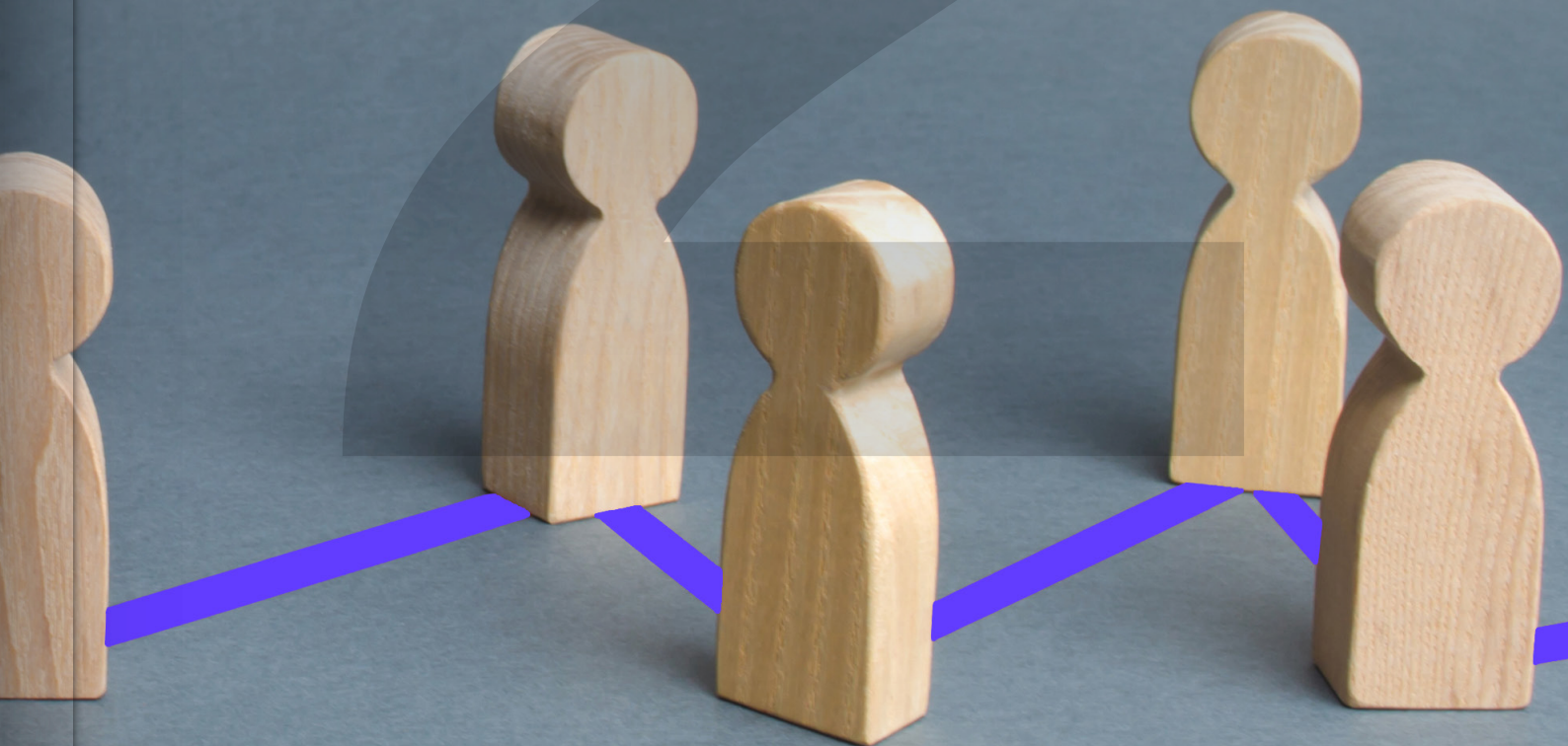
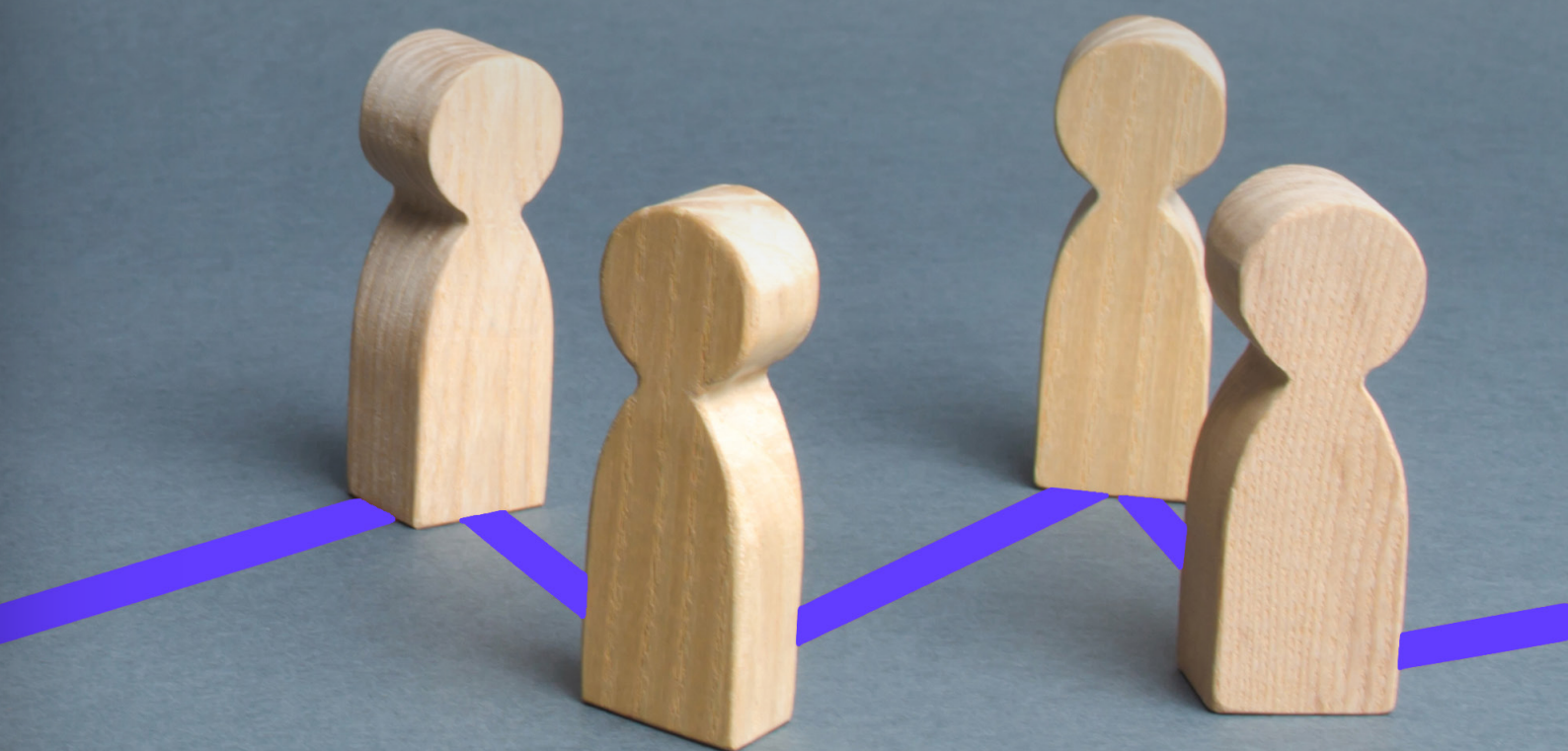


