: qual seria a contribuição de uma parceria de pesquisa entre centros colaboradores da OMS?

### RESUMO

**Objetivo.** Determinar se, e como, o trabalho em parceria entre dois centros colaboradores da Organização Mundial da Saúde (OMS), localizados no Norte e no Sul global, pode contribuir com conhecimento sobre “o que é eficaz para proteger os trabalhadores da saúde em uma pandemia, em que contextos, com que mecanismos e para obter quais resultados”.

**Métodos.** Foi realizada uma síntese realista de sete projetos de pesquisa do programa da OMS para determinar o contexto (C) (incluindo a posicionalidade dos pesquisadores), o mecanismo (M) (incluindo as relações entre os serviços) e o resultado (O, do inglês outcome) de cada projeto e avaliar o papel da parceria entre os centros colaboradores em cada estudo e em geral.

**Resultados.** Este estudo demonstrou que, nos países de baixa renda com maior desigualdade econômica (por exemplo, na África do Sul), o risco à saúde ocupacional foi maior e as medidas adotadas para proteger os trabalhadores da saúde na pandemia de COVID-19 foram menos adequadas em comparação ao observado em países comparáveis de alta renda com menor desigualdade. Verificou-se que a adoção rigorosa de medidas de saúde ocupacional efetivamente protege os trabalhadores da saúde, e que iniciativas de prevenção e capacitação dos profissionais reduzem o estresse no trabalho. Também se reconhece a importância dos sistemas de informação e que o pessoal com maior risco de exposição ao vírus (incluindo os cuidadores auxiliares, no caso do Canadá) pode ser prontamente identificado para que sejam adotadas medidas de proteção. A análise do tipo C-M-O indicou que as diferentes formas de trabalho em parceria entre os centros colaboradores possibilitaram não apenas dividir conhecimentos, mas também compartilhar resultados e, sobretudo, iniciativas para a proteção dos trabalhadores da saúde.

**Conclusões.** A parceria internacional no eixo Norte-Sul é particularmente importante para obter evidências globais contextualizadas relativas à proteção dos trabalhadores da saúde em uma situação de pandemia, com a participação bidirecional entre foros de pesquisadores que trabalham com o pessoal da saúde.

**Palavras-chave** Ocupações em saúde; COVID-19; saúde do trabalhador; consórcios de saúde.

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