Witness Name: M. Jenney &
S. Walker
Statement No.: 1
Exhibits: 12
Dated: 23 May 2024

UK COVID-19 INQUIRY

WITNESS STATEMENT OF
PROFESSOR MERIEL JENNEY
& PROFESSOR STUART WALKER

I, Professor Stuart Walker, MD FRCP will say as follows:

1. I am currently the Chief Medical Officer and Deputy Chief Executive Officer at the University Hospitals Bristol and Weston NHS Foundation Trust, a position I have held since February 2022.

2. Prior to this, I was Executive Medical Director (July 2019-September 2021), Deputy Chief Executive Officer (March 2021-September 2021) and then Interim Chief Executive Officer (September 2021 to February 2022) of Cardiff and Vale University Health Board, Bwrdd Iechyd Prifysgol Caerdydd a'r Fro ("CVUHB").

I, Professor Meriel Jenney MB ChB MD MRCP FRCPCH will say as follows:

3. I am the Executive Medical Director of CVUHB, a position which I have held since February 2022. Prior to that, I was Deputy Medical Director from April 2021 and Interim Executive Medical Officer from September 2021. I have been a Consultant in Paediatric Oncology at the Children's Hospital for Wales since 1996.

4. We provide this statement in response to a request under Rule 9 of the Inquiry Rules 2006 dated 7 December 2023. In making this statement we have relied upon

information and perspectives which have been provided to us by colleagues at CVUHB. In the Schedule at the end of the statement, we have listed the names and roles of these colleagues.

5. Further, the University Hospital of Wales (UHW) (which also encompasses the Lakeside Wing, Children's Hospital for Wales and the Dental Hospital) is only one of many sites from which CVUHB provides its services, including a further six hospital sites. Where it has been possible to isolate statistics and other information which relate solely to UHW, we have done so. Otherwise, the information provided relates to CVUHB as a whole and this will be stated.

Overview

6. We exhibit as **MJSW/01-INQ000466418** a chronology which, for each of the four nations of the UK, references the stages of the pandemic, the number of people in hospital relative to the size of the country, what measures were introduced by the UK government and by each national government and the period of those measures. In this statement, we refer to three waves, which are defined by reference to the waves in the Cardiff and Vale area, as follows:
    - "first wave" starting in early March 2020 and ending at the end of April 2020;
    - "second wave" starting in late September 2020, with an initial peak in the second half of October 2020, after which infection levels declined slightly before rising again in late November 2020, peaking in mid/end December 2020 and ending at the end of February 2021;
    - "third wave" with a small increase in cases from the beginning of June 2021, and a more rapid increase from the beginning of August 2021 following the emergence of the Delta variant; peaking in October 2021 after which infection levels decreased slightly before rising again sharply in early December 2021 with the emergence of the Omicron variant peaking at the end of December 2021 and ending at the end of March 2022 after a further small peak in mid-March.
7. There were a number of features of the Covid-19 pandemic which are now taken for granted but which were, at the outset, unknown. It is helpful to note in the context of this statement therefore that the initial modelling we received for the pandemic was based on there being one wave, whereas there have now been multiple waves. Further, it was not known whether and, if so, when a vaccine would become available, and it was not

known to what extent the pandemic could or would be managed by isolation, herd immunity, immunisation or a mix of all three. In the early days and weeks of the pandemic we were therefore effectively planning for the unknown. There were no known treatments for Covid-19 at that time.

8. At all levels of health management, from the UK and national governments to individual healthcare providers, a lot had to be learned, quickly, as new data became available. In the early stages of Covid-19 guidance was being issued and amended on a daily basis.
9. At the UHW hospital site, one of the important steps we took right at the outset was to set up a regular meeting in the hospital's lecture theatre, open to all staff (with appropriate distancing) at which we would present the latest data and predictions on the pandemic, reference the latest UK, national and other guidance and policies and discuss the most pressing issues facing the hospital at that time. We would invite anyone to provide advice or share an opinion on any of the issues covered, and there was the opportunity to raise other issues which were considered of pressing concern. The meetings were conducted in a non-hierarchical manner which meant that information was widely disseminated and, in turn, the senior management teams benefitted from input and ideas not just from managers and clinicians but from all staff such as the housekeepers, caterers, engineers, IT and estates staff, etc. Two examples of the decisions which came out of these meetings are the setting up of colour coded zones within the hospital (see below) and of workforce hubs to aid recruitment. Professor Walker attended these meetings and initially chaired them, but later handed the chair to the Chief Operating Officer, Stephen Curry.
10. A key feature of our response, which we address in more detail below, is that we maintained the delivery of high consequence elective treatments (such as cardiac and cancer surgery) at the highest safe level possible.

University Hospital of Wales - Background

Size of the patient population the hospital serves and geographical area covered

11. The UHW provides secondary care services to the population of Cardiff and the Vale of Glamorgan, estimated to be 491,511 in 2020 (source: StatsWales, mid-year population estimate 2020).

12. In addition, it provides tertiary care services (that is specialised treatments) to a much wider population. The catchment areas for these tertiary services vary on a service-by-service basis, and are regional, supraregional, national or UK-wide:

- Regional - South East Wales (covering the catchment areas of Aneurin Bevan UHB, Cardiff and Vale UHB, Cwm Taf Morgannwg UHB and South Powys) e.g. Cardiac and Vascular Surgery, Thoracic Surgery, etc.
- Supraregional – Mid, South and West Wales (covering the catchment areas of Aneurin Bevan UHB, Cardiff and Vale UHB, Cwm Taf Morgannwg UHB, Hywel Dda UHB, Swansea Bay UHB and South Powys) e.g. Major Trauma, Neurosurgery, etc.
- National – All Wales (covering the catchment areas of Aneurin Bevan UHB, Betsi Cadwaladr UHB, Cardiff and Vale UHB, Cwm Taf Morgannwg UHB, Hywel Dda UHB, Swansea Bay UHB and Powys Teaching Health Board) e.g. Alternative and Augmented Communication Aids, All Wales Medical Genomics Clinical Service, etc.
- United Kingdom - severe acute porphyria service for NHS Scotland and parts of NHS England.

Demographic characteristics of the patient population, including ethnic diversity, age and level of socio-economic deprivation

13. The demographics of the local resident population which UHW serves can be summarised as follows:

- Ethnicity: Cardiff has more ethnic diversity than most of the rest of Wales, with 26.4% of people identifying as non-White English/Scottish/Welsh/NI/British in the 2021 Census (source: ONS, accessed 3.1.24). The corresponding figure for the Vale of Glamorgan was 8%. In Cardiff there are sizeable populations reporting Black African (2.9%), Indian (2.4%), Pakistani (2.4%), Bangladeshi (1.9%), Arab (1.8%) and Chinese (1.4%) ethnicity; along with 4.6% White Other;
- Age: Cardiff has a higher proportion of people aged 15-29 (25.2%) than the average for Wales (17.6%), mainly due to a significant number of university students in the city, and a lower proportion of people aged over 75 (6.6%) compared with the average for Wales (9.9%). By contrast, the Vale has a slightly lower proportion of people aged 15-19 (15.4%) and a slightly higher proportion of people aged over 75 (10.2%). (source: StatsWales mid-2021 accessed 3.1.24);

- Socio-economic deprivation: both Cardiff and the Vale of Glamorgan contain some of the most affluent areas of Wales, alongside some of the most deprived. In Cardiff, there are pockets of deprivation throughout the city but many are located in the 'southern arc', including Ely, Caerau, Grangetown, Riverside, Llanrumney and St Mellons. In the Vale, there are also scattered pockets of deprivation throughout, with a higher concentration in the central Vale, in and around Barry. (source: Welsh Index of Multiple Deprivation 2019);
- Given the number of different tertiary and specialised services provided by the UHW (see 1a, above) and the size of their catchment areas, it is difficult to precisely summarise the demographics of the patients who are referred to these services.

The type of hospital and the services it provides

14. UHW is the largest hospital in Wales and among the largest in the UK. It is a teaching hospital and provides secondary care, including acute care, to its local population and tertiary care to a much wider population, as noted above.
15. It currently provides in excess of 100 services, across five of the Health Board's Clinical Boards (Children and Women, Clinical Diagnostics and Therapies, Medicine, Specialist Services, and Surgery) including: critical care, major trauma, cardiac surgery, cardiology, haematology, emergency surgery, neurosurgery, neurology, acute stroke, cystic fibrosis, immunology, radiology, cancer surgery, transplant, obstetrics and gynaecology, general medicine and care of the elderly. The Dental Hospital and Children's Hospital for Wales are also on the UHW site, the latter providing services for children for the whole of Wales.

Number of staff and wards during the relevant period

16. The main building at the UHW site is a 1970s, seven storey building with two wings. It is linked by corridors to the Children's Hospital for Wales and, since 2021, to Lakeside Wing which was constructed during the pandemic. The Dental Hospital stands separately. Lakeside was built as a surge capacity, providing an additional 400 beds on the UHW site. It was a modular construction, with working commencing on site in February 2021 and completing in a matter of weeks,to a high standard. It is expected to last several decades. Since the need for surge capacity ended, it has been used for

clinical ward space, outpatient preoperative assessment space and operational management space. We exhibit a site map as **MJSW/02-INQ000466419**.

17. Prior to the pandemic, UHW had a bed capacity of 1080. During the pandemic, 62 "areas" were designated and the footprint of the hospital changed considerably to cater for increased demand for beds and changing needs. It was a dynamic situation, with footprint maps being distributed from central hubs which mapped out wards and their functions as the situation changed. Examples of the footprint maps showing how the configuration changed are exhibited as **MJSW/03-INQ000466420**.
18. In the first wave, the focus was on moving wards to achieve as much separation as possible between patients with and without Covid-19 (the red and green zones). In the second and third waves, there was an increased need for areas in which to treat patients with Covid-19 patients (red zones), and to care for patients who had recovered from Covid-19 (blue zones) so the focus was on opening these up as required. In these waves there was an increasing number of patients admitted with other clinical conditions who were found to be Covid-19 positive whilst an inpatient incidentally (i.e. it was not the reason for their admission), which further complicated the cohorts of patients with other clinical needs.
19. In the first wave the areas used for treating Covid-19 patients were on the 7th floor of the main hospital block, together with the designated areas in the intensive care unit (ICU), see below. Heulwen ward (ground floor) was also used for the assessment and triage of patients with clinically suspected Covid (purple stream). As demand rapidly increased, we worked down the building, so that at its maximum the red zone included the top three floors in addition to the critical care unit and recovery wards, and up to three of our theatres which were designated for patients who had Covid and needed urgent or emergency surgery.
20. Staff numbers also fluctuated over the relevant period as can be seen in the attached chart [**MJSW/04-INQ000466421**]. In the first wave, some staff were allocated to the Dragon's Heart Hospital (a surge hospital) which was being built at the Principality Stadium early in the first wave.

Staffing Capacity

21. Maintaining a safe level of staffing as demand for our services rose was a key priority throughout the pandemic. We were able to achieve this and are not aware of any

instance in which a patient came to harm as a consequence of there being an inadequate number of staff on duty. The service was undoubtedly stretched and this placed a lot of strain on both managers and staff, who felt the impact more with each wave

22. A number of factors put pressure on staffing levels including increased sickness levels (increasing from around 5% to over 8%), self-isolation rules and shielding (accounting for about 2.5%). In the second and third waves, there were delays in some instances in receiving negative test results which in turn delayed staff returning to patient facing roles.
23. There was also a need for extra staff to implement and support the measures required for infection prevention and control (IPC).
24. At the outset of the pandemic, there was a strong sense of coming together and a willingness to work across all teams, which greatly assisted our efforts and throughout each wave our staff remained committed to patient welfare.
25. We also tackled the increase in demand through de-escalation of some parts of the service, re-deployment of staff (especially from de-escalated parts of the service), adjustments to work patterns of doctors, nurses and allied health professionals at all levels. There was also intensive recruitment across several areas of the workforce.

Shortages affecting particular types of staff and specialisms

26. Staff shortages were less of a concern in the first wave.
27. In the second and third waves a particular problem for UHW, specifically the Medicine Clinical Board, was the lack of registered nurses (RNs). UHW medical wards were routinely short of RNs. This varied enormously, but ward staffing levels presented daily challenges especially across 15 different areas (Heulwen North & South; Wards 1, 2, A1, A1 Link, A7, B7, C4 North & South; C5; C6; C7; High Care Respiratory Unit; Ward Ground Floor A, Lakeside Wing). Specialist Covid wards were prioritised for RN resources but even they experienced challenges.
28. We set out below the steps that were taken to mitigate staff shortages across several areas, which included redeployment and examples of services which were particularly impacted are as follows:

- Critical care: Prior to the pandemic, efforts were made to recruit more middle grade airway skilled critical care doctors. Critical Care was funded for 17 such doctors from

September 2020, but on average 10 were in post at any time. The aim of the recruitment was to alleviate the need for the immediate presence of a consultant overnight. However, as a result of the pandemic, this plan was put on hold and the resident consultant rota continued. In February 2020, the number of nurses (bands 5 & 6) in post was below full establishment. and this shortage was exacerbated by the need for some ICU nurses to shield. The need for staff to identify as "household contacts" also impacted heavily on our ability to staff the ICU. This was particularly challenging when young children returned to schools.

As a result, during the first and second waves, ICU nurses frequently worked outside of Guidelines for the Provision of Intensive Care Services (GPICS) at a ratio of 1:2 or above. In wave 2 there was very limited support staff available to assist.

Furthermore, a number of experienced staff left following the first wave which contributed to the demands placed upon the remaining experienced nurses to supervise junior nurses and those nurses who came to support ICU but were not skilled in relation to current practices and equipment in the unit. Some staff had no previous ICU experience

- All areas of surgery were at times short of staff. This was a combination of sickness absence and redeployment to the medical wards. This impacted on the ability to deliver routine elective work. However, at all times, we maintained a good level of emergency cover and continued to cover urgent and cancer surgical activity.
- Outpatients: initially there were no staff shortage issues due to the reduction in outpatient activity. However, there was a higher level of retirements and departures than usual over this period, as a result of which when outpatient activity levels started to increase, new staff had to be recruited. This was difficult due to the wider shortage of nurses.
- The mortuary was exceptionally stretched because of the number of deceased patients and existing staff numbers were challenging. Staff from the cellular pathology laboratory were therefore trained and redeployed to the mortuary to mitigate this, as there was less need for them in their usual roles undertaking diagnostic work due to reduced elective surgical activity.

29. Some of the issues experienced with RNs are set out above and as set out later in the statement the workforce hubs carried out a crucial role which continued for nursing longer than for other professions. Examples of redeployment and using changes in systems to avoid potential staff shortages in other areas are as follows:

- Doctors – In the first wave we significantly increased the number of wards that were allocated for the treatment of patients with Covid-19. Doctors of all levels were redeployed from other areas to provide day and night cover to those wards. Doctors worked in teams, and on shifts - three days on - three days off; and three nights on – three nights off. As a result, the Covid-19 wards were adequately staffed. The greatest pressure for medical staff was on the Intensive Care Unit and B7 – because of the high number of acutely sick patients receiving care there.