Information pack



Task Force Information pack

This resource is based on a fictional illness called Exan. All information, data, organisations and people referred to in this booklet are fictitious.



Email 1

From: Sarah Smith <SSmith@taskforce.gov.uk>
Sent: Friday, 10:12 AM
To: Me <researcher@taskforce.gov.uk>
Subject: Infection Control and PPE

Hi

I am an Infection Control Epidemiologist. I usually work in a clinical setting such as a hospital and I work with medical staff and managers on preventing the spread of infectious diseases.

Attached to this email you will find a report from the GPHA that I wrote. It provides an overview of infection control and suggested PPE in various circumstances. Although this report focuses on preventing the spread of diseases in a clinical setting, much of it can be applied to a community setting but be careful with PPE. Contaminated PPE can be just as dangerous as not wearing any PPE at all if it is not used or disposed of correctly, that is why we don't recommend its use by the general public.

Best wishes,
Sarah

Dr S Smith
Infection Control Epidemiologists
National Hospital Trust

Report on Infection Control and Personal Protective Equipment (PPE)

Background

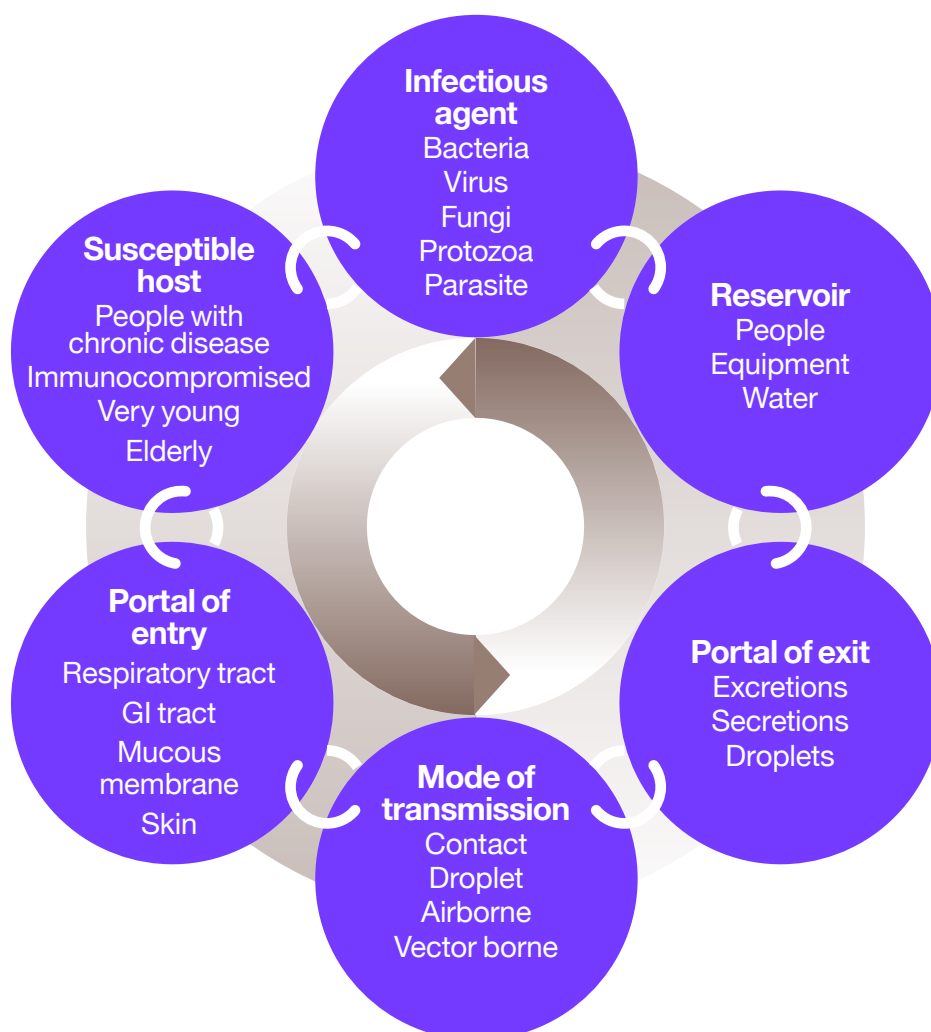
Traditionally infection control has been focused on preventing the spread of infections in a clinical setting such as a hospital. Recent communicable disease outbreaks have shown however that infection control methods such as use of PPE can also be very important in non-clinical settings.

The chain of infection

The process of infection can be represented as a chain, along which microorganisms are passed from a source to a person, particularly a vulnerable person in hospital.

Breaking a link at any point in the chain will control the risk of infection by preventing the onward transmission of microorganisms.

The Chain



The chain of infection continued

Transmission of an infectious agent may be interrupted when we break the chain of infection. Examples of this include when:

- The infectious agent is eliminated, inactivated or cannot survive in the reservoir (E.g. rapid identification and management of organisms, cleaning and disinfecting of the environment)
- The portal of exit is managed through good infection prevention and control practices (E.g. Hand Hygiene, appropriate use of PPE, safe packaging and disposal of waste)
- Transmission does not occur due to good infection prevention and control practices (E.g. Hand Hygiene, isolation of infected patients, air flow control where appropriate)
- The portal of entry is protected (E.g. Aseptic non-touch technique, safe catheter care, wound care)
- Reducing the susceptibility of patients receiving healthcare (E.g. Treatment of underlying disease, recognising high risk patients)

Hand hygiene

Hand hygiene is the single most important way to prevent the spread/transmission of infection.

Hand hygiene can be performed with warm water and liquid soap (for cleaning soiled hands), warm water and antiseptic solution or by using a hand sanitiser (for hands that are not visibly soiled/dirty).

