



Interprofessional practice in the Intensive Treatment Unit during the Covid-19 pandemic; the reflections of an Advanced Practitioner Radiographer

Sarah Booth^{a,*}, William Verrier^b, Sarah Naylor^c, Ruth Strudwick^d, Jane Harvey-Lloyd^d

^a University of Salford, Allerton Building, Frederick Road, Manchester, M6 6PU, United Kingdom

^b Colchester General Hospital, East Suffolk and North Essex Foundation Trust, Turner Road, Colchester, CO4 5JL, United Kingdom

^c Nottingham University Hospitals NHS Trust, Hucknall Road, Nottingham, BG5 1PB, United Kingdom

^d University of Suffolk, 19 Neptune Quay, Ipswich, IP4 1QJ, United Kingdom

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ABSTRACT

Background: The onset of the Covid-19 pandemic in March 2020 posed significant challenges to the National Health Service (NHS) in the United Kingdom (UK). Existing workforce shortages were further exacerbated with staff absence, and the need to redeploy staff into frontline clinical areas became a necessity.

Purpose: The exploration of the experiences of an Advanced Practitioner Radiographer volunteering in the Intensive Treatment Unit (ITU) during the Covid-19 pandemic.

Method: Interview using Microsoft Teams© involving one participant facilitated by two researchers using a semi-structured interview schedule.

Discussion: Redeployment to ITU has allowed individuals to work outside of their normal scope of practice. The non-hierarchical structure within teams, focussed minds and demonstrated interprofessional collaboration at its best, ensuring the best patient care was delivered to those critically affected by the virus.

Conclusion: The interprofessional practice demonstrated in ITU during the pandemic should be applied to future learning and training opportunities, to develop individuals and prepare for future pandemics.

1. Introduction

On the January 3, 2020, the World Health Organisation (WHO) reported 44 cases of pneumonia with unknown aetiology in Wuhan City, in the Hubei Province of China.¹ Subsequent investigations identified a new type of Severe Acute Respiratory Syndrome Coronavirus2 (SARS-Cov2) hereafter referred to as Covid-19.² Despite initial reports suggesting that human-to-human transmission was not significant, the first two cases of Covid-19 in the United Kingdom (UK) were reported on the 29th of January 2020.³

At the time of writing in November 2021, the confirmed number of positive Covid-19 cases in the UK exceeds nine million, with over 160,000 people succumbing to the virus.⁴ The impact of the Covid-19 pandemic on the National Health Service (NHS), is undoubtedly the greatest challenge posed to the UK healthcare system since it was founded in 1948.⁵

Prior to the Covid-19 pandemic, the health service faced significant workforce challenges with an estimated 100,000 job vacancies across the sector.⁵ NHS reform and sustainability strategies acknowledged the need to not only increase workforce capacity, but also develop a flexible and adaptable health service.^{6,7}

In March 2020, hospital admissions increased significantly⁸ with patient presentations ranging from mild to moderate pneumonia, to critical cases with acute respiratory distress syndrome (ARDS) and septic shock.⁹ NHS Trusts were advised to maximise inpatient and Intensive Treatment Unit (ITU) capacity, increase staff availability, and suspend elective services.⁵

1.1. Workforce challenges and interprofessional practice

The model of interprofessional collaboration is fundamental to underpin the delivery of a safe, efficient, and patient-centred health

* Corresponding author.

E-mail addresses: S.J.Booth3@salford.ac.uk (S. Booth), Will.Verrier@esneft.nhs.uk (W. Verrier), Sarah.Naylor@nuh.nhs.uk (S. Naylor), r.strudwick@uos.ac.uk (R. Strudwick), j.harvey-lloyd@uos.ac.uk (J. Harvey-Lloyd).

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service.¹⁰ Initially interprofessional practice was thought to be centred around discrete professional groups facilitating interprofessional interactions.¹¹ However, the contextual complexities of interprofessional practice are now well documented.^{10,12} The impact of the Covid-19 pandemic on the health service has undoubtedly influenced the nature of interprofessional practice as we know it.