  In the second and third waves we were trying to provide care for Covid-19 patients who also required other urgent care across different specialties. There was overall less redeployment of doctors although there was still a requirement to move some of the more junior medical trainees from surgical to medical wards. This was difficult for some doctors who had been moved several times during the pandemic.

  We maintained an adequate level of medical cover throughout. We were stretched at times but are not aware of patients not receiving the care they needed.
- Allied health professionals: At the beginning of the pandemic the therapy service (dietetics, physiotherapy, podiatry, occupational therapy and speech and language therapy) developed workforce plans to identify workforce available and training needs. With the reduction in planned care and outpatient services this freed up therapists to be deployed to support the Covid-19 wards and Critical Care. In general staff that had current or recent acute skills were deployed first. Staff linked with colleagues across the UK and internationally to be guided what skills and knowledge staff would require to safely treat Covid patients. Intensive training was delivered across the directorate including how to use PPE to ensure staff had the skills and knowledge to safely deliver care.

  An induction programme was developed for Allied Health Professionals who were being redeployed as Healthcare Support Workers (HCSW). This included pre-course e-learning and reading, a 2-3 day in-person clinical training programme, a ½ - 1 day in-person manual handling training delivered by the Health &Safety training Unit. All redeployed AHPs then undertook a one week supervised and supernumerary period during which they were assessed against a competency checklist to ensure key safety elements of care were met.

  Training was also provided regarding the correct PPE for each situation, donning and doffing, and fit testing. Guidance and regular updates were cascaded to clinical staff from the IPC utilising posters and training videos, via the UHB website, email and

staff huddles. Training was provided by nominated cascade trained staff and the IPC team were available to answer queries.

The service moved to a seven-day service model which improved the timeliness of access to therapy assessment and treatment. Therapists also supported nursing colleagues deliver fundamentals of care examples of this include physiotherapists supporting critical care with a turning team to support regular prone lying for acutely unwell patients and therapy support workers and podiatrists deployed to support nursing care on the wards as healthcare support workers. Delivering a seven day service also allowed staff to work flexibly across the week which supported work life balance around caring responsibilities and home schooling while meeting the needs of the service. Staff who had health conditions that required them to 'shield' were enabled to work from home offering virtual clinical appointments to outpatient and community patients.

- Pharmacy: For the first wave the overall pharmacy staffing levels were increased through a number of zero-hour contracts for pharmacists and non-qualified staff (to support distribution of medicines throughout the hospital) coupled with increasing current part-time staff hours where possible. The weekend service was changed from 9-1 Saturday and Sunday in early April 2020 to 8.30-5 mirroring the Monday to Friday service, this reversed back to the previous service level in June 2020 as the service demand reduced, further waves did not require this escalation of service as treatment pathways were clearer and access to the required medicines out of hours was more robust. The focus during the first wave was to maintain a pharmacy service (pharmacist, pharmacy technician and supply) to the critical areas such as critical care and the 7th floor. This was achieved through a small number of staff with the skills and willingness to provide this specialist pharmaceutical support within those areas. During the latter waves this service became 'business as usual' with the areas being supported in line with usual pharmacy standard (pharmacist and technician support on ward plus medicines delivered by pharmacy).

The effect of Covid-19 testing

30. The below timeline sets out how testing was conducted across the three waves. PCR tests require a laboratory to provide results whereas point of care testing (POCT) enabled confirmation to take place on validated platforms placed within departments

themselves such as critical care. Lateral flow tests (LFTs) could be done at the patient's bedside or used by staff at home:

a. Wave 1:

- January 2020 – All UK samples were processed centrally at the UK Health Security Agency laboratory, Colindale, London;
- February 2020 – Public Health Wales (PHW) were given the go ahead to process samples in their laboratory in Cardiff for all of Wales. Only hospital patients were tested initially. In this initial period there were reagent shortages at times and hospital in-patients were prioritised for testing when this occurred;
- March/April 2020 – new, bigger testing platforms were introduced which increased testing capacity to approximately 1000 patients or staff a day (for all of Wales).

b. Wave 2. PCR tests continue to be utilised for patients, staff and the public who had respiratory symptoms and mass test centres were established. POCTs were introduced following some initial issues with connectivity of the validation platforms;

c. Wave 3. POCT was used more widely throughout 2021 and PCRs continued to be used to diagnose Covid-19. In December 2020 LFTs were introduced for routine staff testing in line with national guidance. They were then used to assist ending isolation requirements and with discharge to care homes/carers for asymptomatic patients in line with national guidance.

31. Overall, the introduction and availability of Covid-19 diagnostic testing for staff was helpful as it enabled us to identify Covid negative staff who could return to work and ensure that staff who tested positive stayed off work, which helped to keep clinical areas safer. By 10 July 2020 we had tested 7996 staff and their household contacts.
32. The introduction of Covid testing impacted on staffing levels, as once it was introduced staff had to wait for a negative result before they could return to work. Initially the wait was 48 hours, but this improved with the increase in laboratory capacity which enabled results to be returned the same day.
33. If staff accessed testing outside the CVUHB staff testing protocol, this did not feed into our IT systems, and we could not access information around genotyping or association with outbreaks resulting in further delays.

Temporary registers for doctors, nurses, midwives and pharmacists to enable trainees and retired staff to work in these roles.

34. In 2020 the government introduced emergency legislation to allow the professional bodies to create temporary Covid-19 registers. This legislation meant that bodies such as the General Medical Council (GMC), Nursing and Midwifery Council (NMC), and Health and Care Professionals Council (HCPC) could temporarily re-register fit, proper and suitably experienced individuals, so they could provide support during the coronavirus pandemic if they wished to and felt able to do so. This included staff who had retired but wanted to return to practice temporarily. The local Medical Workforce and Nursing Hubs (to which we refer in more detail below) contacted all registrants in our area and this resulted in 4 retired Consultants and 10 nurses being recruited. However, the nurses were all deployed to the community (the Cardiff Testing Unit and/or Mass Immunisation Programme) rather than to the hospital and the majority of doctors were also redeployed to support the vaccinations centres.
35. The HCPC allowed for temporary registration of biomedical scientists who had finished their degree course but would ordinarily have to wait until they had completed their Institute of Biomedical Science (IBMS) Certificate of Competence. This was expedited during the pandemic. The haematology department added one biomedical scientist via this temporary register.
36. The HCPC temporary register was also utilized for new occupational therapy graduates.

Constraints on the ability of the hospital to increase staffing capacity

37. Every Health Board across Wales was in the same position and demand was high. At the start of the pandemic there were no restrictions on supply due to people being furloughed and wanting to support the NHS. As time went on, however, more and more people went back to work and that the desire to work in the NHS reduced. This made it more difficult to recruit in the volume of staff that we had previously. We were also very aware of the impact our recruitment was having on social care. The main constraint on increasing staffing capacity at that time was supply, not funding.

Responses or measures taken to address or alleviate staffing shortages

38. From the outset of the pandemic the Health Board developed a clear plan to ensure we would continue to provide safe staffing levels for our patients. Some of the actions are described above and this can be summarised as follows:

- Identifying those staff who could be redeployed to care for Covid-19 patients. This included redeploying medical and nursing staff from areas where elective activity was either reduced or had ceased;
- Appealing to those clinicians who had retired and could return to work on a temporary basis;
- Developing a workforce hub whose sole purpose was to recruit large volumes of staff in a very short period.
- A rolling programme of nurse recruitment;
- Using both nursing and medical students as a temporary pool of staff;
- Deploying medical staff to where the clinical need was greatest;
- Deploying non ward-based nurses to ward areas, following clinical skills refresher training undertaken at very short notice, as follows:

The Lead and Senior nurses met all off-ward nurses who were being re-deployed to wards and held individual discussions with them to identify their previous experience and training needs. Previous experience was taken into account when deploying the nurses. A two-phase training programme was set up for all nurses being redeployed.

Phase 1, was launched on 20 March 2020 and consisted of a one hour in-person skills session covering basic life support, recognising sick patients, blood glucose monitoring, urinalysis, IP&C and Covid-19 and aseptic non-touch technique. This included supervised practice so that the nurses felt supported and any problems could be identified and addressed. Phase 2 was launched on 30 March 2020, and consisted of the following (i) a one day session on medicines and intravenous additives (including blood transfusion) with competencies to be met by those who required shadow shifts and practice (ii) a half-day session (for those with previous experience) or a full day session (for those with no prior experience) on core infusion devices with a pre-course workbook to be completed in advance (iii) a manual handling refresher course consisting of an e-learning module plus a half-day [in person] manual handling awareness session. In addition, training was provided for PPE donning and doffing, which was delivered by different teams and in different ways depending where the nurse was being deployed. In

December 2020 a further training plan was devised to enable nurses to update their skills more flexibly.

Significant support was provided by experienced nurses or subject experts when delivering the training and there was an "off-ward" nurse checklist to ensure all areas were covered and met satisfactorily.

39. The HR Operations Team was temporarily disbanded and replaced with a Workforce Hub to actively recruit into temporary posts. Workforce Hubs were established for Nursing, Medical, AHP, Facilities and Primary Care, brought together through a Daily Workforce Steering Group chaired by the Executive Director of Workforce & Organisational Development (now the Executive Director of People and Culture). The Workforce Hubs were later brought under the "Recovery and Redesign Portfolio Board" to identify the total additional workforce requirements and support the Clinical Boards with recruitment by developing fast tracking processes and implementing a variety of recruitment initiatives to enable employment to the additional vacancies. The Workforce Hubs were discontinued from March 2021 with the exception of the Nursing Workforce Hub.
40. On 23 March 2020, a social media advertisement was placed asking for people to come forward and support UHW and other CVUHB sites with a particular emphasis on registered nurses (RNs) (priority, ward areas); health care support workers (HCSWs) (priority, ward areas); facilities staff, e.g. housekeepers, catering assistants (to meet increase in cleaning requirements for IP&C); medical staff; therapists (registered and non-registered); administrative staff; biomedical scientists; and pharmacists. In response to this CVUHB received over 2,000 applications in a very short time period and over 1,000 temporary roles were offered across the Health Board, including at UHW.

    The Medical Workforce Hub recruited 25 Consultants and 214 junior doctors largely to support the immunisation programme and by working closely with Cardiff University and Medical Education, the Hub was also able to engage 138 medical students. From December 2020, medical students were offered temporary positions and bank work to support with the mass immunisation programme. By March 2021 there were 75 doctors engaged temporarily to work in Mass Immunisation in the community (not in the hospital).
41. From April 2020, all year 2 & 3 student RNs were offered temporary contracts to support ward areas.

42. In October 2020, year 3 Allied Health Professional students were offered temporary contracts to support the Test, Trace and Protect service This service was run by Cardiff Local Authority and the students were seconded to the Local Authority. CVUHB staff who were shielding were also deployed to support as they could undertake the role working from home.
43. Throughout the 3 waves of the pandemic, HCSWs and RNs who were on the bank (registered with the organisation as being available to carry out shifts where mutually convenient) were offered temporary and permanent roles to support wards, testing & the mass immunisation programme.
44. The CVUHB Workforce Hub opened up its staff bank to external recruits and was used to recruit additional staff for distribution roles in pharmacy and to appoint private and non-working physiotherapists onto the bank in the first wave.
45. In addition to the Workforce Hub, there was a Local Co-ordination Centre (LCC) (the lead nurses and management team) which was able to constantly review the staffing position. We had mechanisms to seek support and look at how we could share resources daily.
46. In Medicine Clinical Board (who coordinated the care of medical patients and patients with covid-19, there were daily "Huddles" (which included the Clinical Board Director of Operations and Clinical Board Director of Nursing). The Huddle report would be shared with the LCC and then the staffing position would be summarised across the hospital so that if support was required, staff could be sent to where it was needed. This was our reporting mechanism. Our local systems (Hub and Huddles in Medicine) worked well so that the medical and nursing clinical teams well informed and clear as to the need.
47. In order to meet the increase in patients requiring critical care, we increased Critical Care Consultant staffing by diversion of activity (e.g. conversion of the anaesthesia part of a job plan to critical care) and by appointing internal locums. The planned opening of the Major Trauma Centre (MTC) was delayed from April 2020 to September 2020 and the nursing staff redeployed to ICU. 48 ex-ICU staff were identified for redeployment to ICU, including health visitors, surgical nurses, theatre staff (ODP's) and paramedic staff. Paediatric intensive care nurses were asked to support adult critical care. A variety of clinical staff including theatre scrub nurses etc. were used to create 'turn teams' to support regular proning of patients requiring critical care, providing support to the critical care staff to enable them to deliver their specialist care. The Health Board was supported by colleagues from the University to train this workforce in the technique of

proning, Dental nurses were recruited to support the unregistered workforce, and administrative staff to support with patient enquiries and arranging visiting. The unregistered workforce undertook support roles, for example they were allocated in teams to provide stock to clinical areas, act as runners between zones, ensure the clinical areas were kept tidy and free from clutter, help turn teams and keep patients company. Some were put into teams to support personal care for patients. In this respect, dental nurses were bought in to support them because of their specific clinical skills with oral care and supporting mouth hygiene for patients on ventilators or requiring continuous oxygen therapy. This required some technical expertise and training which the dental nurses were able to provide.

48. The majority of redeployed nursing staff worked shifts patterns and hours in line with their substantive posts. This meant a higher number of staff were on duty Monday to Friday daytime with more limited support for the night / weekend shifts. In wave 2 there were very few staff identified for redeployment to ICU. Enhanced overtime rates were agreed to encourage staff to work extra hours. By this stage staff were tired and it was more challenging to fill the rotas and shifts.
49. The initial strategy for the redeployment of medical staff was different. In the first wave doctors who were moved onto a rota of three days on and three days off day and night initially as the clinical impact of Covid-19 was unknown. This was adjusted for the subsequent waves when it was established that there was less demand for staff overnight.
50. As all "Objective Structured Clinical Examination" (OSCE) centres closed because of the pandemic, internationally educated nurses who were already with the CVUHB waiting to undertake their examination were allowed by the NMC to work temporarily as Registered Nurses.
51. Enhanced overtime rates (double time) for registered nurses and HCSWs were offered to address workforce gaps. Additional Welsh Government (WG) funding for the Covid-19 response was used in part to resource the recruitment of an additional 279 staff across all clinical boards to assist with the additional workload and backlog caused by the pandemic. By March 2022, 156 of these staff had been appointed (56% of total numbers required). This funding was a combination of recurring and non-recurring monies.
52. The Kickstart Scheme enabled the employment of 160 young people on 6-month placements from March 2021 to November 2022. 51 of these were successfully

employed within the UHB in various roles such as Housekeeping, Medical Records, Health Care Support Workers, and Administration in departments such as Clinical Governance, Equality, ECOD, Patient Experience, and Gastroenterology. The remainder gained key skills to enable them to gain employment in other organisations.