There are some situations where hand sanitisers are ineffective. They should not be used when the hands are visibly dirty or soiled. Also, most hand sanitisers are not effective against viral infections (e.g. vomiting and diarrhoea caused by Norovirus). They are also not to be relied on with infectious diarrhoea. In both cases running water and liquid soap should be used.

Task Force Information pack

Transmission precautions

In a clinical environment, once we understand how a pathogen spreads from one person to another, we can take a number of precautions to prevent transmission. **These can sometimes be applied to non-clinical settings too.** The main routes of transmission of an infectious agent are:

1. Contact – microorganisms that can be transmitted by direct contact or through the patients secretions or bodily fluids; i.e. contact which occurs when performing
2. Droplet – microorganisms transmitted by droplets. Droplets can be generated by coughing, sneezing or talking.
3. Airborne – microorganisms that can be transmitted to other people via the airborne route e.g. in dust.

Some diseases have multiple routes of transmission and more than one Transmission.

	Contact Precautions	Droplet Precautions (e.g. Influenza, Rubella, Mumps, Pertussis)	Airborne Precautions (e.g. TB, Measles, Chickenpox)
Patient placement	Single room Cohort with same infection	Single room Cohort with same infection No special air handling and ventilation required	Negative pressure isolation room (where available) Doors and windows must be kept closed and patient must remain in the room
Door/Bed signs	Isolation notice should be displayed Advise all staff on the necessary precautions	Isolation notice should be displayed Advise all staff on the necessary precautions	Isolation notice should be displayed Advise all staff on the necessary precautions
Masks	Masks not normally indicated unless risk of splash	Wear a fluid shield mask when working within 1 meter of the patient until no longer infectious	FFP3 respirator mask must be worn for confirmed or suspected MDR or XDR-TB Susceptible, non-immune persons should not enter the room of patients with measles or chicken pox
Visit to other departments	Limit movement of patient from the room to essential purposes only If transfer/movement is necessary, notify the receiving department/ IPC Team in advance	Limit movement of patient from the room to essential purposes only If transfer/movement is necessary, place a surgical fluid shield mask on the patient If transfer/movement is necessary, notify the receiving department/ IPC Team in advance	Limit movement of patient from the room to essential purposes only If transfer/movement is necessary, place a surgical fluid shield mask on the patient If transfer/movement is necessary notify the receiving department/ IPC Team in advance
Cutlery/crockery	Separate or disposable cutlery or crockery is not indicated Wash in dishwasher in usual way	Separate or disposable cutlery or crockery is not indicated Wash in dishwasher in usual way	Separate or disposable cutlery or crockery is not indicated Wash in dishwasher in usual way

