

What retention or reemployment strategies or policies did other countries use in response to past pandemics? What health and safety strategies did other countries use to promote employee well-being? What broader strategies did governments pursue to encourage economic growth?

This rapid evidence review summarizes existing evidence on programs and strategies intended to promote reemployment and job retention or to encourage health and safety practices following the past Ebola, H1N1, Middle East respiratory syndrome (MERS), severe acute respiratory syndrome (SARS), and Spanish flu pandemics. Past pandemics have had substantial effects on the economies of affected countries, and those effects could last for many years. For instance, during the SARS epidemic, the economies in affected countries were affected in multiple ways: (1) a decline in consumer demand (particularly in travel and retail sales) because of attempts to limit social interaction; (2) lowered investment in firms due to uncertainty; and (3) increased costs in certain industries, such as travel or food services, to prevent spread of virus (Lee & McKibbin, 2003).

The evidence presented here is based on a two-stage search:

1. We used the Clearinghouse for Labor Evaluation and Research's ([CLEAR](#))² literature search and screening process to identify studies that examined retention and reemployment strategies used in response to past pandemics in countries with a similar economic and political context to the United States. This yielded one study for review.
2. Given the limited results, we broadened the scope of the publications referenced in this synthesis to include studies that address specific health and safety strategies as well as broad strategies to encourage economic growth following a pandemic. These publications may address countries with contexts less similar to the United States. This yielded nine additional studies.

CLEAR identified three types of strategies that other countries implemented:

1. Strategies to promote or maintain employment
2. Health and safety strategies for ensuring employee well-being
3. Broad strategies for national economic growth

The first and third strategies were undertaken by governments in other countries. For the second type of strategies, the search did not return any information on health and safety regulations, policies, or

¹ This version includes literature published before June 30, 2020. CLEAR continues to search for relevant literature and may update this synthesis as new research emerges.

² CLEAR is the U.S. Department of Labor's Clearinghouse for Labor Evaluation and Research. Its mission is to make research on labor topics more accessible to practitioners, policymakers, researchers, and the public, to support evidence-informed decision making. CLEAR does this by conducting systematic evidence reviews, summarizing individual studies of programs, and synthesizing research across individual evidence bases. To date, CLEAR has conducted more than 18 evidence reviews and summarized more than 1,000 studies.

rules implemented by other governments; instead, the search found strategies that private firms undertook to ensure the health and safety of their employees.

The evidence presented here is based on the Clearinghouse for Labor Evaluation and Research's (CLEAR)³ rapid review of 10 publications, some of which summarize the findings from multiple studies. A supplement to this rapid evidence review synthesis provides citations with links to the publications, further information about study findings, and details about how this rapid review was conducted.

1. Strategies to promote or maintain employment

► **Incentives for hospitals to hire nurses full-time.** Following the SARS⁴ pandemic in Canada in 2003, the provincial government of Ontario recognized that many nurses were working in a part time or informal employment arrangement. In response, the provincial government funded the Nursing Graduate Guarantee Program, which provided employers with incentives for providing full-time employment to newly graduated registered nurses (RNs) and registered practical nurses (RPNs) in 2007 and 2008. The program gave six months of salary (\$27,000 to \$33,000, depending on position) to employers that hired RNs and RPNs into temporary positions and an additional \$13,500 to \$16,000 to invest in other nursing initiatives if the positions were converted to permanent, full-time employment within six months (figures in Canadian dollars). The authors find an increase of 23 percent in full-time employment for new RN and RPN graduates from 2006 to 2008 but note that they do not establish a causal relationship between this increase and the Nursing Graduate Guarantee Program (Baumann et al. 2012).

