Reusable Facemask Trial

Background

During the pandemic, the NHS has shipped, used and disposed of over **1.5 billion**[1] facemasks and this number continues to rise on a daily basis. During this pandemic, many hospitals are using between 10,000 and 100,000 facemasks a day, ambulance services are using 10,000 to 20,000 a day and GP surgeries are using around 5000 facemasks a month. The PPE crisis is a mounting problem that will not diminish during this pandemic and into the future. This pilot is looking at ways in which to reduce the pressure on the system but also ensure a green and sustainable way in which our organisations can continue to protect staff and the public.

Aim

Through this project, we are working to look at ways to reduce the reliance on single use facemasks, specifically Type IIR facemasks and look at how alternative reusable facemasks can be used instead. The assessment will look at the cost benefits as well as IPC requirements, washing and

Participants

Over 50 healthcare organisations are involved in the trial including hospitals, ambulance services, GP surgeries and medical departments of universities who are trialling the viability of reusable facemasks supplied by several reusable face mask manufacturers within their health care settings.

Participants have been from all sectors of the organisations involved and included members of staff from admin, clinical, paramedics, QI teams, patient transport, GPs, doctors, procurement, fleet and estates team as well as IPC leads.

The Trial

Facemasks supplied by accredited and certified British manufacturers and suppliers were trialled through this pilot. Some of the facemasks supplied were face coverings working towards becoming Type IIR accreditation, others have Type IIR accreditation. Some of the facemasks have viral coating. IPC leads in each organisation were involved in the

Larger pilots have been undertaken as part of this trial, trialling them with front line members of staff. They were trialled as a 'per patient use' and as a sessional use (4-6 hour use).

[1] https://www.gov.uk/government/collections/ppe-deliveries-statistics-england-weekly-reports

Assessment

All participants were requested to assess the facemasks that they were supplied with. The assessment took into account breathability, wearability, comfort, traceability and washing. They were also asked to assess the circumstances that they wore the masks, how safe they felt in them and their useability. The different Trusts from hospitals to ambulance services, community hospitals to GPs were asked to map where they can use the masks and how they can be used in those healthcare settings. They were also asked to assess how the masks could be washed within and external to their Trust (ie home washing).

Challenges

The project identified several challenges that need to be overcome in order to get the reusable facemasks into use within the NHS.

- CE marking - CE marking isn't at present applicable to multiple use PPE products and facemasks cannot get CE marking
- Accreditation - The MHRA, HSE and OPSS have different responsibilities for PPE and the accreditation of reusables
- Traceability – It was highlighted that there is a need to work through the requirements to trace the number of times that the facemasks have been washed. Technologies like RFID, QR codes, bar codes, apps, manual marked grids, colours per month and date stamps are under consideration for tracing the use of these products
- UK manufacture of the facemasks
- Washing – identifying the temperatures required to disinfect the facemasks as well as processes for washing masks internally and externally to organisations
- Washing instructions required in the facemasks – ie details of temperature, number of washes, ironing etc
- Personal issue vs multiple users

- Per patient use vs sessional use
- Standard Operating Procedures
- Viral coating - the IPC requirement is for products to be washed at a minimum of 60 degrees within health settings. Viral coating on the facemasks in general have a lower temperature
- IPC guidance on reusable products needs to change
- PPE provided for free at present to NHS organisations through NHS push stock and the PPE cell
- Waste reduction benefits
- Product recycling at the end of life

