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NHS Foundation Trust

# Covid-19 and Vaccination Programme

**Acute Severe COVID**
Professor Nick Hart, Clinical Director for Respiratory, Sleep and Critical Care

**Mild to Moderate COVID, Long COVID and Rehabilitation**
Professor Nick Hart and Alex Curtis, Deputy Clinical Lead Physiotherapist for Rehabilitation

**Vaccine Hesitancy**
Dr Ali Hashtroudi, Clinical Director, Occupational Health and Honorary Senior Lecturer

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# A Year in COVID
# *'Speed Trumps Perfection'*

***Mike Ryan, Executive Director WHO***

**Nicholas Hart**
**Professor of Respiratory & Critical Care Medicine**
**Clinical Director Respiratory, Sleep and Critical Care**
**Cardiorespiratory Critical Care Clinical Group**
**St Thomas' Hospital**
**Director of Research Delivery**
**Guys & St Thomas' NHS Foundation Trust**

# Thanks to…

- Critical care team
- Anaesthetic team
- Evelina PICU team
- Critical care surge team
- Acute medicine team
- Turning team
- IT team
- Vascular surgical team
- ENT team
- Surge education and training team
- Infection prevention and control team
- Data team
- Wellbeing team
- Pharmacy team
- Physiotherapy team
- Occupational therapy team
- SALT team
- Dietetic team
- Cleaning team
- Engineering team
- Estates team
- Catering team

- Report the presentations of mild, moderate, severe and very severe COVID
- Report the nature of the disease over two pandemic waves at GSTT
- Report our GSTT outcomes
- Report the acute treatments we are now using based on UK Urgent Public Health COVID-19 Studies
- Report the telephone clinic that was set up to support post-acute discharge
- Prevention is better than cure

**451 days after the first patient was admitted under HCID Team on Hillyers ward at St Thomas' Hospital**

**425 days after the first patient was admitted to HCID ECMO Critical Care Unit at St Thomas' Hospital EW6…**


It is understood the woman will be treated at London's St Thomas' Hospital

## Ninth coronavirus case found in UK

10 mins ago | UK

A woman who flew into London from China a few days ago is being treated for coronavirus, bringing the total number of UK cases to nine.

Chief medical officer Chris Whitty said the woman had been transferred to a specialist NHS centre at Guy's and St Thomas' in central London.

# Evidenced Based Clinical Care

*GSTT COVID Clinical Reference Group*

GSTT COVID CLINICAL REFERENCE GROUP

# Assessment tool for adults with confirmed or suspected COVID-19

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## Clinical features triggering hospital review or admission:

### History

- Breathless at rest or minimal exertion e.g. walking to the bathroom, walking up the stairs, recovery time >2 mins post-exertion.
- Review/admit all from the **high-risk group** (box 1) with any features of infection. Have a lower threshold for reviewing patients with a **moderate risk** (box 2) compared to those with no risk.
- Worsening clinical condition >5 days after symptom onset if risk factors (boxes 1-3).
- Fever ongoing for >72h.
- Delirium in older adults (aged ≥65 years).
- If discharged, does not have a sufficient home support network or is unable to adequately self-isolate from a clinically extremely vulnerable individual (box 1) in the household.

### Examination

- Unable to speak in full sentences, use of accessory muscles of breathing.
- Dry mucous membranes, clinically 'dry'.
- Heart rate >110/min.
- Respiratory rate >20/min.

### Observations and investigations

- SpO2 ≤94% on room air.
- SpO2 ≤92% or ≥3% fall on 1 minute sit-to-stand test.
- Urea >7 mmol/L and greater caution if >14 mmol/L; confirmed or suspected acute kidney injury (AKI) stage 2 or 3 (NICE guideline).
- Albumin <35g/L
- Widespread infiltrates on chest X-ray.

*N.B. The list above is not exhaustive. Other findings or tests, typically requiring hospital attendance e.g. troponin, may also determine if in-patient care is indicated.*

### If the patient is suitable for discharge from the ED or a hospital ward:

- Advise the patient to isolate at home until non-infectious: 10 days from symptom onset for non-hospitalised individuals; 14 days from initial positive test if discharged from a hospital ward, including two consecutive days without fever (and no medication to reduce fever).
- If any risk factors are present (boxes 1-3), refer by EPR for a daily phone review from day 7 to day 14 following onset of symptoms (discontinues after two consecutive days of improvement).
- Advise patient to contact their GP or NHS 111 if their condition deteriorates.

## Patient risk groups

### 1. HIGH-RISK ('clinically extremely vulnerable') includes:

- Solid organ transplant recipients
- Chemotherapy or immunotherapy for cancer
- Radical radiotherapy for lung cancer
- Blood or bone marrow cancer at any stage of treatment
- Bone marrow or stem cell transplant within the last six months
- Severe lung conditions e.g. cystic fibrosis, severe asthma, severe COPD
- Diseases that increase the risk of infection e.g. SCID, sickle cell disease etc.
- HIV: CD4 <50 or opportunistic infection in the last 6 months (BHIVA advice)
- Immunosuppression therapies in the last three months e.g. >40mg prednisolone per day for >1 week or >20mg per day for >14 days; methotrexate >25mg per week; azathioprine >3.0mg/kg/day; 6-mercaptopurine >1.5mg/kg/day
- Chronic kidney disease (CKD) stage 5 (eGFR < 15 mls/min) or on dialysis
- Pregnancy with significant heart disease, congenital or acquired.

### 2. MODERATE RISK ('clinically vulnerable') includes:

- ≥70 years of age
- ≥65 years of age with clinical frailty scale of ≥5
- Very obese (BMI ≥40)
- Diabetes (type 1 or 2)
- Chronic, non-severe, respiratory conditions e.g. asthma, COPD etc.
- Chronic heart disease e.g. heart failure
- Chronic kidney disease (CKD) stage 3 or 4 (eGFR 15-60mls/min)
- Chronic liver disease
- HIV: CD4 <200, detectable viral load or not on ART (BHIVA advice)
- Chronic and/or progressive neurological disorders e.g. Parkinson's disease, cerebral palsy, multiple sclerosis, motor neurone disease
- Drugs that affect the immune system e.g. low-dose steroids (see also box 1).
- Pregnancy