2. Health and safety strategies for ensuring employee well-being

This search did not find any research on government strategies or policies related to worker health and safety but did find two strategies that firms undertook:

► **Health screening for employees.** In both Nigeria following Ebola⁵ and Singapore following SARS, hotels required daily health checks for all employees as they entered the premises. In Singapore, this

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⁴ The SARS pandemic took place in 2003, with roughly 8,098 cases worldwide and 774 deaths across 26 countries in Asia, Europe, North America, and South America (Centers for Disease Control and Prevention, 2017). Most cases (and deaths) were in Asia, with 5,327 cases and 348 deaths in China; 1,755 cases and 298 cases in Hong Kong; 206 cases and 32 deaths in Singapore; 5 cases and 2 deaths in Malaysia; and 3 cases and 0 deaths in South Korea (World Health Organization, n.d.). The most pronounced economic impacts were in Hong Kong and China; for instance, one analysis found a 3.21 percent decline in gross domestic product over the 10 years after the SARS pandemic in Hong Kong and a 2.34 percent decline over 10 years for China (Lee & McKibbin, 2003). In Ontario, Canada, there were 247 probable cases and 44 deaths (Infection Prevention and Control Canada, n.d.).

⁵ The Ebola outbreak occurred from 2014 to 2016, primarily in three countries in West Africa (Guinea, Liberia, and Sierra Leone). These three countries had 28,616 cases and 11,310 deaths; 36 additional cases (and 15 deaths) occurred in other

included daily temperature readings (Henderson & Ng 2004). In the United States during the COVID-19 pandemic, the Centers for Disease Control and Prevention (2020) suggested that one option for businesses is to take the temperatures of employees as they arrive at work. The Occupational Safety and Health Administration (OSHA, 2020) recommended that workplaces consider health screening of employees and appropriately plan for the necessary equipment (including personal protective equipment) and procedures needed to safely administer the screening.

► **Implement more intensive sanitation strategies and share these strategies publicly to ease customers' perceptions of the threat to their health.** Restaurants in Hong Kong undertook several strategies to attract customers in response to SARS. For instance, because many people feared for their health and safety and were hesitant to dine out, restaurants took extra precautions. This included proactively sanitizing the restaurant and promoting cleanliness as a marketing tactic. Some restaurants hired a "hygiene ambassador" who greeted customers at the door and offered sanitary wipes or checked temperatures. In addition, nearly all restaurants required all staff to wear surgical masks, and eating utensils were kept in sterilized compartments (Tse et al. 2006).

Hotels also implemented strategies following the SARS pandemic. Hotel employees in Hong Kong reported extensive cleaning practices in guest rooms, public areas, and employee-only areas. Some of these practices continued after the SARS epidemic ended, as employees became more aware and conscious of hygiene and sanitation practices during the crisis (Lo et al. 2006). As another example in the hotel industry, the Singapore Tourism Board created COOL awards, which highlighted hotels with high hygiene and cleanliness practices. Hotels displayed their award as a reassurance to customers about their policies and practices (Henderson & Ng 2004). Finally, some hotels in South Korea instituted training programs on SARS to inform staff about best practices for maintaining health during pandemic (Kim et al. 2006).

3. Broad strategies for national economic growth

► **Governmental support to affected industries, such as hospitality, tourism, retail, and health care.** During and after pandemics, economic hardship is often concentrated in particular industries. For SARS in 2003, the most affected industries were those with regular human contact, including tourism, transport, and medical facilities (Tan & Enderwick 2006). To help the hotel industry and others affected by the SARS pandemic, the Singapore government issued a relief package that provided property tax rebates and programs to help hotels get short-term funds or training, including the SARS Relief Tourism Training Assistance program, a retraining program for staff in tourism industries (including hotels). Although the exact impacts of these programs are unknown, the hotel industry returned to its normal level of occupancy by the last quarter of 2003 (Henderson & Ng 2004). The government followed this

countries including Italy, Mali, Nigeria, Senegal, Spain, the United Kingdom, and the United States (Centers for Disease Control and Prevention, 2019). Nigeria had 20 cases and 8 deaths; Sierra Leone had 14,124 cases and 3,956 deaths (CDC, 2019). The Ebola outbreak had widespread economic impacts in Sierra Leone: the country lost about \$74 million (in U.S. dollars) in revenue, with a decline in agricultural output, a 50 percent decline in formal private sector employment, and a 60 percent decline in the manufacturing workforce (Government of Sierra Leone, 2015).

effort by forming the Workforce Development Agency and providing additional funding to support the Skills Development Programme, which also helped retrain workers (Song & Bhaskaran 2015).

