

# What influences whether anaesthetists stay in the NHS?

Rapid research review

April 2021

# Key messages

Building a healthy, adequately staffed and well supported workforce is essential for the NHS to survive and thrive. The Royal College of Anaesthetists' Anaesthesia – fit for the future campaign ([www.rcoa.ac.uk/anaesthesia-fit-future](http://www.rcoa.ac.uk/anaesthesia-fit-future)) is exploring what the anaesthetic workforce needs to deliver the best possible care in the aftermath of COVID-19 and beyond.

As part of this, we wanted to know what influences anaesthetists and other professionals to stay working within the NHS. We worked with an independent team to review research published in the past 20 years. We found only 3 published studies about what influences anaesthetists to stay in the NHS. We compiled themes from 188 studies about retaining anaesthetists, surgeons and other NHS professionals.

The key things influencing whether anaesthetists and others stay in their roles are:

- **individual-level factors** such as **mental wellbeing** and burnout; **physical issues** associated with aging; the extent to which professionals felt **valued** and satisfied with their work; and family commitments and other priorities
- **role-related factors** such as **workload and working requirements**, including working on call; plus perceived **autonomy** in the role
- **organisational / team-related factors** such as organisational climate; leadership; communication; team morale; and **supportive relationships**
- **system-level factors** such as perceived **bureaucracy**; issues related to **income** and pensions; and concerns about **litigation** or risks

We found little good evidence about the best ways to retain professionals in the NHS. Teams have tested strategies such as peer support, reduced hours, bonuses and portfolio roles. However, it is difficult to say whether these are effective. Some studies looked at professionals' intentions, but did not follow up to see whether people stayed in their roles. Others found improvements in job satisfaction or wellbeing, but did not see whether this encouraged people to keep working in the NHS.

Our rapid review highlights that, although there are many opinions and anecdotal accounts, there is very little real evidence about what would encourage anaesthetists to stay working in the NHS. This is a significant gap which we want to fill in order to support practical solutions to our workforce crisis.

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## Acknowledgements

The Royal College of Anaesthetists ([www.rcoa.ac.uk](http://www.rcoa.ac.uk)) is the professional body responsible for the specialty of anaesthesia throughout the UK. We are the third largest medical royal college in the UK, with a combined membership of 23,000 fellows and members. We ensure the quality of patient care by safeguarding standards in the three specialties of anaesthesia, intensive care and pain medicine.

The Evidence Centre ([www.evidencecentre.com](http://www.evidencecentre.com)) undertook this review for us. The Evidence Centre is an independent organisation that helps teams use evidence to make better decisions.

The review describes published research and does not necessarily reflect our views or those of The Evidence Centre.

# Setting the scene

## Anaesthesia – fit for the future

Anaesthesia is the largest hospital specialty in the NHS. During the COVID-19 pandemic, anaesthetists have played a critical role in supporting intensive care departments to look after the sickest COVID-19 patients. As we emerge from the worst of the pandemic, anaesthetists will continue to have a key role in the NHS' recovery and managing subsequent surges of the virus.

Anaesthesia – fit for the future ([www.rcoa.ac.uk/anaesthesia-fit-future](http://www.rcoa.ac.uk/anaesthesia-fit-future)) is the Royal College of Anaesthetists' UK-wide campaign to develop a vision for 'team anaesthesia' and explore the support it needs to deliver the best possible care in the aftermath of COVID-19 and beyond.

Having a happy, healthy and well resources anaesthetic workforce is key to the future of healthcare in the UK. Anaesthesia is facing a perfect storm of workforce challenges:

- The **COVID-19 pandemic added to pressures** that anaesthetists have faced for years and created a backlog of elective procedures. Our members say they are exhausted and that **anaesthetic departments are stretched to the limit**. Our survey of anaesthetists during the pandemic found that people felt burnt out. 2 out of 3 said they suffered mental distress because of working during the pandemic (64%). 1 in 3 said there was very low team morale (34%). 1 in 4 said they did not have time to rest (24%).<sup>1</sup>
- Even before COVID-19, the UK's anaesthetic workforce was **not growing fast enough to keep up** with the predicted increase in service demand. In 2020, 4 in 10 members of the anaesthetic workforce were aged 50 or older (39%). Fewer newly qualified anaesthetists are entering the workforce than before (a reduction of one third between 2013 and 2019). There are too few new anaesthetists qualifying to meet future demand.<sup>2</sup>

In the long-term there is a need to boost the pipeline of newly qualified anaesthetists completing training. Right now, we can retain existing talent to remain working in the NHS for longer, rather than retiring, moving elsewhere or pursuing other interests. We wanted to know what influences whether anaesthetists and other professionals stay working within the NHS. Here we summarise a rapid review of published research about this. We are also asking our members to share their views and provide their first-hand experience.

## Review approach

We wanted to know: **what factors influence whether anaesthetists, surgeons and other frontline NHS professionals stay in the healthcare workforce?**

To help find out:

- we searched for studies published between January 2000 and April 2021
- we prioritised systematic reviews that drew together relevant studies as well as any additional studies we could find, of any research design. We included systematic reviews from anywhere in the world because reviews typically combine studies from several countries, including the UK
- we focused on studies about what influences fully qualified professionals to remain in the healthcare workforce, not trainees

We included:

- **studies from high income countries about the retention of anaesthetists and surgeons.** The health systems of other countries vary widely and we wanted to concentrate on retention in the UK. However, we included research about anaesthetists and surgeons in other countries too because we knew little was available from the UK. We included surgeons because we thought they may face similar issues to anaesthetists
- **studies from the UK about the retention of any NHS staff.** We knew that not much had been published specifically about the anaesthetist workforce in the UK and believed that some of the factors influencing other NHS staff may also impact on anaesthetists

We worked with an independent team who searched 6 bibliographic databases to identify relevant research.<sup>1</sup> We screened over 6,000 potential articles and identified **188 relevant studies. Most were published within the past 5-6 years.**

We searched extensively, but we did not aim to include every study ever published. This review was designed to draw out key themes quickly to help us plan next steps.

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<sup>1</sup> The databases were the Cochrane Library, EBSCO, Embase, Google Scholar, Medline, Scopus and Web of Knowledge. We used combinations of the search terms retention, retain, retire, workforce, anaesthe\*, surgeon, NHS, staff, health professional, job satisfaction, wellbeing and UK.

# What influences retention?

## Anaesthetists and surgeons

In this section we describe research about anaesthetists and surgeons in the UK and other countries. This is based on 50 studies.

### Factors influencing retention

We identified a limited amount of published research about factors influencing whether anaesthetists and surgeons stayed in the healthcare workforce or with their specific employers. Most studies were from Europe and the USA. Only 3 studies including anaesthetists focused on the UK. International literature often included certified nurse anaesthetists.

Factors reported to influence people's decisions about staying included:

#### Personal / individual factors

- **mental health** and levels of stress, burnout and emotional exhaustion, as well as the ways people chose to cope with this<sup>3,4,5,6,7,8,9,10</sup>
- **physical issues** associated with aging and injuries to anaesthetists from repetitive motion, slips and falls, needle stick injuries and fatigue<sup>11,12,13,14</sup>
- the extent to which professionals felt **valued**, meaningfully employed and satisfied with their work<sup>15,16</sup>

#### Professional / role-related factors

- **workload and working requirements**, including working overnight and at weekends, and flexibility or work/life balance<sup>17,18,19,20,21,22</sup>
- the extent of perceived **autonomy** to make decisions and practice appropriately<sup>23,24,25,26</sup>

#### Organisational / team-related factors

- organisational climate, including leadership, communication and **relationships** with colleagues<sup>27,28,29,30,31,32</sup>

#### System-level factors

- perceived **bureaucracy** and issues with the health system<sup>33,34</sup>
- **income** and pensions (particularly outside the UK)<sup>35,36,37</sup>
- concerns about **litigation** (outside the UK)<sup>38</sup>

## Research from the UK

One of the most relevant studies was a survey of over 3600 late-career doctors in the UK, including anaesthetists and surgeons. In 2014, everyone who graduated as a doctor between 1974 and 1977 was sent a survey. Almost 9 out of 10 people responded (85%). Around half were still working in medicine.

The survey asked retired doctors why they had retired. Half said this was because they wanted more time for leisure or other interests but 4 in 10 said they retired due to the pressure of work (43%). Women were more likely than men to say they retired for family reasons. Anaesthetists and GPs were more likely than other doctors to say they retired due to **potential deteriorations in skill or competence**. Anaesthetists, surgeons, radiologists and obstetricians were more likely than others to say they left as they did not want to do **out-of-hours work**.

The survey asked doctors still working in medicine what would encourage them to stay longer. The most common suggestions, made by 4 in 10 doctors, were **reducing work-related bureaucracy** (45%) and **shorter hours** or reduced workload (42%). Men (30%) were more motivated than women (20%) by financial incentives. Surgeons were more likely than other doctors to say that **reducing on-call** or emergency commitments would encourage them to remain working.<sup>39</sup>

Other UK studies identified factors that may be detrimental to anaesthetists' wellbeing, though they did not explicitly explore whether this affected retention. For instance, a national survey explored out-of-hours working and fatigue in consultant anaesthetists and paediatric intensivists in the UK and Ireland. Around half of the consultants employed in 2018 responded to the survey, with 9 out of 10 hospitals represented (94%). Most consultants took part in night on-call rotas. The study found that sleep disturbance on-call is common. Half of the participants said they typically receive 2 to 3 telephone calls overnight. 9 out of 10 reported work-related fatigue. Over half reported that this had a negative effect on their health, wellbeing and home life.<sup>40</sup>

Similarly, a review of 72 studies explored occupational illness in UK doctors, including anaesthetists and surgeons. The reviewers concluded that:

"Mental health issues including burnout were widely reported and were attributed to greater job constraints, managerial issues, difficulty with clinical cases and lack of job satisfaction. Substance abuse in doctors was reported to be a risk of maladaptive coping mechanisms and was associated with early retirement. Surgeons were reported as being at greatest risk of needle-stick injuries and musculoskeletal pain. Orthopaedic surgeons were reported to be at risk of noise-induced hearing loss."<sup>41</sup>

## Examples of research from other countries

Most of the published research about factors affecting anaesthetist and surgeon retention was from outside the UK. These studies often focused on things that may affect job satisfaction and wellbeing. The researchers commented that this may in turn affect retention, though usually did not explore this directly. The overall findings are summed up by an international narrative review which stated:

“Studies in anaesthesiology cite autonomy, control of the work environment, professional relationships, leadership, and organisational justice as the most important factors in job satisfaction. Factors such as difficulty in balancing personal and professional life, poor attention to wellness, work alcoholism, and genetic factors increase an individual's susceptibility to burnout.”<sup>42</sup>

## Physical wellbeing

Experts from the UK, Australia, NZ and Canada considered issues affecting older surgeons. They suggested that age-related physical changes can affect surgeon's performance.<sup>43</sup>

This is supported by a survey of almost 600 surgeons across Europe, including the UK, which found that about two thirds experienced a high level of work-related pain. Half said that their physical discomfort would influence their ability to perform or assist with surgical procedures in the future. These surgeons also reported significantly lower satisfaction from their work.<sup>44</sup>

## Mental wellbeing

Much of the research focused on 'individual' factors such as the risk of stress, burnout and poor mental health. These things are influenced by organisational and system-level factors, but the studies tend to explore them at 'individual' level.