### 3. OTHER RISKS include:

- ≥55 years of age
- Obese (BMI ≥30)
- Learning difficulty
- BAME background

Developed by Guy's and St Thomas' NHS Foundation Trust

GSTT COVID CLINICAL REFERENCE GROUP

# COVID | Big 5

Five interventions to help treat suspected or confirmed COVID-19

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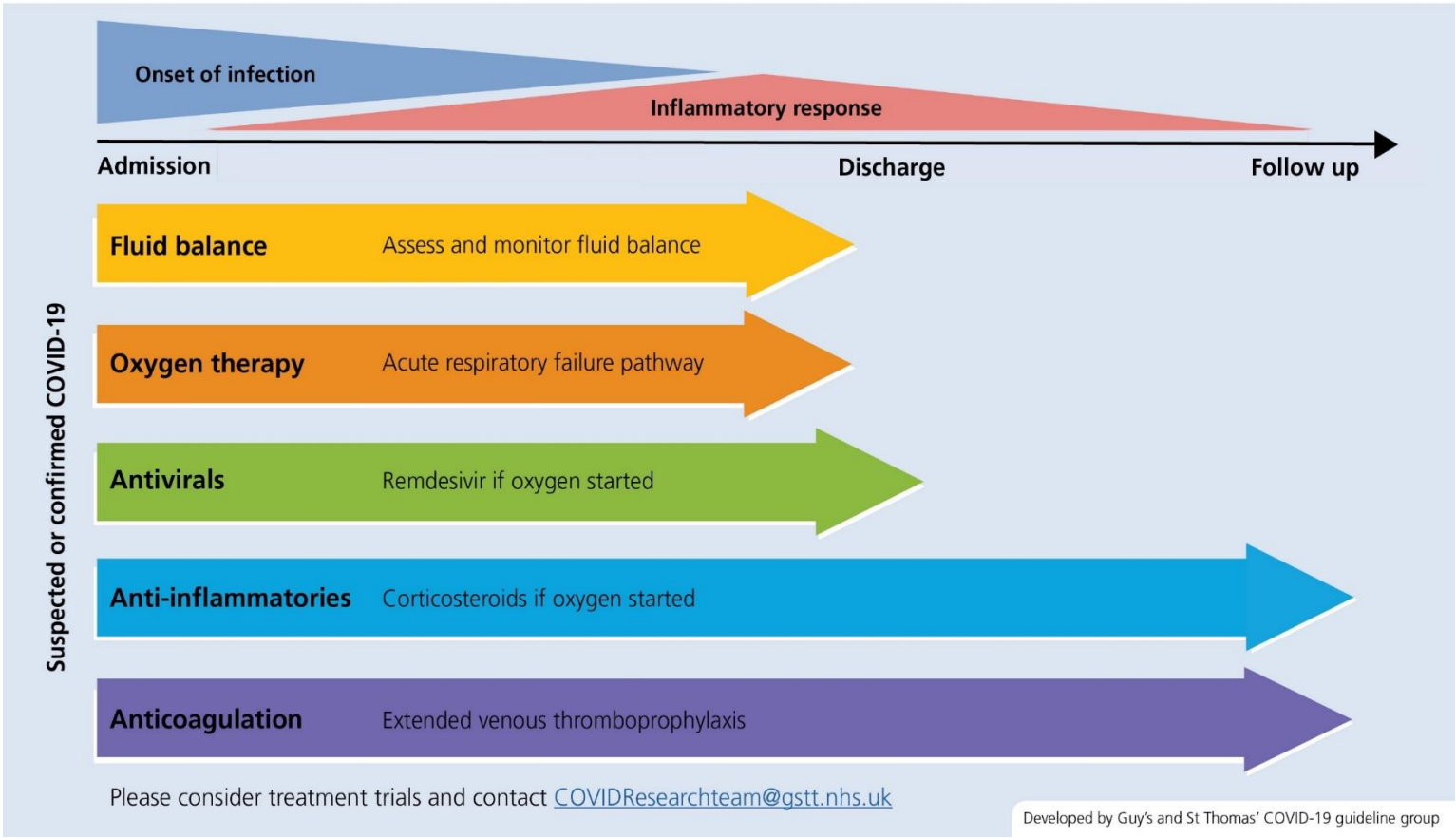
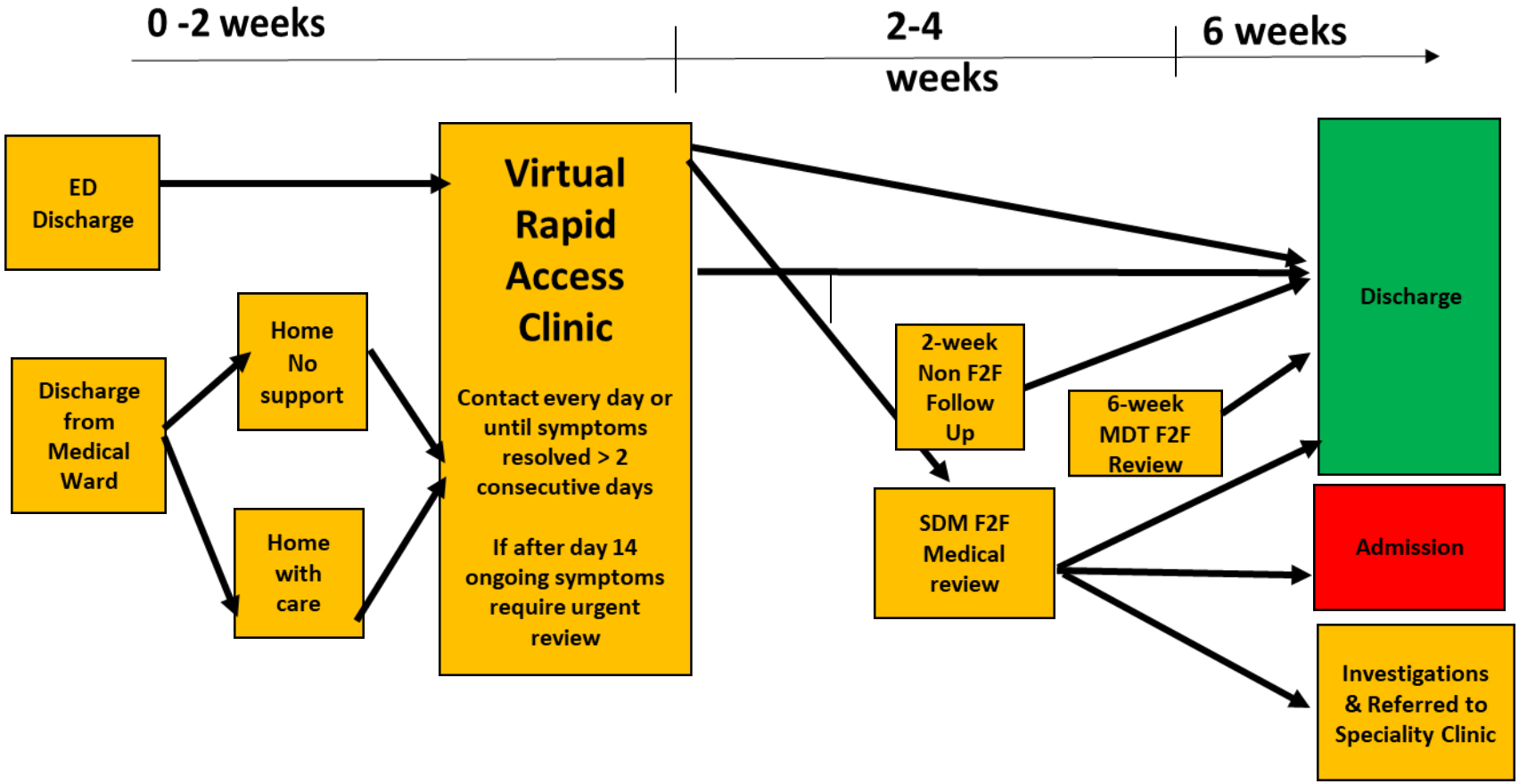



Please consider treatment trials and contact COVIDResearchteam@gstt.nhs.uk

Developed by Guy's and St Thomas' COVID-19 guideline group

# ACUTE COVID DISCHARGE PATHWAY

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# Acute Post COVID-19 Discharge Telephone Assessment

GSTT COVID CLINICAL REFERENCE GROUP

**Initial assessment**

- *I understand that you have recently been discharged from hospital with a diagnosis COVID-19*
- *I am ringing to assess your progress and ensure that you are improving*
- *Can I ask a few questions please?*

**Symptoms**

- *Are you feeling worse, better or the same?*
- *Are you breathless sitting down in a chair?*
- *Are you breathless on walking from one room to another in your home?**
- *When did you last have a temperature/fever?*
- *Are you able to drink plenty of fluids?*

Specific medical conditions:

**Diabetes**

- Do you check your blood sugars at home?
- Have you sugar levels been high?

**Severe respiratory disease including COPD and ILD**

- *Have you been issued an oxygen saturation probe?*
- *What are you oxygen levels and heart rate at rest?*

**Social support, medications and food provision**

- *Do you live alone?*
- *Is someone at home or a carer able to support you at home while you are recovering?*
- *Do you have enough supply of your regular medications and food?*

*For patients with long term breathlessness e.g. COPD, heart failure

| CLINICAL FEATURES |
|---|
| Worsening breathlessness |
| Breathless on minimal exertion e.g. walking to the bathroom, walking up the stairs |
| Fever > 72 hours |
| Breathless at rest |
| Worsening breathlessness after day 5 from onset of symptoms |
| New onset confusion |
| Unable to speak in full sentences |
| Uncontrolled blood glucose levels |
| Central chest pain lasting >15 minutes (not generalised body aches) |

**Action From Clinical Assessment**
If 1 AMBER, refer to HOT clinic next day
If 2 AMBER, refer for urgent F2F review on same day
If 1 RED, refer for urgent F2F review on same day

You should always reassess with the same questions as the first assessment

Discharge from acute post COVID-19 telephone assessments if all the following criteria below are met:

- Symptom onset > 10 days
- Last fever >48 hours
- Improved breathlessness for two consecutive telephone reviews
- Improved symptoms and "feeling better"
- Diabetes: stable blood glucose levels