Other countries also provided targeted assistance to affected industries. Targeting industries most affected by the SARS pandemic, Hong Kong passed legislation with tax rebates, reduced rent for businesses in publicly owned shopping malls, and lowered utility charges for water and sewage (Tse et al. 2006). In Malaysia, the government provided job training programs, loan programs, and support for industries in the tourism sector following SARS (Gootnick 2004). In South Korea following the MERS outbreak,⁶ the government provided targeted assistance to hospitals and other companies directly affected by the pandemic, including those in the tourism industry (Stephens 2017). Finally, in China following SARS, the government implemented tax relief for aviation, tourism, and retail sectors (Tan & Enderwick 2006).

► **Identify a comprehensive strategy for national recovery with short- and long-term goals.**

Following the Ebola pandemic, Sierra Leone developed a 24-month recovery strategy with three sequential steps: (1) containing the spread of the virus so that there were consistently no cases; (2) prioritizing immediate recovery activities, such as providing access to basic health care and schools, social protection support, and engaging the private sector; and (3) transitioning back to the pre-Ebola strategy called the Agenda for Prosperity plan, which is the overall development plan for the country. During the second stage, the government focused on public infrastructure projects like roads; supporting the agricultural sector; attracting tourism and private investments; reopening air and sea transport; supporting the energy sector; improving revenue collection processes; and implementing financial services, monetary, and debt policies. Overall, the recovery strategy looked for immediate actions that could be taken to improve the economy and well-being of citizens as well as developing long-term strategies that could help build health-care system capacity and avoid the same negative consequences from future pandemics (Government of Sierra Leone 2015).

Where are the gaps in research on strategies to promote employment and retention, health and safety, and economic growth following a pandemic?

- **There is limited rigorous evidence from a large-scale pandemic in a context similar to the United States:** Most literature we found addressed pandemic responses in countries that are not very similar to the United States in terms of political and economic structure; therefore, the applicability of the strategies may be limited in the United States. In addition, most of the research comes from relatively smaller-scale pandemics that did not have economic effects as large as the current COVID-19 pandemic. Given this, there is limited evidence on how to address reemployment and retention challenges during or following a pandemic on the scale of COVID-19.
- **The most rigorous and relevant evidence is from small-scale implementation.** The most rigorous study examined in this synthesis was a small-scale implementation of incentives for hiring

⁶ The MERS outbreak began in 2012 in Saudi Arabia and spread to other countries in the Middle East, Africa, Asia, Europe, and North America. Between 2012 and 2020 South Korea has had 184 confirmed MERS cases and 38 deaths (World Health Organization 2020).

health care workers in full time positions in Ontario, Canada (Baumann et al. 2012). More studies examining the effectiveness of such strategies implemented on a larger scale are needed to better understand the extent to which these programs are effective, and how they work in different contexts.

- **Most existing literature does not have a causal design.** Most research found by and examined in this rapid review was descriptive and thus did not test the impacts of an intervention. As a result, the existing evidence cannot demonstrate that the interventions caused the outcomes. These study results should be interpreted with caution; more evidence is needed to build the evidence about those strategies. In addition, rigorous implementation studies have not been conducted on these strategies; such studies would help provide more detail on the successes and challenges found in implementing these strategies.

Rapid Evidence Review Supplement: Citations and Further Information

This supplement to the rapid review, “What retention or reemployment strategies or policies did other countries use in response to past pandemics? What health and safety strategies did other countries use to promote employee well-being? What broader strategies did governments pursue to encourage economic growth?” provides citations and brief summaries of the studies discussed in the rapid review. The final section describes the approach used to create the rapid review.

