



### MAINTAINING THE HEALTH WORKFORCE DURING EPIDEMICS

In the following brief, the shortage of healthcare workers (HCWs) during epidemics is explored with an emphasis on barriers and motivating factors that influence the provision of care during epidemics. These factors are explored to inform the development and implementation of interventions that meet HCWs' needs during the current COVID-19 pandemic.

During epidemics, individuals, communities, healthcare organizations, and leaders assume that healthcare workers (HCWs) will act as the frontline in fighting the disease and providing other essential healthcare services.

However, this critical assumption does not acknowledge the many factors that may hinder a HCW's ability to provide care during epidemics.

#### EXPECTATION

Illustrative quotes by members of healthcare management:

"People just know that that's an expected part of the job."

"So I would think in this type of disaster, they would even step up even more knowing that we are in disaster mode."

"People often are dedicated to the work. I just do not think they would back from the work because they understand they are in healthcare. They have chosen to be in the healthcare setting and not an office setting."

"I think most of our staff are used to being around sick people."

Hashikawa 2018; Influenza; USA

#### REALITY

Illustrative quotes by healthcare workers:

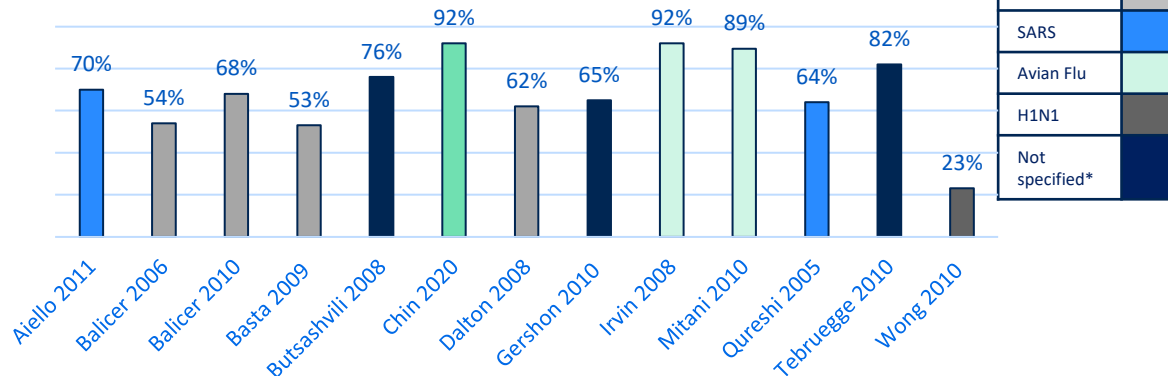
"Choosing between my work as a nurse or my family's safety, I will choose my family." [Aiello 2011](#); Influenza; Canada

"I have kids and won't endanger myself otherwise who will take care of them. If there is no gear, then I definitely won't work." [Shaw 2006](#); Influenza; United Kingdom

### THE SHORTAGE OF HEALTHCARE WORKERS DURING EPIDEMICS

Of 13 total articles on the shortage of HCWs during epidemics, the percentage of HCWs that were able to work ranged from a low of 23% to a high of 92%. Most studies were conducted in high income settings with a focus on influenza epidemics. Some studies assessed absenteeism during epidemics, whereas others surveyed staff to ask their ability and willingness if an epidemic occurred in the future. Detailed findings are presented in the chart and table below.

