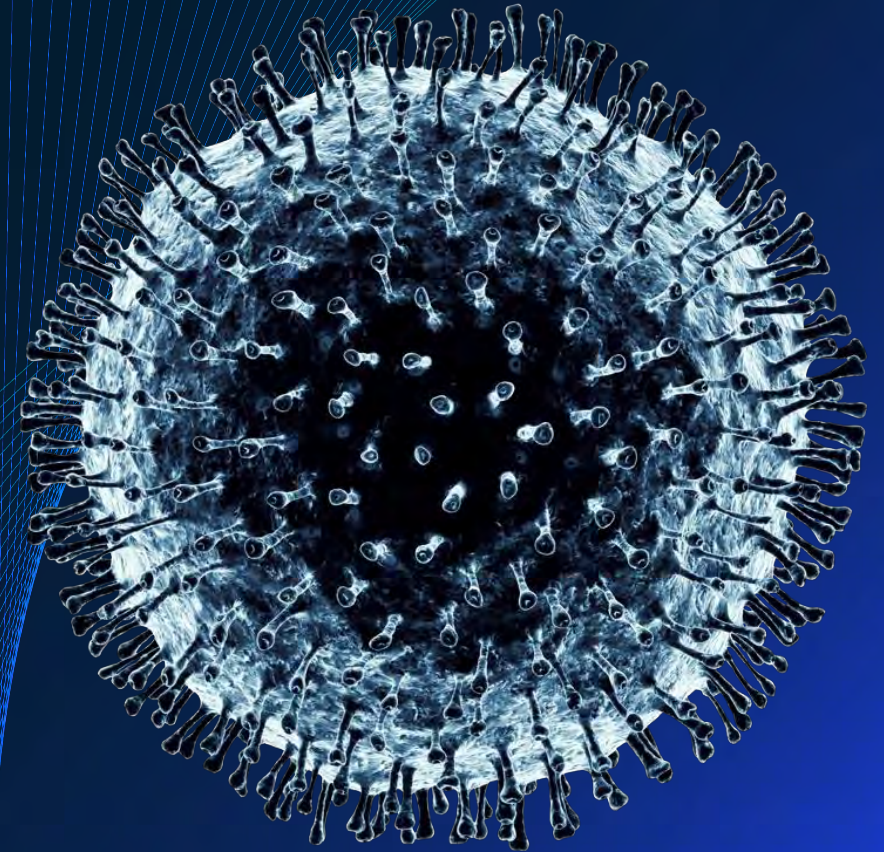


# Workplace Return

April 24<sup>th</sup> , 2020

**This document is intended to provide general insight and best practices rather than specific, customized client advice. Further, this document does not constitute legal advice. Employers should engage their own legal counsel to ensure all adopted recommendations are compliant with applicable laws in their jurisdictions, particularly with respect to collection and use of employee health data.**



Current as of April 13, 2020

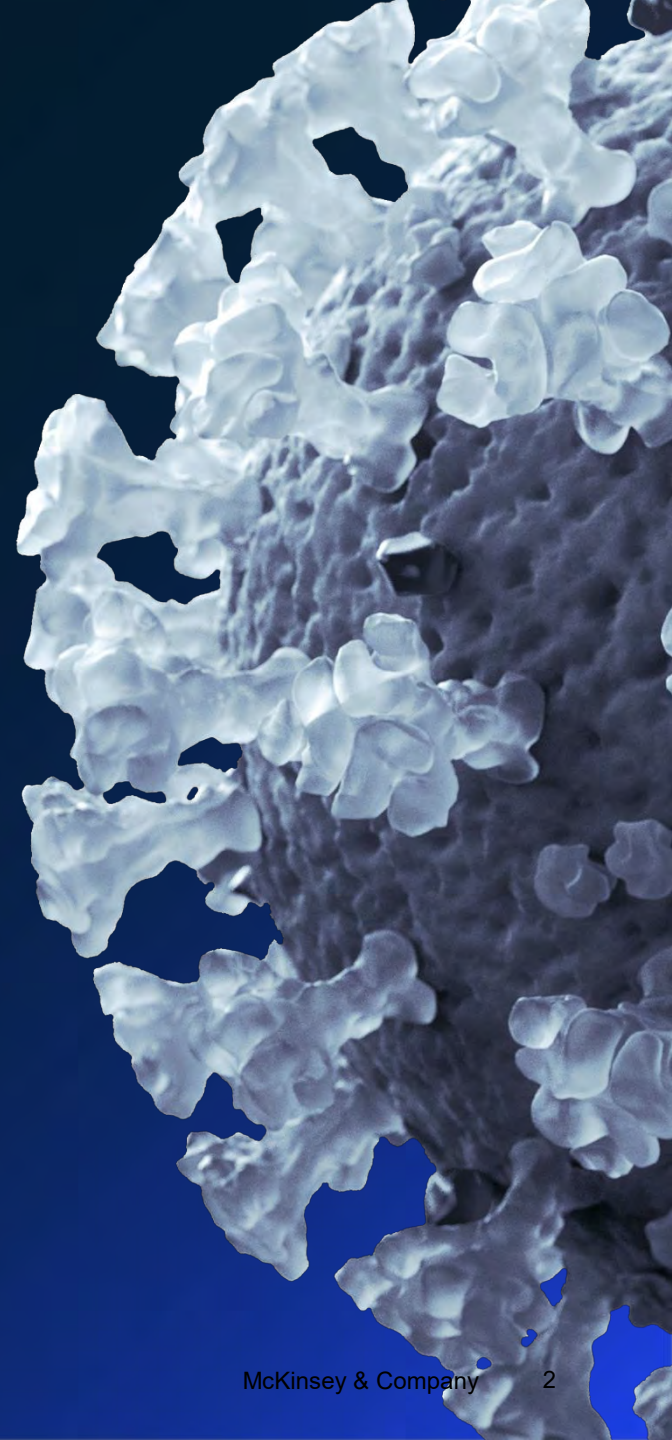
COVID-19 is, first and foremost, a global humanitarian challenge.

Thousands of health professionals are heroically battling the virus, putting their own lives at risk. Governments and industry are working together to understand and address the challenge, support victims and their families and communities, and search for treatments and a vaccine.

Companies around the world need to act promptly.

This document is meant to help senior leaders understand the COVID-19 situation and how it may unfold, and take steps to protect their employees, customers, supply chains, and financial results.

[Read more on McKinsey.com](#) →



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## Context & how to use this document

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This document reflects a database of interventions that have been used in industry, and have worked for companies around the globe across manufacturing, retail, office and field environments

This document is meant to provide visibility on the measures different organizations are taking to ensure protection across the workforce journey

This document is NOT meant to represent vetted McKinsey recommendation or guidance on best-practices

Organizations should ensure that all local regulations, and country specific circumstances are taken into account before considering implementation of specific interventions



This document compiles ~75 interventions for workforce protection during Return



~75

interventions used worldwide, across

8

levers of protection,

5

phases of the workforce journey, and

4

Environments (office, retail, field, manufacturing)

# How to consider transition: Ensuring protection across workforce journey

## Workforce protection interventions across manufacturing, office, retail and field environments

### Pre-entry

- Policy and education
- Workforce communication



### Travel to work

- Public, employer-sponsored and individual transport
- Entrance controls



### At work

- Manufacturing environment
- Office environment
- Retail environment
- Field environment



### Common spaces

- Meeting rooms
- Break rooms
- Hallways
- Restrooms
- Other







### Post-infection

- Isolation
- Tracing & isolation
- Facility response
- Insurance
- Liability



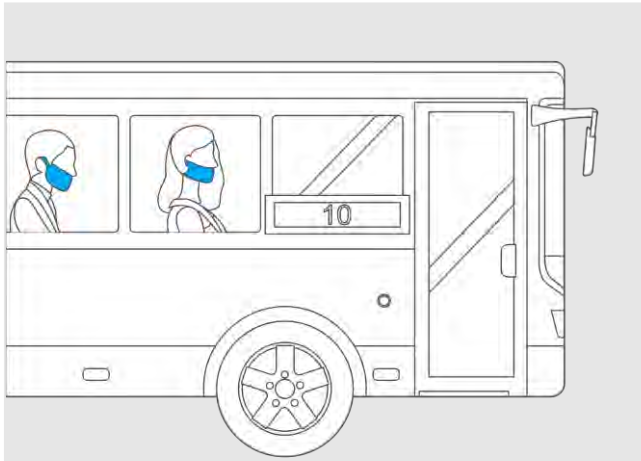
# Intervention tracker across the workforce journey

xx Intervention page number

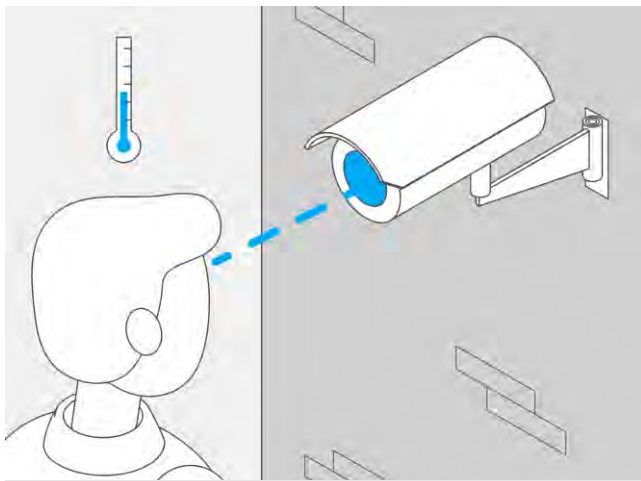
Pre-entry	 <b>Travel to work</b>	 <b>At work</b>	 <b>Common spaces</b>	 <b>Post-infection</b>
<b>Separate in space &amp; time</b>	<ul style="list-style-type: none"> <li>17 Increase safety protocol</li> <li>18 Use private transport</li> <li>19 Stagger entry</li> <li>20 Entry controls</li> <li>24 Limit on-site capacity</li> <li>25 Restrict non-employee entry</li> <li>27 Separate hours for vulnerable populations</li> </ul>	<ul style="list-style-type: none"> <li>32 Stagger work shifts</li> <li>39 Physical separation of workstations</li> <li>40 Physical separation through zones</li> <li>42 Critical function teams</li> <li>45 Implement one-way store aisles</li> <li>47 Separation between customers</li> <li>49 Minimize person-to-person contact</li> </ul>	<ul style="list-style-type: none"> <li>70 Close common areas</li> <li>73 Limit capacity in elevators</li> <li>83 Stagger lunch hours</li> <li>84 Cafeteria physical distancing</li> <li>87 Dormitory safety practices</li> </ul>	<div style="border: 1px solid black; padding: 20px; min-height: 700px;"> <p style="font-size: 24px; margin: 0;">Content being developed</p> </div>
<b>Drive safe behavior norms</b>	<ul style="list-style-type: none"> <li>30 Mental health services</li> </ul>	<ul style="list-style-type: none"> <li>46 Reduce in-store services</li> <li>41 "Remote-first" practices</li> <li>50 Institute a clean desk/ work station</li> <li>51 Limit larger gatherings</li> <li>52 Move in-person processes to digital</li> <li>53 Monitor policy adherence</li> <li>63 Alter return and cancellation policies</li> </ul>	<ul style="list-style-type: none"> <li>68 walkthrough assessment</li> <li>72 Limit larger gatherings of employees</li> <li>75 Monitor policy adherence</li> <li>88 Establish team or communication chain</li> </ul>	
<b>Use protective equipment</b>	<ul style="list-style-type: none"> <li>28 Encourage or mandate PPE gear</li> </ul>	<ul style="list-style-type: none"> <li>36 Encourage or mandate PPE gear</li> </ul>	<ul style="list-style-type: none"> <li>79 Encourage or mandate PPE gear</li> </ul>	
<b>Test &amp; isolate</b>	<ul style="list-style-type: none"> <li>11 At-home surveys</li> </ul>	<ul style="list-style-type: none"> <li>14 At-home surveys</li> <li>22 Temperature testing at Entry</li> </ul>		
<b>Increase awareness</b>	<ul style="list-style-type: none"> <li>12 What to expect when returning</li> <li>13 Two-way communication channels</li> <li>14 Completed return to work trainings</li> <li>15 Safe commute and wellness practices</li> </ul>	<ul style="list-style-type: none"> <li>23 Clearly communicate safety protocols at entry</li> </ul>	<ul style="list-style-type: none"> <li>34 Promote healthy personal habits</li> <li>35 Use prominent displays highlighting new processes and policies</li> </ul>	
<b>Clean &amp; disinfect</b>	<ul style="list-style-type: none"> <li>26 Provide disinfectants</li> </ul>	<ul style="list-style-type: none"> <li>33 Reduce operating hours to clean</li> <li>44 Provide cleaning equipment</li> <li>53 Frequent cleaning</li> <li>55 High-visibility cleaning</li> <li>57 Deep-cleaning</li> </ul>	<ul style="list-style-type: none"> <li>76 High-visibility cleaning</li> <li>78 Deep-cleaning</li> <li>86 Increase hygiene protocols</li> </ul>	
<b>Upgrade equipment</b>		<ul style="list-style-type: none"> <li>48 Contactless thermometer</li> <li>58 Improve air filtration / ventilation</li> <li>59 Install plexiglass barriers</li> <li>60 "Dark stores"</li> <li>61 Contactless payment</li> <li>62 Implement curbside pick ups</li> </ul>	<ul style="list-style-type: none"> <li>69 Remove communal resources</li> <li>71 Minimize handles</li> <li>74 Improve air filtration</li> <li>85 Replace communal food options</li> </ul>	

# Sample journey: Manufacturing environment

## Travel to work and pre-entry



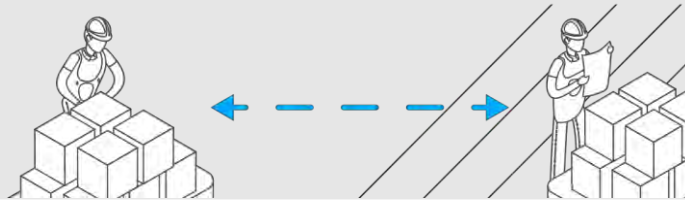
Use of masks required during employee commutes



Temperature checks

## At Work

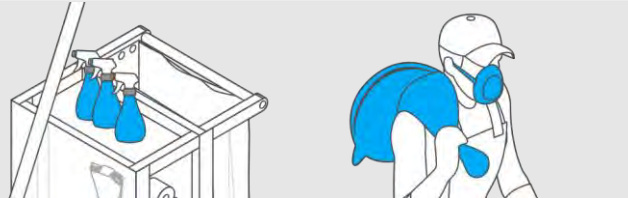
Modularized spaces, with limited interaction across spaces



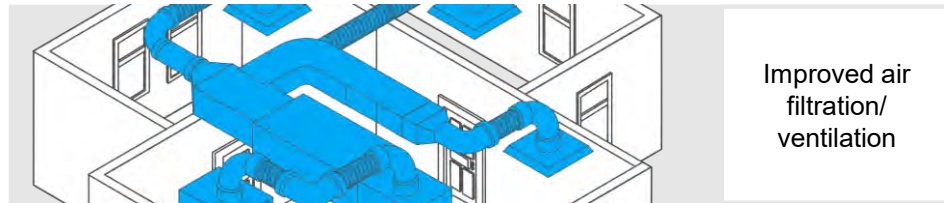
Masks and other appropriate PPE required at all times



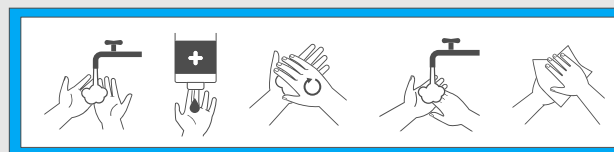
High-frequency cleaning of high-touch surfaces and spaces



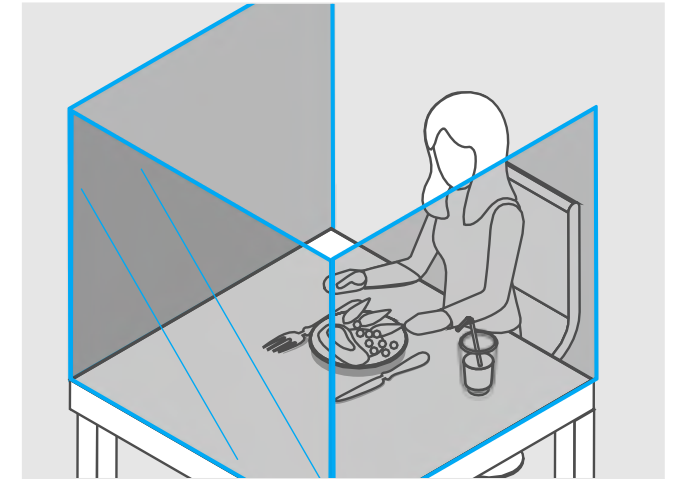
Improved air filtration/ventilation



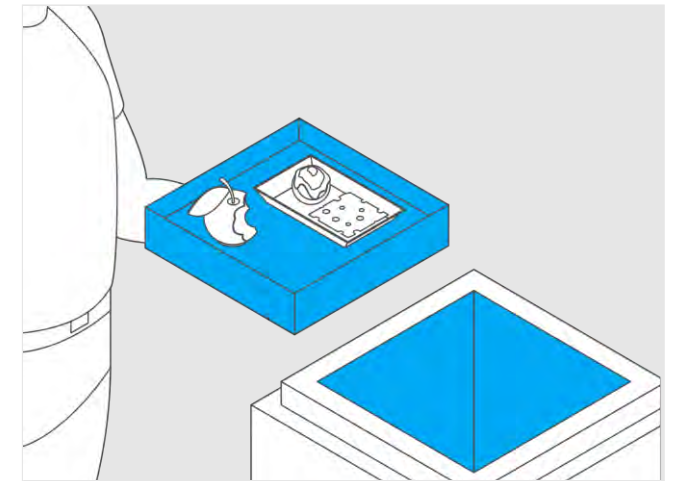
Clear posters on safety guidance and sickness protocols



## Common space use



Separated lunch seating with dividers on dining tables

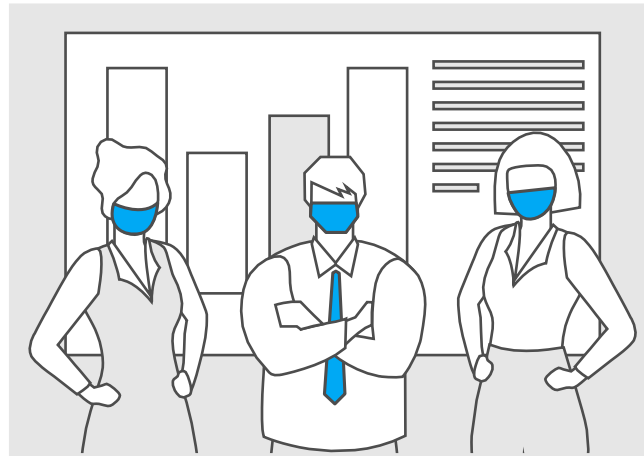


Use of non-reusable dishes at cafeterias



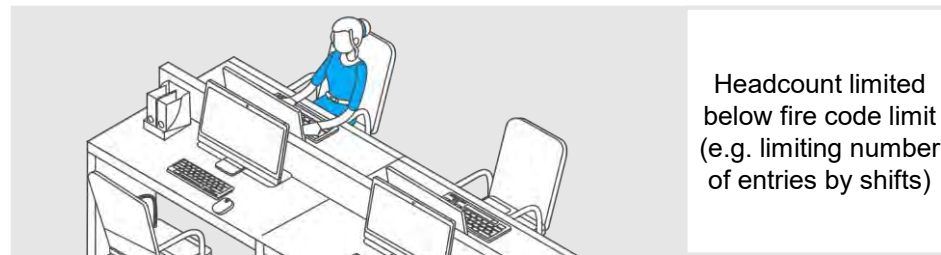
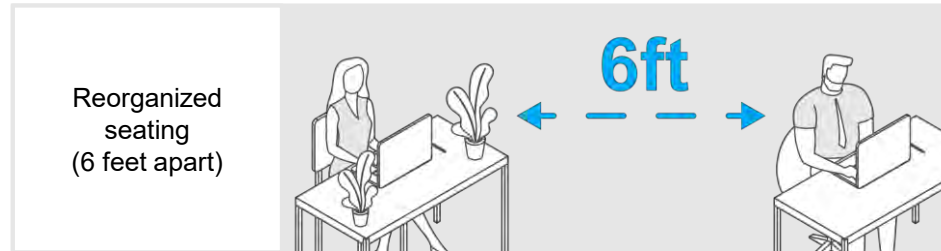
# Sample journey: Office environment

## Travel to work and pre-entry

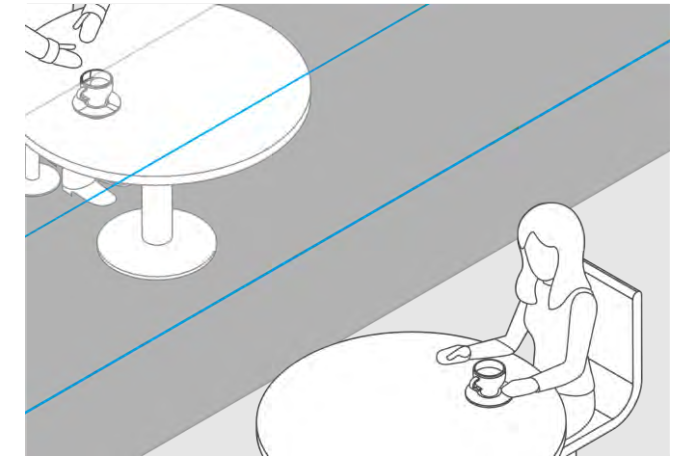


Masks required and provided for employees

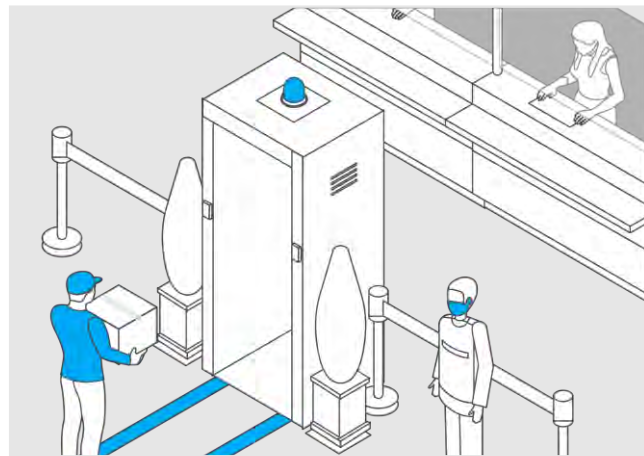
## At Work



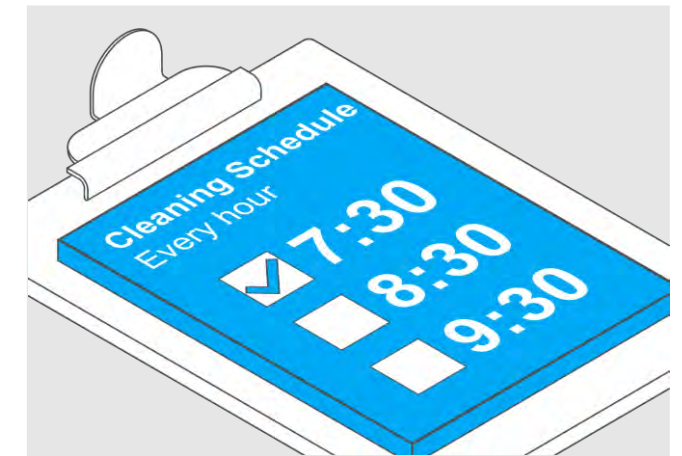
## Common space use



Separated lunch seating



Limited entrance for non-employees

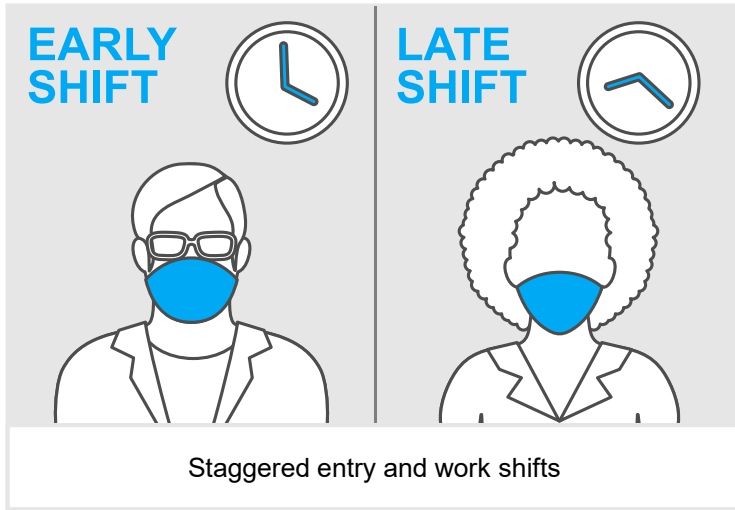


Increased frequency cleaning with visibly monitored cleaning schedules



# Sample journey: Retail environment

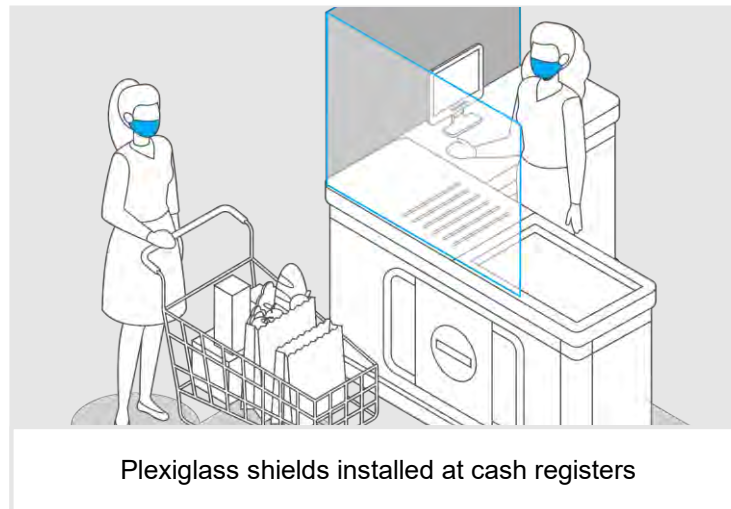
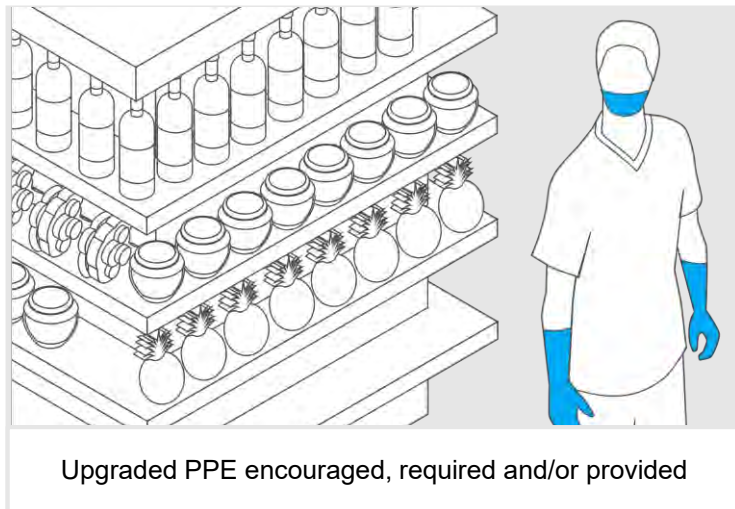
## Travel to work and pre-entry



## At Work



## Common space use



# Pre-entry

# Periodic health risk categorization through at-home surveys

## Test & isolate

Office | Field

### Description of potential intervention

Send out online **health self-assessment program** to fill it out to all employees every Sunday regarding COVID-related symptoms

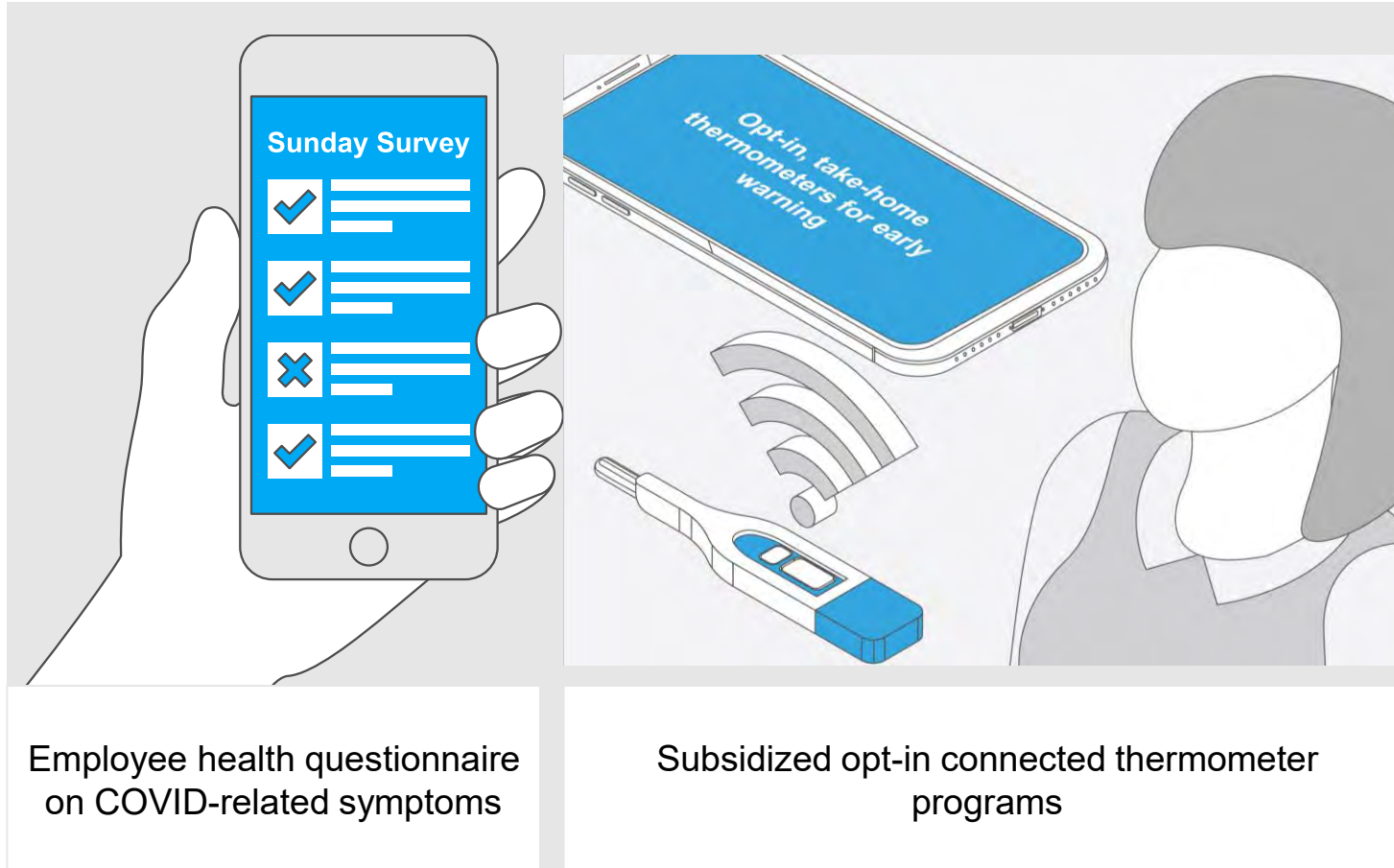
- Those who do not reply would be separately examined at the entrance of company facilities the next day
- Survey helps determine health risk of employees and advises readiness to return to work

Opt-in program for subsidized **connected thermometers** system for early warning

### Where this has been done

South Korean conglomerates

Corporate offices in China



Employee health questionnaire on COVID-related symptoms

Subsidized opt-in connected thermometer programs

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Share with and train employees on what to expect when returning to the workplace

## Increase awareness

Office | Field

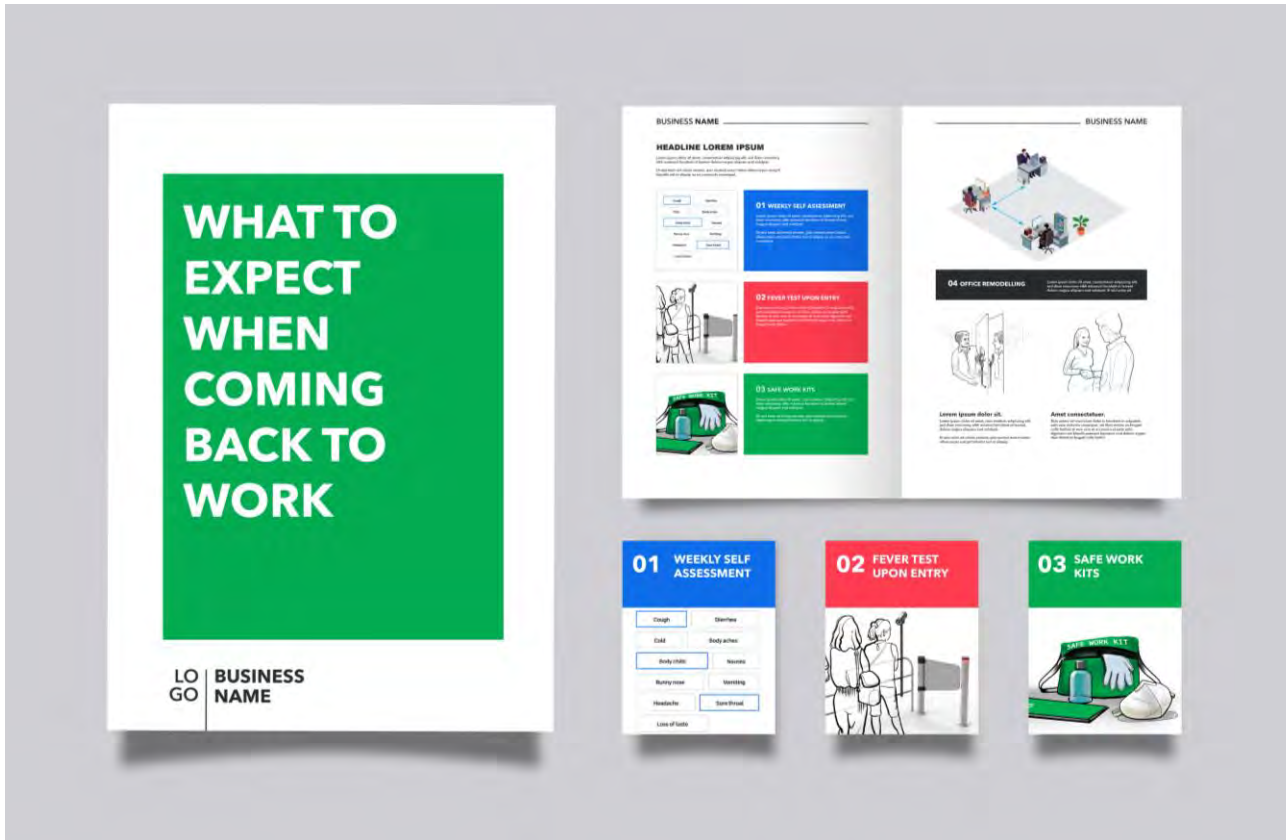
## Description of potential intervention

Use online and remote channels to share with employees what to expect when returning to the workplace. Include information on:

- **Sick leave, compensation and related updated policy guidance**
- **Database on resources and support available** to employees (mental health, childcare, policy guidelines, privacy safeguards)
- **Information on new work practices, infrastructure** and changes to daily schedule and operations
- **Personal wellness** guidance for outside of the work place