CITATIONS AND STUDY SUMMARIES

This supplement presents the citations and summaries, organized around the three strategies and background citations with general information on the various pandemics. Each citation is included in each section in which it was referenced (which could be more than one), though the study is summarized only on first appearance. The subsections are as follows:

1. Strategies to promote or maintain employment
 2. Health and safety strategies for ensuring employee well-being
 3. Broad strategies for national economic growth
 4. Background citations
1. Strategies to promote or maintain employment

Baumann, A., Hunsberger, M., & Crea-Arsenio, M. (2012). Impact of public policy on nursing employment: providing the evidence. *Canadian Public Policy*, 38(2), 167–179. https://www.researchgate.net/publication/229597241_Impact_of_Public_Policy_on_Nursing_Employment_Providing_the_Evidence

- Type of research: Descriptive (pre-post design)
- Summary: The study’s objective was to evaluate the impact of the Nursing Graduate Guarantee Program on new nursing graduates’ full-time employment status and employment preferences using a **pre-post design** to assess outcomes before and after the program was implemented. The Nursing Graduate Guarantee Program provided employers in Ontario, **Canada**, with incentives for providing full-time employment for newly graduated registered nurses (RN) and registered practical nurses (RPNs) in 2007 and 2008. This program provided six months of salary for RNs (\$33,000 in Canadian dollars) and RPNs (\$27,000 in Canadian dollars) for employers that hired recent graduates for temporary positions. If these positions were converted into permanent full-time positions within the six months, employers could reinvest remaining funds into other nursing initiatives (up to \$13,500 per RPN and \$16,000 per RN, in Canadian dollars). If employers were unable to offer a permanent full-time position after six months, they were required to provide an additional six weeks of full-time employment. The target population in the study was newly graduated RNs and RPNs from the Ontario College of Nurses from 2000 to 2008. The authors found that full-time employment for newly graduated nurses increased by 23 percent from 2006 to 2008, but the authors note that

the increase cannot be definitively linked to the Nursing Graduate Guarantee Program itself (other factors could have impacted this finding other than the intervention).

2. Health and safety strategies for ensuring employee well-being

Centers for Disease Control and Prevention. (2020). *Coronavirus disease 2019: General business frequently asked questions*. <https://www.cdc.gov/coronavirus/2019-ncov/community/general-business-faq.html#Healthy-Business-Operations>

- Type of research: Other (website)
- Summary: This website provides information for businesses on reopening their workplaces for employees during the COVID-19 pandemic in the **United States**.

Henderson, J. C., & Ng, A. (2004). Responding to crisis: Severe acute respiratory syndrome (SARS) and hotels in Singapore. *International Journal of Tourism Research*, 6(6), 411–419. <https://onlinelibrary.wiley.com/doi/abs/10.1002/jtr.505>

- Type of research: Descriptive
- Summary: The SARS epidemic in **Singapore** in 2003 affected the tourism industry. The authors examined how the SARS outbreak affected the hotel sector and how that sector responded. Based on these experiences, they propose some guidelines for handling future epidemics.

Occupational Safety and Health (OSHA). (2020). *Guidance on preparing workplaces for COVID-19*. <https://www.osha.gov/Publications/OSHA3990.pdf>

- Type of research: Other (website)
- Summary: This website identifies approaches and strategies that businesses can use to ensure a healthy and safe workplace for their employees during the COVID-19 pandemic in the **United States**.

Kim, S. S., Chun, H. & Lee, H. (2005). The effects of SARS on the Korean hotel industry and measures to overcome the crisis: A case study of six Korean five-star hotels. *Asia Pacific Journal of Tourism Research*, 10(4), 369–377. <https://www.tandfonline.com/doi/full/10.1080/10941660500363694>

- Type of research: Descriptive (qualitative)
- Summary: Although **South Korea** experienced no deaths during the SARS pandemic, the hotel industry experienced drastic declines in occupancy during the pandemic in 2003. The authors of this study interviewed staff from five hotels in South Korea about their experiences during the SARS pandemic. The staff outlined some strategies undertaken to keep hotels in business, including lowering operating costs and asking staff to take unpaid leave. The authors also explain that some hotels offered training programs for their staff on health and safety measures.

Lo, A., Cheung, C., & Law, R. (2006). The survival of hotels during disaster: A case study of Hong Kong in 2003. *Asia Pacific Journal of Tourism Research*, 11(1), 65–80. <https://www.tandfonline.com/doi/full/10.1080/10941660500500733?scroll=top&needAccess=true>

- Type of research: Descriptive
- Summary: The authors summarize how SARS influenced the **Hong Kong** hotel industry. As SARS led to greatly reduced travel and tourism, Hong Kong hotels faced low occupancy rates. To combat this

issue and bring back business, hotels enacted numerous strategies including health and safety measures for their employees.