For instance, researchers in the USA surveyed over 5000 new anaesthetists. Half reported burnout and one third distress. Staff who said they could retain a good work/life balance and those who thought their workplace was well resourced were less likely to report burnout or distress. Those who worked longer hours each week were more likely to report distress and depression.<sup>45</sup>

A study in China explored factors influencing stress, burnout and intention to leave amongst 198 nurse anaesthetists from six hospitals. Key factors included:<sup>46</sup>

- satisfaction with income and the working environment
- number of working hours per week
- clarity about their role, responsibilities and perceived career prospects
- physical health

There is more research about the mental health effects for surgeons. A systematic review of 71 studies about the impacts of working as a surgeon found that surgeons have a high prevalence of burnout, mental health issues and depression, with more suicidal thoughts compared to the general population.<sup>47</sup>

Gender-related factors are not well researched though some studies point to gender differences that may influence whether anaesthetists stay working.<sup>48</sup> Researchers in Canada suggested that the risk of burnout and mental ill-health may be higher for female anaesthetists due to inequities within the specialty. They argued that women and men experience stressors and burnout differently, but this was not based on empirical data. The researchers suggested that the COVID-19 pandemic may have accentuated gendered factors related to retention, as many women were responsible for dependents and home schooling in addition to work roles.<sup>49</sup>

### **Job satisfaction**

Closely related to mental wellbeing, is whether people feel satisfied with their roles. Researchers in the USA surveyed certified registered nurse anaesthetists about their job satisfaction and factors that may influence retention. They found that nurse anaesthetists who had greater autonomy in their roles, higher pay and more access to refresher training were most likely to be highly satisfied with their jobs, and more likely to plan to stay.<sup>50</sup>

Another study in the USA examined factors influencing retention in over 1500 trauma / acute care surgeons. The average age was 47 years.

- Around half said that at this stage in their career, quality of life was most important to them.
- One third said they were motivated by career ambitions and 1 in 10 by salary.
- Teaching and positive patient care made surgeons more satisfied.
- Burnout, bureaucracy and the work environment were seen as detractors.
- 8 out of 10 said they would change jobs in the final 10 years of practice, with one third saying they would want to cut down on work due to family responsibilities or work/life balance.
- A lack of professional growth, high workload and issues with salary also motivated people to leave their roles.<sup>51</sup>

Elsewhere in the USA, 22 neurosurgeons described their reasons for retiring. These included decreasing personal satisfaction and financial rewards, desire to do other things, local rules mandating retirement at a certain age, a sense that 'enough is enough' and a strong desire to stop performing surgery while at the 'top of their game'.<sup>52</sup>

## **Working culture and relationships**

A smaller number of studies have explored team and organisational factors that may influence retention amongst anaesthetists and surgeons. For instance, interviews with 32 surgeons in Canada found that working culture and relationships strongly influenced their career satisfaction and retention:

“Surgeons experienced the most satisfaction from their ability to resolve patient problems quickly and effectively, enhancing their sense of the meaningfulness of their clinical practice. The supportive relationships with colleagues, trainees, and patients was also cited as a key source of career satisfaction. Conversely, insufficient access to resources and a perceived disconnect between hospital administration and clinical practice priorities were raised as key ‘systems-level’ problems. As a result, many participants felt alienated from their work by these systems-level barriers that were perceived to hinder the provision of high-quality patient care.”<sup>53</sup>

A systematic review identified 48 studies about what influenced job satisfaction in the operating room. Factors included:

- working conditions
- support and acknowledgement from management or management pressure
- feeling fulfilled by the clinical role
- career prospects and research opportunities
- autonomy and using a person’s full range of skills
- team dynamics, communication and social support systems<sup>54</sup>

Another systematic review of 32 studies from various countries found that bullying, undermining behaviour and harassment were common in the surgical workplace. This can impact on people’s mental health, job satisfaction and retention.<sup>55</sup>

Interviews in Sweden explored why 15 nurse anaesthetists and operating room nurses choose to stay working in the same place. The reasons included organisational stability, good relationships between colleagues, emphasising everyone’s equal value, opportunities for development and supportive leadership.<sup>56</sup>

Another study in Sweden interviewed 20 anaesthesia and operating room nurses about the reasons they chose to leave their workplaces. The main reasons were dismissive attitudes of leaders and colleagues, not feeling needed, difficult working conditions with negative health effects, lack of autonomy and lack of work-life balance.<sup>57</sup>

## Other NHS professionals

We also explored factors that may affect the retention of other types of NHS frontline staff. We found 90 studies, including systematic reviews where not all of the studies included were from the UK. Most of the available research focused on hospital nurses and general practitioners.

Research suggests that the following factors may impact on retention in the NHS:

### Perceived value and autonomy

- whether people felt they were making a difference and were **valued**<sup>58,59,60,61,62,63</sup>
- whether people thought they had enough **autonomy** or felt demoralised or not able to use all their skills<sup>64,65,66,67,68</sup>

### Perceived support and leadership

- perceived (lack of) support, **leadership** and role models<sup>69,70,71</sup>
- work social environment and **team culture**, including engagement and relationships with colleagues or bullying<sup>72,73,74,75,76,77,78</sup>
- **organisational culture** and working environment, including (non) **hierarchical** team structure<sup>79,80</sup>
- opportunities for **professional development** and career advancement<sup>81,82,83</sup>

### Workload and balance

- the quantity and intensity of the **workload** given available staff<sup>84,85,86,87,88,89</sup>
- **work / life balance**, family commitments or family concerns<sup>90,91,92,93,94,95,96</sup>
- work shift patterns, such as 8 versus 12-hour shifts and being **on call**<sup>97,98,99,100,101</sup>
- (lack of) **flexible** or part-time hours<sup>102,103,104</sup>

### Impact on health and wellbeing

- perceived impact of work on **physical health**<sup>105</sup>
- stress, **burnout** and emotional fatigue<sup>106,107,108,109</sup>

### Working processes and reimbursement

- **pay issues** or perceived (in)equity of pay, off-duty / leave arrangements or terms and conditions across staff or between organisations<sup>110,111</sup>
- perceptions of bureaucracy and **requirements** including appraisals and validation<sup>112,113,114</sup>
- fear of making mistakes or **litigation** and other risks from service delivery<sup>115,116,117</sup>
- impact of ongoing work on **pensions** or taxes<sup>118,119,120</sup>

## Mental wellbeing

As with anaesthetists and surgeons, many studies focused on individualised factors such as stress or burnout. Research suggests that the NHS has a higher than average level of stress-related work absence than all other employment sectors in the UK. Surveys and interviews with employees from 3 NHS trusts found that working conditions influenced mental wellbeing and stress. **Work relationships** and communication had a significant influence on workplace stress, which may also influence people's intention to stay in their roles.<sup>121</sup>

A survey of almost 600 NHS hospital consultants found high rates of anxiety (43%), emotional exhaustion (39%) and depressive symptoms (36%). Consultants that did not feel they had good job **autonomy** were more likely to say they intended to retire early, especially if they felt burnt out. The researchers concluded that retention interventions should focus on enhancing working conditions and addressing burnout.<sup>122</sup>

## Working conditions

Other studies have explored issues related to people's working conditions, environment or organisational culture. For instance, interviews with 44 radiography staff found that factors influencing decisions to leave or remain within the NHS included:

- challenging working patterns which impacted on staff health and wellbeing
- lack of flexibility in working terms and conditions
- lack of timely career progression and access to continuing professional development
- a desire to feel valued

People said that they 'loved being a radiographer' and that small changes to workplace culture might incentivise them to remain working in the NHS. Managers recognised that it would be beneficial to offer greater **flexibility in working patterns** but said this was challenging within financial and service delivery constraints.<sup>123</sup>

There were similar findings from a survey of almost 17,000 NHS nurses:

"Nurses who reported being psychologically engaged with their jobs reported a lower intention to leave their current job. The perceived availability of developmental opportunities, being able to achieve a good work-life balance and whether nurses' encountered work pressures were also influencing factors on their turnover intentions."<sup>124</sup>

Another survey of around 500 nurses outside hospital found that older nurses were more likely to stay working if they felt valued, were clear about pension considerations, and were offered **reduced working hours** and reduced workload near retirement. Factors that influenced nurses to leave included pay, high administrative workloads, difficulty combining work and family commitments and lack of workplace support.<sup>125</sup>

A systematic review identified 31 studies about wages, job satisfaction and retention in the NHS. People who were not satisfied with their jobs were more likely to leave. Pay was found to influence satisfaction, which in turn impacted on retention. However, **increasing pay alone was unlikely to retain more staff**. Changes to the working environment, flexibility, autonomy, training and staffing levels were potentially more important than reimbursement rates.<sup>126</sup>

Some NHS staff leave to work in other countries. A study of UK GPs who migrated to Australia found that they were attracted by less uncertainty around their career. The researchers suggested that an **uncertain NHS climate** may push more risk averse doctors away from the UK.<sup>127</sup>

A similar study of hospital doctors that had emigrated from Ireland to Australia found that **employment conditions** were a key driver. This included medical hierarchies and governance, staffing and support and supervision.

“Findings indicate that retention of hospital doctors is as much about the quality of the work experience, as it is about the quantity and composition of the workforce... Effective policy for the retention of hospital doctors requires an understanding of the organisation of work within health systems. Crucially, this can create working contexts in which doctors flourish or from which they seek an escape.”<sup>128</sup>

## Job satisfaction

Many studies assume that job satisfaction is strongly linked to whether people stay in healthcare. Whilst there is some evidence for this, this may not be a simple relationship.