## Where this has been done

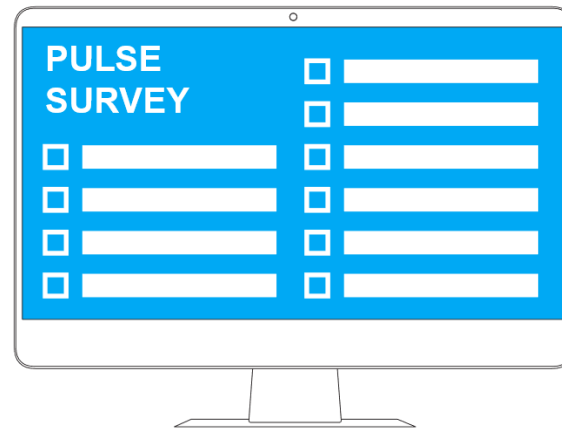
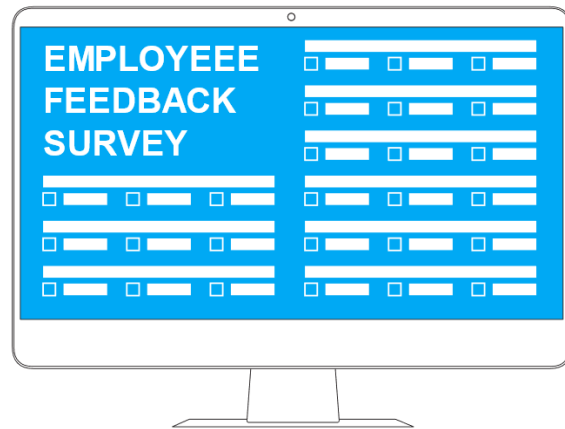
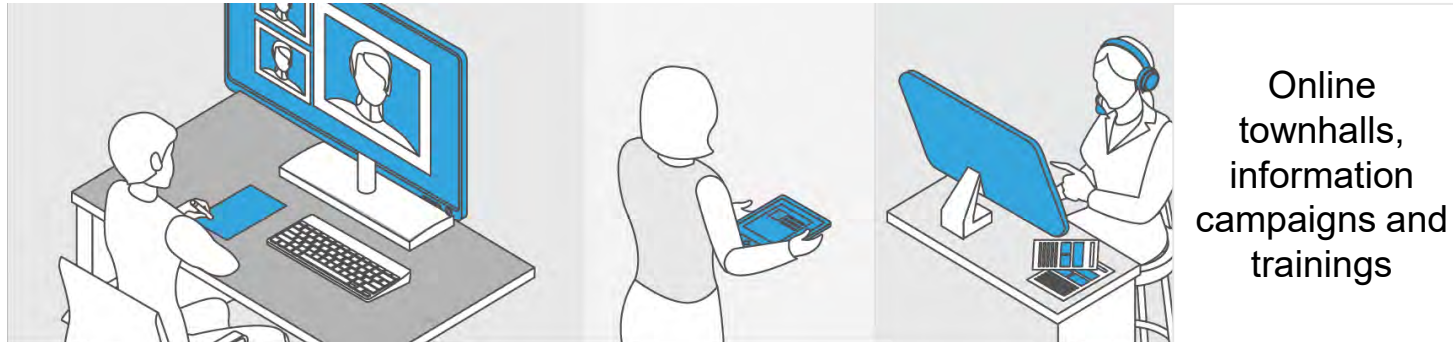
Corporate offices in the U.S. when initially moving to remote working



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Establish two-way communication channels as employees prepare for return



## Increase awareness

Office | Field

## Description of potential intervention

**Develop online modules and trainings** to ensure employees have adequately understood all new guidelines and resources

**Conduct virtual townhalls** with leadership to address questions on a company-wide forum and ensure clarity of message to workforce

**Proactively survey employees to gather feedback** on measures adopted and to inform new workplace safety measures

**Share pre-packaged print material** (consistent with displays and posters used in the workplace)

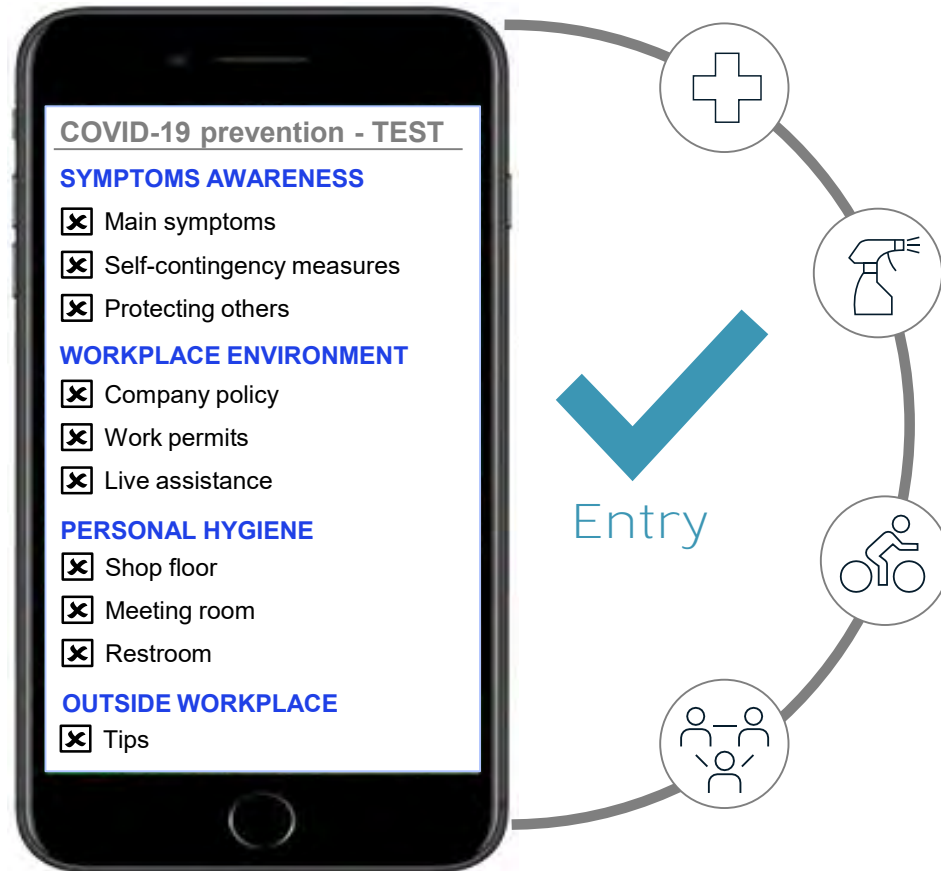
## Where this has been done

Corporations in the U.S.

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Ensure employees have completed all return to work trainings prior to entry



App-based test training

## Increase awareness

Office | Field

## Description of potential intervention

Allow entrance to worksite only after passing an app-based test training provided to workers on prevention measures

## Where this has been done

Corporate offices in China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

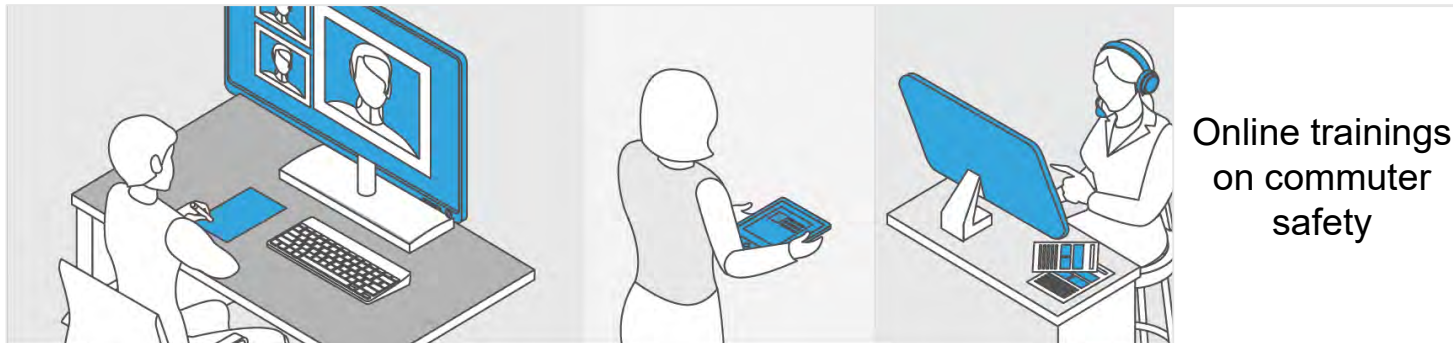
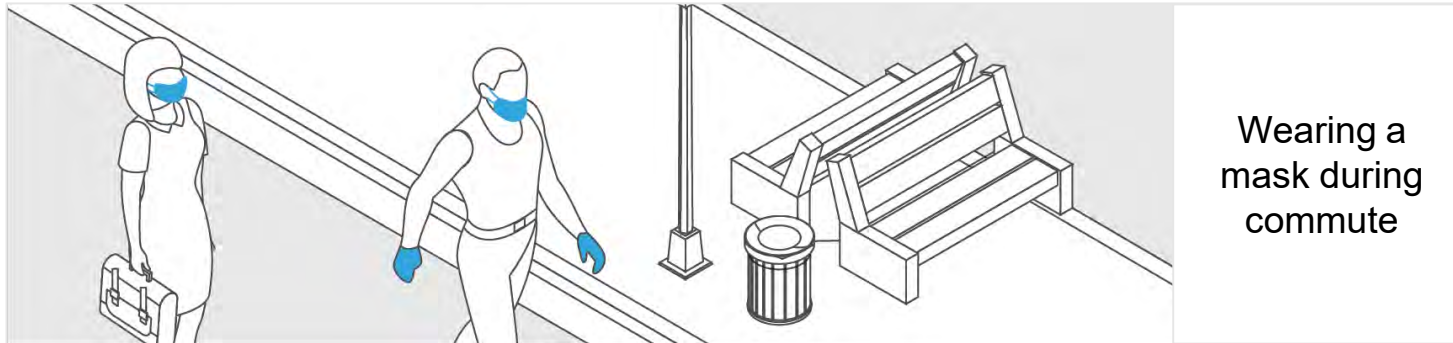
Source: Expert interviews, press search, client surveys



# Educate employees on safe commute, work and personal wellness practices

## Increase awareness

Office | Field



## Description of potential intervention

**Train employees on commuter safety** practices such as wearing masks in public, avoiding rush hour, choosing to walk for part of the trip, etc.

**Require use of PPE on commute** in to work

**Provide employees with sanitation packs** to be used for public transport such as mini sanitizers, quick access wipes and gloves

**Train employees on best practices for cleaning and disinfecting** following use of public transport and prior to entry

## Where this has been done

Multiple organizations worldwide

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

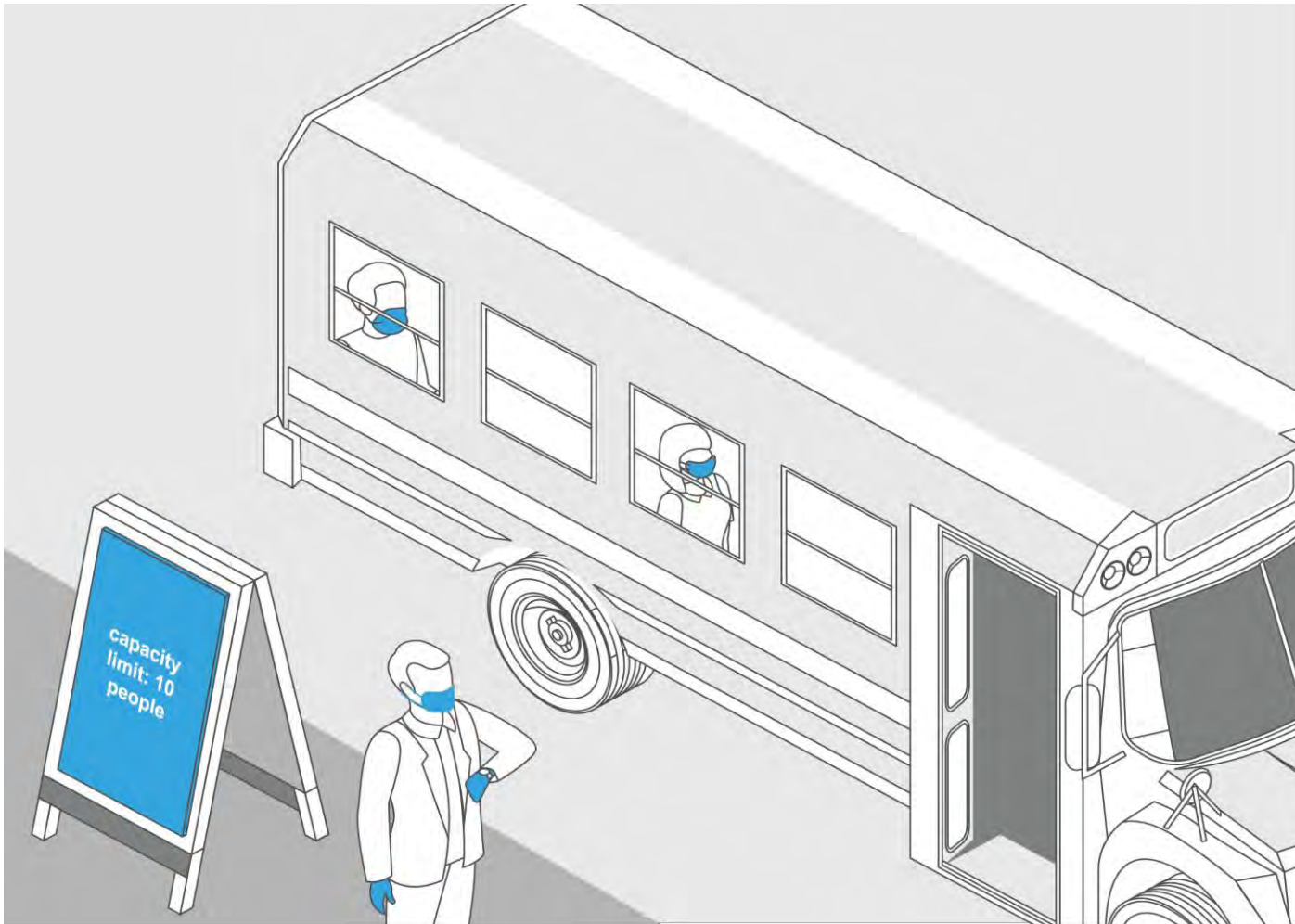
Source: Expert interviews, press search, client surveys

Travel to work

# Increase safety protocol in company sponsored travel

## Separate in space & time

Office | Field



## Description of potential intervention

**Restrict seating** on company operated shuttles to half capacity

**Temperature check** employees prior to boarding the shuttle

**Disinfect shuttle vehicle** after each trip. Provide disinfecting kits and PPE to shuttle operators/drivers

## Where this has been done

Factories in China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

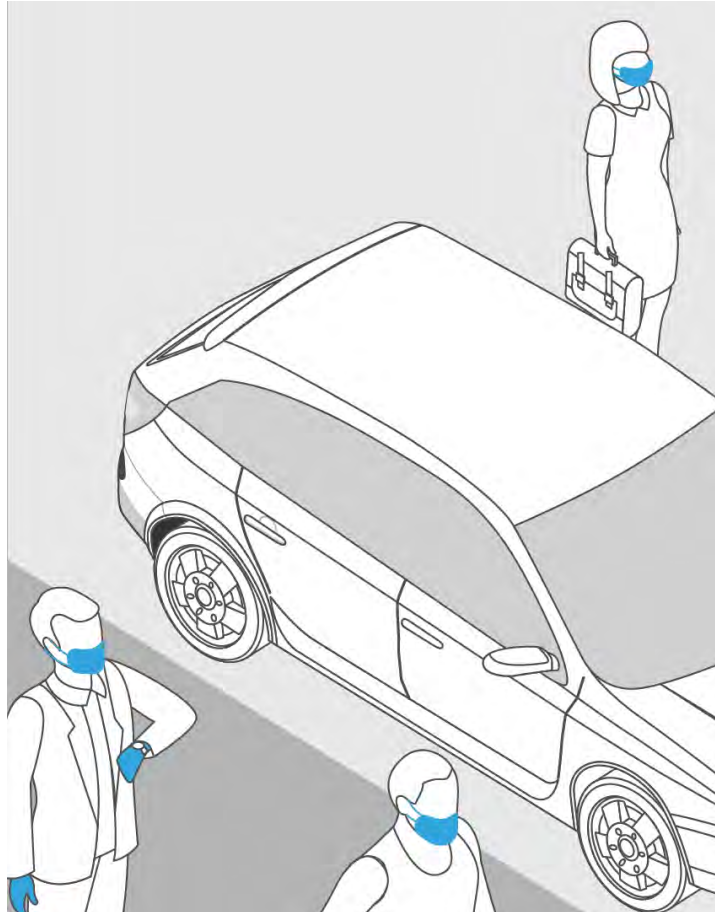
Source: Expert interviews, press search, client surveys



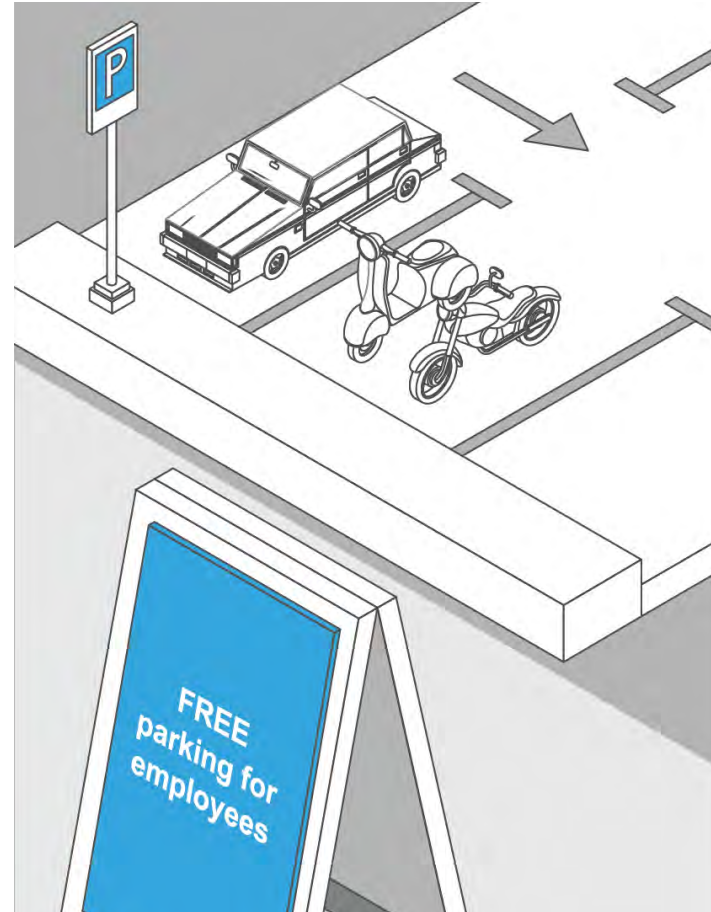
# Encourage employees to use private transport where possible

## Separate in space & time

Office | Field



Walking or private transport



Subsidize parking at workplace

## Description of potential intervention

**Encourage walking or private transport** when feasible for commute (over public transportation)

**Subsidize parking** at workplace – increase capacity if necessary

**Provide gas subsidies** for employees driving to work

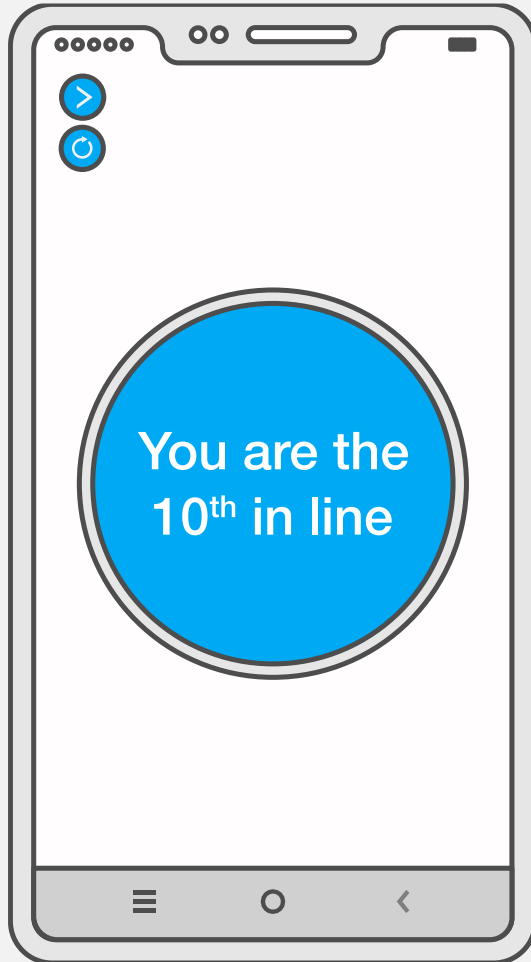
## Where this has been done

Corporate offices in Asia

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Stagger entry for employees and customers



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Separate in space & time

Office | Field

## Description of potential intervention

**Institute a 'Flexible Commuting' policy for all employees** to avoid rush hours and stagger entry windows

**Adopt virtual waiting areas or online appointment scheduling** to reduce congestion at entry

## Where this has been done

Grocery stores in the US

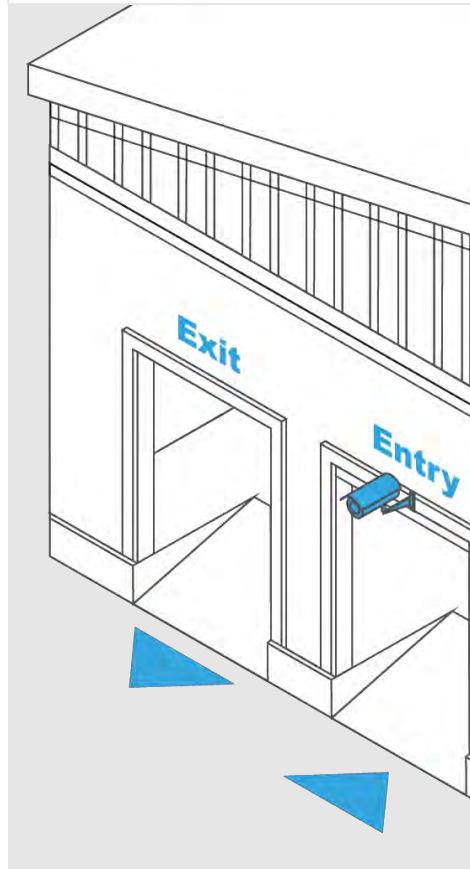
Restaurants and museums in China, S. Korea

# Increase controls at entry point (1/2)

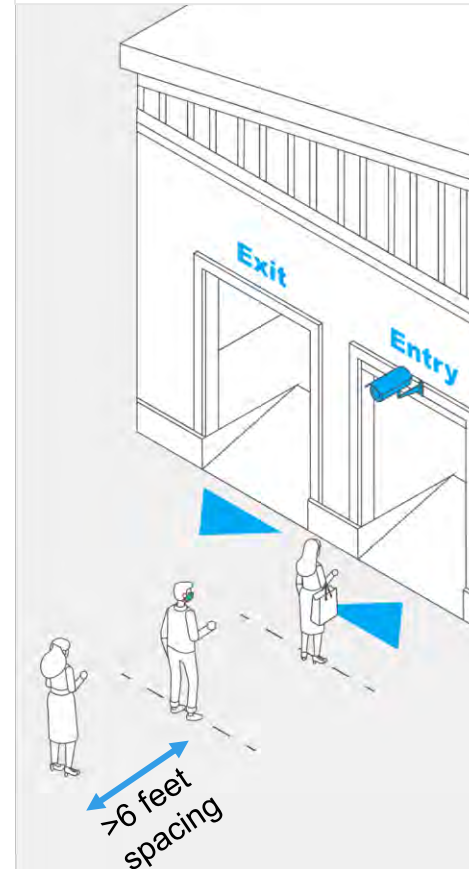


Camera controlled entry

Separate entry and exit



Maintain physical distancing in entry queue



## Separate in space & time

Office | Field

## Description of potential intervention

**Maintain 6 ft distance between individuals lining up for entry**

**Camera controlled entry** to the building after entry criteria is met to prevent congestions

**Separate points of entry and exit** to minimize and streamline contact between employees

## Where this has been done

Factories across China

South Korean conglomerate

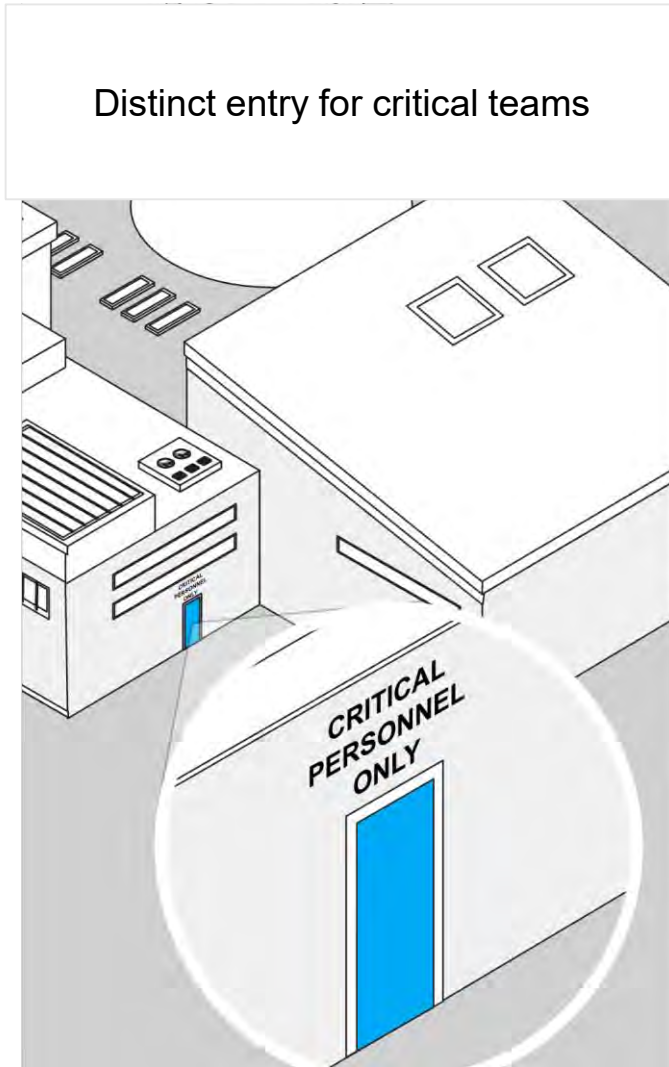
Grocery stores across the U.S.

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Increase controls at entry point (2/2)



## Separate in space & time

Office | Field

## Description of potential intervention

**Dedicate building entrances for specific teams / functions** to minimize overlap and exposure:

- For all critical personnel
- For personnel working in the control room
- For specific groups of teams

## Where this has been done

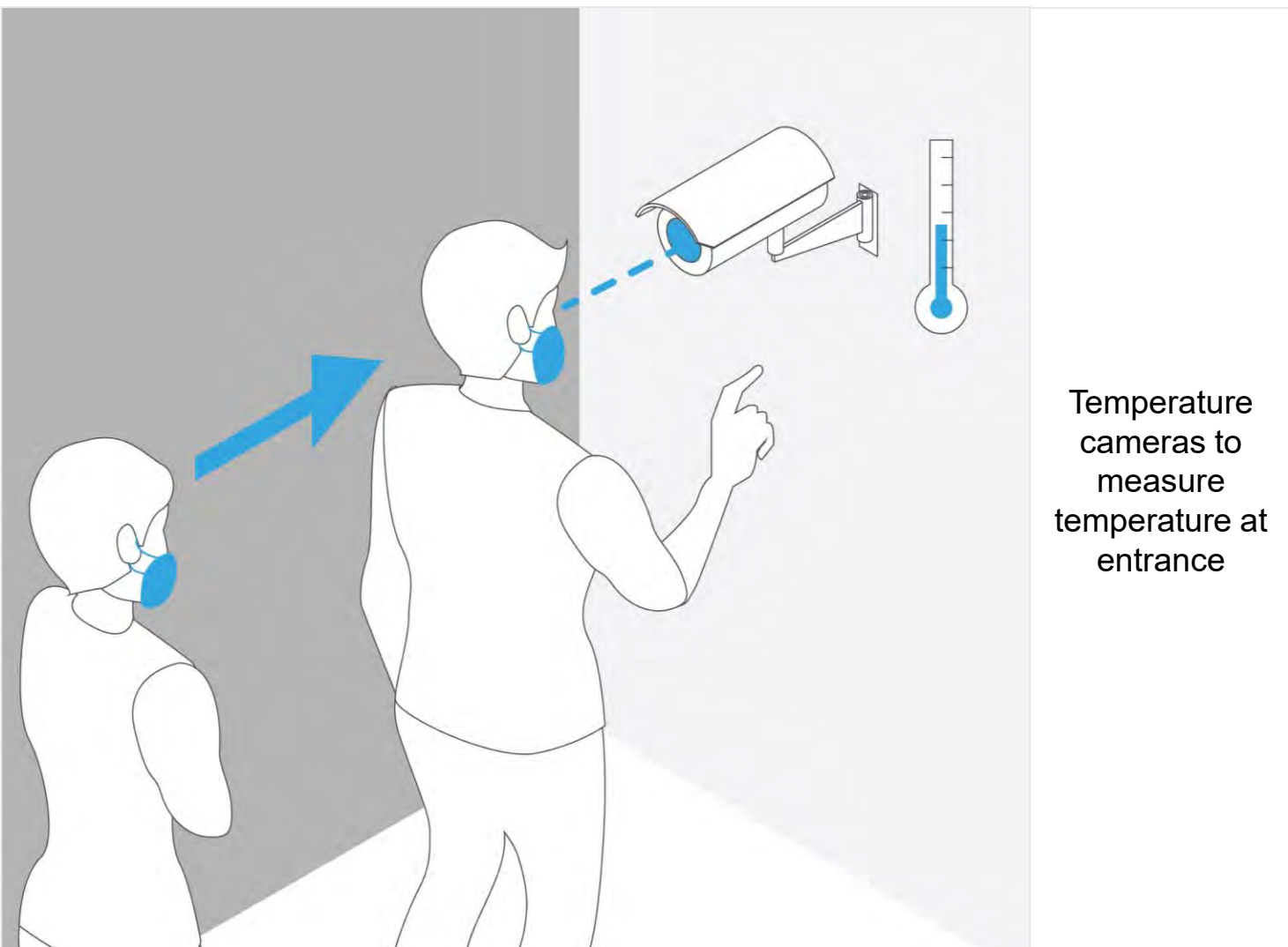
Utilities companies in the U.S.

Market operators in the U.S.

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Temperature testing stations at entry



## Test & isolate

Office | Field

### Description of potential intervention

- Conduct temperature checks** of employees
- Heat-sensing camera** implemented at entrance that tracks temperature of employees
- QR code scanner** at entry to confirm employees have passed health criteria (e.g., COVID-symptoms, not on quarantine list)

### Where this has been done

- Manufacturing plants for S. Korean conglomerates
- Corporate offices/Restaurant operators in China
- Multinational clothing retail stores in China

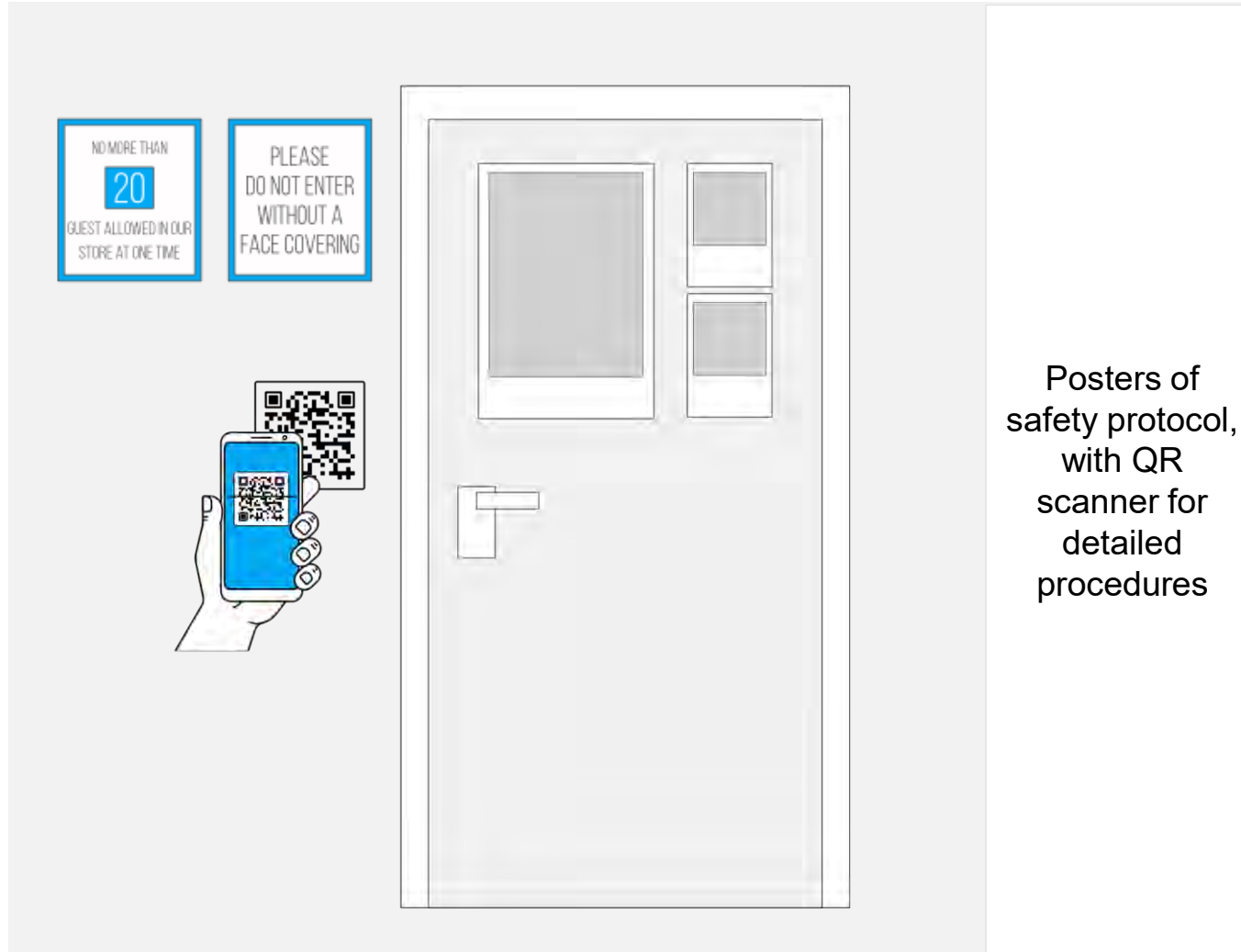
*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Clearly communicate safety protocols at entry

## Increase awareness

Office | Field



## Description of potential intervention

**Hang posters at entry points** as part of broader information and learning campaign

**Place QR code on the door** that launches an illustrated guide to the shop's safety procedures

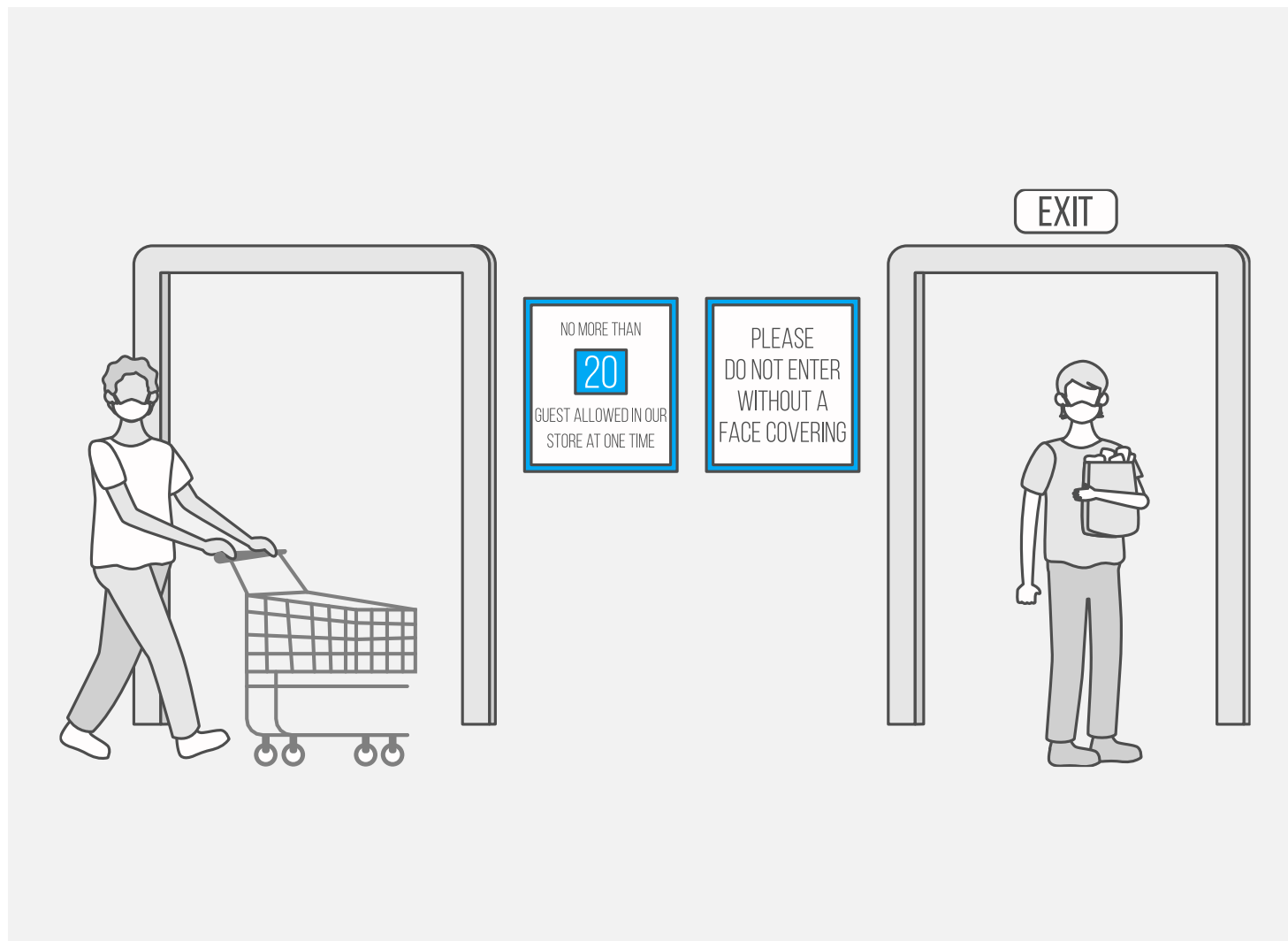
## Where this has been done

- Multinational clothing retail stores in China
- Large chain tea café in China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Limit on-site capacity