Tse, A. C. B., So, S., & Sin, L. (2006). Crisis management and recovery: How restaurants in Hong Kong responded to SARS. *International Journal of Hospitality Management*, 25(1), 3–11. <https://www.sciencedirect.com/science/article/pii/S0278431904001203>

- Type of research: Descriptive
- Summary: The authors looked at the restaurant industry during the 2003 SARS outbreak in **Hong Kong**, including how restaurants responded to the crisis and their strategies for management and recovery. In the study, they present a typology of crises, examine the crisis response of restaurants in Hong Kong, and illustrate how local restaurants dealt with this unprecedented situation and developed strategies for management and recovery. The lessons and experience gained from dealing with the SARS crisis serve as references for restaurants in other locations in future pandemics.

3. Broad strategies for national economic growth

Gootnick, D. (2004). *Emerging infectious diseases: Asian SARS outbreak challenged international and national responses*. Government Accountability Office. <https://www.gao.gov/assets/250/242155.pdf>

- Type of research: Descriptive
- Summary: This author summarizes the international response to the SARS outbreak in 2003, including steps taken by the World Health Organization and the governments of many countries. In particular, the author reviews the stimulus packages implemented in **six Asian countries**, many of which were the hardest hit by the SARS pandemic.

Government of Sierra Leone. (2015). *National Ebola recovery strategy for Sierra Leone: 2015-2017*. https://ebolaresponse.un.org/sites/default/files/sierra_leone_recovery_strategy_en.pdf

- Type of research: Other (summary of government policy)
- Summary: **Sierra Leone** experienced one of the largest Ebola outbreaks in the world. This government report summarizes the impacts of the crisis on various industries.

Henderson, J. C., & Ng, A. (2004). See description in Section 2.

Song, T. K., & Bhaskaran, M. (2015). The role of the state in Singapore: Pragmatism in pursuit of growth. *Singapore Economic Review*, 60(3), 1–30. https://ink.library.smu.edu.sg/soe_research/1876/

- Type of research: Descriptive
- Summary: The authors summarize government policies, particularly economic interventions, in **Singapore**. In response to SARS, the government of Singapore enacted targeted aid packages to the most affected industries as well as training programs for workers.

Stephens, A. (2017). The need for emergency economic policy options to mitigate the economic impacts of epidemics: Ebola in West Africa and MERS in South Korea. *Regional Economics and Policies*, 2, 1–11. https://www.researchgate.net/publication/326423363_The_Need_for_Emergency_Economic_Policy_Options_to_Mitigate_the_Economic_Impacts_of_Epidemics_Ebola_in_West_Africa_and_MERS_in_South_Korea

- Type of research: Descriptive
- Summary: The author examined two pandemics in two regions: Ebola in **West Africa** and MERS in **South Korea**. By assessing these two epidemics, the author proposes policy options for mitigating economic impacts of future epidemics, both internationally and domestically.

Tan, W.-J., & Enderwick, P. (2006). Managing threats in the global era: The impact and response to SARS. *Thunderbird International Business Review*, 48(4), 515–536. <https://onlinelibrary.wiley.com/doi/epdf/10.1002/tie.20107>

- Type of research: Descriptive
- Summary: The authors present a case study of the economic impacts of SARS, including the primary, secondary, and response-generated impacts as well as the longer-term issues identified. These include looking at specific industries that were hit hard during the pandemic and those that experienced growth opportunities. They also summarize policies undertaken in different countries, including **China**.

Tse, A. C. B, So, S., & Sin, L. (2006). See description in Section 2.

4. Background citations

Lee, J., & McKibbin, W. (2003). *Globalization and disease: The case of SARS*. Working Paper No. 2003/16. <https://crawford.anu.edu.au/acde/publications/publish/papers/wp2003/wp-econ-2003-16.pdf>

- Type of research: Descriptive
- Summary: The authors aimed to estimate the economic impacts of the SARS pandemic on national economies, including those of **Hong Kong** and **China**, two of the most affected areas.