Personal Protective Equipment (PPE)

- Gloves, aprons, long sleeved gowns, surgical masks, eye goggles, face visors and respirator masks are all examples of PPE that may be worn in the provision of healthcare.
- PPE is mainly used in healthcare settings to create a barrier between healthcare workers and an infectious agent from the patient and to reduce the risk of transmitting micro-organisms from healthcare workers to patient(s). In addition PPE may sometimes be used by the patient's family / visitors, particularly if they are providing direct patient care e.g. assisting patient with toileting.
- The choice of PPE should be based on a risk assessment of potential exposure to blood / body fluids / infectious agents.
- Where appropriate PPE should be available at the point of use in both community and healthcare settings but it must be used correct and disposed of safely.

- If used inappropriately PPE can increase the risk of transmitting infections and put people at risk of becoming infected.

Exan is spread through direct contact with the body fluids of a person who is sick with Exan or with objects (e.g., bathroom surfaces, medical equipment) that have been contaminated with infectious blood or body fluids. The virus in blood and body fluids can enter a person's body through broken skin or unprotected mucous membranes in, for example, the eyes, nose, or mouth. For all healthcare workers or carers caring for patients with Exan, PPE that fully covers skin and clothing and prevents any exposure of the eyes, nose, and mouth is recommended to reduce the risk of accidental self- contamination of mucous membranes or broken skin.

In a clinical or care setting we would recommend the following PPE:



This level of PPE would not be appropriate in a community or non-clinical setting and would result in higher levels of transmission if not used or disposed of properly. When living in or traveling to an area where Exan is potentially present, there are a number of ways to protect yourself and prevent the spread of Exan:

- Avoid contact with blood and body fluids (such as urine, faeces, saliva, sweat, vomit, breast milk, amniotic fluid, semen, and vaginal fluids) of people who are sick.
- Avoid contact with items or surfaces that may have come in contact with an infected person's blood or body fluids (such as clothes, bedding, needles, and medical equipment). Ensure there is a good cleaning regime of these surfaces.
- Wash your hands regularly using soap and warm water.

Email 2

From: Jay Khan<JKhan@taskforce.gov.uk>
Sent: Tuesday, 1:42 PM
To: Me <researcher@taskforce.gov.uk>
Subject: Exan-21-A Characteristics

Good Morning
Please find attached the following:

1. A timeline of the typical Exan-21-A infection from the point of transmission.
2. A graph looking at the transmissibility of Exan-21-A in different bodily fluids over the course of an infection.

This information should be extremely useful for the task force and help to combat this new global pandemic. Although I was the lead of this project, I can't take credit for this work. It took hundreds of front line medical staff to collect thousands of samples that were then analysed by lab technicians up and down that country. My team then received a huge amount of data that we had to sort and analyse and I was supported by a team of amazing colleagues in different departments at my university. I want to say a special thank you to Joseph (Statistician), Avery (Computer Modeller and Coder) and Kiran (Medical Director), for helping to run this project.

Let me know if you have any questions.