One study surveyed more than 1000 GPs in England aged over 50 years and followed up by looking at whether they left general practice over the next five years. GPs who expressed higher levels of job 'dissatisfaction' were more likely to leave. However, **higher levels of job 'satisfaction' did not prevent GPs from leaving.**<sup>129</sup>

Another study explored whether allied health professionals' commitment to the NHS impacted on their job satisfaction and turnover. Professionals aged over 45 who felt highly committed to the NHS continued to have high job satisfaction, even when they had a high workload. This effect was not as strong in younger professionals. The researchers suggested that age-specific policies to inspire commitment to the NHS may support retention.<sup>130</sup> This study was conducted before the COVID-19 pandemic and it is uncertain whether people's commitment to the NHS may have altered over the past year.

## Support and morale

How people cope with workload, stress and job pressures is likely to be mitigated by many factors. Research suggests that leadership, relationships with colleagues and support mechanisms may influence retention in the NHS.

For instance, a review of six UK studies and one Australian study explored the factors influencing whether GPs leave the profession. GPs with high job satisfaction were more likely to say they would remain in post. High job satisfaction was associated with **feeling supported** and having good relationships at their practice. GPs with poor job satisfaction said they felt overworked and unsupported.

“Combined with changing relationships with patients and interfaces with secondary care, and the gradual sense of loss of autonomy within the workplace, many GPs report a reduction in job satisfaction. Once job satisfaction has become negatively impacted, the combined pressure of increased patient demand and workload, together with other stress factors, has left many feeling unsupported and vulnerable to burn-out and ill health, and ultimately to the decision to leave general practice.”<sup>131</sup>

Interviews with 21 early career GPs found that **support from senior staff** and colleagues influenced GPs' job satisfaction, engagement and intention to stay. Feeling valued and having efforts acknowledged and respected was important. Perceived support was critical to whether doctors intended to stay working in the NHS<sup>132</sup>

Other studies about GPs have similar findings.<sup>133,134,135</sup>

“Changes in the psychosocial work environment had contributed to a steady decline in morale. Sequential, multi-layered reductions in autonomy were the most commonly cited causes for reduced enthusiasm. Increasing demands in the form of both a rising workload as well as a complaints culture drained energy and morale. The GPs described increasingly fragmented teams and therefore reduced social support for the role.”<sup>136</sup>

### Negative experiences in the workplace

Harassment and discrimination may also impact on staff retention. A survey of almost 1000 staff working in London NHS trusts found that staff who were women, Black, migrants, nurses and healthcare assistants were most at risk of perceived discrimination and/or harassment. Experiencing discrimination or harassment impacted on people's mental health. Witnessing and / or experiencing discrimination or harassment were associated with low job satisfaction and long periods of sickness absence.<sup>137</sup>

A review of studies from the UK and elsewhere found that gender bias and sexual discrimination is common in orthopaedic services, including surgery.<sup>138</sup> This may include poor workforce representation, lower salaries and less career progression amongst women compared to men. The few mitigating strategies studied focused narrowly on female role models, mentors and educational interventions.<sup>2</sup>

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2 On a related note, a survey of almost 12,000 doctors working in anaesthesia in 148 countries found that women were more likely to report being mistreated in the workplace. Female anaesthetists were also less driven to achieve leadership positions. However, this survey did not explore gender differences in retention.<sup>2</sup>

## Reviews of research

Findings about the NHS are supported by systematic reviews which sought out studies from the UK and internationally about retention in various roles. For instance, a systematic review identified 82 UK and international studies about what motivates medical professionals to continue working or to leave. Low morale, **feeling disconnected** from work and colleagues, unmanageable change and lack of personal and professional support influenced people to leave. Feelings of mastery, membership and meaning helped to retain professionals.<sup>139</sup>

In the UK there are currently around 50,000 nursing vacancies and the number of nurses leaving the profession is increasing. A systematic review of factors affecting retention amongst nurses in hospital identified 47 studies from the UK and elsewhere. The studies identified 9 common themes influencing nurse retention:<sup>140</sup>

- nursing leadership and management
- education and career advancement
- organisational (work) environment
- staffing levels
- professional issues
- support at work
- personal influences
- demographic influences, such as aging
- financial remuneration

Another systematic review with 27 studies from the UK and other countries explored what influenced over 35,000 older nurses to retire or stay in their roles. Key factors included nurses' **personal health and wellbeing**, family issues, professional factors, financial factors and issues related to the employer. Age had the biggest influence, followed by personal and then organisational factors. The reviewers concluded that older nurses were more likely to be retained when they felt valued, and where their personal and professional needs could coexist.

“Organisations need to foster an environment where older nurses feel respected and heard and where personal and professional needs are addressed...Older nurses are more likely to extend their working lives if they feel committed to their organisation and when professional standards are maintained.”<sup>141</sup>

Another review with 40 studies explored nurse retention in rural settings in the UK and other countries. Factors were grouped into personal, professional and place-related:

- The **personal dimension** contained five factors: a sense of belonging / connectedness, knowledge of the culture, blurring of personal and professional lives, anonymity and job satisfaction / stress.
- The **professional dimension** included factors such as skillset, professional isolation, mentorship, education, autonomy and empowerment, role conflict, and recruitment and retention.
- The **place dimension** included the working environment, resources, geographical isolation and safety.<sup>142</sup>

Several other reviews have found that similar factors influence nurse retention.<sup>143,144,145,146</sup>

Research is also available about the increasing numbers of NHS paramedics taking time off or leaving the ambulance service. A review identified 22 studies from the UK and elsewhere about how paramedic shift work **impacts on workers' families** and how this could influence retention. The reviewers found that paramedics are at high risk of sustaining a work-related injury and are concerned about this. Their families often raise concerns about their safety at work. The mechanisms that paramedics employ to cope with emotional work-related stress may carry over into their home environment with negative impacts.

The reviewers found that characteristics of shift work such as the length of shifts, weekend work, high working hours and inflexible schedules all contributed to low job satisfaction, work-family conflict, relationship problems and difficulties with child rearing and maintaining a social life. The review concluded:

“Changes are required in the organisational culture, from one which denigrates staff for reporting injuries, for showing emotions and for struggling to balance their home life with work, to one which improves paramedics' experience at work and therefore their home life too. Investment in education programmes for families on how to enable emotional processing and the risks this carries will improve the picture for families. Flexible work arrangements are an area of organisational reform that could greatly improve job satisfaction and staff retention and recruitment.”<sup>147</sup>

# Improving retention

## Anaesthetists and surgeons

In this section we describe research about strategies to improve retention in anaesthetists and surgeons. This is based on 10 studies, all but one of which were from outside the UK.

We identified few studies about strategies to improve the retention of anaesthetists or surgeons. The studies available tended to focus on improving mental wellbeing or job satisfaction as a proxy for potentially increasing retention. We have not summarised studies about improving wellbeing or burnout in general, only those that explicitly mentioned that this may improve retention, even if the studies did not measure those impacts. There are likely many other interventions tested to improve workload, efficiency, stress and job satisfaction, but these were not our focus.

We found studies about:

- **mental wellbeing programmes** such as online toolkits,<sup>148</sup> daily meditation exercises to support stress reduction<sup>149</sup> and programmes to help people cope with trauma or difficult situations<sup>150</sup> and peer support<sup>151</sup>
- **education** of family members / children<sup>152</sup>
- **fatigue management** strategies such as scheduling, using bright lights and microbreaks and strategic naps<sup>153</sup>
- **changes to working times and payment approaches**, such as extended operating room hours<sup>154</sup> or more flexible working<sup>155</sup>
- changes to **clinical management** such as using a 'surgeon of the day' system<sup>156</sup>

There was not enough evidence about whether these types of interventions improved retention.

For instance, in Australia a free **online toolkit** has been developed to help organisations run mental wellbeing programmes for anaesthetists. The toolkit describes five steps that organisations can use to develop appropriate programmes, regardless of location or funding. The toolkit has been described with case stories, but as yet no information has been published about the impact on wellbeing or retention.<sup>157</sup>

In Germany, short **daily meditation exercises** were built into the day to day work of anaesthetists. The aim was to help staff develop mechanisms to cope with stress and improve their resilience and health status. Staff were invited to take part in 1-hour mindfulness sessions for 6 weeks and encouraged to do an extra 20 minutes of daily meditation. In a small study with 27 participants from one hospital, there was an improvement in resilience and signs of burnout which lasted for up to six months. The researchers suggested that it was feasible to build in short exercises during and after the daily work of anaesthetists, and that this may have impacts on retention, but retention was not measured.<sup>158</sup>

Researchers in the USA explored the value of **teaching the children of anaesthesia professionals** what their parents do. The aim was to improve the wellbeing of professionals, which may have longer term impacts on retention. Children aged between 5 and 18 years attended four 1-hour sessions along with their parent, who was an anaesthesia professional. The sessions covered paediatric anaesthesia, neuro-anaesthesia, airway and ultrasound stations. Professionals and their children both enjoyed the programme. Professionals said they felt supported by their organisation and thought it was meaningful for their department to try to involve their families. They also thought their children better understood their work. The researchers concluded that a simple family education programme was feasible and effective for increasing professional fulfilment and work satisfaction amongst anaesthesia professionals. The study did not follow up to see whether this impacted on retention.<sup>159</sup>

Another small study in the USA explored a **flexibility-based compensation structure** for nurse anaesthetists. Staff could work more flexibly and be paid accordingly. This allowed some staff to work reduced hours in line with their other priorities or commitments, but increase their hours when needed to cover patient demand. The authors stated that this could benefit retention, but did not provide empirical data to support this.<sup>160</sup>

## Other NHS professionals

In this section we describe strategies to improve retention in other NHS professionals. This is based on 38 studies, including systematic reviews which compiled studies from the UK and elsewhere.

We found research about interventions aiming to improve retention of NHS professionals such as GPs, paramedics, mental health staff and hospital staff, particularly nurses. These fell into the following categories:

### Support initiatives

- support **networks**<sup>161</sup> and online peer support<sup>162,163</sup>
- **roles** to support staff such as skills facilitators,<sup>164</sup> buddies and mentors<sup>165,166,167</sup>
- **educational initiatives** to help deal with trauma, stress or bullying<sup>168,169</sup>
- other social or **support activities**, such as staff singing groups<sup>170</sup> or opportunities to reflect on work<sup>171</sup>

### Professional development

- opportunities for **training**, shared learning, clinical supervision and fellowships for new and more experienced professionals<sup>172,173,174,175</sup>
- **career development pathways** specific to the speciality<sup>176,177</sup>
- opportunities to take part in quality improvement **projects** and similar<sup>178</sup>
- **portfolio careers**, where people do another role or project for some days each week or month<sup>179,180</sup> or staff rotations<sup>181</sup>

### Reimbursement and terms

- **financial** incentives<sup>182,183</sup>
- equitable **employment terms** and conditions across staff hired at different times and in different organisations<sup>184</sup>

### Other initiatives

- shared governance / distributed leadership models and **staff engagement** initiatives<sup>185,186</sup>
- rest and **recovery spaces**<sup>187</sup>
- initiatives to support **work/life balance**<sup>188</sup>
- more **advance warning of rosters** and the on call rota<sup>189</sup>
- **identifying** and supporting teams where staff may retire<sup>190</sup>

Most of the research suggested positive short-term outcomes at the level of the individual, such as reduced stress or burnout. Some found that staff were more likely to say they intended to stay in their roles. However most studies did not explore the medium to longer term impact on retention, in other words whether staff actually did remain in their roles.