In the first wave of the Covid-19 pandemic (March–April 2020), existing workforce challenges were exacerbated by increasing staff absence attributed to covid sickness, self-isolation and staff being identified as vulnerable.⁹ Historically, health care roles and scope of practice has been relatively restricted within the confines of a fixed job description.¹³ However, with the suspension of elective services, redeployment of staff to support frontline clinical delivery became a necessity. Guidance was developed to support staff working in new clinical roles and environments beyond their normal scope of practice.¹⁴

1.2. Staff redeployment

The extent of the Covid-19 pandemic was particularly apparent in the ITU. In the UK, in the first wave of the pandemic ITU admissions peaked with 3301 patients occupying mechanically ventilated beds.⁸ This was exceeded in the second wave (January 2021) with 4076 ITU admissions.⁸

The documented experiences of staff working in the ITU over the duration of the pandemic report anxiety and fear, commonly attributed to lack of information, exhaustion and burn-out, increased workload and staff shortages.^{15–17}

The practice of proning patients proved challenging, the clinical benefits of proning to improve lung expansion are well-documented, however, the practice is time consuming and logistically challenging.¹⁸ The manual handling manoeuvre requires a minimum of five members of staff in full Personal Protective Equipment (PPE). The ITU staff shortage experienced during the pandemic resulted in a greater need for staff to support the proning of patients multiple times a day.¹⁸

Many studies recognised the need for dedicated proning teams and a proning champion.^{18–20} In many cases, staff redeployed into ITU during the pandemic were predominantly involved in the practice of proning patients.^{18,19,21}

The experiences of staff re-deployed into frontline clinical roles in the ITU away from their normal scope of practice, are well documented.^{22–25}

1.3. Diagnostic Radiographers in the ITU

Diagnostic Radiographers have worked clinically on the frontline throughout the Covid-19 pandemic.^{26–29} Symptomatic patients presenting to hospital are diagnosed with a triad of clinical assessment, chest radiography and blood tests.³⁰ As a result, imaging departments reported an increase in the numbers of mobile chest radiography and computed tomography (CT) thorax examinations, and a reduction in routine and elective workload.^{26,27,29,31} The impact of reduced routine workload affected Advanced Practitioner Radiographers, in particular, those who are trained to undertake musculoskeletal (MSK) image reporting.²⁹

This shift in workload saw many Advanced Practitioners adopt an increasingly operational role in response to the increasing demand for acute imaging.²⁹

Diagnostic Radiographers are no strangers to the ITU, regularly undertaking chest imaging for critically ill patients. Due to the transient nature of the role, it can be challenging for Radiographers to feel truly integrated into the multi-disciplinary team.³²

This paper documents the experiences of one Advanced Practice Radiographer who specialises in musculoskeletal reporting. This member of staff volunteered to join the ITU team, outside of his normal scope of practice during the Covid-19 pandemic. The interview was derived from a larger study exploring the experiences of Diagnostic

Radiographers during the Covid-19 pandemic.²⁹

2. Method

Ethical approval for the study was granted from the Universities of Derby, Suffolk, and Salford. As the participant has played an active part in the research process and publication, anonymity is not feasible. Consent for taking part in this study was obtained with no coercion applied.

The research methodology used autoethnography. This single case can illuminate issues that resonate with others, and by telling this story it creates space for reflection and allows others to gain from this experience.^{33,34} The primary source of data collection was a semi-structured interview schedule (see Table 1). This approach allowed the researchers to focus the research issue, in addition to providing an opportunity for further exploration, either within the interview structure or beyond.³⁵ Prior to the interview, the schedule was reviewed by both the researchers and the participant, thus ensuring that the questions were aligned with the research focus.³⁵

The interview was conducted remotely using Microsoft Teams© and was facilitated by both members of the research team. The interview was recorded and transcribed verbatim. The final transcript was reviewed by one of the research team to check for accuracy and possible errors or omissions.

Both members of the research team along with the participant, analysed the data independently of one another, each using thematic analysis to identify pertinent themes. Subsequently, a follow up meeting took place via Microsoft Teams© to discuss the data analysis and emerging themes.

There was a consensus amongst the researchers and the participant that there were three pertinent themes emerging within the data: Interprofessional Practice, Patient Care and Future Action.

3. Results

The results demonstrate a rich account of the perspective of redeployment to the ITU during the Covid-19 pandemic. The results are followed by a discussion of the three emergent themes. Extensive quotes have been used to demonstrate how the emergent themes are drawn from the data.³⁵

In order to provide context, the interview began with Will discussing how his role as an Advanced Practitioner Radiographer was impacted by the pandemic.

“My normal role is a reporting radiographer for appendicular and axial musculoskeletal skeleton. I do that pretty much full time”.

“At the outset of the pandemic, during the first lockdown; the immediate effect was a marked reduction in the MSK workload. The two main sources being Accident and Emergency (A&E) and General Practitioners (GPs). On the A&E side, with the first lockdown in force, people weren’t going out ... So that reduced the A&E work significantly. On the GP side, there was quite a reduction in face-to-face triaging, and we had very few GP patients come through. That’s

Table 1
Semi-structured Interview Schedule.

| Semi - structured Interview Schedule |
|--------------------------------------------------------------------------------------------------------------|
| Can you describe your role as an advanced practitioner and how this changed due to the pandemic? |
| What were your drivers for going to work on ITU? |
| How did you arrange to do this? |
| Can you tell us about your experiences of interprofessional practice? |
| Looking back what are your reflections on your time spent in ITU, how as this impacted on your current work? |
| What have you learnt that you would pass on to fellow radiographers that would be of benefit? |

the bread and butter of what I do. The raw materials that I work with weren't there".