## Separate in space & time

Office | Field

## Description of potential intervention

**Update, reduce capacities for work spaces** – for employees as well as customers

**Prohibit entry for non-employees or visitors** else require visitor sign ins

**Restrict entry for specific zones** such as production floors

**Implement 1 in 1 out** measures where feasible

## Where this has been done

Grocery stores in the US

Corporate offices in China and S. Korea

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys





# Provide disinfectants as well as disinfected bags, carts and trolleys at entry

## Clean & disinfect

Office | Field



Cleaning shopping carts



Providing hand sanitizer and disinfecting wipes

## Description of potential intervention

Institute **regular cleaning of items shared by customers** (e.g., shopping carts, bags, trolleys)

**Provide hand sanitizer and disinfecting wipes** (for cellphone screens) before entry

**Require employees or customers to leave any non-essential items** in a designated storage area prior to entry

## Where this has been done

Grocery stores in the US

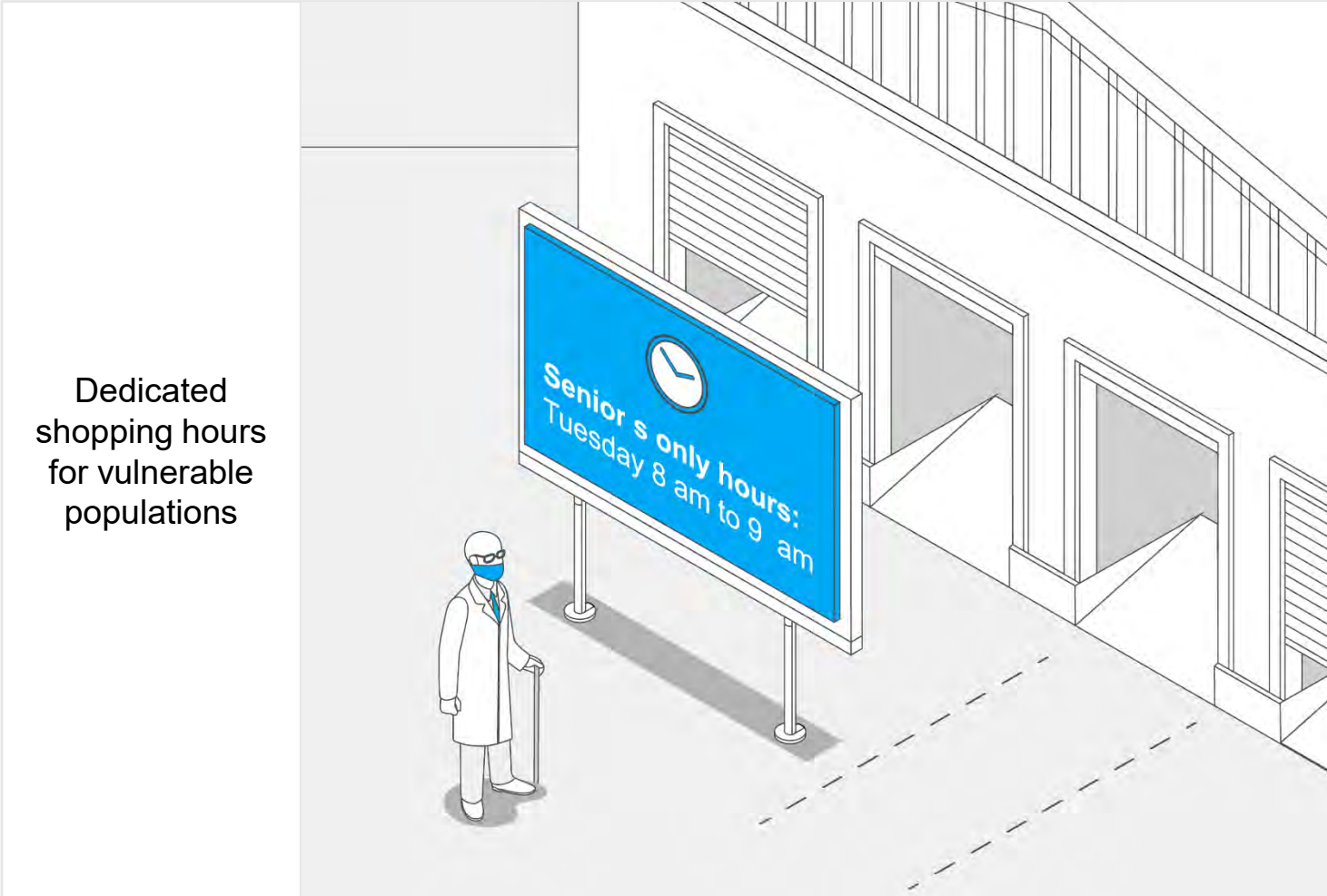
*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Separate hours for vulnerable populations

## Separate in space & time

Office | Field



Dedicated shopping hours for vulnerable populations

## Description of potential intervention

Implement **dedicated shopping hours for vulnerable groups** (elderly, persons with disabilities and pregnant women) to reduce risk of infection for at-risk persons

**Extend opening times** allow flexibility for vulnerable populations and to reduce density of customers in the store at a given time

**Balance extra hours with time allotted for extra cleaning** as well

## Where this has been done

Large grocery stores in the U.S., U.K.

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

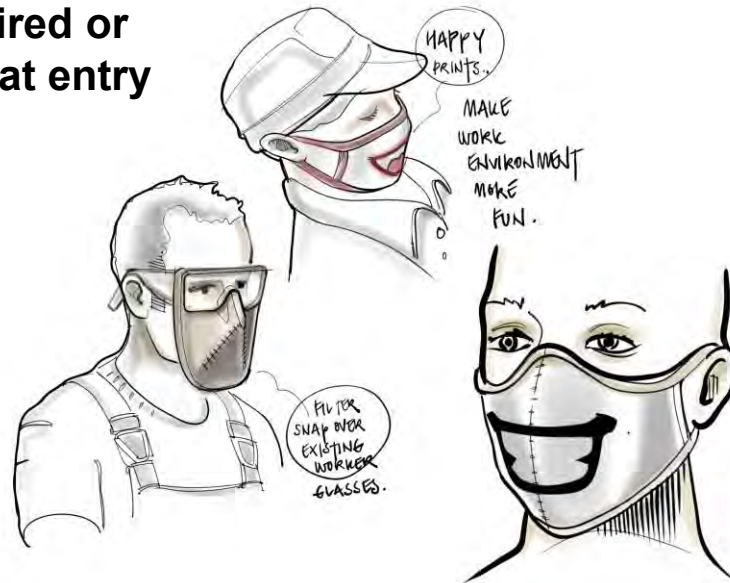
Source: Expert interviews, press search, client surveys

# Encourage or mandate appropriate PPE<sup>1</sup> gear (1/2)

## Use protective equipment

Office | Field

**PPE required or provided at entry**



## Safe working kits



**1 Critical PPE (surgical masks, N-95, etc.) must continue to be reserved for healthcare workers and other medical first responders. Use should be in accordance with local government and health organization guidelines**

## Description of potential intervention

**Forbid anyone who doesn't wear face masks** from entering into company buildings

**Alternatively, recommend face masks and gloves** in all or specifically-designated areas of the company

**Compensate employees for buying facemasks**

**Provide face masks (and safe working kits) to employees** for free and distribute upon entry

## Where this has been done

South Korean conglomerates

S. Korean multinational automotive manufacturer began preparation of mask production for its own employees

China: Multinational clothing retail brands













*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Encourage or mandate appropriate PPE<sup>1</sup> gear (2/2)

Details in Appendix

PPE Usage				
OSHA Risk Level	Respirators and masks	Gowns	Eye protection	Gloves
 <b>High-Very High Risk</b>				
 <b>Medium Risk</b>				
 <b>Low Risk</b>		<div style="border: 1px solid black; padding: 5px; display: inline-block;">                     Infrequent use of respirators and gowns in medium risk category<sup>1</sup> </div>		
<p><b>1 Critical PPE (surgical masks, N-95, etc.) must continue to be reserved for healthcare workers and other medical first responders. Use should be in accordance with local government and health organization guidelines</b></p>				

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Use protective equipment

Office | Field

## Description of potential intervention

Encourage or mandate PPE usage based on work environment:

- Healthcare workers given preference for N95 respirators (use for 5-7 days) or provided 2 masks a day
- Production employees wear polyester gloves and glasses
- Office employees and customer-facing employees given daily masks (cloth masks suffice)

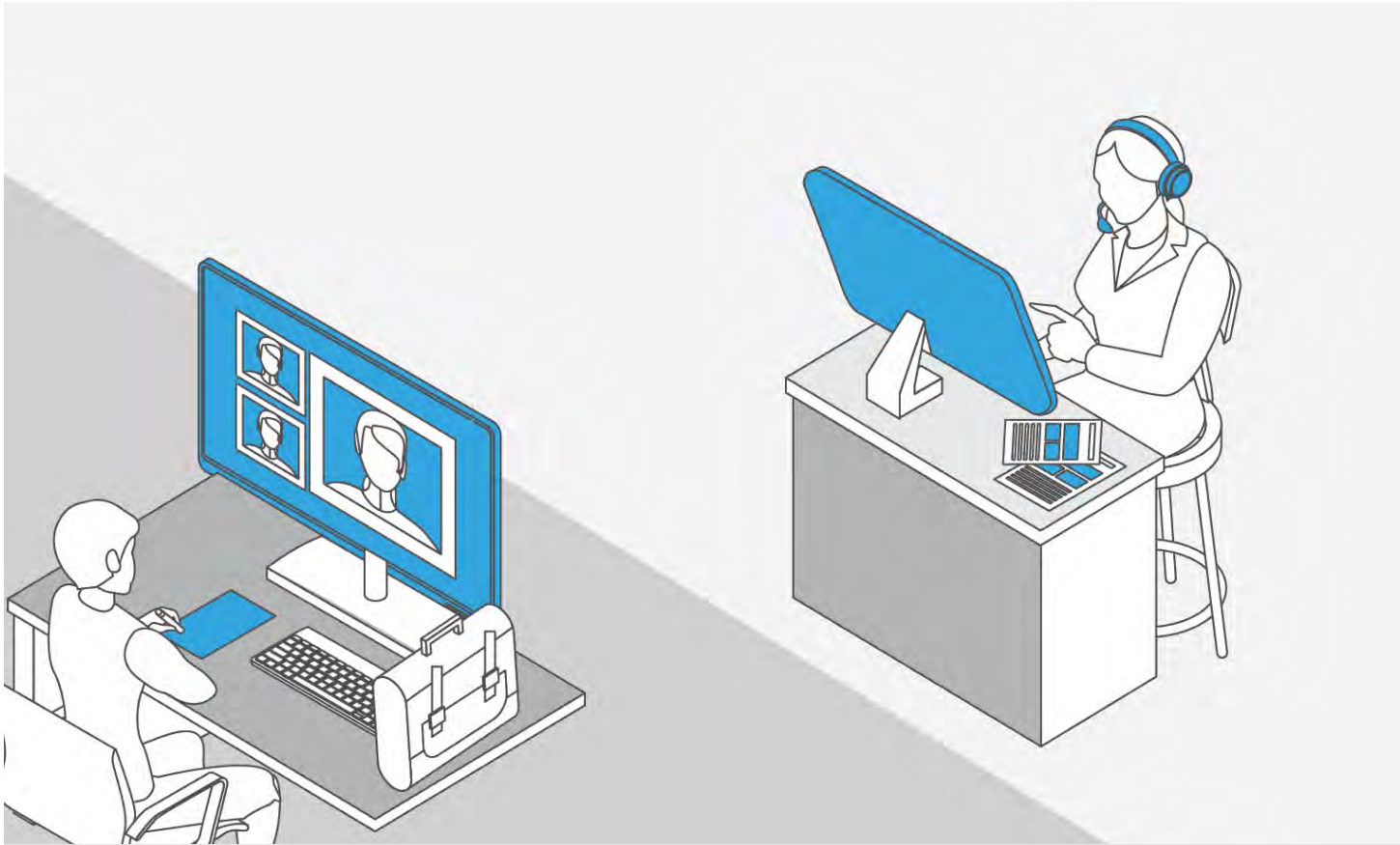
## Where this has been done

- Aerospace and Defense manufacturer in China
- Companies in South Korea
- Clothing retail stores in China
- Grocery stores in the U.S.

# Provide mental health services to employees affected by COVID-19 / quarantine

## Drive safe behavior norms

Office | Field



Teletherapy services as well as online support on navigating mental health resources

## Description of potential intervention

**Provide counselling (teletherapy) services to employees** returning to work after prolonged quarantines

**Expand benefit coverage** of EAP programs

**Hire an on-site specialist** for therapy in the office place

**Provide employees with free subscriptions** to apps that aid with better mental health practices (eg. Guided meditations)

## Where this has been done

Corporations in the U.S.

Multinational coffee house

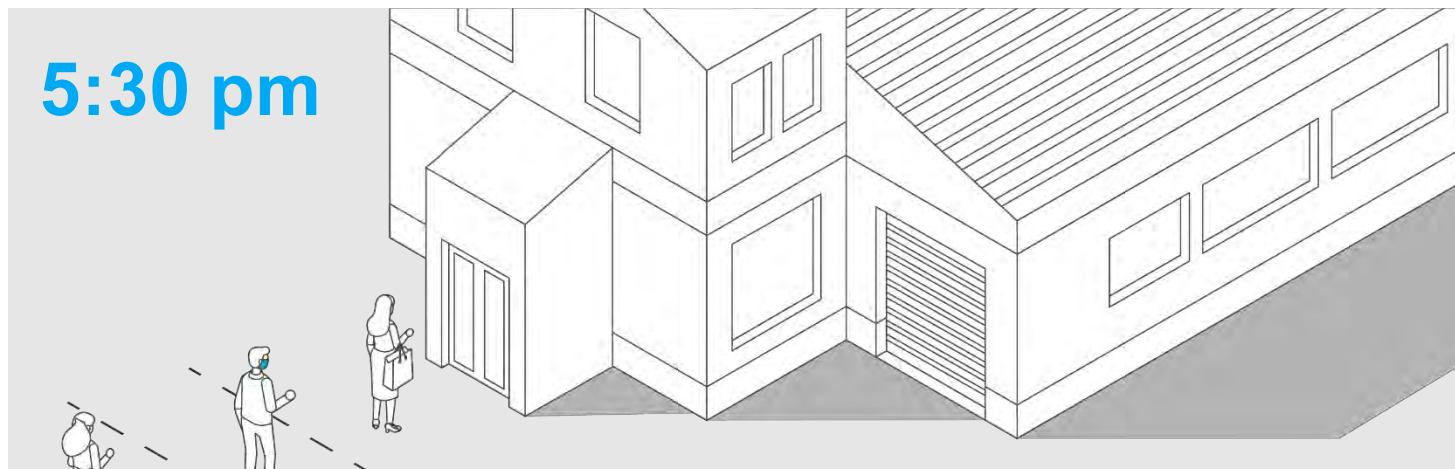
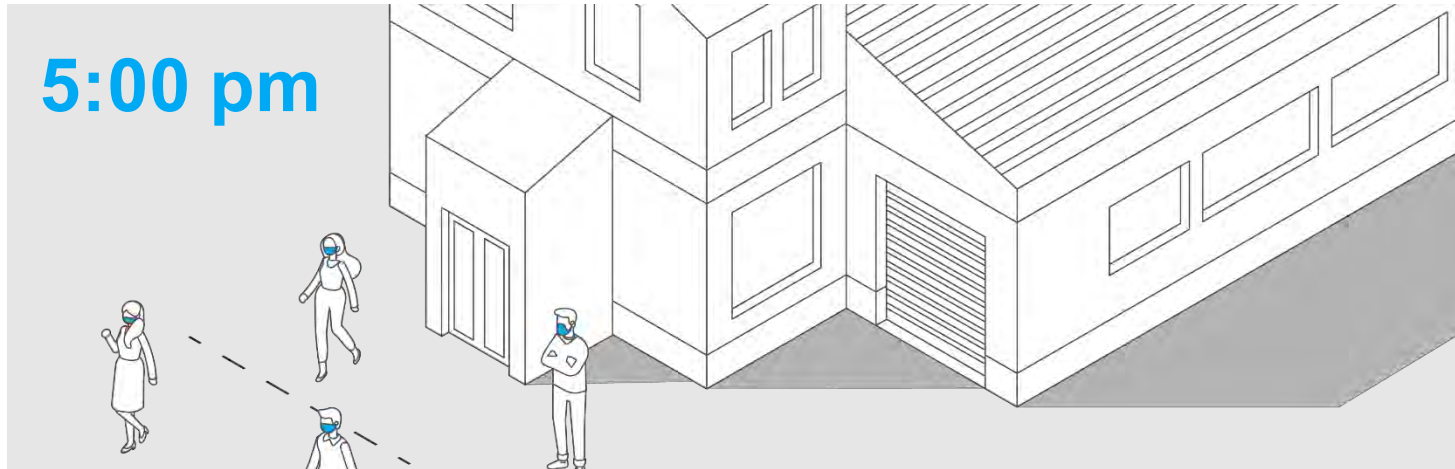
American financial services company

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

At work

# Stagger work shifts between employees



## Separate in space & time

Office

## Description of potential intervention

**Stagger shifts / implement flexible work hours** to prevent overlap between employees and improve contact tracing

**Eliminate interactions** across shifts:

- Use video conferencing for handoffs / transfers from one work shift to the next
- Use virtual onboarding and briefings (e.g., online conferencing services, conference calls)
- Conduct briefings in the field to reduce large meetings

## Where this has been done

Aerospace and defense manufacturer in China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Reduce operating hours to accommodate additional cleaning

## Clean & disinfect

Office

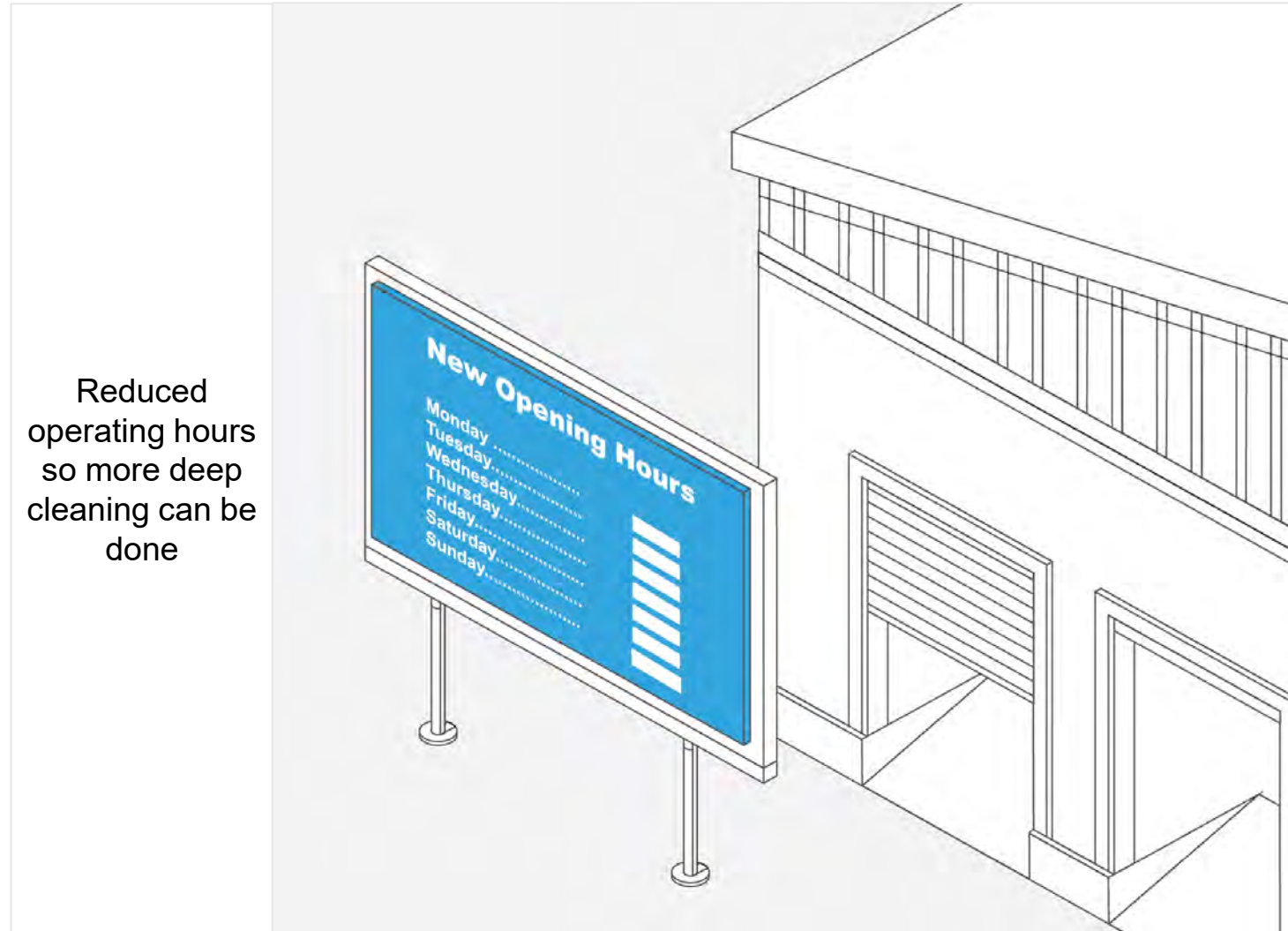
## Description of potential intervention

Reduce operating hours for deep-cleaning of the space and sanitization of products

## Where this has been done

US grocery stores

Grocery stores around the world



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Promote healthy personal habits with high-visibility signage and media campaigns

## Increase awareness

Office

### Description of potential intervention

Promote healthy habits with **high-visibility signage** across the workspace (e.g., wash hands frequently)

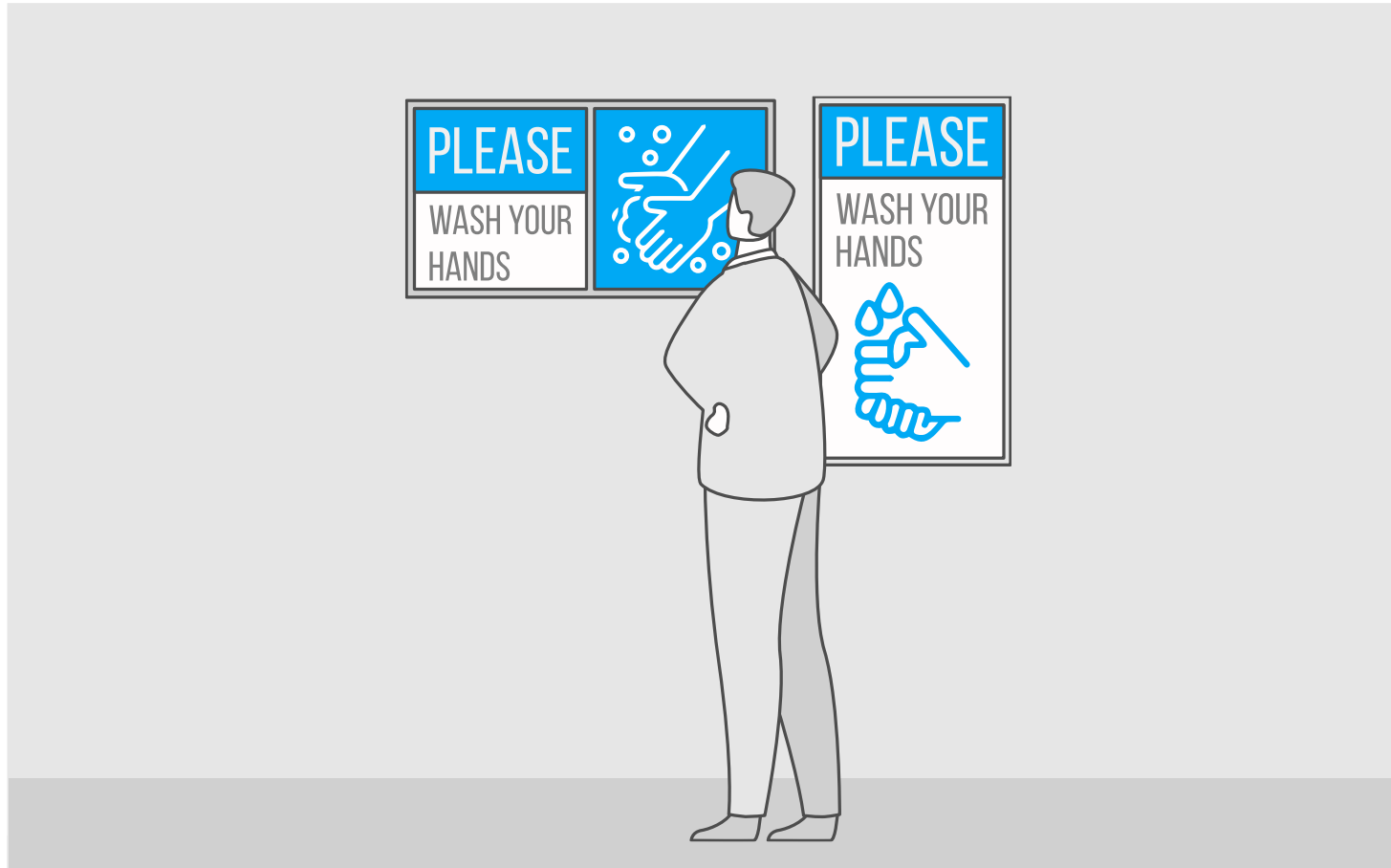
**Leverage media and advertising to create awareness** among employees and customers

### Where this has been done

Corporate offices in China

Corporate offices in US (prior to full closure)

Several multinational retail brands have used advertising to promote social distancing



Clearly denote expected practices

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Highlight new workplace safety processes and policies through prominent displays

## Increase awareness

Office

## Description of potential intervention

Display large format posters or digital displays providing prominent, frequent reminders to employees of the new workplace situation, protocols and (crucially) the rationale behind it

## Where this has been done

Corporate offices in China

## Informational materials in displays and advertising



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

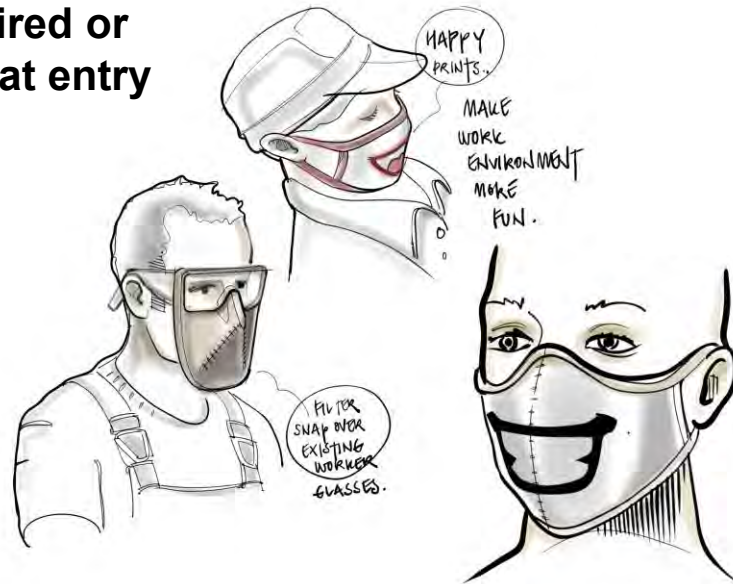
Source: Expert interviews, press search, client surveys

# Encourage or mandate appropriate PPE<sup>1</sup> gear (1/2)

## Use protective equipment

Office | Field

**PPE required or provided at entry**



**Safe working kits**



**1 Critical PPE (surgical masks, N-95, etc.) must continue to be reserved for healthcare workers and other medical first responders. Use should be in accordance with local government and health organization guidelines**

## Description of potential intervention

**Forbid anyone who doesn't wear face masks** from entering into company buildings

**Alternatively, recommend face masks and gloves** in all or specifically-designated areas of the company

**Compensate employees for buying facemasks**

**Provide face masks (and safe working kits) to employees** for free and distribute upon entry

## Where this has been done

South Korean conglomerates

S. Korean multinational automotive manufacturer began preparation of mask production for its own employees

China: Multinational clothing retail brands













*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Encourage or mandate appropriate PPE<sup>1</sup> gear (2/2)

Details in Appendix

PPE Usage				
OSHA Risk Level	Respirators and masks	Gowns	Eye protection	Gloves
 <b>High-Very High Risk</b>				
 <b>Medium Risk</b>				
 <b>Low Risk</b>		<div style="border: 1px solid black; padding: 5px; display: inline-block;">                     Infrequent use of respirators and gowns in medium risk category<sup>1</sup> </div>		
<p><b>1 Critical PPE (surgical masks, N-95, etc.) must continue to be reserved for healthcare workers and other medical first responders. Use should be in accordance with local government and health organization guidelines</b></p>				

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Source: Expert interviews, press search, client surveys

## Use protective equipment

Office | Field

## Description of potential intervention

Encourage or mandate PPE usage based on work environment:

- Healthcare workers given preference for N95 respirators (use for 5-7 days) or provided 2 masks a day
- Production employees wear polyester gloves and glasses
- Office employees and customer-facing employees given daily masks (cloth masks suffice)

## Where this has been done

- Aerospace and Defense manufacturer in China
- Companies in South Korea
- Clothing retail stores in China
- Grocery stores in the U.S.

# Limit sharing and disinfect PPE at regular intervals



## Use protective equipment

Office | Field

### Description of potential intervention

**Ensure protective clothing and PPE** (including masks/face coverings) **are not shared** between employees or contractors or limit sharing to the extent possible

**Disinfect employee uniforms** at the end of the day

**Provide mask disinfection cabinets** at regular distances

### Where this has been done

Multinational automotive manufacturer in China

Utilities companies in the U.S.

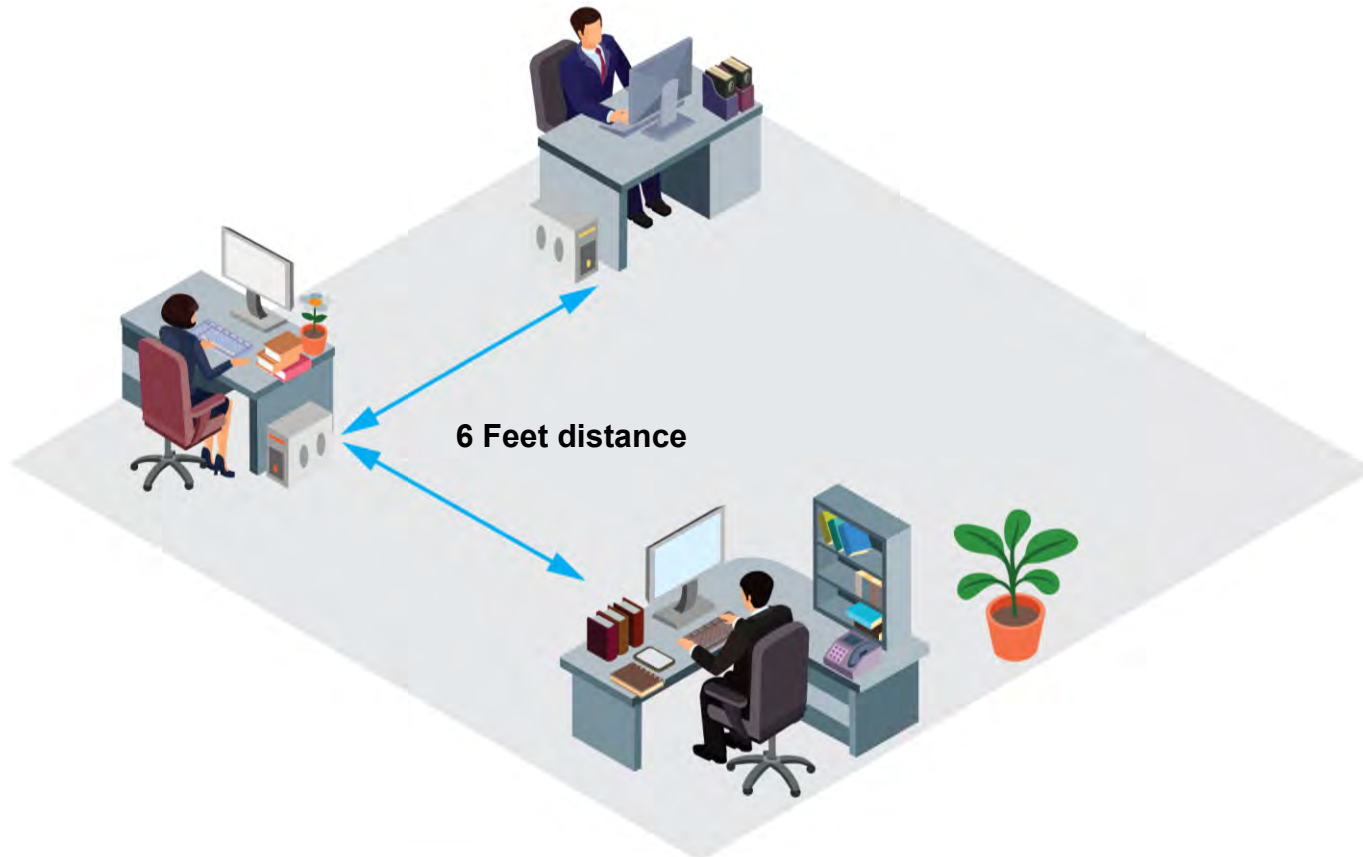
Power plants in the U.S.