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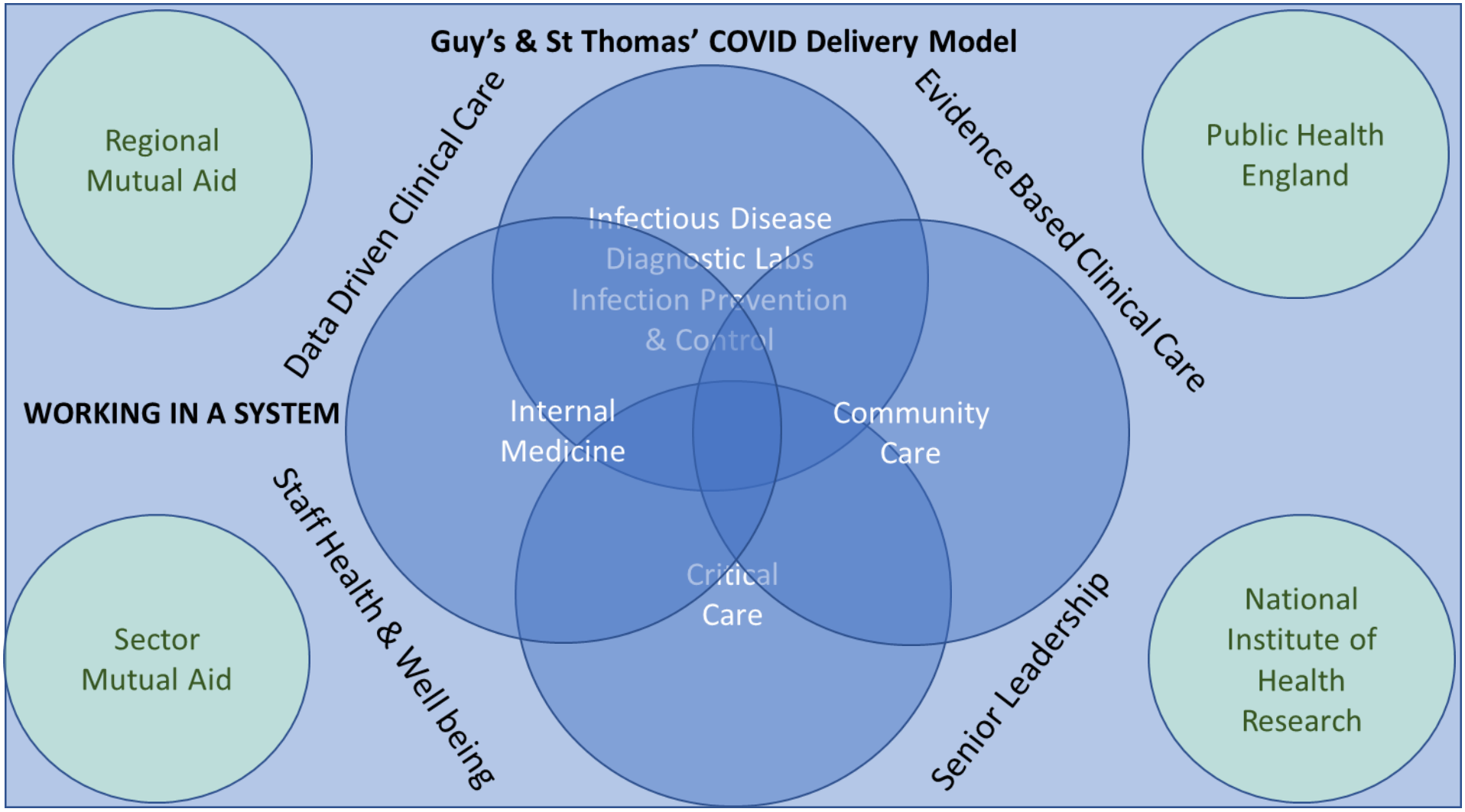
Guy's & St Thomas' COVID Delivery Model
Regional Mutual Aid
Public Health England
Data Driven Clinical Care
Evidence Based Clinical Care
Infectious Disease
Diagnostic Labs
Infection Prevention & Control
WORKING IN A SYSTEM
Internal Medicine
Community Care
Staff Health & Well being
Critical Care
Senior Leadership
Sector Mutual Aid
National Institute of Health Research

# THANK YOU FOR LISTENING

*Prevention is better than cure*

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# LONG COVID

## *Using a holistic approach to patient care*

**Nicholas Hart**
**Professor of Respiratory & Critical Care Medicine**
**Clinical Director Respiratory, Sleep and Critical Care**
**Cardiorespiratory Critical Care Clinical Group**
**St Thomas' Hospital**
**Director of Research Delivery**
**Guys & St Thomas' NHS Foundation Trust**

- Report the presentations of mild and moderate COVID
- Report the categories of COVID
- Report the common symptoms of Long COVID
- Report the pathway for Long COVID patient referral across NHSL
- Report the current clinical and research activity
- Report of rehabilitation interventions
- Prevention is better than cure

**In the UK**

SARS-CoV-2 has affected over four million people

SARS-CoV-2 has resulted in 450 000 hospital admissions

SARS-CoV-2 has a 30% in-hospital mortality

# LONG COVID AFFECTS 5-10%

# COVID CATEGORIES

- **ACUTE COVID**
- **POST ACUTE COVID (Up to 12 weeks)**
- **LONG COVID (>12 weeks)**
- ***SELEQUAE OF ACUTE COVID (>12 weeks)**

*respiratory, cardiac, renal, neurological and endocrine

# Symptoms

*Most commonly reported symptoms*

Fatigue

Muscle ache

Muscle weakness

Joint pain

Lethargy

Impaired sleep quality

Breathlessness

Short-term memory loss

Slower thinking

# POST HOSPITAL COVID RECOVERY STUDY

**PHOSP:** 92.8 % of patients had at least one persistent symptom with a median of 9 symptoms; only 3/10 patients fully recovered by 5 months.

**PHOSP** Cluster 1: very severe mental and physical health impairment with most obese, co-morbid (Respiratory and neuropsychiatric co-morbidities). Higher Deprivation.

**PHOSP** Cluster 2: severe mental and physical health impairment with most obese, co-morbid ((Respiratory and neuropsychiatric co-morbidities). Lower Deprivation.

**PHOSP** Cluster 3: moderate mental and physical health impairment with pronounced cognitive impairment with male predominance, older, overweight, less co-morbid. Higher Deprivation.

**PHOSP** Cluster 4: mild mental and physical health impairment with male predominance, overweight, less co-morbid. Lower Deprivation.

*Physical, cognitive and mental health impacts of COVID-19 following hospitalisation – a multi-centre prospective cohort study*
*Evans R et al on behalf of PHOSP investigators; under review*

# GSTT APPROACH TO LONG COVID

- Combined service with Kings College Hospital
- Bespoke SEL referral form from GP to Hospital
- GP to undertake F2F consultation with physiological tests, blood tests, ECG and CXR as standard
- It is important that all patients are reviewed in the right clinic
- GSTT has developed a therapy led-medically supported
- Clinic runs 3 times a week with a medical 'wash-up' once per week
- Clinic is holistic, needs-based and person-centred

# THANK YOU FOR LISTENING

*Prevention is better than cure*

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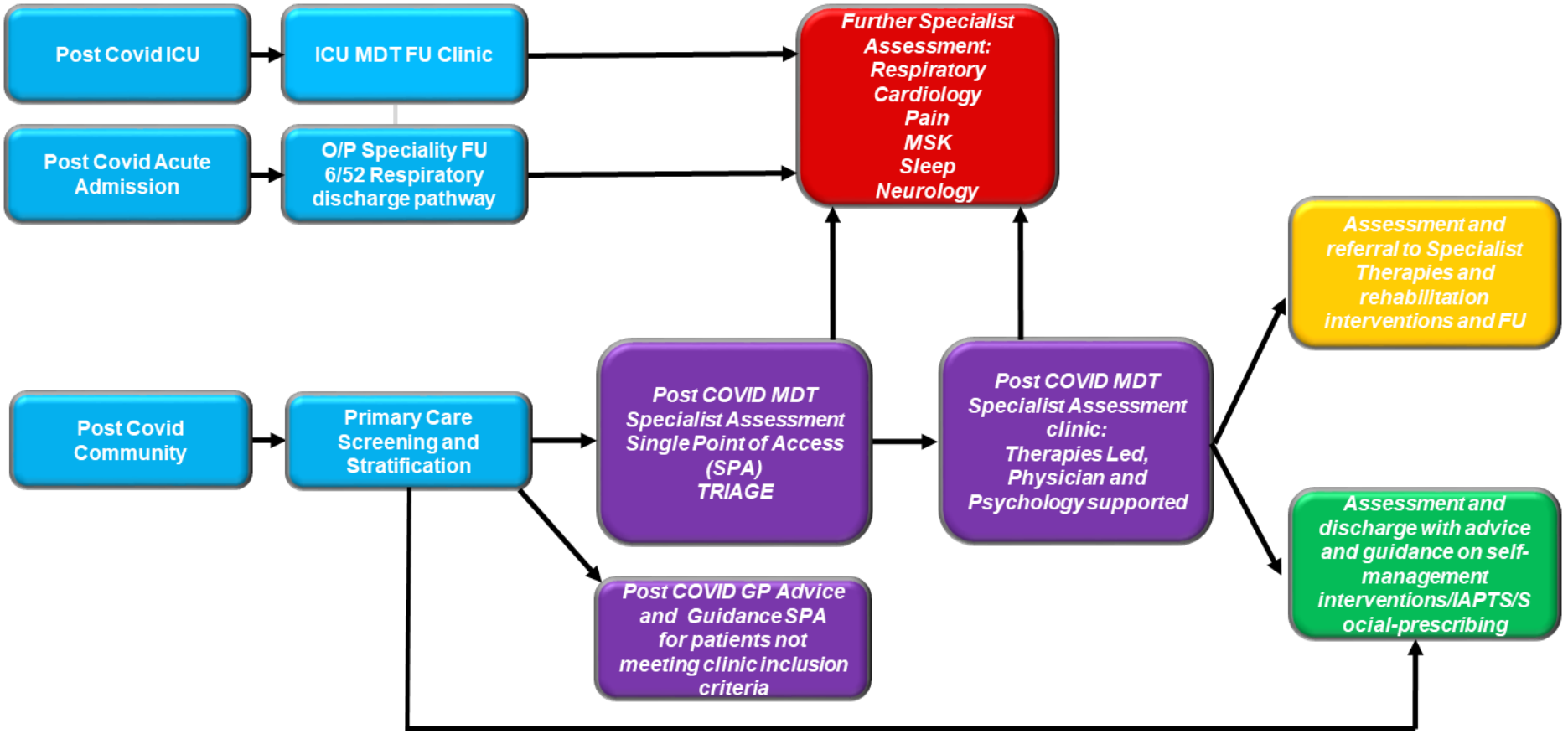
# Long COVID and Rehabilitation Assessment, Treatments & Outcome Measures