Will acknowledged that due to the reduction in reporting workload, he was able to work on other elements of the four pillars of advanced practice: management, leadership, and education/research. He also increased his contribution to clinical practice.

"I was working on a lot of stuff in the other areas of advance practice aside from the clinical reporting. I was working on research, I was doing audits, and developing training materials".

"I was doing slightly more clinical shifts than usual, towards the beginning. Generally, I may do one or two clinical shifts a month. That changed in the first lockdown to probably one or two a week. I was getting involved, getting back on the shop floor. It was actually really pleasant, to interact with my colleagues and the patients".

"From November to March, which from my perspective was significantly worse in terms of the number of sick people and the impact and the pressures on the hospital; the staff shortages were exacerbated somewhat. So, I was doing more clinical work. From about January, I was doing one reporting session a week, and the rest clinical".

He went on to explain his motivations for wanting to help in ITU.

"I'd already volunteered and worked on another covid ward which was an eye opener. And you know, I'd seen as a radiographer how bad it was. As a radiographer you go there, you get snap shots of what's going on ... you could see that the staff were just about hanging on. They were surviving. It wasn't optimum care. But it was the best that they could give".

"We got an email through saying that ITU are in dire need of a pair of hands and I thought, it's unusual that you get the opportunity to work outside your usual role".

"I thought about this idea of being driven by guilt or sort of a compensatory altruism; that I think, blimey I've been stuck in my office through the first lockdown a lot. I feel my colleagues have suffered more than me; that's my colleagues both in X-ray and on the wards. I want to be able to retrospectively look back on this crazy time and think, well I really did what I could".

"ITU always seemed like it was the barometer of how bad things were. Often, you'd come into a radiography shift and look how many are in ITU. Who's in ITU? The opportunity to go and work inside that barometer so that I knew, kind of, exactly how bad it was, was appealing".

He outlined the main tasks he was undertaking during his time volunteering in ITU.

"I basically just asked people and said, you know, "What can I do?" And the essence, the main thing that I was doing was the proning ... so I was a pair of hands in that capacity. Helping to clean the patients ... emptying the bins. Making sure that there was adequate PPE for everyone. It doesn't sound much when you say it like that. But you know, it definitely was quite impactful".

3.1. Interprofessional practice

Will moved on to describe his experience of interprofessional practice during his time volunteering in ITU. In the following data the term interprofessional working is used, which is an alternative term for interprofessional practice. This terminology remains as transcribed, to ensure authenticity of the data.

"I've been qualified for 15 years ... but that's where I've seen interprofessional working at its best. I'd be working alongside you

know children's nurses, consultant orthopaedic, you know consultants, ODPs, physios. All of them outside their normal role".

"You could have a junior nurse directing the team doing the proning that might consist of six members of staff which hierarchically were more senior. At the time you're not questioning it because you've got a job to do, and you get on with it. And I really liked that. The structure of the NHS can be you know, traditionally hierarchical".

Interprofessional communication was aided by clear identification.

"When you go into ITU and you get your PPE gear on, you put this bit of tape across your chest with your name and your role. This wasn't really needed under usual circumstances. But I found that it really helped with breaking the ice. People knew your name straight away. When you go there as a radiographer, you're anonymous in a way. Or just the radiographer. But because I had my name there, and then my origin role, and you can see other peoples'; it gives you a little bit of a communication cue, I suppose to get the conversation going. And it transcended that, it was interprofessional working without that traditional sort of hierarchical structure".

"That tape and the name with the role, was really significant in breaking those barriers of interprofessional working".

Working interprofessionally can sometimes be challenging for Diagnostic Radiographers.

"As a radiographer going to the ward or going to ITU to take an X-ray the relationships are very different. You've got to do the job that benefits the patient. But sometimes you almost feel like you're getting in the way of the real care".

"If you're socialised into a professional role from a young age, it can be really hard to do something different".

Spending time in ITU has improved interprofessional relationships.

"It's almost back to normal there now and I went to do an X-ray last week and there were some of the people I had worked with-and they weren't just faces, it was more like, oh that's so and so and I know a little bit about her from chatting. And it humanised the staff there to me".

"There was genuine gratitude that I was there we respond well to that, to feel like we're needed and that we're valued that was the strong feeling that I got from the work that I did there".