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Ensure physical separation within the office space

## Separate seating arrangements



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Separate in space & time

Office

## Description of potential intervention

**Redo seating arrangement** to reduce contact and transmission risk between employees

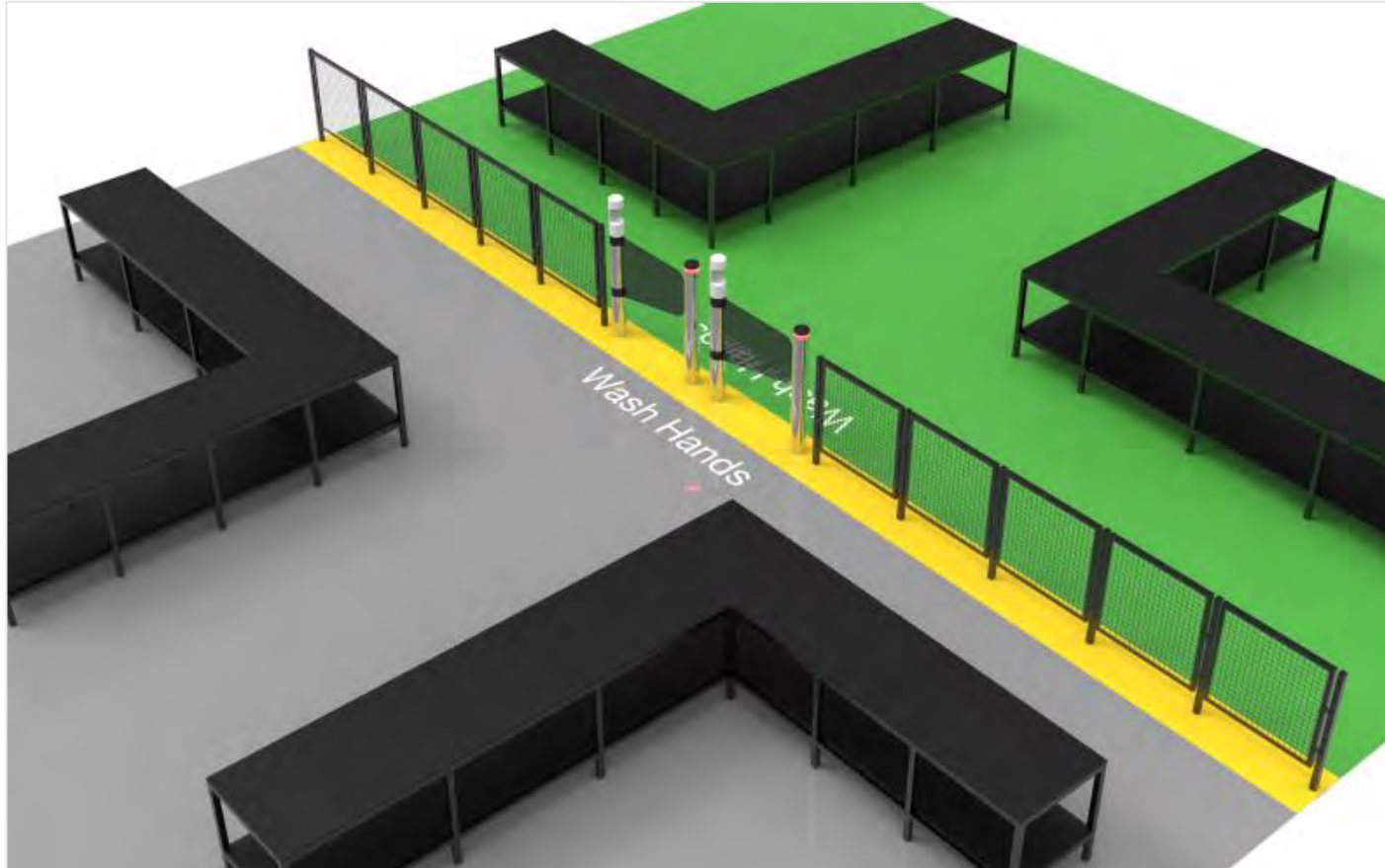
**Allocate permanent seats and temporarily restrict free seating assignment systems**

## Where this has been done

Corporate offices for conglomerates in S. Korea

# Ensure physical separation through the use of zones

## Clear separation of zones



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Separate in space & time

Office

## Description of potential intervention

**Separate different zones in manufacturing plants**, with limited movement for employees between zones

**Spread employee at least (3 feet)** to an extent possible on the manufacturing floor

**Break up call center into zones** with separate break areas, entrances and restrooms. Tape off with signage and prohibit crossing of zones without disinfection

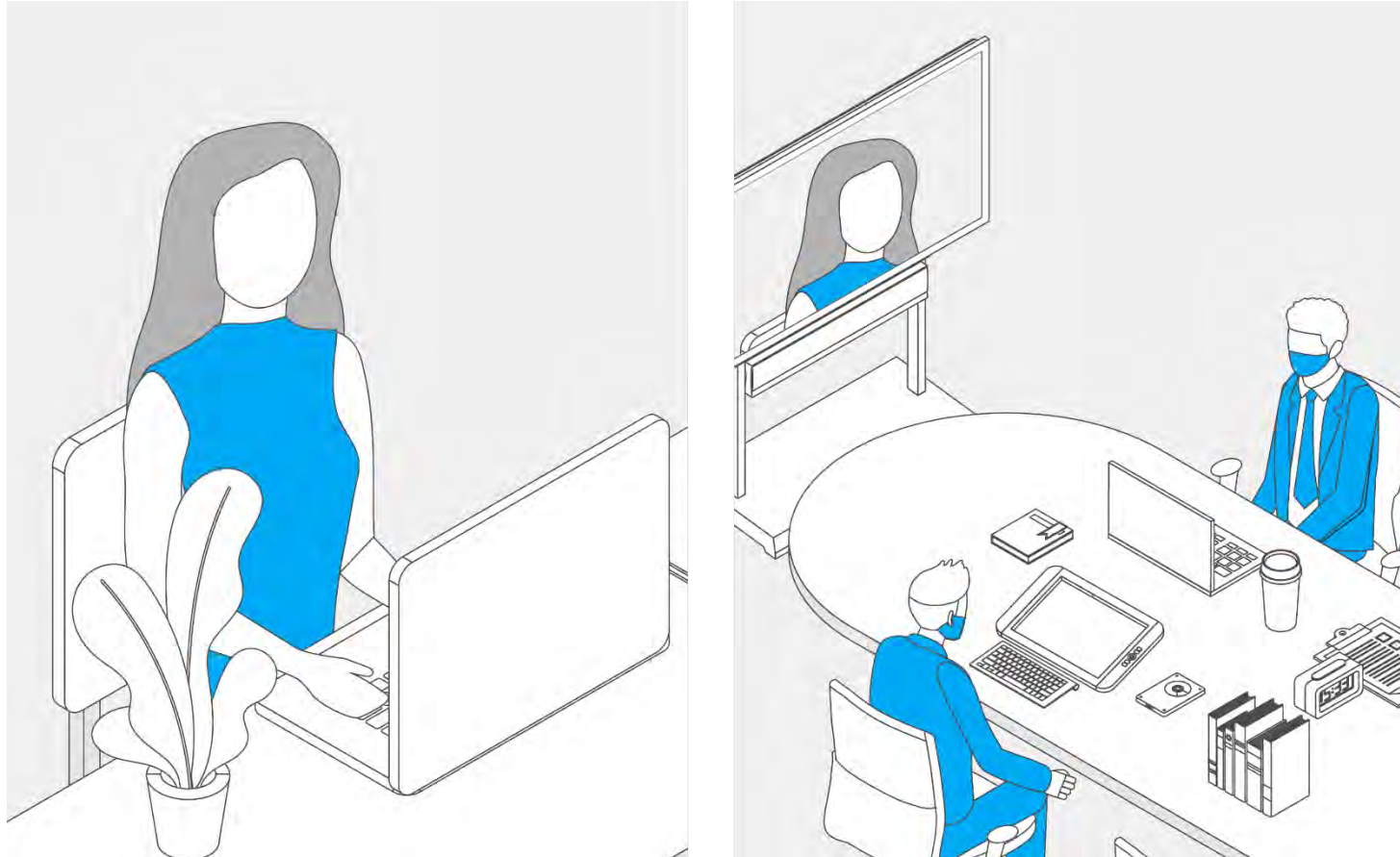
**Restrict movement through various parts of the office** for staff working in that particular section

## Where this has been done

Factories in China



# Establish “remote-first” practices to improve culture for remote colleagues



Adopt “remote-first” culture of video conferencing even when in the office

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Drive safe behavior norms

Office | Field

## Description of potential intervention

Establish the **Big 5** of “remote-first” culture:

- Video conferencing by default
- Accessible, structured, and documented team meetings
- Document everything – decisions, work in progress, etc.
- No sidebar conversations (unless you document them)
- Planned together-time (e.g., offsites)

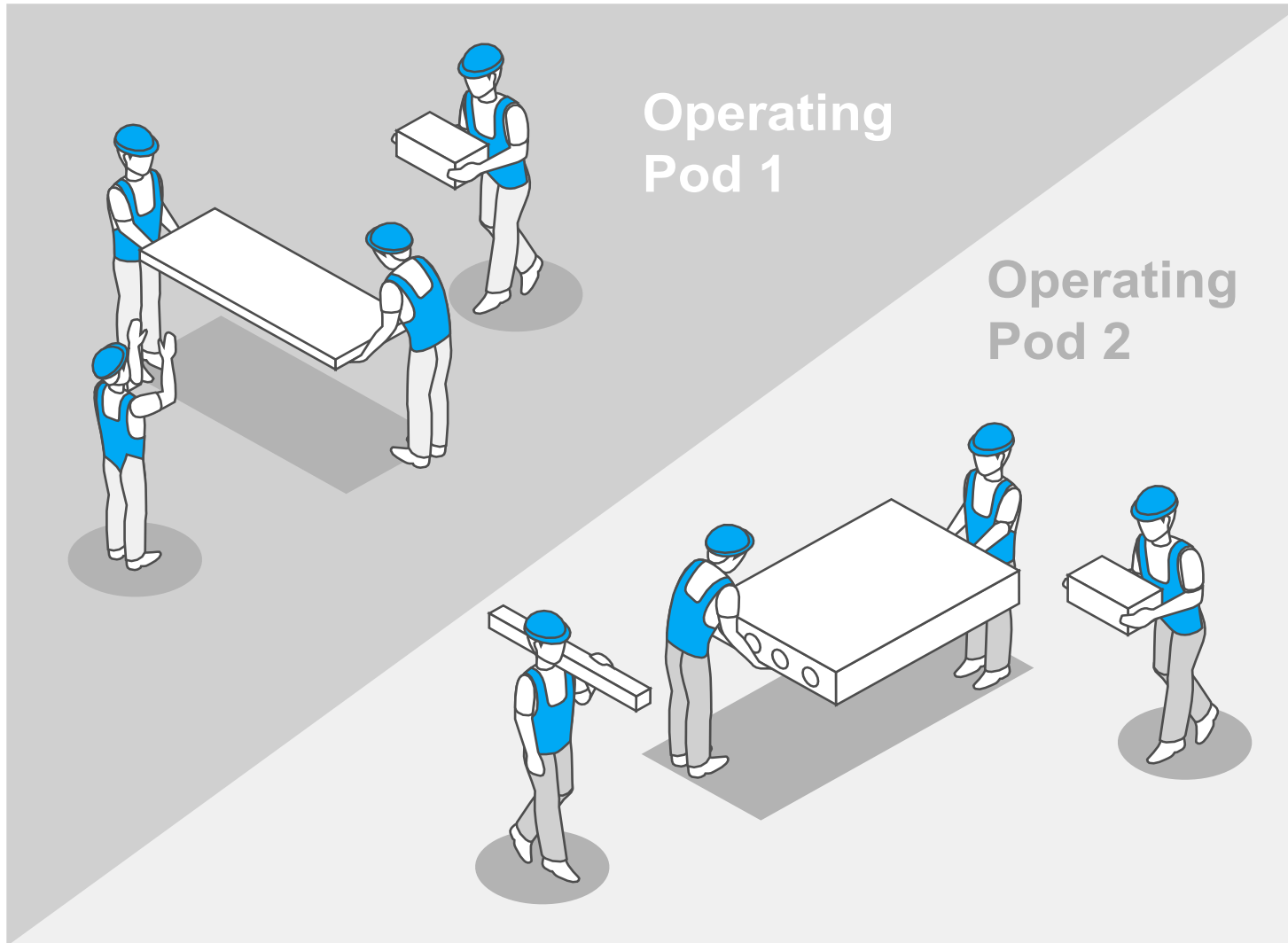
**Consistently use digital tools** (e.g., code management, documentation management, defect tracking, integration)

## Where this has been done

Large American financial services corporation



# Group employees into critical function teams, operating pods or work shifts (1/2)



## Separate in space & time

Office | Field

## Description of potential intervention

**Group employees into “operating pods” that stick together** (work, travel, live, and eat, as applicable) to facilitate health tracking and reduce risk of infection between different pods

**Divided critical function teams** with groups alternating work in-office or using satellite sites

**Restrict retail work shifts to the same group of employees** with minimal overlap time between groups

Alter assignments for work tasks that must occur in close proximity (less than 6 feet) by pairing technicians into a “team” and do not rotate individuals with other teams

## Where this has been done

Multinational electronics manufacturer in China

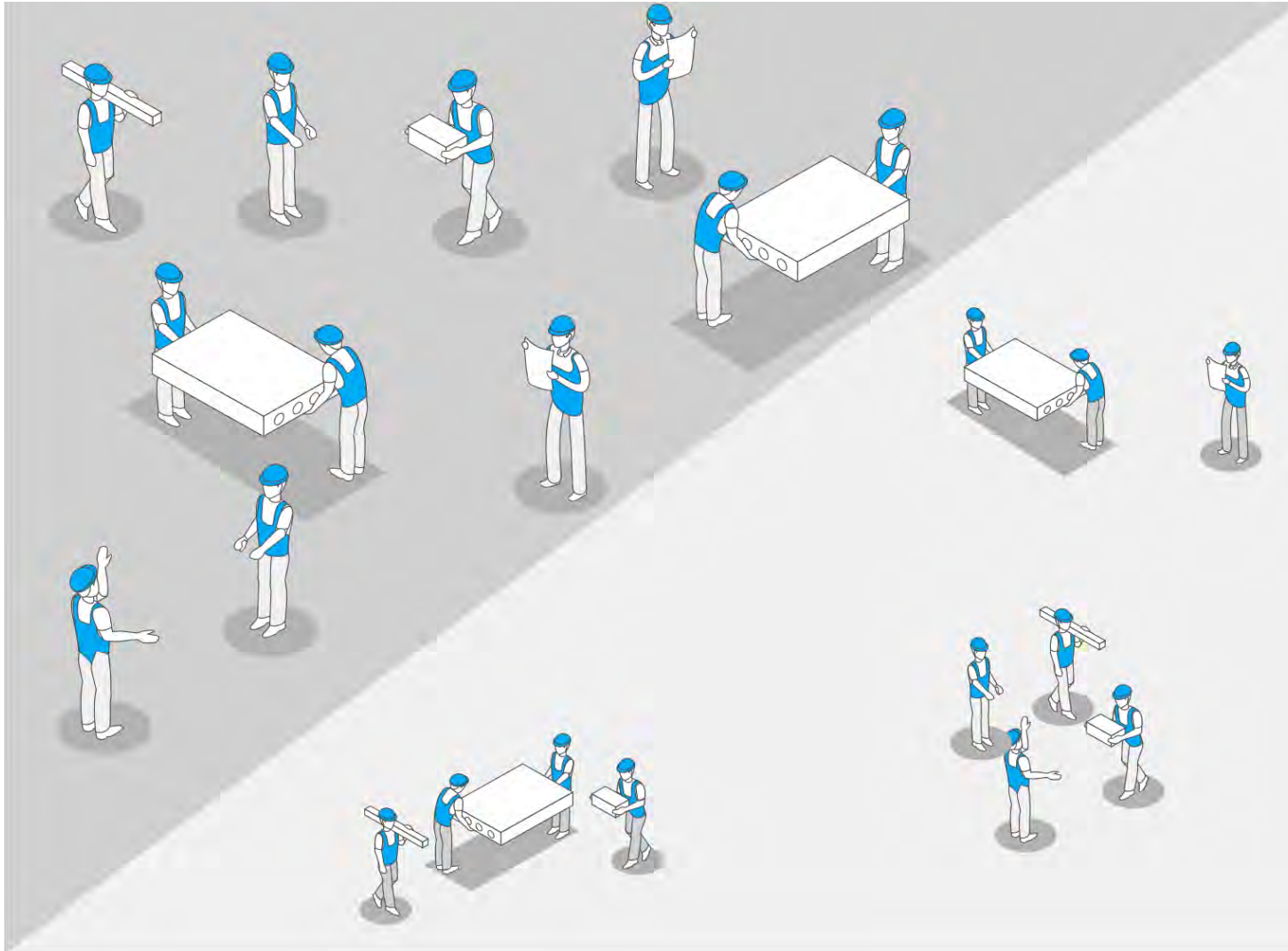
*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Group employees into critical function teams, operating pods or work shifts (2/2)

## Separate in space & time

Office | Field



## Description of potential intervention

Shift to **multiple, smaller staging sites** instead of concentrated, larger staging sites to limit contact-with / exposure-to larger crews

Design smaller staging sites to **allow CDC distancing** recommendations to be followed (currently 6 feet of distancing at all times)

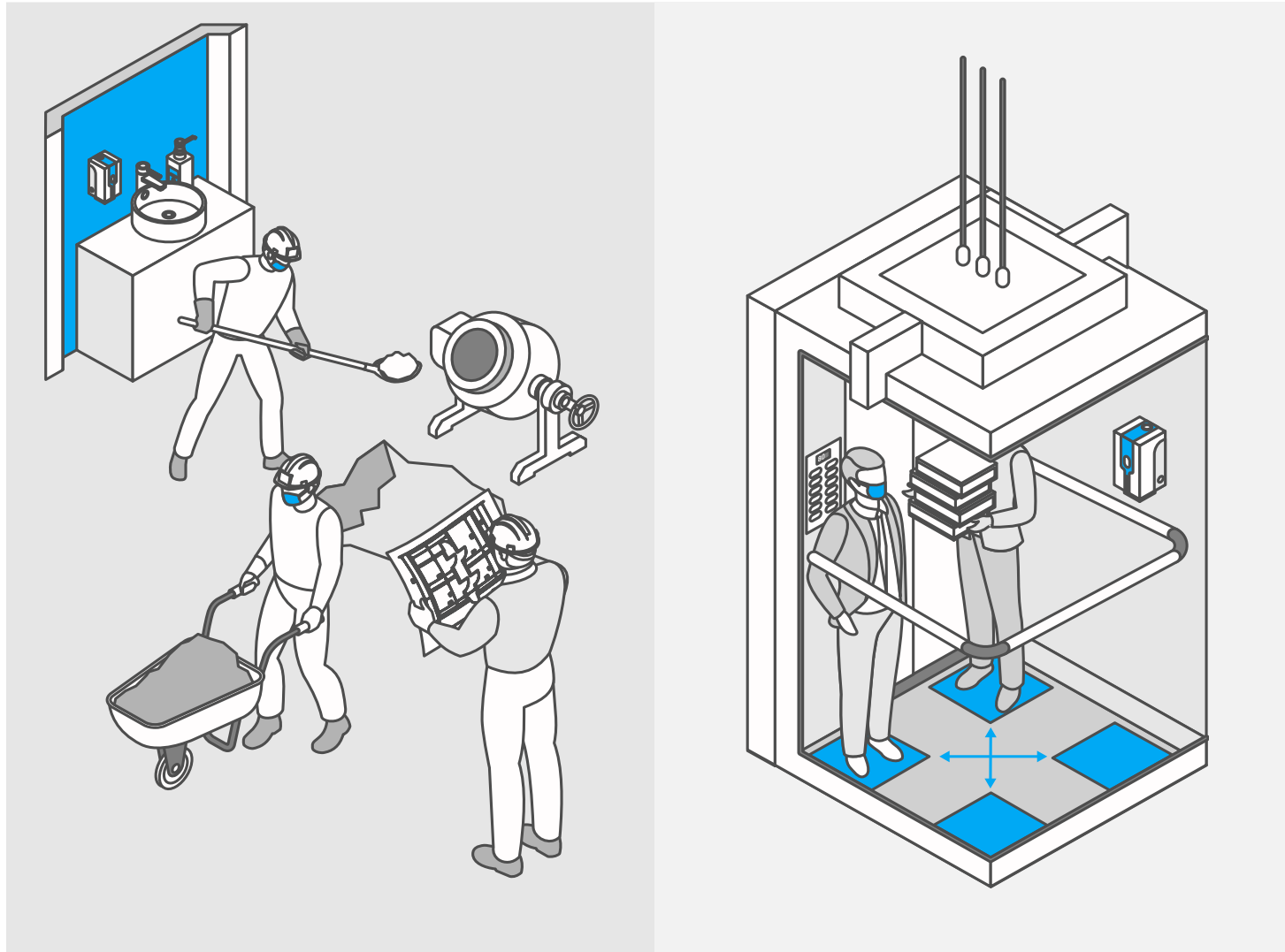
## Where this has been done

Factories in China have used partitions to split projects into smaller groups

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Provide cleaning equipment to employees and customers



## Clean & disinfect

Office | Field

### Description of potential intervention

**Provide cleaning supplies, hand sanitizer, and sanitation supplies, for all crews located at staging areas**

Installation of **hand sanitizer dispensers** throughout building

**Disinfecting wipes** available in neighborhoods and meeting rooms

**UV light cell phone disinfectants** available in both lobbies

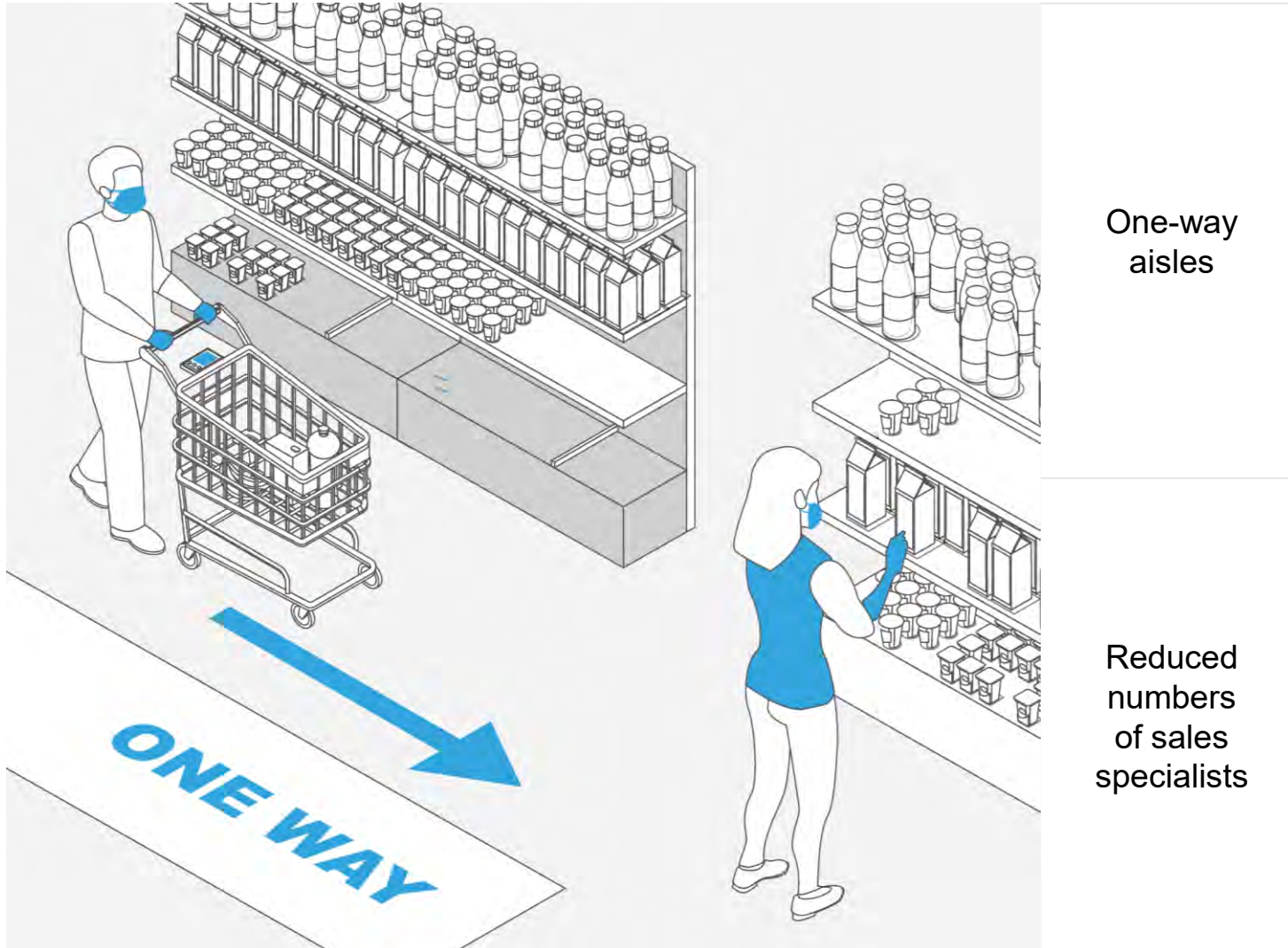
### Where this has been done

Corporate offices and manufacturing plants worldwide

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Implement one-way store aisles with fewer sales specialists



One-way  
aisles

Reduced  
numbers  
of sales  
specialists

## Separate in space & time

Office | Field

## Description of potential intervention

Implement **one-way aisles in stores** to reduce density of traffic and unnecessary interactions

**Reduce the number of sales specialists on the floor** to decrease congestion and transmission risk

## Where this has been done

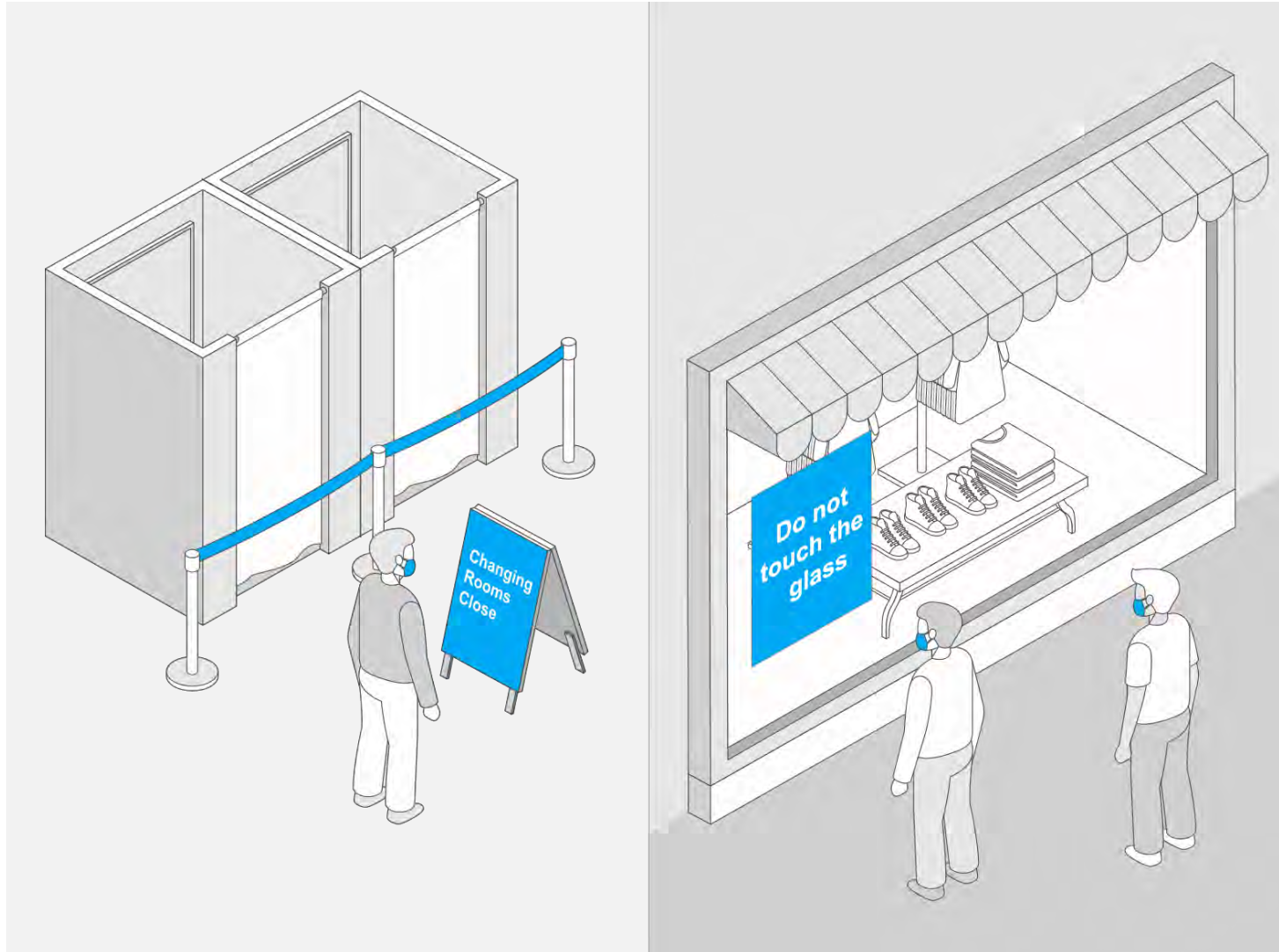
Grocery stores in China/U.S.

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Reduce in-store services with high contact



## Drive safe behavior norms

Office | Field

## Description of potential intervention

**Eliminate in-store food samples** in grocery stores / restaurants

**Discourage touching of merchandise / trying on of clothes** (e.g., signs to not touch glass, close changing rooms)

**Disinfect test products** after each demo

**Encourage customers not to return items to shelves**

## Where this has been done

Large US supermarkets

Multinational clothing-retailers

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

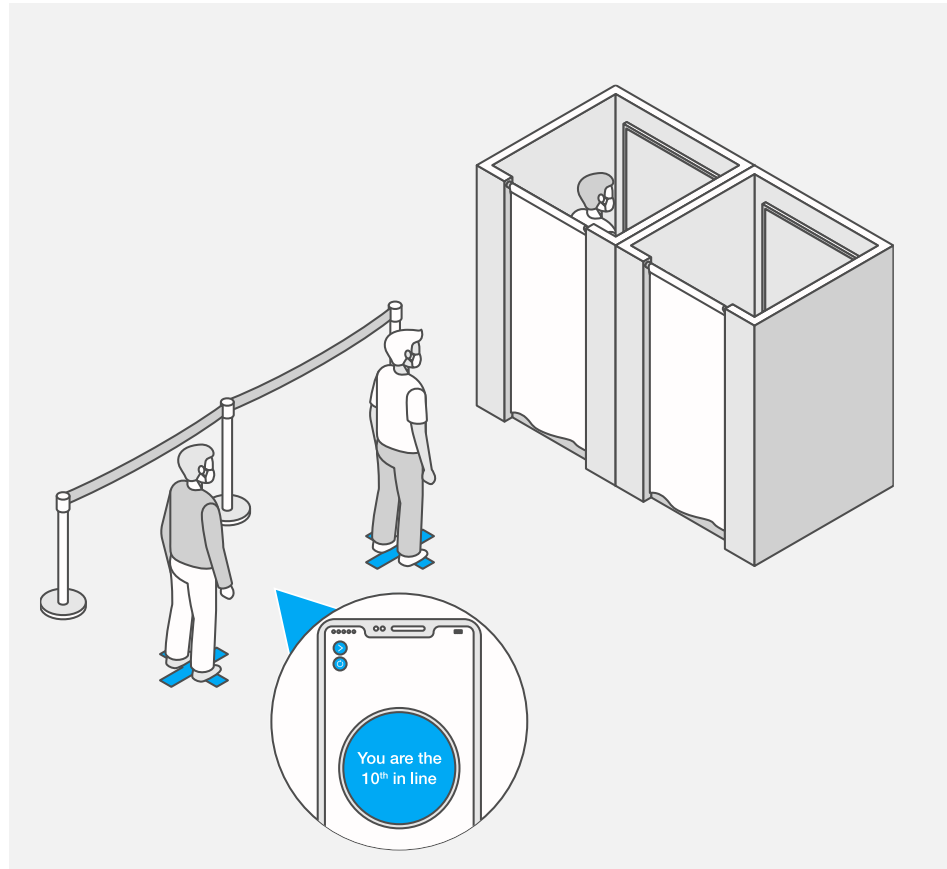
Source: Expert interviews, press search, client surveys



# Ensure physical separation between customers

## Separate in space & time

Office | Field



Queue for fitting room



Spacing between employees and customers

## Description of potential intervention

Require distance of at least 6 feet between shoppers

Space out customer queues for fitting rooms and at cashiers with floor markers

Adopt virtual waiting area / queue and use online appointment scheduling where feasible

## Where this has been done

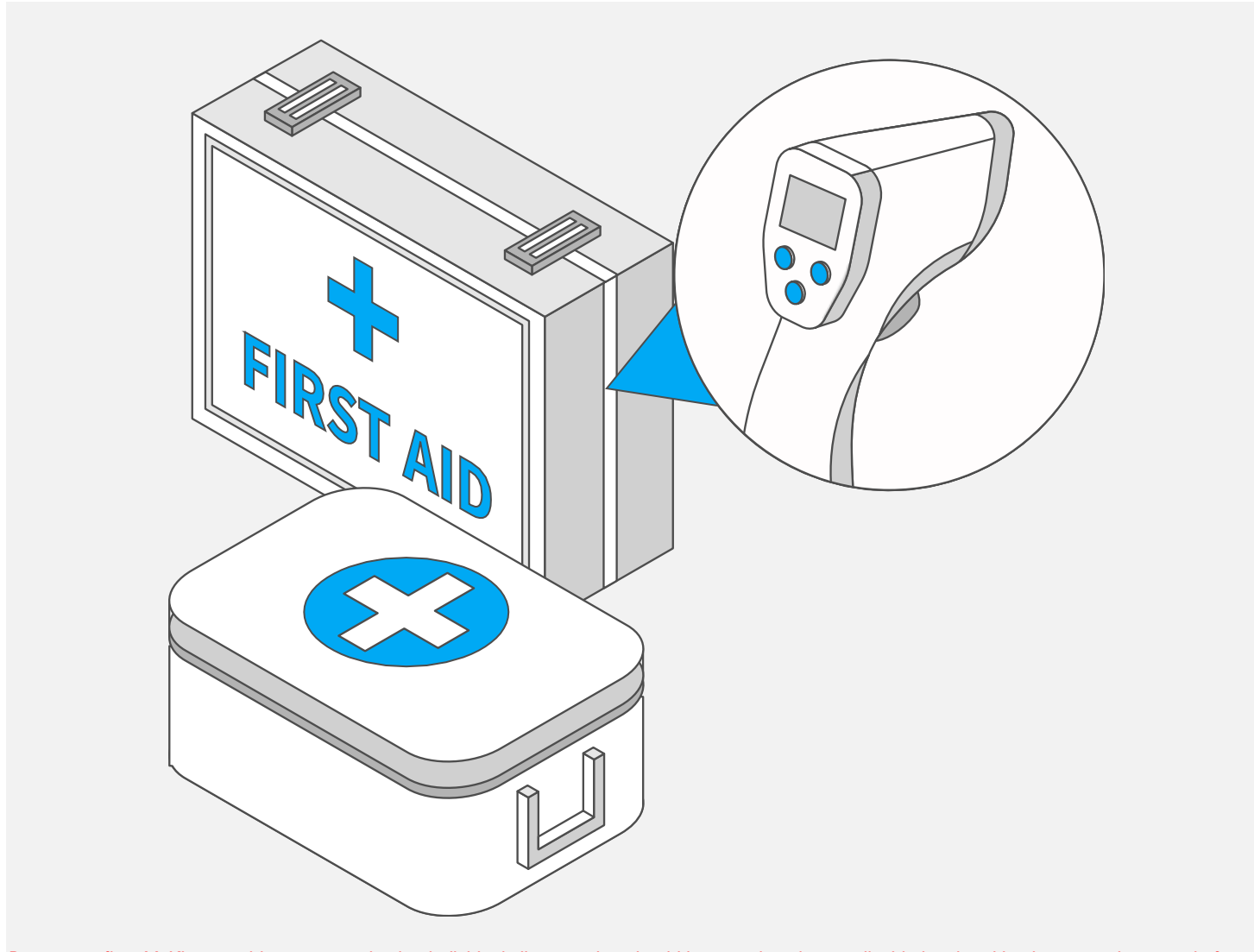
Grocery stores in the U.S.