**Alexandra Curtis & Jacky Jones, Physiotherapy**

# GSTT Post COVID Assessment Pathways



# Post COVID MDT assessment clinic

- **Therapy led by occupational therapy and physiotherapy**
- **Psychology support**
- **Medical input from respiratory teams**
- **Patients are seen at the point of medical stability, >12 weeks after acute COVID. Persistent signs and symptoms consistent with post-COVID syndrome, not explained by an alternative diagnosis**
- **Face to face appointments rather than remote consultations. Aiming for inclusion for those without access to technology. Enhance the therapeutic effect by being seen and listened to in person**
- **Clinic launched Friday 30th April**

# Patient reported Outcome Measures (PROMS)

| GSTT IMPARTs |
| --- |
| Numerical Rating Scales for breathlessness |
| Numerical Rating Scales for cough |
| Numerical Rating Scales for fatigue |
| Numerical Rating Scales for pain |
| Numerical Rating Scales for sleep |
| Modified Medical Research Council Dyspnoea Score |
| Generalised Anxiety Disorder (GAD7) |
| Patient Health Questionnaire (PHQ9) |
| Trauma Screening Questionnaire (TSQ) |
| Smoking assessment |
| Post COVID Functional Status Scale |
| IMPARTS Cognition Question |
| Vocational Status |
| Multi-dimensional Assessment of Fatigue (MAF) |
| EQ5D-5L |
| Nijmegen breathless questionnaire |
| WASA Work and social adjustment scale |

- **Completed prior to attending clinic**
- **Wide ranging measures due to the constellation of symptoms we expect to see**

# During the clinic visit

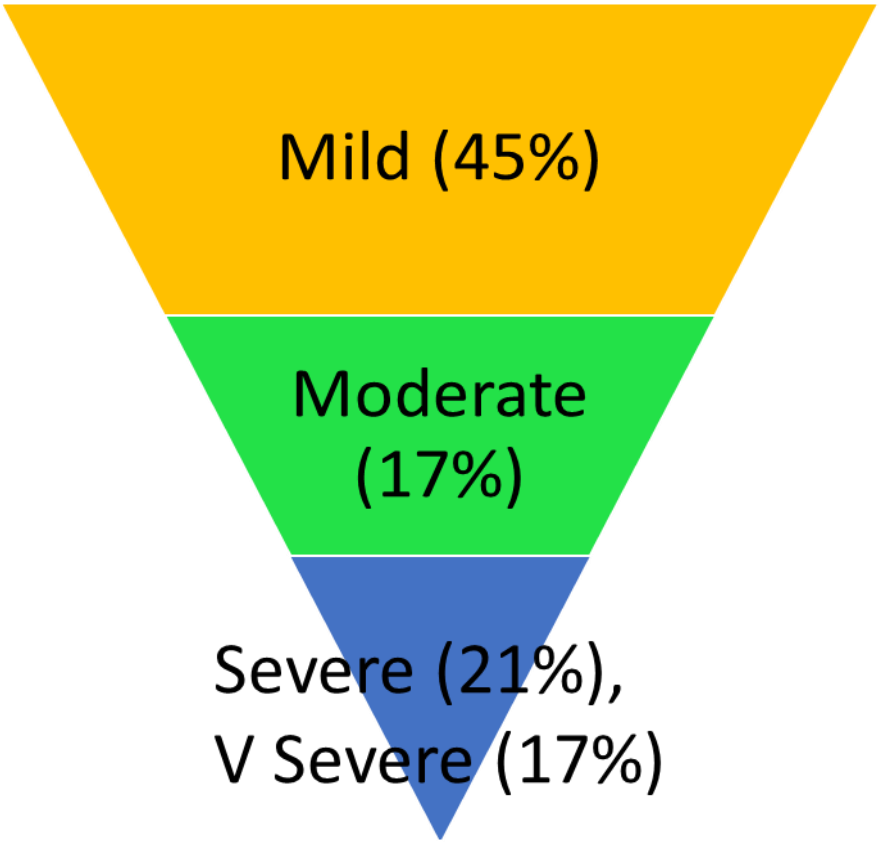
- **Comprehensive specialist MDT holistic assessment will be based on the PROMS but more importantly the clinical interview**
- **Other assessments based on emerging data, could include but not limited to:**
  - 1-min sit-to-stand test, looking for evidence of desaturation on exertion
  - Breathing Pattern Assessment, other centres report approx. 23% of patients do appear to have a breathing pattern disorder and this seems to be linked to post exertional malaise.
  - Lying and standing blood pressure, autonomic issues and feelings of dizziness are also prominent
  - Cognitive assessment

**Aim of the clinic is advice, guidance and sign post onwards**

# On going evaluation and monitoring

- **Health inequalities- we need to make the clinic as accessible as possible and will monitor who comes through the clinic against local demographic data**
- **Psychological effect of COVID and long COVID. Can the identified pathways can meet this need**
- **Identifying gaps in existing services for effective rehabilitation**

# Personalised Intervention




- Self-management
- Your COVID Recovery web based resource (Phase I)

- Healthcare professional supported self-management
- Your COVID Recovery web based resource (Phase II)

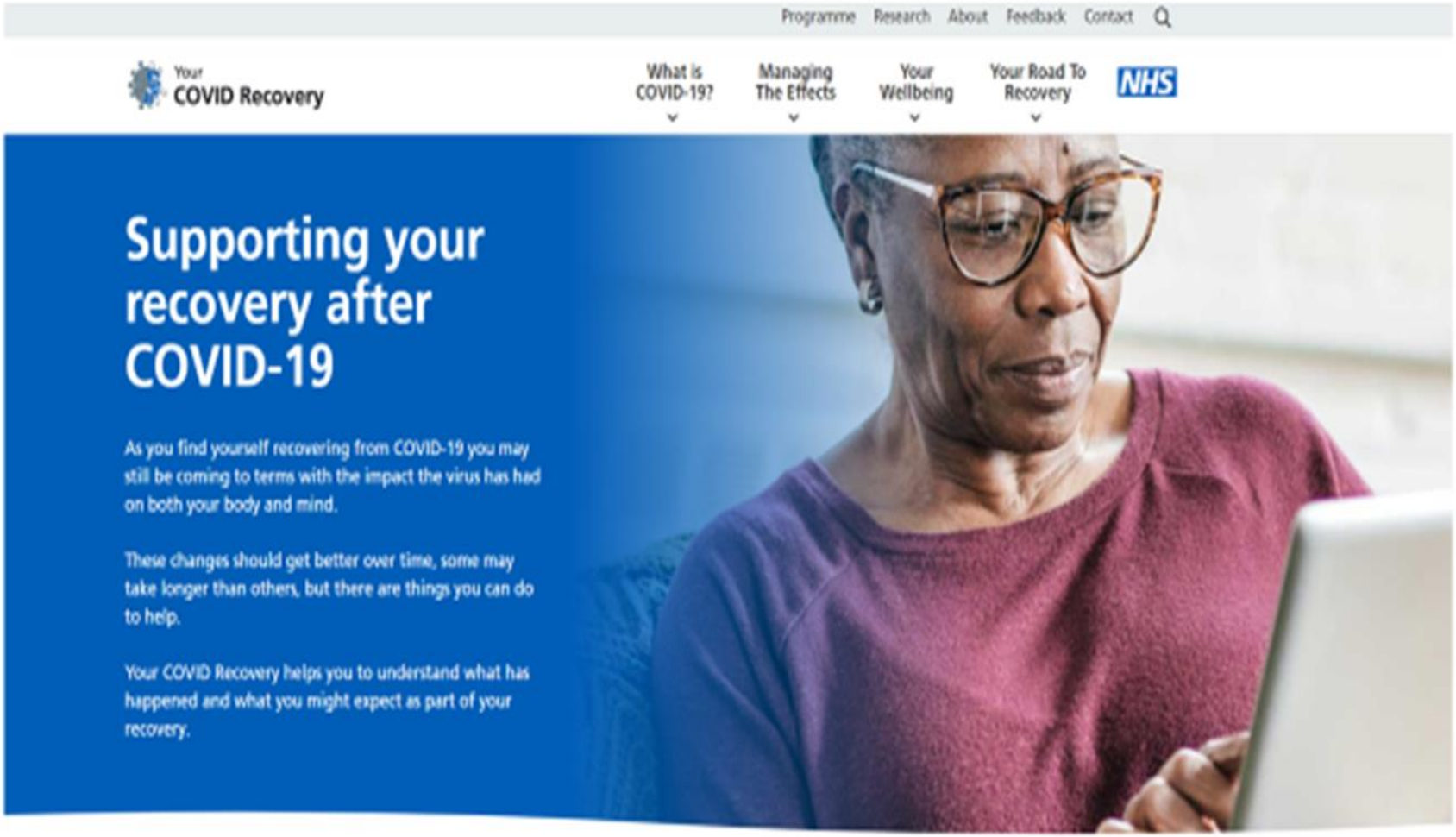
- MDT intervention
- Rehabilitation programme

