

# Infrastructure epidemiology

A science-based public health approach to help asset owners and operators restore services, build confidence and plan for a pandemic-resilient future



# Infrastructure epidemiology: helping you manage risk and prepare for the future

Our combined infrastructure and health expertise can help asset owners and operators to optimise services and support economic activity while managing risk.

We have brought together our renowned infrastructure capabilities with the expertise of our Global Health team, which has delivered infectious disease control programmes for more than 20 years, and is currently operating in over 30 countries.

Understanding the role infrastructure plays as a vector for the spread of infectious diseases enables us to advise on and plan interventions to reduce transmission. It's a unique insight and discipline we call 'infrastructure epidemiology'.

With a diverse in-house team of experts in public transit, aviation, buildings, disease control, epidemiology, behavioural psychology, economics, modelling and more, we advise on practical and evidence-based interventions and operational improvements to manage disease-related risks in infrastructure settings.

Infrastructure epidemiology is about helping our clients exercise leadership to control the spread of infectious diseases, rebuild people's confidence and restore economic activity.



## How we can help

Through our experience in epidemiology, disease control and infrastructure, we will help you:

- Rebuild confidence, strengthen your leadership and manage stakeholders
- Understand the science so you know what works and what doesn't
- Streamline your operational processes through science and evidence-based risk analysis
- Rebuild capacity and revenue while managing contagion risk
- Improve compliance with mitigation measures based on behavioural insight and evidence
- Build in resilient features to better prepare for future pandemics

### Recent work includes:

- Providing COVID-19 advice to the Port Authority of New York and New Jersey for its airports and rail transit system
- Rapidly developing several COVID-19 surge hospitals in the UK, with capacity for more than 7000 beds
- Reviewing COVID-19 procedures and modelling relative risk outcomes in public spaces such as judicial courts, offices and stadia
- Leading a series of online workshops for public transit operators in the USA, Canada and the UK to discuss innovative solutions to challenges linked to the pandemic
- Working with finance institutions and public sector agencies to ensure that tenders for large public infrastructure projects incorporate resilience to improve preparedness for infectious disease threats

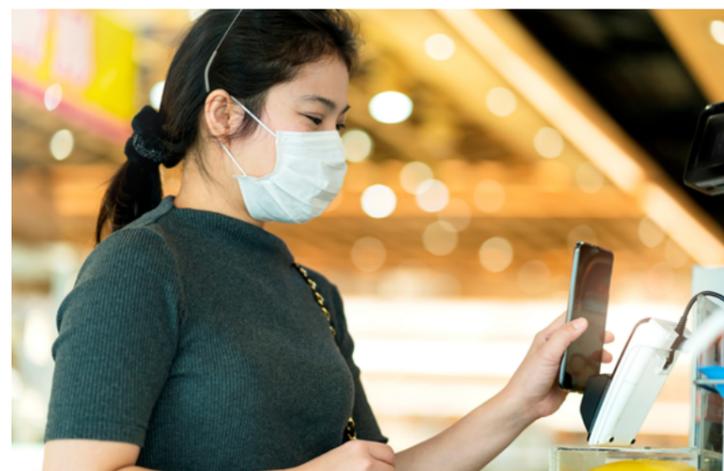


# Benefit from our unique and evolving COVID-19 resource hub

Global understanding of the pandemic evolves quickly, on a near-daily basis. Infrastructure owners and operators need to respond using the latest information.

Since the start of the COVID-19 pandemic, our epidemiologists and public health specialists have been gathering global evidence about the disease, its transmission, clinical features, mitigation strategies, and progress in developing treatments, diagnostics and vaccines.

We sift, compare and challenge information for credibility and quality, replacing out-of-date guidance as new findings become available. The result is a best-in-industry foundation to guide our clients to make better decisions with confidence, about what they need to do as well as what they shouldn't do.



## A three-step approach to pandemic control

A phased strategy will help asset owners and operators build back better, protecting themselves from future uncertainty and shocks.



### 1. Immediate actions:

Existing assets, equipment and processes should be reviewed in the context of local government guidelines and the latest science.

### 2. New solutions:

Employ new ways of working and technologies (such as contactless payments/tickets, crowd monitoring technologies or using innovative data sources to target interventions) to further reduce transmission risk, build back lost revenue and improve operational efficiency.

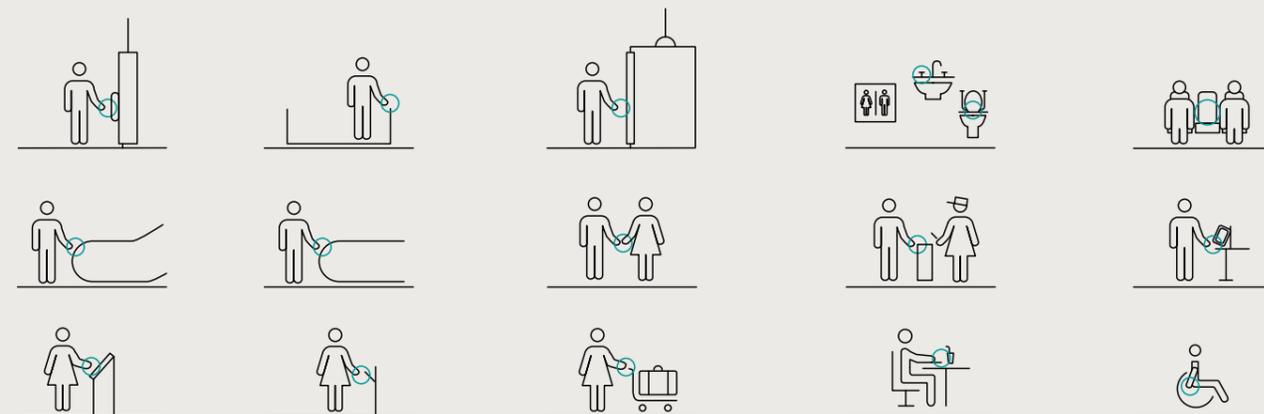
### 3. Pandemic resilience:

Prepare assets and procedures to proactively mitigate the impact of future disruption and new infectious diseases.



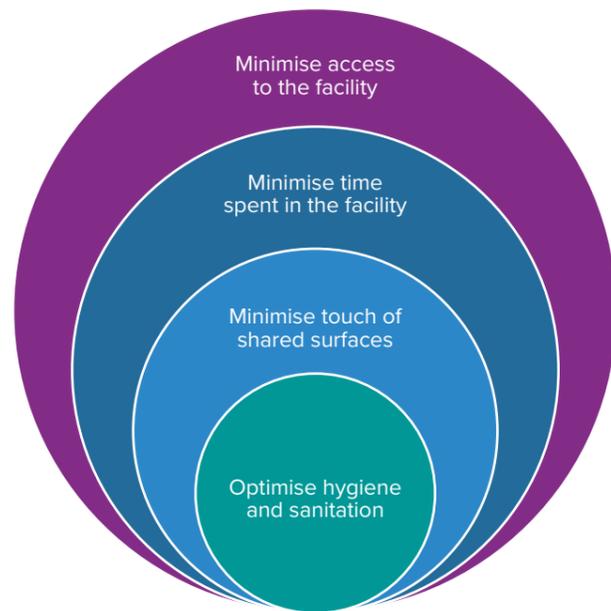
## Touchpoints

We examine touchpoints across your facility to help reduce the risk of infection.



# Circles of protection

Where appropriate, we use a ‘circles of protection’ approach to guide our use of non-pharmaceutical interventions (NPIs).



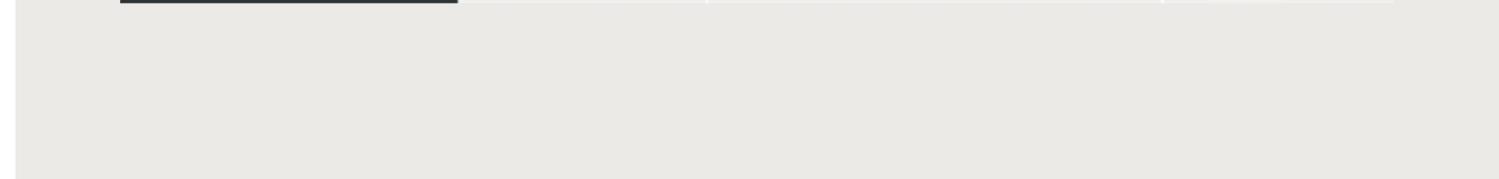
From this basis, we can support our clients to:

- **Get buy-in for your strategy and promote transparency:** Include all key stakeholders in core decision-making and support strategy with evidence
- **Reduce exposure risk:** Decrease the density of people in certain areas and, where appropriate, minimise the time people spend in the facility
- **Re-engineer passenger flows:** Examine and adapt how people circulate to encourage social distancing
- **Minimise personal contact:** Examine how people interact in your facility and adapt processes to reduce close contact
- **Eliminate touchpoints:** Minimise contact with fomites by removing non-essential surfaces and redesigning processes, using digital solutions where possible
- **Improve sanitation and maintenance:** Perform the ‘basics’ of cleaning and maintenance and adapt where needed for added protection
- **Encourage individual protection:** Hand sanitiser, face coverings and personal protective equipment (PPE) for staff
- **Develop effective communication:** Keep people informed so they can play their part through behaviour change communication strategies to improve compliance and confidence



## Quantifying the risk of transmission

We use risk comparison tools that enable us to assess and compare the levels of transmission risk when different measures are applied, based on the latest science. In this way, we can estimate relative changes in risk against operational metrics such as capacity or economic activity.



# Pandemic-resilient infrastructure

The 'new normal' further emphasises the importance of adapting the operation and design of our infrastructure to better withstand uncertainties – such as lockdowns and new disease threats. Just as net-zero carbon and climate resilience have industry norms, we should seek to build in resilience to pandemics.



The three dimensions of pandemic resilience are:

1.

## Absorb

To be more resistant to pathogen transmission

2.

## Adapt

To be more responsive to changing needs, such as pre-planning for local lockdowns

3.

## Transform

To be more versatile and allow change from the usual function

### Our service includes:

Risk assessment for infectious disease threats, preparedness and contingency planning, dynamic capacity modelling and adaptable design of buildings.



## Finding a balance

Using the latest epidemiological evidence and data-driven tools, we can help you disentangle and interpret the linkages between risk, capacity and economic activity.

Through this, we can support you in challenging existing policy and standards by finding a more acceptable balance between owners, operators, regulators and governments.

# Opening opportunities with connected thinking.

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