Multinational retail stores in China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Have contactless thermometers visibly available onsite



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

Pre-entry

Travel to work

**At Work**

Common areas

Post-infection

## Upgrade equipment

Office | Field

### Description of potential intervention

Include contactless thermometers in all offices and worksites (e.g., in first aid kits) to encourage safe, opt-in temperature testing through the day

### Where this has been done

Global corporate offices of large fast food chain

# Minimize person-to-person contact for material distribution

Pre-entry

Travel to work

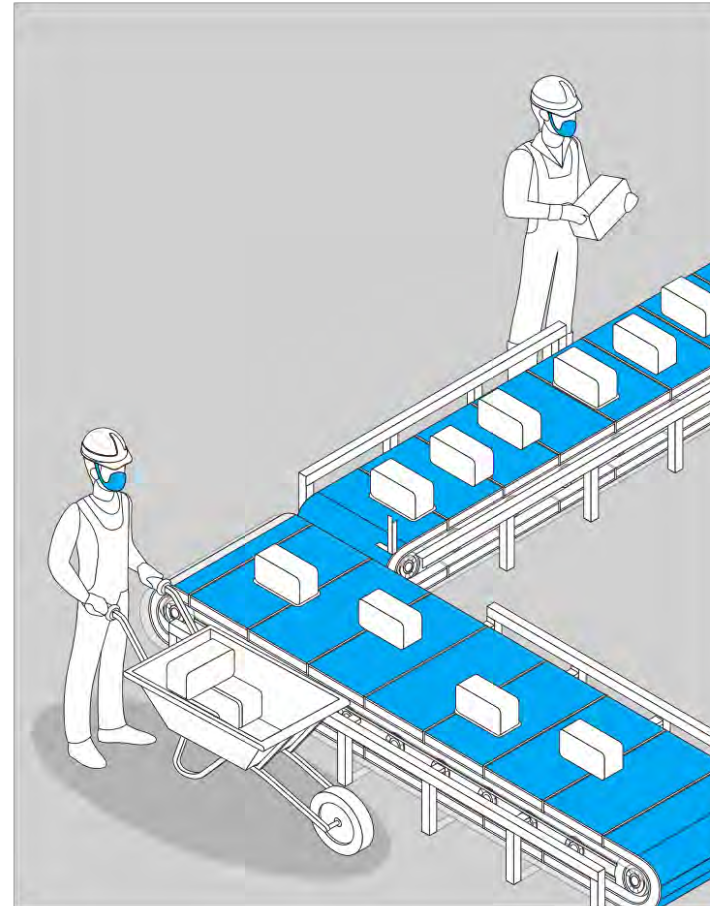
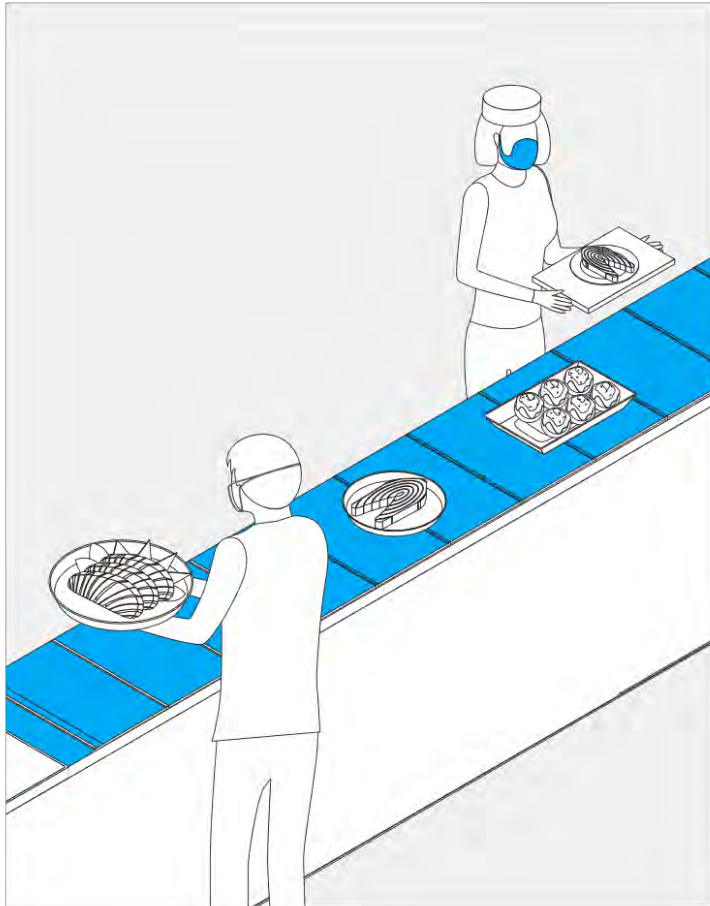
At Work

Common areas

Post-infection

## Separate in space & time

Office | Field



## Description of potential intervention

Minimize person-to-person contact for material distribution by **using drop points**

Increase **use of conveyer belts for material distribution** such as for material deliveries on factory floors

**Use small slides and conveyer belts for food transfer** between employees and customers

## Where this has been done

Restaurants in China

Utilities companies in the U.S.

Manufacturing factories in China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Institute a clean desk/ work station policy for all employees

## Drive safe behavior norms

Office

### Description of potential intervention

**Institute a clean desk policy** to support overall office health and safety with daily cleaning and disinfection after the work day

### Where this has been done

Global corporate offices of large fast food chain



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Limit larger gatherings/ meetings of employees

Encourage  
video/audio  
calls



Repurpose  
conference  
rooms



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Drive safe behavior norms

Office | Field

## Description of potential intervention

**Limit in-person gatherings** to no more than 2 people to a room

**Cancel non-business-critical, in-person activities** (e.g., happy hours, community service)

**Hold necessary group meetings** (e.g., Town Hall, Steering Committee, Board meetings) **via Video Conference** wherever possible (even if employees are in the office)

## Where this has been done

American multinational companies

Corporate offices in South Korea



# Move in-person processes to digital



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Drive safe behavior norms

Office | Field

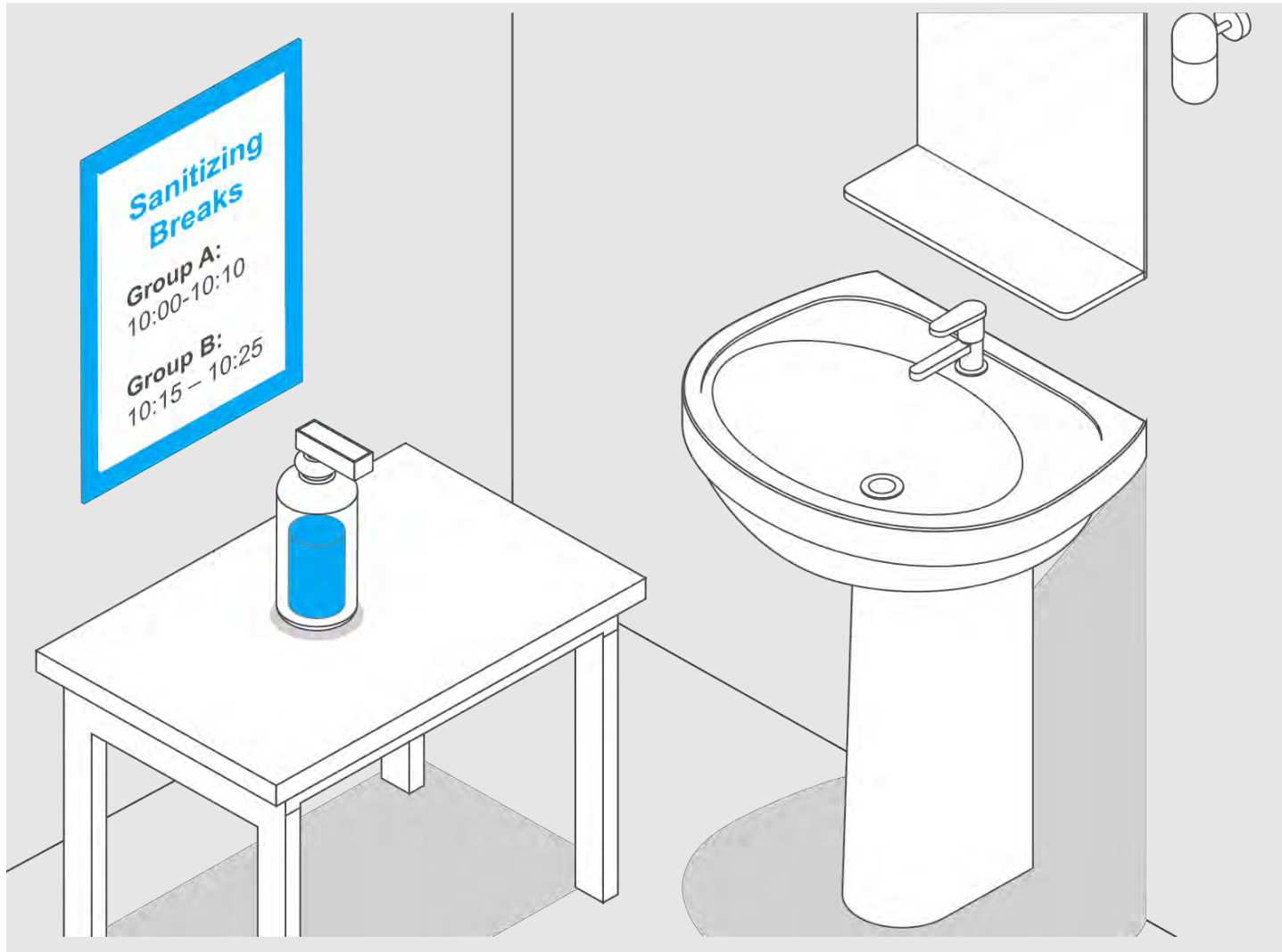
## Description of potential intervention

Move **paper-based / in-person processes to digital forms** (e.g., various construction forms, check-lists, maps, timesheets)

## Where this has been done

- Retail multinationals digitizing sales process
- Corporate offices digitizing badging-in / sign-in process
- Hotel chains and retailers in North America
- Utilities companies in the U.S.

# Encourage frequent and staggered sanitization breaks for all employees



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Clean & disinfect

Office | Field

### Description of potential intervention

Have opt-in, staggered hand washing breaks to allow for frequent cleaning without causing congestions

Encourage use of alcohol-based hand sanitizer at certain time intervals

### Where this has been done

Corporate offices and manufacturing plants in China

# Monitor best-practice adherence to inform helpful interventions



Require badge scans when moving between rooms

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

Pre-entry

Travel to work

At Work

Common areas

Post-infection

## Drive safe behavior norms

Office | Field

### Description of potential intervention

**Install badge scanners** at the entrance to each room and require employee use to generate live data of employee traffic for:

- Identifying **outlier employees** with high transmission potential (e.g., move through 10x more rooms and floors than avg)
- **Intervening effectively** with empirical data on movement patterns
- Better understanding **high-traffic areas** to reorganize office norms and equipment accordingly

Have **digital sign-in desks** between rooms (both monitoring and discouraging excessive movement)

### Where this has been done

Corporate offices in the U.S.

# Emphasize high-frequency, high-visibility cleaning (1/2)

## Clean & disinfect

Office



Visible cleaning schedules displayed

High-frequency cleaning – increased to every 2 hours from every 6 hours

## Description of potential intervention

**Frequent cleaning of high-traffic areas / surfaces** (e.g., lobbies, communal tables, cafeterias, bathrooms, elevators, stairways)

**Clearly demarcate surfaces that are frequently contacted** by employees to raise awareness.

**Increase frequency of cleaning of demarcated surfaces** throughout the workday

**Increased routine sanitization** of common areas to every 2 hours from every 6 hours

## Where this has been done

Automotive manufacturer in S. Korea

US grocery stores

Corporate offices in the U.S.

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Emphasize high-frequency, high-visibility cleaning (2/2)

Pre-entry

Travel to work

At Work

Common areas

Post-infection

## Clean & disinfect

Office

### Description of potential intervention

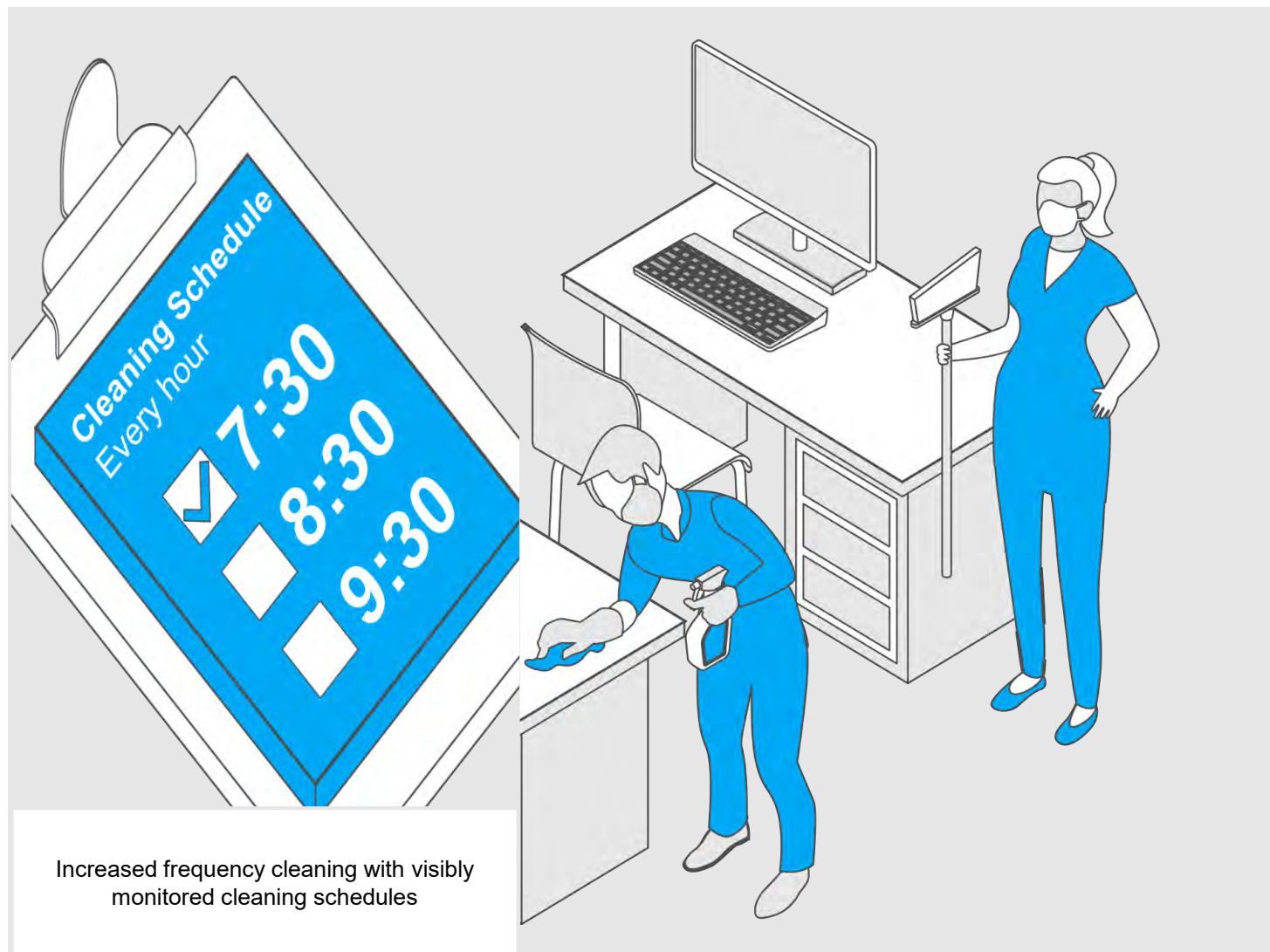
Visible recording and monitoring of cleaning

Cleaners can update a 'confirmation of cleaning' list or display in a highly prominent location upon completion of cleaning.

### Where this has been done

Corporate offices in China

US grocery stores



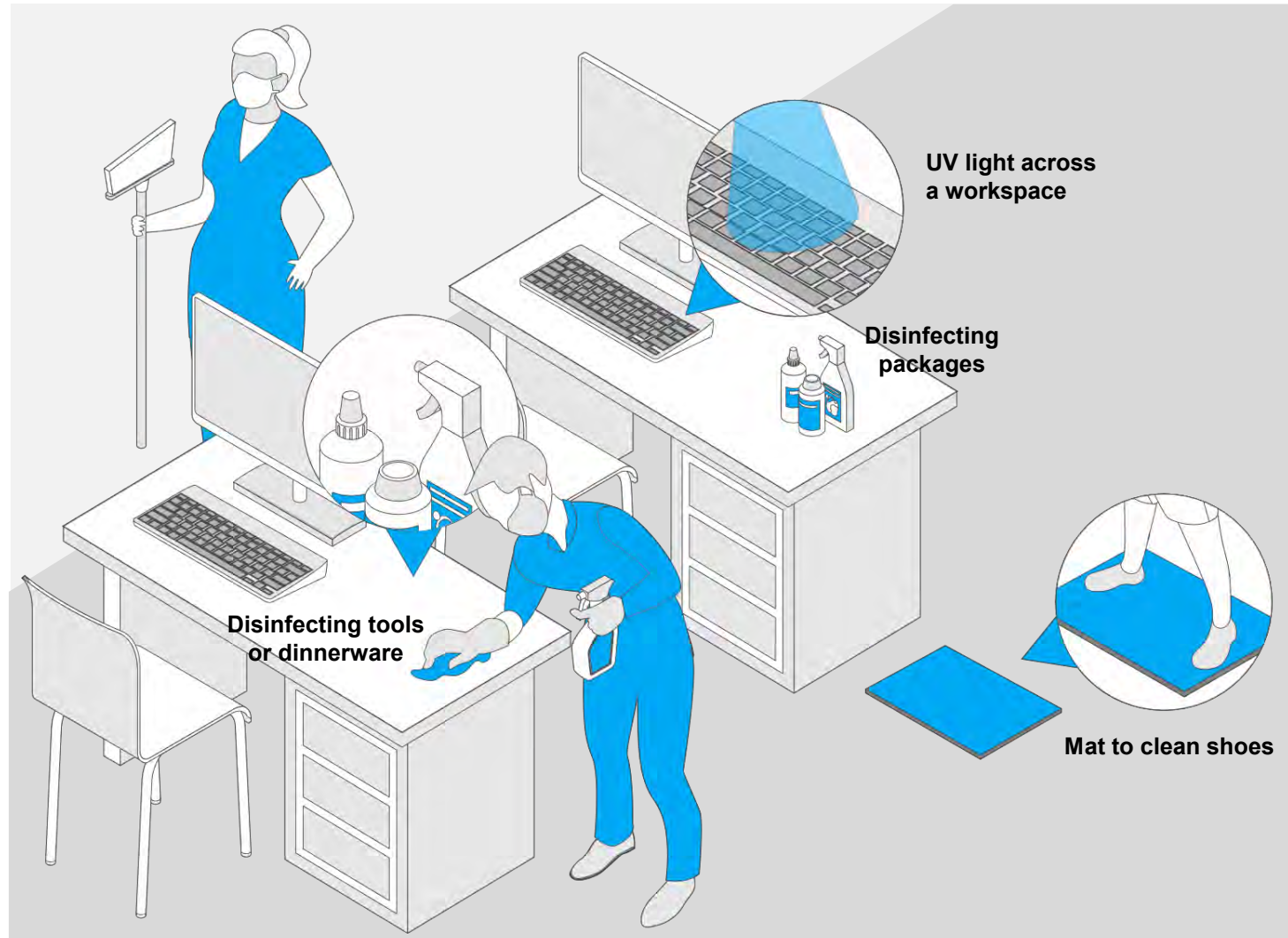
Increased frequency cleaning with visibly monitored cleaning schedules

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Ensure appropriate deep-cleaning of surfaces and spaces



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Clean & disinfect

Office

### Description of potential intervention

Use **ultraviolet germicidal irradiation** to clean critical function rooms (e.g. operations centers, real-time market trading desks, IT operations centers, call centers, kitchens, etc.)

Increase use of **iodine/ethanol for sanitization** (e.g. mat infused with product to clean shoes)

All common tools, dinnerware and kitchen equipment disinfected daily after closing with **bleach or ethanol**

All goods/packages shipped between facilities or between central kitchen and restaurants **sanitized on both ends**

### Where this has been done

Large restaurant chain in China

MNC corporate offices

# Improve air filtration / ventilation to remove aerial antigens

## Upgrade equipment

Office

### Description of potential intervention

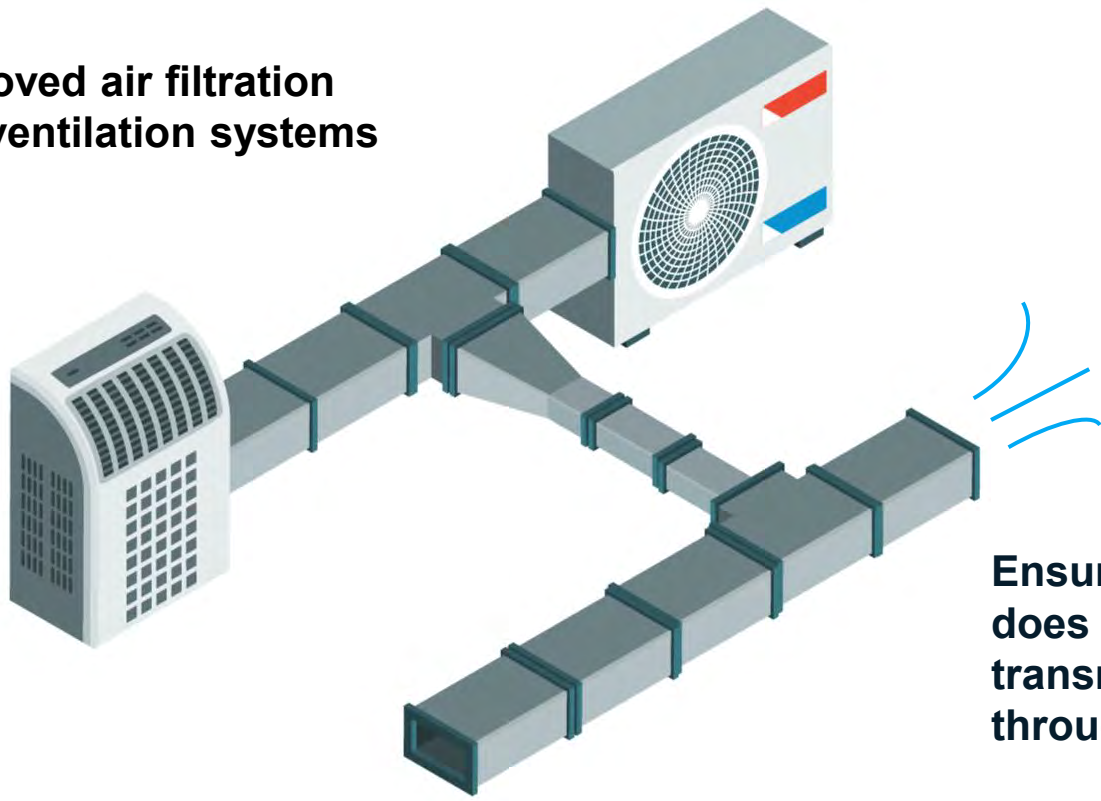
Install high-efficiency air filters and increase ventilation rates in the work environment

Avoid using central air conditioning and heating systems where possible

### Where this has been done

Multinational automotive manufacturer in S. Korea heightened ventilation requirements beyond government guidelines

**Improved air filtration and ventilation systems**



**Ensure airflow does not aid transmission through droplets**

**HEPA (high-efficiency particulate air)-rated filter**

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Install plexiglass barriers between employees and customers



Barriers  
between  
employees

## Upgrade equipment

Office | Field

### Description of potential intervention

Install physical glass barriers to minimize the spread of disease between employees and customers entering the store

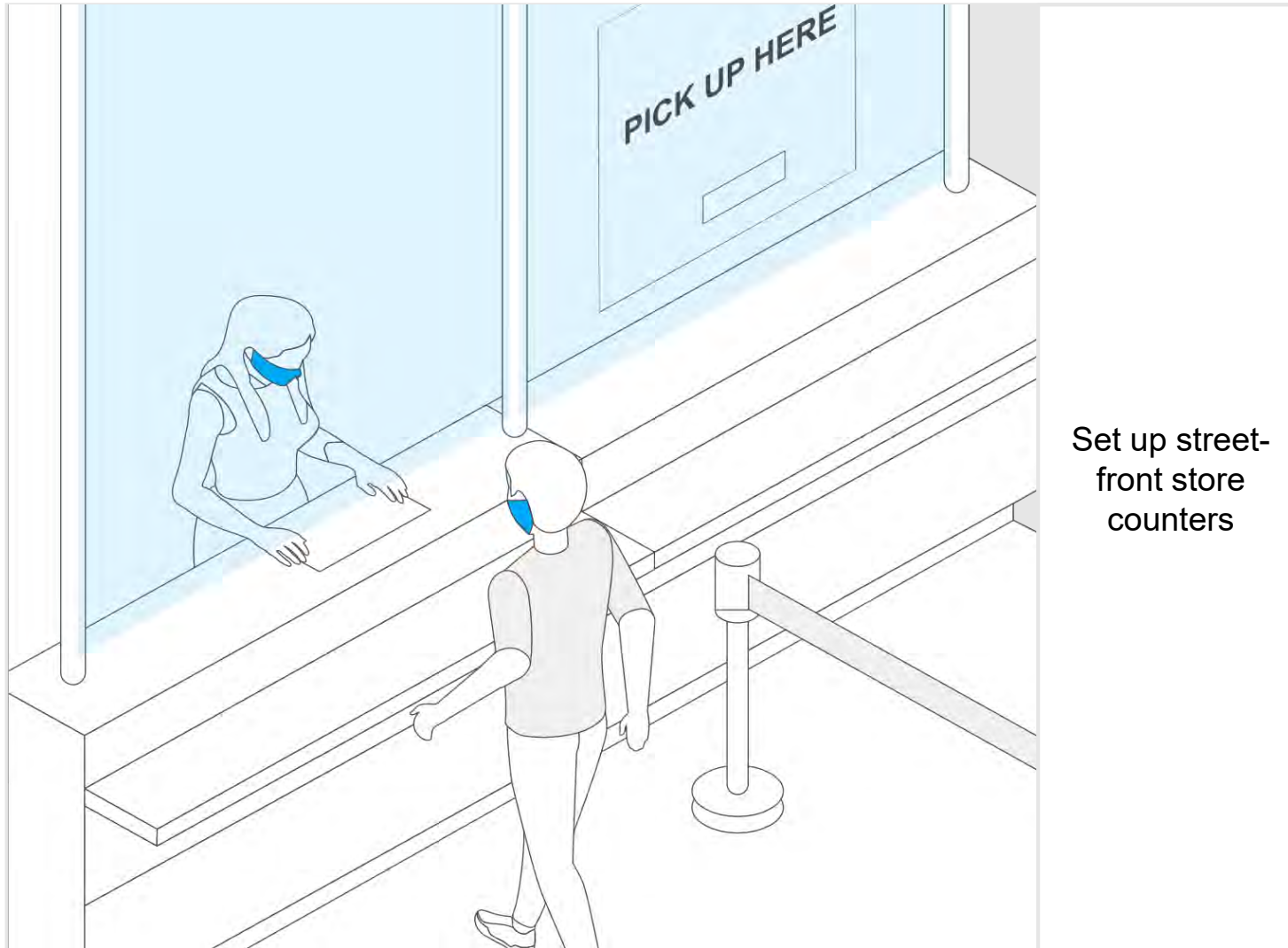
### Where this has been done

Implemented at several grocery stores and select retail stores in North America and China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Restructure physical stores to operate as “dark stores”



Set up street-front store counters

## Upgrade equipment

Office | Field

## Description of potential intervention

**Restructure physical stores to become “dark stores”** (similar to dark kitchen): Locations that look like stores but are closed to customers (for online order & delivery only)

**Set up street-front counters** so that customers can buy vegetables, alcohol, cigarettes and other goods without entering

## Where this has been done

Restaurants in China/U.S.

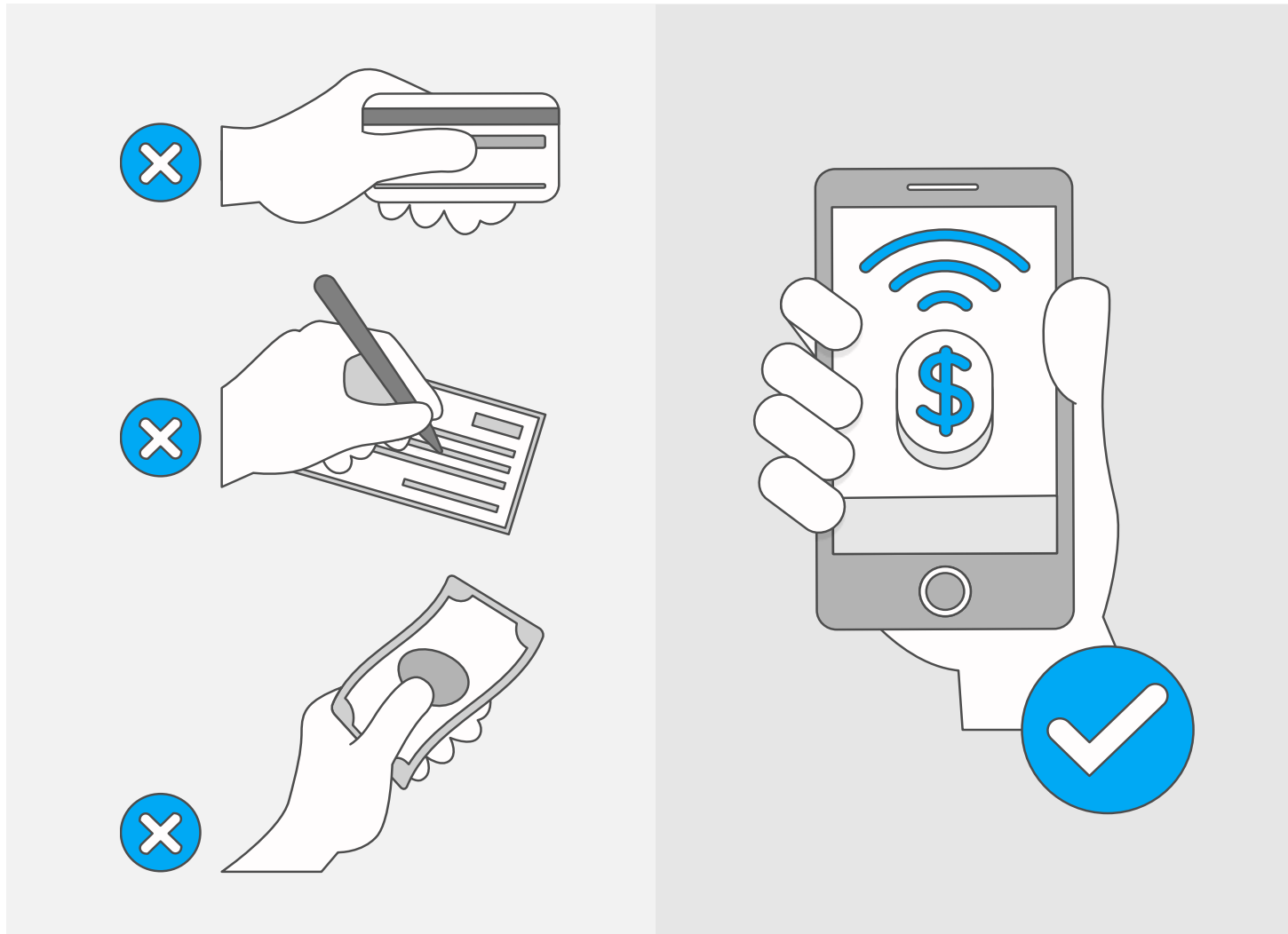
Small retail stores in China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Migrate entirely to contactless payment



## Upgrade equipment

Office | Field

## Description of potential intervention

**Enforce contactless transactions**  
(e.g., no cash, Apple Pay, WeChat Pay, contactless card taps)

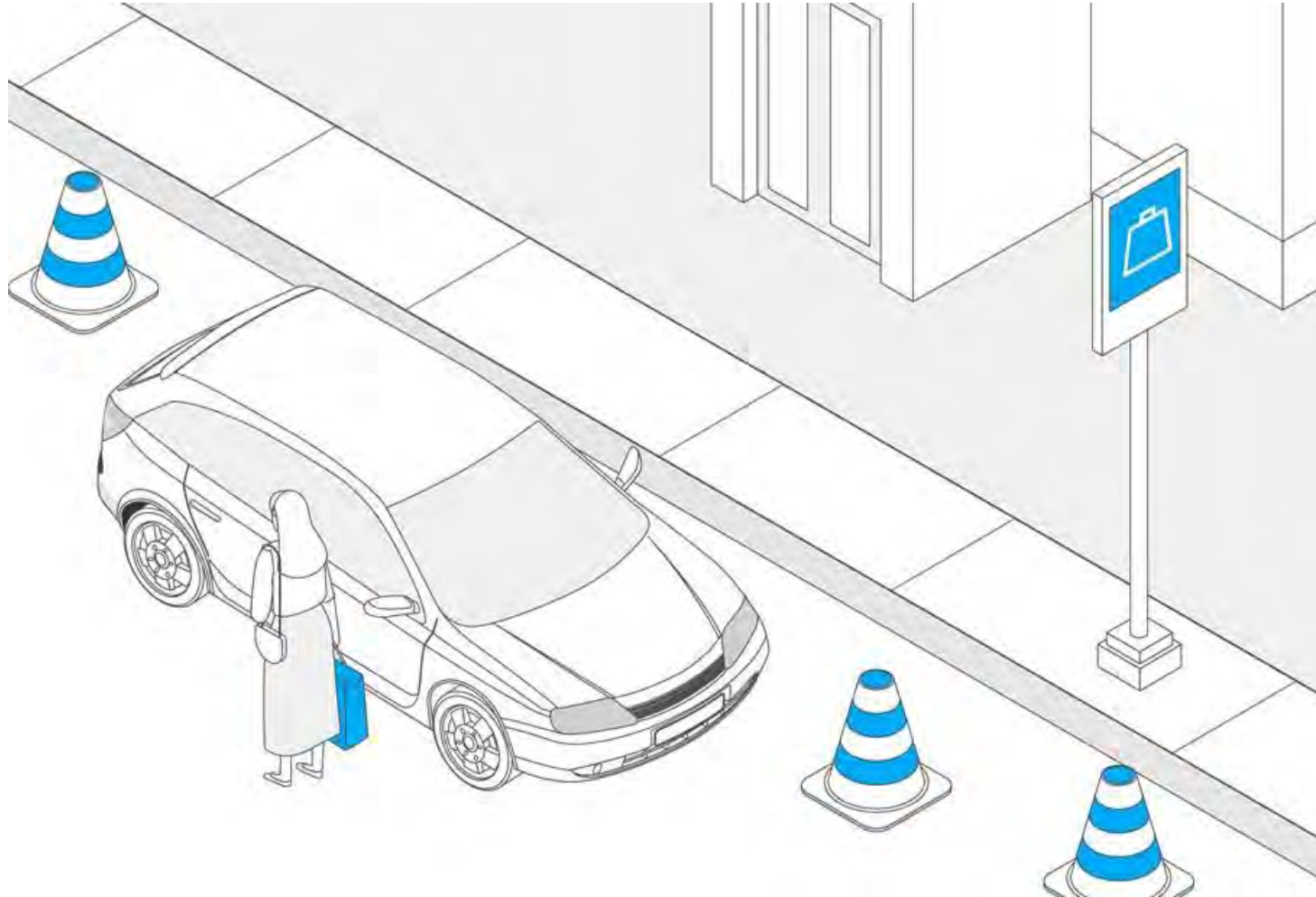
## Where this has been done

Large US supermarkets

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Implement curbside pick ups



## Upgrade equipment

Office | Field

## Description of potential intervention

Implement curbside pickups for online or mobile app orders

Use apps to coordinate customer entry into pick up aisles

Encourage customers to use curbside pickup over in-store options

## Where this has been done

Grocery and household essentials stores in the U.S.

Electronics, books and shoe stores in the U.S.

