

to distance, exposure to aerosolised particles is dependent on the duration of suspension, which is not only affected by particle size and concentration, but also by the surrounding air flow where the aerosol-generating procedure is performed. To prepare for a second wave and optimise safety, clinicians should assess the behaviour of aerosols and airflow dynamics within their individual clinical practices and operating rooms.

Declarations of interest

The authors declare that they have no conflicts of interest.

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Emergency schedule management for COVID-19

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Editor—The coronavirus disease 2019 (COVID-19) pandemic brought a unique set of challenges to staff management owing to the need for the rapid redeployment of anaesthetists from theatres to cover the expansion of intensive care, while accommodating an increased absence rate because of sickness and self-isolation. As part of planning for the switch to an emergency rota, multiple options were considered by our management team, including adapting existing software and using free-to-use cloud-based collaborative tools offered by Google™. We decided to implement a new system that could be customised and adapted to crises more flexibly than our existing rota software (CLWRota, Rotamap Ltd., 3 Tottenham Street, London W1T 2AF, Registered in England No. 04551928, info@rotamap.net, +44 (0)20 7631 1555). A novel rota system was created using freely available online collaborative tools based on a system used in hospitals in London and Cambridge.^{1–3} A perfect rota system would be free, easy to use by co-ordinators, and staff, able to record leave requests and alerts for self-isolation, individualised, and able to split the workforce into teams based on skill mix.^{4,5} The new system was implemented in March 2020 and used to redeploy staff during the surge of COVID admissions until May 2020.

An online shared drive was created that contained the documents used to institute the emergency rota. The rota

management team could edit each file as it was being created. A spreadsheet was created with a rota template for the coming 4 months from implementation on March 30, 2020. The shift types were defined by their name and duration. All shifts were allocated on a centralised page that acted as a reference to other pages which displayed a personalised rota, a skills-based rota, and a daily on-call rota. In order to promote equality when allocating shifts, a live updated column next to each name included the mean number of hours per week as well as the number of night shifts and weekends.

The sheet was published as a PDF and on a website so staff members could access the rota at their leisure using their smartphone or desktop computer. A survey form was created that allowed individuals to report self-isolation, sickness, or request leave. This form triggered an email on completion sent to the rota co-ordination team to alert them to the new request. A document was created to contain links to each rota page for staff members that was published to the web in order to preserve the original document and sheet and protect them from being edited by staff members inadvertently. A dynamic shift pattern was used whereby reserve shifts were allocated to staff who were available to attend the hospital urgently to help with a sudden surge in demand. Shifts were colour co-ordinated in order to improve readability and highlight unallocated shifts. An automatic daily report was sent to senior

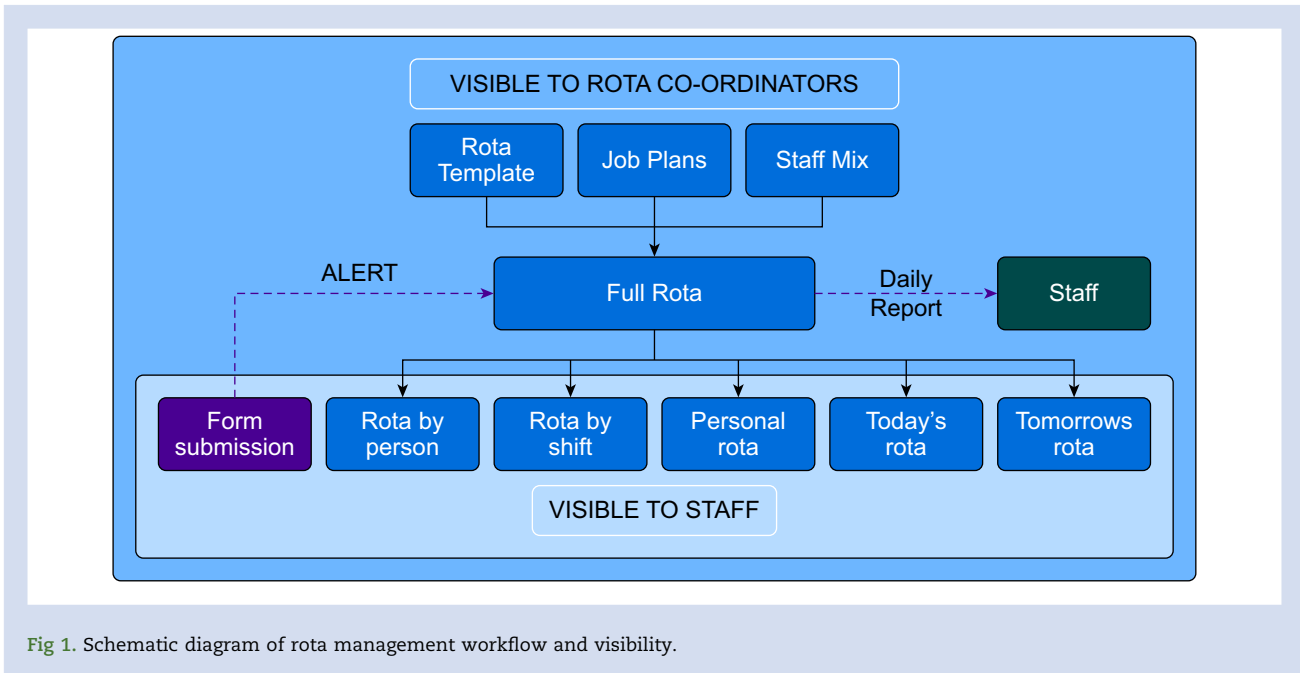


Fig 1. Schematic diagram of rota management workflow and visibility.

administrators to include staff allocations that day and a list of those self-isolating.

A rota was developed for 66 people covering 49 different shift types over a period of 4 months. There were 91 individual days of isolation reported and 49 leave submissions received in the 32 days since commencement. There was a median time of 10 h until resolution with a minimum of 2 min and a maximum of 87 h. All leave submissions were resolved after review. A total of 1458 shifts had been allocated since the switchover to the emergency rota. The monetary cost of set-up and maintenance was nil, and the staff cost was minimised by asking those who were self-isolating to contribute to shift allocation and respond to requests. Several small revisions were made to the rota to improve user interface and offer a personalised rota view. Members of the administrative team were available at all times to support staff satisfaction and allow for adjustments to improve work-life balance. No personal details were available to the public and all members of staff consented to use of their data for the emergency rota (Fig. 1). A link to the rota template is available.⁶

In conclusion, a novel emergency rota was created and implemented for anaesthetic and intensive care department to enable fair distribution of shifts and a rapid response to the challenges of sickness and self-isolation during the COVID-19 pandemic. Freely available online tools were used to implement a novel rota system that could be considered as an alternative in a low resource environment or one where staff or shifts were rapidly changing.

Declarations of interest

The authors declare that they have no conflicts of interest.

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