Practical effects on the hospital of redeploying staff

53. One consequence of redeploying staff to deal with Covid was that other services could not provide their usual range of services. This likely impacted on the health of the population more broadly. Elective surgery was cancelled/rescheduled at short notice and we adhered to the Federation of Surgical Specialty Associations' guidance on surgical prioritisation (level 1 for emergencies to level 4 for routine care) [see further below, para 224 onwards] to deliver surgery as effectively as possible.
54. The University Hospital Llandough (UHL) and St David's Hospital were also affected, as some UHW patients were moved there in order to increase Covid capacity at the acute site. These hospitals then needed to find additional staff.
55. All redeployed staff required training, induction and supervision which increased the workload of the established staff. There were well established training sessions developed by the medical education department and different departments also put on sessions. These included PPE (donning and doffing), fit testing, the management of Covid-19 patients and proning.
56. Some staff who were redeployed felt they did not have the necessary skills, which impacted on staff morale and well-being, especially during the latter waves. Some did not feel fully prepared for the stress and the difficulties they witnessed and this, combined with uncertainty over redeployment, led to some absences.

    Where a nurse or other healthcare worker raised a concern about their re-deployment, they were offered support for their well-being. Guidance was developed for senior managers on how to support staff well-being and workshops were held where managers could discuss the types of concerns being raised and explore how best to provide appropriate support. Various services and resources were developed, including some developed with the input of a clinical psychologist. Services and resources included a collaboration between the Employee Wellbeing Service (EWS) and psychology services to provide rapid access to talking therapies (with a telephone service 12 hours a day, 7 days a week in the initial months) and drop-in sessions with the Head of Occupational

Health and the Lead Counsellor for EWS and clinical psychology trainee. Chaplaincy services were also available throughout. Where the member of staff raised a concern that they felt they did not have the necessary skills to perform the role assigned to them, this would be discussed with the relevant manager and steps would be taken to assess and reassure the staff member or provide additional training or if necessary re-allocate the staff member to a different role. However, any concerns about performance would normally have been picked up and dealt with by managers in accordance with usual practice. For some staff, the length or frequency of redeployment was a concern and discussions were held between managers and Trade Union representatives to agree principles for redeployment.

57. By way of an example of the impact on wellbeing, in critical care, staff referrals for formal professional clinical psychology support in the 5 years prior to the pandemic were an average of 24 per year (adult and paediatric critical care combined). In 2020 the number of staff referrals was 71, in 2021 a further 95 referrals were received, in 2022 it was 67. Problems included stress, fatigue, burnout, anxiety, and post-traumatic stress disorder. Many of those staff needed to take time off sick. We took steps to mitigate this – see below paras 252-276.
58. Another example of this is the redeployment of podiatrists to work as healthcare support in providing personal care to Covid-19 patients in the Lakeside Wing when it was opened as a surge in the second wave. Some felt that they received limited training for unfamiliar work and some felt unprepared for the level of patient morbidity which proved to be upsetting.
59. Some nurses were being asked to move on a daily basis. The specialist acute nurses who were allocated to the highest level of risk wards i.e. Covid wards were moved less and worked as a team. However, nurses with less experience of acute care were frequently moved into unfamiliar areas. These nurses and clinical nurse specialists supporting general wards, reported high levels of stress and were concerned about making clinical errors and potentially putting their NMC registration at risk. The support offered is described in paragraph 56 above.

    In addition, there was a rota of Senior and Lead nurses available on the wards supporting staff and patient care. There was a rota of Directors of Nursing out of hours for any concerns/patient incidents to be raised and staff were encouraged to raise concerns. The NMC and the four Chief Nursing Officers issued a letter in January 2021

about working outside of scope, and reassured nurses that they would take account of the context and environment in which registrants were working.

60. During the first wave in March 2020 when we first asked for volunteers to be redeployed, there was a lot of support from staff willing to be moved to support high risk areas. As time progressed however, through the second and third waves, nursing staff became increasingly unhappy with the requests to be moved away from their team, their specialty and the place they chose to work to areas which, inevitably, were understaffed.

The impact of long Covid on staffing capacity

61. It is likely that some staff suffered from long Covid during the first wave, but as it was not recognized as a condition until the second wave, we have no data on it for this period. In the second and third waves, after it had been recognized, it was still difficult to quantify and therefore to identify staff suffering from it and help them manage it. Some staff certainly did experience symptoms of long Covid, which of course impacted on their well-being and morale and often meant they were unable to work to full capacity or at all. Overall, 113 members of staff reported absence due to Long Covid between March 2020 and June 2022, and 29 members of staff left work due to Long Covid during that period.

Impact of deaths of staff members from Covid-19

62. During the pandemic the Health Board sadly lost six members of staff who died following contracting Covid 19. Three of the members of staff who died worked at UHW, one was a surgeon, one a theatre assistant and one a nurse. The Chair wrote directly to the families of all staff with our condolences and offering any help that we were able to provide.
63. The death of staff members from Covid-19 was traumatic and emotional for their colleagues. Seeing the number of healthcare professional deaths escalate across the UK in the first wave was difficult for people.
64. Line Managers often had to keep both the families of the deceased and staff and colleagues updated and were also involved in inquests which was distressing for all concerned. They were anxious about the health and well-being of their other members of staff and felt responsible for them.

65. It was also particularly difficult for staff who had worked alongside the deceased or who had treated them in their illness.
66. Employee Wellbeing Services linked in with the managers and senior managers of the areas affected to offer advice and guidance on how to support staff affected by the loss of a colleague.
67. There was support available from colleagues in the psychology department if required. The Patient Experience/chaplaincy team also provided support to staff.
68. With the consent of the next of kin, we live streamed funerals on multiple sites, sometimes in several places to allow colleagues to observe the funeral service and pay their respects in a safe, socially distanced manner. If the family requested the support of a hospital chaplain at the service, this was available.
69. As part of the UK response to the pandemic. the Welsh Government introduced the Coronavirus Life Assurance Scheme. In the event of a staff member dying in the course of Covid-19 related work, the Welsh Government made a lump sum payment of £60,000 to their estate. The payment was made regardless of whether an individual had in place their own life insurance or was a member of the NHS Pension Scheme. Individuals who were actively contributing to the NHS Pension Scheme were entitled to death in membership benefits, including life assurance and family benefits. The scheme provides a lump sum and pension benefits to eligible dependents.

Staff vaccination

70. The CVUHB developed an information report that was updated on a daily basis, showing staff uptake across the Health Board as a whole. There is no information specific to the UHW site but it captured information on each of the cohorts that were determined nationally by the Joint Committee on Vaccination and Immunisation for vaccination (healthcare staff were captured within cohort P2.2) and included total numbers for each cohort, and % vaccinated. Alongside the Health Board's information report, vaccination uptake statistics for all Health Boards were published frequently during this period by Public Health Wales' Rapid Covid-19 surveillance system. This showed % uptake and numbers vaccinated amongst health care workers eligible for Covid-19 vaccination (again, this was not hospital site specific).
71. There were a range of local and national mechanisms established in Wales for planning and ensuring effective delivery of the Covid testing and immunisation programme. The

issue of compulsory vaccination for staff was not a matter to be decided at a local level and it was therefore raised for national consideration via the SBAR report sent to Welsh Government following the local Incident Management Team meeting on 1 June 2021.

72. Disclosure of vaccine status by staff was also discussed nationally by the Covid-19 Vaccine Operational Deployment Group on 15 November 2021. This would ensure data on vaccination uptake was accurate, and enable the employer to make an informed risk assessment about risks to staff and patients, and take mitigation action as required. At CVUHB data on vaccination status was available with the consent of individual member of staff, and the vast majority of staff gave that consent and declared their vaccination status.
73. Within the Health Board there was a strong focus on encouraging all staff to get vaccinated with regular communications messages and ensuring it was easy for staff to get vaccinated (e.g. vaccination at different sites across Cardiff and Vale and extended opening hours).

Bed capacity

74. In the first wave, based on modelling by public health officials on the possible number of Covid-19 patients and the experience in other European countries (e.g. Italy) the Health Board designed and built a 2000-bed surge hospital, Ysbyty Calon y Ddraig – Dragon's Heart Hospital (DHH) - inside Cardiff's Principality Stadium. The building was completed in four weeks. A full governance and project management structure was developed. All professional groups collaborated on identifying the model of care and Standard Operating Procedure for field hospital beds. The hospital was built in response to the reasonable worst-case scenario projected, both to answer to local Cardiff & Vale need, and (in discussion with Welsh Government) as wider resilience for Wales as national backup in case there was additional unmet need in other Health Board areas. The original modelling for the pandemic from Welsh Government identified a potential gap of 2000 available beds and the DHH was therefore built with a 2,000 bed facility. This was later reduced to 900.
75. A Transfer of Care Team was established to identify everyday patients that were suitable to move to a different model of care i.e. Community Hospitals and/or DHH. A full induction pack was developed for staff working in DHH, all staff groups were deployed on a patient need/number basis. Workforce Hub, Nursing and Medical Hubs and

professional groups e.g. pharmacy, AHPs and Lab Medicine were deployed by their department. A full safety briefing document was completed by each member of staff and their line manager.

76. In the second wave, an additional 'field' bed base, known as Lakeside Wing was completed and staffed to 66 beds in Feb 2021 on site at UHW. The field hospital beds in the Lakeside Wing were closed again in June 2021 and replaced with "winter pressure" beds. At this time there was unprecedented demand on NHS services nationwide. Lakeside Wing nursing staff were deployed from all areas of the CVUHB including those working in non-clinical departments such as R&D, Patient Access and registered nursing working within the corporate departments.

Effect of the Welsh Government's COVID-19 Hospital Discharge Service Requirements (Wales) of April 2020 in freeing up bed capacity

77. This issue principally affected the community hospitals rather than UHW.

ICU capacity

78. Various steps were taken to increase ICU capacity, including:

- A step wise increase in beds was planned for different scenarios, from a small number of Covid cases needing isolation all the way to mass Covid infections.
- Conversion of a number of theatres to support ICU capacity. Each theatre had capacity for three potential ICU patients but in the event these were not needed.
- Additional physical surge space was achieved by providing additional Critical Care beds in three areas adjacent to Critical Care (a cardiac ICU, a coronary care unit and a cardiac ward). Cardiac theatres and its ICU was moved to UHL to consolidate Adult Intensive Therapy/Care Unit (AITU) on one site and allow cardiac surgery to go ahead.
- This allowed an increase from a core footprint of 36 ICU beds at UHW to an area which accommodated a peak of 53 critical care beds. Unfortunately, due to increased demand for critical care since 2020, critical care is still routinely operating in one of these surge areas (Cardiac ICU remains at UHL) in 2024.
- Patients who, under normal circumstances, would have gone to critical care for CPAP, NIV or High Flow Nasal Oxygen were admitted to the escalated Respiratory Support Unit (RSU) on the respiratory ward (B7) instead. The ICU and B7 teams worked very closely

during this period with daily meetings, initially over the telephone, and then by ICU colleagues visiting B7 in person and B7 colleagues attending ICU's lunchtime meetings. It was agreed that should a patient not improve after 3 days on ward level CPAP/ high level nasal oxygen then we would refer for possible transfer to ICU. We successfully managed the majority of patients on B7. Our data, which showed that patient outcomes were the same, was included in a research article. It is not practical to extrapolate the hospital's data, but a copy of the article is exhibited [see **MJSW/12-INQ000480973** - Barry SM, Davies GR, Underwood J, Davies CR, Lewis KE (2024) COVID-19 managed on respiratory wards and intensive care units: Results from the national COVID-19 outcome report in Wales from March 2020 to December 2021. PLoS ONE 19(1): e0294895.] There was a national pathway to manage Covid that was disseminated and implemented across every acute hospital in Wales which prioritised managing patients with Covid pneumonitis on wards rather than ICU. This was a consensus view from respiratory medicine and ICU clinical teams. The published data (from across all of Wales) showed that there was no significant difference in mortality for patients receiving CPAP managed on the respiratory wards and/ or on ICU when corrected for age and co-morbidity (ICU selected, younger fitter patients). There was a notable difference between Wales and England in this regard as many more patients in England had CPAP on ICU.

- The Specialist Clinical Board for CVUHB led the planning for increasing ICU capacity although there were many other teams involved as well, led by the Welsh Government's requirement that there must be a 100% increase in ventilated critical care capacity.

79. Obstacles to increasing ICU capacity included:

- infrastructure (including provision of oxygen to other areas); equipment (including lack of ventilators), and staffing;
- the UHW ICU historically operated at 90-95% capacity prior to the pandemic. It had been raised nationally with Welsh Government that critical care capacity in Wales was one of the lowest in the UK and Europe per head of population [see **MJSW/05-INQ000466422** - 2019 Critical Care Task and Finish Report].
- We took the approach that we needed to provide our own critical care facilities, and did not seek external support.

80. Clinicians expressed concern about operating at 100% capacity and beyond, and this being achieved by diluting normal nursing ratios. The main concern was difficulty in admitting regional tertiary patients.

Critical Care Network

81. Very few patients were transferred to other Critical Care Units. Our best available data suggests that only three patients were transferred to other Critical Care Units in the relevant period. This conflicts with the data collected by the Intensive Care National Audit and Research Centre (see para 82 below) which places the figure at nil. However, both sets of data support the contention that the figure was very low. Unlike in England, Wales's Critical Care Network is not an operational network. Although capacity was continually measured and daily conference call meetings took place, formal capacity balancing agreements were less rigid in Wales. At UHW, over capacity events were primarily managed with dilution of nursing ratios which were common throughout the whole period in question rather than patient transfers. The most diluted nurse to patient ratio reached in critical care during the period was one nurse to two level 3 patients. We are unable to provide a figure for how often this particular ratio was reached. We can say however that, with reference to CRITON, our nursing levels were stretched 65.39% of the time.
82. Intensive Care National Audit and Research Centre data from 01/04/2020 to 31/03/2021 reveals that there were no non-clinical transfers out of a total of 1,042 emergency admissions.
83. Transfers and access for ECMO (Extracorporeal Membrane Oxygenation) were reduced during the pandemic.
84. As a specialist tertiary hospital, patients continued to be transferred to UHW on a daily basis for specialist care.

Medical equipment/medicines

Ventilators:

85. Early in the pandemic a surge in patients needing ventilation was expected. Across Wales, the Critical Care Network worked alongside Clinical Engineering departments and NHS Wales Shared Services Partnership (NWSSP) to coordinate and share information on equipment stocks.
86. An inventory of all ventilators was carried out across CVUHB on 9 March 2020, classifying the ventilators according to capability, what monitoring was available, and

whether there was a suitable location for them to be used. The ventilators were classified as fully invasive (tubed), or non-invasive (face mask).

