The Leng review: an independent review into the physician associate and anaesthesia associate professions

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Contents

Tables and figures

Figures

Tables

Foreword from the chair

Understanding your employee's perspective can go a long way towards increasing productivity and happiness.

– Kathryn Minshew, CEO

There are many quotes from esteemed chief executives about the importance of employee wellbeing to business success. They focus on the value of engaging staff, of listening to their views and providing a vision for the future that motivates and inspires. These fundamentals are equally applicable to healthcare. It's the staff who deliver care, who make decisions, who use technology, drugs and interventions wisely and who lead teams. It feels trite to say that 'it's all about the people', but it is.

The National Health Service has been lauded for its caring clinical staff for many years. Notable examples include the clapping of healthcare workers every Thursday during the pandemic, and the opening ceremony of the 2012 Olympic games when NHS nurses were thrown gloriously into the spotlight. Its highly motivated staff have been essential to its success, but in the post-pandemic exhaustion some of this goodwill has been lost, with many choosing to leave or retire.

The NHS has changed almost beyond recognition since its inception in 1948, when limited treatment options were available. Ongoing technological developments have required different staffing models, different patient pathways and employees with different skills and experience. While some changes can be gradual and incremental, others require a more substantial programme of transformation with close working between clinicians and managers. Effective change management needs willing participants, energy, time, a future vision and careful planning.

In contrast to the country's affection for doctors and nurses, healthcare managers are often given less credit. They can be stigmatised as creating excessive layers of bureaucracy, adding unnecessary costs and getting in the way of frontline care. In reality, healthcare is one of the most complex businesses to run. High-quality management is as essential to the NHS as it is to any challenging business and is a key feature of any successful NHS trust.

Undertaking this review has given me an unexpected opportunity to engage with NHS staff at all levels. It has been a great privilege to visit hospitals, GP surgeries and to speak to managers and clinical staff, right across the country. I have spent a lot of time engaging with physician associates (PAs) and anaesthesia associates (AAs), the focus of this review, and listening to the views of resident doctors. The passion of the residents is partly why the debate has become so prominent, and it was important to me that their voices were genuinely heard.

In listening to residents, I was struck by the fundamentally unsatisfactory way in which postgraduate doctors are now trained. The one in two rotas that I experienced as a houseman were clearly unsafe and change was needed, but now all sense of teamwork and mentorship in medicine seems to have been lost, with residents often feeling isolated and unsupported. Their shift patterns and rotations are not just challenging for personal reasons, they also do not provide time to build important workplace relationships. Instead of training doctors as leaders of the future, the approach seems to be one of processing widgets in an assembly line. I am therefore pleased that Sir Chris Whitty and Sir Stephen Powis have launched a review into postgraduate medical training. This must be used to enthuse and inspire a future generation of medical leaders.

The contrast between the training of doctors and the training of PAs and AAs is undoubtedly one of the reasons why the debate has become so impassioned. While doctors have lengthy training, antisocial hours and numerous exams and assessments, PAs and AAs have stability, much shorter training and an ability to become a known, supported member of the team.

These new professions have attracted highly committed individuals into healthcare, and many will acknowledge that the shorter training and better working conditions influenced their career choice. But there are also career challenges facing PAs and AAs, in particular the ability to develop and take on new responsibilities within a recognised structure for career development. Many are keen to have opportunities for progression and to take on new skills and functions.

Despite the significantly shorter training, PAs and to a lesser extent AAs, have sometimes been used to fill roles designed for doctors. The rationale for doing this is unclear, and was probably one of pragmatism and practicality, relying on medical staff to provide the additional expertise when required. It seems to assume that much of the doctor’s role does not need the skills and qualifications of a doctor, which, if that is the case, requires a thorough reconfiguration of roles and restructuring, not a simplistic replacement of a doctor with an individual who is significantly less qualified.

As part of the review, I have also listened to the views of patients and the public. Of particular importance was hearing from the families of those who died. Relatives feel strongly that confusion between the PA role and that of the doctor was an important contributory factor in their relatives’ deaths. They were clear that, had they known a doctor had not been consulted, they would have responded differently and sought further help. Sadly, no one can turn back the clock, but I have listened to their experiences to help make improvements for the future.

Many new roles have been introduced to the NHS since it was established, and many more will continue to be needed as healthcare becomes more complex.

However, the NHS now has more types of role than any other healthcare system in the world, and care must be taken to ensure that these roles are understood by the public and by staff.[1] If an effective service is ‘all about the people’, staff need to understand and respect each other’s roles and have the support from managers to create effective teams.

At the time of writing, the government’s 10 Year Health Plan for England, which provides a vision for the future health service, had not yet been published. It will inform the public who use the service but must also provide clarity and direction for staff, to motivate and inspire them to help deliver healthcare that is admired by the rest of the world. This will need excellent leadership at a national and local level to allow strategic development of the workforce, not reactive management that simply fills gaps in staffing.

Throughout this review I have listened to many different perspectives and asked careful questions to seek out potential bias and dogma. I have worked with an excellent team to gather as wide an evidence base as possible on the safety and effectiveness of PAs and AAs. Inevitably, this data provided only a patchy overview and significant gaps in our knowledge remain but, with the urgency of current workforce challenges, now is not the time to defer to the wisdom of future research. Instead, I have viewed the evidence in the context of wider considerations, including the perspectives of patients, clinicians and health systems internationally.

The recommendations therefore represent a pragmatic solution that aims to bring cohesion and clarity. They won’t be universally popular, but we must now close the debate and move forward constructively, focusing on excellent teamwork and delivering world-leading patient care.

Professor Gillian Leng CBE

Executive summary and recommendations

Background

Physician associates (PAs) and anaesthesia associates (AAs) were introduced into the NHS in the early 2000s. Their introduction reflected a wider trend in healthcare towards the development of multidisciplinary teams (MDTs), with the stated aim of allowing doctors to focus on more complex cases while expanding access to care and improving efficiency. The relative length of PA and AA training compared with doctors was seen as providing a rapid route to alleviating workforce pressures in the NHS.

The initial introduction of the roles was relatively smooth and appeared to be well received by the medical profession. However, expansion in numbers over the past 10 years began to generate challenge from the medical profession, the public and the media. This was exacerbated by workforce pressures and reduced morale following the pandemic, and heightened by industrial action. Concerns were raised about safety and lack of clarity of the roles, and about impact on training and employment of resident doctors.

In autumn 2024, in the light of an increasingly intense debate focused on PAs and AAs, the Secretary of State for Health and Social Care (DHSC) established an independent review to help inform a refreshed workforce plan. Perhaps most importantly, the review aimed to provide a period of engagement and reflection, an opportunity to reset the debate and to enable all staff groups to accept the recommendations and work collaboratively.

Aims and scope

The principal aim of the review was to determine whether the roles of PA and AA were safe and effective as members of a multidisciplinary team. Secondary questions were consideration of what modifications might be required to improve confidence in the roles, and whether the rollout in England has supported safe and effective deployment of the roles.

Methods of gathering evidence

There was an extensive mixed methods search strategy to identify formal research, national datasets and local audits.

An independent literature review was commissioned to identify systematic and primary studies, as well as ongoing research protocols. Additional evidence was obtained from an open call for evidence – Independent review of physician

associates and anaesthesia associates: call for analysis and research – including local audits, quality assurance reports, staffing analyses and early-stage or unpublished research. All information was screened for relevance and quality.

National bodies were asked to interrogate relevant datasets. The Care Quality Commission (CQC) analysed mentions of PAs or AAs from coroners' Prevention of Future Deaths reports, whistleblower files and the Learn from Patient Safety Events (LFPSE) system. At the local level, NHS trusts provided a five-year breakdown of 'never events' by professional group. Effectiveness indicators included analyses of primary care performance, hospital throughput and references in Getting It Right First Time (GIRFT) reviews.

Perspectives on PAs and AAs were gathered from 8,558 frontline staff who completed a specifically designed survey. Wider perspectives were obtained through 3 patient focus groups run by the Patient's Association, several clinical interviews, and visits to hospital trusts and general practices. Cost effectiveness was interrogated and identified in published literature. Finally, 3 expert panels examined international models, anaesthesia practice and the healthcare workforce.

Evidence on safety and effectiveness

Overview

Research on the safety and effectiveness of PAs and AAs was limited, generally of low quality and either inconclusive or demonstrated a mixed picture. Studies showed little attempt to compare or account for variation in case mix, supervision arrangements or patient outcomes. Interpretation of the findings was therefore challenging and had to be contextualised within wider perspectives and informed by judgement.

Physician associates

In primary care, the research on safety was limited and provided neither a compelling case that PAs were safe nor unsafe in terms of the outcomes and comparators considered. Studies on effectiveness found no differences in outcome but PAs tended to give more advice and, in some cases, to have longer consultations. PAs were also associated with fewer hospital admissions and readmissions, which might or might not represent a positive outcome.

In secondary care, most research focused on the emergency department (ED) and not ward-based care or mental health trusts. Studies on safety were small and inconclusive, suggesting no difference in outcomes for PAs relative to comparators, which most studies identified to be Foundation Year 2 (FY2) doctors. More PAs

were named in Regulation 28[a] notices than expected but fewer in never events. There were more studies on effectiveness, although outcome metrics were narrow, showing either conflicting results against similar outcomes or little or no difference between comparator groups. Evidence dating from after the pandemic was more likely to show negative findings, reasons for which are unclear.

Anaesthesia associates

There was no published research looking at the safety of the AA role, but trusts submitted data from several local audits. Unfortunately, this data was of low to very low quality largely due to small sample sizes, usually dating from the pre-pandemic period. There was also a lack of consideration of case mix, and it was therefore difficult to draw generalisable conclusions. With these caveats, the performance of AAs appeared to be in line with national standards and comparator groups, generally either consultants or anaesthetists in training.

Wider perspectives

Patient and public opinion

Feedback from patients and the public related largely to PAs, particularly those working in primary care. Research found that patients tended to be satisfied after seeing a PA and generally had a positive experience and felt listened to. But concerns were raised in three key areas: lack of clarity about the role, including identification and confusion with a doctor; barriers to care, for example if a prescription was required; and lack of confidence in whether they were seeing an appropriate medical professional.

Clinical and expert opinion

Many doctors expressed concern about the time required to supervise PAs and AAs, the absence of training to do this well and a lack of understanding about how supervision should work in practice. Feedback from doctors also made the point that potential safety incidents were regularly picked up and prevented by supervising doctors.

The review's survey results for PAs showed marked differences in which tasks were considered appropriate in primary and secondary care, with PAs significantly more likely than doctors to believe that certain activities were appropriate for them to carry out. PAs were seen as providing a positive contribution to improving access and freeing up capacity and, in secondary care, to providing better continuity of care by having a consistent presence on the ward.

[a] Coroner's Reports: Regulation 28 Prevention of Future Death notices

Results from other surveys showed a similar discrepancy between perspectives of doctors and AAs regarding the roles and tasks that AAs should undertake. There were differences in the views of clinicians, with those currently supervising AAs being more positive than those who were not. An important consideration for anaesthetists was whether the service needed this non-physician role, as there are very high competition ratios for anaesthesia specialty training.

Workforce and regulatory requirements

Publication of the NHS Long Term Workforce Plan[2] in 2023 prompted significant concerns about the planned increase in numbers of AAs and PAs. While most people recognised the need for a more diverse future workforce to support the complexity of modern healthcare, there was concern that there are more types of staff role in the NHS than any other healthcare system and a lack of clarity about how they should all interact.

Often, concerns related less to the PA and AA roles but more to unhappiness about changes in the training of doctors. Issues included the absence of training posts following the expansion of medical school places, increased competition from international medical graduates, unsatisfactory training rotations for residents and, most fundamentally, fragmentation of the medical team, which leaves residents with little mentorship.

Regulation of PAs and AAs began in December 2024, under the aegis of the General Medical Council (GMC). This represents the start of a transition period, with PAs and AAs not legally required to register until December 2026. However, this regulation has not been widely welcomed by many in the medical profession, with concerns that the approach taken does not help in distinguishing the role of the doctor from those of the PA and AA.

Consideration of all relevant factors

Lessons learnt from the introduction of physician associates and anaesthesia associates.

Considering what might have been done differently in the introduction of PAs and AAs provides important insights into 3 areas where lessons should be learnt.

A clear vision communicated effectively is required in all change processes, and this was largely missing in the rollout of PAs and AAs. There was no nationally described vision for the integration of the new roles into existing teams and services and, as the workforce expanded, confusion about the roles' purpose and respective remits grew among both patients and professionals.

Effective leadership and engagement are essential to facilitate change, especially medical leadership in the context of healthcare. Many professional leaders were constructively involved and should be commended, but there was no single, consistent voice. Clearer leadership could have helped mitigate some of the challenges of rollout, with ongoing staff engagement to identify and address any new issues promptly.

Finally, effective local change management is vital and seems to have been lacking in the rollout, especially for PAs, where service models were not considered as they were for AAs. Where capacity was limited in local services, gaps in medical posts were sometimes covered by PAs, without taking into account their more limited training or ensuring that supervisors had the necessary understanding of the roles and the time and skills required to provide appropriate oversight. Good local leadership and human resources support should have been in place to plan and communicate the changes, monitor the impact and address any issues.

Future roles of physician and anaesthesia associates

At the start of the review, there were no preconceived ideas about the outcome and what the recommendations would be. Careful consideration was therefore given to determine whether there was either overwhelming evidence to support a complete abolishment of the PA or AA roles or to continue with the roles unchanged. These questions were considered primarily by taking into account evidence on safety and effectiveness but, because this evidence was limited, by also considering views of patients, clinicians and experts, workforce requirements and the views of PAs and AAs themselves.

In considering all the factors, there were no convincing reasons to abolish the roles of AA or PA, although, from a workforce perspective, there is some doubt about the need for the training of further AAs. There was also no case for continuing with the roles unchanged, as there are several significant issues that need to be addressed to effectively embed the PA and AA roles into the NHS workforce. The recommendations set out below provide the necessary changes required to ensure safe and effective deployment of PAs and AAs, bring clarity where required, and provide an opportunity to reset and move forward.

Recommendations for the future

These recommendations are based on the best available evidence and all relevant perspectives. Further discussion of the recommendations, including the rationale for their formulation, is given in the background section. They aim to represent a pragmatic, sensible way forward that will provide clarity, and enable effective change and collaboration for the future.

Physician associates

Recommendation 1: positioning of the role

The role of physician associate should be renamed as ‘physician assistant’, positioning the role as a supportive, complementary member of the medical team.

Recommendation 2: credentialling

Physician assistants should have the opportunity for ongoing training and development in the context of a formal certification and credentialling programme. This should include the ability to take on added responsibilities that are commensurate with that training, including the potential to prescribe and order non-ionising radiation.

Recommendation 3: career development

Physician assistants should have the opportunity to become an ‘advanced’ physician assistant, which should be one Agenda for Change band higher and developed in line with national job profiles.

Recommendation 4: undifferentiated patients

Physician assistants should not see undifferentiated patients except within clearly defined national clinical protocols.

Recommendation 5: initial deployment in secondary care

Newly qualified physician assistants should gain at least 2 years’ experience in secondary care prior to taking a role in primary care or a mental health trust.

Recommendation 6: teamworking and oversight

The physician assistant role should form part of a clear team structure, led by a senior clinician, where all are aware of their roles, responsibilities and accountability. A named doctor should take overall responsibility for each physician assistant as their formal line manager (‘named supervisor’).

Recommendation 7: identifying the role.

Standardised measures, including national clothing, lanyards, badges and staff information, should be employed to distinguish physician assistants from doctors.

Recommendation 8: professional standards

A permanent faculty should be established to provide professional leadership for physician assistants, with standards for training and credentialling set by relevant medical royal colleges or the Academy of Medical Royal Colleges.

Anaesthesia associates

Recommendation 9: positioning of the role

Anaesthesia associates should be renamed as ‘physician assistants in anaesthesia’ or PAA and should continue working within the boundaries set in the interim scope of practice published by the Royal College of Anaesthetists.

Recommendation 10: credentialling

Physician assistants in anaesthesia should have the opportunity for ongoing training and development in the context of a formal certification and credentialling programme, with the ability to take on added responsibilities that are commensurate with that training, including the potential to prescribe and order non-ionising radiation.

Recommendation 11: career development

Physician assistants in anaesthesia should have the opportunity to become an ‘advanced’ physician assistant in anaesthesia, which should be one Agenda for Change band higher and developed in line with national job profiles.

Recommendation 12: workforce planning

Any further expansion in the deployment of physician assistants in anaesthesia should be taken forward in conjunction with the Royal College of Anaesthetists to build safe and effective models of anaesthesia delivery that are supported by the consultant community.