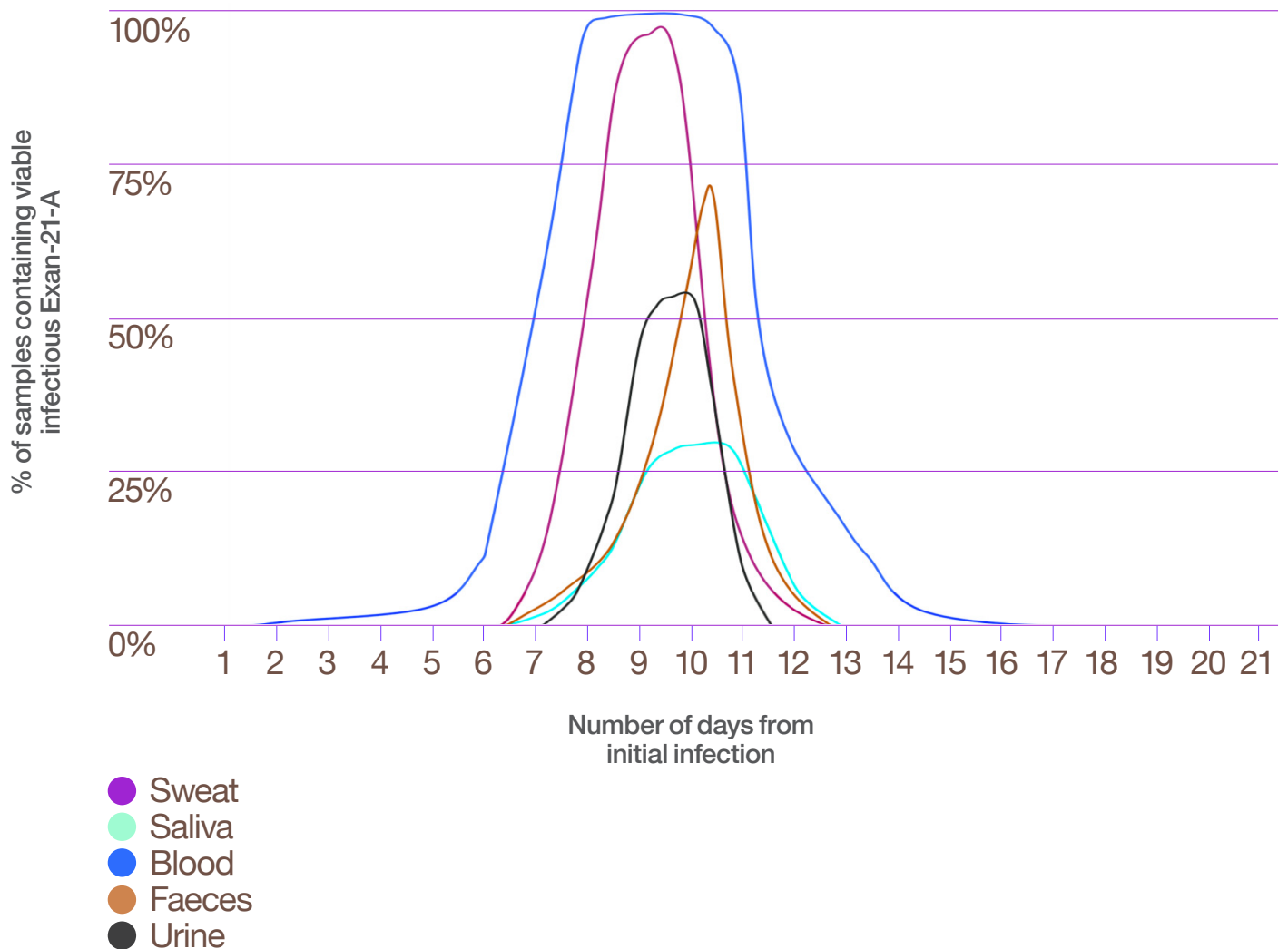
Professor Jay Khan
Professor of Virology
Little Bridge University, London

Timeline of Exan-21-A Infections

Day 1		A person becomes	Infected
Day 2		infected with	
Day 3		Exan-21-A	
Day 4			Stage 1
Day 5			
Day 6			
Day 7	In 90% of cases, patients present with an itchy rash on their back and stomach at around day 5. This typically lasts for around 5 days		Stage 2
Day 8			
Day 9			
Day 10		At around day 7, those infected with Exan-21-A start to experience regular hot flushes, fever, begin to sweat significantly and experience stomach cramps and diarrhoea. 95% of people present with these symptoms.	
Day 11			
Day 12		At this stage people are infectious and the virus is passed on through bodily fluids including blood, sweat, saliva, urine and faeces. This typically lasts for around 5 days	
Day 13			
Day 14			
Day 15			
Day 16			Not contagious
Day 17			
Day 18			
Day 19	Typically after 17 days from being infected or 10 days after the stage 2 infection, a person is no longer contagious		
Day 20			
Day 21			

Transmissibility of Exan- 21-A in bodily fluids

The table below shows data collected from 10,000 people who were confirmed as being infected with Exan-21-A. During each day, a sample of bodily fluids were collected and tested to see if they contained viable infectious Exan-21-A (virus capable of infecting other people). Other bodily fluids were tested but infection rates never exceeded 4.5% and therefore were excluded from the graph below.



Email 3

From: Liam Jones <Liamjones@taskforce.gov.uk>
Sent: Friday, 08:00 AM
To: Me <researcher@taskforce.gov.uk>
Subject: New Exan-21-A Data Preview

Hi

We have just got some new data in which looks at confirmed Exan-21-A cases in the UK over the last 30 days - see the attached document. We haven't finished the analysis yet so you will see some blank cells, but what we have got is really interesting.

Let me know what you think.