Most of the studies focused largely on individual or small team factors, rather than broader organisational or system-level approaches. However commentators note that interventions targeting multiple levels may be more advantageous.

“Relentless workloads are birthing unprecedented levels of burnout, mental ill health, substance misuse, and suicide amongst clinical staff working in the NHS. ... Interventions for increasing clinician wellbeing and resilience must encompass strategies at the personal level, at peer groups and teams, right through to the level of the culture and practices - the "operating system" - of the whole organisation.”<sup>191</sup>

## Examples

We provide a small number of examples of the types of research available here, to give a flavour of the (limited) findings.

A study of 1-year of **resilience-based clinical supervision** for newly qualified nurses found that this type of support helped nurses develop self-care strategies and the confidence to challenge their working conditions.<sup>192</sup>

Another study gathered feedback from 28 GP partners and GPs working in national organisations about the best strategies to support retention. Suggestions included providing practices at risk of GP shortages with a toolkit for managing recruitment and retention; **peer support** to enhance health and wellbeing; portfolio careers; and strategies to limit GP workload and manage patient demand. These were people’s opinions about ways to improve retention, rather than initiatives that have been found to be effective.<sup>193</sup>

**Supported Wellbeing Centres** have been set up in UK hospital trusts to address the psychological impact of COVID-19 on healthcare workers and retain and support staff. A 17-week study explored Wellbeing Centre use at two sites and surveyed 819 staff. The centres were highly valued by staff, but were resource-intensive, with 134 wellbeing buddies supporting the centres in pairs. Staff who had used the centres reported greater wellbeing than others. The researchers concluded that healthcare organisations should provide access to high-quality rest spaces and psychological first aid, adapted to meet local needs.<sup>194</sup> The initiative aimed to support retention but it is as yet too early to report on this.

## Reviews of research

We also identified some systematic reviews drawing together studies from the UK and elsewhere about retention initiatives. For instance, a systematic review found 16 studies about improving retention in child health. The six most researched strategies were professional advocacy, workforce diversity, mentorship, improving **working conditions**, career flexibility and enhancing educational opportunities.<sup>195</sup>

A review of 51 studies included 42 different interventions to recruit or retain GPs. Retention initiatives mainly focused on **financial incentives**, wellbeing or peer support initiatives and support for professional development or research. There was limited evidence of effectiveness about most interventions and mixed evidence about financial rewards.<sup>196</sup>

A review of 179 studies, mostly from the USA, explored strategies to improve doctors' mental wellbeing. Doctors were more likely to experience mental ill-health when they felt isolated or unable to do their job and when they feared seeking help. 1 in 3 studies focused on structural-level interventions, 1 in 5 on individual-level interventions and the rest on interventions that spanned both levels. Interventions focused on **relationships and belonging** were more likely to improve wellbeing. Interventions creating a people-focused working culture and acknowledging the positive and negative aspects of a medical career helped doctors thrive. Doctors needed to have confidence in an intervention for the intervention to be effective. The reviewers noted that the quality of the studies varied widely and there were limited studies from the UK.<sup>197</sup>

A review of 37 studies examined the impact of mentoring on doctors' wellbeing. **Mentoring** was found to improve personal wellbeing, including confidence and stress management. However the impact on retention was not documented.<sup>198</sup>

Another review with 11 studies explored the benefits of text messages and message apps, social media and online forums and online interventions to decrease stress and build a sense of community amongst nurses. Some of the studies suggested that these **technologies** may support nurses who find it difficult to communicate in person due to the time pressures of their work. Potential benefits on retention were mentioned, but no empirical evidence was presented.<sup>199</sup>

This is reinforced by a review of health professional recruitment and retention strategies. The reviewers identified 64 studies about 34 different interventions in 20 European countries, including the UK. However there was **a lack of evidence** about whether the strategies were effective. Most interventions were not part of a coherent package of approaches. The reviewers suggested that bundles of interventions are more likely to be effective.<sup>200</sup>

# Summary

## What influences whether healthcare professionals stay?

Our *Anaesthesia – fit for the future* campaign focuses on how to make the anaesthetic workforce more sustainable and able to cope with the increases in service demand. One element of the campaign is looking at challenges retaining anaesthetists.

The reasons why an individual chooses to stay or leave the NHS are as varied as our diverse workforce. But we wanted to explore if there were any themes in factors influencing whether anaesthetists and others choose to stay working in the NHS.

Our rapid review of 188 studies suggests that the main things influencing healthcare professionals' decisions are:

- **individual-level factors** such as **mental wellbeing** and burnout; **physical issues** associated with aging, such as eyesight and dexterity; and the extent to which professionals feel **valued** and satisfied with their work
- **role-related factors** such as **workload and working requirements** including working on call; plus the extent to which roles give people a sense of **autonomy** and opportunity to use their range of skills
- **team-related factors** such as organisational climate, leadership, communication, team morale and **supportive relationships** with colleagues
- **system-level factors** such as perceived **bureaucratic** requirements and issues related to **income** and pensions

## What solutions encourage NHS professionals to stay?

The short answer is: we don't yet know.

There are striking similarities between the factors influencing anaesthetists and other professionals to remain in the workforce, as well as similarities between anaesthetists in the UK and other countries. Given this commonality, it is surprising that we do not have more evidence-based solutions to help retain our essential workforce.

Many initiatives have been tested to improve staff wellbeing, reduce stress or increase support, but few studies have explored whether these increase retention. Many of the potential solutions tested assume that increasing professionals' satisfaction with their jobs will automatically mean people are likely to continue working. However some research suggests that this is not necessarily the case.<sup>201</sup>

Even studies which explicitly consider retention tend to focus on people's self-reported plans to stay, rather than following up over time to see whether people really do continue in their roles. We identified no studies of retention initiatives that followed up the UK anaesthetic workforce in this robust way.

Over the next 2-years, over 2,300 more anaesthetists are needed to fully staff hospital departments to cope with demand. We estimate that only around 700 new anaesthetists will qualify over the next 2-years,<sup>202</sup> so we urgently need to find practical solutions. Anaesthesia is not alone in facing workforce challenges, but unlike many other specialties there is no potential for cross-cover from other types of doctors. As well as a reduction in newly qualified anaesthetists joining the profession, demand for senior anaesthetists continues to increase. This is due to rises in older people needing care, complex new surgical procedures that require more experienced anaesthetists, additional roles in perioperative medicine and more weekend and evening work. The backlog of planned operations as a result of COVID-19, places even greater pressure on our workforce. The published literature does not signpost us to simple solutions, but it does give us a good idea of the 'make or break' issues that influence people's decisions.

Our rapid review highlights that, although there are many opinions, there is very little real evidence about practical things that will encourage anaesthetists to stay working in the NHS. This is a significant gap in knowledge, and one that we would like to help fill. We are seeking feedback from our members about their plans to stay in the NHS and the things that would encourage them to keep working for longer. This will help us campaign for solutions in policy and practice.

# References

- 1 Royal College of Anaesthetists. *View from the frontline of anaesthesia during COVID-19, July 2020 survey results*. London: Royal College of Anaesthetists, 2020. <https://www.rcoa.ac.uk/sites/default/files/documents/2020-07/View-from-the-frontline-anaesthesia-during-COVID-19-July2020.pdf>
- 2 Royal College of Anaesthetists. *Medical Workforce. Census Report 2020*. London: Royal College of Anaesthetists, 2020. <https://www.rcoa.ac.uk/training-careers/working-anaesthesia/workforce-planning/medical-workforce-census-report-2020>
- 3 Bittinger AC, Dunn K, Hranchook A, Codier E. Relationship between emotional intelligence and occupational stress levels among certified registered nurse anesthetists. *AANA J* 2020;88(5):398-404.
- 4 Shah A, Wyatt M, Gourneau B, Shih G, De Ruyter M. Emotional exhaustion among anesthesia providers at a tertiary care center assessed using the MBI burnout survey. *Psychol Health Med* 2019;24(5):620-624.
- 5 Sanfilippo F, Noto A, Palumbo GJ, Ippolito M, Gagliardone M, Scarlata M, Bignami E, Sangalli F, Cattaneo S, Blangetti I, Scolletta S, Locatelli A, Tritapepe L, Lorini FL, Arcadipane A. Burnout in cardiac anesthesiologists: results from a national survey in Italy. *J Cardiothorac Vasc Anesth* 2018;32(6):2459-2466.
- 6 McDonnell NJ, Kaye RM, Hood S, Shrivastava P, Khursandi DC. Mental health and welfare in Australian anaesthetists. *Anaesth Intensive Care* 2013;41(5):641-7.
- 7 Nyssen AS, Hansez I. Stress and burnout in anaesthesia. *Curr Opin Anaesthesiol* 2008;21(3):406-11.
- 8 Sharma A, Sharp DM, Walker LG, Monson JR. Stress and burnout in colorectal and vascular surgical consultants working in the UK National Health Service. *Psychooncology* 2008;17(6):570-6.
- 9 Sharma A, Sharp DM, Walker LG, Monson JR. Stress and burnout among colorectal surgeons and colorectal nurse specialists working in the National Health Service. *Colorectal Dis* 2008;10(4):397-406.
- 10 Kinzl JF, Traweger C, Biebl W, Lederer W. Burnout and stress disorders in intensive care doctors. *Dtsch Med Wochenschr* 2006;131(44):2461-4.
- 11 Morgan B, Jordan L, Rivera LA. Considerations for an aging nurse anesthetists workforce. *Geriatr Nurs* 2020 Dec;41(6):1017-1019.
- 12 Vargas-Prada S, Macdonald EB. Increased reporting of musculoskeletal pain in anaesthetists: is it an occupational issue? *Anaesthesia* 2019;74(3):274-276.
- 13 Zanaty OM, El Metainy S, Abdelmaksoud R, Demerdash H, Aliaa DA, El Wafa HA. Occupational stress of anesthesia: Effects on aging. *J Clin Anesth* 2017;39:159-164.
- 14 Rajaratnam V, Kumar CM, Roy Chowdhury A, Su C. A snapshot survey of perceptions of healthcare professionals on ageing surgeons. *Postgrad Med J* 2017;93(1097):121-126.
- 15 Mauleon AL, Ekman SL. Newly graduated nurse anesthetists' experiences and views on anesthesia nursing - a phenomenographic study. *AANA J* 2002;70(4):281-7.
- 16 Ahmed N, Conn LG, Chiu M, Korabi B, Qureshi A, Nathens AB, Kitto S. Career satisfaction among general surgeons in Canada: a qualitative study of enablers and barriers to improve recruitment and retention in general surgery. *Acad Med* 2012;87(11):1616-21.
- 17 Brugha R, Clarke N, Hendrick L, Sweeney J. Doctor retention: a cross-sectional study of how Ireland has been losing the battle. *Int J Health Policy Manag* (Published online ahead of print April 2020).
- 18 Danhaki V, Miltiades A, Ing C, Chang B, Edmondson D, Landau R, Gallos G. Observational study evaluating obstetric anesthesiologist residents' well-being, anxiety and stress in a North American academic program. *Int J Obstet Anesth* 2019;38:75-82.