3.2. Patient care

Diagnostic Radiographers can learn more about holistic care from spending time on a ward.

"I think it will certainly help me to have a more holistic view of care going forward. Diagnostic Radiography can be reductionist in its approach to patients. People do get treated as a body part rather than a human, a mother, a grandmother. It helps to see the whole picture and also you are working in that way, you get a longer-range view of the patient journey as well".

Observing the human touch has left a powerful lasting memory.

"I often think about patients that I've talked to, or not talked with, talked at, I suppose. That are dead, that aren't here anymore. And there was one physio and something he was doing really stuck in my mind. You've got these very, very ill patients that are almost certainly going to die. Well after we'd done the turns for each of them, he'd get the E45 out and rub, rub their feet and heels so they were lovely and soft. And it was really humbling, and really-I don't know, that's really stuck with me. Really powerful. You know, this person that's almost certainly going to die, up until that last point, those minor things of being looked after, it was quite, yes quite

special there was something about it. Saying it's futile is probably- probably uncaring. But it wasn't futile because the point of it was really beautiful and what caring is all about really".

Will discussed his emotional response to his time in ITU.

"There's definitely an emotional response. And I think, if I'd have seen the families grieving as you would usually, it would be different I mean it's more the volume of people dying, I think. After my time on ITU and going back three weeks later as a radiographer. Of the 15 people that I cared for, there's two left maybe I haven't even unpacked it yet. I don't know".

3.3. Future practice

Will discussed how this experience will impact his future interprofessional practice.

"Going forward roles are becoming less well defined. We're getting lateral upskilling you know, between radiographers and nurses and other AHPs. And that's where the future is. Not professional isolation".

"I'm thinking, it's almost worth sending radiographers up there as part of their preceptorship".

"It's difficult because you do need to give people a sense of their own new professional role. I think it has to come later and I think, even as part of a transition from band 5 to band 6. Maybe that would a good place to give people these experiences? But I think I can still see people saying, oh what's the point of that, I'm a radiographer".

The experience has helped to alleviate some fear.

"I think there are a lot of the things that you fear going into ITU as a radiographer. Spending time there when it's at its most hectic, helped to alleviate the fear and the concern about really the bad things that could happen".

"I saw some quite bad things happen when you're turning people around a lot. As a radiographer, the very worst thing you can imagine happening if you're doing an X-ray is someone's tube coming out. I've now seen that happen several times. And I know what to do. Whereas if that happened during taking a chest X-ray for example. You'd go 'aaargh' and panic. But I've seen it done, I've seen it happen, I know what you do, and I've seen it rectified".

The experience allowed Will to forge interprofessional relationships that would have a long-term impact.

"One of the connections I've made whilst we were turning patients for a shift, turned out to be the lead paediatric physio in our area. And we started talking and since that that we've kept in touch, and we've worked together to accelerate the implementation of a pathway screening service for patients with cerebral palsy".

4. Discussion

The sense of duty and willingness of staff redeployed into frontline clinical roles has resonated with previous pandemics.³⁶⁻³⁸ It is evident from reviewing the available literature, that the circumstances surrounding staff redeployment to ITU predominantly occurred as either a structured deployment initiative, or as a result of voluntary responses to requests for additional support.^{22,39}

Radiographers are one of 14 Allied Health Professions (AHPs). AHPs have a diverse range of transferable skills and were able to make a significant contribution to redeployment opportunities.⁴⁰⁻⁴³ Research specifically documenting the experiences of Diagnostic Radiographers redeployed to ITU is limited. However, the experiences of a range of other staff redeployed during the Covid-19 pandemic do identify some

common themes that resonate with the results of this study.^{22-25,43-46}

4.1. Interprofessional practice

Research exploring interprofessional practice has identified a series of fundamental factors that necessitate quality collaborative practice. These include the need to communicate openly, minimise hierarchy, merge professional perspectives and skills and allow professions to promote their own identity.⁴⁷⁻⁵⁰ It is evident from the results of this study and similar published research,¹² that the circumstances surrounding the Covid-19 pandemic have enabled staff to engage with interprofessional practice that exemplifies these fundamental factors.