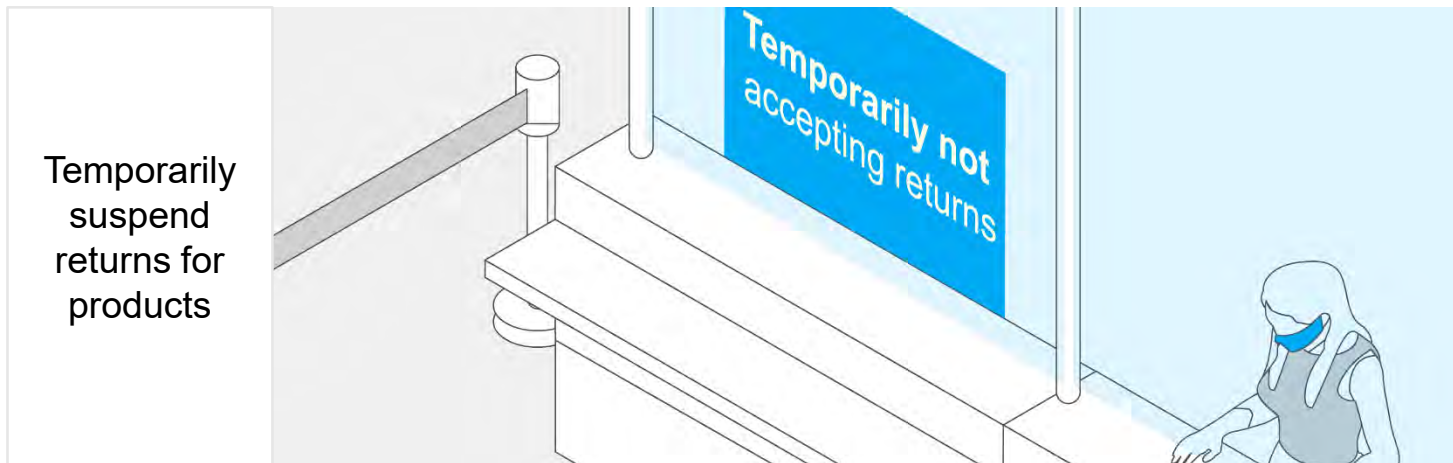
*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Alter return and cancellation policies



Full refunds  
for airline  
ticket  
purchases



Temporarily  
suspend  
returns for  
products

Temporarily not  
accepting returns

## Drive safe behavior norms

Office | Field

## Description of potential intervention

Temporarily suspend return of all physical items

Extend return policy for **30 days** (or similar period) till after COVID-19 related restrictions are lifted

For pre-booked tickets, offer no-fee changes and cancellations (Airlines)

## Where this has been done

Multinational retail stores in the U.S. and Canada

Global airline in Asia and Europe

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Create a culture of community responsibility and collective health



Normalize individual responsibility to maintain best practices

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Drive safe behavior norms

Office | Field

### Description of potential intervention

Emphasize each individual's role in the health of the entire community (e.g., one sickness can infect your colleagues, their families, the colleagues of their families)

**Increase individual responsibility** and accountability to self-report and stay home if they fear infection

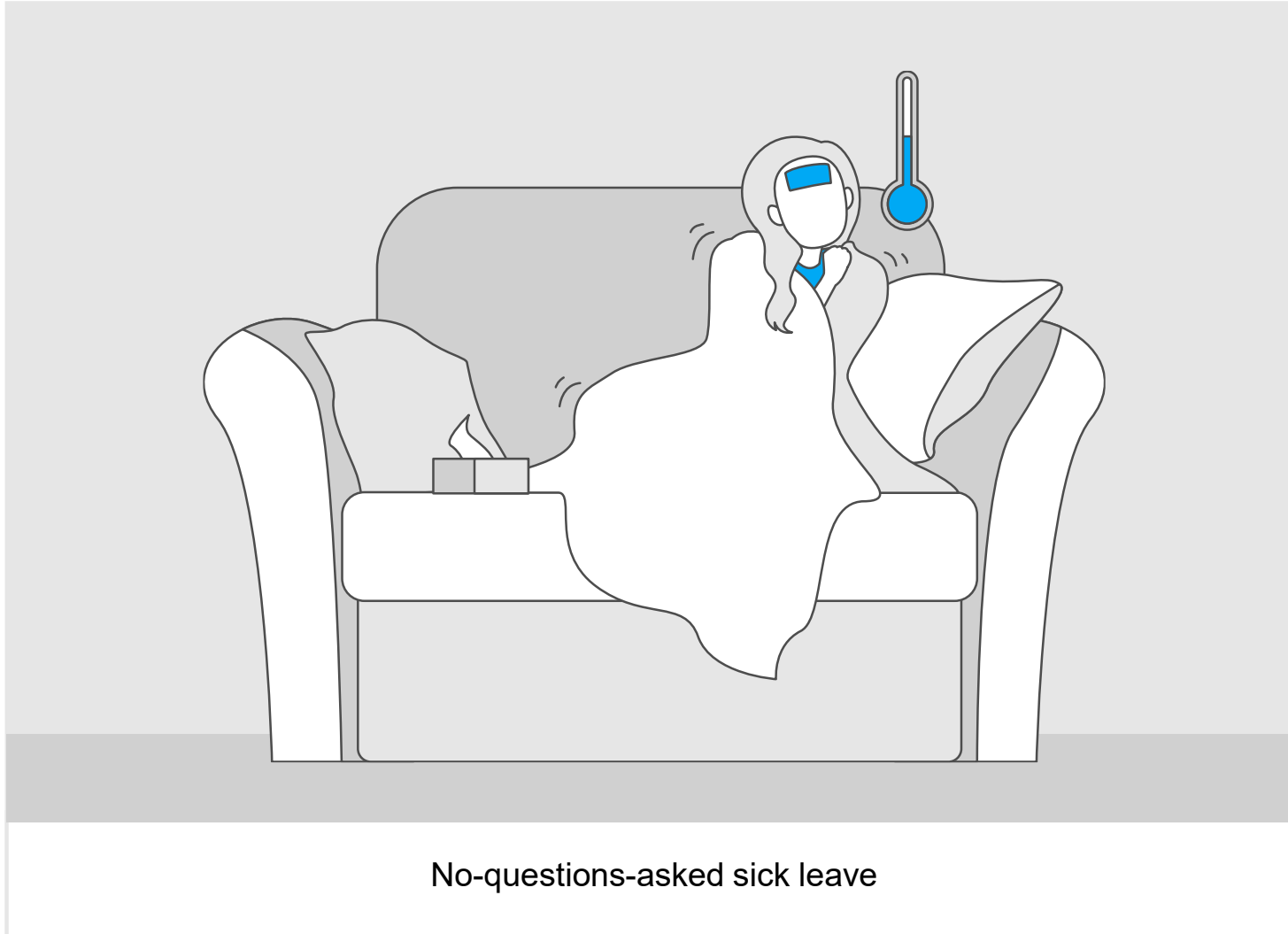
**Normalize** (and even celebrate) **socially responsible behavior** (e.g., advising colleagues on safe practices, addressing hygiene violations)

### Where this has been done

Pharmaceutical companies in the U.S.



# Issue clear guidance on sick leave, compensation and related policies



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Drive safe behavior norms

Office | Field

### Description of potential intervention

**Institute a flexible sick leave policy (e.g., no-questions-asked)** to help drive an office culture of responsibly staying home with any symptoms.

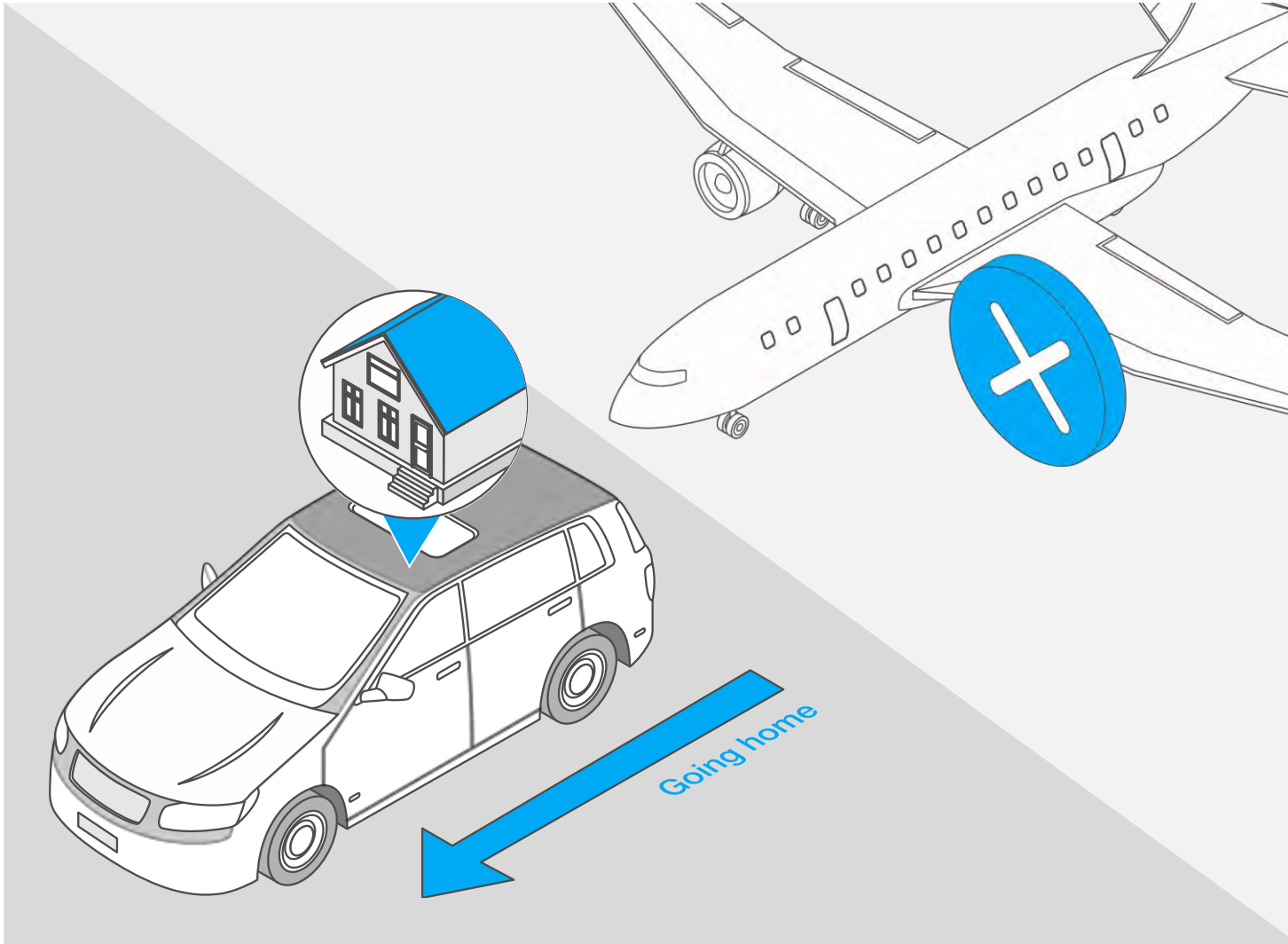
**Proactively develop and communicate** compensation, attendance and reliability, PTO, and related policies that will apply during the ongoing conditions

Reimburse sick time off and institute short-term disability leave programs and emergency leave policy

### Where this has been done

US grocery stores

# Implement strict domestic, national and international travel policies



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Drive safe behavior norms

Office | Field

### Description of potential intervention

Require employees to **report all national and international travel** and issue guidance on self-quarantines

**Prohibit non-essential travel** (domestic, international, or even within the city)

Advise employees who exit the building for external business meetings during the day to **go straight to home rather than return to office**

### Where this has been done

Multinational corporations in the U.S., U.K.

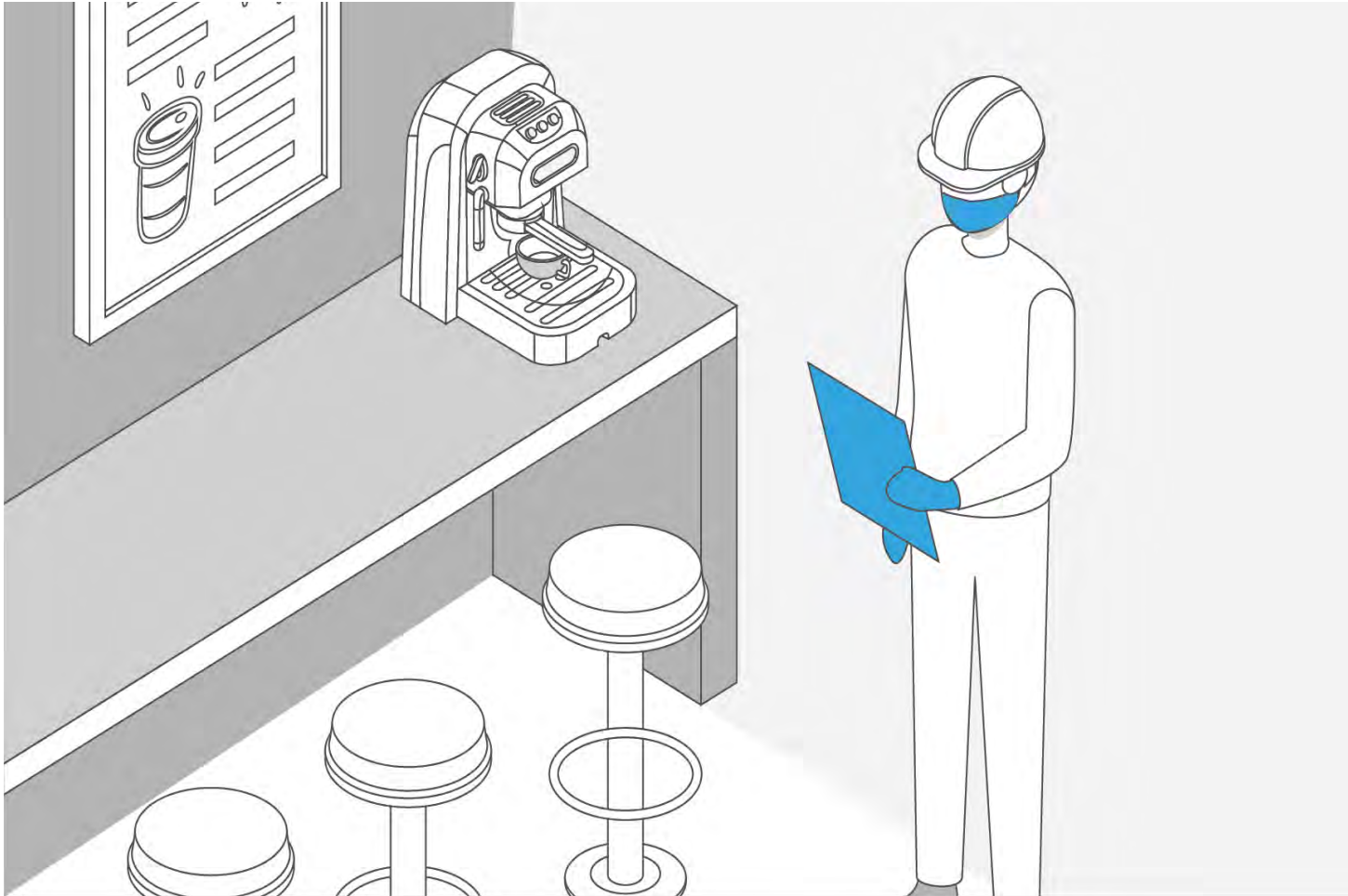
Conglomerates in South Korea

# Common space

# Identify high risk areas based on a walkthrough assessment

## Drive safe behavior norms

Office | Field



Third party walk-through

## Description of potential intervention

Have an employee, employee team or third-party perform a walkthrough assessment to identify high-risk, high-touch areas

Use this assessment to inform new safety measures

## Where this has been done

Multinational aerospace manufacturer

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Remove or replace high-touch communal resources

## Upgrade equipment

Office | Field

### Description of potential intervention

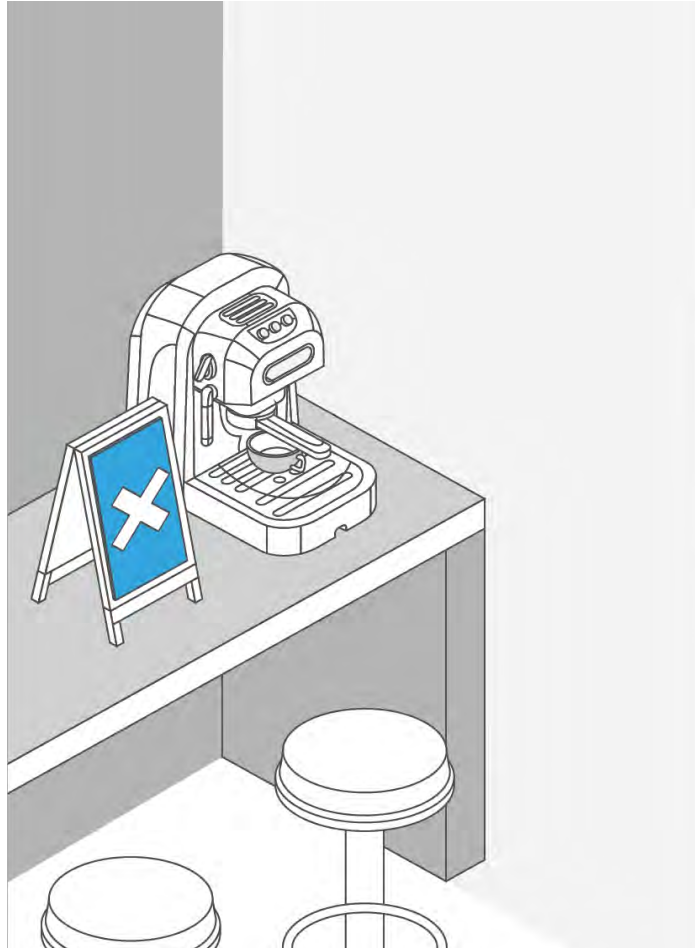
**Remove or provide alternatives for high-touch communal resources with individualized services.** For example:

- Replace coffee machines with individual coffee deliveries
- Use bottles water or motion sensing water dispensers in place of water fountains
- Remove vending machines

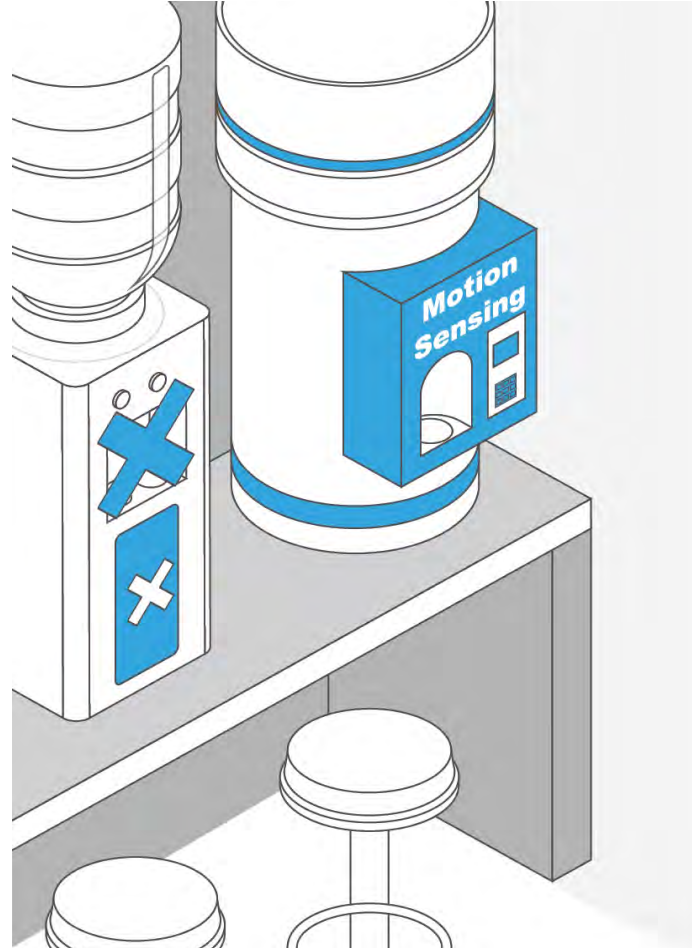
### Where this has been done

Multinational aerospace manufacturer

Corporate offices in the US



Replacing coffee dispensers



Installing motion sensing water filling stations

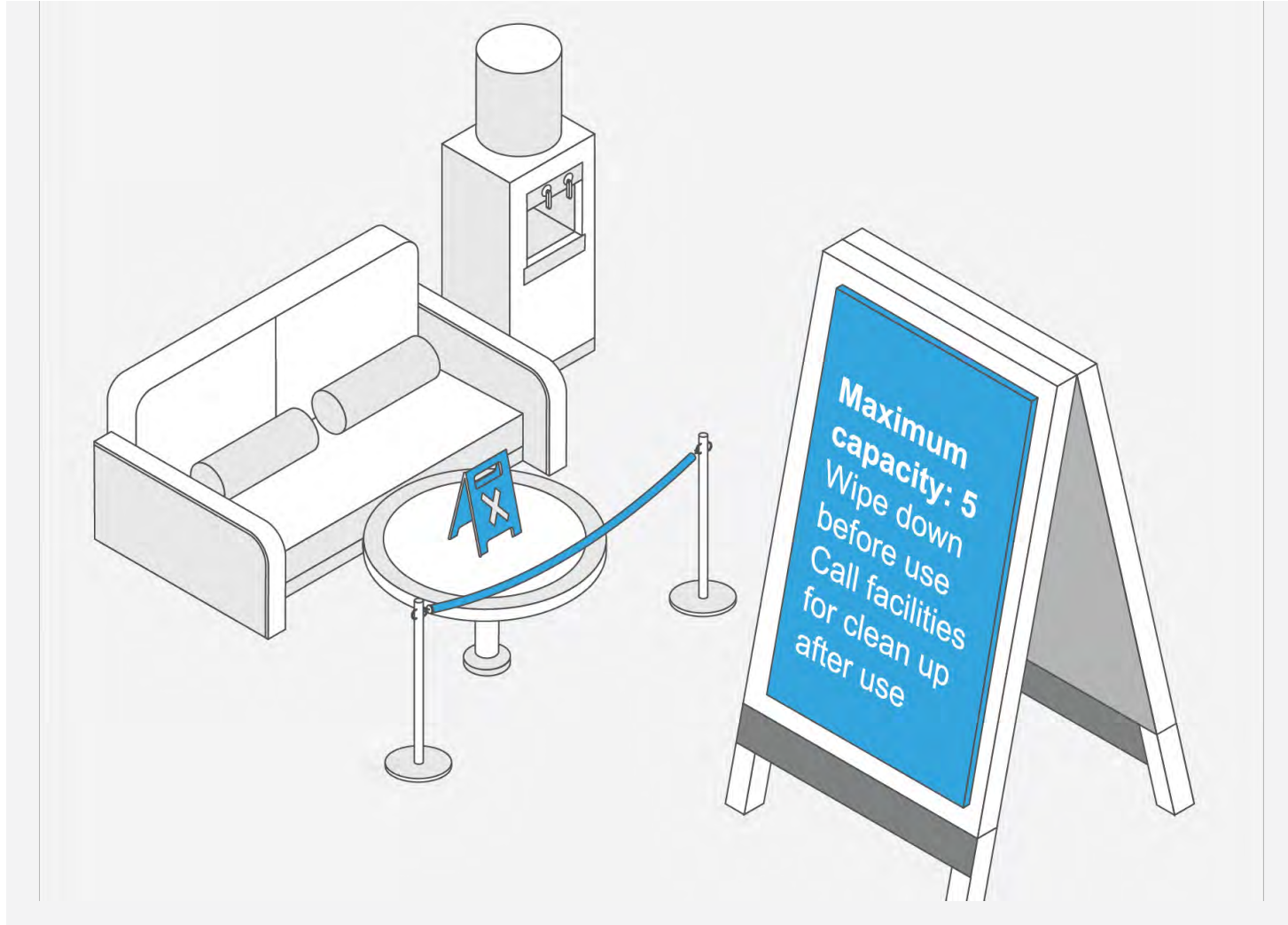
*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Close common areas and provide strict protocols for when they reopen

## Separate in space & time

Office | Field



## Description of potential intervention

Common areas to be cordoned off initially

Specify employee usage protocols for all must-use common areas including pre-booking spaces for use, cleaning before and after use, limiting the capacity, etc

## Where this has been done

Corporate offices in China

Conglomerates in S. Korea

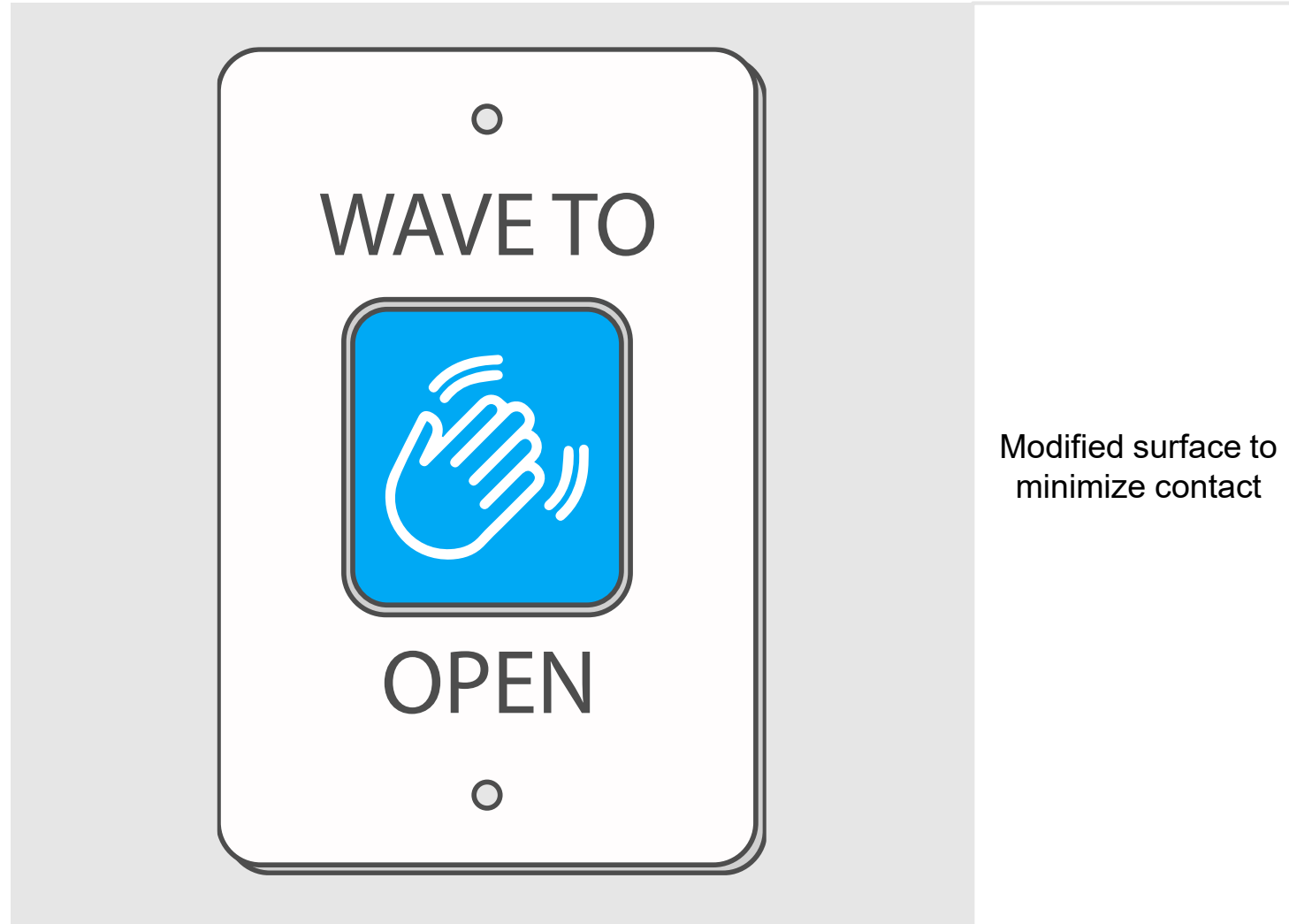
Multinational automotive manufacturer in S. Korea

Multinational aerospace manufacturer

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Minimize use of handles and physical interfaces



Modified surface to minimize contact

## Upgrade equipment

Office | Field

### Description of potential intervention

**Greater use of motion-control doors and interfaces** throughout the workspace.

- Reduces the risk of workers contacting a contaminated surface.
- Could help to reduce the cleaning requirement

If motion control is not available, option to **modify item to minimize contact** such as foot operated door handles

**Remove need for physical interface** where possible such as leaving doors open

### Where this has been done

Corporate offices in China

Global corporate offices of fast food chain is installing hand free door openers and towel dispensers

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

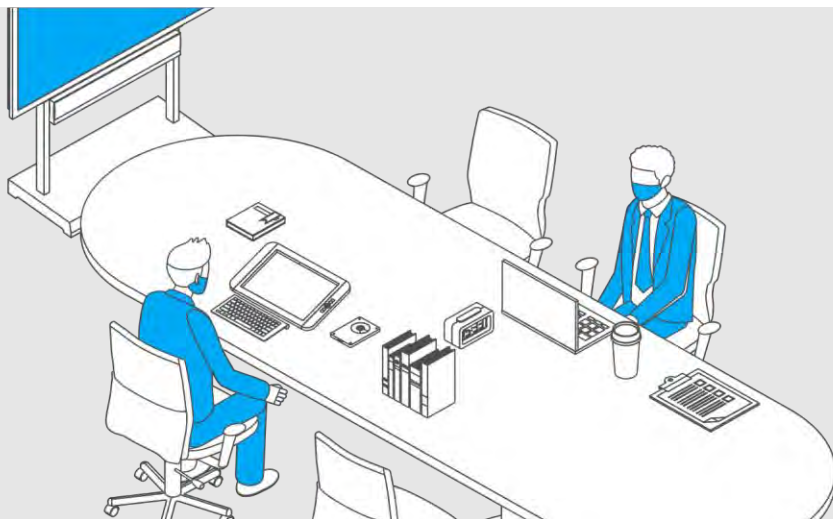
Source: Expert interviews, press search, client surveys

# Limit larger gatherings/ meetings of employees

Encourage  
video/audio  
calls



Repurpose  
conference  
rooms



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

Pre-entry

Travel to work

At Work

Common areas

Post-infection

## Drive safe behavior norms

Office | Field

### Description of potential intervention

**Limit in-person gatherings** to no more than 2 people to a room

**Cancel non-business-critical, in-person activities** (e.g., happy hours, community service)

**Hold necessary group meetings** (e.g., Town Hall, Steering Committee, Board meetings) **via Video Conference** wherever possible (even if employees are in the office)

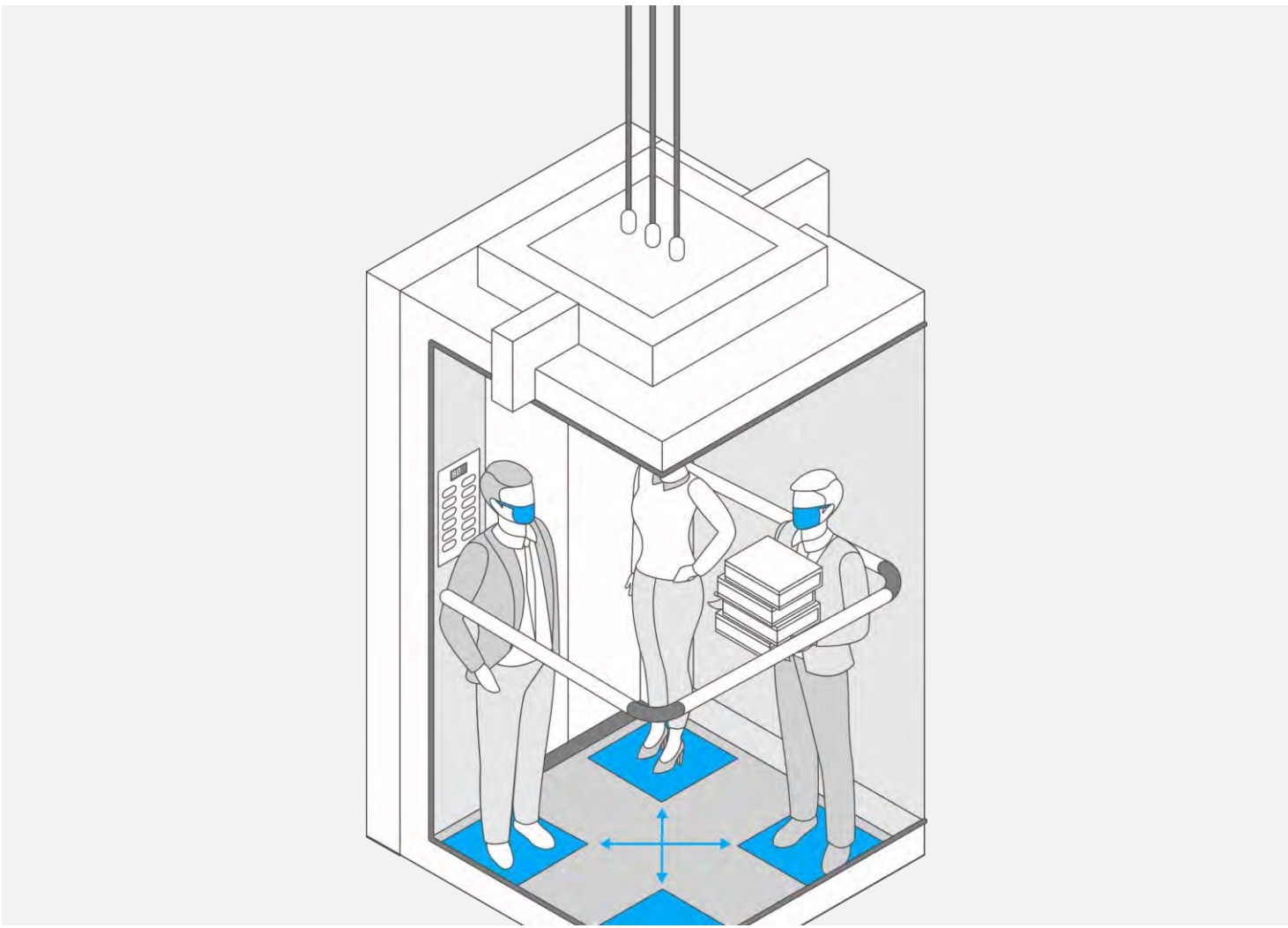
### Where this has been done

American multinational companies

Corporate offices in South Korea



# Limit capacity in elevators



## Separate in space & time

Office | Field

### Description of potential intervention

Limit capacity of elevators to enforce physical distancing (e.g., 2 people in small elevators, 4 in large)

### Where this has been done

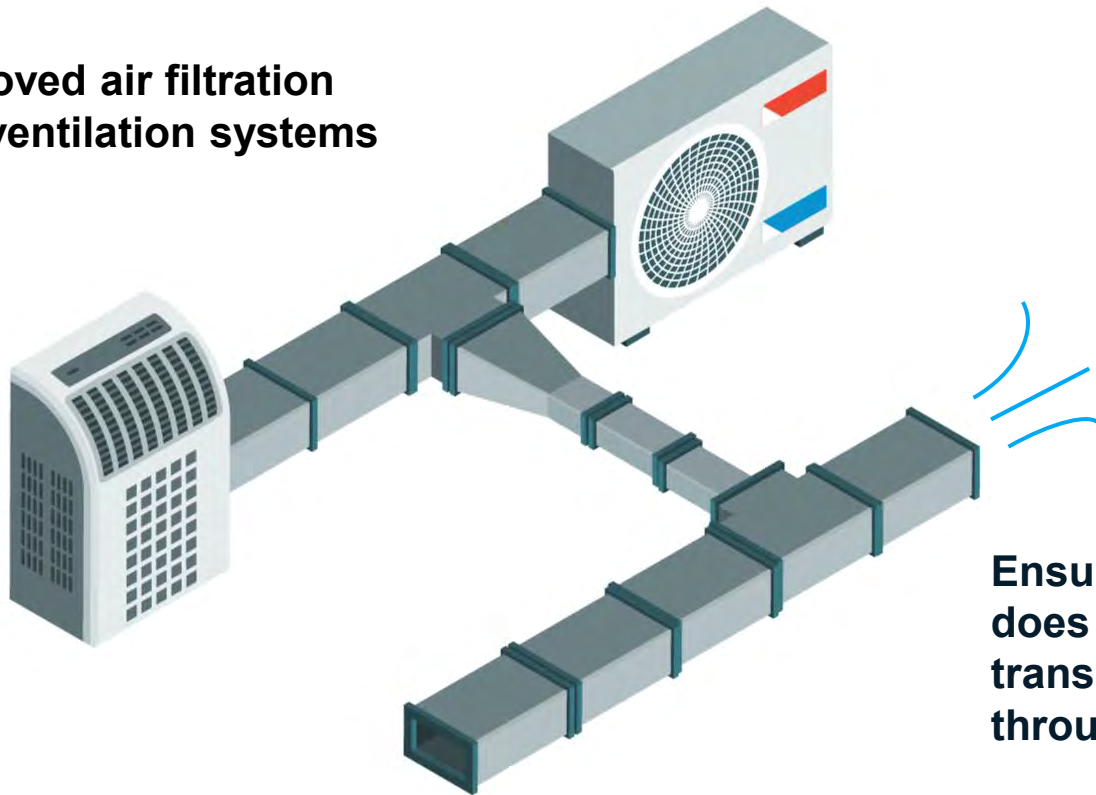
- International quick-service restaurant chain in China
- Residential complexes in the U.S.
- Corporate offices in China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Improve air filtration / ventilation to remove aerial antigens

## Improved air filtration and ventilation systems



**HEPA (high-efficiency particulate air)-rated filter**

**Ensure airflow does not aid transmission through droplets**

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Upgrade equipment

Office | Field

## Description of potential intervention

**Install high-efficiency air filters and increase ventilation rates in the work environment**

**Avoid using central air conditioning and heating systems where possible**

## Where this has been done

Multinational automotive manufacturer in S. Korea heightened ventilation requirements beyond government guidelines

# Monitor best-practice adherence to inform helpful interventions



Require badge scans when moving between rooms

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Drive safe behavior norms

Office | Field

### Description of potential intervention

**Install badge scanners** at the entrance to each room and require employee use to generate live data of employee traffic for:

- Identifying **outlier employees** with high transmission potential (e.g., move through 10x more rooms and floors than avg)
- **Intervening effectively** with empirical data on movement patterns
- Better understanding **high-traffic areas** to reorganize office norms and equipment accordingly

Have **digital sign-in desks** between rooms (both monitoring and discouraging excessive movement)

### Where this has been done

Corporate offices in the U.S.