Regards

Liam
Head Statistician
Exan-21-A Task force

Task Force Information pack

Email 3 Attachment

Confirmed cases of Exan-21-A over the last 30 days in UK	Number (%)					
	Overall	Age group (yrs)				
		18-35	36-50	51-65	66-80	≥81
	30,000	12,681	7,966	4,463	2,900	1,990
Race/Ethnicity						
White	52%	62%	21%	10%	2%	5%
Black	13%	59%	17%	12%	8%	4%
Asian	18%	48%	19%	13%	14%	6%
Mixed Race	8%	55%	16%	4%	9%	6%
Other	4%	67%	12%	8%	9%	4%
Unknown	5%	54%	15%	2%	22%	7%
Regularly play team sports (at least once every two weeks)?						
Yes	57%					
No	36%					
Unknown	7%					
Regularly use a communal gym (at least once every two weeks)?						
Yes	72%					
No	20%					
Unknown	8%					
Regularly use public transport (at least once every 2 days)?						
Yes	41%					
No	47%					
Unknown	12%					
How many people live in the same household as you?						
0	13%					
1	14%					
2	18%					
3	19%					
4+	30%					
Unknown	6%					
How often do you use a public or shared toilet (e.g. at work)?						
Regularly - a few times a day	72%					
Sometimes - a few times a week	21%					
Rarely - once a week	4%					
Unknown	3%					
Do you smoke?						
Yes	21%					
No	77%					
Unknown	2%					
Are you obese, with a BMI over 30?						
Yes	11%					
No	86%					
Unknown	3%					
How often do you eat out or go to a pub or bar?						
Regularly - a few times a day	65%					
Sometimes - a few times a week	21%					
Rarely - once a week	10%					
Unknown	3%					
What is your sex?						
Male	71%					
Female	28%					
Unknown	1%					
How often do you wash or sanitise your hands?						
Regularly - Every time I go to the toilet, eat food or when I get the chance.	28%					
Sometimes - Once or twice a day	44%					
Rarely - When I wash or shower in the morning or evening.	10%					
Unknown	18%					

Email 4

From: Sue Turner <STurner@taskforce.gov.uk>
Sent: Wednesday, 3:40 PM
To: Me <researcher@taskforce.gov.uk>
Subject: Hospital Admissions

Hi All

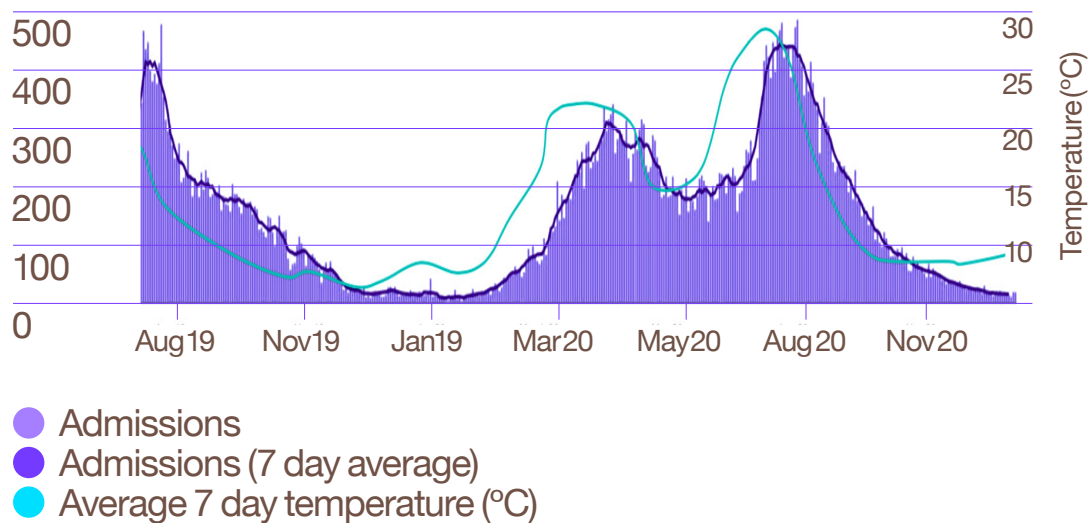
I've been working with my colleagues across the health service and government to bring together the national data on hospital admissions. It has been attached to this email.

Regards

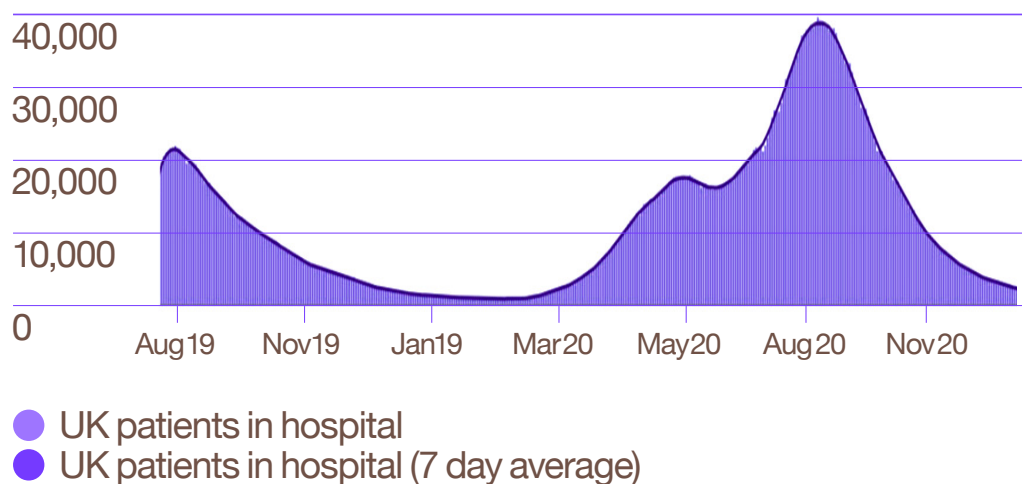
Sue Turner
Chief Operating Officer
National Health Service