Redeployed staff describe the positive experience of interprofessional practice, with many referencing the lack of hierarchy resulting in cohesive teamworking.^{43,44,46,51} Staff describe the camaraderie and support for one another.^{12,52} Rimmer⁴⁶ interviewed a range of staff who were redeployed during the pandemic. A Consultant Neurologist described himself and fellow Consultants being trained by junior doctors and stated, "it was great! the hierarchy was gone; we were all one team". In the same article, a Paediatric Consultant reflected on the "lack of ego", and all individuals being involved with no task being deemed "beneath" anyone.⁴⁶

Many departments sought to create specific teams to undertake procedures such as proning, line insertions and intubation, thus allowing specific professional skills to be channelled to the area's most in need.^{18-20,25,51,53} Open communication within teams along with a clear understanding of the common goal, exemplified teamworking at its best.⁵² The nature of the ITU environment demands transparent communication between all members of the interprofessional team.⁵⁴ The need for this was even greater with staff working in full PPE, and in many cases different systems of work had to be implemented in order to facilitate open communication.⁵¹

Redeployment has provided an opportunity for individuals to work alongside staff that they would not normally encounter within their scope of practice.^{25,43,51,55} The nature of redeploying a range of staff to the clinical front line has allowed for professions to promote their own identity and share their knowledge and skills with their colleagues in the ITU.^{50,52,55,56}

Health Education England (HEE) documented the experience of an osteopath who was redeployed to ITU.⁴³ During their time they were able to advise staff on postural adaptations for moving and handling, along with contributing osteopathic treatments to the patients under their care.⁴³

Similarly, the role of Dental Care Professionals redeployed to ITU allowed specialist skills in oral care to be delivered to patients as part of holistic care, and staff were able to share their skills with their critical care nurse colleagues, raising the profile of the profession and also highlighting the necessity for oral hygiene, particularly for ventilated patients.⁵⁵

4.2. Patient care

Interprofessional practice in the ITU during the pandemic, undoubtedly benefited the quality of patient care, not just at the point of care delivery, but also benefitting patient care moving forwards.^{23,46,53,56,57}

Redeployment provided staff with the opportunity to engage with tasks outside of their normal scope of practice.^{40,46} Tasks involving personal care such as washing and bathing critically ill patients, resonated with many just how fundamentally important the smallest acts of care can be.^{40,46} For some staff, being involved in the delivery of end-of-life care has had a profound effect on them.^{46,51,57}

Rees⁵⁷ documented the experiences of Neurology registrars redeployed during the pandemic. One Neurologist describes how working in ITU in full PPE, made him truly appreciate the value of human touch, beyond the confines of a physical examination within Neurology. The

need to be innovative with communication due to the limitations of PPE and distancing, has allowed staff to develop their communication skills, and these techniques will be employed in the care they deliver in the future.^{50,53}

The WHO⁴⁷ guiding principles state that collaborative teams should allow patients access to the right professionals at the right time. The redeployment opportunity allowed patients to receive multi-disciplinary input from the outset,^{25,58} the availability of such expertise reduced multiple encounters between physicians and patients, and subsequently contributed to a more efficient patient pathway.⁵⁹ One clinician described this as “a true luxury, patient centred care at its best”⁵⁷.

4.3. Future practice

Staff who worked in ITU during the Covid-19 pandemic describe a sense of pride and gratitude in being able to support their wider colleagues.^{40,46,51,55} Staff feel they have acquired new skills or consolidated existing skills, which they have since applied to their normal roles and scope of practice.^{23,51} In particular, involvement with proning patients has allowed many individuals to improve their confidence with managing ventilated patients.^{53,60}

The progression of the pandemic with increasing patient numbers has allowed previous time-consuming bureaucracy to be removed.⁴² The health service has been forced to become more flexible and adaptable than ever. The introduction of the Critical Care Digital Skills Passport allows staff to acquire and record new skills within the critical care environment.⁶¹ In the future, this will enable staff to be readily deployed to work as part of the ITU team, and for managers to co-ordinate teams by assessing individual skill sets.⁶¹

Research documenting individual’s experiences of working in ITU outside of their normal scope of practice, recognise the value of the ITU environment as a learning opportunity.^{50,54} In this interview, it was felt that time in ITU would be valuable for newly qualified Diagnostic Radiographers during their preceptorship. The ITU environment provides an opportunity for staff to develop their patient care skills by caring for critically ill patients, in addition to acquiring transferable skills.^{60–65} The experience of being immersed into a ITU team allows staff to develop an appreciation of their role in the wider health care system, and also promote their professional identity.^{50,54,60,61}

5. Conclusion

The scale of the Covid-19 pandemic has demonstrated the professionalism and sense of duty of those working in the health service. At a time of critical pressure on ITU services, individuals from across Trusts were redeployed or volunteered to join ITU teams. The impact of these experiences is profound and accounts document true interprofessional practice. Everyone working together, regardless of hierarchy or seniority, to care for those critically affected by the Covid-19 virus. Redeployment and volunteering opportunities have allowed staff to experience roles and tasks that extended far beyond their normal scope of practice. The pandemic has focussed the minds of managers and there are steps to develop a more flexible workforce. The ITU environment offers a valuable learning experience for medics, and other health care professionals to develop patient care skills, alongside developing an appreciation for the wider roles within the health service. There are lessons to be learned from the Covid-19 pandemic which should allow us to continue to develop interprofessional practice, and ultimately be more prepared for future pandemics when they arise.