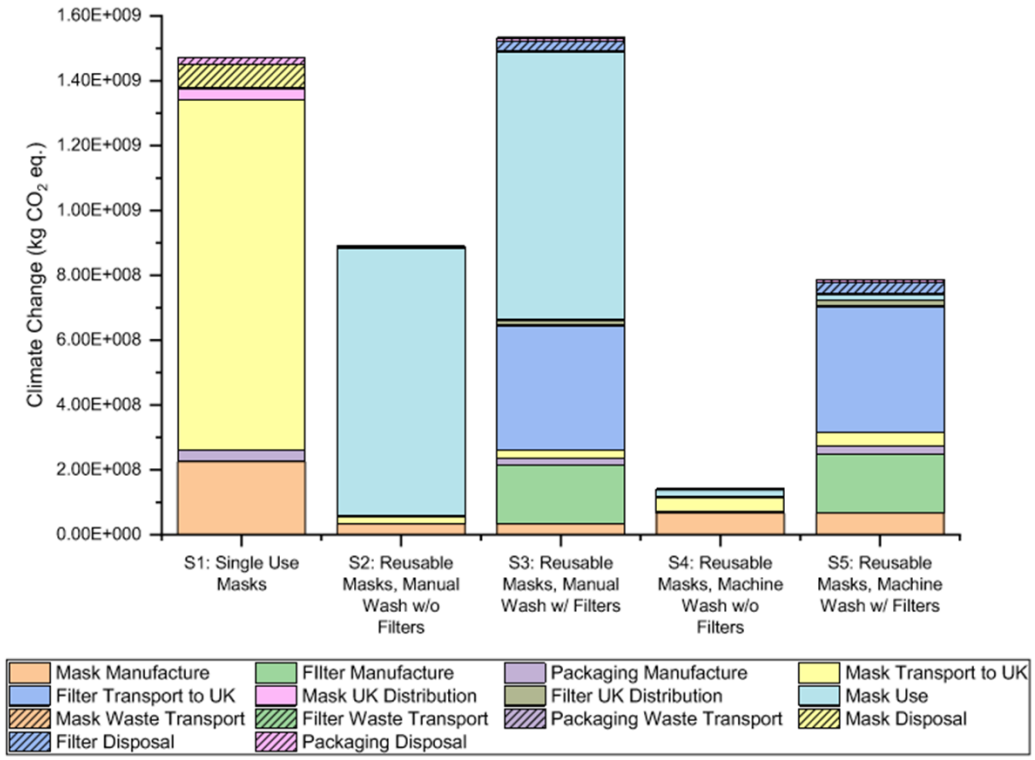
National involvement

This project has interlinked with NHS England/Improvement Green PPE Cell, NHS Supply Chain, and regional PPE procurement networks. The National IPC body is also involved and we will be working to develop SOPs for implementation in all healthcare settings, decontamination processes and trigger points for using reusable facemasks.

Carbon Cost

The carbon impact of reusable masks is dramatic as can be seen from the graph below:

Fig. 1: Climate change results generated for each scenario of face mask use.