87. The list included 69 anaesthetic machines – these are usually used for ventilation under general anaesthetic during surgical operations. Their suitability for long term ICU type ventilation was limited by the design of their breathing circuits, and because some only had basic modes of ventilation available. An exercise was undertaken to purchase upgrades for the software on 25 machines to make more suitable modes available.
88. It was calculated that if all ventilators that were immediately available were put into use for Covid patients (keeping 5 anaesthetic machines back for emergency surgery) CVUHB would have had 154 ventilators available. This calculation was made in light of the situation in Italy – where patients were being ventilated manually in corridors – which suggested that the demand could be severe.
89. The Department of Health and Social Care (DHSC) in England commissioned two projects to provide supplies of ventilators: (i) to source ventilators from various suppliers and hold them in central loan stock, and (ii) a rapid ventilator "challenge" development project to design simple ventilators by industry partners. Some of the loan stock was suitable for use but the "challenge" ventilators were never deemed good enough to be put into use.
90. Clinical Engineering teams in England carried out evaluations of some of these ventilators so that learning and suitability could be shared. In Wales, a team from CVUHB Clinical Engineering department was set up at the NWSPP distribution warehouse at IP5 to centrally commission, check and kit up consumables. This facility helped track stock of loan kit and make it immediately ready for use by the final consignee.
91. UHW took delivery of 25 Aeonmed VG70 ventilators from this national loan stock around July 2020. These ventilators would have performed adequately (potentially better than the anaesthetic machines), but they had valves that would have needed autoclaving. Although they were made ready for use, and training materials provided, they were not needed, and patients were able to be ventilated on the usual machines we had in use. This was possible due to the lower incidence of ventilation needed overall, and the reduced burden on ICU from suspended theatre activity and admissions generally as a result of lockdown.
92. At the outset of the Covid response, adult ICU had 45 suitable ventilators (38 at UHW and 7 at University Hospital Llandough) which met the requirement for ventilating severe

respiratory disease. A further 9 were on Cardiac ICU. At the outset the critical care team identified a shortage of ventilators. In the first wave, this deficit in numbers was temporarily filled by central procurement by NHS Shared Services Procurement (All Wales procurement) of ventilators (VG70), repurposing of community ventilators, and anaesthetic machines. There were 7 Phillips V60 machines usually used for NIV/CPAP (Non Invasive Ventilator/Continuous Positive Airways Pressure) available to us that met ISO standards for invasive ventilation but were of lesser quality. No repurposed ventilators or anaesthetic machines were used and the V60 machines were not used for invasive ventilation.

93. By the second wave, 10 ICU standard ventilators had been delivered. These had, coincidentally, been procured as part of our ongoing replacement programme just prior to the pandemic and were delivered in two batches and available in May 2021. The old machines that were to be scrapped were instead retained to provide increased capacity.
94. Beyond this, we had explored options. There was a proposal to use anaesthetic machines, for which software required upgrading (to allow a spontaneous mode of ventilation for weaning), however it became apparent very quickly that this was inadequate and potentially unsafe. Other options that were explored included 5 oscillating ventilators (since withdrawn as this novel ventilation mode has been shown to be harmful). We also looked to small Breas ventilators that were procured via Welsh Government (Breas Vivo 55) and that we had available in stock in the hospital (Breas Vivo 50, 23 immediately available). Patients would be able to step down onto these machines, however they were not suitable for acutely unwell patients.
95. In summary we were unable to meet our WG statutory requirement to safely double capacity from an equipment perspective within 96-hrs (also a GPICS requirement). The need to ventilate a greater number of patients than we did in wave 2 would have led to compromises and risks to patient safety. However this was not needed as the need for patients to be ventilated was lower than had been initially predicted.
96. Physiotherapists in the Home Ventilation team were tasked with increasing stock levels of consumables for non-invasive ventilation machines (connectors, tubing & masks). This was difficult to source and many companies were contacted to find suitable alternatives, however we were able to provide the ventilation required for the patients at UHW.

CPAP machines:

97. In March 2020 inventories of CPAP stock were taken and shared with Welsh Government for every Health Board. In UHW we had extra stock from NWSPP but supplies were good until the Philips FSN notice came into effect as described below. Although there was increased use of CPAPs they were not as critical a resource as ventilators, and in general there were no shortages.
98. Unrelated to the pandemic, a field safety notice was released on 23 June 2021 regarding Philips ventilators (approx. 150) and CPAPs (thousands). This caused a significant resource drain to action the safety notice. This also led to a significant shortage of CPAPs being issued and disruption to services.
99. Physiotherapists working within home ventilation team were involved in ensuring availability of CPAP circuits with appropriate use of filters. A considerable amount of time was spent procuring these items and making up suitable circuits in readiness.

Oxygen:

100. The National Collaborative Commissioning Unit (NCCU) developed a dashboard for Covid-19 which included capacity and usage of the oxygen piped supply. WG led prioritisation of oxygen supplies and negotiated with the supplier (BOC) across Wales to secure supplies.
101. As we were planning to be ventilating patients in areas outside ICU, an assessment of piped oxygen and air provision (both are essential to run most ventilators) was carried out in those areas. Assessments of predicted use showed that the existing system would have sufficient overall quantity, but that there would be problems with delivery. Locating piped oxygen and air sites in the hospital was a challenge. Some bed spaces had plugs for air but no connection behind the wall.
102. Therefore, a new oxygen storage facility (vacuum insulated evaporator – VIE) was obtained for UHW, at the Children's Hospital for Wales (which shared a site with UHW), and a new oxygen pipe was fitted to floors 6 and 7 and the High Consequence Infections Diseases Unit initially, with an extra pipe run to the Lakeside site in autumn 2020 as part of the construction work. During the pandemic no supply issues regarding piped oxygen were encountered. However, later in the pandemic, when normal services were resuming, it became rapidly apparent that there were issues as the oxygen ports were breaking and expelling gas and we had to move patients on three occasions

(specifically on the gastroenterology and respiratory ward on the 7th floor and for patients requiring CPAP on Heulwen ward).

103. Some types of oxygen cylinders were difficult to obtain. This made provisioning field hospitals very challenging, although for the Dragon's Heart Hospital, a VIE was obtained and pipework installed to deliver oxygen to the bedside in most locations. Oxygen concentrators were procured from NWSSP to equip rooms in Dragon's Heart Hospital that could not be piped.

104. Although there was initial concern that there would not be sufficient oxygen available, an adequate supply was maintained through all waves.

Renal replacement therapy machines:

105. There was an increased demand for renal replacement therapy (consumables usage increased 40% against the average for the previous 3 years). There was a shortage of haemofiltration fluid in Wave 1. We managed short supplies by giving the minimum effective treatment, i.e. treating patients as if their body weight was 50Kg. Thereafter there were no significant issues with obtaining consumables via our normal supplier (Baxter Healthcare). Additional renal replacement machines were obtained via the contracted supplier (Baxter Healthcare) and, internally, via the UHW Renal Unit.

106. Haemofiltration fluids and filters had a shortage alert in April 2020. Alternatives were considered, alongside reducing rates and increasing the threshold for starting haemofiltration. Filters were used for 96 hours instead of usual 72 hours to conserve stocks. For the fluids, manufacturers ended up allocating stock based on historic usage (significantly below new demand) and mutual aid was used between NHS Wales hospitals to maximise stocks available.

107. Prismaflex machines (only used for plasmapheresis in the renal unit) were moved to support critical care, a further device was also moved from Aneurin Bevan University Health Board as it was not used there. Daily calls were set up between the renal network, critical care network, UHW renal team and critical care team to review overall stock levels of consumables and equipment versus demand across Wales as stock levels were predicted to be low. However, as there is no universal machine or consumables in use across the regions this did not take place. There were also discussions between the renal unit/critical care and the UK Kidney Association to look at alternative treatments for acute kidney injury such as peritoneal dialysis if demand

increased. That pathway was utilised in England but not enacted in Cardiff as demand stabilised.

108. Although there was an adequate number of machines, we experienced the effect of the global shortage of disposable circuits used on these machines. Consideration was given to using haemodialysis machines as an alternative, but these require specially treated water from reverse osmosis and ultrafiltration plants. For kidney dialysis units these plants are usually large and incorporated into the building, but small individual units for home dialysis are available. There was only one spare reverse osmosis unit available which is kept as a standby spare for home patients. That coupled with the fact that ICU nurses would be unfamiliar with the haemodialysis machines meant this option was never utilized.

Other medical equipment or medicines:

109. Overall procurement of medications was challenging, with limited supplies available. The problem was mostly managed through a multidisciplinary team approach and ensuring that medication was restricted to the conditions that required it the most (if there were no suitable alternative), restricting access criteria or length/dose of treatment. Priority lists were drawn up locally and nationally and C&V pharmacy procurement reviewed stocks of these identified medicines twice daily. There was a national stockpile of certain medicines which was fed into the system at certain times. The purchasing of imported or unlicensed stocks did eventually lead to some wastage as demand was not as high as envisaged or the original licensed product became available (which was safer to administer). Regular changes to treatment pathways (based on latest evidence) also led to certain drugs being no longer required and supplies purchased going out of date. The pharmacy procurement team locally and nationally were a valuable 'behind the scenes' team who kept CVUHB supplied with stock of medicines in challenging dynamic circumstances. Where products had been procured which were subsequently wasted, this was because at the time it had been deemed essential to have significant stocks.

110. Weekly national Covid medicines shortages meetings were established to update on expected shortages and national strategy in response to them. Stock holding of key medicines were reported into Welsh Government/NWSSP and levels published via the All Wales Therapeutic and Toxicology Centre allowing hospitals to make use of 'mutual aid' by sharing medicines. In 2021, a new national pharmacy system (WellSky) was installed so all sites in Wales could view each other's stock holdings allowing mutual aid.

St Mary's Pharmaceutical Unit (C&V) and CIVA@IP5 (NHS Wales Shared Services Partnership's medicines preparation service) focused on manufacturing pre-filled critical care medicine syringes to support stocks of high demand medicines (as well as reducing nursing time needed to make injectable doses).

111. Issues were reported to the Medical Equipment Group. From their Minutes we can see the following:

- A shortage of 50ml BD syringes was reported and an alternative syringe identified. The impact would have been that we would have had to rapidly reprogram approx. 1,000 syringe drivers/pumps to enable them to accept the alternative syringe.
- A shortage of supply in tympanic thermometers led to the issuing of non-contact thermometers on a Health Board level. The decision on what thermometer to issue was down to the clinical team requesting the equipment. These were not recommended by Clinical Engineering for a number of reasons.

112. The restriction placed on moving between certain zones within theatres restricted access to equipment that would otherwise be shared.

113. Due to diversion of resources from Clinical Engineering in response to the Pandemic, there were delays in the planned maintenance schedules of a large volume of medical equipment.

114. As part of the various clinical area moves during Covid, additional monitoring was needed and this was redistributed from other areas as required.

115. Contingency plans were put in place should there be a shortage of feeding pumps for enteral feeding. Staff were trained on bolus feeding and sufficient stock was available.

116. Additional consumables were purchased at the beginning and throughout the pandemic. This included increasing stock of tracheostomy tubes, tracheostomy consumables and equipment relating to airway clearance e.g., cough assist tubing.

117. During wave one there were supply issues of core ICU sedative drugs (propofol/alfentanil). Non standard alternatives were substituted.

118. Most critical care medicine, palliative medicines and Covid-19 treatment/symptom relief medicines had supply issues at certain points of the pandemic. As the rapidly set up clinical trials started producing positive data this drove the prescribing of treatments for Covid-19 which subsequently led to shortages. However, stocks of critical medicines on ICU were manually monitored to manage their availability and ensure that all patients received the treatment indicated, which sometimes meant

giving alternative medication where appropriate. As a result, no patients were left untreated. Further, there were no acute shortages of any drugs used for the treatment of Covid-19 such as dexamethasone, remdesivir and IL6Ras. This enabled patients being treated in accordance with trial evidence and national guidelines as they became available.

119. Neuromuscular blocking agents (specifically cisatracurium and atracurium) had intermittent supply issues throughout the pandemic though significant reduction in elective procedures aided stock levels. The potential shortage was discussed nationally, and other NHS Wales sites opted to use alternatives such as rocuronium, pancuronium and vecuroium. We continued to use atracurium, which we purchased from other hospitals no longer using it alongside importing it from the USA.

120. Lorazepam shortage required use of alternative benzodiazepine.

121. There was national allocation of stock of remdesivir (initial treatment for Covid) – and a mandated 5 day course maximum to preserve stock, although some clinicians were reluctant to stop treatment at 5 days. The criteria for use changed multiple times based on emerging evidence and stock availability but we were always able to comply with national guidelines, by ensuring this drug was kept in stock at the pharmacy and was only issued on a named patient basis.

122. The use of corticosteroids for Covid-19 grew in importance during the pandemic with supply becoming a concern for Covid-19 treatment and other health conditions (e.g. flare of multiple sclerosis). We decided to withdraw stocks of methylprednisolone from clinical areas (with hydrocortisone, dexamethasone and prednisolone supplied as alternative) to control and maintain stocks. This was partly successful though we did experience a shortage of methylprednisolone where alternative corticosteroids were used at equivalent doses.

123. The Interleukin 6 (IL-6) receptor antagonists (tocilizumab and sarilumab) demonstrated benefit in Covid-19 which resulted in a maximum order limit being enforced by the manufacturer to try and maintain national supplies. As an identified tertiary centre providing CAR-T we negotiated with the manufacturer to agree separate stock availability for this indication resulting in no delays for patients requiring CAR-T treatment.

124. Propofol of all strengths (used to maintain sedation and in theatre) was challenging to source, so second line sedation was used if needed (morphine/midazolam).

125. A large quantity of infusion devices was purchased, but these were kept back from main circulation due to them being a different model of pump compared to that most CVUHB staff had been trained on. This would have been a high risk even in normal circumstances, but given the chance that staff using them would be under extreme pressure or untrained we held them back unless the situation deteriorated to the point where there was no option. A small quantity of these pumps was released for the field hospital and very limited and contained use in areas where they would not enter normal circulation. It was agreed that gravity sets (drips) were a safer option than untrained staff using unfamiliar pumps. Therefore in situations when the usual infusion device was not available, gravity sets were used in order to mitigate the potential risk of using an unfamiliar model of pump.

126. Equipment was purchased centrally via NWSSP for distribution across the Welsh Health Boards. CVUHB Clinical Engineering department led a team to commission the purchased equipment so as to be ready for rapid deployment.

127. Clinical Engineering organized redistribution of equipment across the Health Board to enable the changes to clinical areas.

128. A global material shortage supply impacted the supply of physio equipment. The proposed solution was to bulk purchase equipment to ensure a consistent supply.

129. Critical Care to some degree experienced delays in obtaining some consumables, ventilator circuits (via Flexicare Medical) was one notable example. To mitigate this, at departmental level, we identified a list of consumables that we could safely extend the use of (e.g. in-line suction catheters were extended to 7-day use rather than the usual 72-hour period), therefore decreasing our usage and demand.

130. Ophthalmology photo-dynamic therapy treatments were cancelled due to shortages and the available stock used for cancer services.