Recommendation 13: ongoing monitoring of safety

There should be an ongoing national audit of safety outcomes in anaesthesia practice in conjunction with the Healthcare Quality Improvement Partnership to provide assurance of the safety of the physician assistants in anaesthesia role, in teams with and without physician assistants in anaesthesia.

Recommendation 14: professional standards

A permanent faculty should be established to provide professional leadership and set postgraduate standards for physician assistants in anaesthesia, under the auspices of the Royal College of Anaesthetists.

Wider system

Recommendation 15: regulation and accountability

The General Medical Council requirements for regulation and reaccreditation of physician assistants and physician assistants in anaesthesia within Good Medical

Practice should be presented separately to reinforce and clarify the differences in roles from those of doctors.

Recommendation 16: supporting doctors as leaders and line managers.

Doctors should receive training in line management and leadership and should be allocated additional time to ensure that they can fulfil their supervisory roles, and to ensure effective running of the health service.

Recommendation 17: redesigning medical and multidisciplinary teams.

DHSC should establish a time limited working group to set out multidisciplinary models of working in different settings. The group should include input from a small group of experienced leaders covering medicine, other relevant healthcare professionals, management, and human resources.

Recommendation 18: safety reporting

Safety systems should routinely collect information on staff group to facilitate monitoring and interrogation at a national level, against agreed patient safety standards, to determine any system-level issues in multi-disciplinary team working.

Implementing the recommendations

It is important to use the opportunity of this review to reset the hostility surrounding this debate and stimulate effective collaboration for the future.

In taking forward these recommendations, the mistakes of the past must not be repeated. Clear leadership will be essential, plus a vision that includes a service model for the future, effective communication, and local support for change management. Medical leadership will be a crucial element of success.

Some national agencies and professional bodies will need to take forward some specific recommendations and others will need to work together to ensure effective leadership, to ensure that the medical professions move forwards in a more productive fashion that improves the working environment for professionals and provides better care and more clarity for patients.

The review

Background

Physician associates (PAs) and anaesthesia associates (AAs) have been working in the NHS since 2002 and 2004, respectively. Their deployment in UK healthcare represents a wider, global trend towards the development of multidisciplinary teams (MDTs) as a way of expanding access to care and improving efficiency.

The NHS faces growing pressure on its workforce, driven by demographic changes, increasing complexity of care and rapid advances in technology. Although the NHS in England currently employs over 1.5 million[3] full-time staff, most of whom are clinically trained,[4] forecasts suggest a potential shortfall of between 260,000 and 360,000 staff by March 2037[2] due to increasing demands.

In this context, PAs and AAs are seen as part of the solution. Their shorter and more flexible training pathways mean that they can be deployed more quickly than other healthcare professionals, notably doctors, supporting them to ease pressure in overstretched services. They were originally introduced as physician assistants and physician assistants (anaesthesia), before physician assistants were formally renamed ‘associates’ in 2014. Physician’s assistants (anaesthesia) were renamed to anaesthesia associates in 2019.

In July 2019, the government requested that the General Medical Council (GMC) take on regulatory oversight of PAs and AAs. From December 2026, registration with the GMC will become a legal requirement for both professions across the UK.

The rapid expansion of these roles, however, particularly the fivefold rapid expansion set out in the 2023 NHS Long Term Workforce Plan,[2] has generated public and professional controversy. Concerns have been raised about the potential impact on the training and development of doctors, as well as risks to patient safety. Major issues include the limited duration of PA training, lack of prescribing rights and confusion among some patients who perceive a PA to be a doctor. A small number of high-profile cases, including reported patient deaths, have further fuelled media attention and public concern.

In November 2024, and as a result of the heightened controversy about the PA and AA roles, the Secretary of State for Health and Social Care established an independent review of the two professions, the Leng review. The conclusions of the review will help to determine the safety and effectiveness of the roles within the MDT, will inform the refreshed workforce plan that the government has committed to publish, as well as informing wider government policy.

Physician associates

Physician associates are deployed in several healthcare settings, including primary care, secondary care and mental health trusts. PAs can also work in specialist areas, including geriatrics, gastroenterology and neurosurgery, with many having the opportunity to pursue specialist interests. In general, PAs are housed in large university hospitals providing tertiary and quaternary care or in hard-to-recruit areas.

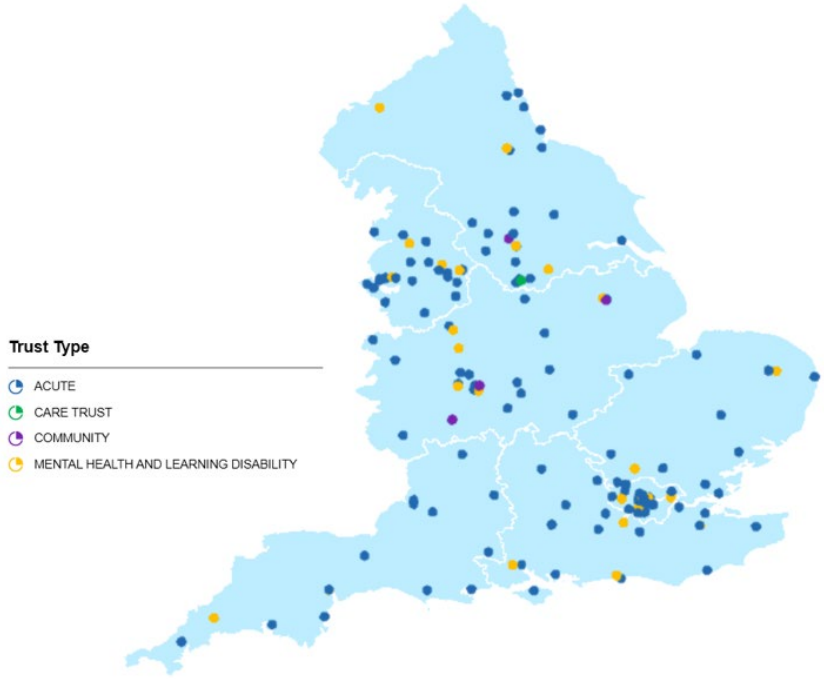
The UK's adoption of the PA role was largely inspired by the USA, which founded the role in the mid-1960s. The role was the brainchild of Dr Stead, who developed a 2-year training programme for former US Navy corpsmen, who had extensive medical training during their military service. The role was deployed to improve access to healthcare in deprived areas through mitigating doctor shortages, especially in primary care.

Since the early 2000s, and in response to increasing workforce pressures, there has been a growing recognition of the PA role across the globe as a flexible way to address doctor shortages and improve access to healthcare. Today, PAs or their equivalents are employed in over 50 countries, although the role is often adapted locally to meet specific healthcare system needs.

In England, rollout was based on the employment of PAs who had been trained in the USA, as there were no university training programmes in the UK at that time. Rollout followed a successful pilot of PAs in Scotland. In 2005, the UK Association of Physician Assistants was established as the professional body and, in 2006, the Department of Health released a competency framework for PAs in conjunction with the Royal Colleges of Physicians and General Practitioners. A voluntary register was subsequently founded in 2011. The role has grown over time, and there are now over 3,500 full-time equivalent (FTE) PAs working in a variety of roles in primary and secondary care in the NHS.[4,5] Please note that any total staffing figures were drawn from both primary and secondary care data sources, which were collected in different ways.

Figure 1 shows the distribution of PAs by trust across England. Most trusts employing PAs are acute trusts based in the North West or in London.

Figure 1: Trusts employing PAs in England (September 2024)[b6]



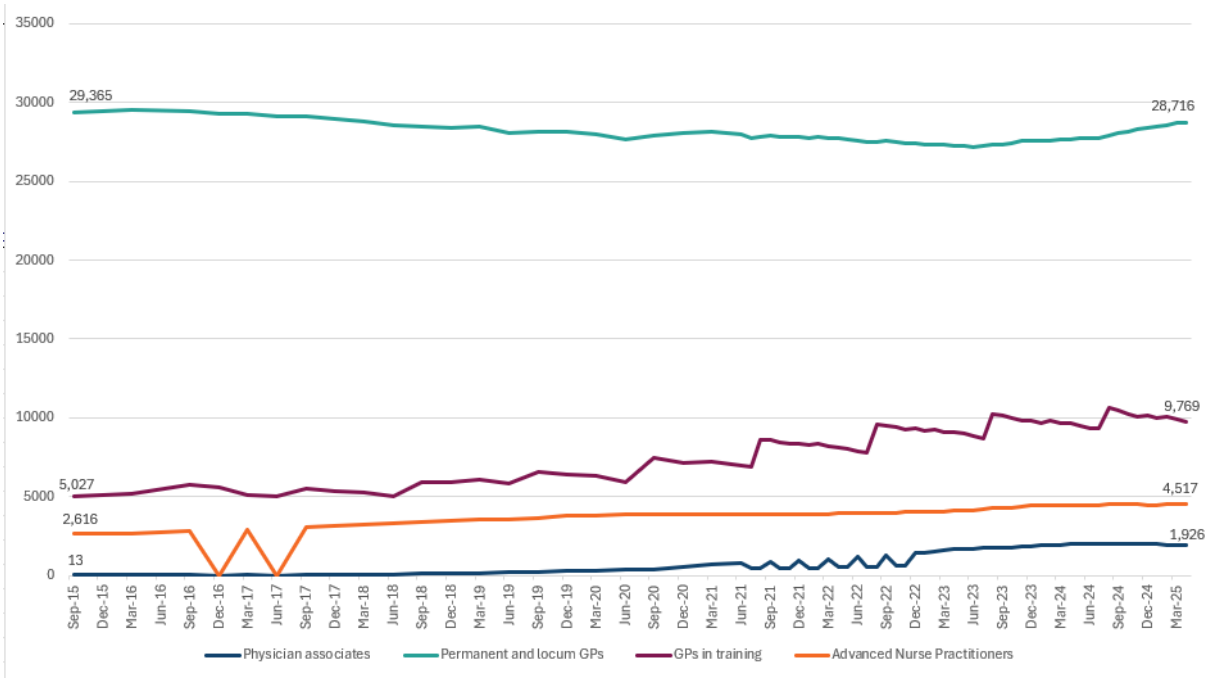
Deployment of physician associates in primary care

In June 2015, Jeremy Hunt, the then Secretary of State for Health, announced that 1,000 PAs would be introduced into general practice in England to assist in tackling general practitioner (GP) workload pressures. At the time, there were fewer than 20 PAs employed in primary care settings.

Figure 2 highlights the changes in numbers of PAs, GPs, GPs in training and advanced nurse practitioners (ANPs) working in primary care from September 2015 to March 2025. [3] Accompanied by the expansion of the Additional Roles Reimbursement Scheme (ARRS) funding to include PAs, PA employment in primary care rose to its peak at over 2,000 FTE in June 2024. Over the same period, the FTE of GPs in training almost doubled and the FTE of ANPs, also funded by the ARRS scheme, increased by 73%. In contrast, numbers of permanent and locum GPs fell slightly.[7] Following much scrutiny of the PA role, as well as a change to ARRS funding, there was a small decline in recruitment and retention at the end of 2024.

PAs in primary care currently work at 577 practices and over 400 primary care networks (PCNs) across all 7 regions (Figure 1)[7] but tend most often to be employed in hard-to-recruit areas, with the aim of ensuring access to healthcare. As such, PAs in primary care are concentrated in London, with the South West employing fewest PAs in primary care.

Figure 2: FTE of selected roles in primary care (September 2015 to March 2025)[7]

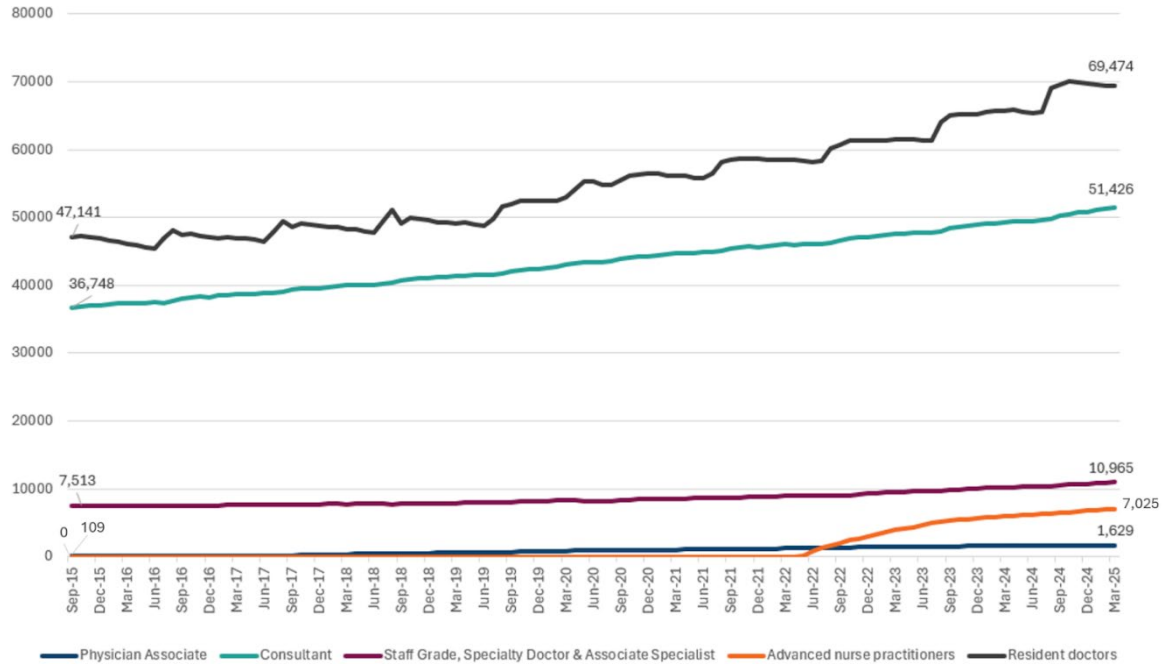


Deployment of physician associates in secondary care

The number of PAs working in secondary care has increased steadily from a low baseline, before falling slightly in December 2024,[8] possibly because of widespread scrutiny of the role. Figure 3 highlights the changes in numbers of PAs, consultants, staff grade, specialty and associate specialist doctors, ANPs and resident doctors working in secondary care from September 2015 to March 2025. In September 2015, there were around 100 FTE PAs employed.[9] Numbers then rose to over 1,600 FTEs in March 2025,[4] nearly 15 times higher than previous levels. Over the same period, the FTE of resident doctors in secondary care increased by nearly 50% to over 69,000, consultant FTE rose by 40% to over 51,000 and ANP FTE increased by 46% to nearly 11,000.[4]

While PA expansion has been rapid, numbers employed remain very small compared with other professions. In March 2025, there were more than 40 times as many resident doctors working in secondary care as PAs Figure 3).[4] PAs in secondary care work at 147 organisations and over 40 integrated care systems across all 7 regions[8] but employment tends to be concentrated in large university hospitals offering tertiary or quaternary care. As such, there are currently more PAs working in secondary care across London and the North West.

Figure 3: FTE of selected roles in secondary care (September 2015 to March 2025)[4]



Anaesthesia associates

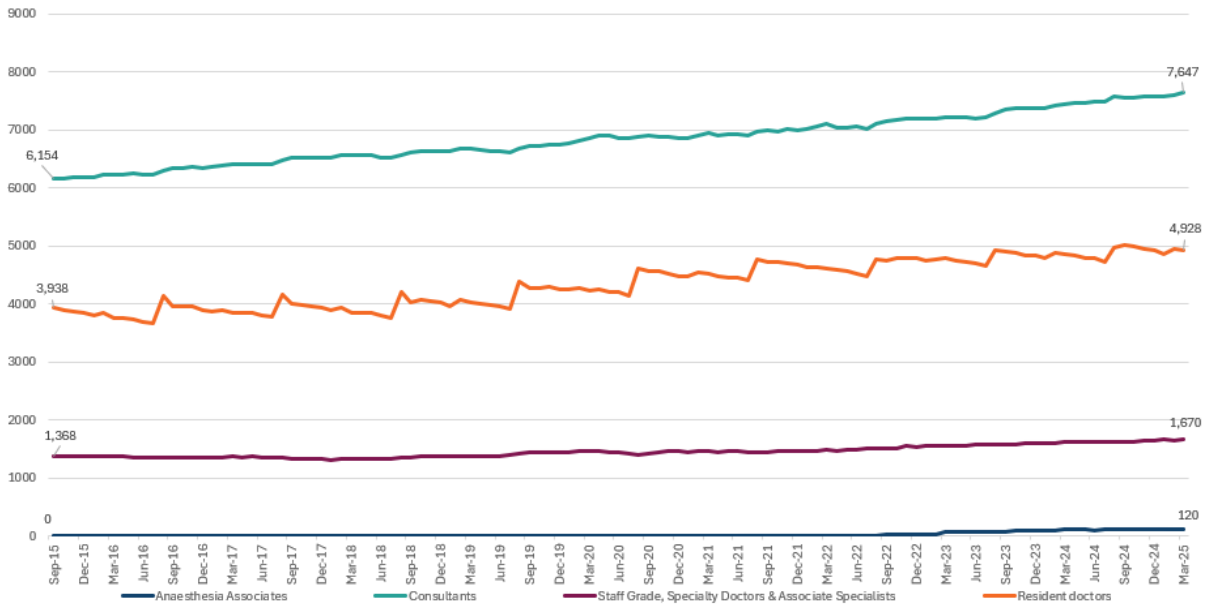
Like growth in the number of PAs, non-physician administered anaesthesia service models are playing an increasingly important role globally, although they are less widespread and more varied than those of PAs, with many countries using nurses or technicians instead. Like PAs, AA deployment is largely driven by increasing complexity of care, demographic changes and doctor shortages.

