

# Sars-Cov-2/Covid-19 [Coronavirus] Global Scientific Research and How it Impacts Workplace Health Management and Health Services, Including Policy Implications

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DOI: <https://doi.org/10.46759/IIJSR.2022.6308>



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Article Received: 21 May 2022

Article Accepted: 25 August 2022

Article Published: 29 September 2022

## ABSTRACT

### Background/Objectives

The research rationale is that many economic, policy, and government implications result from the COVID-19 pandemic. Author published a literature review on COVID-19 research specific to Australia including policy and media releases. This Australian scientific literature assessed the social impact, government, and policy implications. This manuscript expands on previous research by assessing global pandemic policy specifically in relation to workplace health management, health services and systems.

### Methods

A search strategy was created using the MeSH Browser. The MeSH (Medical Subject Headings) is the NLM controlled vocabulary thesaurus used for indexing articles for PubMed and is at; <https://www.ncbi.nlm.nih.gov/mesh>.

(((((("SARS-CoV-2"[Mesh]) OR "COVID-19"[Mesh]) OR "Coronavirus"[Mesh]) AND "Policy"[Mesh])). The following individual text words were added to the search string – 'health services'; - 'workforce'; - 'health systems' in order to quantify the extent of literature pertaining to workplace health management.

### Results

The PubMed Mesh search performed retrieved 2934 articles. Adding individual text words resulted in the following retrievals; health services - 926 retrievals, workforce - 74 retrievals, health systems - 414 retrievals.

### Conclusions

The impact of a pandemic upon workforce services is immense. It relates to variations as a result of shutdowns and adapted essential service provisions. This results in reduced screening or current testing strategies, changes to other routine procedures/services, immunizations/vaccinations and/or reduced treatment for patients with pre-existing diseases. A rapid shift in service delivery with increased usage of digital technologies & e- health in particular in high-income countries is evident, with low and middle-income countries somewhat compromised by poorer infrastructure.

**Keywords:** Health workforce, Health systems, Health services.

## 1. Introduction

The research rationale is that many economic, policy, and government implications result from the COVID-19 pandemic. During the Spanish flu era, it was evident that there were vast differences compared to this current pandemic in terms of counts of morbidity and mortality, surveillance, and methodology that related to database collection, reporting, and governance [Deborah Joy Hilton, 2021]. insert author name, published a literature review on COVID-19 research specific to Australia including policy and media releases [Deborah Joy Hilton, 2022]. This Australian scientific literature assessed the social impact, government, and policy implications. This review is more all-encompassing globally, and expands on previous research by assessing global pandemic policy specifically in relation to workplace health management, health services, and health systems.

## 2. Methods

PubMed® is accessible to both the public and the scientific community [PubMed]. Available to the public online since 1996, PubMed® was developed and is maintained by the National Centre for Biotechnology Information (NCBI), at the U.S. National Library of Medicine (NLM), located at the National Institutes of Health (NIH). According to the website, when accessed in 2021, PubMed® information comprises more than 33 million citations

for biomedical literature from MEDLINE, life science journals, and online books. In various instances, citations may allow access to full-text content from PubMed Central and other publisher and journal websites.

A search strategy was created using the MeSH Browser. The MeSH (Medical Subject Headings) is the NLM controlled vocabulary thesaurus utilized for indexing the articles for PubMed and can be found at; <https://www.ncbi.nlm.nih.gov/mesh>.

((((("SARS-CoV-2"[Mesh])) OR "COVID-19"[Mesh]) OR "Coronavirus"[Mesh]) AND "Policy"[Mesh]). The previous publication mentioned included the word Australia [insert author name, 2022], whereas this one did not include Australia in the search strategy. The following individual text words were added to the search string – ‘health services’; - ‘workforce’; - ‘health systems’ in order to quantify and assess the extent of literature pertaining to workplace health management.

These text word phrases or text words were added separately to the search string that was created in the MeSH for example:

*((("SARS-CoV-2"[Mesh]) OR "COVID-19"[Mesh]) OR "Coronavirus"[Mesh]) AND "Policy"[Mesh] AND health services.*

*((("SARS-CoV-2"[Mesh]) OR "COVID-19"[Mesh]) OR "Coronavirus"[Mesh]) AND "Policy"[Mesh] AND workforce.*

*((("SARS-CoV-2"[Mesh]) OR "COVID-19"[Mesh]) OR "Coronavirus"[Mesh]) AND "Policy"[Mesh] AND health systems.*

### **3. Results**

The PubMed MeSH search performed on 17<sup>th</sup> September 2022 retrieved 2934 articles. Adding individual text words resulted in the following number of retrievals; health services - 926 retrievals, workforce – 74 retrievals, health systems – 414 retrievals.

### **4. Discussions**

These retrievals that relate to workplace and workforce issues as it relates to health systems and services can be further categorized on the basis of whether they deal with a specific issue or service, and/ or whether they focus on a continent or country region and their policies.

The economic, health and social systems have been fragile during the COVID-19 pandemic. Occhipinti and colleagues evaluated how policy-mediated changes in economic, social, and health sectors could improve collective mental health and wellbeing [Occhipinti et al., 2022].

The COVID-19 pandemic has resulted in shutdowns and adapted essential service provisions [Naji et al., 2021]. These authors reported on a scoping review and evidence map protocol designed to look at the effects on patients with substance use disorders.