Percentage of Healthcare Workers Willing/Able to Work During Epidemics



Study	Key Finding
<a href="#">Aiello 2011</a>	About 70% of HCWs worked during the SARS outbreak.
<a href="#">Balicer 2006</a>	About 53.8% of healthcare workers indicated that they would report to work during a pandemic influenza related emergency.
<a href="#">Balicer 2010</a>	At the pandemic peak, 82.7% responded that they would be very/somewhat likely to report and perform low risk job duties, which decreased to 52.3% at the time of the pandemic peak when high risk job duties would be required.
<a href="#">Basta 2009</a>	Willingness to report to work varied by the stage of the influenza pandemic and type of job duties, from 92.3% willingness given the lowest-risk scenario to 56.2% under the highest-risk scenario. HCWs who had read one of the pandemic influenza plans were significantly more likely to be willing to respond.
<a href="#">Butsashvili 2008</a>	About 76% of HCWs stated that they would report to work during a pandemic influenza.
<a href="#">Chin 2020</a>	On a national level, projected absenteeism during the Covid-19 pandemic ranges from 7.5% to 8.6% in the US.
<a href="#">Dalton 2008</a>	Up to 38% (33/72) of staff may be absent from work due to the impact of combined childcare and school closure.
<a href="#">Gershon 2010</a>	Although a substantial proportion of healthcare workers reported that they would be able (80%), fewer would be willing (65%) to report to duty.
<a href="#">Irvin 2008</a>	Participants were asked: "In the event of an avian pandemic, and patients were being treated at this hospital, would you report to work as usual?". And 50% reported "yes", 42% reported "maybe", and 8% reported "no."
<a href="#">Mitani 2010</a>	A total of 204 persons (10.6%) would not come to the hospitals during a pandemic, 363 (18.8%) would perform their duties as usual, unconditionally, 504 (26.1%) would come to hospitals but not treat avian influenza patients, and 857 (44.5%) would report to the hospital and treat AI patients with some essential conditions
<a href="#">Qureshi 2005</a>	When compared to other incidents, HCWs reporting being most able to work for a mass casualty incident (83%), environmental disaster (81%), and chemical event (71%) and least able to report during a smallpox epidemic (69%), radiological event (64%), sudden acute respiratory distress syndrome (SARS) outbreak (64%), or severe snow storm (49%).
<a href="#">Tebruegge 2010</a>	About 17.6% of the participants stated they were prepared to work unconditionally during a pandemic.
<a href="#">Wong 2010</a>	About 76.9% participants reported being "not willing" (33.3%) or "not sure" (43.6%) to take care of patients during H1N1 influenza pandemic.

# BARRIERS TO REPORTING TO WORK DURING AN EPIDEMIC

In the following section, we highlight both quantitative and qualitative findings related to barriers that hinder the ability and/or willingness of HCWs to work during an epidemic. *Detailed findings are presented below.*

## Personal health, including pre-existing conditions or being infected with the disease

Study; Disease; Setting	Finding
<a href="#">Chin 2020</a> ; Covid-19; USA	Diabetes is positively associated with healthcare worker absenteeism with an effect size of .22, meaning a one percent increase in diabetes prevalence is associated with a .22% increase in healthcare worker absenteeism.
<a href="#">Ip 2015</a> ; Influenza; Hong Kong	Influenza epidemics prior to the 2009 pandemic and during the 2009 pandemic were associated with 8.4 % (95 % CI: 5.6–11.2 %) and 57.7 % (95 % CI: 54.6–60.9 %) increases in overall sickness absence.

## Fear of being infected or of infecting family

Study; Disease; Setting	Finding
<a href="#">Mitani 2010</a> ; Influenza; Japan	In one study, about 55% of healthcare workers said that worries that their family might contract Avian influenza, and 50% stated that their worries about their own infection were barriers to work.
<a href="#">Taylor 2018</a> ; USA	Healthcare workers have stated that , the greater the uncertainty, likelihood of transmissibility, and severity of disease, the less likely staff would be to respond.

## Inadequate personal protective equipment

*"The greatest worry at work was that I had no protective gear in place. At the beginning of the isolation, there were only gloves, no masks."* [Hewlett 2005](#); Ebola; Democratic Republic of Congo, Uganda and Republic of Congo

*"I need to be provided with the same level of protection (same supply of [personal protective equipment] as my colleagues in other departments). I should not be thought of as expendable because I have no family or dependents at home."* [Aiello 2011](#); Influenza; Canada

## Lack of transport

Study; Disease; Setting	Finding
<a href="#">Soo Park 2015</a> ; Influenza; USA. <a href="#">Mitani 2010</a> ; Japan; Influenza	Numerous studies highlighted issues with transport during epidemics. In one study, 23% of healthcare workers cited "long distance" as a barrier to reporting for work.

*"One nurse rode the public transit system to work, and, although asymptomatic, she was found to have a fever when screened before entering the hospital to work."* [Hall 2003](#); SARS; Canada

## Family/gendered responsibilities

Study; Disease; Setting	Finding
<a href="#">Irvin 2008</a> ; Influenza; USA	Males are more likely to work during an epidemic.

*"But its not just people with children, it's people with old parents or you know it's home situations isn't it? It's family situations and family comes before anything."* [Ives 2009](#); Influenza; United Kingdom

## Mental health symptoms

Study; Disease; Setting	Finding
<a href="#">Wong 2010</a> ; H1N1 Influenza; Hong Kong	Some studies highlighted the stress related to working during an epidemic: In one study, those who reported unwillingness or not being sure about taking care of the patients during H1N1 influenza pandemic were more depressed ( $p < 0.001$ ) and found work more emotionally stressful ( $p < 0.001$ ).