Considerations for future research

Further exploration of interprofessional practice would benefit from a broader perspective of additional professions and clinicians working in the ITU during the Covid-19 pandemic.

This study highlights that there could be an emotional and

psychological response to the experiences witnessed in ITU by redeployed staff. The emotional impact of individual experiences may not become apparent for some time, but this would be worthy of further exploration in the future.

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Sarah Booth: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Writing – review & editing, Visualization. **William Verrier:** Methodology, Formal analysis, Resources. **Sarah Naylor:** Conceptualization, Methodology, Validation, Formal analysis, Investigation, Supervision, Writing – review & editing, Project administration. **Ruth Strudwick:** Conceptualization, Writing – review & editing, Supervision. **Jane Harvey-Lloyd:** Conceptualization, Writing – review & editing, Supervision.

Declaration of competing interest

None.

References

1. Pneumonia of unknown cause – China. World health organisation. Published <https://www.who.int/emergencies/disease-outbreak-news/item/2020-DON229>; 2022. Accessed March 5, 2022.
2. Novel Coronavirus – China. World health organisation. Published <https://www.who.int/emergencies/disease-outbreak-news/item/2020-DON233>; 2022. Accessed March 5, 2022.
3. World Health Organisation. Published 2022 https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200201-sitrep-12-ncov.pdf?sfvrsn=273c5d35_2. Accessed March 5, 2022.
4. Coronavirus (COVID-19) in the UK. Coronavirus.data.gov.UK. <https://coronavirus.data.gov.uk/details/deaths?areaType=overview&areaName=United%20Kingdom>. Accessed November 13, 2021.
5. NHS England and NHS Improvement. Next Steps on NHS Response to Covid-19. <http://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/20200317-NHS-COVID-letter-FINAL.pdf>. Accessed November 21, 2021, 2020.
6. NHS. *Next Steps on the NHS Five Year Forward View*. 2017.
7. NHS. *The NHS Long Term Plan*. 2019.
8. Coronavirus (COVID-19) in the UK. Coronavirus.data.gov.UK. Published <https://coronavirus.data.gov.uk/details/healthcare>; 2020. Accessed November 1, 2021.
9. COVID-19 Rapid Guideline. Managing COVID-19. *NICE*; 2020. <https://www.nice.org.uk/guidance/ng191/resources/covid19-rapid-guideline-managing-covid19-pdf-51035553326>. Accessed October 9, 2021.
10. Reeves S, Xyrichis A, Zwarenstein M. Teamwork, collaboration, coordination, and networking: why we need to distinguish between different types of interprofessional practice. *J Interprof Care*. 2018;32(1):1–3.
11. Xyrichis A, Lowton K, Rafferty AM. Accomplishing professional jurisdiction in intensive care: an ethnographic study of three units. *Soc Sci Med*. 2017;181:102–111.
12. Goldman J, Xyrichis A. Interprofessional working during the COVID-19 pandemic: sociological insights. *J Interprof Care*. 2020;34(5):580–582.
13. NHS providers. Published <https://nhsproviders.org/media/690388/workforce-flexibility-during-covid19.pdf>; 2020. Accessed October 4, 2021.
14. NHS England. Coronavirus » COVID-19: deploying our people safely. England.nhs.uk. Published <https://www.england.nhs.uk/coronavirus/documents/covid-19-deploying-our-people-safely/>; 2020. Accessed October 10, 2021.
15. Guttormson JL, Calkins K, McAndrew N, Fitzgerald J, Losurdo H, Loonsfoot D. Critical care nurses’ experiences during the COVID-19 pandemic: a US national survey. *Am J Crit Care*. 2022;31(2):96–103.
16. Levi P, Moss J. Intensive care unit nurses’ lived experiences of psychological stress and trauma caring for COVID-19 patients. *Workplace Health & Saf*. 2022, 21650799211064262.
17. Elliott R, Crowe L, Abbenbroek B, Grattan S, Hammond NE. Critical care health professionals’ self-reported needs for wellbeing during the COVID-19 pandemic: a thematic analysis of survey responses. *Aust Crit Care*. 2022;35(1):40–45.
18. Cotton S, Zawaydeh Q, LeBlanc S, Husain A, Malhotra A. Proning during covid-19: challenges and solutions. *Heart Lung*. 2020;49(6):686–687.
19. Kimmoun A, Levy B, Chenuel B. DV-Team group. Usefulness and safety of a dedicated team to prone patients with severe ARDS due to COVID-19. *Crit Care*. 2020;24(1):509. <https://doi.org/10.1186/s13054-020-03128-6>. Published 2020 Aug 18.