# Emphasize high-frequency, high-visibility cleaning (1/2)



Visible cleaning schedules displayed

High-frequency cleaning – increased to every 2 hours from every 6 hours

## Clean & disinfect

Office | Field

### Description of potential intervention

**Frequent cleaning of high-traffic areas / surfaces** (e.g., lobbies, communal tables, cafeterias, bathrooms, elevators, stairways)

**Clearly demarcate surfaces that are frequently contacted** by employees to raise awareness.

**Increase frequency of cleaning of demarcated surfaces** throughout the workday

**Increased routine sanitization** of common areas to every 2 hours from every 6 hours

### Where this has been done

Automotive manufacturer in S. Korea

US grocery stores

Corporate offices in the U.S.

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Emphasize high-frequency, high-visibility cleaning (2/2)

Pre-entry

Travel to work

At Work

Common areas

Post-infection

## Clean & disinfect

Office | Field

### Description of potential intervention

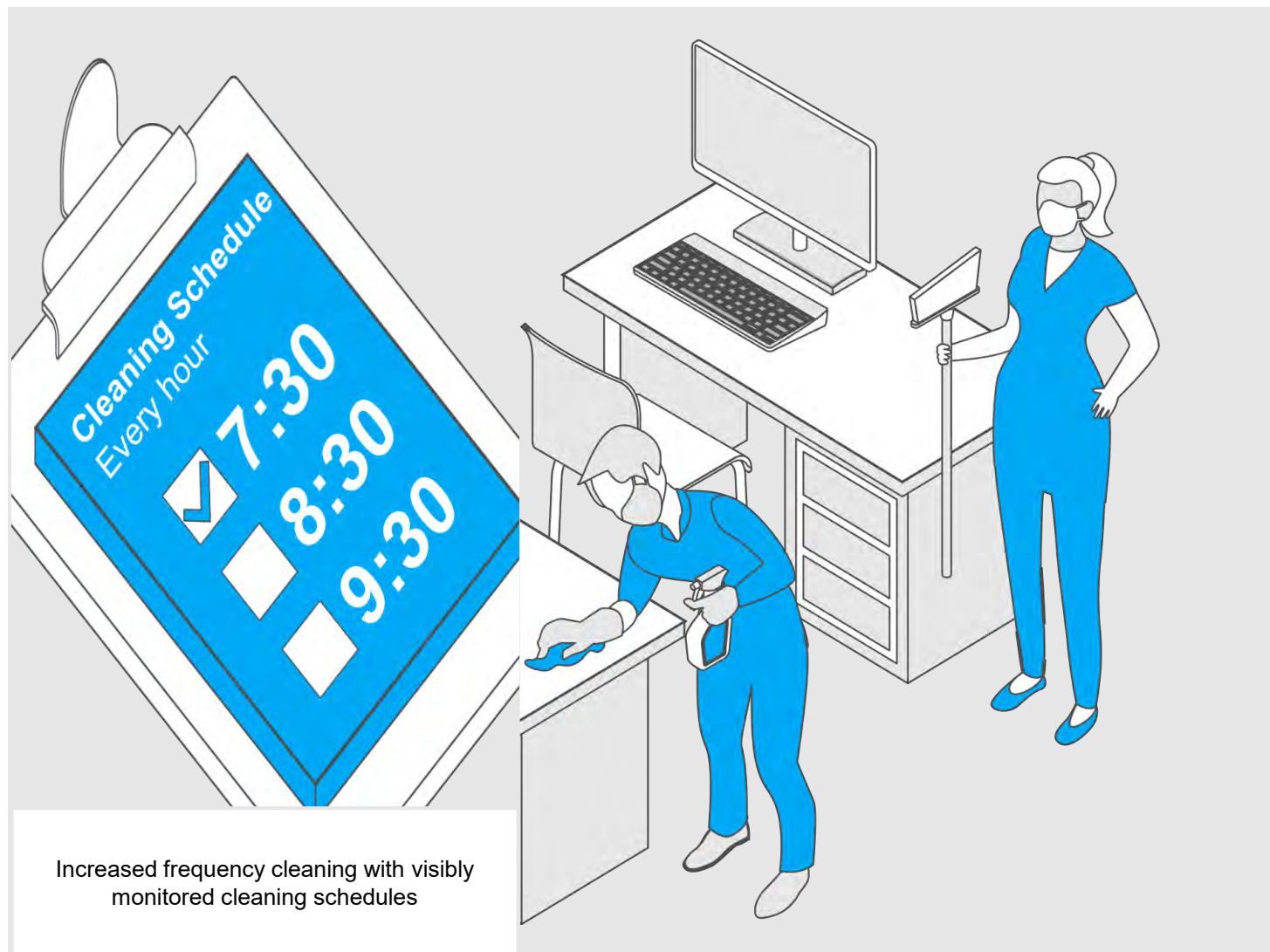
Visible recording and monitoring of cleaning

Cleaners can update a 'confirmation of cleaning' list or display in a highly prominent location upon completion of cleaning.

### Where this has been done

Corporate offices in China

US grocery stores

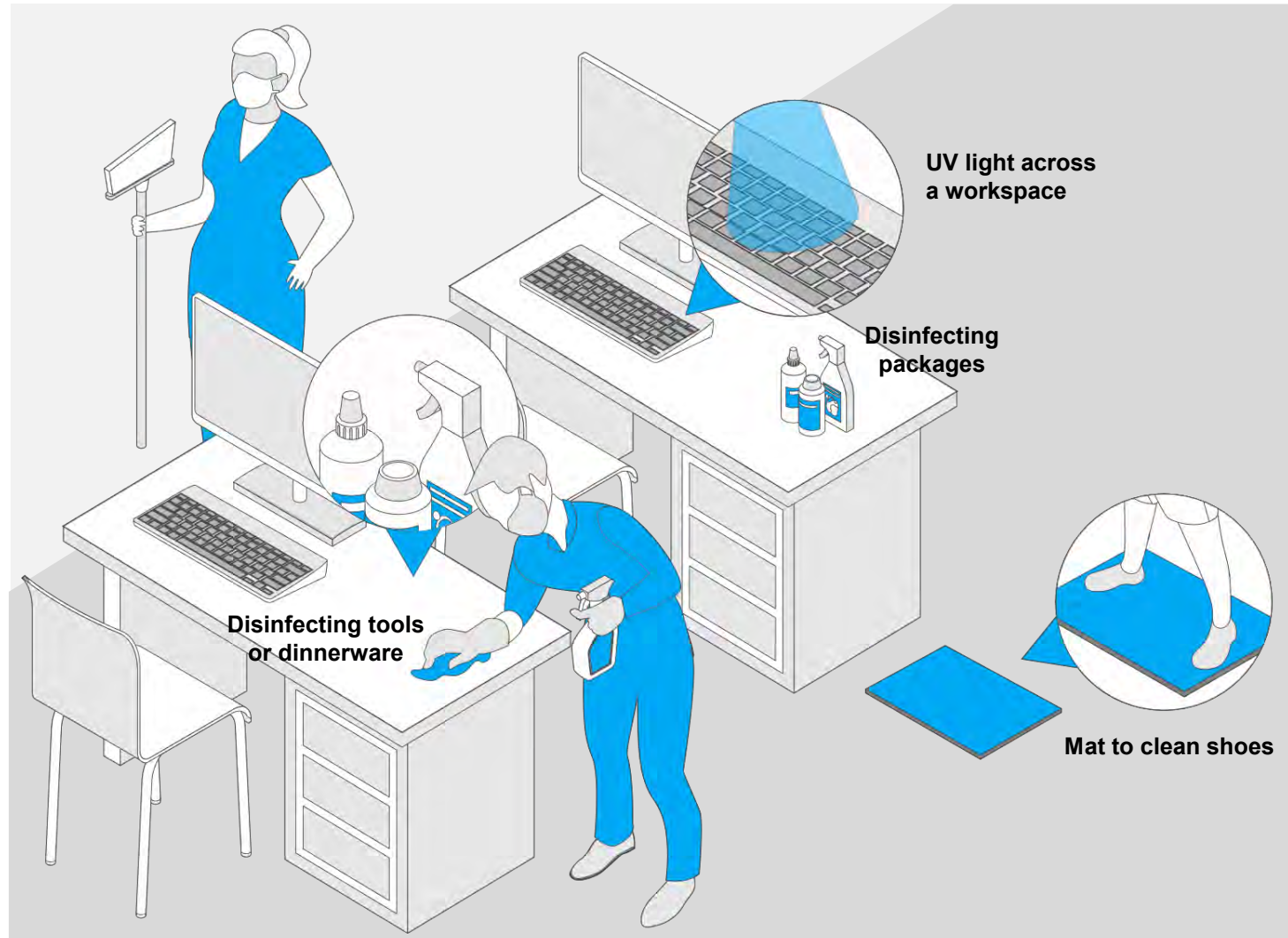


Increased frequency cleaning with visibly monitored cleaning schedules

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Ensure appropriate deep-cleaning of surfaces and spaces



*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Clean & disinfect

Office | Field

### Description of potential intervention

Use **ultraviolet germicidal irradiation** to clean critical function rooms (e.g. operations centers, real-time market trading desks, IT operations centers, call centers, kitchens, etc.)

Increase use of **iodine/ethanol for sanitization** (e.g. mat infused with product to clean shoes)

All common tools, dinnerware and kitchen equipment disinfected daily after closing with **bleach or ethanol**

All goods/packages shipped between facilities or between central kitchen and restaurants **sanitized on both ends**

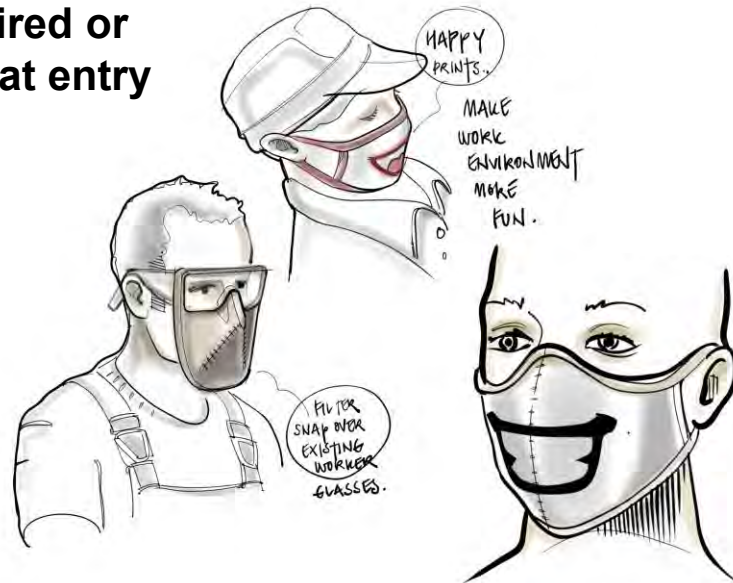
### Where this has been done

Large restaurant chain in China

MNC corporate offices

# Encourage or mandate appropriate PPE<sup>1</sup> gear (1/2)

**PPE required or provided at entry**



**Safe working kits**



**1 Critical PPE (surgical masks, N-95, etc.) must continue to be reserved for healthcare workers and other medical first responders. Use should be in accordance with local government and health organization guidelines**

## Use protective equipment

Office | Field

## Description of potential intervention

**Forbid anyone who doesn't wear face masks** from entering into company buildings

**Alternatively, recommend face masks and gloves** in all or specifically-designated areas of the company

**Compensate employees for buying facemasks**

**Provide face masks (and safe working kits) to employees** for free and distribute upon entry

## Where this has been done

South Korean conglomerates

S. Korean multinational automotive manufacturer began preparation of mask production for its own employees

China: Multinational clothing retail brands

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys



# Encourage or mandate appropriate PPE<sup>1</sup> gear (2/2)

Details in Appendix

## PPE Usage

OSHA Risk Level

Respirators and masks

Gowns

Eye protection

Gloves



High-Very High Risk



Medium Risk



Low Risk



Infrequent use of respirators and gowns in medium risk category<sup>1</sup>

**1 Critical PPE (surgical masks, N-95, etc.) must continue to be reserved for healthcare workers and other medical first responders. Use should be in accordance with local government and health organization guidelines**

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

Pre-entry

Travel to work

At Work

Common areas

Post-infection

## Use protective equipment

Office | Field

## Description of potential intervention

Encourage or mandate PPE usage based on work environment:

- Healthcare workers given preference for N95 respirators (use for 5-7 days) or provided 2 masks a day
- Production employees wear polyester gloves and glasses
- Office employees and customer-facing employees given daily masks (cloth masks suffice)

## Where this has been done

Aerospace and Defense manufacturer in China

Companies in South Korea

Clothing retail stores in China

Grocery stores in the U.S.



# Promote healthy personal habits with high-visibility signage and media campaigns

## Increase awareness

Office | Field

### Description of potential intervention

Promote healthy habits with **high-visibility signage** across the workspace (e.g., wash hands frequently)

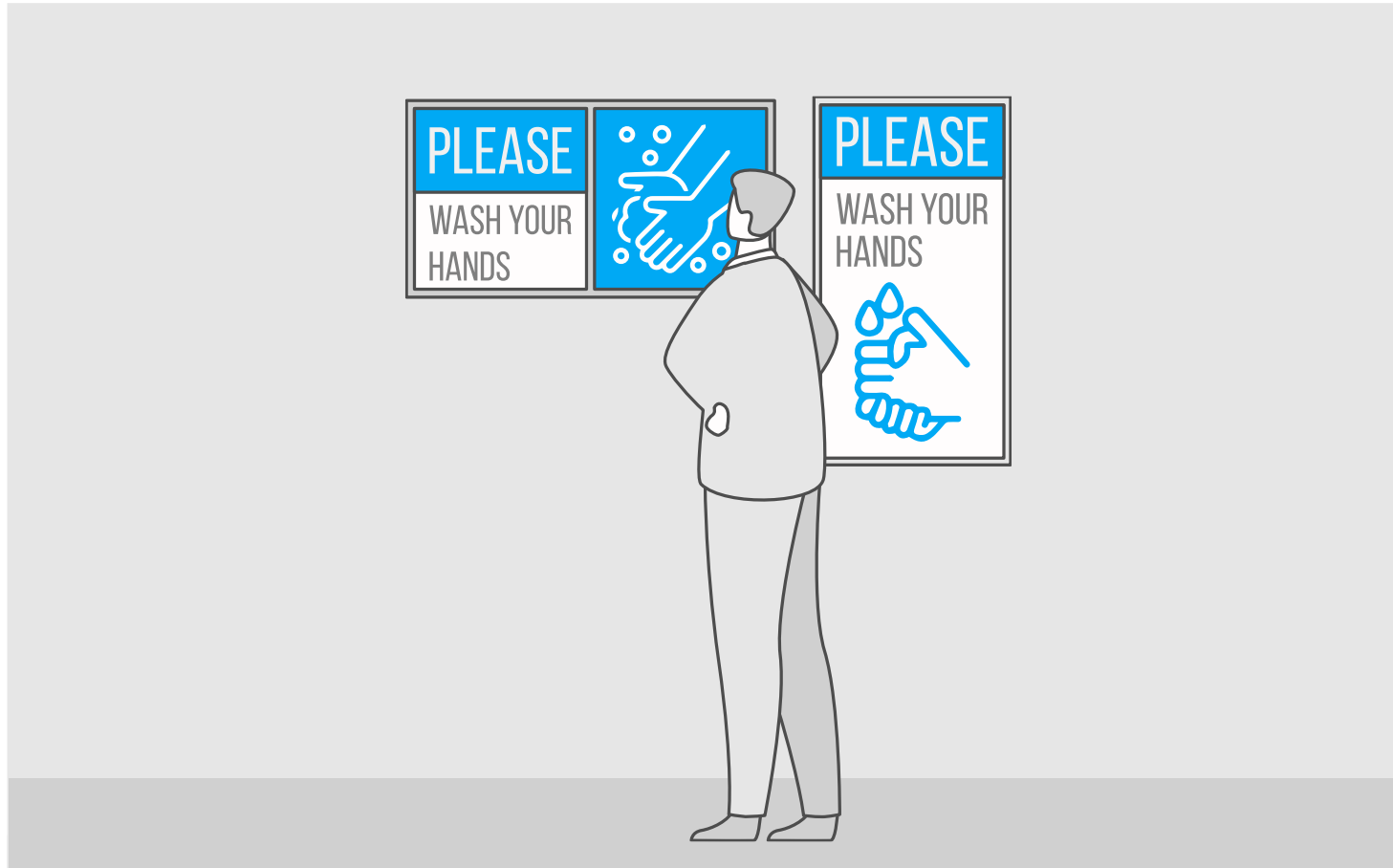
**Leverage media and advertising to create awareness** among employees and customers

### Where this has been done

Corporate offices in China

Corporate offices in US (prior to full closure)

Several multinational retail brands have used advertising to promote social distancing



Clearly denote expected practices

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Highlight new workplace safety processes and policies through prominent displays

## Increase awareness

Office | Field

## Informational materials in displays and advertising



## Description of potential intervention

Display large format posters or digital displays providing prominent, frequent reminders to employees of the new workplace situation, protocols and (crucially) the rationale behind it

## Where this has been done

Corporate offices in China

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

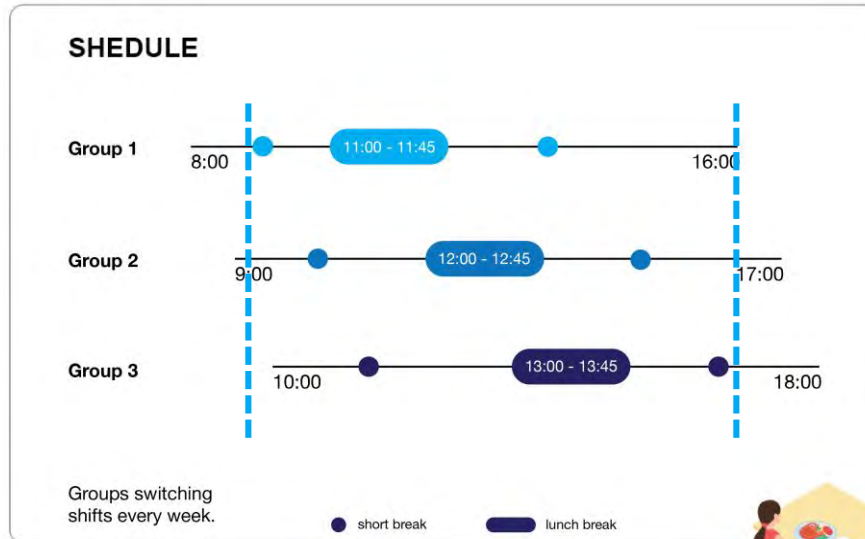
Source: Expert interviews, press search, client surveys

# Stagger lunch hours and time spent in common areas

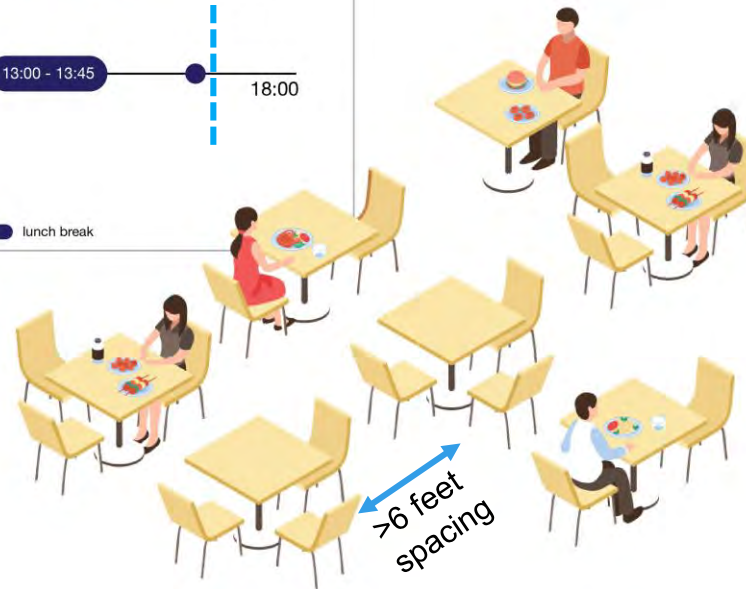
## Separate in space & time

Office | Field

### Staggered lunch schedule



Extended cafeteria operating hours



## Description of potential intervention

**Stagger lunch hours** in order to distribute the amount of people coming to cafeteria at a time

**Extend operating hours for cafeterias** in order to reduce density of people present in the space at any time

**Similarly, stagger other routine activities** in common areas

## Where this has been done

- Corporate offices in China
- Offices and manufacturing plants in S. Korea

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Encourage physical distancing in cafeterias

## Separate in space & time

Office | Field

## Description of potential intervention

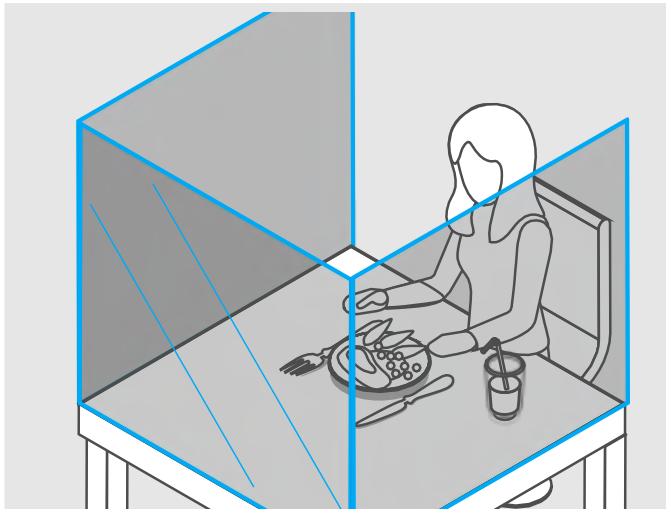
Prevent physical proximity in cafeteria

- **Set up partitions on dining tables**
- **Prohibit employees from sitting next to and facing each other at cafeterias (checker board arrangement)**
- **Recommend to minimize chatting while eating**

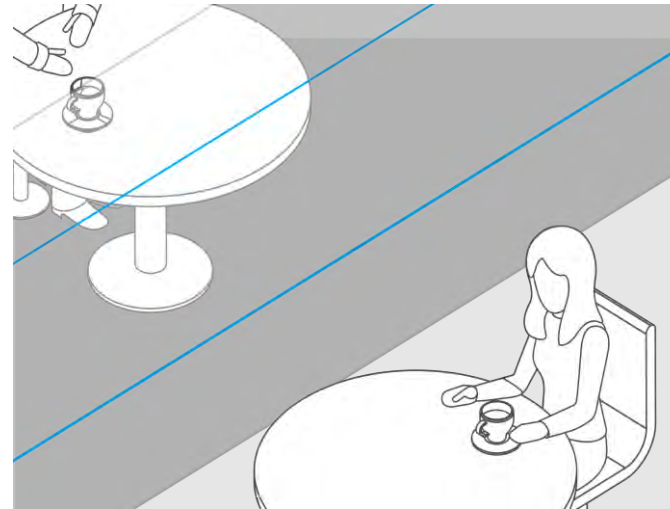
## Where this has been done

Corporate offices in China

Offices and manufacturing plants in S. Korea



Separated lunch seating with dividers on dining tables



Tables spaces over 6 ft apart

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

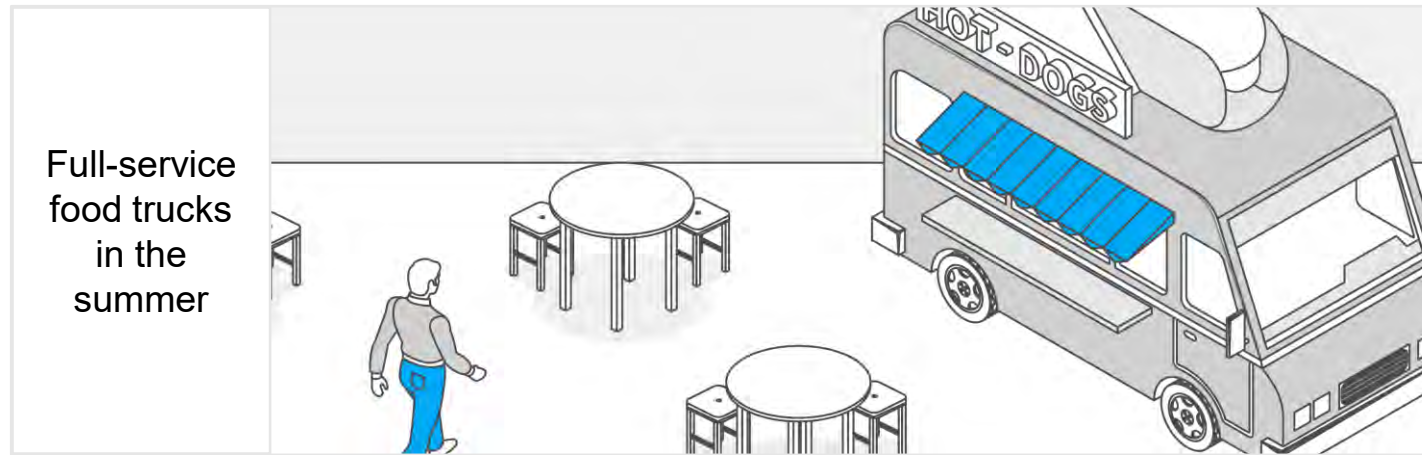
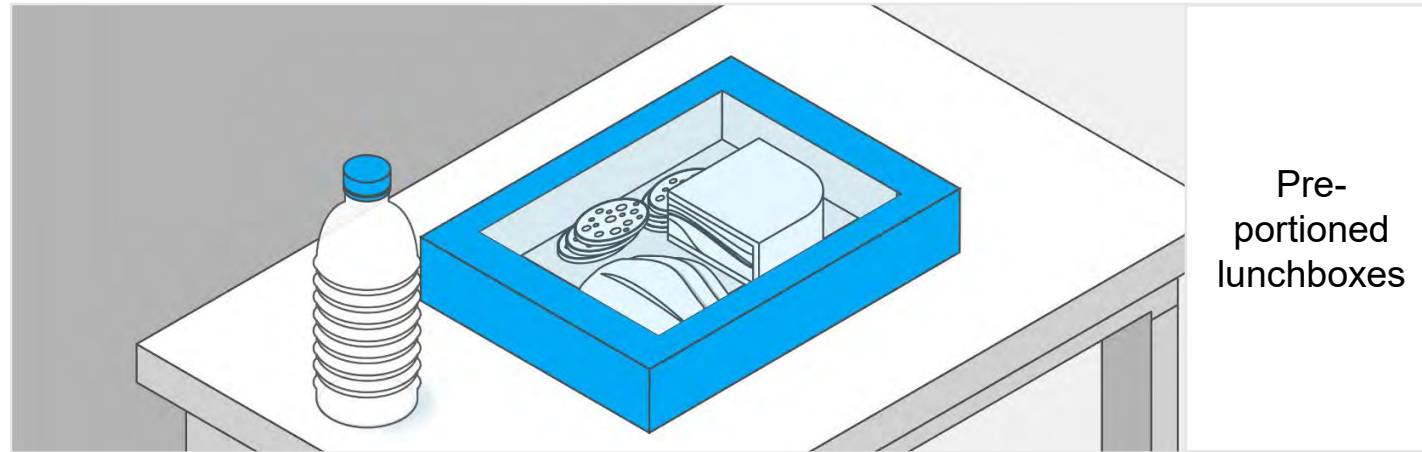
Source: Expert interviews, press search, client surveys



# Reduce or replace communal and self-serve options in food service

## Upgrade equipment

Office | Field



## Description of potential intervention

**Swap self-service lunch options like buffets for pre-packaged and portioned meals** – minimizing shared utensils and exposure risk to the meal.

In the summer, this can be done through **food trucks in an open space**

**Remove condiments or items at tables** that persist between customers

**Remove self-service food extras** such as drink dispensers, napkins, utensil trays, etc

## Where this has been done

Corporate offices in China

Multinational automotive manufacturer in S. Korea increased lunch box delivery volume in cafeterias

Health protection agency in Scotland has warned hospitality industries against communal meal sharing and buffets

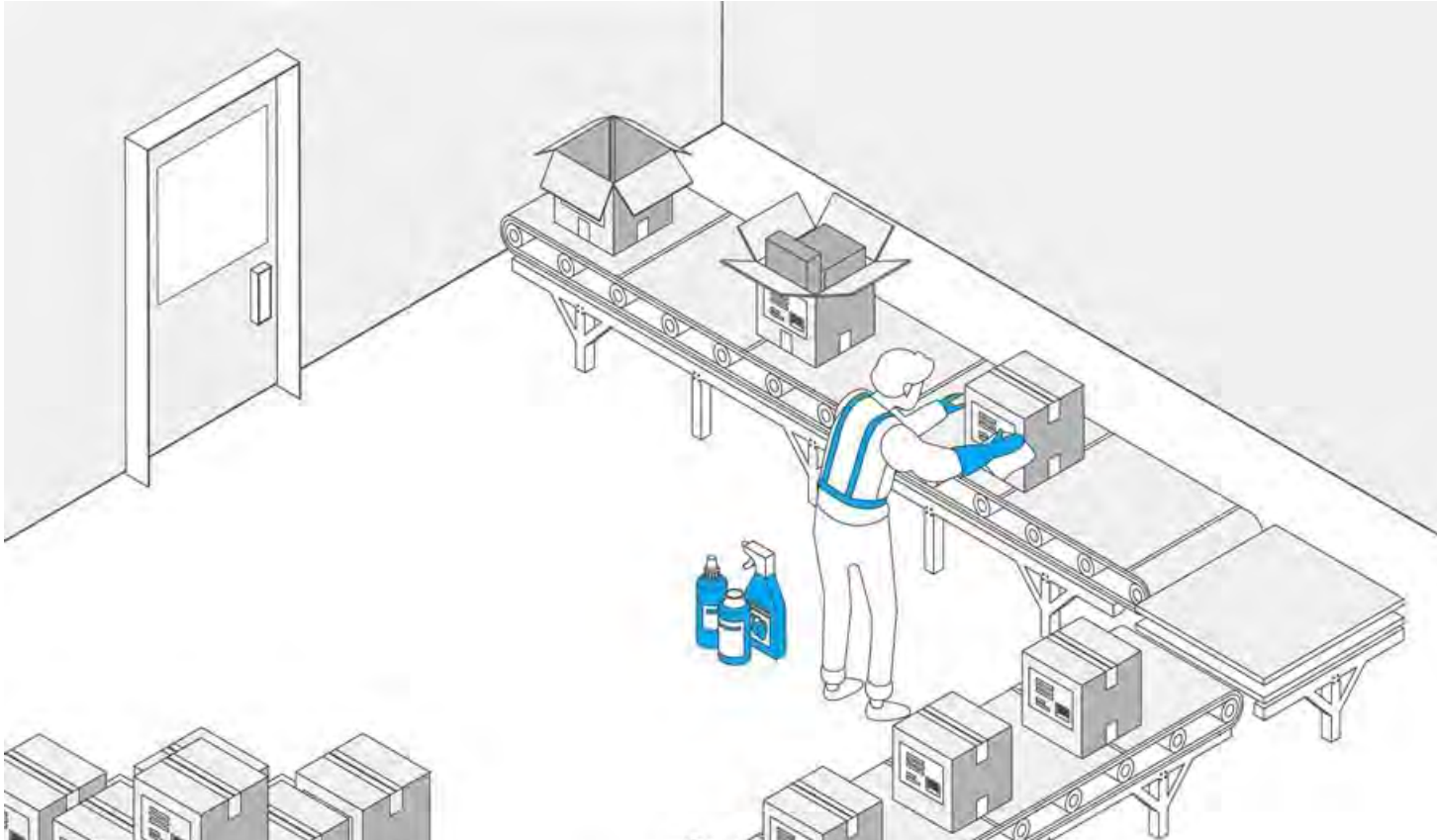
*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Increase hygiene protocols for shipping/receiving areas

## Clean & disinfect

Office | Field



## Description of potential intervention

**Limit access of commercial drivers'** to shipping area and separate them from staff

**Increase hygiene protocols** for shipping/receiving areas (e.g., sanitize all incoming packages)

Enforce masks, gloves, and other **PPE** when dealing with external packages

## Where this has been done

Factories in China

Advanced electronics manufacturer in the US

Restrict commercial access and disinfect external packages in shipping room

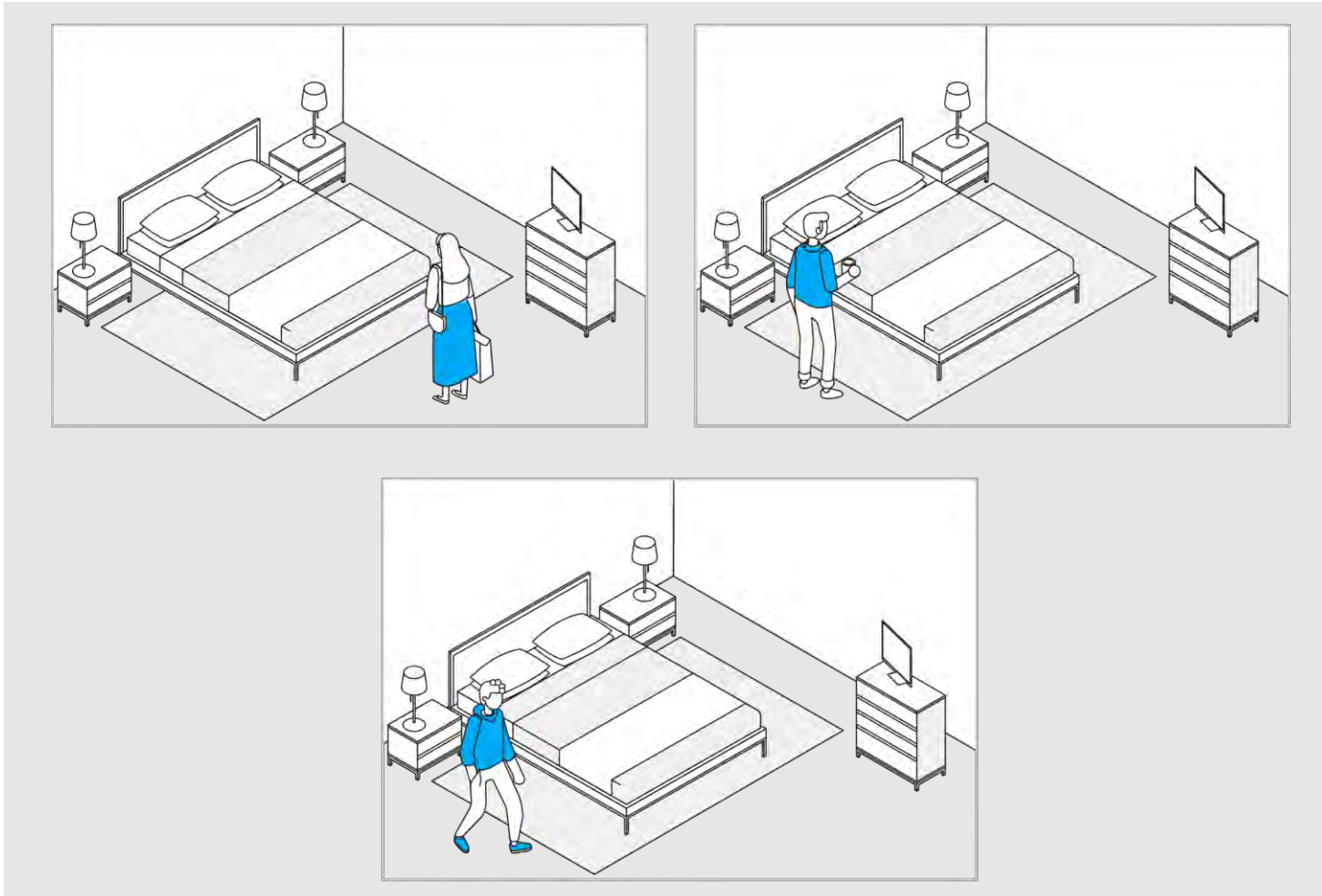
*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Support employee safety practices in dormitories and accommodations as applicable