In 2002, the Royal College of Anaesthetists (RCoA) examined the feasibility of introducing a non-medical practitioner role to support the delivery of anaesthesia services to the UK.[10] This followed an expected shortage in the number of anaesthetists and concerns about future sustainability of the profession, including an anticipated shortfall in the number of consultant anaesthetists. As a result, the 'New Ways of Working in Anaesthesia' programme was established and in 2003, a phase one pilot was initiated over 2 years at 6 sites. This led to the development of the 'anaesthesia practitioner (AP) curriculum framework'. In 2005, a training programme was developed by the University of Birmingham in collaboration with the RCoA.

A detailed report on the future NHS requirements for anaesthetists was published by the RCoA in 2022, predicting that, unless urgent action was taken, the UK would be 11,000 anaesthetists short by 2040.[11] Following this report, the NHS Long Term Workforce Plan set out a plan to increase the numbers of AAs from just over 160 to 2,000 by March 2037,[2] although the same plan made no explicit mention of an expansion in training numbers for anaesthetists.

Figure 4 highlights the changes in numbers of AAs, consultants, staff grade, specialty and associate specialist doctors, and resident doctors working in anaesthesia from September 2015 to March 2025. Although employment of AAs increased at an accelerated rate from 2022, this remained significantly lower than PA employment rates. As with deployment of PAs, numbers have plateaued since 2024. The FTE of AAs employed in England increased from an FTE of less than 14 in September 2015 to 120 in March 2025.[4]

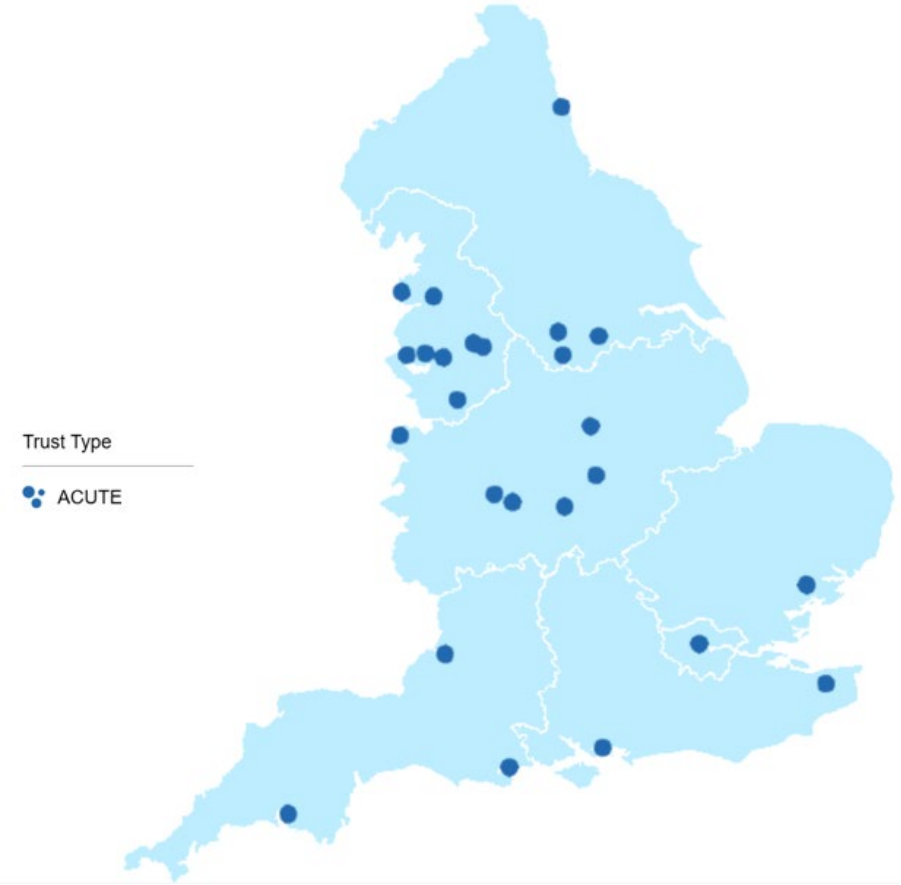
Figure 4: FTE of selected staff in anaesthesia (September 2015 to March 2025)[4]



Over the same period, the FTE of consultant anaesthetists increased by 24% to over 7,600 and of resident doctors by 25% to over 4,900 (Figure 4), accompanied by an increased proportion of doctors choosing anaesthesia as a specialty. This means that the shortage of anaesthetists once predicted by the RCoA now seems unlikely.

AAs in England are currently concentrated at only 24 trusts, predominantly in the North West (Figure 5).[6,8]

Figure 5: Trusts employing anaesthesia associates in England (September 2024)[6]

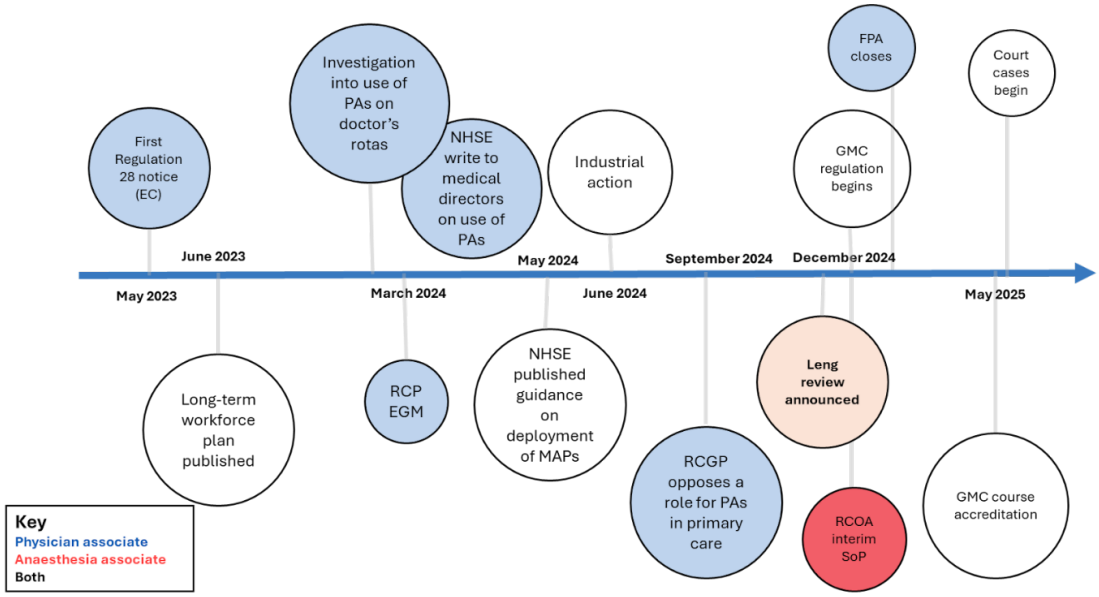


Recent controversy over the associate roles

Alongside a sustained increase in deployment of PAs and AAs, there has been a rising and impassioned debate about the PA and AA roles. This is despite the absolute numbers of AAs and PAs being relatively low compared with the number of doctors, although the concentration of employment in certain geographical areas and trusts means that the impact in these areas is higher.

The reasons for challenge to these roles over recent years are multifaceted, with many different elements coming together to create significant tension. Figure 6 shows the development of regulation, guidance and accreditation from May 2023 to May 2025, as well as selected events relating to evolving public, professional and legal perspectives. This highlights some of the many stakeholders involved, as well as the increasing intensity of the public debate over recent years.

Figure 6: Timeline of recent events



Pressure resulting from the COVID-19 pandemic was probably one underlying factor that triggered an interest in the role of PAs and, to a lesser extent, AAs. The pandemic created an unprecedented strain on staff and healthcare services, incentivising the wider use of PAs and AAs in new roles to meet demand. Morale in the medical workforce was generally low, with a feeling that pleas for expanding postgraduate training numbers for doctors were largely ignored and competition ratios for higher specialty training places soared.

General unhappiness was exacerbated by the NHS Long Term Workforce Plan,[2] which committed to a substantial expansion in numbers of PAs and AAs. This, alongside gaps in workforce exacerbated by industrial action, resulted in some areas triggering an unplanned rollout of PAs into new areas of work to fill gaps in medical rotas. This expansion led to widespread calls from the medical profession for defined scopes of practice for AAs and PAs. This issue was compounded by a number of high-profile media cases, which raised concerns about the model of supervision and potential risks to patient safety.

As the rollout of AAs was much more limited than PAs, fewer concerns were raised directly about safety. Instead, issues were raised about why the AA role was needed at all, particularly given rising competition ratios for anaesthesia training, whether it was more cost effective and safer for the work to be done by anaesthetists and whether supervision worked in practice.

By the autumn of 2024, the debate around PAs and AAs was regularly being described as ‘toxic’, with reports of bullying and harassment in the day-to-day working environment and leaders being unwilling to speak up. The resultant controversy and limitations on practice issued by the royal colleges has led to a plateauing in employment of PAs and AAs and, in some cases, redundancy.

The conclusions of this review are unlikely to be universally popular. The recommendations aim to provide clarity in a highly controversial area and represent a pragmatic way forward. They are based on a review of all available research, evidence and data, looking comprehensively at the roles and settings in which PAs and AAs work, including in appropriate international contexts. Acceptance and implementation of these recommendations is an important next step to facilitate delivery of healthcare and to allow staff to focus on improving care for patients.

Aims and scope of the review

General approach

The general aim in conducting the review was to be comprehensive, to address the main questions around safety and effectiveness, and to engender trust in the process. To that end, it was agreed at the outset that the review would be:

- open and transparent, sharing information wherever possible.
- based on the best available evidence and data
- collaborative and inclusive of all perspectives
- underpinned by patient experience.
- forward-looking, aiming to address the healthcare challenges of the future.

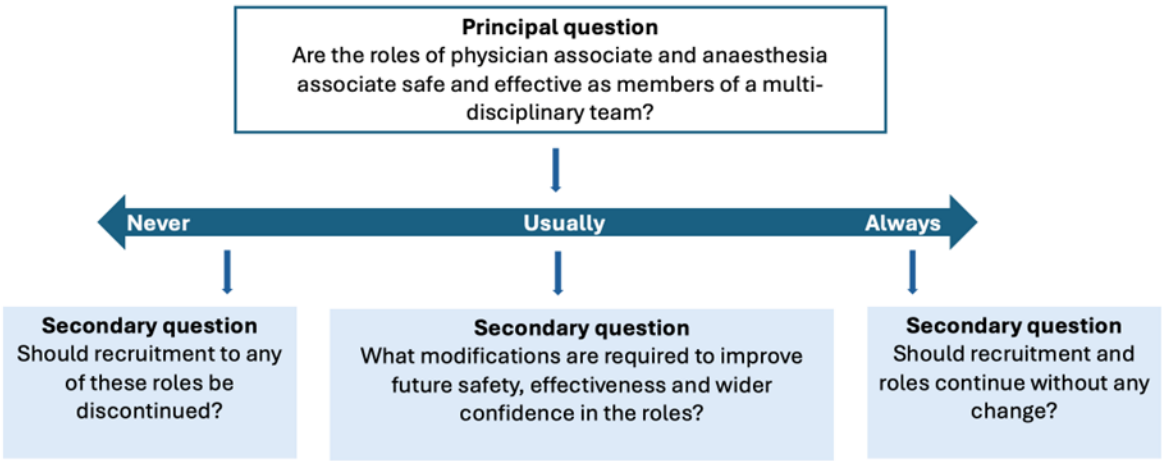
Aims

The review, commissioned by the Secretary of State for Health and Social Care Wes Streeting, was asked to address the central question of whether the roles of PA and AA are safe and effective as members of an MDT. Related to this were the following secondary questions:

- what modifications might be required to improve confidence in the role?
- has the rollout in England supported safe and effective deployment of the roles?

It was explicit at the outset that the evidence on safety and effectiveness would be used to inform a spectrum of potential outcomes. Figure 7 highlights that these outcomes could range from a decision to abolish the PA and AA role or, at the other end of the spectrum, to expand the roles further without change. Alternatively, depending on the findings, to continue with modifications.

Figure 7: Principal and secondary questions underpinning the review



Scope

Inclusion

To answer the central question about safety and effectiveness of PAs and AAs, the review took a comprehensive approach to ensure that all relevant elements were considered. This included examining:

- all available evidence, including relevant research, published and unpublished, and data and audit findings from national agencies and local trusts.
- each setting in which PAs and AAs work, in particular primary care and hospital settings for PAs, and the operating theatre and linked environment for AAs.
- any potential activities that PAs and AAs might undertake and the reality of day-to-day working in MDTs.

In considering the broad evidence base, particular attention was given to the following elements where they might impact on safety and effectiveness:

- supervision, oversight and impact on the wider MDT
- the need for a scope of practice for PAs and AAs at the start of their careers
- training and the potential for an enhanced scope of practice
- identity and naming of PA and AA roles
- professional oversight, including who should have responsibility in the health system for setting guidance and standards on training and development.

Because of the different issues associated with the PA and AA roles, and the different working environments, it was agreed that these roles should largely be considered separately. The structure of this report reflects that separation.

The question of safety and effectiveness is a complex one, influenced by many interrelated factors. Therefore, the evidence base was not expected to provide conclusive answers, and a wide range of additional factors was also considered to develop the recommendations. This included patient perspectives, clinical opinion, expert views, workforce requirements, training and regulatory factors, cost and cost effectiveness.

The review was commissioned for England only, but there has been ongoing engagement with the devolved administrations throughout the review process. Acceptance of the recommendations across the 4 nations will help to provide consistency and clarity for staff and patients.

Exclusion

Areas excluded from the scope of the review at the outset were:

- the roles of other medical associate professions
- pay bands for PAs and AAs

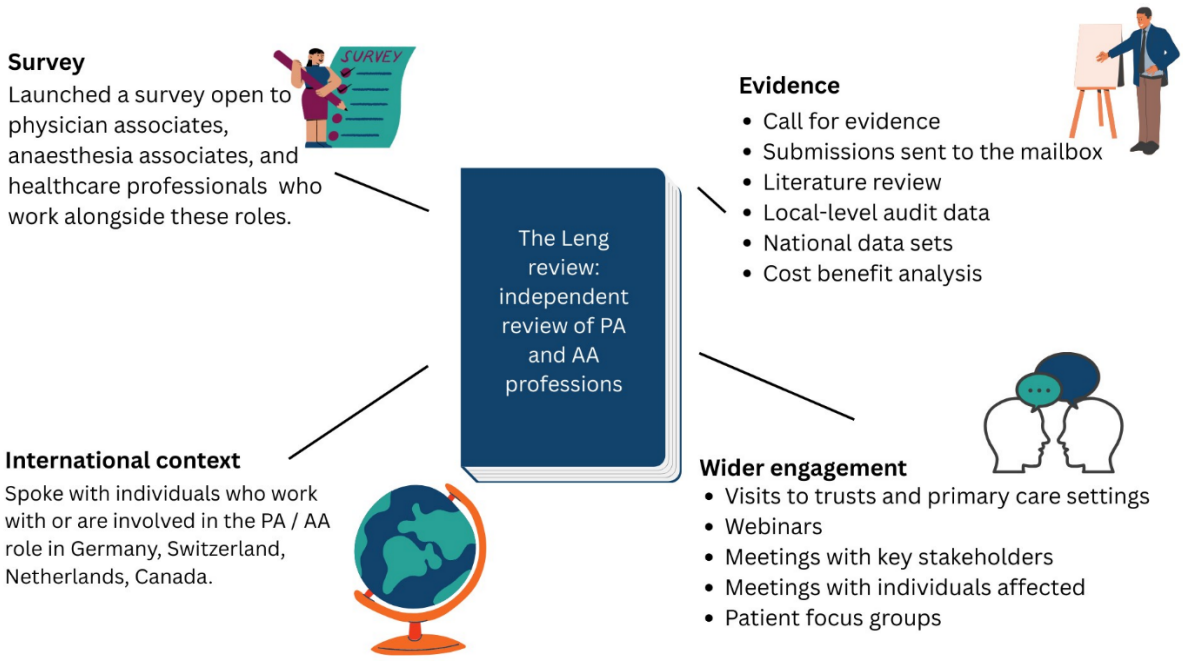
- whether PAs and AAs should be regulated and by which body, as regulation has recently commenced under the auspices of the GMC
- production of a detailed curriculum for PAs or AAs, as this is the role of the regulator
- production of a detailed scope of practice by setting or, for more senior practitioners, with bespoke training and experience
- future recommendations for numbers of PAs and AAs, which is a question for government and will be considered as part of the refreshed workforce plan to support the 10 Year Health Plan for England

Methods

Identifying evidence of safety and effectiveness

To capture the fullest possible picture of PA and AA safety and effectiveness, an extensive and broad mixed methods search strategy was adopted. A summary of the evidence-gathering process is set out below and illustrated in Figure 8. This included identifying published and unpublished evidence through multiple channels, developing a survey for PAs, AAs and those who work alongside them, and speaking with a wide range of national and international stakeholders. Further detail is available in Appendix 4: Methodological detail. Published material was retrieved in part by an independent rapid literature review commissioned from King's College London.[12] This literature review mapped existing systematic and primary studies worldwide, assessed PROSPERO protocols for ongoing research and included all relevant studies held in the National Institute for Health and Care Research database. The review team extended this map by considering published evidence received via the call for evidence or the dedicated mailbox and hand-searching bibliographies.