- 19 Kemp H, Marinho S, Cook TM, Farmer L, Bellamy M, Egner W, Farooque S, Ferguson K, Floss K, Garcez T, Karanam S, Hitchman J, Kong KL, McGuire N, Nasser S, Lucas DN, Thomas M, Torevell H, Warner A, Harper NJN. An observational national study of anaesthetic workload and seniority across the working week and weekend in the UK in 2016: the 6th National Audit Project (NAP6) Activity Survey. *Br J Anaesth* 2018;121(1):134-145.
- 20 Banerjee S, Califano R, Corral J, de Azambuja E, De Mattos-Arruda L, Guarneri V, Hutka M, Jordan K, Martinelli E, Mountzios G, Ozturk MA, Petrova M, Postel-Vinay S, Preusser M, Qvortrup C, Volkov MNM, Tabernero J, Olmos D, Strijbos MH. Professional burnout in European young oncologists: results of the European Society for Medical Oncology (ESMO) Young Oncologists Committee Burnout Survey. *Ann Oncol* 2017;28(7):1590-1596.
- 21 Eskola S, Roos M, McCormack B, Slater P, Hahtela N, Suominen T. Workplace culture among operating room nurses. *J Nurs Manag* 2016;24(6):725-34.
- 22 Satiani B, Williams TE, Brod H, Way DP, Ellison EC. A review of trends in attrition rates for surgical faculty: a case for a sustainable retention strategy to cope with demographic and economic realities. *J Am Coll Surg* 2013;216(5):944-53.
- 23 Mahoney CB, Lea J, Schumann PL, Jillson IA. Turnover, burnout, and job satisfaction of certified registered nurse anesthetists in the united states: role of job characteristics and personality. *AANA J* 2020;88(1):39-48.
- 24 Boyd D, Poghosyan L. Certified registered nurse anesthetist working conditions and outcomes: a review of the literature. *AANA J* 2017;85(4):261-269.
- 25 Lederer W, Kinzl JF, Trefalt E, Traweger C, Benzer A. Significance of working conditions on burnout in anesthetists. *Acta Anaesthesiol Scand* 2006;50(1):58-63.
- 26 Kinzl JF, Knotzer H, Traweger C, Lederer W, Heidegger T, Benzer A. Influence of working conditions on job satisfaction in anaesthetists. *Br J Anaesth* 2005;94(2):211-5.
- 27 Schirle L, Dietrich MS. Advanced practice registered nurses' work environment perceptions in hospitals: A cross-sectional survey. *J Nurs Manag* 2020;28(4):919-926.
- 28 Klein CJ, Dalstrom M, Lizer S, Cooling M, Pierce L, Weinzimmer LG. Advanced practice provider perspectives on organizational strategies for work stress reduction. *West J Nurs Res* 2020;42(9):708-717.
- 29 Wålinder R, Runeson-Broberg R, Arakelian E, Nordqvist T, Runeson A, Rask-Andersen A. A supportive climate and low strain promote well-being and sustainable working life in the operation theatre. *Ups J Med Sci* 2018;123(3):183-190.
- 30 Chang TF, Chen CK, Chen MJ. A study of interpersonal conflict among operating room nurses. *J Nurs Res* 2017;25(6):400-410.
- 31 van Beuzekom M, Akerboom S, Boer F, Dahan A. Influence of latent risk factors on job satisfaction, job stress and intention to leave in anaesthesia teams: a cross-sectional survey. *Eur J Anaesthesiol* 2013;30(5):222-8.
- 32 Averlid G, Axelsson SB. Health-promoting collaboration in anesthesia nursing: a qualitative study of nurse anesthetists in Norway. *AANA J* 2012;80(4 Suppl):S74-80.
- 33 Smith F, Lachish S, Goldacre MJ, Lambert TW. Factors influencing the decisions of senior UK doctors to retire or remain in medicine: national surveys of the UK-trained medical graduates of 1974 and 1977. *BMJ Open* 2017;7(9):e017650.
- 34 Hughes KM, Ewart ZT, Bell TD, Kurek SJ, Swasey KK. Understanding the trauma/acute care surgery workforce. *Am Surg* 2019 1;85(6):638-644.
- 35 Motley RJ, Mazzaccaro RJ, Burmeister DB, Land SD, Boulay RM, Chung H, Deitrick L, Sumner A. Using focus groups to identify characteristics of an ideal work environment for Advanced Practice Clinicians. *Healthc* 2016;4(3):151-4.
- 36 Pandit JJ. Pensions, tax and the anaesthetist: significant implications for workforce planning. *Anaesthesia* 2016;71(8):883-91.

- 37 Zhang S, Mina MA, Brown MD, Zwald FO. Retention of Mohs surgeons in academic dermatology. *Dermatol Surg* 2015;41(8):903-12.
- 38 Beckmann LA. The influence of the current medicolegal climate on New South Wales anaesthetic practice. *Anaesth Intensive Care* 2005;33(6):762-7.
- 39 Smith F, Lachish S, Goldacre MJ, Lambert TW. Factors influencing the decisions of senior UK doctors to retire or remain in medicine: national surveys of the UK-trained medical graduates of 1974 and 1977. *BMJ Open* 2017;7(9):e017650.
- 40 McClelland L, Plunkett E, McCrossan R, Ferguson K, Fraser J, Gildersleve C, Holland J, Lomas JP, Redfern N, Pandit JJ. A national survey of out-of-hours working and fatigue in consultants in anaesthesia and paediatric intensive care in the UK and Ireland. *Anaesthesia* 2019;74(12):1509-1523.
- 41 Vijendren A, Yung M, Sanchez J. Occupational health issues amongst UK doctors: a literature review. *Occup Med* 2015;65(7):519-28.
- 42 Saadat H, Kain ZN. Wellness interventions for anesthesiologists. *Curr Opin Anaesthesiol* 2018;31(3):375-381.
- 43 Sherwood R, Bismark M. The ageing surgeon: a qualitative study of expert opinions on assuring performance and supporting safe career transitions among older surgeons. *BMJ Qual Saf* 2020;29(2):113-121.
- 44 Wells AC, Kjellman M, Harper SJF, Forsman M, Hallbeck MS. Operating hurts: a study of EAES surgeons. *Surg Endosc* 2019;33(3):933-940.
- 45 Sun H, Warner DO, Macario A, Zhou Y, Culley DJ, Keegan MT. Repeated cross-sectional surveys of burnout, distress, and depression among anesthesiology residents and first-year graduates. *Anesthesiology* 2019;131(3):668-677.
- 46 Meng H, Bai S, Cao Q. Risk factors of role stress and professional burnout among nurse anesthetists: A multicenter cross-sectional study. *Jpn J Nurs Sci* 2021:e12413.
- 47 Oskrochi Y, Maruthappu M, Henriksson M, Davies AH, Shalhoub J. Beyond the body: A systematic review of the nonphysical effects of a surgical career. *Surgery* 2016;159(2):650-64.
- 48 Godier A, Nouette-Gaulain K, Cittanova ML, Beloeil H, Paugam-Burtz C, Lukaszewicz AC. Women in Anaesthesia and Intensive Care Medicine in France: Are we making any progress? *Anaesth Crit Care Pain Med* 2020;39(4):507-511.
- 49 Lorello GR, Gautam M, Barsed C, Peer M. Impact of the intersection of anaesthesia and gender on burnout and mental health, illustrated by the COVID-19 pandemic. *Anaesthesia* 2021;76 Suppl 4:24-31.
- 50 Negrusa S, Hogan P, Jordan L, Hoyem R, Cintina I, Zhou M, Pereira A, Quraishi J. Work patterns, socio-demographic characteristics and job satisfaction of the CRNA workforce - Findings from the 2019 AANA survey of CRNAs. *Nurs Outlook* 2021:S0029-6554(20)30719-3.
- 51 Hughes KM, Ewart ZT, Bell TD, Kurek SJ, Swasey KK. Understanding the trauma/acute care surgery workforce. *Am Surg* 2019 1;85(6):638-644.
- 52 Rovit RL. To everything there is a season and a time to every purpose: retirement and the neurosurgeon. *J Neurosurg* 2004;100(6):1123-9.
- 53 Ahmed N, Conn LG, Chiu M, Korabi B, Qureshi A, Nathens AB, Kitto S. Career satisfaction among general surgeons in Canada: a qualitative study of enablers and barriers to improve recruitment and retention in general surgery. *Acad Med* 2012;87(11):1616-21.
- 54 James-Scotter M, Walker C, Jacobs S. An interprofessional perspective on job satisfaction in the operating room: a review of the literature. *J Interprof Care* 2019;33(6):782-794.
- 55 Halim UA, Riding DM. Systematic review of the prevalence, impact and mitigating strategies for bullying, undermining behaviour and harassment in the surgical workplace. *Br J Surg* 2018;105(11):1390-1397.
- 56 Arakelian E, Rudolfsson G, Rask-Andersen A, Runeson-Broberg R, Wälinder R. I Stay - swedish specialist nurses in the perioperative context and their reasons to stay at their workplace. *J Perianesth Nurs* 2019;34(3):633-644.