20. O'Donoghue SC, Church M, Russell K, et al. Development, implementation, and impact of a proning team during the COVID-19 intensive care unit surge. *Dimens Crit Care Nurs.* 2021;40(6):321–327.
21. Retzlaff KJ. Staffing and orientation during the COVID-19 pandemic. *AORN J.* 2020; 112(3):206.
22. Veerapen JD, Mckeown E. Exploration of the views and experiences of research healthcare professionals during their redeployment to clinical roles during the COVID-19 pandemic. *J Adv Nurs.* 2021;77(12):4862–4875.
23. Richards JA, Walker K, Coyle MJ, Beech AN, Godden DRP. Redeployment of junior maxillofacial surgery staff during COVID-19—the Gloucester ITU experience. *Br J Oral Maxillofac Surg.* 2020;58(10):1361.
24. Platais C, Siodlak F, Toor I, Ormondroyd L. Redeployment of dental teams during the covid-19 pandemic: a review of experiences and lessons learned. *Dent Update.* 2021;48(2):152–155.
25. Lim C, De Silva I, Moussa G, et al. Redeployment of ophthalmologists in the United Kingdom during the coronavirus disease pandemic. *Eur J Ophthalmol.* 2021;31(5): 2268–2274.
26. Elshami W, Akudjedu TN, Abuzaid M, et al. The radiology workforce's response to the COVID-19 pandemic in the Middle East, North Africa, and India. *Radiography.* 2021;27(2):360–368.
27. Akudjedu TN, Lawal O, Sharma M, et al. Impact of the COVID-19 pandemic on radiography practice: findings from a UK radiography workforce survey. *BJR Open.* 2020;2:20200023.
28. Lewis S, Mulla F. Diagnostic radiographers' experience of COVID-19, Gauteng South Africa. *Radiography.* 2021;27(2):346–351.
29. Naylor S, Booth S, Harvey-Lloyd J, Strudwick R. Experiences of diagnostic radiographers through the Covid-19 pandemic. *Radiography.* 2022;28(1):187–192.
30. Tavare AN, Braddy A, Brill S, et al. Managing high clinical suspicion COVID-19 inpatients with negative RT-PCR: a pragmatic and limited role for thoracic CT. *Thorax.* 2020;75(7):537–538.
31. Foley SJ, O'Loughlin A, Creedon J. Early experiences of radiographers in Ireland during the COVID-19 crisis. *Insight Imag.* 2020;11(1):1–8.
32. Strudwick RM, Day J. Interprofessional working in diagnostic radiography. *Radiography.* 2014;20(3):235–240.
33. Muncey T. Making sense of autoethnographic texts: legitimacy, truth, and memory. *Creat Autoethnogr.* 2010:85–111. <https://doi.org/10.4135/9781446268339>. SAGE Publications Ltd.
34. Jones SH, Adams TE, Ellis C. *Handbook of Autoethnography.* Routledge; 2016.
35. Green J, Thorogood N. *Qualitative Methods for Health Research.* Sage; 2018.
36. Damery S, Draper H, Wilson S, et al. Healthcare workers' perceptions of the duty to work during an influenza pandemic. *J Med Ethics.* 2010;36(1):12–18.
37. Aoyagi Y, Beck CR, Dingwall R, Nguyen-Van-Tam JS. Healthcare workers' willingness to work during an influenza pandemic: a systematic review and meta-analysis. *Infl Other Respir Virus.* 2015;9(3):120–130.
38. Ives J, Greenfield S, Parry JM, et al. Healthcare workers' attitudes to working during pandemic influenza: a qualitative study. *BMC Publ Health.* 2009;9(1):1–13.
39. Panayiotou A, Rafailidis V, Puttick T, Satchithananda K, Gray A, Sidhu PS. Escalation and de-escalation of the radiology response to COVID-19 in a tertiary hospital in South London: the King's College Hospital experience. *Br J Radiol.* 2020; 93(1116), 20201034.
40. *AHP Sam Reflects on Challenges of Leaving Critical Care after Pandemic Redeployment - East Suffolk & North Essex NHS Foundation Trust. East Suffolk and North Essex NHS Foundation Trust;* 2021. Published <https://www.esnft.nhs.uk/ahp-sam-reflects-on-challenges-of-leaving-critical-care-after-pandemic-redeployment/>. Accessed January 8, 2022.
41. A survey into the workforce utilised to support critical care units during COVID-19. E-lfh.org.UK. Published <https://www.e-lfh.org.uk/wp-content/uploads/2020/08/A-Survey-into-the-Workforce-utilised-to-Support-Critical-Care-Units-during-COVID-19.pdf>; 2020. Accessed March 17, 2022.