Figure 8: Evidence strategy behind the Leng review



Unpublished evidence was obtained through this open call for evidence, which invited trusts, primary care practices, education providers, unions and academics to upload local audits, quality-assurance reports, staffing analyses and early stage or unpublished research. Evidence was also accepted via the review's mailbox. Eligible evidence was classified into the review's priority research areas of safety or

effectiveness, or the wider areas of patient perspectives, cost and cost effectiveness, workforce requirement and education, training and regulation relating to safety and effectiveness.

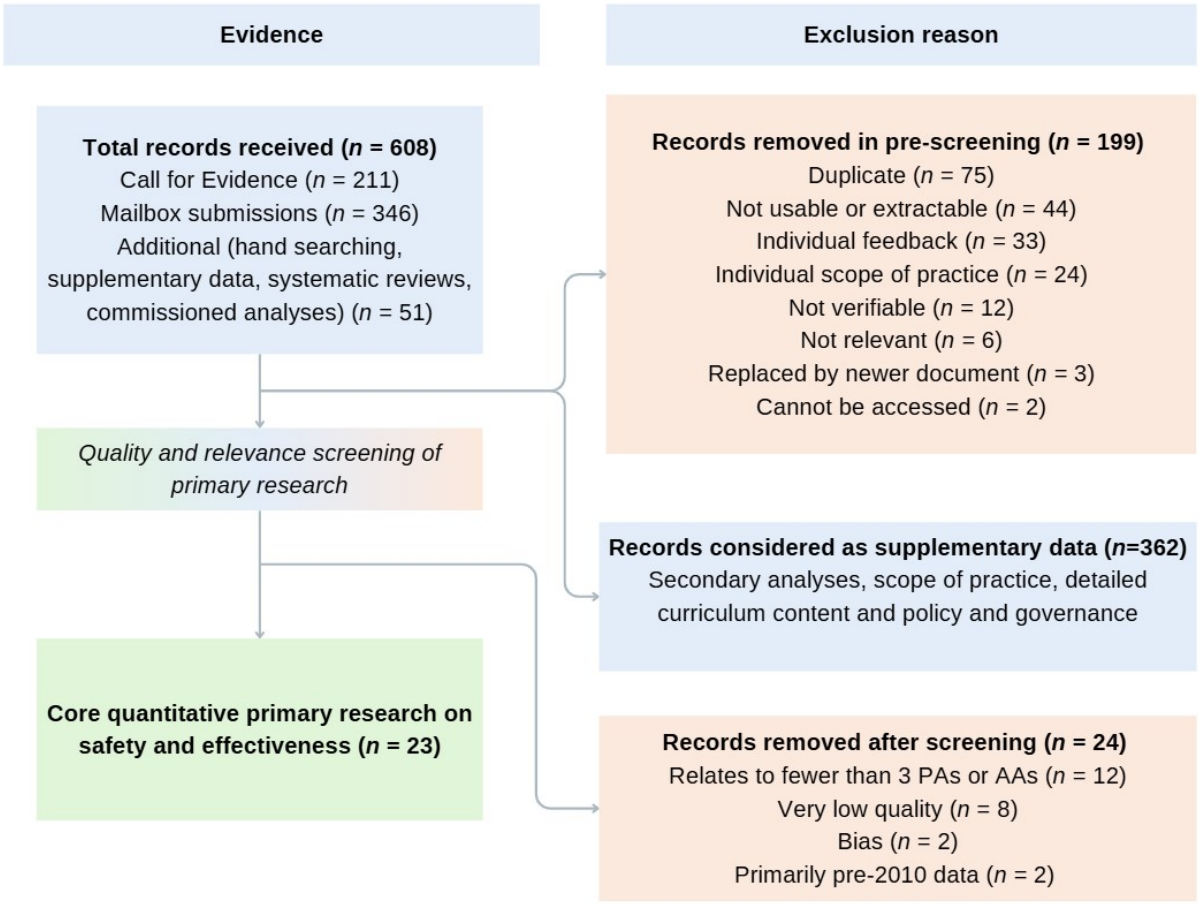
Concurrently, national bodies were also asked to interrogate relevant datasets. The Care Quality Commission (CQC) analysed every mention of PAs or AAs from coroners' Prevention of Future Death reports, whistleblower files and the Learn from Patient Safety Events system. Parallel searches retrieved data for resident doctors, resident anaesthetists and nurses to act as broad comparators, with important caveats.

At a local level, every NHS trust was asked for a 5-year breakdown of 'never events' by professional groups. Effectiveness indicators came from DHSC and NHS England analyses of primary care performance, hospital throughput and references in Getting It Right First Time (GIRFT) reviews. The review team also conducted wider engagement to set findings in national and international context.

Quality assurance and synthesis

All material fed into a 2-step appraisal process, described in further detail in the appendices, summarised below and in Figure 9: PRISMA flow diagram of screening strategy

Figure 9: PRISMA flow diagram of screening strategy



First, 2 reviewers screened for relevance to the core outcomes of safety and effectiveness, or the wider areas of patient perspectives, cost and cost effectiveness, workforce requirement and education, training and regulation, against eligibility criteria. Second, 2 reviewers scored each item against National Institute for Health and Care Excellence (NICE) evidence checklists covering methodological rigour, bias, generalisability and data completeness. Initial screening and assessment were usually, but not always, carried out by a different combination of reviewers.

Disagreements were resolved by discussion or consultation with an external academic. Studies meeting the relevance criteria and included in the rapid Policy Research Unit (PRU) literature review[12] commissioned by the review team or meeting the quality thresholds of one of 3 recent rapid or systematic reviews[13-15] were accepted without additional quality assessment.

National CQC outputs underwent manual relevance checks by trained analysts. Trust-level ‘never-event’ returns were verified for internal consistency and datasets with unexplained outliers or missing denominators such as FTE counts were excluded. Where possible, PAs were compared with resident doctors or nurses and AAs with resident anaesthetists. Further testing explored whether trusts employing

PAs or AAs had different overall event rates from those that did not and whether the responses received were representative.

Evidence graded medium or high was entered directly into outcome tables. Very low and low quality evidence was included only following discussion with the lead reviewer and where it filled a major data gap. Due to heterogeneity in study design, settings and outcomes, outputs were structured in summary tables without reanalysis of primary data or formal meta-analysis.

608 total records were received and assessed, with 199 removed in pre-screening, 24 removed post detailed quality and relevance screening, 362 considered as supplementary data and 24 ultimately included as core quantitative primary research on safety and effectiveness. The core quantitative primary research relating to the safety and effectiveness of these roles is available in appendices 2, 3 and 4.

Limitations of the search and analytical strategy

There were several limitations to the search and analytical strategy, which aimed to consider a wide range of data to identify the best available evidence in each area. This breadth increased the risk of reliance on poorer quality or older evidence with unreported or unadjusted-for patient case mix, and meant that a diverse range of healthcare professions, medical units or benchmark ranges were used as comparator groups.

Because PAs and AAs were the subject of contentious debate, there was a risk of bias in some of the research. While every effort was made to account for bias, it remains possible that these polarised perspectives remain reflected in the data. This issue presents a particular risk concerning non-peer-reviewed and audit data, as well as qualitative studies and site visits, which involved a greater degree of subjectivity and potential for selection and interpretation.

Some structural factors made it particularly challenging to draw conclusions. This includes difficulty in identifying PA and AA experience, due to an absence in standardised job titles. A wide range of medical roles was also proposed as professional comparators, especially for PAs, hindering direct like-for-like comparisons and introducing an additional margin for error into the analysis.

Finally, incident reporting systems are not structured to assign responsibility for any event to an individual, and with good reason. However, this meant that establishing or comparing rates of responsibility or involvement between any professional groups was challenging.

Despite these limitations, the assembled evidence offers the most comprehensive evidence base relevant to UK PAs and AAs currently achievable.

Gathering wider perspectives

In addition to the formal quantitative and qualitative research, the review has been underpinned by an extensive programme of proactive engagement to inform the wider perspectives that are relevant to the central question. This approach is set out in Figure 10, illustrating that the review's central focus on research and audit data is supported by five further considerations: cost and cost effectiveness; patient perspectives; clinical and expert opinion; education alongside training and regulatory factors; and workforce requirements.

Figure 10: Wider perspectives on the evidence

A mixed-methods approach was adopted to identify and prioritise in-depth engagement with a broad range of stakeholders, including:

- patients, who are at the heart of this review - the majority of patients who met with the review team had relevant lived experience of PAs and AAs, either directly or as a relative

- clinicians and other relevant professionals, including international experts, who work with PAs and AAs or who hold responsibility for them or their deployment
- those working in the academic, educational or regulatory environment with responsibility (directly or indirectly) for the training, development and regulation of PAs and AAs
- policymakers in government or in advisory roles, as well as managers in clinical settings, who determine workforce planning requirements and delivery
- economists and budget holders, including chief financial officers

The fierce public debate surrounding the roles meant that one of the major challenges for the review was the difficulty in having open, honest debate. Some of those with differing views found it uncomfortable to sit together in the same room or on the same stage, which introduced challenges to sharing experiences openly and constructively. There were a number of examples of this during visits to trusts, where individuals felt unable to share their true opinions. The review team therefore worked to provide opportunities for people to contribute directly, which was largely enabled via webinars with an anonymous comment facility as well as a specifically designed survey. The team also reviewed hundreds of pieces of correspondence from healthcare professionals and members of the public received via the review's mailbox.

Overall, there was engagement with over 1,000 individuals during the review, some in one-to-one meetings, some in small groups, such as focus groups, and others in informal engagement settings. Some meetings focussed on a particular topic or specific area of inquiry, while others focussed on ensuring that all interested parties and organisations were heard.

The next sections set out the methods employed by the review to gather wider perspectives, as well as the overall reflections of each engagement group.

Views of patients and the public

The review ensured that it heard the views of patients and the public. Of particular importance was hearing from the relatives of those who had died. To facilitate this, one-to-one conversations were held with families directly impacted. The review team is grateful to the families for their participation. A supportive environment for discussion was provided, where individuals felt able to speak candidly about their experiences.

In addition to these discussions, 3 focus groups and a variety of one-to-one interviews were conducted by the Patients Association on the review's behalf. The full report from these groups is available in the annexes accompanying this report. In total, 31 participants took part. Of these, 23 participants had been seen by a PAs and 8 had not. 23 participants reported disabilities, and all participants were living with a long-term condition. Issues raised included patient choice, transparency,

supervision and barriers to care. A round table with local Healthwatch representatives was also held to develop an understanding of common themes relating to PAs and patient experience.

The 2 commissioned organisations had direct access to the target audience had extensive experience in undertaking such research were able to provide an environment in which participants felt confident to speak openly. The review also considered several studies that took into account the patient perspective, identified through the mixed methods search strategy described at the start of the methods section.

Clinical and expert perspectives

High level and wide-ranging clinical and expert input were sought through a variety of routes, including via direct conversation and written submissions. There were also meetings with a group of important stakeholders, the heads of relevant royal colleges, professional bodies, union leaders and medical directors across all four nations. The review prioritised opportunities to hear from as many clinicians as possible, inviting them to pose questions, share experiences and contribute to thinking.

Where appropriate, meetings were held with international experts. This included those countries where healthcare systems are reflective of the NHS in England who had deployed PAs or AAs. This included engagement with colleagues in the Netherlands, Germany, Switzerland and Canada. Despite the USA often being cited as the inspiration for the introduction of PAs in the UK, the economic incentives shaping the PA model in the USA do not correspond to the objectives and principles of the NHS. For this reason, the USA was not included as part of detailed discussions, although US data was included in the literature review.

An important element of feedback from clinicians was via a dedicated online survey. The survey was targeted at PAs, AAs and other healthcare professionals who work with them as part of an MDT. Questions were developed aligned to the terms of reference of the review and, where possible, with consideration to the wording and structure of previous surveys aimed at this subject. A full report on the survey's methods and results is available on the Independent review of physician associates and anaesthesia associates: survey of healthcare professionals page.

Like all evidence considered, triangulation and supplementation of the review's survey was conducted against a range of other UK-based surveys identified via the call for evidence, the review's mailbox and additional assessment of the literature.

Workforce trends and requirements

Formal feedback from workforce experts within and outside government was sought during dedicated evidence gathering sessions on workforce as well as on an ad hoc basis throughout the review. The review also commissioned NHSE and DHSC to share the assumptions, modelling, and minutes relating to the expansion decisions set-out in the Long Term Workforce Plan. Planning documentation, policy analysis and consideration of the published literature made an important contribution to the contextualisation of PA and AA employment.

Education, training and regulatory requirements

The review received a large volume of evidence relating to education, training and regulation via the call for evidence. This included course curricula, the approach taken by the GMC on recent accreditation processes, research on the variation in PA and AA course and a number of studies on the variation in performance between medical students. The review also scrutinised the Physician Associate National Examination (PANE) exam in full.

Where the review received evidence pertaining to the education and training of resident doctors, it shared relevant findings with the review of postgraduate medical training led by Sir Chris Whitty and Sir Stephen Powis.

Costs and cost effectiveness

Despite cost effectiveness playing an increasingly central role in healthcare decision making, accurately measuring cost effectiveness in healthcare is extremely challenging. To measure the cost effectiveness of a staff group, such as a PA or AA, the costs associated with the group would need to be calculated and compared with the value they deliver, often measured by their contribution to health outcomes or improvement in wellbeing. This involves analysing both the financial costs (salaries, benefits, training and the effectiveness of the staff group, using metrics relevant to their work.

There were significant challenges in robustly identifying evidence on core safety and effectiveness outcomes. Where evidence had been identified throughout the evidence gathering process, there were often contradictory outcomes or small sample sizes, making generalisation challenging. It has therefore not been possible to conduct any primary cost-effectiveness analysis in this report.

The review sought secondary cost-effectiveness analysis, largely collated via the call for evidence. Perhaps unsurprisingly, those who have attempted to undertake cost effectiveness analysis have generally failed to measure indirect costs and benefits accurately, instead focussing solely on staff costs. Using this limited lens of staff costs, deployment of PAs or AAs often demonstrates a clear cost benefit, but this approach assumes safety and effectiveness outcomes are broadly the same (a

conclusion the review cannot evidence) and that direct doctor substitution is possible. Secondary research also tends to ignore key contributory or secondary factors such as:

- potential for variation in outcomes
- the role of a PA or AA as a complement rather than a substitute
- the role of the supervisor
- potential wider system costs due to barriers to care or reattendance rates

Findings on safety and effectiveness

General overview

The empirical evidence base of safety and effectiveness was weak, unevenly distributed across settings, with limited generalisability and entirely based upon observational data, with no randomised studies identified in any setting. Detail on included evidence relating to primary research on the safety and effectiveness of PAs and AAs is available in the appendices.

Many studies included only a handful of PAs or AAs or were conducted on a single site. Others described early or pre-pandemic adopters of the roles whose practice may not reflect the reality of current deployment or associated concerns relating to expansion of the role. However, the increasing scrutiny surrounding the debate may also mean that earlier research is less likely to be at risk from potential bias, so could be seen as holding greater validity.

Small study sizes, including low numbers of PAs and AAs, meant that generalisations had to be made based on a small number of individuals. The review therefore used a wide-ranging process of engagement to support the development of recommendations. In many cases, the evidence was underpowered to test for small to medium differences in performance between staff groups, so no evidence of a difference may not mean that no difference exists.