- 57 Lögde A, Rudolfsson G(2), Broberg RR, Rask-Andersen A, Wålinder R, Arakelian E. I am quitting my job. Specialist nurses in perioperative context and their experiences of the process and reasons to quit their job. *Int J Qual Health Care* 2018;30(4):313-320.
- 58 Whiting L, O'Grady M, Whiting M, Petty J. Factors influencing nurse retention within children's palliative care. *J Child Health Care* 2020;1367493520971426.
- 59 Brook J, Leanne Aitken, MacLaren DJ, Salmon D. Co-production of an intervention to increase retention of early career nurses: Acceptability and feasibility. *Nurse Educ Pract* 2020;47:102861.
- 60 Sansom A, Terry R, Fletcher E, Salisbury C, Long L, Richards SH, Aylward A, Welsman J, Sims L, Campbell JL, Dean SG. Why do GPs leave direct patient care and what might help to retain them? A qualitative study of GPs in South West England. *BMJ Open* 2018;8(1):e019849.
- 61 D'Angelo S, Coggon D, Harris EC, Linaker C, Sayer AA, Gale CR, Evandrou M, van Staa T, Cooper C, Walker-Bone K, Palmer KT. Job dissatisfaction and the older worker: baseline findings from the Health and Employment After Fifty study. *Occup Environ Med* 2016;73(8):512-9.
- 62 Nichols J, Campbell J. The experiences of internationally recruited nurses in the UK (1995-2007): an integrative review. *J Clin Nurs* 2010;19(19-20):2814-23.
- 63 Barron D, West E, Reeves R. Tied to the job: affective and relational components of nurse retention. *J Health Serv Res Policy* 2007;12 Suppl 1:S1-46-51.
- 64 Cull J, Hunter B, Henley J, Fenwick J, Sidebotham M. "Overwhelmed and out of my depth": Responses from early career midwives in the United Kingdom to the Work, Health and Emotional Lives of Midwives study. *Women Birth* 2020;33(6):e549-e557.
- 65 Hamm C, Glyn-Jones J. Implementing an adapted Buurtzorg model in an inner city NHS trust. *Br J Community Nurs* 2019;24(11):534-537.
- 66 Gray K, Wilde R, Shutes K. Enhancing nurse satisfaction: an exploration of specialty nurse shortage in a region of NHS England. *Nurs Manag* 2018;25(1):26-33.
- 67 Basu S, Yap C, Mason S. Examining the sources of occupational stress in an emergency department. *Occup Med* 2016;66(9):737-742.
- 68 Lim KK. Impact of hospital mergers on staff job satisfaction: a quantitative study. *Hum Resour Health* 2014;12:70.
- 69 Senek M, Robertson S, Ryan T, King R, Wood E, Taylor B, Tod A. Determinants of nurse job dissatisfaction - findings from a cross-sectional survey analysis in the UK. *BMC Nurs* 2020;19:88.
- 70 Robson A, Robson F. Investigation of nurses' intention to leave: a study of a sample of UK nurses. *J Health Organ Manag* 2016;30(1):154-73.
- 71 Jinks AM, Lawson V, Daniels R. A survey of the health needs of hospital staff: implications for health care managers. *J Nurs Manag* 2003;11(5):343-50.
- 72 Oates J, Topping A(1), Ezhova I, Wadey E, Marie Rafferty A. An integrative review of nursing staff experiences in high secure forensic mental health settings: Implications for recruitment and retention strategies. *J Adv Nurs* 2020;76(11):2897-2908.
- 73 Singh R, Kirtley J, Minhas JS, Lakhani D, Carr S. Exploring junior doctor morale in a UK hospital. *J R Coll Physicians Edinb* 2019;49(4):312-316.
- 74 Riley R, Spiers J, Buszewicz M, Taylor AK, Thornton G, Chew-Graham CA. What are the sources of stress and distress for general practitioners working in England? A qualitative study. *BMJ Open* 2018;8(1):e017361.
- 75 Robson A, Robson F. Investigation of nurses' intention to leave: a study of a sample of UK nurses. *J Health Organ Manag* 2016;30(1):154-73.
- 76 Bailey C, Madden A, Alfes K, Fletcher L, Robinson D, Holmes J, Buzzeo J, Currie G. *Evaluating the evidence on employee engagement and its potential benefits to NHS staff: a narrative synthesis of the literature*. Southampton: NIHR Journals Library, 2015.
- 77 Probst H, Boylan M, Nelson P, Martin R. Early career resilience: interdisciplinary insights to support professional education of radiation therapists. *J Med Imaging Radiat Sci* 2014;45(4):390-398.

- 78 O'Brien T, Ackroyd S. Understanding the recruitment and retention of overseas nurses: realist case study research in National Health Service Hospitals in the UK. *Nurs Inq* 2012;19(1):39-50.
- 79 McKenzie AT, Addis G. Renal inpatient ward nurse experience and job satisfaction: A qualitative study. *J Clin Nurs* 2018;27(23-24):4353-4360.
- 80 James F, Gerrard F. Emergency medicine: what keeps me, what might lose me? A narrative study of consultant views in Wales. *Emerg Med J* 2017;34(7):436-440.
- 81 Wilkinson S, Hayward R. Band 5 nurses' perceptions and experiences of professional development. *Nurs Manag* 2017;24(2):30-37.
- 82 Lees L, Myers L. A profile of nurses working in acute medicine units: what is the future? *Acute Med* 2010;9(2):91-6.
- 83 Wray J, Aspland J, Gibson H, Stimpson A, Watson R. "A wealth of knowledge": A survey of the employment experiences of older nurses and midwives in the NHS. *Int J Nurs Stud* 2009;46(7):977-85.
- 84 Cull J, Hunter B, Henley J, Fenwick J, Sidebotham M. "Overwhelmed and out of my depth": Responses from early career midwives in the United Kingdom to the Work, Health and Emotional Lives of Midwives study. *Women Birth* 2020;33(6):e549-e557.
- 85 Campbell JL, Fletcher E, Abel G, Anderson R, Chilvers R, Dean SG, Richards SH, Sansom A, Terry R, Aylward A, Fitzner G, Gomez-Cano M, Long L, Mustafee N, Robinson S, Smart PA, Warren FC, Welsman J, Salisbury C. *Policies and strategies to retain and support the return of experienced GPs in direct patient care: the ReGROUP mixed-methods study*. Southampton: NIHR Journals Library, 2019.
- 86 Owen K, Hopkins T, Shortland T, Dale J. GP retention in the UK: a worsening crisis. Findings from a cross-sectional survey. *BMJ Open* 2019;9(2):e026048.
- 87 Fisher RF, Croxson CH, Ashdown HF, Hobbs FR. GP views on strategies to cope with increasing workload: a qualitative interview study. *Br J Gen Pract* 2017;67(655):e148-e156.
- 88 Dasan S, Gohil P, Cornelius V, Taylor C. Prevalence, causes and consequences of compassion satisfaction and compassion fatigue in emergency care: a mixed-methods study of UK NHS Consultants. *Emerg Med J* 2015;32(8):588-94.
- 89 Simoens S, Scott A, Sibbald B. Job satisfaction, work-related stress and intentions to quit of Scottish GPs. *Scott Med J* 2002;47(4):80-6.
- 90 Qureshi I, Ali N, Randhawa G. British South Asian male nurses' views on the barriers and enablers to entering and progressing in nursing careers. *J Nurs Manag* 2020;28(4):892-902.
- 91 Boulton MG, Beer S. Factors affecting recruitment and retention of nurses who deliver clinical research: A qualitative study. *Nurs Open* 2018;5(4):555-566.
- 92 Robson A, Robson F. Do nurses wish to continue working for the UK National Health Service? A comparative study of three generations of nurses. *J Adv Nurs* 2015;71(1):65-77.
- 93 Gidman W, Day J, Hassell K, Payne K. Delivering health care through community pharmacies: are working conditions deterring female pharmacists' participation? *J Health Serv Res Policy* 2009;14(3):141-9.
- 94 Evans J, Lambert T, Goldacre M. GP recruitment and retention: a qualitative analysis of doctors' comments about training for and working in general practice. *Occas Pap R Coll Gen Pract* 2002;(83):1-33.
- 95 Davidson JM, Lambert TW, Parkhouse J, Evans J, Goldacre MJ. Retirement intentions of doctors who qualified in the United Kingdom in 1974: postal questionnaire survey. *J Public Health Med* 2001;23(4):323-8.
- 96 Price M. Job satisfaction of registered nurses working in an acute hospital. *Br J Nurs* 2002;11(4):275-80.
- 97 Suter J, Kowalski T, Anaya-Montes M, Chalkley M, Jacobs R, Rodriguez-Santana I. The impact of moving to a 12h shift pattern on employee wellbeing: A qualitative study in an acute mental health setting. *Int J Nurs Stud* 2020;112:103699.
- 98 Baillie L, Thomas N. Changing from 12-hr to 8-hr day shifts: A qualitative exploration of effects on organising nursing care and staffing. *J Clin Nurs* 2019;28(1-2):148-158.