Private healthcare sector use

131. We did not increase staff capacity by drafting in staff from private providers however, The Welsh Health Specialised Services Committee (WHSSC) led a national programme for commissioning services from the private sector, with each local Health Board having a designated centre. For CVUHB, this was the Spire Hospital in Cardiff (Spire) to whom we referred patients for some elective treatment and / or investigation

(e.g.endoscopies). The procedures had to be staffed in part by our medical staff as Spire did not have the necessary operators.

132. We also used Spire to provide outpatient capacity for some of the acute Ophthalmology (age-related macular degeneration (AMD)) and Breast Cancer screening services.

133. There was no IT connection between NHS and private healthcare which made several tasks difficult.

134. The Protected Elective Surgery Unit at UHW (see below) was created to support treatment of cancer and life-threatening conditions and later supported the provision of safe elective surgery. The Unit used private healthcare facilities at both Spire and another private healthcare provider, St Joseph's Hospital in Cwmbran, to carry out some additional surgery.

135. Where services were commissioned by WHSSC, invoices from and payments to Spire were processed by WHSSC, having first gone through an audit process to ensure payment was for actual cost. CVUHB did not receive the invoices but did receive a periodic summary of expenditure. Where services were commissioned by CVUHB, (i.e. the arrangement with St Joseph's), invoices were processed by CVUHB.

Infection Prevention and Control

IPC guidance

136. We followed the national guidance on Infection Prevention and Control (IPC) over the majority of the period, although there were certain occasions when we departed from it.

137. There were times when our infrastructure necessitated deviation from national guidance and the development and implementation of local policy.

138. Other examples included:

a. At one stage, in critical care, face visors were reused to conserve supplies. Each member of staff would have one visor for a shift, which would be cleaned on leaving the clinical area and reused when reentering the clinical area. The visors were kept for one shift and not shared between staff.

b. Another example related to mask wearing. Unilateral decisions (prior to receiving guidance) were taken that both patients not in their beds and all staff in all areas of the building should wear masks at all times.
c. Later, ongoing use of FFP3 masks continued despite changes in national guidance, due to local concerns around staff exposure to unidentified cases of Covid-19.

Dissemination of guidance:

139. Early in the pandemic we used the Covid-19 operations morning meeting to disseminate IPC advice. As the pandemic continued a formal IPC cell was created This multi-disciplinary group was chaired by the Executive Director of Nursing (or their deputy) and membership included senior members of the IP&C nursing team, Consultant Microbiologists, Infectious Diseases Consultants, communications specialists, and members of the patient safety team. Any information that required sharing from the IPC cell was added to the Covid-19 intranet page and a communication briefing would be shared across the organisation as all-staff emails, in CEO Connects and on the Staff Connects app. The app was introduced during in the pandemic. There were daily CEO publications for Covid updates and weekly CEO updates for wider communications, including public facing communications. A member of the communication team sat on the IPC cell to oversee rapid and accurate dissemination of advice.

140. Information was communicated to staff in a number of ways – by email, Facebook groups, displayed on department walls and in staff rooms, etc. Information was also communicated verbally by the IPC nursing team, who spent time on the ward and clinical areas relaying the changes, and the medical microbiology team who provided advice via meetings and through clinical contacts with ward teams.

141. As frontline staff were busy looking after patients and not accessing emails, we were reliant on lead nurses and ward sisters/charge nurses verbally communicating changes.

142. Daily or weekly updates were shared as a news update to staff to try and keep up to date with changes.

143. In ICU, information received in emails by Senior Staff was disseminated widely to the ICU team utilising Whatsapp. The Critical Care Network set up All Wales

Whatsapp groups to share information. One of the ICU Consultants took the lead in relation to IPC issues and ensuring the guidance was followed. Posters were used in staff areas to disseminate information. Local daily meetings were held to discuss updates and strategic planning. A critical care email address was set up to allow staff to submit questions.

Difficulties in dissemination and implementation of guidance:

144. The main difficulty was the amount of guidance and information being disseminated to us as an organisation, in a variety of ways and from a variety of sources, so that it was challenging to assimilate, disseminate and implement this in a timely manner. Guidance changed very frequently (occasionally more than once a day), and often guidance was issued out of hours or late in the week which added to the challenge.

145. There were often conflicting opinions from staff who accessed the PHW information prior to it being disseminated within the organisation, until the IPC cell could formally interpret and distribute the information widely across the UHB. The guidance received by the Health Board was considered by the IPC cell to clearly interpret the information in order to reduce ambiguity and to ensure that the communication was relevant and meaningful to all levels of staff within the UHB.

146. The frequency of change was challenging from a senior and lead nurse perspective and caused confusion and anxiety at times.

147. Pathways and flowcharts were being created every day or couple of days with different versions being taken down and put up almost on a daily basis.

148. The fact that the national guidance changed so often led to a lack of confidence in some of the guidance. In areas where staff were expected to just wear a face mask, staff were not comfortable with that especially in the first months of the pandemic before vaccinations were available and before the disease was really understood.

Difficulties due to physical condition and layout of hospital:

149. It was challenging and sometimes not possible to implement IPC guidance due to the hospital infrastructure, particularly in parts of the hospital where the footprint of the hospital estate was inadequate pre-Covid-19.

150. The number of single rooms and cubicles was not always adequate to enable isolation of Covid-19 positive patients. This meant that patients were cohorted and areas had to be designated as Covid-19 or non-Covid-19. We therefore adopted a colour scheme as follows:

Red Stream	Confirmed C19 +ve	Has had +ve test in past 14 days
Purple Stream	Suspected C19	Symptomatic, not confirmed
Amber Stream	Non-Covid	Asymptomatic, has not self isolated e.g. emergency
Green Stream	Covid free	Asymptomatic, meets green stream criteria (e.g. self isolated for 7 days)
Blue Stream	C-19 Recovered	>14 days post confirmed +ve

151. This cohorting led to inefficient use of space and staff by reducing flexibility as to where patients could be cared for. Our ward layouts and the speed at which the situation changed (patients might be negative and within an hour test positive) meant that there had to be constant changing of wards status (that is, wards/areas would be changed (flipped) from one colour stream designation to another depending on pressure on beds in the hospital and the Covid-19 modelling forecasts – for example if there had been an increase in positive community tests in recent weeks we expected to see an increase in admissions and therefore anticipated we would need another red zone). This was time consuming for staff and had an effect on patients as well, impacting on continuity and quality of care.

152. There were no on-ward staff changing facilities.

153. We had limited control over entrances and exits for staff/patients/visitors.

154. The hospital has no formal ventilation apart from a very small number of isolation rooms in some specialist services (e.g. bone marrow transplant). This meant that only natural ventilation (open windows and doors) was available which made it difficult to comply with IPC guidance in weather extremes. The ward environments

were very hot and this increased with the use of PPE. The use of fans was not possible as it was seen as risk of spreading infection.

155. On becoming aware of different variants, the IPC advice was to not mix strains, which presented a further challenge, and early on rapid genomic testing was not available.

156. There was insufficient space overall to enable social distancing guidance in many areas. In some situations, this resulted in relatives being asked to leave which caused issues; additional private security support was acquired to help manage conflict around this.

157. In the Emergency Unit ("EU" or Accident & Emergency), some really rapid decisions relating to infrastructure and patient flow were made before March 2020. The adult fracture clinic was moved to UHL, and the children's fracture clinic to the children's hospital, to expand the adult EU footprint, which allowed us to keep two separate streams of patients (suspected Covid-19 and non-Covid-19) safely open in the first wave, at least. The paediatric emergency stream also moved to the Children's Hospital. There were some challenges with this although overall it helped increase capacity and supported keeping waiting areas safe. As demand increased and flow through the EU became more challenging in the later stages of the pandemic, the waiting area became more crowded and we had to introduce an escalation policy to address this. Stickers were placed on chairs to try and limit use and maintain social distancing however this was not deliverable due to the volume of people within the footprint of the emergency department.

158. Critical Care Units are recommended to have 20-50% of beds as single/isolation rooms. UHW Critical Care had 7%. This meant that cohorting of Covid-19 positive patients was required through the entire period. At times this resulted in inefficient use of beds, and loss of total capacity, e.g. when just 2-3 beds out of an 8 bedded cohort bay were in use. Critical Care Units are recommended to have 10 air exchanges per hour. Due to the age of the Unit, it has not been possible to determine how many air exchanges UHW Critical Care Unit has.

159. At Children's Hospital, the need to stream/cohort meant that we could not transfer patients from ward to ward or from ward to outpatient area to enable access to assessment/treatment areas. For example, the multi-function room, plaster/splint room and two gym spaces were re-assigned to the paediatric trauma team (relocated from the adult Emergency Unit) and were therefore unavailable for use, as were the

playrooms on the wards. This meant that occupational therapy assessments and treatments had to be done at the bedside which was at times difficult and unsafe.

160. Children's Critical Care had two double cubicles which did limit total capacity available for isolation in critical care.

161. Some tertiary/specialist services could not be zoned, which presented a risk to patients.

162. The in-patient gynecology ward continued to provide an outpatient emergency clinic and early pregnancy service, so that there were inpatients and outpatients in the same area.

163. In radiology, ward patients with Covid-19 transferred to the department were required to go straight into the examination room and not left waiting in corridors, as due to the layout we could not have separate waiting areas. This could cause delays to other patients. There were incidences of challenges in providing interventions where patients needed to be moved to side-rooms to provide intervention, or individual risk assessments required to determine the risk of not providing the intervention as compared to the risk to surrounding staff and patients, however no interventions were stopped as a result of such a risk assessment.

164. Management of medicines at ward level in Covid-19 areas was challenging - especially for aerosol generating areas where the decision was made to keep the medicines in a cleaner area to prepare doses etc. The rapidly changing layout sometimes made delivery and storage of medicines very challenging. Seating was removed in the pharmacy outpatient waiting area.

165. The new layouts and zoning affected staffing in a number of ways. There were inefficiencies due to separating Covid-19 negative and positive patients as staff would be allocated to a zone (i.e. red) and could not then cover a ward in another area (i.e. green) if that ward needed more staff due to increased patient numbers or staff being off sick. In addition, staff who moved from ward to ward could not move from other zones to green zones, reducing efficiency. For example, radiologists doing Doppler ultrasound scans on the wards could not move from amber to green zones. They would therefore do the green zone scans first thing in the morning and then move to amber and not be able to return to the green zone that day. This sometimes caused delays or cancellation of scans.

166. In December 2021-January 2022, patients started to present with flu which increased complexity owing to the need for two separate patient streams. People

who had flu and Covid-19 together had poorer outcomes, so were separated where possible, thought this was difficult on many wards and not possible in the EU.

Testing as an infection control measure:

167. We followed national guidelines on testing and the timeline is covered earlier. Patients in the community with epidemiological risk factors were tested and some of those attended hospital emergency departments. Staff were directed to test anyone with epidemiological risk factors from this point onwards. The requirement for epidemiological risk factors was removed as per the Chief Medical Officer's directive on 13 March 2020. Routine asymptomatic testing of hospital inpatients was done on admission from May 2020 and then expanded testing repeated on days 3,5,7 was introduced from February 2021 principally as an IPC measure.

168. Routine asymptomatic staff testing using lateral flow devices was introduced as per the Welsh Government directive on 14 Dec 2020 having been piloted in a smaller number of areas prior to this. Once introduced, staff testing was suggested once per week. When the omicron variant began circulating there was guidance to increase this to daily but as reporting was centrally and not CAVUHB specific, it is difficult to be certain of the degree of staff compliance with this.

169. As an infection control measure asymptomatic testing was done as per national guidance for discharge from hospital to vulnerable settings following the Welsh Government directive on 22 April 2020.

170. Testing pathways were constantly monitored to ensure delays were minimised. Test turnaround times were monitored and optimised and mitigations put in place so that onward transmission was minimised whilst results were awaited. Where there were individual cases of delays in test results being communicated, these were looked at in detail, but the numbers were small relative to the volume being tested.

171. Clinical boards were able to prioritise staff for testing if needed, based on whether the test would enable the individual to return to work and how critical that individual was deemed to service provision.

172. Specific patient cohorts were tested on "rapid platforms" and the eligibility was regularly reviewed, examples included admissions to the bone marrow transplant unit.

Nosocomial outbreaks of Covid-19 infection:

173. In March 2020 there was identifiable transmission of Covid-19 between Critical Care staff who were attending meetings to prepare for Wave One. Testing was not widespread at this time, and this was before the national lockdown so there was no guidance in place to prevent or respond to such outbreaks. Covid-19 affected the workforce before national restrictions had been put in place, and the consequence of this was that as the first wave hit, the Critical Care Lead Clinician, Lead Nurse and Clinical Director were taken ill and unable to work/lead at a critical time. A system of deputies and distributed leadership significantly mitigated this.

174. Nosocomial outbreaks of Covid-19 in patients was low in the first wave, then higher in the second wave. Guidance was issued about cohorting patients, but because of the lack of options due to the UHW infrastructure, this led to an increase in nosocomial infections because of patients moving in and out of cohorts. Nosocomial infections also increased in the second wave as more high consequence/urgent elective work was undertaken and some patients contracted Covid-19, even if this was not the cause of the admission. Although there were more infections, the outcomes were better because more patients were immunized.

175. During the first wave of Covid-19 the Health Board experienced a lower hospital attendance. The second wave saw an increase in attendance leading to greater hospital activity, including facilitating elective services to resume. This, coupled with the easing of lockdown measures, saw a rise in prevalence of Covid-19 with larger volumes of acutely unwell patients presenting to and being treated within the healthcare setting. Ageing estates with a limited number of isolation rooms was also a contributing factor, especially when considering the isolation rooms needed to be managed in line with Covid-19 and other prevalent infections circulating at the time. Outbreaks at times were initiated and noted to be a challenge to manage, particularly when managing patients with cognitive impairment, partly due to the estate and staffing ratios. As the second wave began lessons were still being learned regarding the nature of the Covid-19 virus and its pathology. An example of this was our understanding of asymptomatic carriers; patients who tested negative on admission and placed into negative bays who then tested positive on days 3-5.

176. The roll out of vaccinations commenced in December 2020; this was initially offered to a limited cohort of the people at the highest risk. Despite the introduction

of the vaccine and the availability of treatment for Covid-19, we continued to make every attempt to minimize nosocomial infections.

177. Dedicated Personal Protective Equipment (PPE) and Infection, Prevention and Control (IPC) cells were established. Members of the PPE cell were tasked to recognise and respond to changes in PPE requirements and manage the availability of stock. The IPC cell met daily, led by the Executive Nurse Director, or appointed deputy, to respond to changing guidance, provide oversight of emerging infection and outbreaks. This was underpinned by a specialist IPC Team who triangulated incoming data sources into the Health Board appraising changes, reviewing community prevalence and forecasting. The IPC Team met with the Operational Team twice a day to track and control infection throughout the Health Board, as well as working in partnership with Public Health and Health Protection colleagues to provide support to care homes and HM Prison Cardiff in managing outbreaks aiming to minimise admissions.