Across studies, there was little consistent attempt made to compare or control for variation in case mix, supervision arrangements or patient outcomes. The primary research studies included in the literature review suggested that, on balance, PAs and AAs performed similarly to foundation year doctors on many outcomes relating to safety and effectiveness. However, this does not mean that there is evidence suggesting substituting doctors with PAs and/or AAs is necessarily safe, because of the associated supervision.

In the review's survey,[16] relatively few doctors felt it was appropriate for PAs to diagnose illness. Of doctors who have recently worked with PAs only 29% in primary care and 14% in secondary care supported this aspect of the role. Follow-up responses suggested that many doctors believed patient safety could be improved by limiting PAs to seeing patients who had already been assessed or 'differentiated' by a doctor, rather than those presenting with new or undiagnosed symptoms.[16]

Research evidence on safety and effectiveness outcomes across the contexts of PAs in primary care, PAs in secondary care and AAs is summarised in the following sections. The tables in these sections use the key in Table 1.

Table 1: Statistical assessment and significance

*	A 'significant difference' (p <0.05)
†	'No significant difference' (p ≥0.05)
None	Has not or cannot be statistically assessed

Safety of physician associates in primary care

Patient safety is defined by the World Health Organization as *"the absence of preventable harm to a patient and reduction of risk of unnecessary harm associated with health care to an acceptable minimum"*.[17] It is universally difficult to measure in primary care systems, particularly due to the lack of appropriate measurement methods.

Assessment of the safety of PAs in primary care in this review relied largely on published research, which was focussed on a small number of relevant domains that did not allow for a comprehensive assessment. Like much of the primary care literature, no studies controlled for long-term patient outcomes. No studies were identified that directly examined safety incidents in primary care, and no pieces of local audit data met the review's criteria. The evidence therefore relied upon only two pieces of published pre-pandemic research,[18,19] one piece of recent non-peer-reviewed research[20] and coroners' reports analysis[21] (Table 2). Of the traditional national data sets measuring patient safety, just one coroner's report referenced PAs in primary care, which was fewer than expected.[21]

In general, studies used narrow outcome metrics, focussed on a small number of participants and were not replicated, so drawing generalisable conclusions was not possible. While the published evidence found that within some domains of safety PAs could be seen as equally safe as their colleagues, there was no compelling evidence that PAs were safe to work as doctor substitutes in primary care. While relatively robust supervision structures were in place in some of the studies assessed, they did not necessarily reflect the arrangements in place in other settings.

These findings were corroborated by the rapid review of the literature commissioned from the PRU,[12] which found that there was weak and mostly international evidence assessing the safety of PAs in primary care.

Table 2: Safety of physician associates in primary care: results[c]

Published and peer reviewed research

Source	Outcome	Finding	Comparator[d]
Drennan, 2015[19]	Consultations records assessed as appropriate	More likely to be appropriate (note 1)	GP
de Lusignan, 2016[18]	Safety of consultation	Lower quality*	GP

Non-peer reviewed research, audit and other analysis

Source	Outcome	Finding	Comparator[e]
Harrison, 2025[20]	X-rays ordered	No difference†	ANP
Harrison, 2025[20]	X-rays ordered	Fewer*	Postgraduate doctor in training
Regulation 28: Prevention of Future Deaths[21]	Reference to 'PA'	Fewer than expected	Expected proportion reports vs FTE

Effectiveness of physician associates in primary care

Like any service setting, measuring effectiveness in healthcare is extremely challenging. Effectiveness can be defined as how well an intervention achieves an intended outcome, in this case the introduction of a PA. For the purposes of the review, the team assumed that the outcome should be the same as the comparator group. The challenge of measuring effectiveness in primary care involved defining and measuring that outcome. No studies included patient follow-up as an outcome, and neither was there a long-term assessment of patient outcomes. As such, it was not possible to determine whether the outcome of a patient seeing a PA in a primary care setting was as effective as if they had seen somebody, or indeed nobody, else.

There was, however, a much larger suite of evidence assessing the effectiveness of PAs in primary care than for safety. All the evidence included statistical analyses to establish the strength of their findings (Table 3). Other than one piece of non-peer-reviewed research,[20] all evidence was gathered pre-pandemic. International comparison via the PRU review identified similarly mixed findings on screening and

[c] * = A 'significant difference' (p <0.05)
† = 'no significant difference' (p ≥0.05)
None = Has not or cannot be statistically assessed
[d] Relating to patients seen by a PA unless otherwise stated
[e] Relating to patients seen by a PA unless otherwise stated

referral behaviour for PAs in primary care, with most analyses showing no significant differences.

The research generally assessed the direct impact of the PA compared with another professional rather than with a team before the introduction of the PA. It was thus difficult to determine whether the effectiveness of the individual PA led to an overall change in the effectiveness of the MDT. However, at the individual level, most studies showed no statistical difference between PAs and the relevant comparator, although comparators varied and included ANPs, doctors in training and GPs. The research implied that the introduction of PAs resulted in little impact on effectiveness.

No studies included data describing an impact of PAs on patient access, although this was a key driver of their introduction. There was broad consensus that PAs tended to give more advice and had longer consultations.[19,20,22] The content of appointments may correlate with consultation length, with a range of complementary evidence and guidance indicating that PAs tended to be allocated longer consultation slots in practice, typically 15 minutes rather than the 10-minute standard.

When analysing the qualitative responses to the review's survey, questions regarding factors that could influence the effectiveness of PAs identified the need for enhanced training, with respondents noting the potential for inadequate training for PAs to result in poor decision making and unsafe practices.

Interpretation of some positive results was challenging, particularly given the consideration of patient outcomes. For example, while PAs were associated with fewer hospital admissions and readmissions in one German study,[23] they were also expected to see a less complex cohort of patients. Inconsistent or partial adjustment for case mix in some studies could neglect the fact that PAs should see patients with less complexity of need, who are therefore also less likely to be admitted to hospital. Or, more concerningly, that patients were being given the wrong advice and may have been safer had they been admitted to hospital. Differences associated with the German setting also means that this finding may be less generalisable to the English context.

Table 3: Effectiveness of physician associates in primary care: results[f]

Published and peer reviewed research

Study	Outcome	Finding	Comparators
Halter, 2018[22]	Re-consultation within 14 days for the same or a related problem	No difference†	GP
Senft, 2019[23][g]	Number of GP consultations	Fewer required*	Practices with PA vs without
Senft, 2019[23]	Number of specialist consultations	Fewer required*	Practices with PA vs without
Halter, 2018[22]	Diagnostic tests ordered	No difference†	GP
Halter, 2018[22]	Referrals made	No difference†	GP
Halter, 2018[22]	Minor procedures performed	No difference†	GP
Senft, 2019[23]	Hospital admissions	Fewer*	Practices with PA vs without
Senft, 2019[23]	Hospital readmissions	Fewer*	Practices with PA vs without
Halter, 2018[22]	Prescriptions issued	No difference†	GP
Senft, 2019[23]	Prescriptions issued	Fewer prescriptions*	Practices with PA vs without
Halter, 2018[22]	Giving general advice	More advice*	GP
Halter, 2018[22]	Giving advice on medication management	More advice *	GP
Halter, 2018[22]	Giving advice on over-the-counter medication	No difference†	GP
Drennan, 2015[19]	Consultation duration	Longer*	GP

Non-peer reviewed research, audit and other analysis

Study	Outcome	Finding	Comparators
Harrison, 2025[20]	Re-consultation within 14 days for the same or a related problem	No difference†	Postgraduate doctor in training
Harrison, 2025[20]	Re-consultation within 14 days for the same or a related problem	No difference†	ANP

[f] * = A 'significant difference' (p <0.05)
† = 'no significant difference' (p ≥0.05)
None = Has not or cannot be statistically assessed
[g] German context

Harrison, 2025[20]	Referrals made	No difference†	Postgraduate doctor in training
Harrison, 2025[20]	Referrals made	No difference†	ANP
Harrison, 2025[20]	Diagnostic tests ordered	No difference†	Postgraduate doctor in training
Harrison, 2025[20]	Diagnostic tests ordered	No difference†	ANP
Harrison, 2025[20]	Prescriptions issued	No difference†	Postgraduate doctor in training
Harrison, 2025[20]	Prescriptions issued	No difference†	ANP
Harrison, 2025[20]	Consultation duration	No difference†	Postgraduate doctor in training
Harrison, 2025[20]	Consultation duration	No difference†	ANP
DHSC, 2025[24]	Impact on number of GP appointments at PCN level	No difference†	PCNs with PAs vs without

Safety of physician associates in secondary care

Patient safety incidents are rarely about individuals. Instead, they are often a result of collective system effort or failure. During the pandemic for example, safety protocols often responded to patient needs and system priorities. Measuring and attributing patient safety outcomes to an individual or single professional group is extremely challenging, particularly in secondary care, where care is delivered in the MDT. As well as the complexities of attributing outcomes to any individual in a secondary care setting, particularly an emergency department (ED), there are further difficulties in identifying the role of the individual versus the role of their supervisor. This is made, understandably, more difficult, by the NHS commitment to eliminating a 'blame culture'. The Patient Safety Strategy[25] reported that, '*too often in healthcare we have sought to blame individuals, and individuals have not felt safe to admit errors'*, instead of focusing on empowering people to share experiences and learning from them to prevent recurrence.

There was more research (Table 4) available relating to the safety of PAs in secondary care than in primary care, although similar caveats remained about outcome measures and study size. In general, all but one piece of published evidence[26] included in the review focussed on the ED rather than delivery of ward-based care and relied on narrow metrics for patient safety. The international PRU review[12] identified a moderate volume of relevant evidence but this was dominated by US-based studies. Three systematic reviews analysed in the report predominantly

drew from US settings and identified mostly similar mortality, complication and readmission rates, although one study noted higher inpatient mortality for pneumonia when PAs replaced interns.

The limit of evidence to the ED setting, as well as the small number of participants, made it particularly difficult to draw generalisable considerations from the results to the whole of secondary care. As in primary care, patients often interact with the ED at the beginning of their journey. They may also have contact with several other departments and services thereafter. Thus, to assess patient safety comprehensively, patient outcomes downstream should also ideally be considered.

Lack of reporting on patient outcomes made interpretation of the results, and their association with patient safety, particularly challenging. For example, one study found that patients seen by PAs were more likely than those seen by FY2s to have had an X-ray investigation ordered.[27] This could represent unnecessary exposure to radiation but, as there was no follow-up of patient outcomes after the X-ray had been completed, it was impossible to determine the appropriateness of this request. One Dutch study assessing inpatient outcomes generally found no difference in patient outcomes between those treated under the PA/doctor and sole-doctor model.[26]

Even when accounting for the difficulties in interpretation, the evidence in many cases was conflicting and did not allow for any firm conclusions to be drawn. For example, there were more PAs named in Regulation 28 reports than expected but fewer than expected cited in never events.[21,28] As with primary care, the small numbers included in the studies meant that results which could be interpreted as 'safe' were underpowered to detect the probable magnitude of any differences, so findings should be treated with care.

Table 4: Safety of physician associates in secondary care: results[h]

Published and peer reviewed research

Source	Outcome	Finding	Comparator
Halter, 2020[27]	X-ray investigations ordered	More likely*	FY2
Halter, 2020[27]	Requests for radiography appropriate	No difference	FY2
Timmermans, 2017b[26][i]	In-hospital mortality	Higher	PA/doctor model vs doctor

[h] * = A 'significant difference' (p <0.05)
† = 'no significant difference' (p ≥0.05)
None = Has not or cannot be statistically assessed
[i] Dutch context

Timmermans, 2017b[26]	Unplanned transfer to intensive care	No difference†	PA/doctor model vs doctor
Timmermans, 2017b[26]	Pressure ulcer	No difference†	PA/doctor model vs doctor
Timmermans, 2017b[26]	Fever	No difference†	PA/doctor model vs doctor
Timmermans, 2017b[26]	Hospital infection	No difference†	PA/doctor model vs doctor
Halter, 2020[27]	Past medical history appropriate	Less appropriate, but within acceptable bounds	FY2
Halter, 2020[27]	Examinations appropriate	Less appropriate, but within acceptable bounds	FY2
Halter, 2020[27]	Treatment plan and decisions appropriate	Less appropriate, but within acceptable bounds	FY2
Halter, 2020[27]	Advice given appropriate	Less appropriate, but within acceptable bounds	FY2
Halter, 2020[27]	Follow-up appropriate	Less appropriate, but within acceptable bounds	FY2
Drennan, 2019b[29]	Probability of senior doctor review of the treatment plan and decision	Less likely	FY2
Drennan, 2019b[29]	Proportion of consultations believed by blinded evaluator to have been carried out by FY2 vs PA	Higher proportion†	FY2

Non-peer reviewed research, audit and other analysis

Source	Outcome	Finding	Comparator
Audit, 2025[30]	Freedom of information requests of significant and never events compared with headcount employed	Fewer	PA as proportion of total rates
No.10 Data Analysis Unit, 2025[28]	Never event rate per FTE	No difference†	PA vs resident doctors
No.10 Data Analysis Unit, 2025[28]	Never event rate per FTE	No difference†	PA vs nurses

Regulation 28: Prevention of Future Deaths[21]	References 'PA'	More	Proportion of all reports vs FTE

Effectiveness of physician associates in secondary care

As for primary care settings, there were more studies on effectiveness of PAs in secondary care than there were for safety (Table 5). As reflected in the evidence base for the safety of PAs, there was also limited quantitative evidence about PA performance on the wards in secondary care and none within mental health trusts. All 11 GIRFT reports mentioning PAs framed them as a 'workforce solution' and many called for the expansion of the role, with 4 giving anecdotal examples of their impact in improving service efficiency, which did not meet the evidence threshold.

Outcomes tended to concentrate on throughput in the ED, focusing on time taken for patients to be seen, admission rates and attendance. This focus implies that PAs in secondary care are seen as supporting efficiency in the ED, which is perhaps expected given particularly long wait times in EDs in recent history. One Dutch inpatient study found no differences in most effectiveness outcomes between wards with and without PAs, although discharge letters were produced more quickly in the PA model[26]. The mostly US-based studies identified by the PRU rapid review found some indication of shorter waiting times or length of stay where PAs were involved, but evidence was mixed and the wide number of outcome measures challenged comparison.

As discussed, the outcome measures included in the studies do not represent a holistic view of effectiveness. The intervention tended to be defined as the individual PA, rather than comparing two models of care. As such, evidence could be challenging to interpret, with differences in outcomes potentially more likely to reflect local triaging practices than the efficiency of PAs themselves or their contribution to the MDT. The evidence did not control for health outcomes, neither did it put results into context with local targets or demographic considerations, so interpreting the appropriateness of the PA is not possible. Studies often did not assess appropriateness of decision making so deriving true system effectiveness was not possible. For example, where PAs admit more patients to the wards[31] than their counterparts, this could be considered as an overuse of resources and an additional cost borne elsewhere or a positive identification of at-risk patients.

One interesting finding is that conflicting results against similar outcomes tended to reflect a post-COVID-19 and Long Term Workforce Plan evolution and expansion of the role, with more negative findings reflected in newer research. A possible conclusion might be that deployment of the roles is less safe than previously or,

alternatively, that the increasing scrutiny triggered by the debate may mean that recent research is more likely to be subject to bias. While it has not been possible for the review to identify which of those conclusions is correct, there may well be merit in both views.

Even where it was easier to draw interpretations, studies were underpowered to assess the outcomes they considered. For example, Halter and colleagues' 2020 study[27] was powered to detect a 50% change in the primary outcome of ED reattendance within 7 days, which would represent an improbably large and troubling difference in performance between PAs and FY2s (Table 5). Thus, the evidence set out here should be treated as preliminary and should not be used in isolation to draw conclusions that PAs are effective, or indeed ineffective, in secondary care settings.