Centers for Disease Control and Prevention. (2017). *SARS basics fact sheet*. <https://www.cdc.gov/sars/about/fs-sars.html>

- Type of research: Other (website)
- Summary: This website provides basic facts on the **worldwide** SARS pandemic in 2003.

Centers for Disease Control and Prevention. (2019). *2014–2016 Ebola outbreak in West Africa*. <https://www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/index.html>

- Type of research: Other (website)
- Summary: This website summarizes the Ebola outbreak **worldwide**, including the number of cases and deaths by country.

Infection Prevention and Control Canada. (n.d.). *SARS (severe acute respiratory syndrome)*. <https://ipac-canada.org/sars.php>

- Type of research: Other (website)
- Summary: This website provides information on the number of SARS cases and deaths in **Canada**, including data by province.

Tan, W.-J., & Enderwick, P. (2006). See description in Section 3.

World Health Organization. (n.d.). *Cumulative number of reported probable cases of SARS*. https://www.who.int/csr/sars/country/2003_07_11/en/

- Type of research: Other (website)
- Summary: This website provides the **worldwide** number of SARS cases and deaths for each country. World Health Organization. (2020). *MERS situation update, January 2020*. <http://www.emro.who.int/pandemic-epidemic-diseases/mers-cov/mers-situation-update-january-2020.html>
- Type of research: Other (website)
- Summary: This website provides an update on the number of MERS cases **worldwide** from 2012 to 2020.

ABOUT THE RAPID REVIEW

CLEAR's rapid review of evidence on programs or strategies related to reemployment, retention, and health and safety implemented after prior pandemics was created by Mathematica under the CLEAR contract with the U.S. Department of Labor (DOL), Chief Evaluation Office (CEO). The contents of the review do not represent the views or policies of DOL.

Due to the rapid turnaround for this review, the evidence scan did not follow CLEAR's documented systematic approach. CLEAR conducted a literature search using Google Scholar and a large abstract and citation database of peer-reviewed literature (Scopus), for search terms related to reemployment and retention strategies following the Ebola, H1N1, SARS, MERS, and 1918 Spanish flu epidemics. In addition, citations from relevant studies were used to identify additional studies for review. Finally, CLEAR has conducted weekly searches to identify additional research released since the initial drafting. This version of the brief was last updated with literature published before June 23, 2020.

Following the initial searches, CLEAR staff screened the abstracts of studies on reemployment and retention strategies to identify studies that took place in similar contexts to the United States and examined specific interventions implemented by governments in other countries following pandemics. We prioritized causal research at this stage. One study was identified for review; it qualified as it was an impact study of a government-sponsored policy to encourage reemployment in Canada (a very similar context to the United States) following the SARS pandemic.

Given that small result, CLEAR decided to broaden the set of publications included in the synthesis to include studies that took place in locations less similar to the United States, that examined firm-level policies or strategies, and that were descriptive in nature. In addition, CLEAR expanded the search to include health and safety policies and strategies that encouraged employee well-being. From these new searches, CLEAR identified 9 additional studies to include in the synthesis; in total, 10 studies were reviewed and included in this synthesis.

Due to the rapid nature of this review, studies identified for review were not assessed according to CLEAR's causal evidence guidelines. Instead, reviewers used a short rubric to summarize information for each study. Each citation is classified by study type: causal, descriptive, or other. **Causal** research can assess the effectiveness of a strategy—in other words, whether there is a cause-and-effect relationship between the strategy and the results or impacts. High quality causal research (impact studies) can produce the most credible type of evidence. **Descriptive** research does not determine cause-and-effect

relationships but uses quantitative methods to identify trends, correlations, projections, and costs and benefits of actions taken. CLEAR also categorized qualitative studies under the descriptive category for the purposes of this rapid review. CLEAR's rapid reviews also summarize **other** types of evidence and research that describe how, where, and why strategies are implemented, and includes opinion pieces by subject matter experts (SMEs). This type of research does not aim to identify cause-and-effect relationships or use quantitative or qualitative methods but can be useful to identify emerging strategies potentially worthy of future replication and additional study. For more information on how CLEAR reviews and rates different types of studies, see CLEAR's reference documents at <https://clear.dol.gov/about>.

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