- 99 Ball J, Day T, Murrells T, Dall'Ora C, Rafferty AM, Griffiths P, Maben J. Cross-sectional examination of the association between shift length and hospital nurses job satisfaction and nurse reported quality measures. *BMC Nurs* 2017;16:26.
- 100 Wakeling J, McGregor JR, Bagnall G. Stop the brain drain: ways to improve recruitment and retention to Scottish consultant posts. *Scott Med J* 2007;52(2):10-3.
- 101 Richardson A, Dabner N, Curtis S. Twelve-hour shift on ITU: a nursing evaluation. *Nurs Crit Care* 2003;8(3):103-8.
- 102 Andrews J, Manthorpe J, Watson R. Employment transitions for older nurses: a qualitative study. *J Adv Nurs* 2005;51(3):298-306.
- 103 Watson R, Andrews J, Manthorpe J. Older community nurses: perspectives and prospects. *Br J Community Nurs* 2004;9(7):274-80.
- 104 Branine M. Part-time work and job sharing in health care: is the NHS a family-friendly employer? *J Health Organ Manag* 2003;17(1):53-68.
- 105 Smith F, Lambert TW, Goldacre MJ. The characteristics and views of early retirees compared with doctors still in work: views of the UK -medical graduates of 1983 surveyed in 2016. *Future Healthc J* 2018;5(3):192-197.
- 106 Riley R, Spiers J, Buszewicz M, Taylor AK, Thornton G, Chew-Graham CA. What are the sources of stress and distress for general practitioners working in England? A qualitative study. *BMJ Open* 2018;8(1):e017361.
- 107 Smith F, Goldacre MJ, Lambert TW. Adverse effects on health and wellbeing of working as a doctor: views of the UK medical graduates of 1974 and 1977 surveyed in 2014. *J R Soc Med* 2017;110(5):198-207.
- 108 Hutton D, Beardmore C, Patel I, Massey J, Wong H, Probst H. Audit of the job satisfaction levels of the UK radiography and physics workforce in UK radiotherapy centres 2012. *Br J Radiol* 2014;87(1039):20130742.
- 109 Oates J, Topping A(1), Ezhova I, Wadey E, Rafferty AM. Factors affecting high secure forensic mental health nursing workforce sustainability: Perspectives from frontline nurses and stakeholders. *J Psychiatr Ment Health Nurs* (Published online ahead of print February 2021).
- 110 Price A. Retaining valued midwives. *RCM Midwives* 2005;8(11):452-5.
- 111 Robinson S, Murrells T, Smith EM. Retaining the mental health nursing workforce: early indicators of retention and attrition. *Int J Ment Health Nurs* 2005;14(4):230-42.
- 112 Hopayian K, Sherifi J. GP appraisal: an evaluation of generational differences on the utility of GP appraisal. *Educ Prim Care* 2020;31(6):371-376.
- 113 Gutacker N, Bloor K, Bojke C, Archer J, Walshe K. Does regulation increase the rate at which doctors leave practice? Analysis of routine hospital data in the English NHS following the introduction of medical revalidation. *BMC Med* 2019;17(1):33.
- 114 Dale J, Potter R, Owen K, Leach J. The general practitioner workforce crisis in England: a qualitative study of how appraisal and revalidation are contributing to intentions to leave practice. *BMC Fam Pract* 2016;17:84.
- 115 Campbell JL, Fletcher E, Abel G, Anderson R, Chilvers R, Dean SG, Richards SH, Sansom A, Terry R, Aylward A, Fitzner G, Gomez-Cano M, Long L, Mustafee N, Robinson S, Smart PA, Warren FC, Welsman J, Salisbury C. *Policies and strategies to retain and support the return of experienced GPs in direct patient care: the ReGROUP mixed-methods study*. Southampton: NIHR Journals Library, 2019.
- 116 Sansom A, Terry R, Fletcher E, Salisbury C, Long L, Richards SH, Aylward A, Welsman J, Sims L, Campbell JL, Dean SG. Why do GPs leave direct patient care and what might help to retain them? A qualitative study of GPs in South West England. *BMJ Open* 2018;8(1):e019849.
- 117 Riley R, Spiers J, Buszewicz M, Taylor AK, Thornton G, Chew-Graham CA. What are the sources of stress and distress for general practitioners working in England? A qualitative study. *BMJ Open* 2018;8(1):e017361.

- 118 Leese B, Storey C, Cheater F. Retaining primary and community nurses over the age of 50 years: the views of managers. *J Nurs Manag* 2009;17(8):975-85.
- 119 Andrews J, Manthorpe J, Watson R. Employment transitions for older nurses: a qualitative study. *J Adv Nurs* 2005;51(3):298-306.
- 120 Watson R, Manthorpe J, Andrews J. Older nurses and employment decisions. *Nurs Stand* 2003;18(7):35-40.
- 121 Ravalier JM, McVicar A, Boichat C. Work stress in nhs employees: a mixed-methods study. *Int J Environ Res Public Health* 2020;17(18):6464.
- 122 Khan A, Teoh KR, Islam S, Hassard J. Psychosocial work characteristics, burnout, psychological morbidity symptoms and early retirement intentions: a cross-sectional study of NHS consultants in the UK. *BMJ Open* 2018;8(7):e018720.
- 123 Nightingale J, Burton M, Appleyard R, Sevens T, Campbell S. Retention of radiographers: A qualitative exploration of factors influencing decisions to leave or remain within the NHS. *Radiography* 2021:S1078-8174(20)30272-8.
- 124 Carter MR, Tourangeau AE. Staying in nursing: what factors determine whether nurses intend to remain employed? *J Adv Nurs* 2012;68(7):1589-600.
- 125 Storey C, Cheater F, Ford J, Leese B. Retaining older nurses in primary care and the community. *J Adv Nurs* 2009;65(7):1400-11.
- 126 Bimpong KAA, Khan A, Slight R, Tolley CL, Slight SP. Relationship between labour force satisfaction, wages and retention within the UK National Health Service: a systematic review of the literature. *BMJ Open* 2020;10(7):e034919.
- 127 van der Pol M, Scott A, Irvine A. The migration of UK trained GPs to Australia: Does risk attitude matter? *Health Policy* 2019;123(11):1093-1099.
- 128 Byrne JP, Conway E, McDermott AM, Matthews A, Prihodova L, Costello RW, Humphries N. How the organisation of medical work shapes the everyday work experiences underpinning doctor migration trends: The case of Irish-trained emigrant doctors in Australia. *Health Policy* 2021;125(4):467-473.
- 129 Hann M, Reeves D, Sibbald B. Relationships between job satisfaction, intentions to leave family practice and actually leaving among family physicians in England. *Eur J Public Health* 2011;21(4):499-503.
- 130 Roy D, Weyman AK, Plugor R, Nolan P. Institutional commitment and aging among allied health care professionals in the British National Health Service. *Health Serv Manage Res* 2020;951484820918513.
- 131 Long L, Moore D, Robinson S, Sansom A, Aylward A, Fletcher E, Welsman J, Dean SG, Campbell JL, Anderson R. Understanding why primary care doctors leave direct patient care: a systematic review of qualitative research. *BMJ Open* 2020;10(5):e029846.
- 132 Scanlan GM, Cleland J, Walker K, Johnston P. Does perceived organisational support influence career intentions? The qualitative stories shared by UK early career doctors. *BMJ Open* 2018;8(6):e022833.
- 133 Sansom A, Calitri R, Carter M, Campbell J. Understanding quit decisions in primary care: a qualitative study of older GPs. *BMJ Open* 2016;6(2):e010592.
- 134 Doran N, Fox F, Rodham K, Taylor G, Harris M. Lost to the NHS: a mixed methods study of why GPs leave practice early in England. *Br J Gen Pract* 2016;66(643):e128-35.
- 135 Dale J, Potter R, Owen K, Parsons N, Realpe A, Leach J. Retaining the general practitioner workforce in England: what matters to GPs? A cross-sectional study. *BMC Fam Pract* 2015;16:140.
- 136 Napier J, Clinch M. Job strain and retirement decisions in UK general practice. *Occup Med* 2019;69(5):336-341.
- 137 Rhead RD, Chui Z, Bakolis I, Gazard B, Harwood H, MacCrimmon S, Woodhead C, Hatch SL. Impact of workplace discrimination and harassment among National Health Service staff working in London trusts: results from the TIDES study. *BJPsych Open* 2020;7(1):e10.
- 138 Halim UA, Elbayouk A, Ali AM, Cullen CM, Javed S. The prevalence and impact of gender bias and sexual discrimination in orthopaedics, and mitigating strategies. *Bone Joint J* 2020;102-B(11):1446-1456.

- 139 Andah E, Essang B, Friend C, Greenley S, Harvey K, Spears M, Reeve J. Understanding the impact of professional motivation on the workforce crisis in medicine: a rapid review. *BJGP Open* (Published online ahead of print March 2021).
- 140 Marufu TC, Collins A, Vargas L, Gillespie L, Almghairbi D. Factors influencing retention among hospital nurses: systematic review. *Br J Nurs* 2021;30(5):302-308.
- 141 Markowski M, Cleaver K, Weldon SM. An integrative review of the factors influencing older nurses' timing of retirement. *J Adv Nurs* 2020;76(9):2266-2285.
- 142 MacKay SC, Smith A, Kyle RG, Beattie M. What influences nurses' decisions to work in rural and remote settings? A systematic review and meta-synthesis of qualitative research. *Rural Remote Health* 2021;21(1):6335.
- 143 Fragkos KC, Makrykosta P, Frangos CC. Structural empowerment is a strong predictor of organizational commitment in nurses: A systematic review and meta-analysis. *J Adv Nurs* 2020;76(4):939-962.
- 144 Brook J, Aitken L, Webb R, MacLaren J, Salmon D. Characteristics of successful interventions to reduce turnover and increase retention of early career nurses: A systematic review. *Int J Nurs Stud* 2019;91:47-59.
- 145 Khan N, Jackson D, Stayt L, Walthall H. Factors influencing nurses' intentions to leave adult critical care settings. *Nurs Crit Care* 2019;24(1):24-32.
- 146 Storey C, Cheater F, Ford J, Leese B. Retention of nurses in the primary and community care workforce after the age of 50 years: database analysis and literature review. *J Adv Nurs* 2009;65(8):1596-605.
- 147 Anderson L. The impact of paramedic shift work on the family system: a literature review. *Br Paramed J* 2019;3(4):43.
- 148 Shrivastava PP, McDonald JM. Workplace well-being in pediatric anesthesia: How to design and implement a bespoke evidence-based framework in your department. *Paediatr Anaesth* 2021;31(1):53-60.
- 149 Gerber B, Scriba J, Geissler A, Reckling H, Fischer M, Karl D, Chung BY, Benrath J. Pilot study on subjectively and objectively measurable stress reduction in the daily routine of a university anesthesia department by an intervention program according to mindfulness-based stress reduction. *Anaesthesist* 2020;69(9):623-631.
- 150 Heard GC, Thomas RD, Sanderson PM. In the aftermath: attitudes of anesthesiologists to supportive strategies after an unexpected intraoperative patient death. *Anesth Analg* 2016;122(5):1614-24.
- 151 Slykerman G, Wiemers MJ, Wyssusek KH. Peer support in anaesthesia: Development and implementation of a peer-support programme within the Royal Brisbane and Women's Hospital Department of Anaesthesia and Perioperative Medicine. *Anaesth Intensive Care* 2019;47(6):497-502.
- 152 Jung MJ, Libaw JS, Manuel SP, Kathiriya IS, Srejic U, Gandhi S. Interactive anesthesiology educational program improves wellness for anesthesiologists and their children. *J Clin Anesth* 2021;70:110192.
- 153 Wong LR, Flynn-Evans E, Ruskin KJ. Fatigue risk management: the impact of anesthesiology residents' work schedules on job performance and a review of potential countermeasures. *Anesth Analg* 2018;126(4):1340-1348.
- 154 Herron JBT, French R, Gilliam AD. Extended operating times are more efficient, save money and maintain a high staff and patient satisfaction. *J Perioper Pract* 2018;28(9):231-237.
- 155 Dunworth BA. Sustained value of implementation of a flexibility-based compensation structure for nurse anesthetists in a large multihospital healthcare system. *AANA J* 2020;88(1):66-70.
- 156 Heslin MJ, Doster BE, Daily SL, Waldrum MR, Boudreaux AM, Smith AB, Peters G, Ragan DB, Buchalter S, Bland KI, Rue LW. Durable improvements in efficiency, safety, and satisfaction in the operating room. *J Am Coll Surg* 2008;206(5):1083-9.
- 157 Shrivastava PP, McDonald JM. Workplace well-being in pediatric anesthesia: How to design and implement a bespoke evidence-based framework in your department. *Paediatr Anaesth* 2021;31(1):53-60.
- 158 Gerber B, Scriba J, Geissler A, Reckling H, Fischer M, Karl D, Chung BY, Benrath J. Pilot study on subjectively and objectively measurable stress reduction in the daily routine of a university anesthesia department by an intervention program according to mindfulness-based stress reduction. *Anaesthesist* 2020;69(9):623-631.