Table 5: Effectiveness of physician associates in secondary care: results[j]

Published and peer reviewed research

Study	Outcome	Finding	Comparator[k]
Halter, 2020[27]	Reattendance within 7 days	No difference†	FY2
King and Helps, 2024[31]	Reattendance within 3 days	No difference†	FY1
Timmermans, 2017b[26][l]	Reattendance within 1 month	No difference†	PA/doctor model vs doctor
Timmermans, 2017b[26]	Non-elective readmission within 1 month	No difference†	PA/doctor model vs doctor
Halter, 2020[27]	Admitted as inpatient	No difference†	FY2
King and Helps, 2024[31]	Admitted as inpatient	Increased*	FY1
Timmermans, 2017b[26]	Pain score on ward	No difference†	PA/doctor model vs doctor
King and Helps, 2024[31]	Patients leaving without being seen	No difference†	FY1
King and Helps, 2024[31]	Mean wait time to consultation	No difference†	FY1

[j] * = A 'significant difference' (p <0.05)
† = 'no significant difference' (p ≥0.05)
None = Has not or cannot be statistically assessed
[k] Compared with patients treated by PAs unless otherwise stated
[l] Dutch context

Timmermans, 2017b[26]	Introduced to patient within 24 hours	No difference†	PA/doctor model vs doctor
Halter, 2020[27]	Prescription issued	No difference†	FY2
Drennan, 2019b[29]	Mean length of stay in ED (hours: minutes)	Decreased*	FY2
King and Helps, 2024[31]	Mean length of stay in ED (hours: minutes)	Increased*	FY1
Halter, 2020[27]	Discharge summary completed	No difference†	FY2
Timmermans, 2017b[26]	Days between discharge and discharge letter	Fewer*	Doctors only

Non-peer reviewed research, audit and other analysis

Study	Outcome	Finding	Comparator[m]
Audit, 2025[32]	Mean wait time to doctor review	Decreased	Hospital with PA vs national benchmarks
Audit, 2025[32]	Mean wait time to consultant review	Decreased	Hospital with PA vs national benchmarks
Audit, 2025[32]	Mean wait time to doctor/nurse practitioner/PA review	Decreased	Hospital with PA vs national benchmarks

Safety of anaesthesia associates

In line with other analyses, there was no published quantitative research looking at the safety of the anaesthesia associate role, either in the UK or among countries identified as international comparators. Two international, US dominated, systematic reviews considered in the PRU rapid report[12] found no consistent safety difference in perioperative mortality between physician and non-physician providers of anaesthesia, although included studies were all observational and of low to very low quality.

The review did receive a large volume of local audit data relevant to the English context (Table 6). It is of note that audits seemed to be much more common in the operating theatre environment than in other areas of the hospital. However, this research was of low to very low quality, had usually been collected pre-pandemic and represented a small number of large trusts where AAs were employed. Often, data had been used at the local level to allow for service improvement, for ‘real time’

[m] Compared with patients treated by PAs unless otherwise stated.

assessment of the safety and effectiveness of anaesthesia delivery, and to inform service delivery.

Despite reassurances of robust local systems to identify patient safety incidents relating to AAs, the reliance on unpublished and non-peer-reviewed literature means that significant concerns about the quality of this data remain. The very small number of AAs deployed in each trust meant that studies tended to have very small sample sizes, so it was not possible to subject any of these pieces of audit data to statistical testing. Coupled with most data being collected from supportive, pioneer sites, these concerns meant that drawing generalisations from these studies was challenging.

In general, the evidence suggested little deviation in AA performance from national standards or comparator groups. However, there are likely to be differences in case mix, with AAs less likely to see high-risk patients or deliver complex anaesthesia. The studies imply that AAs perform as well, or better than, comparator groups across a range of outcome metrics. However, the proportion of never events associated with AAs was higher than expected. Given the number of studies, statistical issues relating to small numbers and their limited sample size, (see more information in the appendices), these results should be treated as preliminary.

Table 6: Safety of anaesthesia associates: results[n]

Non-peer reviewed research, audit and other analysis

Study	Outcome	Finding	Comparator[o]
Audit, 2017[33]	Consultant intervention required during procedure	<1% of cases	None
Audit, 2015[34]	Consultant intervention required during cardioversion	0% of cases	None
Audit, 2017[33]	Morbidity or mortality	0.1% of cases	None
Audit, 2015[35]	Mortality rate	0% of cases	None
Audit, 2025[36]	Conjunctival chemosis	Lower	Published ranges
Audit, 2012[37]	Conjunctival chemosis	Lower	Published ranges
Audit, 2025[36]	Subconjunctival haemorrhage	Lower	Published ranges
Audit, 2012[37]	Subconjunctival haemorrhage	Lower	Published ranges

[n] * = A 'significant difference' (p <0.05)
† = 'no significant difference' (p ≥0.05)
None = Has not or cannot be statistically assessed
[o] Compared with patients anaesthetised by an AA unless otherwise stated

Audit, 2018[38]	Catheter-related bloodstream infection (central access)	Lower	Published ranges
Audit, 2013[39]	Unplanned overnight stays	No difference	2:1 model vs solo model
Audit, 2015[40]	Unplanned overnight stays	Lower	Increase of 4 AAs in unit (2 to 6), all in 2 : 1 model
Audit, 2018[38]	Midline infection	Higher	Published ranges
Audit, 2025[41]	Safety incidents per FTE	Fewer	Proportion of all reports
Regulation 28: Prevention of Future Deaths[21]	Coroners' reports featuring 'AA' or 'PA(A)' per FTE	Fewer	Proportion of all reports
No. 10 Data Analysis Unit, 2025[28]	Never events per FTE	More[p]	Resident anaesthetists

Effectiveness of anaesthesia associates

Similar to the evidence on safety of AAs, the evidence of the effectiveness of AAs was limited to low and very low quality audit data, with no submissions subjected to statistical analysis (Table 7) and no controlled clinical outcome studies identified by the PRU rapid review. Two GIRFT reports mentioning AAs framed them as a workforce solution and called for the expansion of the role, with one giving an anecdotal example of their impact in improving service efficiency which did not meet the evidence threshold.

As demonstrated in the safety data, anaesthesia departments appeared to have well-developed audit systems able to monitor key metrics, particularly relating to effectiveness. One potential benefit of work to deliver elective care more effectively appears to be the capturing and monitoring of outputs associated with delivering safe and effective treatment in the operative theatre.

In terms of direct impact on patient care, the data is conflicting, with some opposing findings for the same outcome metrics. In general, there appears to be some evidence of a positive impact of AAs' presence on throughput of patients. This was partially due to their role in providing and supporting effective patient care before and after operations, enabling other members of staff to focus their attention on the operating theatre.

Comparisons were often made over time, and studies did not adjust for other changes to clinical management or the healthcare team over the period of study,

[p] Sample too small to be tested

therefore AAs could not necessarily be identified as a causative factor. As above, no studies controlled for case mix. Given the role of the AA to complement consultant anaesthetists, AAs might have been expected to perform more strongly, as they were seeing patients with less complex conditions. While some consideration was given to perioperative outcomes in these studies, no follow-up was included to check long-term anaesthesia-related outcomes. As for safety, these results should be treated as preliminary, with the review encouraging local systems to continue robust monitoring of effectiveness to identify improvements and ensure delivery of effective care.

Table 7: Effectiveness of anaesthesia associates: results[q]

Non-peer reviewed research, audit and other analysis

Source	Outcome	Finding	Comparator
Audit, 2013[39]	Patients with pain score of 0 on arrival in recovery	Higher proportion	2 : 1 model vs solo model
Audit, 2013[39]	Patients requiring additional analgesia	Lower proportion	2 : 1 model vs solo model
Audit, 2017[42]	Patients requiring top-up anaesthesia	Higher proportion	AA vs consultant
Audit, 2017[42]	Patients requiring top-up anaesthesia	Lower proportion	AA vs resident anaesthetist
Audit, 2017[42]	Volume of local anaesthetic used	No difference	AA vs consultant
Audit, 2017[42]	Volume of local anaesthetic used	Less	AA vs resident anaesthetist
Audit, 2013[39]	Patients requiring rescue antiemetics	Lower proportion	2 : 1 model vs solo model
Audit, 2015[40]	Number of general/local anaesthesia cases seen in theatre	Higher	3-fold increase in AAs deployed – 2 : 1 model
Audit, 2015[34]	Number of DC cardioversions seen in theatre	Higher	25% increase in AAs deployed – 2 : 1 model
Audit, 2018[38]	Failure rate for PICC or midline insertion	No difference	AAs vs published ranges

Wider perspectives

As core evidence on the safety and effectiveness of PAs and AAs was limited and weak, with small studies often focused on a narrow set of outcomes, it was essential

[q] * = A 'significant difference' (p <0.05)
† = 'no significant difference' (p ≥0.05)
None = Has not or cannot be statistically assessed

to take into account a set of wider perspectives. This particularly included the views of patients and the public, clinical and expert opinion, differences in training and education, regulation and likely future workforce requirements.

Patient and public perspectives on the roles

Overview of findings

Feedback from patients and the public from evidence submissions and focus groups provided several consistent themes that were generally applicable to PAs working across primary care, secondary care or in mental health trusts. Feedback was most common regarding PAs working in primary care, probably because this setting was easier for patients to recognise the PA compared with an MDT setting in secondary care. There was no information about patient perspectives relating to AAs, probably because of their reduced levels of direct patient engagement.

In general, patients who had directly interacted with PAs reported a positive or neutral experience. Those who had not interacted directly tended to have a more negative view of the role, possibly influenced by recent media reporting. A systematic review of patients' understanding of PAs found that they often assumed PAs to be doctors, that patients were confused by their lack of prescribing rights and a minority expressed a preference for being seen by a doctor.[43] However, PAs were generally viewed as confident and capable, with positive attitudes and communication skills.[43] An unpublished international systematic review found that in Australia, England, Canada and the USA, there was generally reasonable satisfaction with PAs among doctors.[15]

Where concerns were raised by patients, they tended to be in 3 main areas: identification, barriers to care and confidence in practice.

Identification

The main issues for patients related to clarity about who they were seeing, with many commenting on confusion between the PA and a doctor. The term 'physician associate' was often taken to indicate seniority and experience.

Inconsistent use of lanyards, badges and clear introductions to patients about the PA role were noted as a challenge. There was particular concern raised in situations of worsening conditions or symptoms and behavioural changes based on the patient thinking they had seen a doctor.

Barriers to care

While PAs could be used to expand access or treat patients more quickly, patients felt they sometimes obstructed or created barriers to care. Largely, this was when patients were told they would have to wait until the end of the day to receive a

prescription, or where PAs considered that a follow-up consultation with a GP was required.

Confidence in practice

Patients wanted to be confident that they were seeing an appropriate medical professional. Concerns were raised around clarity of PA practice, with little shared understanding of what conditions a PA could and could not diagnose and treat. In general, patients were less confident in seeing a PA for a new or complex condition.

Physician associates in primary care

In general, once a patient had seen a PA in primary care, they were satisfied with the treatment they received.[44,45] Disaggregating the impact of PAs on overall patient satisfaction was challenging, as the primary driver of patient satisfaction in primary care is known to be timely access,[46] which may be better in practices with the additional capacity provided by PAs. Timely access was so important to patients that they were often willing to see a PA instead of a GP if it meant a shorter wait time.[47]

Satisfaction with being treated by a PA reduced when a patient perceived their ailment to be more serious.[48,44] Additionally, large-scale published studies have shown that while the presence of additional GPs at practice level is associated with higher levels of patient satisfaction, the same effect is not seen for other types of staff.[49] Therefore, while elements of PAs themselves or deployment of the role may be attractive for patients in some scenarios, data is inconclusive and any benefits may be situation dependent.

Negative findings about the role of the PA in primary care were particularly related to confusion over the role, with many patients assuming they had seen a doctor.[48] The review's survey found relative low levels of use of specific methods of identification, with badges most commonly used. [16] this was reflected in patient experiences. Across healthcare settings, some respondents suggested that even after PAs had introduced themselves, patients could remain confused about who they had seen, and the name of the role was seen as a contributing factor for some respondents in primary care.[16]

The rate of complaints for PA roles at one GP practice was lower than expected.[50] One piece of non-peer-reviewed research found that patients tended to be equally satisfied following PA appointments compared with appointments with postgraduate doctors in training, although ANPs performed better than both roles.[20]

Table 8: Patient and public perceptions: physician associates in primary care[r]

Published and peer reviewed research

Source	Findings
Jackson, 2017[51]	Patients were less concerned about specific competencies as long as there was effective supervision and were accepting of a PA role.
Halter, 2017[48]	Patients likely to misconceive PAs to be a doctor. Most reported positive experiences and outcomes, with issues where the limit of the role was reached. Willingness to consult depended on problem severity and desire for provider continuity.
Cottrell, 2021[45]	PAs were generally well received by patients, who reported feeling listened to and well informed by the PA, although they were uncertain of what the role entailed.

Non-peer reviewed research, audit and other analysis

Source	Findings
Harrison, 2025[20]	Lower satisfaction compared with ANP appointments*
Harrison, 2025[20]	No difference in satisfaction compared with postgraduate doctor in training appointments*
Audit, 2025[50]	More complaints per FTE compared with clinical pharmacists
Audit, 2025[50]	Fewer complaints per FTE relative to other ARRS roles
Audit, 2025[50]	Fewer complaints per FTE relative to GPs

Physician associates in secondary care

The patient perspective on PAs in secondary care was similar to that in primary care. In general, patients' experiences of PAs tended to be positive, or at least as positive as comparator groups. However, patients were often unable to identify that they had seen a PA or to distinguish how PAs differed from doctors. Many respondents highlighted that changing the name of the PA role to better reflect its intended function would reduce confusion. The results of the review's survey[16] implied that this lack of identification may be more common in secondary care than in other settings. However, given the number of different healthcare professionals the patient may interact with, particularly in a busy department like the ED, challenges relating to identification are probably also true of other healthcare professionals. Similarly to primary care, disaggregating the role of the PA from satisfaction implied by improved access or speed of treatment was challenging.

[r] * = A 'significant difference' (p <0.05)
† = 'no significant difference' (p ≥0.05)
None = Has not or cannot be statistically assessed

Table 9: Patient and public perceptions: PAs in secondary care

Published and peer reviewed research

Source	Findings
Taylor, 2019[52]	Patients satisfied with experiences with PAs in general, though many misconceived PAs to be doctors. Participants considered it beneficial that patients be informed about the PA role to prevent confusion.
Taylor, 2021[53]	A patient information leaflet was helpful in introducing the PA role to patients, and co-design was beneficial.
Drennan, 2019b[29]	Patients were positive about the care PAs provided, although they were not able to identify what or who a PA was.
Halter, 2020[27]	Patients were positive about the care they had received from a PA but had poor understanding of the role.
Zaman, 2018[54]	Survey of patients recording very positive feedback regarding PAs, with almost all respondents satisfied with the role of PAs in the NHS.
Timmermans, 2017b[26s]	Patient experiences at Dutch hospitals employing the PA/doctor model were significantly better than those using only the sole-doctor model*

Anaesthesia associates

No studies were identified that looked at public perceptions of AAs. This is not unexpected, as general public understanding of anaesthetists is also very poor, given that AAs usually engage with patients as part of a wider MDT over an acute period. One UK study found that close to in 10 patients did not know that anaesthetists were doctors, and thought they were theatre technicians.[55]

Clinical and expert views

Overview

The views of clinicians and other relevant professionals with responsibility for supervising, or working with PAs and AAs, were central to the review. Hearing directly from PAs and AAs, their supervisors and the clinicians (particularly resident doctors) working alongside them has provided valuable insight into the ways in which the roles are currently deployed. The views of clinicians have contributed immeasurably to the review's understanding of the positive contribution the roles can make, as well as the concerns raised.

The approach to gathering clinical and expert views reflected the multi-method approach of the review more broadly. The review conducted numerous one-to-one conversations, heard from professional groups via listening and engagement

exercises, hosted roundtables, visited 3 large trusts as well as several GP practices, and received hundreds of direct submissions of evidence from the public.

This was in addition to the dedicated review survey, which received over 8,000 submissions. The review also received a highly publicised dossier from the British Medical Association (BMA),[56] which included comments on the safety of PAs and AAs received between November 2023 and February 2025. The submission contained close to 600 comments largely from resident doctors but also from consultants, GPs and medical students. In addition to raising general concerns, there were reports of approximately 100 directly observed safety incidents largely relating to misdiagnoses made by PAs associated with inappropriate treatment plans. This dossier was read in full by the review team but did not pass the necessary quality assessments as the reports could not be verified.

Pulling insights together from these different sources has been challenging, with many polarised perspectives. These relate particularly to safety of the PA and AA roles, general deployment, supervision, clarity on appropriate activities and day-to-day working. Staff also raised lack of clarity as an issue both among healthcare staff but also for patients. It was felt that this resulted in confusion about a PA's knowledge, skills or experience, which might lead to unnecessary risk to patients. There were also concerns raised about what this meant for supervision, particularly in the absence of regulation.

Concern about knowledge and skills was borne out in the wider evidence, with several sources highlighting an asymmetry between a PA's perception of their own practice and the view of the supervising doctor.[16] In general, PAs were more confident in their abilities than any other healthcare professional, although this overconfidence might have arisen because of recent scrutiny and a feeling that PAs must 'prove their worth'.

As well as concerns relating directly to the PA and AA workforce, many of those who engaged with the review process also shared broader concerns, including issues relating to resident doctor training, workforce pressures, staff morale and NHS sustainability.

