ARS-CoV-2 is a novel coronavirus derived from the same family as those responsible for sudden acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). The pandemic of 2020 is the third major event of this nature in the last two decades, whereby person-to-person transmission of a mutated coronavirus has developed and ignited a global emergency (Kampf et al, 2020).

Emerging diseases are usually identified early by global surveillance systems and monitoring for new and emerging threats to humans, so they can be detected and dealt with the type of pathogen and plan for transmission control. In zoonotic disease, animals pass on infection to humans (Aguirre, 2017); the barrier exchange is complex, but when human-to-human transmission of a zoonotic disease occurs it can spread quickly, because humans have no immunity to the new virus and it can result in high mortality. SARS-CoV and MERS-CoV have had major impacts on the population’s health since they were discovered. SARS was first identified in November 2002, in the Guangdong province of Southern China. Described as an atypical pneumonia with unknown origin, it spread to Vietnam, Hong Kong, Singapore and North America (Centers for Disease Control and Prevention, 2013). MERS-CoV emerged in 2012 in the Middle East via dromedary camels (World Health Organization, 2020a). At the end of January 2020, the WHO reported a worldwide total of 2,519 laboratory-confirmed cases of MERS and 866 associated deaths, and 75,282 cases of SARS with 2,012 deaths (Yang et al, 2020).

All available evidence suggests that SARS-CoV-2 also has a zoonotic source (WHO, 2020b). To date, there have been more than 41,000 deaths related to Covid-19, the illness caused by the virus in the UK. Globally, as of 11 September 2020, there were 27,738,179 confirmed cases, including 899,916 deaths, had been reported to the WHO, emphasising its severity and pathogenicity (covid19.who.int).

Covid-19 preparations
SARS-CoV-2 was declared a public health emergency in January 2020 and confirmed as a pandemic in March (WHO, 2020c). In February 2020, Bridgewater Community
Healthcare NHS Foundation Trust’s infection prevention and control (IPC) team facilitated a series of training sessions for clinical teams, with the goals of preparing staff for the anticipated challenges ahead and gaining understanding of the potential burden of Covid-19 on community services.

The team aimed to give staff an overview of the current situation, explain modes of viral transmission and plan for service operation at the height of the emerging situation. They gave a 30-minute presentation on the provenance of Covid-19 and an overview of how the virus may progress, then conducted sessions on:

- Donning and doffing personal protective equipment (PPE);
- Handwashing;
- Swabbing technique;
- Safe transportation of Covid-19 samples to the laboratory, including decontamination of the packaging and transportation carrier using hypochlorite wipes.

The training was initially facilitated in person, but at the end of March the team produced a training video as social distancing became more imperative.

A commercial company was commissioned to fit-test key staff for FFP3 respiratory facemasks and urgent care staff were initially tested. Following this, two members of the clinical team attended an accredited training course run by the same company, meaning there was additional capacity for facemask fit-testing within the trust. In total, 150 staff were trained and fit-tested, including staff in the trust’s health and justice system, and in some partner mental health trusts. At key sites across the region, six ‘grab bags’ were distributed, containing equipment required for swabbing including PPE, hand sanitiser and laminated memory aids on donning and doffing technique (Public Health England, 2020a). Community matrons were also provided with dedicated Covid-19 equipment for undertaking clinical observations, if needed.

Laboratory testing
In April 2020, as Covid-19 sickness absence began to occur, clinical teams’ swabbing capability was diminished. National test centres were not operational in the locality and another solution needed to be found. Through a series of discussions, an agreement was made with the urgent care facility manager to set up a drive-through swabbing service for staff members and any adult member of their household. Two full-time equivalent staff were redeployed to run the service and arrangements were made with a local acute trust to carry out the laboratory processing. For a short period, urgent care staff also supported the service, due to the growing numbers of suspected Covid-19 outbreaks in the social care sector. This was an interim measure to fill the gap while a long-term solution was being considered.

The laboratory staff supplied testing kits with the necessary hazard-warning notices and pathology transport bags. The IPC team provided decontamination training on the safe handling and packaging of samples, and daily transport arrangements were made for collection and delivery to pathology. A dedicated Covid-19 nurse checked and communicated test results to staff members, recorded them on a spreadsheet and stored them on the trust’s secure IT system.

Using redeployed staff
Due to increased outbreaks of suspected Covid-19 in the social care sector, the local clinical commissioning groups requested support for a community swabbing service for the vulnerable and hard-to-reach groups of the population. The trust’s redeployment panel was asked to identify staff suitable for redeployment so that we could form a community swabbing hub.

Dental nurses and dentists were considered suitable for this role because of their experience with the oral and nasal cavity. Six dental nurses and two dentists volunteered, as did two paediatric nurses.