Ensuring adequacy of care for patients with pre-existing diseases is paramount, however, workforce challenges remain during the COVID-19 pandemic. COVID-19 patients with pre-existing cerebrovascular disease have poor

outcomes and additional precautions should be taken in the treatment of these patients during the ongoing pandemic [Patel, Malik, et al., 2021].

Researchers have assessed the pandemic's interruption on cancer screening services [Puricelli et al., 2021]. They state it is essential to optimize resources and resume services so hence to consider mobile health systems & resource-stratified guidelines.

Other researchers assessed the impact of the COVID-19 pandemic on immunization policies [Dos Santos Ferreira et al., 2021]. This is with regard to current testing strategies, vaccination introduction, serology testing, current frameworks, and barriers or challenges. This helps with timelines and awareness.

A rapid review of the impact of COVID-19 on neurological services was conducted [García-Azorín et al., 2021]. 369 articles fulfilled the eligibility criteria. Cross-sectoral services for neurological disorders were most frequently disrupted (62.9%), followed by emergency/acute care (47.1%). Mitigation strategies included telemedicine & novel medicine dispensing.

During the coronavirus disease 2019 (COVID-19) pandemic, it was noted that numerous couples initially delayed pregnancy attempts or fertility care [Patel, Punjani, et al., 2021].

Medical imaging for diagnosis, management, & disease progression surveillance was reviewed [Tay et al., 2021]. There has been a devastating impact on chest radiography & computed tomography examinations as a result of the COVID-19 pandemic and the strain on medical services has posed challenges for optimizing services.

Lal and colleagues discuss how to minimize COVID-19 disruption to ensure the supply of essential health products for emergencies & routine services [Lal et al., 2022]. To minimize supply chain disruptions, streamline procurement & deployment, partnerships & tools can ensure cost efficiencies across disciplines & public health programs when there are very complex requirements.

Policy and COVID and the impact on incarcerated persons was also considered [LeMasters et al., 2022]. The authors state that there is a close mesh between incarcerated persons and COVID and that reform is required in order to address the public health emergency created.

Aside from literature that assesses the impact on various disciplines or specific services, there are also country or continent-specific research articles.

Woskie and colleagues assessed early social distancing policies in Europe, looking at the changes in mobility & COVID-19 case trajectories which were Insights from Spring 2020 [Woskie et al., 2021]. They quantified across 27 European counties the impact of COVID-19 social distancing policies, assessing population mobility and the subsequent trajectory of the disease. Mandatory stay-at-home orders, followed by mandatory workplace closures, school closures, and non-mandatory workplace closures had the largest declines in mobility. Mandatory stay-at-home orders and workplace closures had the largest impacts on population mobility and subsequent COVID-19 cases at the onset of the pandemic.

Evidence From Chile assessed the public policy responses to address the mental health consequences of the COVID-19 Pandemic [Irrarrazaval et al., 2021]. The authors stated that the policy process must include an

emergency health framework, a mental health action plan, an agenda with a focus as such, the inclusion of research, & a presidential strategy [Irarrazaval et al., 2021].

The impact of the COVID-19 pandemic in various African countries [Kenya, Uganda, Mozambique, & Zimbabwe] was reported on [Plotkin et al., 2022]. Family planning (FP), antenatal care (ANC), intrapartum & postpartum care, & immunization policies were reviewed [March 2020 to February 2021] & compared to WHO guidance reports on essential services during Covid. The national policy guideline reflected the WHO recommendations except with some differences for antenatal care & birth companionship.

A systematic review reported on maternal & child health (MCH) in low and middle-income countries during the pandemic [Sahoo et al., 2021]. The online repositories Medline, CINAHL, Psyc INFO, & Epistemonikos were searched. 5 studies on the COVID-19 pandemic found service delivery affected by infection fear & lack of personal safety equipment.

A rapid scoping review in the Asia Pacific in the context of COVID-19 assessed needs, gaps & opportunities for standard and e-mental health care in at-risk populations [Murphy et al., 2021]. They described a rapid shift in service delivery which led to an increased usage of digital technologies & e-mental health. They state that e-mental health care is a viable option while at the same time though accessibility must be considered with a place still for in-person or hybrid options.

A Qualitative Study assessed access to health services among migrant workers in Thailand during the COVID-19 era [Kunpeuk et al., 2022]. An improved health system design and intersectoral policy coherence were considered important. In addition, the poor living conditions of migrants urgently must be addressed.

These manuscripts reported detail on both the mammoth impact on specific health services and workforce issues or otherwise country-specific impacts. There are immense implications, that impact coordination, infrastructure, resources, manpower, and other logistics related to health services management. Changes in relation to e-health and telehealth are likely to remain in place to an extent after the pandemic subsides.

## **5. Conclusion**

The impact of a pandemic upon workforce services is immense. It relates to variations as a result of shutdowns and adapted essential service provisions. This results in reduced screening or current testing strategies, changes to other routine procedures/services, immunizations/vaccinations, and/or reduced treatment for patients with pre-existing diseases. A rapid shift in service delivery with increased usage of digital technologies & e-health in particular in high-income countries is evident, with low and middle-income countries somewhat compromised by poorer infrastructure.

### **Declarations**

#### ***Source of Funding***

*This research did not receive any grant from funding agencies in the public, commercial, or not-for-profit sectors.*

#### ***Competing Interests Statement***

*The author declares no competing financial, professional, or personal interests.*

***Consent for publication***

*The author declares that he/she consented to the publication of this research work.*

***Availability of data and material***

*The author is willing to share the data and material according to relevant needs.*

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