Perceptions of physician associates in primary care

The review has seen first-hand the positive contribution that PAs can make in primary care settings. Several GPs who met with the review reported favourable experiences and often highlighted improved access to care particularly in less deprived or urban areas. Where used appropriately, PAs were shown to support a wide range of patient needs, allowing GPs to focus on more complex cases and helping to reduce waiting times. This was also reflected in the primary research,

where GPs were often able to cite a positive contribution made to primary care by the role, particularly in terms of access.[45,51,57]

Views on the use of PAs in primary care were mixed. A survey conducted by the Royal College of General Practitioners[57] found that 81% of respondents believed that PAs had a negative impact on patient safety. Half of those surveyed reported being aware of at least one instance where a PA's involvement had compromised safety. Some published research has echoed these concerns,[13,45] while GPs have also raised issues directly to the review related to the management of complex cases, the workload involved in supervising PAs, their current inability to prescribe, and uncertainty around legal responsibilities. However, ANPs shared reflections from their own experience of entering advanced clinical roles. They emphasised the importance of organisational support and noted the challenges of overcoming stereotypical or prejudicial attitudes when taking on new responsibilities, as PAs have done.[53]

The review's PA survey[16] received 6,864 completed responses. Of these, 1,662 came from primary care settings. This group included 514 PAs, with the remainder made up of other healthcare professionals, 94% of whom had worked in a team that included PAs in the past 5 years.

Responses varied significantly between professional groups. PAs were generally more positive about their role, while resident doctors were the most likely to express concerns. For example:

- 93% of PAs said they were comfortable with all of their current activities.
- in contrast, 94% of resident doctors reported feeling uncomfortable with at least one activity currently undertaken by PAs.
- 84% of PAs felt their role was clearly defined in their organisation, with just 5% of resident doctors agreeing with that statement.

These differences suggest a notable gap in perceptions between those working in the PA role and some of their medical colleagues, with follow-up questions highlighting the importance of clear communication, role clarity and shared understanding within MDTs.

While senior doctors, including GPs, tended to be more positive than resident doctors, they were still much more negative than PAs themselves.

To understand whether PAs should conduct a list of specific activities, respondents were asked whether they believed these activities to be appropriate for PAs. Figure 11 shows the difference between responses of PAs compared with the responses of doctors. In general, there was a very high level of confidence from PAs regarding whether they believed specific activities were, or would be in the future, appropriate to conduct. The lowest levels of confidence were associated with ordering ionising

radiation and prescribing medications, activities restricted for PAs under current guidance. This was borne out in the literature, where even GPs supportive of the role thought that lack of clarity around prescribing could cause issues in practice.[45,51]

Doctors were much less likely than PAs to state that any of the listed activities were appropriate (Table 10). Only for one of the activities did more than 50% of doctors say they felt that PAs could appropriately do the activities:

- providing physical health promotion and disease prevention advice to patients
- supporting innovation, audit and research
- delivering immunisations
- taking medical histories from patients

Reasons for the differences in perspectives are challenging to interpret and will be influenced by a number of factors including negative media. It is probably reasonable to expect that actual appropriateness of PA activities lies somewhere between the two extremes.

Figure 11: Appropriateness of potential physician associate activities in primary care given by respondents in the survey[t]

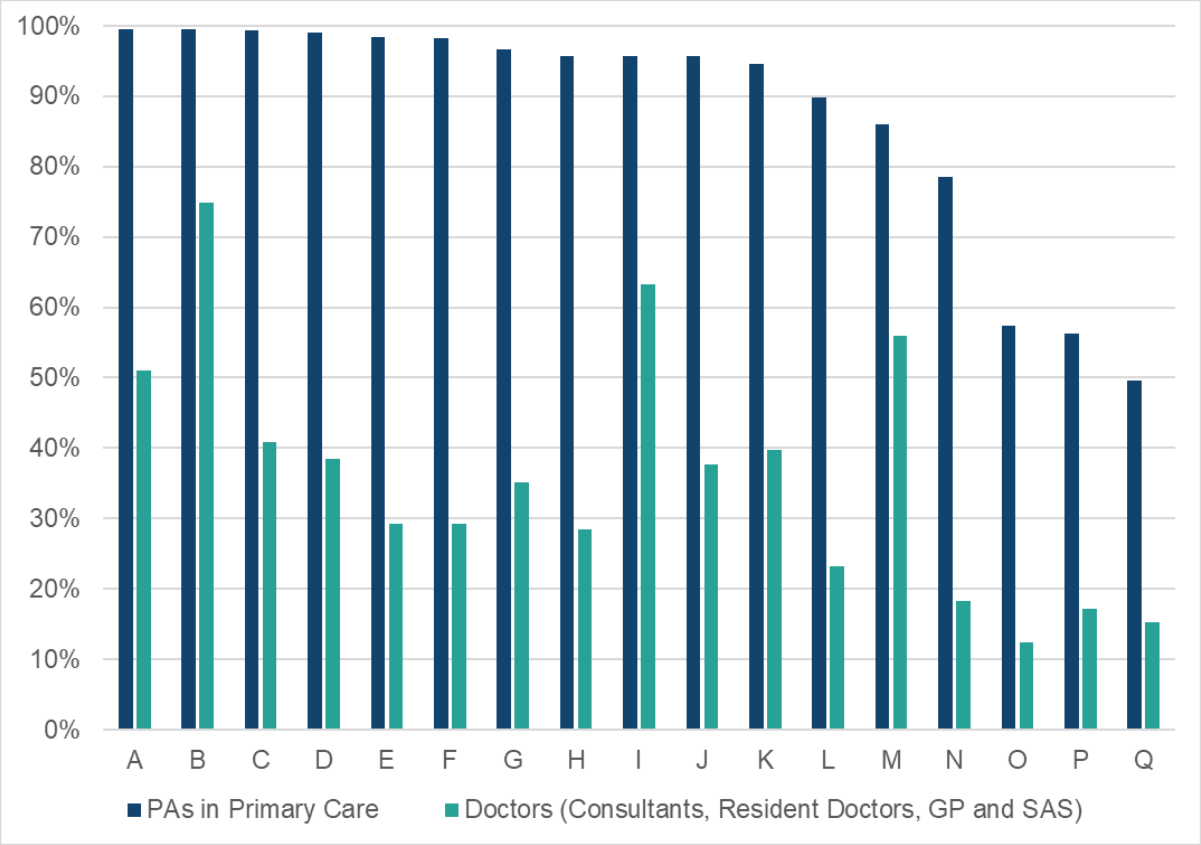


Table 10: Potential physician associate activities in primary care given to respondents in the survey

Activity	Key to the graph above	PAs in primary care (%)	Doctors in secondary care[u](%)
Take medical histories from patients	A	100	51
Provide health promotion and disease prevention advice to patients	B	100	75
Perform physical examinations on patients	C	99	41
Provide clinical assessments on patients	D	99	38
Diagnose illnesses	E	98	29
Develop management plans	F	98	29
Manage care for patients with long-term chronic conditions	G	97	35

[t] Key in table below
[u] Consultants, resident doctors, GP and SAS that have worked with PAs within the last 5 years

Review test results	H	96	28
Support innovation, audit and research	I	96	63
Interpret, monitor and respond to clinical readings and patients' parameters	J	96	38
Provide contraceptive services	K	95	40
Perform diagnostic and therapeutic procedures	L	90	23
Deliver immunisations	M	86	56
Teach, supervise and assess other team members	N	79	18
Deliver antenatal care	O	57	12
Order ionising radiation	P	56	17
Prescribe medications	Q	50	15

Where possible, the results of the review's survey have been triangulated against selected other surveys. For PAs in primary care, this included a survey conducted by the Royal College of General Practitioners,[57] about clinical activities that should be undertaken by PAs in general practice. Aligned with the review's survey, most respondents (69%) identified 'health checks/disease prevention advice' and 50% identified 'delivering immunisations' as activities which should be undertaken by PAs.

Perceptions of physician associates in secondary care

Four research studies included information on perceptions of healthcare staff about PAs in secondary care (Table 11). This was generally positive, but with some expected challenges relating to supervision and safety.

Table 11: Healthcare staff perceptions: physician associates in secondary care

Source	Findings
King, 2024[58]	Many positive viewpoints on the role of PAs in the ED from ED doctors, but also in a minority of cases some areas of concern were raised, such as overconfidence and the level of supervision required.

Drennan, 2019a[59]	PAs were found to be acceptable, appropriate and safe members of MDTs by the majority of doctors, managers and nurses, contributing positively to MDT continuity, patient experience and flow, inducting new junior doctors, supporting workloads to release doctors for more complex patients.
Halter, 2017[60]	PAs reported to have been employed to fill gaps in medical staffing and support medical specialty trainees, with appetite for further employment. Inhibiting factors included shortage of PAs, inability to prescribe, lack of evidence and colleague resistance.
Royal College of Opthamologists,2025[61]	Supervisors were positive about PA's enthusiasm but found that training requirements were extensive and PAs were unprepared for a career in ophthalmology. Training was time consuming, and tasks which could be completed by PAs were already being carried out by nurses or allied health professionals.

Of the 6,864 completed responses to the review's PA survey,[16] 4,955 came from individuals working in secondary care. This group included 580 responses from PAs, with the remaining responses submitted by other healthcare professionals. Among non-PA respondents, 95% reported having worked in a healthcare setting where PAs were part of the MDT in the past 5 years.

As observed in primary care settings, senior doctors in secondary care were generally less critical of the PA role than resident doctors. Nonetheless, overall sentiment remained more negative than positive – a clear contrast to the views expressed by PAs themselves.

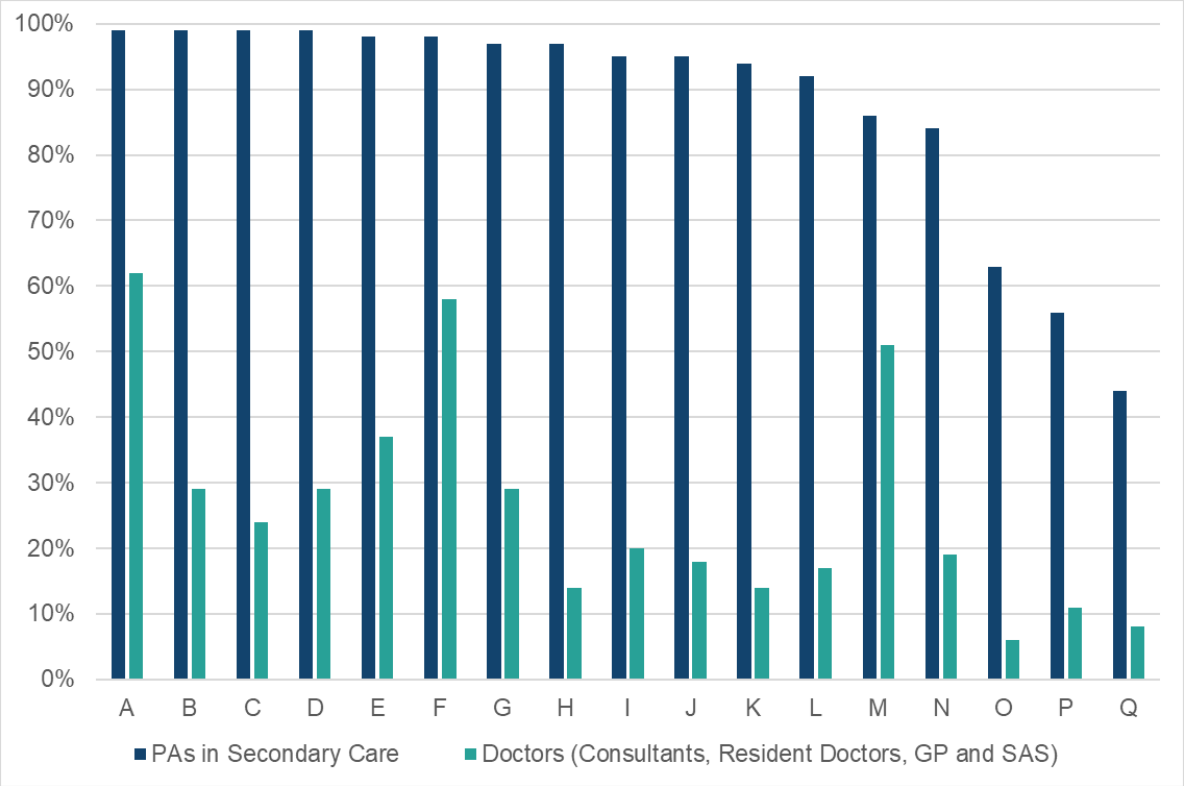
Many respondents acknowledged that PAs contributed positively by increasing access to care and helping to free up capacity for other clinicians. However, concerns were more likely to arise when PAs were perceived to be performing tasks traditionally associated with doctors, which led to more negative views about the role and its boundaries (Table 12).

The continuity provided by a PA acting as a permanent ward staff was often mentioned to the review as positive. Their consistent presence on the ward meant that PAs could build strong relationships with the MDT, familiarise themselves with the preferences of their supervisor and support the induction of rotating residents. Residents, who tended to have a more negative view of PAs, did cite the value of a PA in supporting them to familiarise themselves with local processes such as IT. The continuity of the PA on the ward also meant that PAs could undertake often neglected areas of work, such as audits and quality improvement exercises, as well as running learning and development sessions for the wider team.

However, as shown in Figure , and similarly to primary care, there was a notable difference between the confidence levels of PAs in secondary care and the doctors working alongside them regarding whether specific activities were appropriate for PAs to conduct. PAs reported very high levels of confidence that the majority of the activities were appropriate for them to conduct or could be in the future. Confidence was markedly lower among doctors, and in only three items did more than 50% of doctors say they felt the activity could be appropriately undertaken by a PA.

The findings of responses to the review's survey were more negative than some comparable international research, which found that PAs were thought to have a positive impact and to be generally well perceived in international emergency departments.[62]

Figure 12: Appropriateness of potential physician associate activities in secondary care given by respondents in the survey[v]



[v] Key in table below

Table 12: Potential physician associate activities in secondary care given to respondents in the survey

Activity	Key to the graph above	PAs in secondary care (%)	Doctors in secondary care[w] (%)
Provide health promotion and disease prevention advice to patients	A	99	62
Perform physical examinations on patients	B	99	29
Provide clinical assessments on patients	C	99	24
Review test results	D	99	29
Take medical histories from patients	E	98	37
Support innovation, audit and research	F	98	58
Interpret, monitor and respond to clinical readings and patients' parameters	G	97	29
Develop management plans	H	97	14
Manage care for patients with long-term chronic conditions	I	95	20
Perform diagnostic and therapeutic procedures	J	95	18
Diagnose illnesses	K	94	14
Teach, supervise and assess other team members	L	92	17
Deliver immunisations	M	86	51
Provide contraceptive services	N	84	19
Deliver antenatal care	O	63	6
Order ionising radiation	P	56	11
Prescribe medications	Q	44	8

A large majority of PA respondents to the review's survey[16] expressed support for expanded career progression opportunities. This included the desire to develop

[w] Consultants, resident doctors, GPs and SAS doctors that have worked with PAs within the last 5 years

advanced clinical skills and to take on leadership or managerial responsibilities. Some PAs specifically indicated interest in training to perform procedures such as lumbar punctures. Aspirations for enhanced roles was met with concern from some doctors, who felt that expanding the PA scope in this way could limit hands on learning opportunities for resident doctors. At the same time, other feedback pointed to the positive contributions PAs can make to the wider clinical team. In some settings, PAs were explicitly valued for their role in helping to induct resident doctors into local clinical systems and hospital processes, highlighting a more collaborative dynamic where their presence was seen as complementary, and supported resident training, rather than competitive,[29,59] and were said to free up time for training.

The impact of PAs on resident doctors and locally employed doctors was raised via visits, submitted evidence and the review's survey. Residents felt that PAs competed for already scarce 'hands on' learning opportunities, which had a negative impact on resident training overall. Often this was seen as a 'cost' of PA employment. This was exacerbated by the variation in deployment of resident doctors and PAs. Given the permanent nature of the PA role, they were better equipped than residents to build strong relationships with their supervising consultants. However, other evidence showed that when PAs were involved in clerking, note writing and ward round admin, this could enable resident doctors to get more involved in theatre, clinics and teaching.[63,29,59] Similarly, a survey regarding PAs in paediatric settings in secondary care[64] showed that respondents were most likely to feel PAs were effective when undertaking administrative tasks and arranging investigations.