A training session was provided for these redeployed staff, which included instruction on donning and doffing PPE. They were given practical training on viral nasal- and throat-swabbing technique. They also spent a day in the urgent care centre, shadowing staff who were already trained in and allocated to swabbing, so that they could gain practice experience under supervision.

A cohort of dental nurses worked on rotation to provide administrative support, including running two dedicated phone lines; this approach separated the system from other IPC activity. The dental nurses logged all referrals, to facilitate follow-up of results. They also completed laboratory request forms and prepared sample kits ready for the swabbing team. The swabbers went out in pairs for safety and to assist with donning and doffing PPE, meeting at a central base every morning to pick up the allocation of referrals for the day. They then dispersed to complete their daily visits. If new referrals were received while they were out, they were contacted by the administration team to avoid unnecessary travel back to the base.

A second acute trust laboratory was approached to support the community swabbing hub and it was decided this would be the sole laboratory used for this purpose. Two laboratory drop-off points were arranged within the boroughs for the Covid-19 throat/nasal swabs, meaning staff had easy access to a drop-off point without needing to travel between two sites. The team also requested access to the laboratory system so that they could obtain results; it was granted under the trust’s data-sharing agreement. This reduced the number of phone calls being made to the microbiology department to check results and created a more timely follow-up for patients requiring respite care or other urgent need. The team also developed a standard operating procedure for commissioners and other providers to enable them to refer patients for testing.

Building resilience in the wider health economy
To allow the swabbing hub to support more people, the team facilitated face-to-face, socially distanced staff training, covering:

- Swabbing;
- Donning and doffing of PPE;
- Safe transportation and packaging of samples.

The local authority provided the venues and the IPC team attended to deliver the sessions. Supported living and learning disability teams accepted the offer of training, as well as two large mental health facilities whose nurses can now swab their own patients; the swabbing hub continues to collect the samples and transport them to the laboratory. Fig 1 (p38) shows a breakdown of the teams that have referred people to the hub.

Risk assessment
The team considered informed consent and best interest on an individual basis. Many referrals were from social workers for people within vulnerable groups, and deciding whether a swab was in a person’s best interest if they were near the end of life or had a profound disability placed the swabbers in a dilemma; in some cases they swabbed another household member instead. This needs wider discussion and debate nationally, specifically in relation to blanket swabbing of people being discharged into respite care or before a procedure. For example, if someone is in a dangerous situation and is unlikely to test...
positive for Covid-19, taking them out of the situation should outweigh the need for a swab, and they can still be isolated for good infection control practice to prevail. To date, there have been no positive swabs from this group.

The national operating framework (NHS England, 2020) for Covid-19 swabbing requirements is already increasing demand for the service and the impact of this has not been addressed in any government policy to date. As the NHS reinstates normal services the swabbing requirement still remains, which will leave a gap when the volunteers return to their substantive roles.

Facemask fit-testing

Although acute trusts were the initial focus of PPE and mask fit-testing, the level of care in the community was unparalleled involving children with special needs and adults who were ventilated or undergoing other aerosol-generating procedures (AGPs). In some cases, the level of PPE required for AGPs was not in sufficient supply – the trust distributed some to services for mutual aid, including care homes and carers in the domiciliary setting.

The American Thoracic Society (2020) literature and guidelines describe an AGP as something that involves small particulate release into the environment. These tend to linger for longer, hence increasing the risk of contracting Covid-19. This issue became highly contentious within some of the trust’s services because of the limited criteria set out in Public Health England’s earlier guidance on classification of AGPs (PHE, 2020b). This was particularly challenged by national bodies including, the Royal College of Nursing, the British Dietetic Association and the British Association for Parenteral and Enteral Nutrition independent advisory committee (BAPEN, 2020). In response to both this and the high levels of anxiety among its clinical staff, the trust agreed to face fit-test staff in these groups to assist them in getting back to practice. This also aligned with the updated PHE (2020b) guidance published in June and updated in August.

During this period it also became clear there were a number of services not considered for facemask fit-testing, particularly in the social care sector. The service recognised and addressed this gap and has therefore become a central hub for the region for face fit-testing for FFP3 respiratory masks. To date, the service has facemask fit-tested over 500 staff (Fig 2). Initially there was only one full-time-equivalent member of staff. Four other dental nurses have since been trained to help support ongoing need. High street dental staff are presently being fit-tested to meet the needs of back-to-operational service.

Conclusion

This collaborative initiative was successful due to the staff who volunteered their services, rising to the challenges posed by Covid-19 and working as part of an extended team.

This emerging service is set to continue for as long as Covid-19 persists. Although it was set up as mutual aid for the wider community, there are now plans to commission this service for future requirements in this dynamic and changing environment.

References


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