Exan-21-A Hospital Admissions

Patients admitted to hospital with Exan-21-A and temperature comparisons

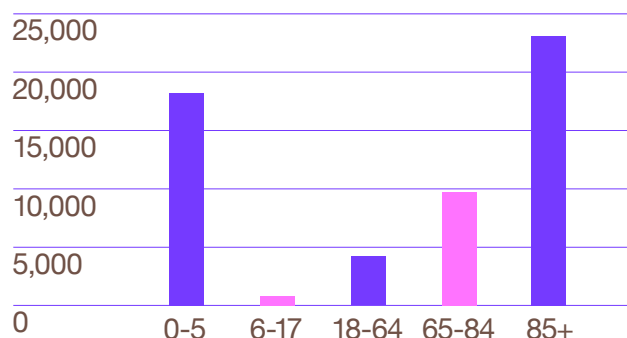


Patients in to hospital with Exan-21-A

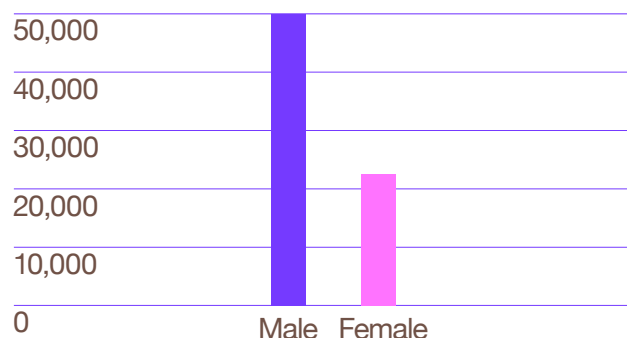


Exan-21-A Hospital Admissions continued

Patients admitted to hospital with Exan-21-A by age

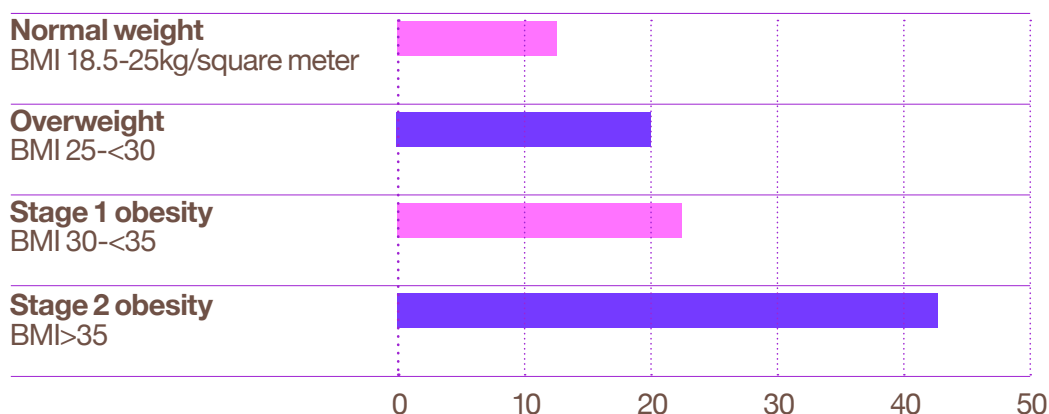


Patients admitted to hospital with Exan-21-A by sex



Exan-21-A Hospital Admissions by BMI

Patients admitted to hospital with Exan-21-A by body mass index (BMI)



Exan-21-A hospital admissions
per 10,000 people

Email 5

From: Liam Jones <Liamjones@taskforce.gov.uk>
Sent: Tuesday, 6:49 PM
To: Me <researcher@taskforce.gov.uk>
Subject: Transmission by sector

Hi

I've just received the attached data from my colleague at the office for national statistics. They have broken down where they think transmission is happening based on test and trace contacts.