Persistent symptom burden

(PHOSP-COVID Collaborative Group 2021)

Mild

Moderate

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Severe
V Severe

# COVID rehabilitation models

Fatigue and exercise

Under-standing fatigue

Diet & nutrition

**Virtual facilitated discussion groups**

Cognition and communi-cation

Sleep hygiene

Activity grading

(Parkin 2021)

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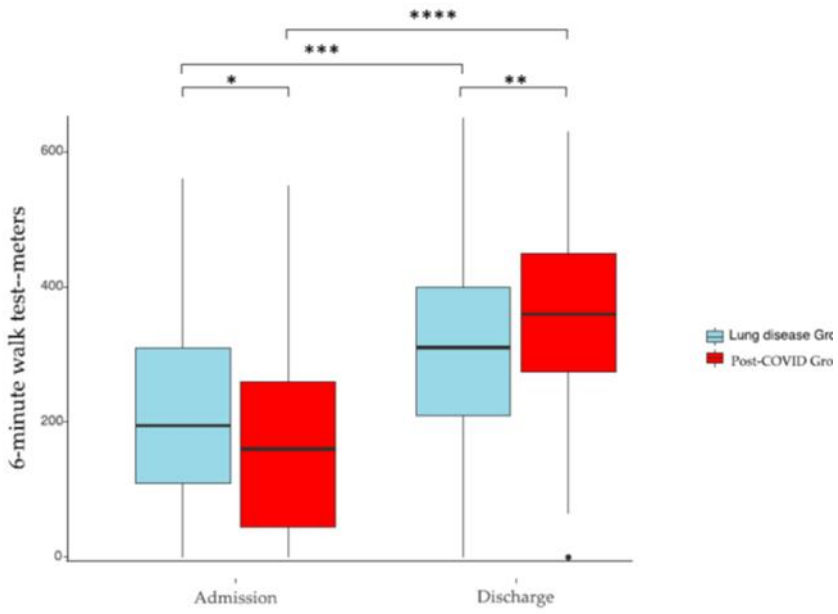
# Role of exercise

- Current understanding is limited
- Caution is suggested
- Low level initially and cut back if getting muscle ache, increased breathlessness, severe fatigue

(Greenhalgh 2020)

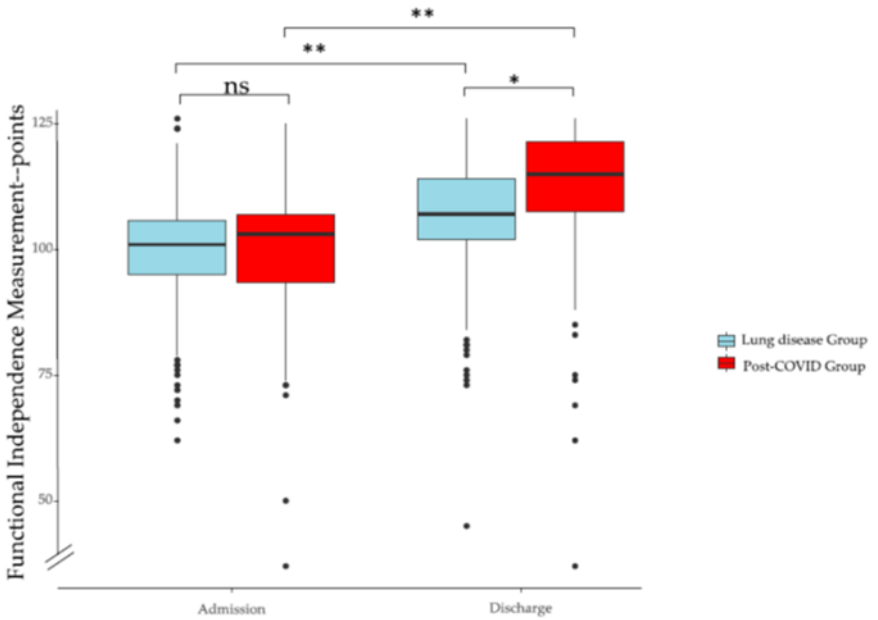
- However likely to be clusters of presentations that respond better to a graded exercise approach

# Pulmonary rehabilitation approach to COVID recovery




*$p = 0.034$ **$p = 0.003$ ***$p < 0.001$ ****$p < 0.001$

**Figure 1.** 6-min walk test of post-COVID-19 Group and lung diseases group.




*$p < 0.01$ **$p < 0.001$

**Figure 3.** Functional Independence Measurement of post-COVID-19 group and lung diseases group.

(Spielmanns 2021)

# Fatigue reporting in a COPD population

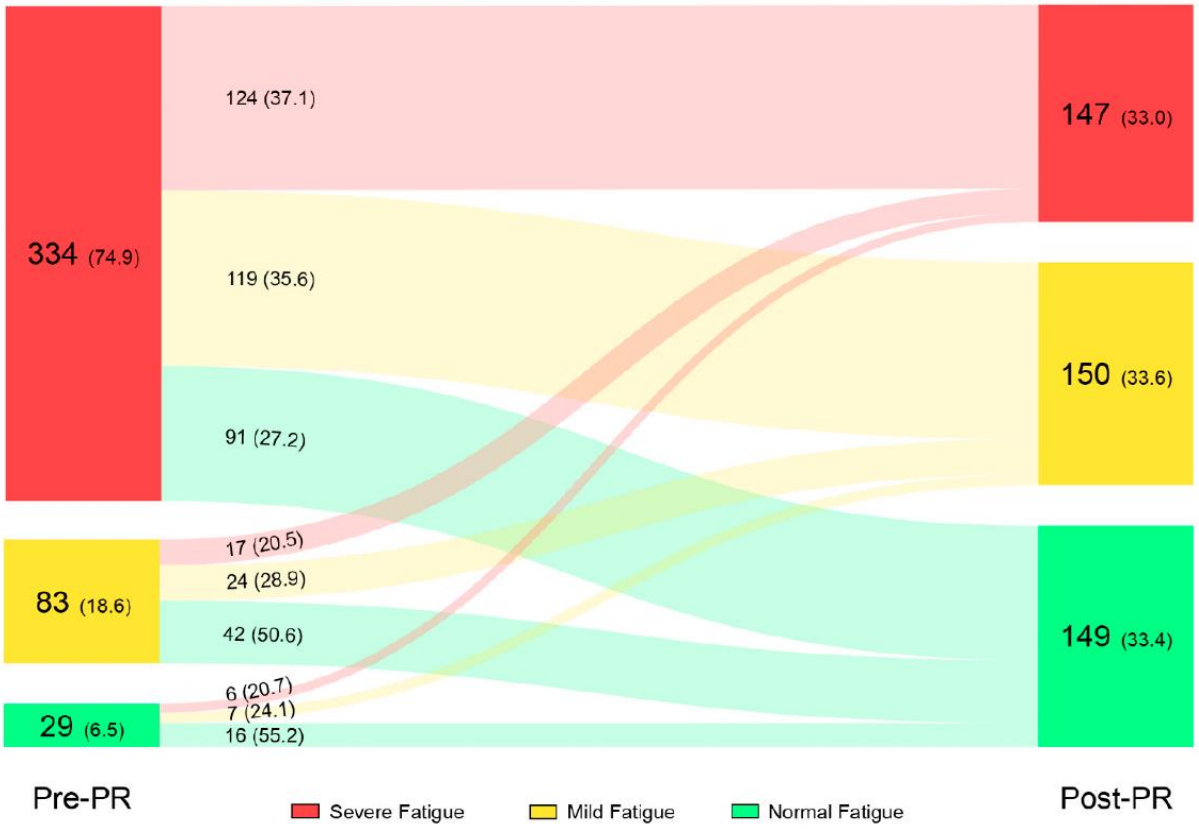



**Figure 1.** Prevalence of patients with normal, mild and severe fatigue before and after PR, and change in fatigue level following PR. Data in the figure is presented as number of subjects (%). Abbreviations: PR, pulmonary rehabilitation.