- 159 Jung MJ, Libaw JS, Manuel SP, Kathiriya IS, Srejic U, Gandhi S. Interactive anesthesiology educational program improves wellness for anesthesiologists and their children. *J Clin Anesth* 2021;70:110192.
- 160 Dunworth BA. Sustained value of implementation of a flexibility-based compensation structure for nurse anesthetists in a large multihospital healthcare system. *AANA J* 2020;88(1):66-70.
- 161 Shah R, Nayar V, Grzesiak A. A survey of the retention of GPs following the induction and refresher scheme in London. *Educ Prim Care* (Published online ahead of print April 2021).
- 162 Jenkins C, Oyebode J, Bicknell S, Webster N, Bentham P, Smythe A. Exploring newly qualified nurses' experiences of support and perceptions of peer support online: A qualitative study. *J Clin Nurs* (Published online ahead of print April 2021).
- 163 Imtiaz-Umer S, Taggar J, Allsopp G. Helping us grow generations of GPs (HUGG): a pilot study evaluating Longitudinal Support Networks (LSNs) on recruitment, retention and resilience of GPs in Derbyshire. *Educ Prim Care* (Published online ahead of print April 2021).
- 164 Dowers H. Can a clinical skills facilitator improve staff retention in a children's hospital? *Nurs Child Young People* (Published online ahead of print April 2021).
- 165 Smith KH, Hallett RJ, Wilkinson-Smith V, Neild PJ, Brooks AJ, Lockett MJ, Thomas-Gibson S, Eaden JA, Edwards C. Results of the British Society of Gastroenterology supporting women in gastroenterology mentoring scheme pilot. *Frontline Gastroenterol* 2019;10(1):50-55.
- 166 Kelly S, Fowler C. Enhancing the recruitment and retention of overseas nurses from Kerala, India. *Nurs Stand* 2019;34(5):25-30.
- 167 Harrison R, Anderson J, Laloë PA, Santillo M, Lawton R, Wright J. Mentorship for newly appointed consultants: what makes it work? *Postgrad Med J* 2014;90(1066):439-45.
- 168 Slade P, Sheen K, Collinge S, Butters J, Spiby H. A programme for the prevention of post-traumatic stress disorder in midwifery (POPPY): indications of effectiveness from a feasibility study. *Eur J Psychotraumatol* 2018;9(1):1518069.
- 169 Benmore G, Henderson S, Mountfield J, Wink B. The Stopit! programme to reduce bullying and undermining behaviour in hospitals. *J Health Organ Manag* 2018;32(3):428-443.
- 170 Skingley A, Ross L. Effects of singing groups on staff well-being: a feasibility study. *Nurs Stand* 2018;33(3):58-63.
- 171 Wright M, Baker A. The effects of appreciative inquiry interviews on staff in the U.K. National Health Service. *Int J Health Care Qual Assur Inc Leadersh Health Serv* 2005;18(1):41-61.
- 172 Aparício C, Nicholson J. Do preceptorship and clinical supervision programmes support the retention of nurses? *Br J Nurs* 2020;29(20):1192-1197.
- 173 Stacey G, Cook G, Aubeeluck A, Stranks B, Long L, Krepa M, Lucre K. The implementation of resilience based clinical supervision to support transition to practice in newly qualified healthcare professionals. *Nurse Educ Today* 2020;94:104564.
- 174 Marsh Z, Walford L, Baker RR, Cannaby AM, Singh BM. Attracting and retaining nurses through a clinical fellowship programme. *Br J Nurs* 2019;28(18):1207-1209.
- 175 Wallbank S. Maintaining professional resilience through group restorative supervision. *Community Pract* 2013;86(8):26-8.
- 176 Whiting L, O'Grady M, Whiting M, Petty J. Factors influencing nurse retention within children's palliative care. *J Child Health Care* (Published online ahead of print October 2020).
- 177 Drennan VM, Halter M, Gale J, Harris R. Retaining nurses in metropolitan areas: insights from senior nurse and human resource managers. *J Nurs Manag* 2016;24(8):1041-1048.
- 178 Fitzpatrick C, Buckingham T, Merrell J, McCooley C, Richardson D. Engaging nurses in research and quality improvement is associated with higher job satisfaction and lower rates of unscheduled time off work: A pilot study. *Int J STD AIDS* 2020;31(7):702-704.
- 179 Chilvers R, Richards SH, Fletcher E, Aylward A, Dean S, Salisbury C, Campbell J. Identifying policies and strategies for general practitioner retention in direct patient care in the United Kingdom: a RAND/UCLA appropriateness method panel study. *BMC Fam Pract* 2019;20(1):130.

- 180 Rees MR, Bracewell M. Academic factors in medical recruitment: evidence to support improvements in medical recruitment and retention by improving the academic content in medical posts. *Postgrad Med J* 2019;95(1124):323-327.
- 181 Richardson A, Douglas M, Shuttler R, Hagland MR. Critical care staff rotation: outcomes of a survey and pilot study. *Nurs Crit Care* 2003;8(2):84-9.
- 182 Drennan VM, Halter M, Gale J, Harris R. Retaining nurses in metropolitan areas: insights from senior nurse and human resource managers. *J Nurs Manag* 2016;24(8):1041-1048.
- 183 Luce A, van Zwanenberg T, Firth-Cozens J, Tinwell C. What might encourage later retirement among general practitioners? *J Manag Med* 2002;16(4-5):303-10.
- 184 Oates J, Topping A, Ezhova I, Wadey E, Rafferty AM. Factors affecting high secure forensic mental health nursing workforce sustainability: Perspectives from frontline nurses and stakeholders. *J Psychiatr Ment Health Nurs* (Published online ahead of print February 2021).
- 185 Quek SJ, Thomson L, Houghton R, Bramley L, Davis S, Cooper J. Distributed Leadership as a predictor of employee engagement, job satisfaction, and turnover intention in UK nursing staff. *J Nurs Manag* (Published online ahead of print April 2021).
- 186 Hewison A, Gale N, Yeats R, Shapiro J. An evaluation of staff engagement programmes in four National Health Service Acute Trusts. *J Health Organ Manag* 2013;27(1):85-105.
- 187 Blake H, Yildirim M, Wood B, Knowles S, Mancini H, Coyne E, Cooper J. COVID-Well: Evaluation of the implementation of supported wellbeing centres for hospital employees during the COVID-19 pandemic. *Int J Environ Res Public Health* 2020;17(24):9401.
- 188 Kumar S, Clancy B. Retention of physicians and surgeons in rural areas-what works? *J Public Health* (Published online ahead of print March 2020).
- 189 Pepper T, Hicks G. Six weeks' notice of the on-call roster: fact or fantasy? An audit study. *Br J Hosp Med* 2018;79(12):708-710.
- 190 Campbell JL, Fletcher E, Abel G, Anderson R, Chilvers R, Dean SG, Richards SH, Sansom A, Terry R, Aylward A, Fitzner G, Gomez-Cano M, Long L, Mustafee N, Robinson S, Smart PA, Warren FC, Welsman J, Salisbury C. *Policies and strategies to retain and support the return of experienced GPs in direct patient care: the ReGROUP mixed-methods study*. Southampton: NIHR Journals Library, 2019.
- 191 Hunt SL. Reflective debrief and the social space: offload, refuel, and stay on course. *Clin Radiol* 2020;75(4):265-270.
- 192 Stacey G, Cook G, Aubeeluck A, Stranks B, Long L, Krepa M, Lucre K. The implementation of resilience based clinical supervision to support transition to practice in newly qualified healthcare professionals. *Nurse Educ Today* 2020;94:104564.
- 193 Chilvers R, Richards SH, Fletcher E, Aylward A, Dean S, Salisbury C, Campbell J. Identifying policies and strategies for general practitioner retention in direct patient care in the United Kingdom: a RAND/UCLA appropriateness method panel study. *BMC Fam Pract* 2019;20(1):130.
- 194 Blake H, Yildirim M, Wood B, Knowles S, Mancini H, Coyne E, Cooper J. COVID-Well: Evaluation of the implementation of supported wellbeing centres for hospital employees during the COVID-19 pandemic. *Int J Environ Res Public Health* 2020;17(24):9401.
- 195 Mallett P, Thompson A, Bourke T. Addressing recruitment and retention in paediatrics: a pipeline to a brighter future. *Arch Dis Child Educ Pract Ed* (Published online ahead of print March 2021).
- 196 Verma P, Ford JA, Stuart A, Howe A, Everington S, Steel N. A systematic review of strategies to recruit and retain primary care doctors. *BMC Health Serv Res* 2016;16:126.
- 197 Carrieri D, Pearson M, Mattick K, Papoutsis C, Briscoe S, Wong G, Jackson M. *Interventions to minimise doctors' mental ill-health and its impacts on the workforce and patient care: the Care Under Pressure realist review*. Southampton: NIHR Journals Library, 2020.

- 198 Wilson G, Larkin V, Redfern N, Stewart J, Steven A. Exploring the relationship between mentoring and doctors' health and wellbeing: a narrative review. *J R Soc Med* 2017;110(5):188-197.
- 199 Webster NL, Oyeboode JR, Jenkins C, Bicknell S, Smythe A. Using technology to support the emotional and social well-being of nurses: A scoping review. *J Adv Nurs* 2020;76(1):109-120.
- 200 Kroezen M, Dussault G, Craveiro I, Dieleman M, Jansen C, Buchan J, Barriball L, Rafferty AM, Bremner J, Sermeus W. Recruitment and retention of health professionals across Europe: A literature review and multiple case study research. *Health Policy* 2015;119(12):1517-28.
- 201 Hann M, Reeves D, Sibbald B. Relationships between job satisfaction, intentions to leave family practice and actually leaving among family physicians in England. *Eur J Public Health* 2011;21(4):499-503.
- 202 Royal College of Anaesthetists. *Medical Workforce. Census Report 2020*. London: Royal College of Anaesthetists, 2020.

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