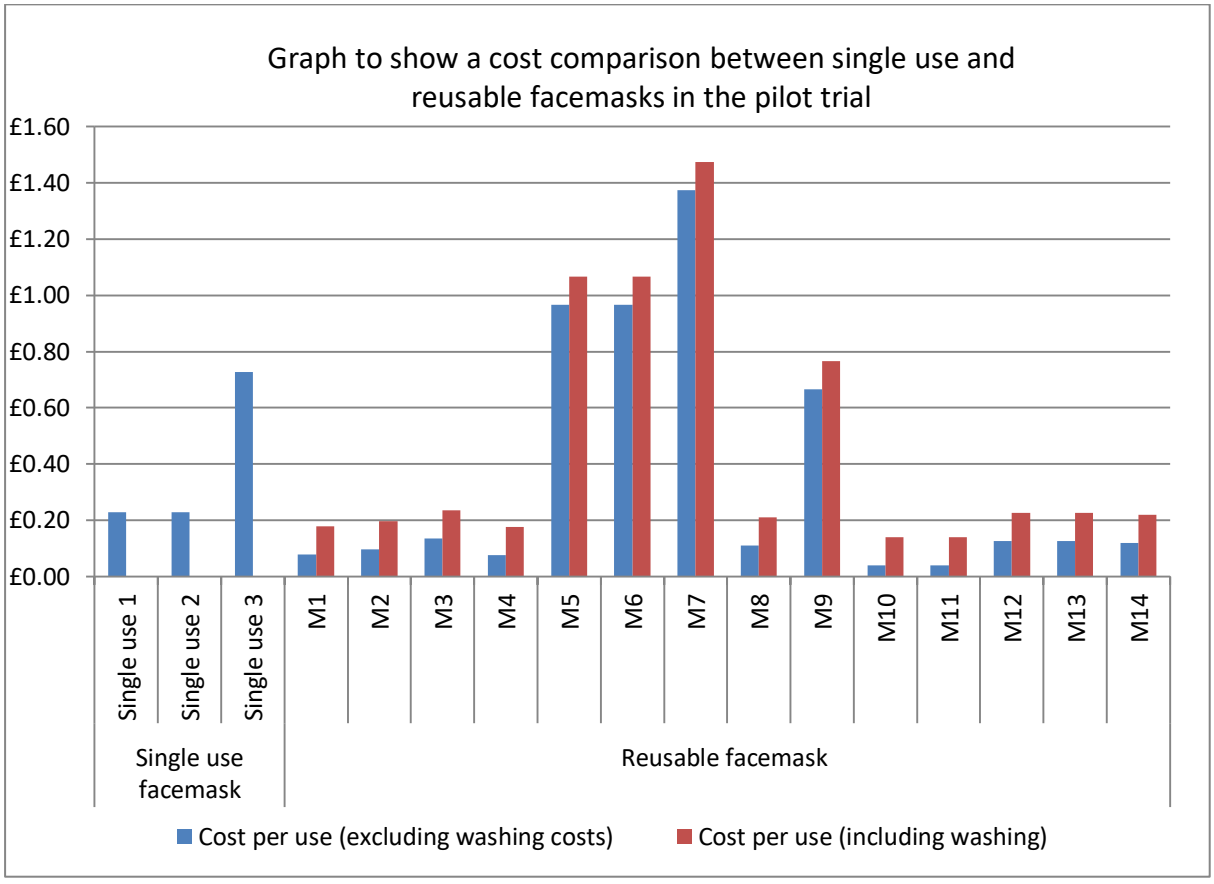
Source: [Plastic Waste Innovation Hub]

Cost Benefit

A cost benefit analysis was carried out to compare the whole life cost of a single use face mask versus a reusable facemask used between 30 and 50 times before being recycled.

The cost benefit is not as pronounced at present due to PPE being provided for free during the pandemic. If facemasks were being paid for by Trusts there would be the opportunity for savings to be made in not procuring the masks, the cost of the waste disposal (between £400 and £1000 per tonne), bin bag consumption and ancillary staff time for bag removal as well as the unseen shipping and carbon costs.

The cost comparison between the single use and the reusable products was conducted and as a simple per use comparison, the graph below shows that there is a financial benefit for most of the masks. The viral coated masks provide more options for the facemasks to be utilised over longer periods as well.



* Single use 1 – low cost facemask (20p), low cost waste disposal (£354 per tonne)
* Single use 2 – low cost facemask (20p), average waste (£500 per tonne)
* Single use 3 – High cost facemasks (70p at peak of pandemic), high cost waste disposal (£962 per tonne)

Waste reduction

The waste generated by PPE has increased dramatically. There are national issues at present due to the disposal of this waste mountain that has been generated by the huge consumption of facemasks. Reusable facemasks with a circular economy associated with the end of life of the products will ensure that there is an elimination of waste completely.

The replacement of a single use facemask product with a reusable facemask could take between 30 and 50 single use products out of the system. Multiply this by the nearly billion facemasks that we have consumed we can have a quick reduction in waste generated, reducing waste by between 100 and 175g per reusable facemask replacement.

Outcome

The feedback through this project has led to a greater understanding of how these products can be used in healthcare setting, the barriers to implementation, IPC involvement, the requirement for traceability and the process to implement in various healthcare settings.

All users within the pilots have wanted to adopt multiple use facemasks instead of the single use products and are keen to progress this project as soon as measures are in place to support the transition.

This project provides an opportunity to change the use of a single use product that can be eliminated from the health system and provides a blueprint for procurement in a Greener NHS.

More details on the project please contact Alexis Percival - alexis.percival@nhs.net