(Van Herck et al 2019)

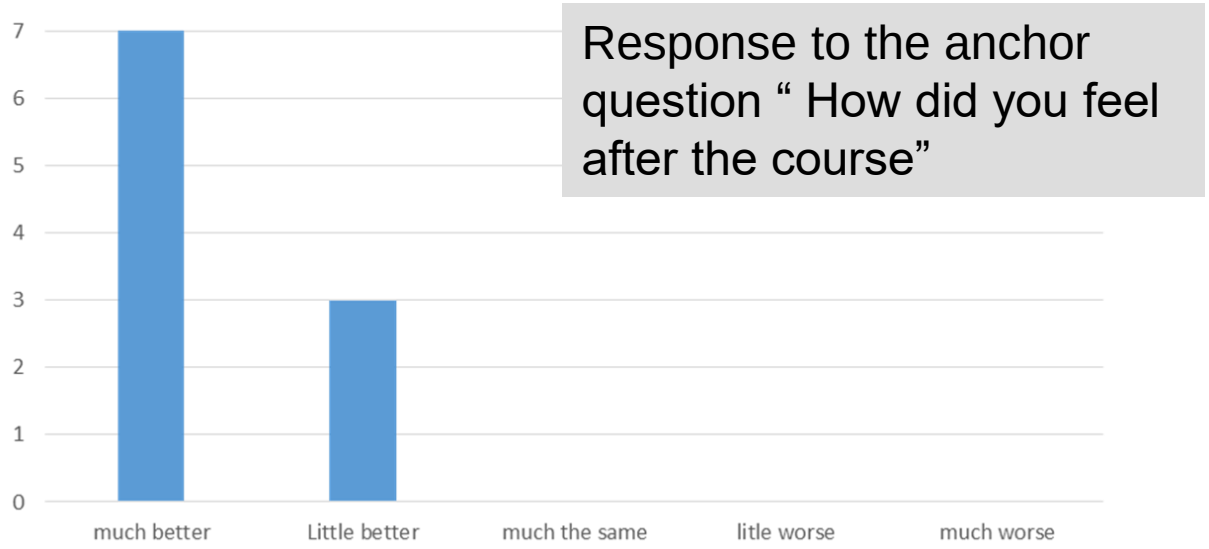
# Local GSTT pilot data.

## Aim

- **To explore if a 6 week face-face rehabilitation course of exercise and education improves symptoms and function of patients post COVID-19**

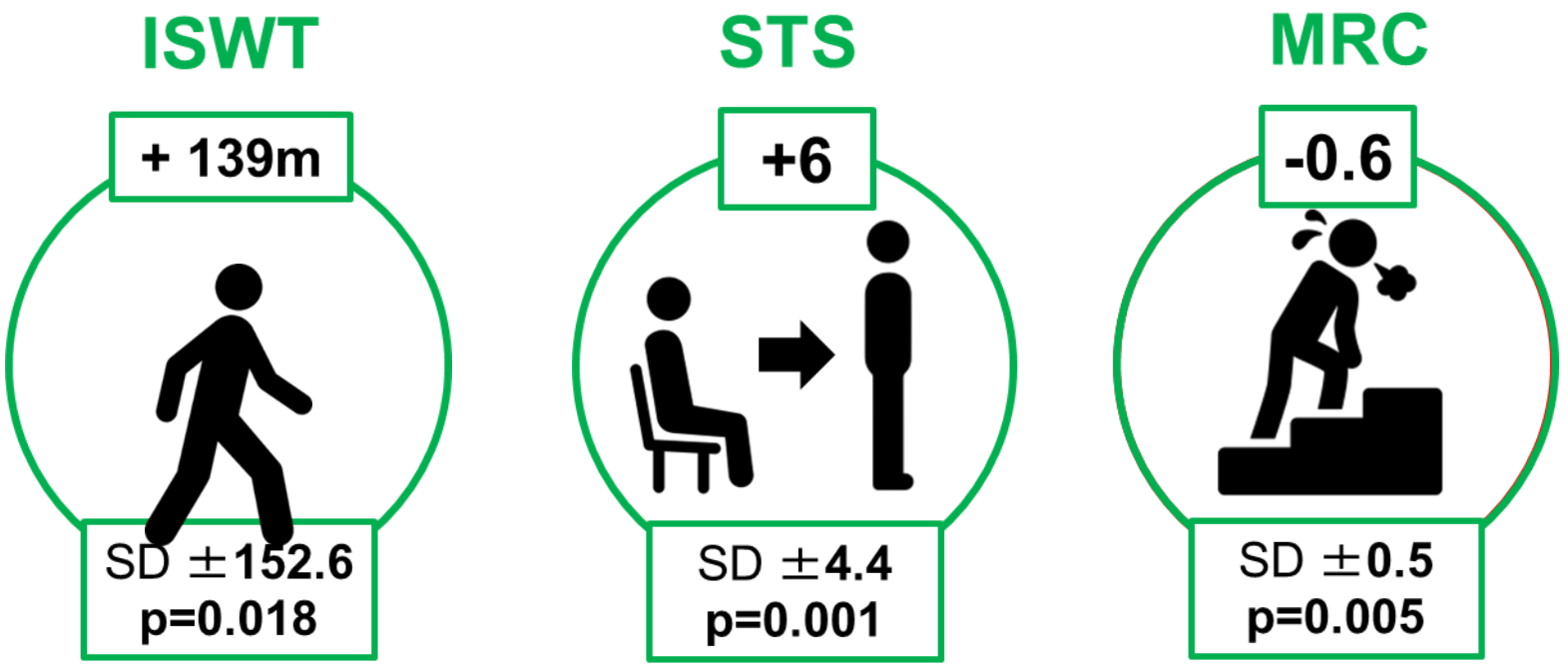
## Results

- **10 patients completed the course**




Response to the anchor question " How did you feel after the course"

# Physical outcomes



# Conclusions

- **We anticipate a high demand for the MDT assessment clinic**
- **More data is required to inform effective rehabilitation interventions**
- **Likely a stratified approach**
- **We look forward to further understanding the patients lived experiences and refining this clinic to support their needs**

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# Health Seminar: Covid-19 and Vaccination Programme