## Separate in space & time

Office | Field



## Description of potential intervention

**Provide dormitories on work campus** to reduce risk of employees contracting disease elsewhere or spreading to their families

Institute policy for all employees who leave campus to sleep must **re-do quarantine** when they return

**Redesigned dormitories** and common areas to enable distancing

Disallow employees to share corporate apartments and **provide isolated accommodations** instead

## Where this has been done

Large electronics manufacturer in China

Automotive manufacturer in China

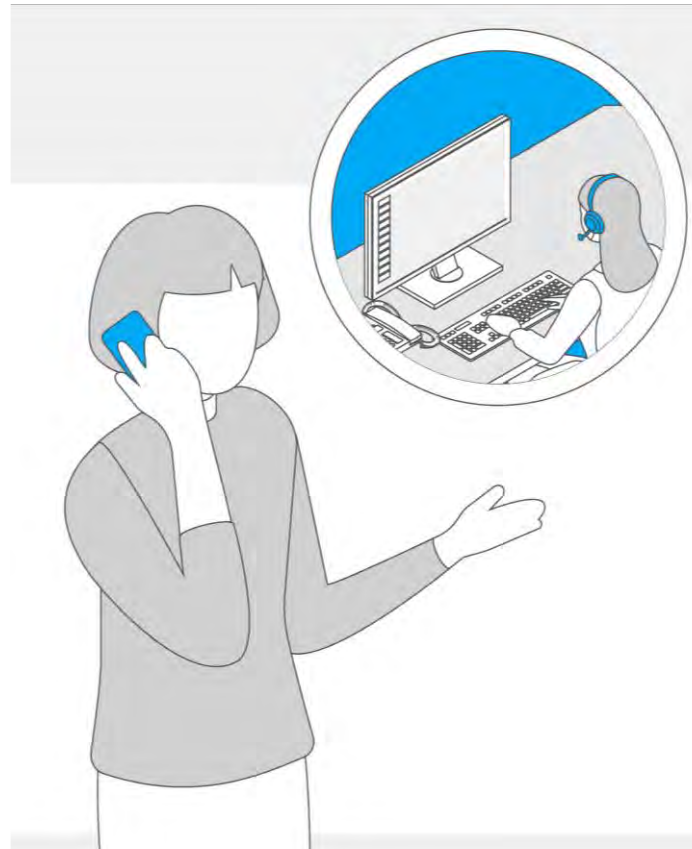
*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

# Establish team or communication chain to collect questions and concerns from community



Collect suggestions/concerns from employees and prominently display FAQ



Setup a hotline for employees to report hygiene violations/concerns

*Does not reflect McKinsey guidance customized to individual client needs - should be vetted against applicable legal and business requirements before application to a specific client*

Source: Expert interviews, press search, client surveys

## Drive safe behavior norms

Office | Field

### Description of potential intervention

**Collect feedback (queries and concerns) from frontline team members:**

- Have supervisors collect queries and concerns from frontline team members every morning
- Setup a hotline to include suggestions/areas of improvement

**Publish an updated Q&A list (as frequently as possible):**

- Display on monitors / posters around the factory daily
- Upload to a corporate website

### Where this has been done

Automotive manufacturer in China



McKinsey  
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# Appendix

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# Range of respirator and mask options provide different levels of performance

█ NIOSH regulated
 █ Observed incremental use in industry for COVID-19 protection

Generalization; selection should be made based on hazard assessment

Critical supply		Reduces wearer's exposure to airborne particles	Protects others from wearer's respiratory emissions	Fluid resistant	Re-use	Relative unit cost	Comments
A	PAPR	<ul style="list-style-type: none"> <li>Can filter &gt;95% of particles &gt;0.3 microns</li> <li>Good face seal</li> </ul>	Yes	Yes	Durable product	Highest	Provide high level protection with better comfort for high temperature jobs; more compatible with facial hair
	Full facepiece		Yes	Yes	Durable product	Higher	Better performance than disposable respirators for sweaty or dusty jobs
	Half facepiece		Yes	Yes	Durable product	Middle	Better performance than disposable respirators for sweaty or dusty jobs
	Surgical N95 respirator		Yes	Yes	Unknown	Lower	Generally used for health care providers
B	N95 respirator		Yes	No	Multi-use if cleaning is allowed	Lower	Generally used for health care providers and other high risk activities
C	Surgical mask	<ul style="list-style-type: none"> <li>Some filtering performance</li> <li>Loose face seal</li> </ul>	Yes	Yes	Single use / replace daily in offices	Lower	Generally used for medium risk activities While a loose face seal blocks fewer particles it improves breathability
D	Non-spec products (commercial and homemade)	<ul style="list-style-type: none"> <li>Varies</li> </ul>	Yes	Varies	Varies	Lower to middle	Wide range of alternatives with varied levels of performance and cost; typically for personal use

# A: Durable respirators may provide greater protection and worker comfort relative to N95 respirators<sup>1</sup>

Key metrics	Tight-fitting		Loose-fitting
	Half facepiece	Full facepiece	PAPR <sup>2</sup>
Respiratory protection-APF <sup>3</sup>	 50	 1000	 25 <sup>4</sup>
Min airflow rate	115 liters per min	115 liters per min	170 liters per min

## COVID-19 applicability

OSHA recommends considering half facepiece, full facepiece, or powered air purifying (with HEPA filter) respirators as PPE options that provide greater protection and improved worker comfort relative to the N95 respirator<sup>1</sup>

Tight-fitting facepieces and PAPRs may be more comfortable than disposable respirators for longer duration use, or if the user sweats heavily during work

Use of tight-fitting PAPRs requires fit testing; use of loose-fitting PAPRs does not require fit testing<sup>5</sup>

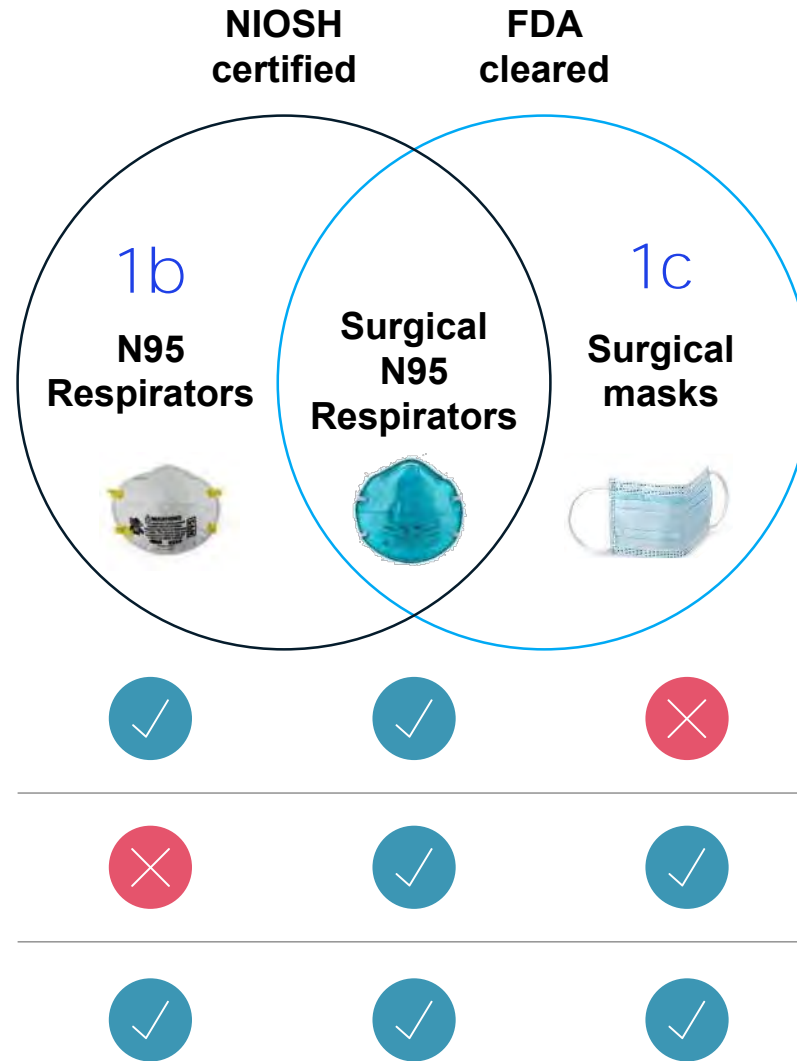
PAPRs protect the user by filtering out contaminants in the air and use a battery-operated blower to provide the user with clean air; this has a secondary effect of cooling the user, which is helpful in higher temperature operations, such as welding

Durable respirators may provide better fit than N95 respirators for users with facial hair

NIOSH and OSHA recommend routinely cleaning and disinfecting durable respirators<sup>6</sup>

1. <https://www.osha.gov/Publications/OSHA3990.pdf> | 2. Powered Air-Purifying Respirator | 3. Assigned protection factor, a term used by OSHA to determine how well a respirator/filter combination will protect an individual from external contaminants; an APF of 25 means that no more than one-twenty fifth of the contaminants to which the worker is exposed will leak into the inside of the mask, <https://affygitly.com/potent-compound-corner/2017/10/19/the-proper-use-of-assigned-protection-factors-and-maximum-use-concentrations.html> | 4. APF of 25 without additional testing | 5. <https://www.ncbi.nlm.nih.gov/books/NBK294223> | 6. <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134AppB2>, <https://www.cdc.gov/niosh/npptl/cleaning.html>

# A. Distinction between respirators and masks



## CDC guidance for respirators:

- Non-surgical N95 respirators provide sufficient protection for health care providers against COVID-19 in most settings<sup>1</sup>
- HCPs who are working in a sterile field or who may be exposed to high velocity splashes, sprays, or splatters of blood or body fluids should wear surgical respirators<sup>1</sup>

## OSHA guidance on lower risk tasks (i.e., low to medium):

- The PPE ensemble could include a face mask (e.g., surgical mask)<sup>2</sup>
- In rare situations would a respirator be required<sup>2</sup>

1. [https://www.cdc.gov/niosh/npptl/topics/respirators/disp\\_part/default.html](https://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/default.html)  
 2. <https://www.osha.gov/Publications/OSHA3990.pdf>  
 3. <https://www.cdc.gov/niosh/npptl/pdfs/UnderstandingDifference3-508.pdf>



# B: Product breakdown for N95 respirators

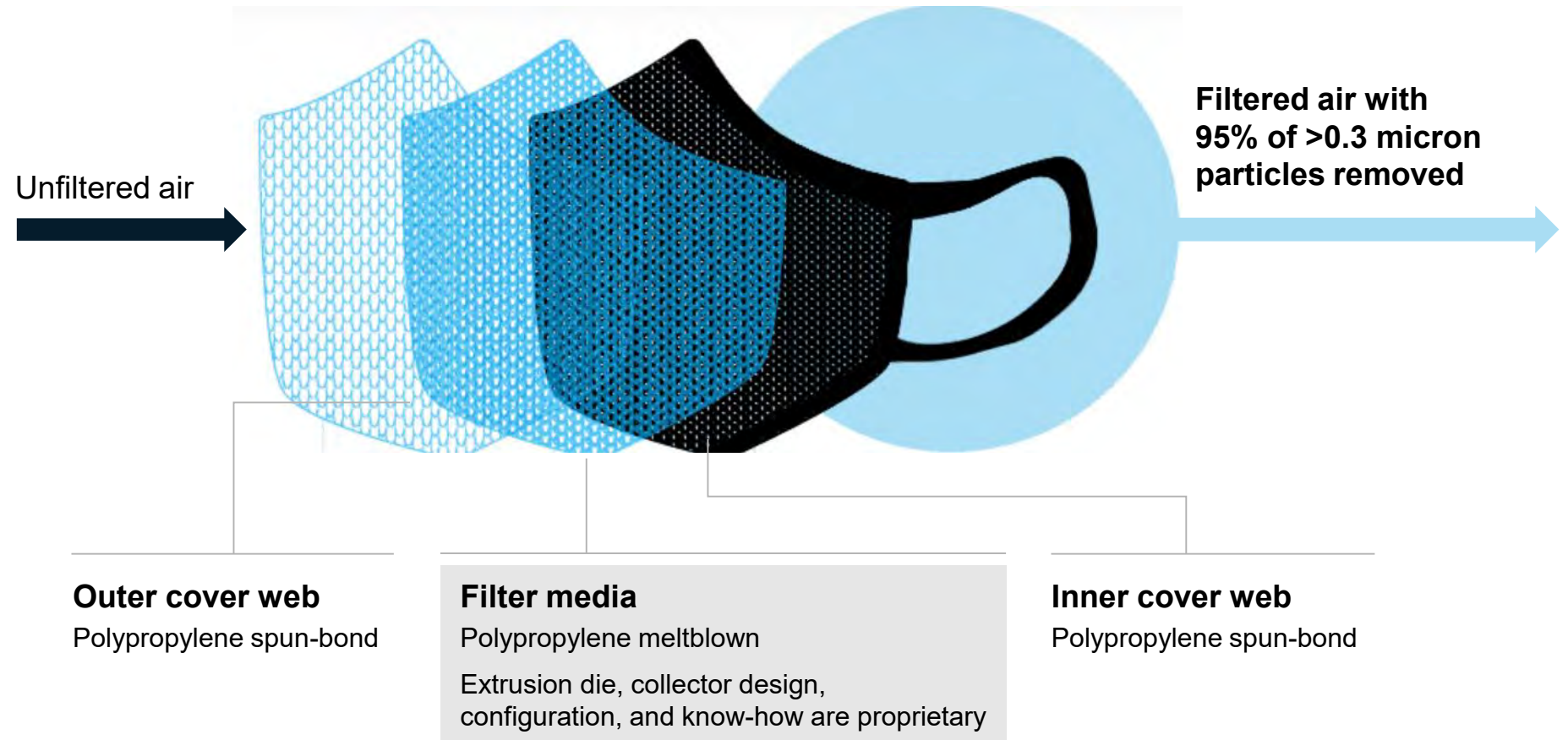
Not exhaustive

## Product breakdown for N95 Respirators

Spun-bond meltblown spunbond is 3-layer fabric that can be made inline or on separate extruders




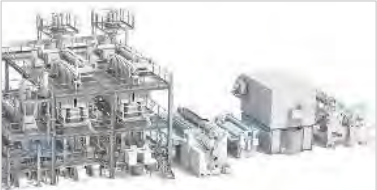





All the raw fabric materials **except the filter media** should be relatively straightforward to replicate across non-woven synthetic fabric mills

**Filter media is significantly capacity constrained**



1. CDC regulation 42 CFR 84.180, <https://www.cdc.gov/PPEInfo/Standards/Info/42CFR84180>

# B: Supply of N95 respirators is limited, constrained by the specialized SMS fabric and thermoform process

Process step	Capacity	Output	Comments
 <b>Refinery</b>	 No constraint	 <b>High grade polypropylene</b>	<b>Example refineries capable of high grade PP:</b> Exxon, Chevron, Sinopec
 <b>SMS (spunbond-meltblown-spunbond) mill</b>	 Extreme constraint	 <b>SMS roll stock (N95 quality)</b>	<b>Example mills (at capacity):</b> SWM, 3M, Kimberly Clark, Transweb, Mytrex, Lydall, PFNonwovens, <b>N95 capable equipment:</b> Reifenhauser Reicofil (3.5mo lead time), Oerlikon
 <b>Respirator thermoform converter</b>	 Moderate constraint	 <b>Finished N95 respirator</b>	<b>Example converters:</b> Sunwell, 3M, Honeywell, Xinglong,

Process flow

## Description of other options

- N95-equivalent or near-equivalent respirators from other countries
- Surgical masks

## Reduction in demand, such as re-use

B: In crisis scenarios, CDC guidance indicates approved respirators under standards similar to NIOSH can be used

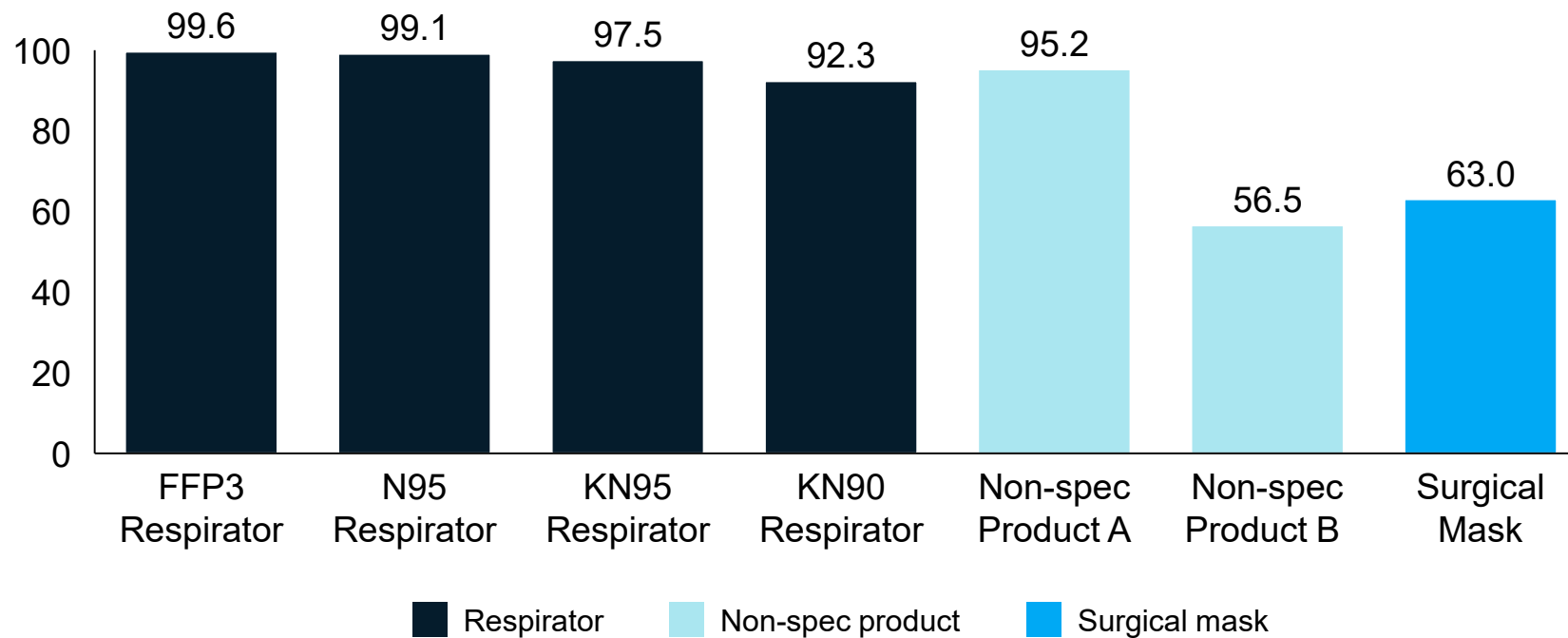
<b>Country</b>	<b>Performance Standard</b>	<b>Acceptable Product Classification</b>	<b>Standards / Guidance Documents</b>
Australia	AS/NZS 1716:2012	P3, P2	AS/NZS 1715:2009
Brazil	ABNT/NBR 13698:2011	PFF3, PFF2	Fundacentro CDU 614.894
China	GB 2626-2006	KN100, KP100, KN95, KP95	GB/T 18664-2002
Europe	EN 149-2001	FFP3, FFP2	EN 529:2005
Japan	JMHLW-2000	DS/DL3, DS/DL2	JIS T8150:2006
Korea	KMOEL-2017-64	Special, 1st	KOSHA GUIDE H-82-2015
Mexico	NOM-116-2009	N100, P100, R100, N99, P99, R99, P95, R95	NOM-116
US	NIOSH 42 CFR 84	N100, P100, R100, N99, P99, R99, P95, R95	OSHA 29CFR1910.134

# C: Although not as effective as N95 respirators, surgical masks block out some aerosol particles

Fit test results are dependent on the structure of the user's face

## Example fit test results

Particles 0.01-1 microns blocked, Percent



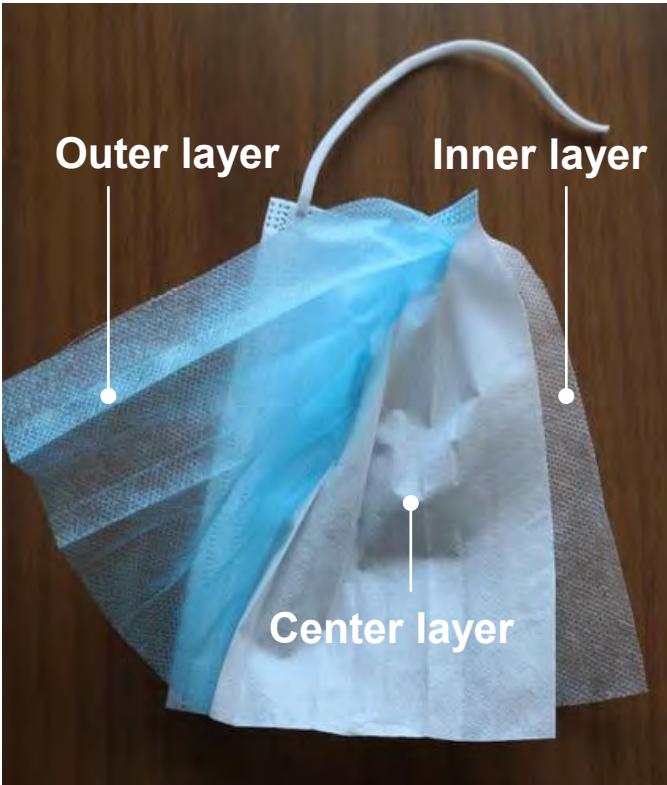
There are studies that successfully demonstrate a certain degree of efficacy of surgical masks despite the facial seal factors

*Note: Specifications for respirators and masks often show filter efficiency, which is the inverse of the particle penetration of the material; a quantitative fit test (i.e., total leakage test), measures the ratio of particles inside the mask, compared to the particles outside the mask for a given user<sup>1</sup>*

1. <http://www.myhealthbeijing.com/children/my-personal-fit-testing-heres-the-best-pollution-mask-for-me/> | <https://multimedia.3m.com/mws/media/957730O/respirators-and-surgical-masks-contrast-technical-bulletin.pdf>



# C: Surgical masks are designed with rapid mass manufacturing in mind



## 5 components of surgical masks

### 3 protective layers

- 1. Inner layer**  
 Material: Spunbonded non-woven fabric (Same material as the outside of disposable ice bag)  
 Function: Enhance wearer's comfort.
- 2. Center layer**  
 Material: Polypropylene SMS non-woven fabric  
 Function: Filter particles and bacteria according to the ASTM standards
- 3. Outer layer**  
 Material: Spunbonded non-woven fabric  
 Function: Less soft than the inner layer, holds the desired color and is coated for fluid resistance

### 2 structural components

- 4. Metal nose band**
- 5. Elastic ear loops**

## One customized machine cuts and bonds the 3 layers in 1 process

<b>Material feed</b>	3 fabrics are fed into the machine from rollers
<b>Layering</b>	Fabrics are laid in the desired accordion structure
<b>Edge bonding</b>	Edges of the mask are bonded using ultrasonic bonding machines or adhesives (ultrasonic provides stronger and more hygienic seal)
<b>Die cut</b>	The masks are stamped in the desired shape
+	
<b>Component bonding</b>	Metal nose bands and elastic ear loops are placed and ultrasonic bonded

# D: CDC guidance for cloth face coverings

## Cloth face coverings should

- Fit snugly but comfortably against the side of the face
- Be secured with ties or ear loops
- Include multiple layers of fabric
- Allow for breathing without restriction
- Be able to be laundered and machine dried without damage or change to shape

## CDC recommends

- Wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain (e.g., grocery stores and pharmacies), especially in areas of significant community-based transmission.
- CDC also advises the use of simple cloth face coverings to slow the spread of the virus and help people who may have the virus and do not know it from transmitting it to others. Cloth face coverings fashioned from household items or made at home from common materials at low cost can be used as an additional, voluntary public health measure.
- Cleaning the cloth face covering in a washing machine
- Taking care when removing the covering to not touch eyes, nose, or mouth, and wash hands immediately after removing

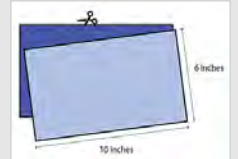
**The cloth face coverings recommended are not surgical masks or N-95 respirators. Those are critical supplies that must continue to be reserved for healthcare workers and other medical first responders, as recommended by current CDC guidance.**

# Instructions provided for 3 types

## 1 Sewn cloth face covering

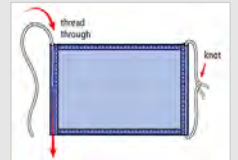
### Materials

- Two 10"x6" rectangles of cotton fabric
- Two 6" pieces of elastic (or rubber bands, string, cloth strips, or hair ties)
- Needle and thread (or bobby pin)
- Scissors
- Sewing machine



### Steps

- Cut out two 10-by-6-inch rectangles of cotton fabric
- Run a 6-inch length of 1/8-inch wide elastic through the wider hem on each side of the mask
- Fold over the long sides 1/4 inch and hem. Then fold the double layer of fabric over 1/2 inch along the short sides and stitch down.
- Gently pull on the elastic so that the knots are tucked inside the hem. Gather the sides of the mask on the elastic and adjust so the mask fits your face. Then securely stitch the elastic in place to keep it from slipping



## 2 Quick cut T-shirt covering (new sew method)

### Materials





- T-shirt
- Scissors

## 3 Bandana Face Covering (no sew method)

### Materials

- Bandana (or square cotton cloth approximately 20"x20")
- Rubber bands (or hair ties)
- Scissors

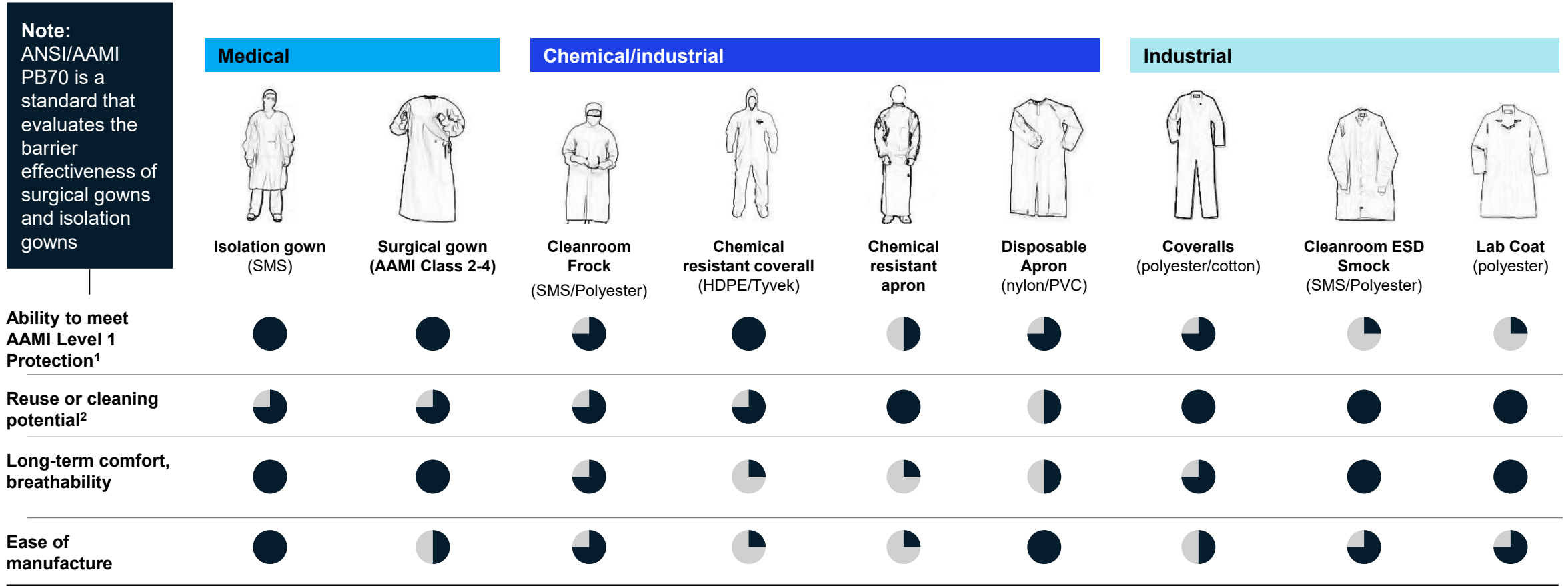
# Some non-medical applications for goggles were observed in cases but none for face-shields

Critical supply	Materials	COVID-19 applicability	Re-use	Observed in “return to work” case studies <sup>2</sup>
<b>Goggles</b> (not safety glasses)  	<p>Hard plastic (PVC, polycarbonate)</p> <p>Typically covers sides and above eyes</p> <p>Goggles should be appropriately fitted, indirectly-vented, with a manufacturer’s anti-fog coating</p>	<p>Provides the most reliable practical eye protection from splashes, sprays, and respiratory droplets</p> <p>Must be snugly fit across the brow to provide best protection</p>	<p>Reusable for long periods of time if properly sanitized (several weeks)</p> <p>Manufacturers can apply anti scratch coatings or use thicker gauge plastic in order to extend life<sup>1</sup></p>	 <p>Select applications observed</p>
<b>Face-shield</b>  	<p>Soft plastic (PVC, polycarbonate, polyethylene)</p>	<p>Used in higher risk COVID-19 environments that will expose wearer to fluid splashes (e.g., intubations, vomiting patient, etc.)</p> <p>Provides additional protection to other facial areas and neck</p>	<p>Typically reusable for short periods of time if properly sanitized (2-3 days)</p> <p>Face shield usability is determined by wearer (i.e., view is clear of obstruction, no limiting scratches or damage)</p>	 <p>No applications observed</p>

**ANSI Z87.1 D3 defines design requirements for eye protection that protects against splash, droplets, and sprays**

1. Derived from health care expert interview  
 2. Industry and PPE expert interviews

# Different protective equipment used across industries







## Limited non-medical applications of gowns / body protection observed in cases

- Unless otherwise certified, these may meet at least AAMI Class I. However, this needs to be validated; AAMI Level 1 is a measure of liquid barrier performance and expected barrier effectiveness is "Minimal water resistance (some resistance to water spray)"
- Includes multiple uses and/or cleanability
- Qualitative assessment from one concept review based on material technical data sheets –criteria and assessment needs to be validated by any potential user





# CDC recommends nitrile and latex gloves for OSHA-equivalent high-risk activities

Disposable glove material	Characteristics <sup>1</sup>	Applications	Relative unit cost	Scarcity <sup>2</sup>
<b>Nitrile</b> 	Stronger than latex or vinyl, with fit, feel, and comfort rivaling that of latex. 3x puncture resistance and higher abrasion and chemical resistance than latex.	<ul style="list-style-type: none"> <li>Medical</li> <li>Customer services (e.g., security, tattoo artists, salon)</li> <li>Industrial (e.g., automotive, manufacturing, janitorial, plumbing, paint shop, chemical, food processing)</li> </ul>	Higher	Moderate
<b>Latex</b> 	Most elastic, resilient, and consistent-fitting glove material; more flexible and offers greater tactile sensitivity than nitrile  Latex allergies in <1% of US population	<ul style="list-style-type: none"> <li>Medical (e.g., examination, laboratory)</li> <li>Industrial (e.g., automotive, janitorial, paint shops, printing)</li> </ul>	Middle	Moderate
<b>Vinyl</b> 	Comfortable fit that is looser than latex or nitrile; economical option where frequent glove changes are required	<ul style="list-style-type: none"> <li>Medical</li> <li>Industrial (e.g., food service)</li> </ul>	Lower	Moderate
<b>Polyethylene</b> 	Most affordable glove material, good for short duration tasks and frequent glove changes	<ul style="list-style-type: none"> <li>Customer service (e.g., salon, cosmetics)</li> <li>Industrial (e.g., food service)</li> <li>Arts and crafts</li> </ul>	Lowest	Low





1.AMMEX glove guide – April 2019

2.High scarcity = low availability

3.<https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirator-use-faq.html>

CDC recommends for high-risk medical applications, (i.e., caring for suspected or confirmed COVID-19 patients)<sup>3</sup>

# Wide-range of sanitizers and disinfectants used for COVID-19

Critical supply		CDC recommended	Additional comments from CDC
<b>Soap and water</b>	Any soap, applied for 20 seconds <sup>1</sup>		Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing <sup>1</sup>
<b>Hand sanitizers</b>	<b>Alcohol</b> <sup>2</sup> Ethanol (>60% concentration) Isopropanol (>70%)		Alcohol based hand rubs are recommended over hand washing in most cases because they are less damaging to skin and achieve greater compliance <sup>2</sup>
	<b>Non-alcohol</b> Benzalkonium chloride Benzethonium chloride Chloroxylenol Povidone-iodine Others		Available evidence indicates benzalkonium chloride has less reliable activity against coronavirus than either of the alcohols <sup>2</sup>
<b>Equipment / surface disinfectants</b> <sup>3</sup>	Chlorine bleach Alcohol Hydrogen peroxide Ammonia Others		Practice routine cleaning of frequently touched surfaces (e.g., tables, doorknobs, light switches, handles, desks, toilets, faucets, sinks, and electronics) with household cleaners and EPA-registered disinfectants that are appropriate for the surface, following label instructions

Alcohol is an effective antiviral because it denatures the structure of proteins, including the envelope of viruses<sup>4</sup>

**While there may be sourcing challenges for ABHRs are a relatively simple formulation of commodity chemicals (see next page)**

1. <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>  
 2. <https://www.cdc.gov/coronavirus/2019-ncov/infection-control/hcp-hand-hygiene-faq.html>  
 3. <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>  
 4. <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/chemical.html>

# Product breakdown: alcohol-based hand rub (ABHR) raw material inputs

	<b>Ethyl alcohol</b>	OR	<b>Isopropyl alcohol</b>	+	<b>Glycerol (glycerin)</b>	+	<b>Hydrogen peroxide</b>
<b>Purpose</b>	Antiseptic		Antiseptic		Humectant (skin care)		Antibacterial for solution
<b>FDA guidance<sup>1</sup></b>	Denatured, at least 94.9% ethanol by vol		No specifications		Food grade <sup>3</sup>		Concentrate USP or Topical Solution USP
<b>WHO guidance<sup>2</sup></b>	Ethanol 96%		Isopropyl alcohol 99.8%		Glycerol 98%		Hydrogen peroxide 3-6%

1. <https://www.fda.gov/media/136289/download>

2. [https://www.who.int/gpsc/5may/Guide\\_to\\_Local\\_Production.pdf](https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf)

3. Meets United States Pharmacopoeia (USP) or Food Chemical Codex (FCC) grade requirements

4. FDA guidelines have been endorsed by the WHO and CDC

Source: FDA Policy for Temporary Compounding of Certain Alcohol-Based Hand Sanitizer Products During the Public Health Emergency Immediately Effect Guidance for Industry (as of March 27 2020), WHO-recommended Handrub Formulations; CDC

ABHR is made up of commodity chemicals that meet United States Pharmacopoeia (USP) or Food Chemical Codex (FCC) standards

As an alternative to traditional sourcing, the FDA has provided guidelines for new producers to make alcohol-based hand rub<sup>4</sup>