178. Enhanced cleaning was in place across the Health Board, with mask wearing for all staff throughout the building and for patients who would tolerate their use. Donning and Doffing stations were introduced at each point of access to each area. A 'Safe to Start' briefing commenced at the start of each shift, reviewing staff wellbeing, staffing levels, changes in IPC guidance and changes in patient status (symptoms/testing).

179. A regular communication package was adopted through a number of avenues to all staff across the organisation and the public.

180. The Patient Safety Team were tasked to identify themes and trends to outbreaks, feeding this back through the Executive and Operational Teams. As a result of this approach, the Safe 2 Move Framework was developed and implemented throughout the whole organisation.

181. Each outbreak had executive oversight and was managed individually to meet the need of each clinical area and its speciality, ensuring the needs of the patients were met. A baseline action plan was collated to ensure consistent outbreak management, which would then be tailored to the individual needs of an area. Genomic sequencing was undertaken and sequences from specimens were reviewed to help track the spread of the Covid-19 virus.

Personal Protective Equipment and Respiratory Protective Equipment

182. Initially staff were concerned about the availability of PPE and advice on when it should be used; the preference was for the fullest use of protection as possible. This conflicted with national guidelines that had to balance the supply of PPE for a prolonged period. The organisation's stores of PPE and associated process of distribution and centralization of procurement was promptly established. Requested supplies were often delivered on the same day of ordering.

183. All PPE requests were made via the NHS Wales Shared Services Partnership procurement team.

184. UHW had a central PPE repository from which supplies would be allocated according to need. This was more efficient than having many local repositories which would have required more resource. While the delivery system may have resulted in delays of PPE arriving in areas at times and there were variations in lead times as per below, UHW did not run out of required PPE at any point.

185. Between March and June 2020, the procurement team worked to identify sources of PPE internationally and in the UK and worked with the Health & Safety team to ensure that these products met the required specification. The strategic approach in the UHB was to identify specific products for single areas where possible (e.g. one particular mask for community services) and this allowed a more sustainable approach and meant that fit testing on repeated products was not required. Discussions were held with intensive care units along the M4 corridor to share supply of essential PPE, mainly masks, when stocks ran low and there were insufficient supplies for the oncoming shift. This did involve staff meeting in a carpark to exchange stock on one occasion.

186. The use of re-usable PPE (i.e. half-mask respirators) presented a problem, in that suppliers were not able to meet the increased demand for the replacement filters. We experienced long lead times or, in some cases, non-fulfilment of orders. The delays and non-fulfilment of orders did not, however, result in overly prolonged use of the disposable filters. Due, in part, to the supply issues and in part, to issues identified with prolonged use of half-mask respirators (skin damage), the Health Board decided, quite early in the pandemic, to adopt instead the use of powered air purifying respirators (PAPR). Disposables for the PAPR devices were always available.

187. The introduction of reusable PAPR "hoods" (June 2020) helped towards a reduction in the use of, and demand for, disposable FFP3 masks. The hoods and the disposable filters were generally available with little to no delay in supply.

188. The combination of hoods, half-mask respirators and disposable masks allowed for a good overall provision of respiratory protection. However, there were delays in obtaining hoods for staff who wanted to work but were unable to wear alternative masks.

189. There were occasions of substandard PPE such as gowns of poor quality and unpleasant to wear, and insufficient range of sizes available, and some masks led to the development of pressure sores on faces. Flu pandemic stock was utilized where required and the Surgical Materials Testing Laboratory provided assurance about the quality of the product where necessary.

190. There was a case when national guidance was issued about the recall of eye protection due to quality issues and breakages, which was in use across the HB. Communication was circulated that day, and the devices were removed from circulation immediately.

191. Critical Care was the highest risk area that required the greatest focus on PPE. There were no shortages of core PPE. However, reserves were often low and staff were asked to ration use of some equipment. Staff knowledge that reserves were frequently low, and a lack of confidence in re-supply sometimes meant staff could be anxious pre-shift or lead them to avoiding drinks on breaks to reduce the need to leave the clinical area. Changes to FFP3 mask types and supplies were frequent and information was sometimes slow.

192. Health Board support for fit testing was a real challenge to maintain. Internally, the Practice Educator Team provided excellent fit testing however this took up a significant amount of time and they were unable to cope with the demand, which was essential with staff unfamiliar with the environment. This team supported out of hours cover to ensure staff safety and also tested the whole multidisciplinary clinical team. In the first wave an external company was brought in to support fit. Surgery had local arrangements in place to fit test staff.

193. Quantitative fit testing equipment was procured to support fit testing in departments including theatres and ICU.

194. On occasion (particularly early on in the pandemic) a deficit of certain types of masks meant other types would have to be used for which repeat fit testing was required meaning a new process for staff training and fit testing.

195. In the first wave the daily briefings in the lecture theatre provided up to date information to staff about the availability of PPE. In addition updates were provided at daily sitrep meetings.

196. A shortage of PPE (FFP3 and respirator masks) was expected in late 2020 – early 2021 and the reprocessing of the affected single-use items was investigated. A process was developed and submitted to the Department of Health. This contingency plan was never implemented/triggered as the supply stabilised.

Visiting restrictions

Implementation of NHS Wales visiting guidance

197. The Health Board followed the NHS Wales visiting guidance and ensured, where possible, end of life visiting and carers spending time with loved ones.

198. Interpretation of the guidance as it changed was challenging and it made it difficult for the public and the organisation to ensure everyone was informed; it was a balance between risk and the emotional, physical and psychological importance of visiting and the distinction of caring as opposed to visiting. It was difficult to get this right all of the time and some of the visiting restrictions may have been too tight in hindsight

199. Frustrations were shared with the Health Board by relatives contacting their local Members of the Senedd (MSs) who in turn engaged with the Health Board.

200. Given the suspension of usual ward visiting practices across the Health Board as a result of Covid-19, the Patient Experience Team recognized that it was important to consider the ability of patients to visit, or otherwise interact with, their friends and family, whilst receiving care within a hospital ward-setting. This was especially important given the reality that patients may be inside a ward setting for a protracted amount of time and may be, in some way or another, isolated or excluded.

201. At the weekly Directors of Nursing meetings the visiting practices were reviewed. Initiatives included 7 day concerns help line, visiting helpline, virtual visiting, drop off and collection service for clothes etc.

202. The 'Virtual Visiting' project was created by the Patient Experience Team which was supported by Welsh Government through a successful bid for 280 Lenovo computer tablets. A further stock of 38 tablets was charitably provided by the Freemasons and a further 100 by the Health Charity. Tablets were allocated to all wards across the Health Board including Mental Health Services with a comprehensive pack giving instruction on how to use and facilitate calls.

203. In all, over 400 tablets were distributed across CVUHB, mostly in UHW. Each tablet was set up with Zoom for virtual visiting, enabling patients to see friends and family virtually, when in-person visiting was not possible.

204. Cardiff University School of Medicine & School of Nursing enabled some of their current students to undertake a placement as 'Patient Experience Support Workers' (PESW). The role of the PESW was to work directly on allocated wards and facilitate 'Virtual Visiting' sessions using Zoom on the computer tablets provided.

205. The tablets could access online interpreter services for language issues and patients with cognitive impairment were supported through the Patient Experience support roles to support virtual visits or phone calls.

206. The tablets were configured and digitally 'managed' by the IT&M department. The tablets were then pre-loaded with a patient-friendly suite of applications: BBC News, Zoom, WIFI lounge free magazines, a clock, games, Radio Glamorgan, TuneIn Radio and access to feedback surveys. Following the lifting of restrictions these tablets remained on the wards for staff to use for virtual visiting if required for other reasons.

207. In Critical Care, a family hub was set up by staff who were shielding and the Unit's Psychologist. This team provided regular updates to relatives and also provided support and reassurance with a friendly voice. This service also helped with the huge number of telephone enquiries to the Unit which otherwise took staff away from care.

Negative impact of visiting restrictions

208. Visiting restrictions undoubtedly had a negative effect on patient experiences and the experiences of family members/loved ones and healthcare staff.

209. In maternity there was a significant rise in negative feedback from those who were unhappy with restrictions imposed by the Health Board (as per Welsh

Government guidance). Women expected their loved ones to be around them and able to visit them and their newborn; families were angry and unhappy to be away from each other during such important events. Despite efforts from the UHW to communicate the arrangements for birthing partners to attend once the person had been transferred for intrapartum care, it was not un-common for women to be afraid that they would be required to give birth alone. There are ongoing reports that some women whose emotional wellbeing continues to be negatively impacted by their experience during the pandemic.

210. Whilst the guidance relating to visiting focused on end of life care, it became clear that there are other key moments in patient care (e.g. the birth of a child and being with a loved one when they need support) that required clarity and support.

211. In the Children's Hospital, only one parent was allowed to be with the child at any one time. This was especially hard for the children in hospital for longer periods, their parents and siblings. This did affect some family dynamics in the longer term. The Ronald MacDonald accommodation also changed their policy, and this had a significant impact for families who had lived at the hospital for a longer time, including those from west and mid Wales.

212. Patients receiving care for the medical management of miscarriage, termination of pregnancy for foetal abnormality, and termination of pregnancy for second trimester pregnancies, had to experience the procedure without the support of their partners.

213. Patients dying with no family member present and only virtual video communication was extremely distressing for everyone, including the staff.

214. Some felt that the visiting restrictions did not strike the right balance between infection prevention control precautions and the rights of patients to receive essential visiting time, and believed that this could have been managed in a more proportionate and individualised basis. An example would have been to allow a patient to have fewer visitors, but with scheduled visiting appointments and appropriate PPE.

Patient treatment and care

Management of conditions other than Covid-19

215. Two examples are provided: Surgery and Obstetric Care.

Surgery

216. At the start of the pandemic, routine elective surgery was suspended in agreement with Welsh Government and the Health Boards. At UHW routine activity was suspended in mid-March 2020. By late summer 2020, after focusing on redesigning the ward footprint, we were able to systematically provide surgical procedures according to the Federation of Surgical Specialty Associations' guidance on surgical prioritisation "Level 1-4". There was clear prioritisation of time critical surgery and cancer surgery.

217. An example of the effect of the reduction in routine work was that more patients than usual presented with bowel cancer as an emergency with acute complications of their disease, rather than through screening or after endoscopy.

218. Whilst the ward footprint was re-designed and staff were redeployed to support the care of patients with Covid-19 early in the pandemic, we focused on delivering care in external providers.

219. The aim was to maximise the elective surgery that could be safely delivered, aiming to balance provision of care in the pandemic, with the need to continue to deliver routine but high consequence elective surgery. A significant proportion of elective work was delivered [see graph at **MJSW/06-INQ000466423**]. This was achieved by dividing the hospital into two sections, with separate estate, entrances, workforce, and no link between the two areas, a strictly Covid free zone (green) separated from the rest of the UHW. There was a risk that we had less space for treating other patients, which made it harder to achieve the isolation of Covid-19 patients. In conducting our risk assessment and decision making, we took into account the consequence of infection on our population, which was later mitigated by the vaccination of staff and patients. We also took into account the relative infectiousness /virulence/responsiveness to the vaccine of the various Covid-19 variants.

220. The Protected Elective Surgery Unit (PESU) aimed to create safe clinical areas for patients during the pandemic to enable our clinical teams to continue to deliver a

full complement of elective surgery whilst minimising harm and protecting access for patients requiring emergency care. Emerging data suggested that patients faced a very high post-operative mortality following major surgery if they developed Covid-19 during their in-patient stay. We therefore needed to avoid mixing emergency and elective patients and create the appropriate environment and staff to safely continue operating.

221. Surgical services at CVUHB are split across UHW and University Hospital Llandough and a PESU was established on each site. On the UHW site, this included 8 theatres, 2 wards (55 beds) and one post anaesthetic care unit (PACU). This required some reconfiguration of wards to create a "hospital within a hospital" with separate entrances and exits for both patients and staff. The unit had strict rules in relation to access and timetabling of workforce, with a clear admissions policy. All patients were pre-assessed, isolated for 14 days before admission and tested before entry.

222. In late May 2020 we introduced phase one and created a discrete PESU in a small portion of the hospital. By June phase two was up and running with an additional ward and theatre created, delivering safe care for patients who needed the most urgent surgery and delivering cardiac and thoracic surgery in University Hospital Llandough. Phase three reintroduced elective orthopaedic work in Llandough from October and the final phase saw the new post anaesthetic acute care unit (PACU) and recovery ward open in November ready for the winter.

223. PACU which provides Elective Critical Care following Major Surgery was provided within the main Critical Care Unit in early 2020. It was displaced to create a Covid-19 cohort area. PACU was provided in a range of locations during the pandemic including within two operating theatres and the short stay surgical unit, before relocating to a specially refurbished ward (A3 Link) within the Green Zone.

Obstetric care

Antenatal care:

224. There was a significant reduction of in-person contacts as per CAVUHB version of RCOG modification to NICE Schedule of Antenatal Care for Low Risk Women. This included virtual pregnancy referrals, virtual/telephone bookings and omission of previously established antenatal contact points. All in-person appointments (in both community and hospital antenatal clinics) were conducted with the pregnant person alone, including ultrasounds. Antenatal care provided in community GP clinics was

impacted by closing and clustering of maternity care, which meant patients were often not seen in their own GP surgery. Antenatal education workshops, exercises (e.g. aqua-natal) and support classes were cancelled.

Intrapartum:

225. One birth partner would be permitted once the pregnant person was confirmed to be in established labour. The induction of labour protocol had previously allowed for a birth partner to remain for the entirety of the process. This was removed and birth partners only invited to attend once the pregnant person had been transferred for intrapartum care on the Obstetric Assessment Unit. This would often lead to periods of several days on the Induction of Labour ward, without the support of a birth partner. Intrapartum care was impacted by a reduction in birth partners from 2 to 1 per mother. The birth partner would not be permitted to enter the hospital for the initial labour assessment (lasting approximately 1 hour), and would be invited in after labour was diagnosed. The birth partner would be permitted to remain for approximately 1-2 hours following birth of the baby, then would be required to leave.

Postnatal care:

226. In-hospital postnatal care on postnatal wards had previously permitted a birth partner to remain for the entirety of their partner and baby's stay, with the addition of 2 more visitors during specific times. This was suspended entirely as per national recommendations. Prior to the pandemic community postnatal care would comprise of a minimum of 3 at-home visits (4 if breastfeeding), plus any additional as per the needs of each family. During the pandemic restrictions, postnatal home visits were avoided unless there were concerns. Postnatal care, including breastfeeding support, was delivered via telephone. A midwife would visit between day 6 and 9 of life to perform a baby weight check and new born bloodspot screening. If a mother required re-admission to hospital with her baby, this would be under the postnatal ward restrictions as described above.

Ambulance handover times

227. We exhibit as **MJSW/07-INQ000466424** graphs showing data relating to conveyances (which would all have been ambulances, the majority arriving at University Hospital Wales). The data includes total arrivals, lost time, and waiting times. It can be seen that waiting times fell from March to May 2020, then rose over

the rest of 2020, fell again in 2021 until May, and then rose to a peak in January – March 2022. The fluctuations were caused by a multitude of factors including, but not limited to, reduced capacity in the emergency department to ensure separation of Covid and non-Covid patients, staffing pressures caused by Covid, reduced patient flow through the hospital leading to reduced discharges and lower bed availability, reduced efficiency of pathways due to additional Covid requirements (e.g. additional testing and PPE), and increased non-ambulance attendances due to pressure on ambulance services.