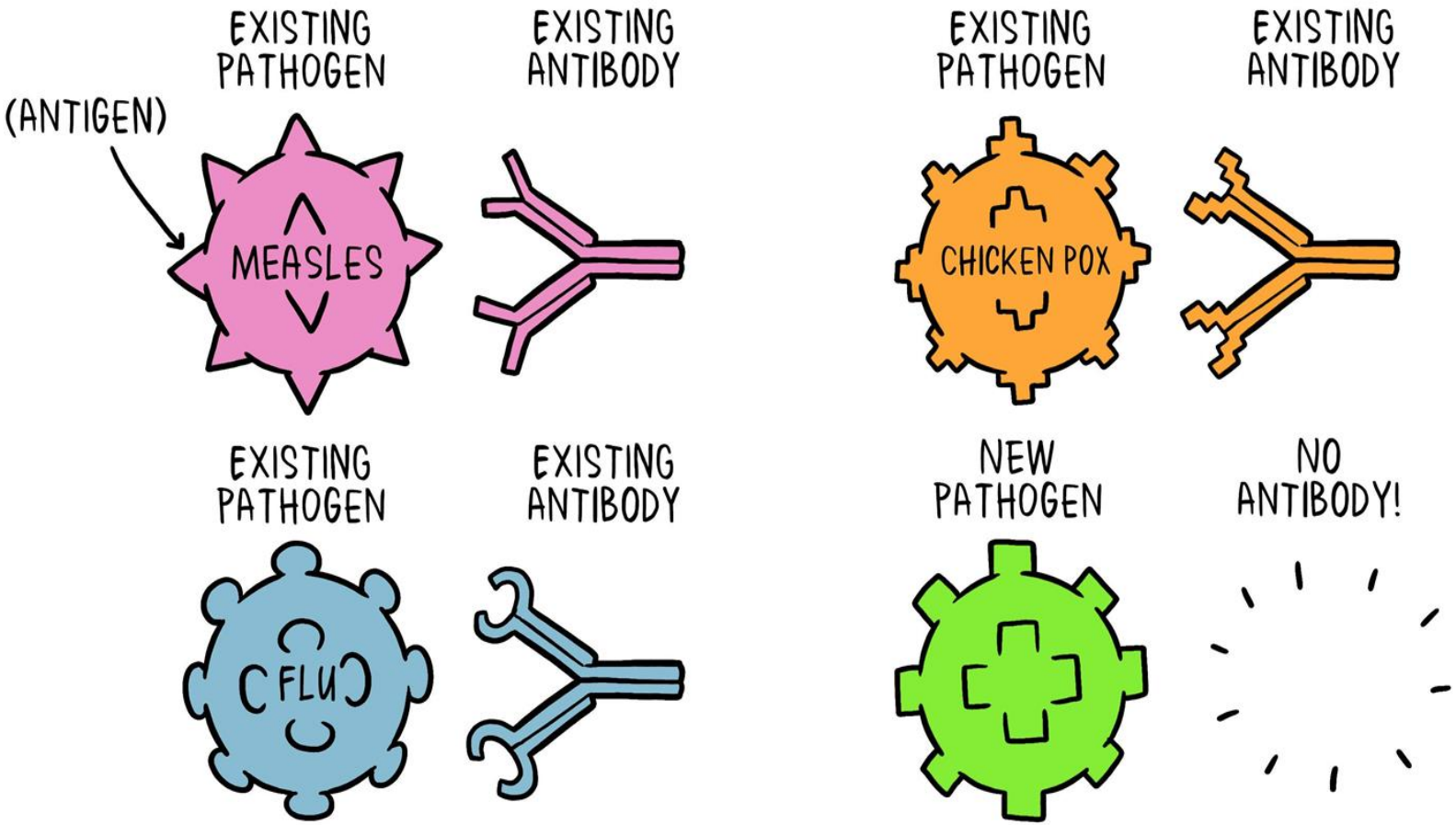

**Dr Ali Hashtroudi**

**Clinical Director of Occupational Health and Safety**


**04 May 2021**

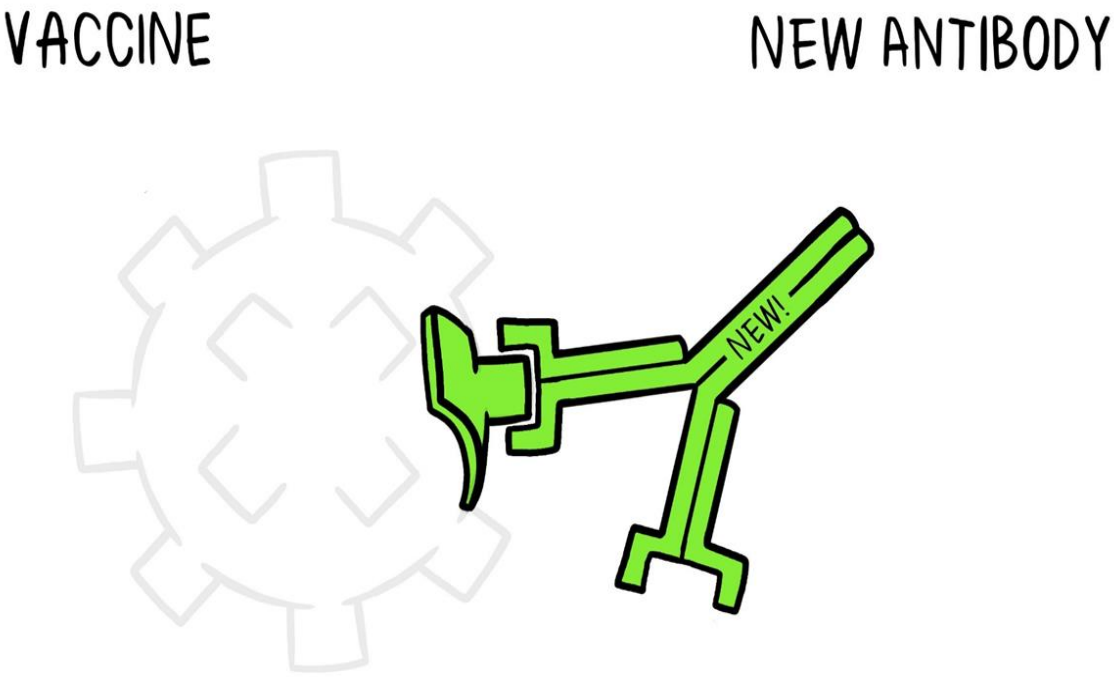
# Natural immunity

- Antigen = part entering the body vs. Antibody = body reaction

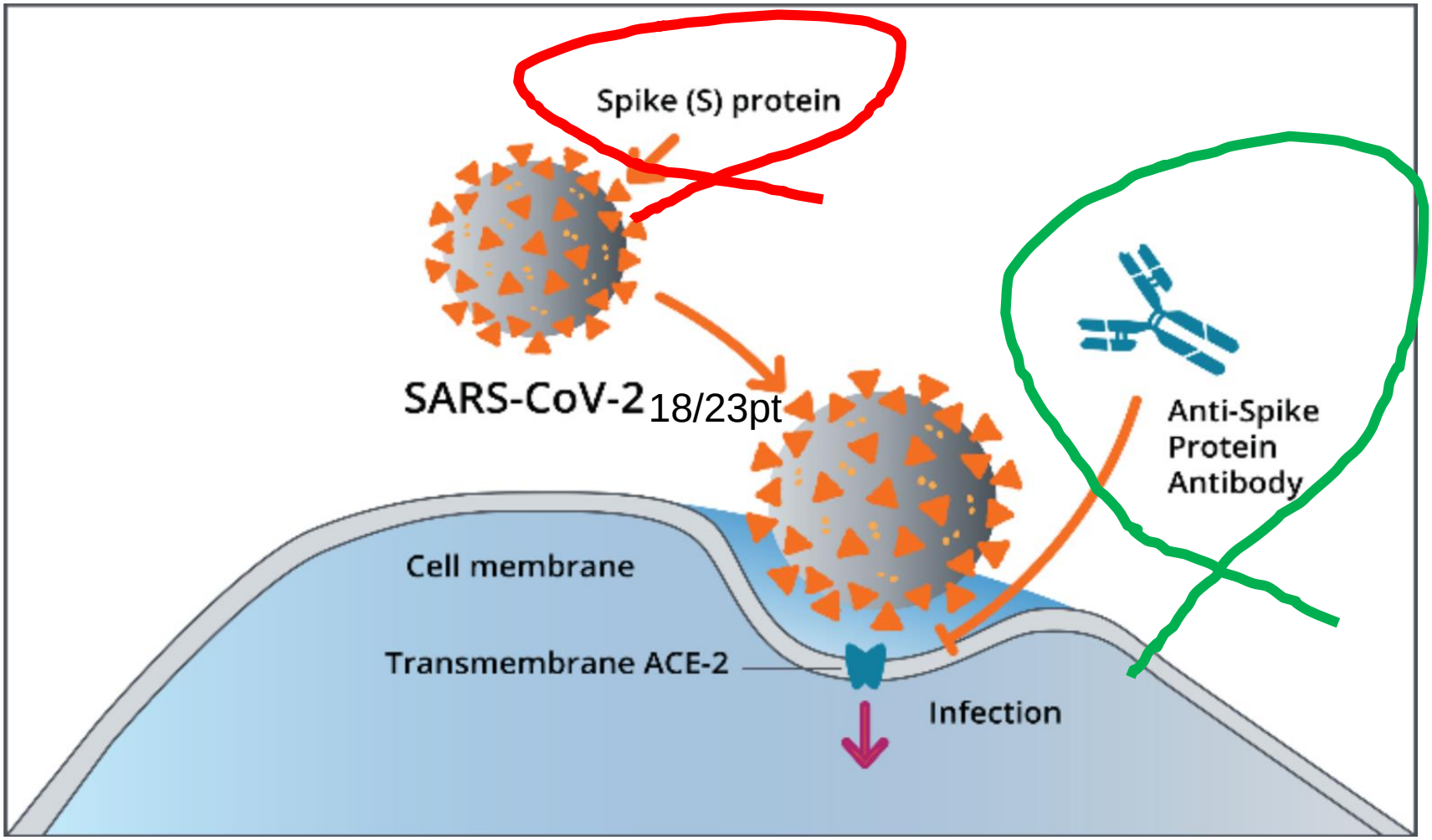


# How vaccine helps

- **Part of virus used as Antigen**



# The basis of all current vaccines



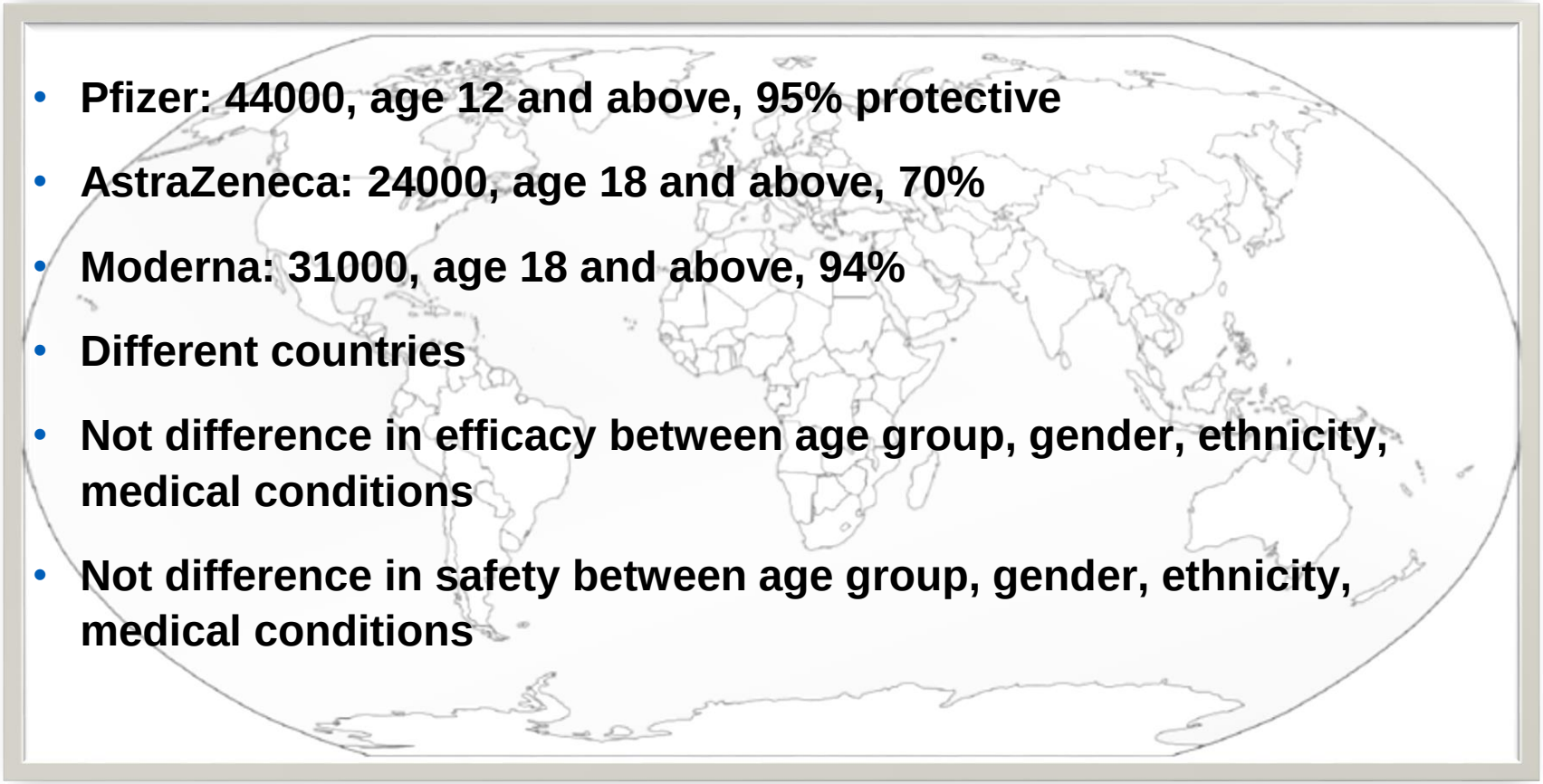
# Different vaccines: how the Ag is introduced

| Type of COVID vaccine | Example |
|---|---|
| Live | only Phase 1 COVI-VAC (India) |
| Inactivated | Covaxin (India), CoronaVac (sinoVac, China) and SinoPharm (China)) Valneva (France) |
| Protein-based subunit | Novavax & EpiVacCorona (India) Medicago (Canada- quadrivalent VLP) |
| **mRNA** | **Pfizer BioNTech BNT162b2 mRNA Moderna mRNA-1273** |
| **Viral vectors** | **ChAdOx1 nCoV-19 (AZD1222)** Janssen (Ad26.cov2.s) Sputnik V (rAd26_ rAd5) |

**The COVID vaccine cannot cause infection.**

**The COVID vaccine does not change the genetic material.**

# Research



- **Pfizer: 44000, age 12 and above, 95% protective**
- **AstraZeneca: 24000, age 18 and above, 70%**
- **Moderna: 31000, age 18 and above, 94%**
- **Different countries**
- **Not difference in efficacy between age group, gender, ethnicity, medical conditions**
- **Not difference in safety between age group, gender, ethnicity, medical conditions**

# Efficacy

- **Protection against severe disease**
- Protection against catching the disease
- Protection against passing the disease
- Laboratory based measurement

# Schedule

- Two doses, 4 to 12 weeks apart
- The efficacy is the same

# Who?

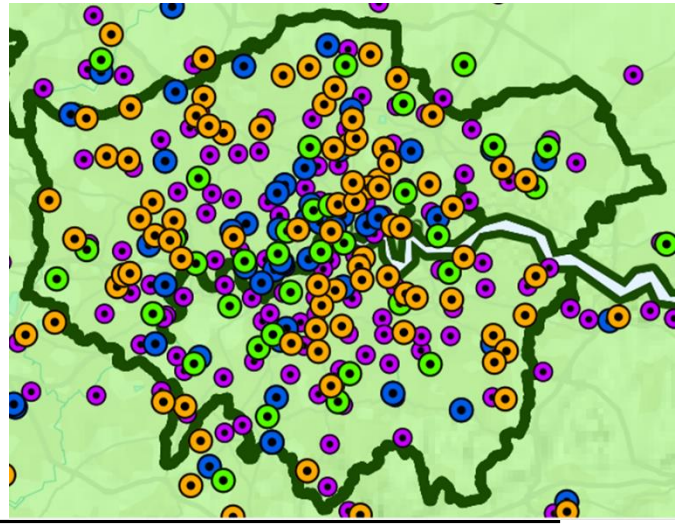
- JCVI rules
- Age (now >42)
- Vulnerability (clinically extremely vulnerable, at risk)
- Responsibility (work, carers)


# How

- National booking system

https://www.nhs.uk/conditions/coronavirus-covid-19/coronavirus-vaccination/book-coronavirus-vaccination/

- Pharmacies
- Vaccine centres
- **Hospital hubs**
- PCN



# Why not?

- Side effects
- Limited research, speed
- Pregnancy
- Non-clinical
- Myth, fake news

# Side effects

- Like all vaccines, can cause side effects
- Not everybody
- Most side effects are mild or moderate and go away within a few days
- Paracetamol
- 48 million people vaccinated in the UK, >200000 by GSTT
- Exceptionally rare to have lasting / concerning side effect

# Side effects - Pfizer

- Very common (>10% of people): pain at injection site, tiredness,  headache, muscle pain, chills, joint pain, fever
- Common (<10% of people): injection site swelling or redness, nausea
- Uncommon (<1% of people): enlarged lymph nodes, feeling unwell
- Rare side effects (<0.1% of people): temporary one sided facial drooping

# Side effects – AstraZeneca

- Very common (>10% of people): tenderness, pain, warmth, itching or bruising where the injection is given, generally feeling unwell, feeling tired, chills or feeling feverish, headache, nausea, joint pain or muscle ache
- Common (<10% of people): swelling, redness or a lump at the injection site, fever, vomiting or diarrhoea, flu-like symptoms (high temperature, sore throat, runny nose, cough and chills)