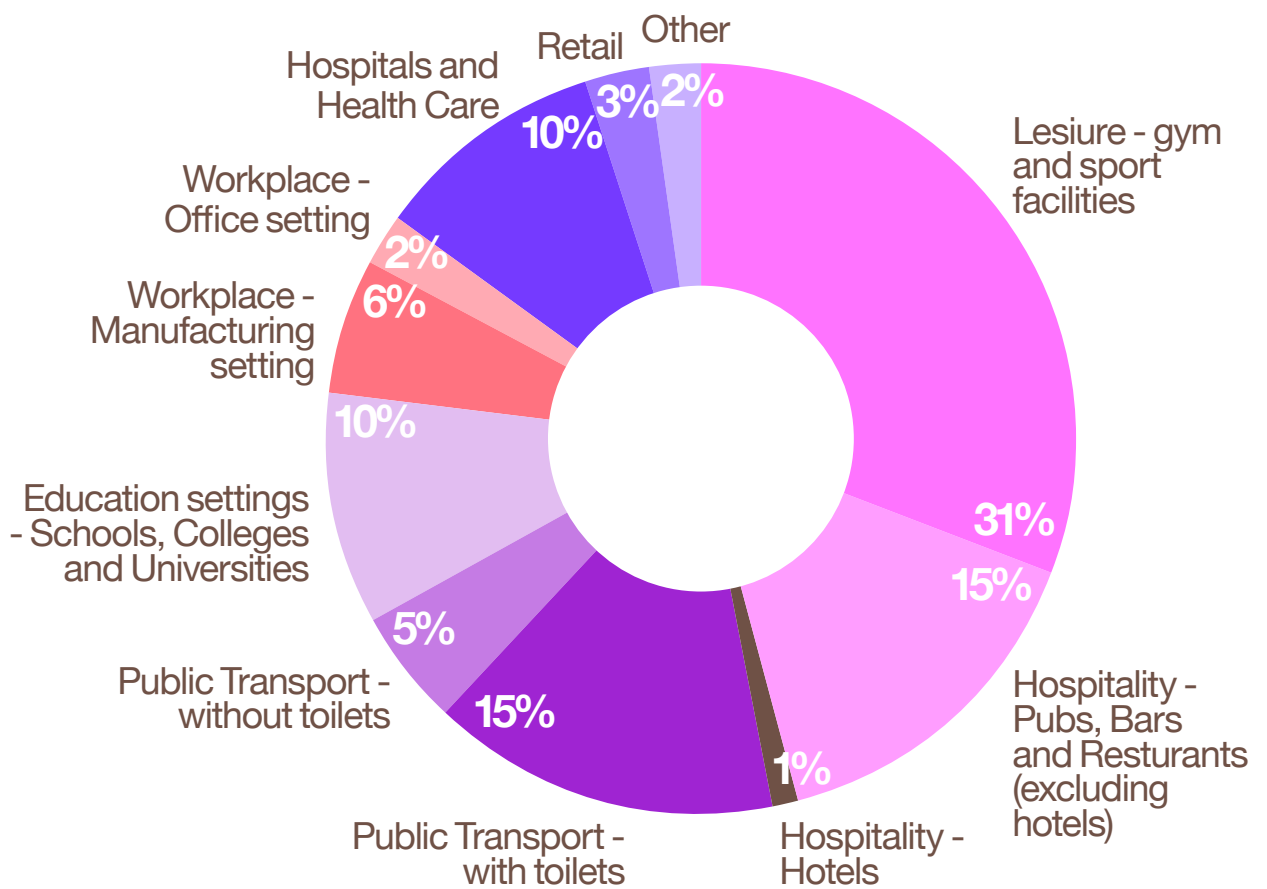
Let me know what you think.

Regards

Liam
Head Statistician
Exan-21-A Task force

Exan-21-A Transmission by sector

Exan-21-A Transmission by Location
- based on a 50,000 person sample.



Email 6

From: Liam Jones <Liamjones@taskforce.gov.uk>

Sent: Wednesday 11:07:28 AM

To: data@officeofstats.gov.uk

Cc: Me <researcher@taskforce.gov.uk>

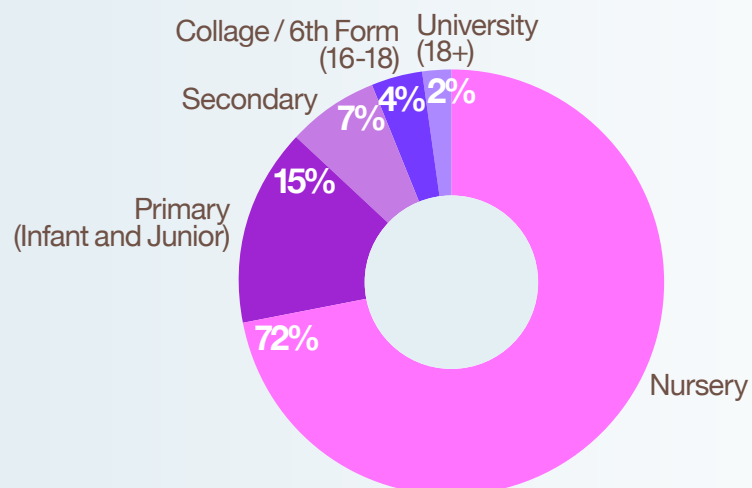
Subject: RE: Transmission by sector

Hi

Thanks for sending over the pie chart showing where the virus appears to be spreading.

I was interested to see that 10% of transmission was happening in the education setting. I went back into the data and dug a little deeper. Interestingly, look what I found:

**Exan-21-A Transmission
in the Education sector**



Let me know what you think!

Regards

Liam

Head Statistician

Exan-21-A Task force

Email 7

From: Laura Ashton <LAshton@taskforce.gov.uk>>
Sent: Thursday, 2:59 PM
To: Me <researcher@taskforce.gov.uk>
Subject: Education and Mortality?

Hi

My name is Laura and I am a Non-communicable Disease Epidemiologist. My department works with statisticians, clinicians, sociologists, demographers and basic biological scientists to look at various non-infectious factors and how they impact on our health. My personal area of interest is looking at how educational attainment may impact on our health.

In order to support the ongoing Exan pandemic I've pulled together some data which looks at excess mortality by level of education. I hope you find the results useful.
Many thanks

Dr Laura Ashton
Non-communicable Disease
Epidemiologist Centre
for Social Epidemiology,
Birmingham

Excess Mortality by Education

The graphic below shows the average mortality rate for the last 4 years and compares it to this year’s mortality rate which we expect to be higher due to Exan-21-A. This data is based on those aged 25 years or older and is separate by level of education.

Average mortality rate for the last 4 years