Escalation of care decision making and rationing

228. The initial lessons learned from Italy caused concern as to capacity. Accordingly, conversations around Treatment Escalation Plans (TEPS) commenced early during the pandemic. Extraordinary RADAR (Recognition of Acute Deterioration and Resuscitation), MERIT (Medical Emergency Response Improvement Team) and resuscitation meetings were held to discuss this.

229. A document entitled "Pandemic Ethics Framework" was developed, which set out the framework for addressing treatment decisions during the Covid-19 outbreak in the surge phase and in the event that demand became greater than resource. The document was approved by the Health Board's Covid-19 Strategic Group on 30 April 2020 and a copy is exhibited as **MJSW/08-INQ000466425**.

230. The Framework document included a TEP form, which was developed with support from the Clinical Ethics Committee and implemented on 10 April 2020, with subsequent updates as required. This was communicated throughout the Health Board. The introduction of a TEP form had been discussed prior to Covid-19 but Covid-19 became the vehicle to gather momentum on the introduction of this document. No concerns were passed to the RADAR Committee about the TEP form or guidance, which may reflect the fact that these were circulated widely for comment before implementation, nor were any concerns passed to the Committee about decision-making around escalation of care.

231. There were extensive discussions about triage, ceilings of care and not escalating care that never had to be put into action; at no point were patients triaged or managed other than based on clinical need (although the recording of decisions did improve as a result of the pandemic). Escalation decisions were all made on an

individual patient basis, based on clinical need, and no escalation or DNACPR decisions were taken based on capacity. Invasive ventilation was never rationed and capacity to ventilate was always maintained. Decisions were based on individual personal circumstances and clinical need.

232. In Critical Care, normal decision-making processes were retained for accessing level 2 and level 3 care. However, almost all level 2 care for Covid-19 patients was provided outside Critical Care in an escalated Respiratory Support Unit for the defined period. Normally, patients with respiratory failure can access Critical Care when they need either NIV (Level 2), or intubation (Level 3). Due to limited Critical Care capacity, patients with Covid-19 related respiratory failure could only access the main Critical Care area at the point of Intubation / Level 3 need. Almost all Covid-19 related NIV / Level 2 care was delivered on an escalated Respiratory Support Unit (B7). Patients would be transferred to the Critical Care Unit for Level 3 care only if a trial of NIV failed. Intubation was typically undertaken in the Respiratory Support Unit by a MERIT (Medical Emergency and Intubation Team), created to support this. Therefore the criteria did not change, but the location of care did, with the majority of CPAP/NIV occurring outside Critical Care in an escalated Respiratory Support Unit.

233. Decisions around individual suitability for escalation were typically completed by a Respiratory Physician on the escalated Respiratory Support Unit (RSU) on B7 ward. The intensive care consultants visited the RSU daily to assist with multi-disciplinary team discussion for more complex cases. Those patients deemed to potentially benefit from level 3 care/intubation were then transferred to the Critical Care Unit.

234. Critical Care medical staff expressed concern that the Level 2 NIV/CPAP care on the RSU was not adequately supported in terms of staff ratios, facilities, equipment and space either to an RSU, or Critical Care level.

235. As noted earlier, in surgery, the Federation of Surgical Specialty Associations' guidance was followed for surgical priority.

236. An Early Access to Medicines Scheme laid out specific indications for the use of certain medicines such as remdesivir. Restrictions included named patient use only, and decisions for access to the medication were made by the multi-disciplinary team including pharmacy, Infections Diseases and ICU clinicians and based on the national guidance and clinical trial data available at the time.

Advance care planning forms and DNACPR notices

237. The All Wales DNACPR policy for adults was launched in February 2015. It was revised and updated in 2017. The policy was updated in November 2020 and reviewed in 2022, and will be reviewed every two years. As NHS Wales have an All Wales DNACPR policy, ReSPECT is not used. The Health Board was notified of an addendum to the All Wales DNACPR Policy in the context of the Covid-19 outbreak. "*An informed and balanced decision to withhold CPR, as has been made abundantly clear in our All Wales DNACPR Policy does not preclude the individual from other forms of treatment if they are needed, or from maximum comfort measures and dedicated care that places dignity as a top priority, and these should be continued in all circumstances*". This also coincided with the joint NMC and RCN statement regarding decisions relating to cardio-pulmonary resuscitation (CPR).

238. The All-Wales DNACPR policy "Sharing and Involving – A Clinical Policy For Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) for Adults in Wales" [**MJSW/09-INQ000283301**] is a decision-making framework used by staff. This includes clinical events that might act as a "trigger" for a team-based DNACPR discussion.

239. The All-Wales policy "Sharing and Involving – Information for patients and their carers to help make decisions about CPR (Cardiopulmonary Resuscitation)" was issued in February 2015 [**MJSW10-INQ000466416**]. It aims to explain to patients and their loved ones what CPR is and how decisions about CPR are made.

240. The NHS Wales Executive Advance & Future Care Planning (AFCP) Group issued a list of NHS Wales resources regarding DNACPR and Advance/Future Care Planning in May 2023 [**MJSW11-INQ000466417**].

241. The Health Board aimed to follow the policy. A DNACPR decision is clearly recorded in the patient's notes and communicated between health professionals. DNACPR records are paper based, as are in-patient notes.

242. We are aware of no evidence of inappropriate DNACPR decision making in those with protected characteristics during the course of the pandemic.

243. There was a greater emphasis in promoting the use of TEPs and discussions regarding DNACPR with patients, their families and advocates in the course of the pandemic but we are not aware of any increase in patients arriving at the hospital with DNACPR notices in place or concerns about inappropriate DNACPR notices.

244. Discussing DNACPR with relatives remotely by telephone was difficult, as it was difficult for relatives to understand the situation when they could not see how unwell their relative was. A number of difficult conversations were had over the telephone in relation to patients who lacked capacity and to inform relatives of decisions made.

245. Care Inspectorate Wales (CIW) issued a joint statement with Healthcare Inspectorate Wales (HIW) in April 2020 which emphasised the importance of personalised, compassionate communication as being central to the process of making DNACPR decisions. This, together with the All-Wales DNACPR policy referred to above, was emphasized to staff in the Medical Directors Blog of 31 March 2021 in which an audit of DNACPR processes was requested.

Issues concerning any potential unequal impact on patients of measures adopted by the hospital in response to the Covid-19 pandemic

246. Communicating with deaf people who relied on lip reading was difficult when masks were worn and no effective solution was found. Some clear masks were available later on, but this was as a trial and lip reading was often difficult even with these masks due to the glare from the reflection of lights on the plastic.

Impact on hospital staff

Staff morale, physical health and mental wellbeing

247. A Wellbeing Strategy Group chaired by the Workforce Director enabled decisions and actions to take place at pace for the benefit of the staff's wellbeing. The group included representatives from across the UHB, including clinical psychology, trade union partners and professional representation and met monthly to address key developments, update on local and national support available for staff, and to identify areas of risk.

248. The mental wellbeing of staff was a particular area of focus for the Health Board during the surge of the pandemic. In order to support as many staff members as best as possible, a clinical psychologist at Cardiff and Vale UHB worked in collaboration with the internal wellbeing service in developing a series of fact sheets with tips for staff to better manage their mental health in the context of specific coronavirus-

related situations. Examples included an end of shift wellbeing checklist, specific guidance for managers around grief and bereavement, and wellbeing tips for staff working at home. The Health Board also increased the capacity of its Employee Wellbeing Service (EWS) as psychologists and staff from other departments were redeployed there, and implemented telephone psychological support for staff.

249. The EWS worked with managers and senior managers across the UHB raising awareness of the range of resources available to support both their own wellbeing and that of their staff. This led to a senior manager wellbeing checklist to provide guidance on what to consider in their areas; streamlined resources to make it easier to locate specific assets; twice weekly virtual wellbeing drop-in sessions open to all staff across the UHB; and the Head of Employee Health and Wellbeing visiting wards to speak to staff, offer support and raise awareness of support available.

250. Approximately 150 wellbeing champions were trained by EWS to provide wellbeing support, information and signposting at a local level where it was needed the most.

251. The EWS altered its service delivery model slightly to expand the range of services available and offer low intensity interventions such as guided self-help delivered by a team of Assistance Psychological Therapy Practitioners.

252. During the first wave, in addition to the usual employee health and wellbeing services provided, staff within the whole hospital, had access to additional provision for psychological therapies from the Psychology and Psychological Therapies Directorate. Staff within adult and paediatric critical care had access to clinical psychology throughout the pandemic, who provided individual and group psychological interventions. In critical care a system was in place to allow for rapid access, so staff could book a session within 48 hours.

253. The EWS and the Wellbeing Strategy Group promoted the support available on an All-Wales basis (and UK basis). This included HEIW Wellbeing Resources; Canopi; All-Wales Wellbeing Conversations Framework; Health for Health Professionals (Wales); and Trade Union support (including financial)

254. Some staff chose to access general mental health services via their GP.

255. The Health Board worked with Remploy to offer vocational mental health support and worked collaboratively with the Cardiff Recovery College to offer mental health training and support to all staff.

256. A process for enabling staff to access hotel accommodation was put into place under the employee wellbeing umbrella at the start of the Covid-19 emergency. Criteria for accessing this accommodation was developed in partnership with Public Health Wales and initially managers were able to authorise hotel accommodation for staff on the basis of those criteria.

257. Contracts were originally put in place for hotel rooms and apartments until the end of June 2020. As the trajectory for the spread of Covid-19 was significantly dampened as a result of the social distancing approach across Wales and the UK, and as we progressed into a new phase and started to build the coronavirus into 'business as usual', the criteria were reviewed and amended from 1 July 2020 onwards.

258. During the first wave, the Health Board was overwhelmed by donations of gifts, food and drinks from the public and other organisations, which were received and distributed to staff across all sites by the Cardiff & Vale Health Charity. The charity distributed over 70,000 meals to staff as part of their Spread the Love campaign.

259. After a successful bid to the health charity in November 2020 the Health Intervention Team (HIT) was established in March 2021. The two-year team consisted of four professionals drawn together to promote and integrate a proactive approach to wellbeing within the organisation. The team's initial focus was to understand the wellbeing needs of the workforce. This involved a four-month scoping exercise listening to a range of staff ranging including, but not limited to; Domestic Staff, HCSWs, Nurses, Midwives, Doctors, Laboratory staff, Receptionists, Administrators and Allied Health Professionals. To support the qualitative responses a workforce wide questionnaire was completed by over 1000 staff members and these wellbeing views and expectations were collated into the Health Intervention Team's Report, the results of which were utilised to help shape the UHB's People and Culture Plan and identify priority areas.

260. Following a successful bid for an additional £430,000 of slippage funds in 2021/22, the wellbeing recovery plan was expanded to ensure broader coverage in the arrangements to ensure staff wellbeing was supported over the winter months. While the funding was available on a short-term basis, attempts were made to ensure that it was invested in sustainable improvements which would help staff beyond March 2022 (e.g. Staff Room Refurbishment; Developing Peer Support - e.g. StRaW; Management and Leadership Development; Wellbeing Retreats;

improvements to the crèche facilities; refreshment vouchers; Wellbeing Survey / Engagement platforms). Wellbeing and engagement initiatives were introduced to 'temperature check' the impact on colleagues (Winning Temp - nursing and midwifery; Wellbeing Survey - medical workforce), and the findings used to shape priorities and actions.

261. The occupational health team worked with the dermatology department to implement a rapid-access pathway for staff affected by dermatology conditions associated with PPE use and increased hand washing. This piece of work was recognised as good practice in the BMJ in 2020.

262. The Health Board registered with the Doing Our Bit initiative which provided Healthcare staff with free access to a number of online exercise activities ranging from relaxation and yoga to HIIT classes as well as family friendly sessions.

263. The Board recognised that staff needed to rest and re-focus so all attempts were made to encourage staff to use their annual leave adequately throughout the year.

264. A click and deliver app was piloted which enabled clinical staff to order refreshments to their department thereby enabling them to stay hydrated and fed during their shifts

265. There was collaboration with the Chaplaincy team to ensure that staff had access to pastoral support.

266. Targeted support was provided for internationally educated staff (particularly from India) who had concerns and worries about family members in their home countries.

267. Video calls were useful for team reflective discussions. National common rooms were set up but it's unclear how much our staff accessed these.

268. At the start of the pandemic, staff rest facilities in Critical Care had not been increased in size to reflect the current unit physical / workforce size. Relatives' rooms had to be repurposed as rest rooms. Despite this, social distancing was impossible. At the end of the period in question, an adjacent office area (the Peter Grey Area) was refurbished to create a staff rest area proportionate to the workforce size.

269. In order that the Health Board's staff's needs were met during Covid-19, the Health Board arranged for a number of changes to its sites. It arranged suspension of parking restrictions at its sites so that staff could park in any available space regardless of whether they carried a permit. As visitors and patients had stopped routinely coming to hospital, this initiative ensured that parking onsite was as easy and convenient as possible for staff and that they would not face penalties for

parking in available visitor spaces. Furthermore, the Health Board's Capital, Estates and Facilities team arranged for 24-hour hot food provision to be implemented at the University Hospital of Wales restaurant, Y Gegin. The team also planned and installed shower facilities at both UHW and UHL so that staff could shower before leaving site after their shift. There were also changing facilities made available to staff across the Health Board's sites.

270. Staff Havens were set up across the Health Board- these were helpful if staff were able to get away from ward areas, but this was not always practical.

271. As a result of a charity donation from Gareth Bale and family, a Staff Haven was integrated into the Lakeside Wing surge hospital. This provided a quiet environment where staff could rest, relax and decompress in work. A further Staff Haven was opened at UHW at a later date.

272. Estates work was undertaken to support the environmental aspects of the recovery plan including staff room improvements which included replacement furniture and artwork where appropriate.

273. Occupational Health worked closely with the Health Board's Long Covid Rehabilitation service to ensure that a staff pathway was in place. In addition Occupational Health utlised the Health Board's "Keeping Me Well" online resources signposting to both staff and line managers.

Risk assessments for staff

274. There were concerns at the beginning of the pandemic around the lack of a formal risk assessment process for employees. As such, the Health Board developed its own Risk Assessment Tool, which was distributed across the Health Board in May 2020. This was subsequently superseded by the All Wales Covid-19 Workforce Risk Assessment Tool which was issued in June 2020. This was developed to help individuals and their managers understand if they were at higher risk of developing more serious symptoms if they came into contact with the Covid-19 virus and to agree the right actions for them based on their level of risk. There were concerns regarding the lack of guidance accompanying the Tool, and that it was initially only available as a paper document and then only available on ESR, where it was not easily found. In March 2021 there were 1083 risk assessments recorded in ESR, however, the completion of the risk assessment was not

mandatory, nor was the recording of the outcomes in ESR for those who completed it.

