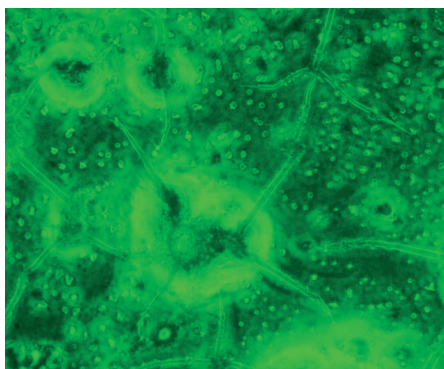


DESIGNING INFRASTRUCTURE TO COMBAT DISEASE

IMPACT!

Engineering and Physical Sciences Research Council | Case study 13



CUTTING RISK

Well designed infrastructure such as carefully sited hand-wash basins can help to control a pandemic.

Access to running water and regular hand washing reduced the spread of cholera sevenfold in Victorian London.

People are not the only things to hop on and off buses and trains. Viruses and bacteria also take advantage of man-made infrastructure to travel and spread.

The University College London Healthy Infrastructure Research Centre, funded by EPSRC, is revolutionising infrastructure design, construction and function, to help fight the spread of infectious disease.

IMPACT ON PUBLIC HEALTH

- Well designed infrastructure, such as carefully sited hand-wash basins, can help to control a pandemic.
- Removal or blocking of outdated infrastructure, such as disused pipes, could help to prevent disease transmission.
- Specialist infrastructure, such as air treatment systems, could help to control a disease outbreak by killing or removing pathogens.

Battling infection the 21st century way

On 11 June 2009, the H1N1 virus – swine flu – went pandemic. As the 1918 Spanish flu demonstrates, flu pandemics can be devastating – between three and six per cent of the global population are thought to have died from the Spanish flu.

Now an EPSRC-funded project is tackling the spread of infectious diseases head on; by looking at the relationship between infrastructure and disease transmission. Ka-man Lai from University College London has been awarded an EPSRC Challenging Engineering Award to set up the UCL Healthy Infrastructure Research Centre (HIRC).

Within the next ten years researchers at the HIRC aim to revolutionise the way that infrastructure is designed and constructed, and the way that it functions, to create a new environment that resists 21st century infections.

Stopping the spread

Infrastructure acts like the arteries and veins of a country, but unfortunately it can also aid the spread of infectious diseases. In 2003, poorly maintained drains in the Amoy Garden housing estate in Hong Kong helped to spread the Severe Acute Respiratory Syndrome (SARS) virus, which infected 321 people on the estate and caused 42 deaths.

But modern water treatment works and sewerage systems are also an excellent example of infrastructure that has prevented disease transmission. Water infrastructure is thought to be responsible for eradicating the waterborne bacteria, cholera, from the developed world.

Research at the HIRC will be investigating ways in which infrastructure can enhance or reduce disease transmission and looking for strategies to reduce risk. From tuberculosis to hospital superbugs, HIRC researchers will use our infrastructure to help stop infection before it starts.

For more information about EPSRC and the impact it is making visit www.epsrc.ac.uk

EPSRC

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and skills



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