- Uncommon (<1% of people): feeling dizzy, decreased appetite, abdominal pain, enlarged lymph nodes, excessive sweating, itchy skin or rash
- Rare side effects (<0.1% of people): severe allergic reaction (anaphylaxis)

# Allergy and anaphylaxis

- Pfizer and Moderna
- History of immediate onset-unexplained anaphylaxis or anaphylaxis to multiple classes of drugs or an unexplained anaphylaxis
- PEG
- History of reaction to food, venom, one medicine need NOT to be excluded from Pfizer or Moderna

# Blood clot

- AstraZeneca
- Blood clot AND low platelet
- Extremely rare, 5 in a million
- Risk of COVID vs. risk of side effect (< 30 not offered AZ)
- History (including after the first dose) of blood clot **NOT** more at risk

  So previous clot e.g. DVT, PE, stroke, heart attack, family history of these NOT a contraindication

- Low platelet without blood clot is **NOT** a contraindication

# Blood clot, symptoms

**Seek urgent medical advice if experience any of the following symptoms more than 4 days and within 28 days of coronavirus vaccination:**

- New onset of severe headache, which is getting worse and does not respond to simple painkillers
- An unusual headache which seems worse when lying down or bending over, or may be accompanied by blurred vision, nausea and vomiting, difficulty with speech, weakness, drowsiness or seizures
- New unexplained pinprick bruising or bleeding
- Shortness of breath, chest pain, leg swelling or persistent abdominal pain

# Pregnancy (FAQ)

- No known risk associated with giving non-live vaccines, such as the COVID-19 vaccine
- Vaccines cannot cause infection in either the mother or foetus
- Available data do not indicate any safety concern but insufficient evidence to recommend routine use of COVID-19 vaccines during pregnancy
- Pfizer / Moderna are preferred choice, AZ can be done too
- Should be considered in pregnancy if:
  - Risk of exposure to COVID is high e.g. working in health and social care
  - Underlying conditions
- **RCOG**

# Breast feeding (FAQ)

- No known risk associated with giving non-live vaccines such as COVID-19 vaccines
- Vaccination may be offered to breastfeeding women
- No safety data
- **RCOG**

# Fertility (FAQ)

- There is no evidence that the COVID-19 vaccine or any other vaccines can cause impotence or affect ability to conceive, fertility
- **The British Fertility Society and Association of Reproductive and Clinical Scientists** document

# Speed of developing the vaccines

- Massive coordinated international effort
- Biggest trials we have seen
- Thousands of people volunteered to participate
- Scientists and trial doctors worked all hours and at speed
- Regulatory agencies worked extra hours and extra speed
- Manufacturers produced at same time as testing was occurring
- Good experience in developing vaccines quickly e.g. Ebola

# Religious / believes

- No porcine product
- No animal product or egg
- No problem having during fast time

# The best and quickest way out of the pandemic is by getting the vaccine

Thank you