275. In addition, the UHB developed a separate Risk Assessment for Pregnant Staff with Potential Coronavirus Exposure to be completed by managers together with their pregnant employees at least twice during the pregnancy (i.e. before and after 28 weeks). This was updated in March 2022 to reflect changes to national guidance and clinical data which suggested that the risk of complications from Covid-19 increases from around 26 weeks' gestation.

276. Risk assessments reduced those able to work clinically, including those in high risk groups, those with pre-existing health conditions, and those over 28 weeks in to their pregnancy. Some restrictions were for immediate implementation with no warning (reintroduction of shielding Christmas 2020). Some staff felt guilty at being excluded, others refused to be excluded citing they felt safer in full PPE although the majority did self-isolate, if identified as needing to through the risk assessment.

277. The uncertainties about risk assessments, mitigation measures, shielding etc. in the early months did create anxieties for some staff. There were some examples of staff believing that they should be home shielding when the eventual guidance suggested otherwise. There were tensions in some of the teams as a result. Changes in guidance also caused anxiety.

Equality Impact Assessments ("EIAs") and issues concerning any potential unequal impact on hospital staff of measures adopted by the hospital in response to the Covid-19 pandemic

278. EIAs are used to assist and inform decision making within the Health Board on a range of strategic and policy matters that affect service delivery. The tempo of guidance changes and the emergency structure put in place to run the battle rhythm of the pandemic response meant a pace of decision making and a reactive nature that meant that EIAs were not undertaken as part of the pandemic response. Risk assessments were undertaken in the conduct of routine business in local settings and there was a wider piece of work undertaken to risk assess staff and vulnerability that informed how people were employed, deployed or protected. We have not been able to identify any evidence of concerns being raised by staff regarding the risk assessments.

279. The All Wales Covid-19 Risk Assessment Tool was not subject to a local EQIA as this was an All Wales document developed in collaboration with Equality Practitioners and was in itself an assessment of individuals on the basis of their protected characteristics.

280. Staff with hearing impairment received appropriate mask testing later in the pandemic.

The relationship between the hospital and Cardiff and Vale University Health Board, national bodies or other decision-makers within the healthcare system.

Communication between frontline staff and the hospital management and Health Board:

281. As noted earlier, at the start of the pandemic, we put in place regular meetings in the lecture theatre, which were open to all staff. It is a big room so appropriate social distancing could be maintained. We would present the latest guidance on PPE, talk about the latest issues, and the latest information on current numbers and predictions for future numbers. Anyone could come along – housekeepers, doctors, surgeons, leaders – and it gave us an opportunity to engage, communicate and get advice and opinions on how to manage. Meetings were initially daily, then three times a week, then twice a week, before eventually coming to an end. Communication was two way – to communicate from management to staff (information sharing, etc) and also to engage with staff and listen to suggestions. It was a decision-making forum as well as a communication forum, where anyone could come along and contribute to decisions.

282. Whilst many felt that communication was good, others found it ineffective. The rapid changes in guidance made it difficult to know what the most up-to-date position was.

283. We used a digital platform (Institute of Clinical Science Technology) called Staff Connect to disseminate information, which could be updated throughout the pandemic. This was accessed through QR codes and was distributed throughout all the hospitals in Wales.

284. There were constant emails regarding updates in IP&C guidance. Senior and lead nurses were present on the wards daily, but others higher up in the organization were not.

285. The Chief Executive provided regular updates and excellent communication which was appreciated by staff.

286. Many informal lines of communication were created which were sometimes in conflict.

287. Local Co-ordination Centres (LCCs) were established to ensure we had a clear line of communication between front line staff and the management structures in the hospital. The LCC reported into an executive led meeting which took place daily to weekly as the pandemic waxed and waned.

Responsiveness of national decision-makers to feedback from hospitals or local Health Boards:

288. The relationship with Welsh Government and other organisations was positive. The aim was to maintain open and consistent communication. At times there was some uncertainty which did lead to some delays in implementing guidance. Over a number of months the information and data provided, particularly by Public Health, became more focused and informative for decision making in the hospital setting.

289. The network across Health Boards was helpful at Medical and Nurse Directors level, as a source of information, communication and support.

Feasibility and realities of implementation of national guidance:

290. Infection Prevention and Control guidance consistently assumed a modern estate and availability of isolation facilities. It did not recognise how far outside of national standards the Critical Care estate was.

291. Frequent and rapid changes in guidance made the reality of implementation very difficult, particularly in the early phases of the pandemic.

292. There were inconsistencies in specialist clinical guidance from differing clinical bodies which was challenging - for example whether certain procedures were or were not to be classed as aerosol generating procedures.

293. Challenges arose where there was no national consensus, for example enhanced v standard dose venothomboprophylaxis (VTP), leading to situations

where NICE guidance for high dose VTP was received then reversed within a month. Lack of clarity led to different treatments being provided in different hospitals.

294. Challenges arose with the implementation of national guidance for aerosol generating procedures due in part to UHW infrastructure.

295. In some specialised services (i.e. the laboratory service) the national advice was not really applicable so had to be interpreted.

296. The age, condition and functional suitability of the UHW estate presented challenges in relation to meeting standards.

Support for hospital staff and management from national bodies or decision-makers:

297. The Nursing and Midwifery Council were responsive to nurses' and midwives' concerns and issued several communications providing assurance that individuals' registrations were not at risk and nurses and midwives would be supported by NMC and organisations should errors be made due to system /pandemic risk.

298. Other professional bodies such as the medical Royal Colleges, the Royal College of Nursing the British Dietetic Association and the Royal College of Podiatry provided information, resources, support and updates.

299. Some information provided by national bodies appeared more generic, and not always easy to apply locally.

Recommendations

"Peacetime" capacity (including critical care)

300. Our key recommendation is to establish sufficient capacity within the health system to be able to respond to the additional strain of a global pandemic. There needs to be a robust and effective workforce plan to enable resilience during periods of unexpected additional high demand with or without significant staff absence.

301. From a Critical Care point of view our main recommendation is to ensure that the service is adequately resourced at baseline, as this is the safest way to respond to any stress on the system. Wales has fewer ICU beds per 100,000 population than the recommended number, and fewer than the European average (in 2014 - 5.7 critical care beds per 100,000 population in Wales compared to 7 in the rest of the UK and 11.5 across Europe on average; in 2017/18 – 6.0 in Wales compared to 7.1 in England and 8.5 in France and 33.9 in Germany). This means that we are not

prepared for a pandemic of a disease that requires patients to be ventilated. We should be able to double critical care capacity within 96-hours. We recommend formation of an Operational Delivery Critical Care Network in Wales and regular inspection of Critical Care Units by a statutory body inspecting to established standards, to ensure deficits are identified and rectified.

Workforce morale/wellbeing

302. A better understanding of the impact of the pandemic on the mental health and wellbeing of the population, including healthcare staff will allow training and early interventions to be available in any further pandemic. The system should aim for prevention and support, to minimise avoidable harm.

303. The response and contribution of all NHS workforce (not just doctors and nurses) should be understood. Future pandemics will benefit from a holistic approach understanding the needs of staff from the outset.

304. Work should continue to better understand and to address the ongoing trauma experienced by patients their families and staff caused by the Covid-19 pandemic.

Communication

305. The modelled risk of disease impact needs to be disseminated at the earliest opportunity and iterative change exposed to allow early planning. We recognise the sensitivity and risks of sharing data early; however, this would optimise opportunities for clinical and operational teams to respond and to maintain trust and engagement across the health care system.

306. Regular, clear and open communication is particularly important. Keep policies simple and easy to implement operationally. Prompt distribution of clear IPC guidance and equipment provisions is a key example.

307. Effective dissemination and clarification of up-to-date treatment pathways in a rapidly changing situation is also key to ensure equity of treatment across all of the country. This is particularly important where medicines or equipment may be in short supply.

308. Disinformation on social media resulted in many patients either not being vaccinated or refusing the current evidence-based treatment – there should be a proactive and robust programme of clear information, accessible to all communities.

Infrastructure and estate

309. The pandemic has exposed the need for improvements in the infrastructure/physical environment of the hospital to be able to effectively respond to IPC and other clinical standards, not just in a pandemic. Capital planning and investment is a feature of effective crisis planning so that new buildings are designed to facilitate adaption for future pandemics. It cannot be understated how critical an enabler or an obstacle infrastructure can be and, as stated below, how workforce planning has to lead this work and not follow it.

310. If new-build capacity is required during a pandemic, this needs to be more efficient – for example, located near an existing hospital so that staff can be more easily redeployed or even shared across the clinical areas. The focus needs to be not just on the number of beds but on the number of staffed beds with the necessary equipment.

Ongoing education and training for preparedness

311. There needs to be an embedding across public service, concurrently understood throughout society, that crisis response is a cultural pillar of what the public sector does. Internally this would enable an ease of movement, response and flexibility in the workforce while building an understanding as to how the wider community may contribute.

312. Incorporate a pandemic scenario into business continuity plans.

313. System-wide planning for the timely supply of PPE would be beneficial. Ongoing training in PPE use and FIT testing of a core number of the multi-disciplinary team, particularly in areas such as critical care where most novel infections present.

Data

314. Functional networks using accurate data relating to patient need and available resources (including staff) would enable efficient and accurate allocation of resources.

Resourcing of infectious diseases, epidemiology and public health

315. A larger IPC workforce would enable improved responsiveness to infectious incidents with a subsequent multiplier effect in terms of downstream impact.

Institutional learning from the Covid-19 pandemic

316. Workforce needs to be the core currency when considering a pandemic response. There can be a natural bias to focus on facilities and beds which the Nightingale programme reflected, however it was consistently workforce capacity that dictated success.

317. In considering the infrastructure requirements during a pandemic, proximity to existing facilities is key to allowing the workforce to more effectively and efficiently deliver care across a wider bed base should also be considered.

318. Balancing the response to a pandemic and consideration of other health needs is a critical lesson learned that encapsulates the entirety of public service provision. During the Covid-19 pandemic, some patients feared contracting Covid -19 in hospital and a number that should have sought care did not. Routine services could have re-started more quickly. It is important to continue to focus on other urgent services (e g. cancer services and sight-saving appointments). There should be plans in place to ensure that core services do not cease.

Statement of Truth

I believe that the facts stated in this witness statement are true. I understand that proceedings may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief of its truth.

Signed: Personal Data

Professor Meriel Jenney

Dated: 23/5/24

S Personal Data

P

Dated: 23/5/24

Schedule

List of contributors:

Name	Position
Abigail Holmes	Director of Midwifery and Neonatal Services
Adam Wright	Head of Service Planning - Operations
Aled Roberts	Clinical Board Director for Medicine
Alex Scott	Assistant Director of Quality & Safety
Alison Bax	Superintendent Radiographer
Alison Oliver	Clinical Service Lead, Paediatrics
Alun Roderick	Haematology, Blood Transfusion and Phlebotomy Service Manager
Alun Tomkinson	Clinical Board Director for Surgery
Andrew Crook	Head of People Assurance & Experience
Aneurin Buttress	Consultant Respiratory Physician
Angela Hughes	Assistant Director of Patient Experience
Angela Jones	Senior Nurse - Resuscitation Service
Barbara Davies	Deputy Director of Nursing - Medicine Clinical Board
Beverley Oughton	Senior Nurse - Cardiothoracic Department
Carolyn Alport	Quality & Safety Clinical Nurse Lead
Cath Twamley	Interim Director of Nursing - Specialist Services Clinical Board
Catherine Morris	Senior Nurse Emergency & Acute Medicine Directorate
Carys Fox	Director of Nursing Strategic Nursing & Midwifery Workforce
Ceri Lovell	Senior Nurse - CAMHS
Chris Hingston	Consultant - Critical Care
Claire Main	Director of Operations for Acute and Out of Hospital Care
Claire Salisbury	Head of Procurement
Clare Wade	Director of Operations for Patient Flow
Craig Davies	Service Manager - Acute Medicine
Craig Spencer	Consultant - Critical Care
David Pitchforth	Lead Nurse - Integrated Medicine
Denis Williams	General Manager - Surgery Clinical Board

Ed Chapman	Head of Clinical Engineering
Geraldine Johnston	Operations Director - Future Hospitals Programme
Helen Davies	Respiratory Consultant - Thoracic Medicine Opd
Helen Jenkins	Business Support Manager - CD&T Clinical Board
Helen Nicholls	Head of Nutrition and Dietetics
Ian Langfield	Associate Programme Director for Tertiary and Specialist Services
Ian Sidney	Procurement Manager - Critical Care and Major Trauma
Jackie Sharp	Head of Physiotherapy - Thoracic Medicine Opd
Jane Murphy	Director of Nursing - Medicine Clinical Board
Jason Roberts	Executive Director of Nursing
Jayne Bridges	Radiology Sister
Jo Fleming	Senior Radiographer
Judith Burnett	Senior Staff - Critical Care
Julia Dinley	Head of Service for Speech and Language Therapy
Julie Highfield	Consultant Clinical Psychologist
Katja Empson	Consultant - Emergency Unit
Katrina Griffiths	Head of People Services
Kim Atkinson	Strategic Lead Occupational Therapy
Lianne Morse	Deputy Director of People & Culture
Lindsey George	Consultant Physician - Medicine
Lisa Dunsford	Deputy Director of Planning - Pcic Clinical Board
Lisa Franklin	Senior Nurse for Nurse Education
Marie Davies	Deputy Director of Planning - Strategic Service Planning
Matt Temby	Managing Director Planned Care - Operations
Matt Wise	Locum Consultant In Intensive Care - Critical Care
Mike Bond	Director of Operations - Six Goals & Financial Improvement
Nicola Bevan	Head of Occupational Health
Nigel Roberts	Laboratory Service Manager - Pathology
Rachel Gidman	Executive Director of People and Culture
Rachel Pressley	Head of People Assurance and Experience
Rachel Wallbank	AHP Clinical Lead Live Well - Therapies
Rebecca Aylward	Deputy Executive Nursing Director
Rhys Morris	Director of MPCE - Medical Physics
Richard Hughes	Consultant Anaesthetist

Richard Skone	Consultant - Critical Care
Sarah Lloyd	Director of Operations - Clinical Diagnostics and Therapies
Scott Gable	Cellular Pathology Service Manager - Lab Medicine
Seetal Sall	Point of Care Manager - Point of Care Services
Sion O'Keefe	Directorate Manager - Clinical Diagnostics and Therapeutics Clinical Board
Susan Patchett	Ward Manager - Medicine
Tim Banner	Clinical Director Pharmacy & Medicines Management
Tom Holmes	Consultant Intensive Care Medicine - Critical Care
Tom Porter	Consultant in Public Health Medicine
Vicky Le Grys	Programme Director - Strategic Clinical Redesign
Victoria Thomas	Radiology Sister
Wayne Parsons	Senior Clinical Programme Manager - Innovation and Improvement