

In-house production of personal protective equipment to assist in the frontline response to Covid-19

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Summary

Due to difficulty obtaining sufficient supplies of personal protective equipment (PPE), a prototype visor was devised for use by Trust staff. It was designed and tested, and batch production started within four days; it was manufactured by scientific and technical staff redeployed from several departments. Over 45,000 were made.

Aims and objectives

The aim of the project was to provide Birmingham Community Healthcare NHS Trust staff with suitable, high quality PPE at a time when Conformité Européenne (CE) marked products were unavailable. The project aimed to provide a stopgap measure until such time when CE marked products were available in order to allow continued treatment of patients and maintain staff safety.

Background

The coronavirus pandemic of 2020 resulted in worldwide shortages of PPE (BBC news, 2020). Guidance issued by the government recommended the use of goggles/visors for all aerosol generating procedures (UK Government, 2020) and it was confirmed that healthcare workers had the right to refuse to administer treatment without the provision of suitable PPE (Royal College of Nursing, 2020).

Discussion

Over a three month period the group manufactured over 45,000 single use foam topped face visors. In addition over 350 partly reusable 3D printed visors were produced, and over 8,000 'ear savers' for use with ear loop masks.

These were, and are still, unprecedented times, and there are some ethical concerns as to whether we should be manufacturing PPE, which is both outside of our scope of practice, and not possible to fully certify to the required standard, in the time period required. Should we have done it?

It was assumed that something is better than nothing when it comes to PPE. It was discussed with the head of risk management for the Trust as well as with the lead for infection prevention and control, and quality protocols were put into place to minimise the risks. Overall it was felt there was a greater element of control in the manufacturing processes in-house compared with the other avenues of sourcing 'off-label' PPE made by potentially unregulated local suppliers. In addition it was agreed with the Trust to provide only to meet the shortfall in CE marked devices, and that these would be used once available.

Questions remain as to how we forecast for the ongoing need, and how we balance this with the requirement for 'normal service' to resume. Overall this project highlights the value of a broad range of staff, with technical and problem-solving expertise.

Conflict of interest

The group declares the following conflicts of interest, and also expresses gratitude to: Consolor Ltd for providing the foam, pre-cut to size at cost and for cutting 10,000 elastic straps at minimal cost.

Active Design Ltd for donating their entire stock of 1" elastic for use, and helping to source further supplies.

References

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