## Disapproval from family and friends

Study; Disease; Setting	Finding
<a href="#">McMahon 2016</a> ; Ebola; Sierra Leone. <a href="#">Raven 2018</a> ; Ebola; Sierra Leone	Several providers noted their families stopped coming near them or talking to them due to fear. Many of their families urged them to stop working at health facilities. Several providers said they did, at some point, leave their posts, which was a difficult decision.

*"If I die with Ebola, or if I can be contagious to another person, it is not a problem of only myself. So it can be affected to the others, a lot of people. Not only the disease itself, but the social status, or financial problem as well. So that is why, officially, my father didn't agree with me when I asked them to go for another mission."* [Gee 2018](#); Ebola; West Africa

## School closures

Study; Disease; Setting	Finding
<a href="#">Chin 2020</a> ; Covid-19; USA	In one study, there were significant associations between healthcare worker absenteeism and COVID-19 complicating factors (e.g. school closures) at the county level ( $p < 0.05$ ).

# ADDRESSING THE SHORTAGE OF HEALTHCARE WORKERS

The following page provides an overview of the ways in which organizations, policy-makers, and others can reduce barriers to HCWs providing care during epidemics. The first section highlights key motivating factors that arose in qualitative studies of HCWs during epidemics. The second section highlights three key interventions that may decrease the shortage of HCWs during epidemics.

## MOTIVATING FACTORS FOR HEALTHCARE WORKERS

### A sense of solidarity among staff

"I'm tired, [nurse manager] but what keeps me going is our staff. I look at these people every day and say, "Wow!" These are such special people putting themselves on the front line, not complaining. These people are my heroes." [Hall 2003](#); SARS; Canada

There was no way for me to refuse. To refuse would be very bad, I am the head nurse of the ward, and it would be very difficult for the others to continue. Some nurses quit because their husbands wanted to reject them. I did not refuse. [Hewlett 2005](#); Ebola; Democratic Republic of Congo, Uganda and Republic of Congo

### A sense of professional and ethical duty

"I just think it's the ethic. I mean you get into this job basically to look after people and, rather than man a phone for eight hours a day..." [Ives 2009](#); Influenza; United Kingdom

"We are afraid. We question our safety. But we are obliged to our patients." [Hewlett 2005](#); Ebola; Democratic Republic of Congo, Uganda and Republic of Congo

### Appreciation from management and patients

If they just show they're grateful for what you did. Say if a patient says to me, 'Oh you've kept my room spotless while I've been in here', it gives me a boost to think I've done something, but when you don't get no credit, then that's a knock back to you. That's when morale goes down." [Ives 2009](#); Influenza; United Kingdom

## INTERVENTIONS TO ADDRESS THE SHORTAGE OF HEALTHCARE WORKERS DURING EPIDEMICS

### Personal protective equipment, preventative measures, and training

In a study of 117 nurses working during the MERS outbreak, healthcare workers said that the most important motivational factor for working during future outbreaks was personal protective equipment, followed by a cure or vaccine for the disease [Khalid 2016](#)

"The suggestions to improve this situation would be to build a new structure for isolation. To stock all the hospital with protective gear. To have continuous training of health workers, and we need continuous training on barrier nursing." [Hewlett 2005](#); Ebola; Democratic Republic of Congo, Uganda and Republic of Congo

"At the same time, the hospital held a series of meetings to reassure staff and implemented new procedures to try to protect them." [Hall 2003](#); SARS; Canada

### The provision of childcare and family support

A recent study conducted in the US during the Covid-19 pandemic found that many counties (> 98%) could save money by providing childcare, or subsidized childcare costs to their healthcare workers with children in the event of a school closure, as a means to incentivize attendance with extra wages, and alleviate the financial burden on the household, enabling other family or household members to participate in childcare [Chin 2020](#); Covid-19; USA. Relatedly, family support was one of the most important factors listed by HCWs as motivation to work in future. [Khalid 2016](#); MERS; Saudi Arabia

### Risk allowances

Financial compensation increased HCW motivation to continue their work. [Raven 2018](#); Ebola; Sierra Leone

"After a long time the government came up with the idea to give us money as motivation to work." [Hewlett 2005](#); Ebola; Democratic Republic of Congo, Uganda and Republic of Congo

## CONCLUSION

During epidemics, there are shortages of HCWs. Many of the shortages arise due to school closures, family responsibilities, lack of transport, and lack of personal protective equipment. To meet the needs of this critical population during the COVID-19 pandemic, healthcare organizations should consider intrinsic motivators such as an ethical and professional sense of duty, and extrinsic motivators such as risk allowances in order to develop interventions that meet the needs of HCWs globally.