42. Treasure P, Moola A, Thorpe B, Subedi A, Rashid J. When radiographers were redeployed to intensive Care. *Synergy News.* 2021:24–25.
43. How have our allied health professionals responded to COVID-19? Health education England. Published <https://www.hee.nhs.uk/coronavirus-covid-19/how-have-our-allied-health-professionals-responded-covid-19>; 2022. Accessed March 17, 2022.
44. Griffiths I. Reflecting on redeployment. *Br J Nurs.* 2021;30(11):626, 626.
45. Faderani R, Monks M, Pehrah D, et al. Improving wellbeing among UK doctors redeployed during the COVID-19 pandemic. *Future Healthc J.* 2020;7(3):e71.
46. Rimmer A. Covid careers: how the pandemic changed my working life. *BMJ.* 2021; 375.
47. World Health Organization. *Framework for Action on Interprofessional Education and Collaborative Practice (No. WHO/HRH/HPN/10.3).* World Health Organization; 2010.
48. Barrow M, McKimm J, Gasquoine S, Rowe D. Collaborating in healthcare delivery: exploring conceptual differences at the “bedside”. *J Interprof Care.* 2015;29(2): 119–124.
49. Flood B, Smythe L, Hocking C, Jones M. Interprofessional practice: the path toward openness. *J Interprof Care.* 2021:1–8.
50. Buckland R. Medical student volunteering during COVID-19: lessons for future interprofessional practice. *J Interprof Care.* 2020;34(5):679–681.
51. Forbes P, Finch A. *Redeployed Staff and Better Teamwork: How COVID-19 Has Transformed Nursing.* 2020.
52. Montgomery CM, Humphreys S, McCulloch C, Docherty AB, Sturdy S, Pattison N. Critical care work during COVID-19: a qualitative study of staff experiences in the UK. *BMJ Open.* 2021;11(5), e048124.
53. Doyle J, Smith EM, Gough CJ, et al. Mobilising a workforce to combat COVID-19: an account, reflections, and lessons learned. *J Intens Care Soc.* 2022;23(2):177–182.
54. Coughlan C, Nafde C, Khodatars S, et al. COVID-19: lessons for junior doctors redeployed to critical care. *Postgrad Med.* 2021;97(1145):188–191.
55. Forrester S, Fisher G, Chieng CY, Rogers SN. Oral and maxillofacial dental care professionals in critical care during the COVID-19 pandemic. *Br J Oral Maxillofac Surg.* 2021;59(1):117–120.
56. Retzlaff KJ. Staffing and orientation during the COVID-19 pandemic. *AORN J.* 2020; 112(3):206.
57. Rees R. The many faces of COVID: experiences of deployment and redeployment by Neurology Registrars. *ACNR.* 2020;12.
58. Shi J, Giess CS, Martin T, et al. Radiology workload changes during the COVID-19 pandemic: implications for staff redeployment. *Acad Radiol.* 2021;28(1):1–7.
59. Atallah J, Shah S, Toy D, Dodelzon K, Schweitzer AD. The importance of imaging—Perspectives from redeployment. *Clin Imag.* 2021;69:380–383.
60. Payne A, Rahman R, Bullingham R, Vamadeva S, Alfa-Wali M. Redeployment of surgical trainees to intensive care during the COVID-19 pandemic: evaluation of the impact on training and wellbeing. *J Surg Educ.* 2021;78(3):813–819.
61. *NRSS and RSC Digital Skills Passport. Playbook for how to use and FAQs.* Published <https://criticalcare.yourskillspass.com/Framework/ResourceManagement/GetResourceObject.aspx?ResourceID=bc6139cb-d97c-4c09-90fa-029583f6cb45>; 2021. Accessed March 17, 2022.
62. Bismark M, Willis K, Lewis S, Smallwood N. *Experiences of Health Workers in the COVID-19 Pandemic: In Their Own Words.* Routledge; 2022.
63. Burke-Smith A, Brady C, Leon-Villalpalos J. Lessons to learn from COVID redeployment: should ITU experience be introduced into all future Burns Surgeons training? *Burns.* 2021;47(4):965.
64. Khan Z. Lessons learnt from COVID ward redeployment. *Facul Dent J.* 2021;12(2): 78–81.
65. Sykes A, Pandit M. Experiences, challenges and lessons learnt in medical staff redeployment during response to COVID-19. *BMJ Lead.* 2021.