Residents also expressed lack of clarity about who was supposed to sign off or supervise PA work, sometimes feeling the burden of doing so informally themselves. This is even though the responsibility of juniors to advise but seniors to supervise is a fundamental part of the PA role. Consultants were often better able to describe PA roles and responsibilities.[63]

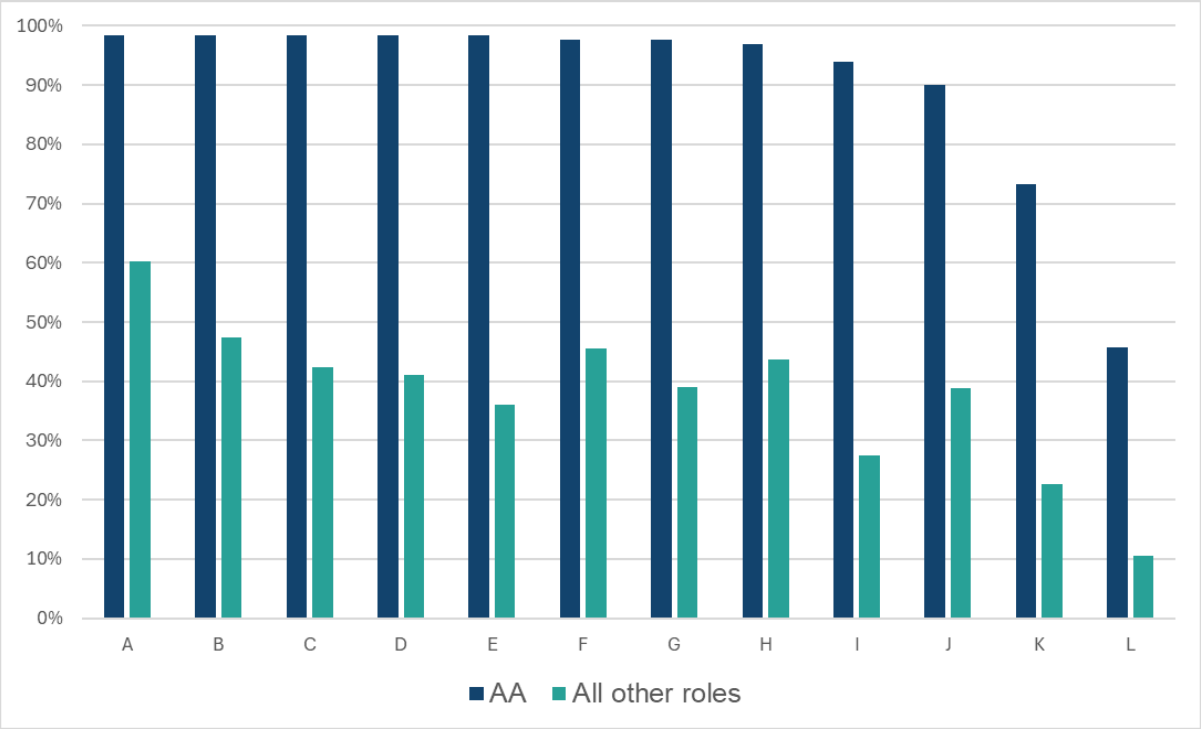
Perceptions of anaesthesia associates

Only one study was identified relating to the perceptions of AAs among healthcare staff.[65] Qualitative interviews across 8 NHS trusts found that interviewees thought that AAs helped to reduce cancellations by smoothing patient flow across theatres and freeing up consultant time to support resident training.

The review's AA survey[16] received 1,694 completed responses. Of these, 131 were from AAs, with the remaining responses provided by other healthcare professionals. Unlike PAs, AAs are currently deployed in a relatively small number of NHS trusts. As a result, it was less common for survey respondents to have direct experience working with them. Among the non-AA respondents, only 79% said they had worked in a healthcare setting that included AAs in the MDT in the past 5 years.

In line with the PAs findings, the results in Figure revealed a clear difference in opinion between AAs and the healthcare professionals who work with them regarding which activities are appropriate for AAs to carry out. Of all the activities listed, only one – *supporting innovation, audit and research* – was considered appropriate by a majority of those who had experience working with AAs. This highlights a notable gap in perceptions between AAs and their colleagues about the scope of the AA role.

Figure 13: Appropriateness of potential anaesthesia associate activities given by respondents in the survey[x]



[x] Respondents that have recently (within 5 years) worked as or with AAs

Table 13: Potential anaesthesia associate activities given to respondents in the survey[y]

Activity	Key to the graph above	AA (%)	All other roles (%)
Support innovation, audit and research	A	98	60
Identify potential issues during surgery and anaesthesia, take action and seek appropriate support when required	B	98	47
Take medical histories and clinical assessments, allowing for an anaesthesia plan to be created	C	98	42
Induce, maintain and/or wake up patients from anaesthesia under appropriate supervision	D	98	41
Initiate and manage medications, fluid and blood therapy during surgery under supervision	E	98	36
Interpret and monitor clinical readings and patients' parameters and respond appropriately	F	98	46
Use anaesthesia techniques and agents, medications and specialist equipment	G	98	39
Review patients prior to surgery and assess them for anaesthesia	H	97	44
Teach, supervise and assess other team members	I	94	27
Ensure there is a plan for patients following their operation and that it is carried out	J	90	39
Prescribe medications	K	73	23
Order ionising radiation	L	46	11

Confidence in the supervision of AAs (Figure)[16] was noticeably higher among those who currently supervise them (Table 14). While more than half of respondents who had *never* or had *previously* supervised an AA said they were only slightly confident or not at all confident in supervision arrangements, the picture was very different for current supervisors. Over 50% described themselves as very or extremely confident. AAs themselves reported the highest levels of confidence, with 76% saying they were *extremely confident* in their supervision and 91% were *at least very confident*.

[y] Respondents that have recently (within 5 years) worked as or with AAs

Figure 14: How confident do you feel that anaesthesia associates deployed in your service receive enough supervision and support?[z]

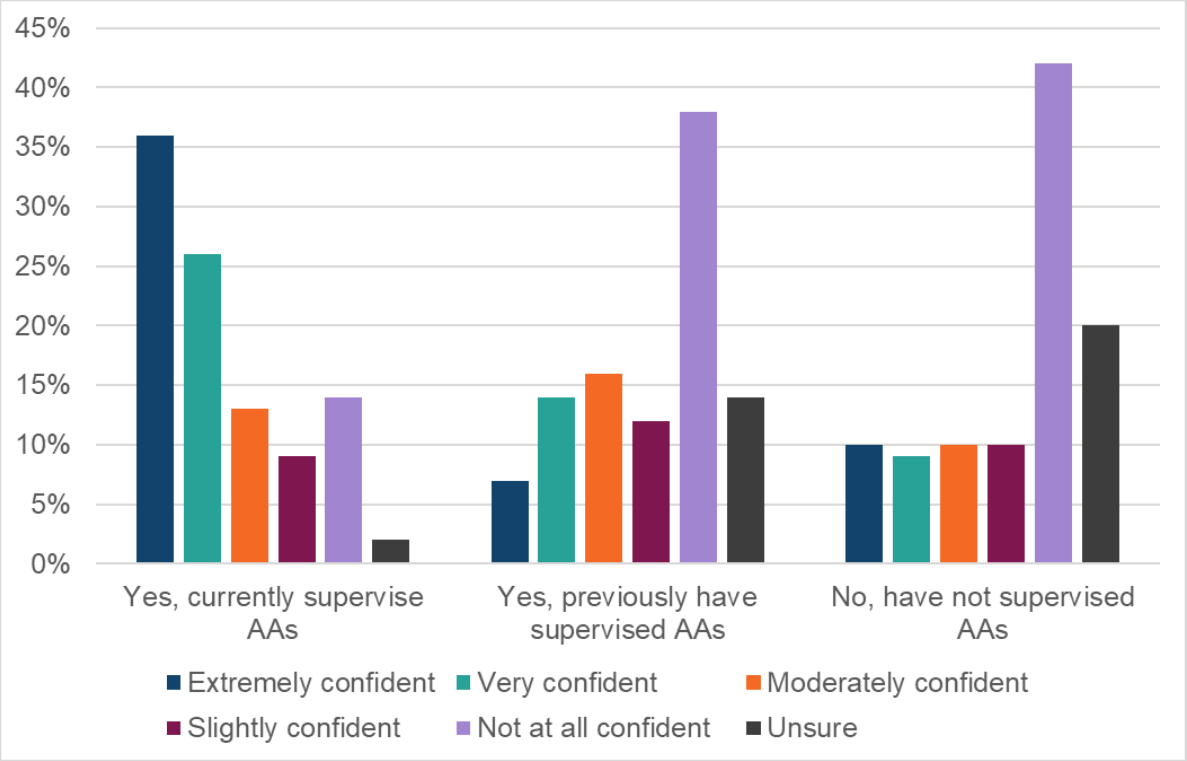


Table 14: How confident do you feel that anaesthesia associates deployed in your service receive enough supervision and support?[aa]

AA supervision status	Currently supervise (%)	Previously supervised (%)	Have not supervised (%)
Extremely confident	36	7	10
Very confident	26	14	9
Moderately confident	13	16	10
Slightly confident	9	12	10
Not at all confident	14	38	42
Unsure	2	14	20

[z] Respondents that have worked with AAs within the last 5 years

[aa] Respondents that have worked with AAs within the last 5 years

Of the AAs who responded to the review's survey, 86% were in favour of more opportunities for career progression, including expansion of clinical roles, the opportunity to take on 'lead AA' or managerial opportunities as well as accredited training and a clear progression pathway.

In contrast, a survey carried out by Royal College of Anaesthetists reported in April 2024 that 61% of the respondents who had worked with AAs were against expansion of the AA workforce.[66] In the same survey, 36% of those who had worked with AAs reported somewhat negative or very negative experiences, compared with 19% who had somewhat positive or very positive experiences.

Concerns expressed included the impact of AA integration into the workforce on training, particularly in the areas of regional anaesthesia, supervision and clinical exposure. Participants highlighted concerns about the impact of qualified AAs[66] on the training of anaesthetists, a finding that has been mirrored in a systematic review of non-physician providers of anaesthesia.[67]

A minority of respondents noted the value of AAs in teaching and helping to free up time for trainees, as well as supporting consultants.[66] In terms of evidence submitted to the review, one trust employing several AAs had multiple 'green flags' for the quality of their training environment and emphasised that it was not their experience that AAs negatively impacted training opportunities for anaesthetists in training.[68]

Participants also flagged more general problems with workforce shortages, working conditions and dissatisfaction with current training structures.[66] These issues were unrelated to AAs but impacted the shared environment in which staff were working.

Education

Overview

To train as a PA, either a science related undergraduate degree is required, or the entrant must be an experienced registered healthcare professional to undertake the relevant 2 year postgraduate course. For PAs, there is now the option of a 4 year undergraduate integrated master's programme. The AA qualification relies more heavily on clinical training than on formal education and, rather than a direct application to the university, applicants are required to obtain a student AA role in a trust/board that has secured training places for AAs.

While the PA and AA courses are demanding, they are a much quicker route to qualification than that of doctors, requiring significantly fewer examinations and steps to accreditation. In the UK, someone qualifies as a doctor after completing a recognised medical degree, usually a 5 year course, followed by a 2 year Foundation Programme. This initial training leads to provisional registration with the GMC and a

licence to practise. Full registration with the GMC is granted after successfully completing the first year of the Foundation Programme.

Comparison of physician associate's education with a doctor's education

To inform the review, the GMC undertook an analysis of the differences and similarities between PAs, AAs, and doctors, using the 'Outcomes for graduates' documents. This showed that the greatest similarities were in basic clinical skills and the greatest divergence related to prescribing skills, recognising complexity and uncertainty, consent, and end of life care. There was much greater emphasis on the importance of collaborating with supervisors and knowing when to escalate issues appropriately in the document relating to PAs and AAs.

One of the most critical and complex areas of medicine is clinical reasoning and diagnostics. Potential differences between the methods of clinical reasoning and the knowledge base of PA students and medical students has therefore been a particular area of contention.[69] Nuland notes, *'It is [diagnostic reasoning] every doctor's measure of his own abilities; it is the most important ingredient in his professional self-image'*.[70]

Research indicates that successful diagnosis results from a combination of intuitive (often informed by experience and context) and analytical (informed through education and training) processes.[71] It is the analytical processes, learned through intense formal education and application, that are particularly important when a patient presents with unusual symptoms. These processes are more limited in PA education.

This difference is reflected in comparisons of PA knowledge with that of medical students and foundation year doctors. While newly qualified PAs performed relatively similarly to newly qualified medics across a number of domains, they performed significantly weaker in the diagnostic domains. This was particularly true in complex care settings, with evidence suggesting that PAs were under-equipped to manage undifferentiated multimorbidity.[45]

Non-peer reviewed research showed indicative findings that final year PAs at one university performed similarly to fourth-year medical students.[72] These differences reflect findings in unpublished literature seen during the review process, which highlight some differences in the depth of knowledge of PAs and AAs compared with their doctor counterparts. Given the much shorter time to qualification of PAs and AAs compared with medical students, this is perhaps to be expected.

Postgraduate training and development

Overview

There is no formalised training programme or career progression pathway for PAs or AAs post qualification, although many PAs and AAs do undergo additional training and accreditation to enhance their knowledge and skills. PAs and AAs have expressed enthusiasm for increased postgraduate standardisation of training and a career development framework.[16,73] During site visits, the review team saw regular evidence that significant time was dedicated to on the job training and development across both roles, with many employers protecting specific days or afternoons for training and reflection. In some places, there are informal hierarchies in the PA workforce, although they are largely managerial and are not consistently reflected in formal job titles, activities or qualifications.[73]

Physician associates

Unlike doctors, PAs require no additional specialty training. Specialty training for doctors can take between 3 and 8 years, depending on the chosen field. However, PAs do work across a variety of specialties in hospital and general practice and are able to switch between specialties and settings without any further formal training. For employers, this flexibility means PAs can be used to fill gaps, thus mitigating workforce shortages and helping to deliver services.[29,59,60]

This generalist nature of the PA role without further training can potentially lead to risks to patient safety or hinder service delivery. One example is in mental health settings, which tend to use PAs to deliver physical, rather than mental, healthcare, while often being supervised by a mental health professional or someone not located in the relevant care team.[74,75] However, patients in mental health settings often have multimorbidity, are prescribed atypical medicines and require complex care.[76] In other settings, such patients would likely be deemed inappropriate to be seen by a newly qualified professional or by a PA at all.

Anaesthesia associates

AAs continue to work within the trust throughout their training and training concludes with an additional 3 month probationary period served in clinical practice. The training course is designed to run alongside the curriculum, which is hosted by an accredited university, and has been developed by the RCoA in close collaboration with the GMC.

Regulation and accountability

Using powers under the Health Act 1999, the government introduced secondary legislation via the Anaesthesia Associates and Physician Associates Order 2024 to

provide for the regulation of PAs and AAs by the GMC. The act came after repeated calls for professional regulation, including from the professions themselves. However, the legislation received significant opposition from the British Medical Association (BMA), with concerns that regulation of medical associate professionals by the GMC undermined its central tenet to properly distinguish who is, and who is not a medical practitioner.

Regulation of PAs and AAs began on 13 December 2024. This indicated the start of a transition period, with PAs and AAs not legally required to register until December 2026. This 2 year transition period, specified in legislation, is designed to allow PAs and AAs to complete the necessary steps for registration while continuing to work.

Survey responses to the review[16] revealed a range of views on the potential impact of GMC regulation of PAs and AAs. PAs generally expressed optimism, for example with 92% expecting a positive effect on patient safety. In contrast, only 36% of consultants and 15% of resident doctors shared this view.

Following the start of regulation, PA and AA courses have now been assessed and standardised by the GMC, which must be seen as a positive change. This will help to drive consistency in the knowledge, skills and behaviours expected of newly qualified PAs and AAs. However, diversity between courses is a common feature of the PA professions internationally, with significant global heterogeneity in scopes of practice.[77]

A recurring theme throughout the review was the issue of accountability. Many doctors expressed uncertainty about who is ultimately responsible for the work of PAs and AAs. GMC guidance clarifies that the named supervisor holds responsibility for ensuring that anyone they delegate tasks to is properly trained and competent.

The review observed a wide range of supervision models in use. Some included strong governance and clear escalation procedures. While some variation is natural as supervision should reflect the nature of the task and the experience of the individual, effective oversight remains essential.

Supervisees also have a duty to practise within the limits of their skills and training and to seek appropriate supervision for tasks beyond their current level of competence[78].

Confidence in supervision varied widely across different professional groups. In the review's survey,[16] 90% of PAs said they were extremely or very confident in the supervision they received. In contrast, this level of confidence was reported by only 7% of resident doctors, 32% of GPs and 33% of consultants.

Among supervisors, confidence also differed depending on the role. 62% of those currently supervising AAs felt very or extremely confident in the supervision arrangements, compared with 45% of those supervising PAs. The importance of effective supervision came through strongly in both survey responses and interviews. This reflects findings from previous research, which shows that consistent, high-quality supervision is essential, particularly in helping to build trust in PAs during the early stages of their careers.

Workforce planning

Since the introduction of the NHS, the mix of different health professionals has evolved to allow teams to adapt to new technologies and the changing needs of patients. These changes have helped to improve patient care and provided opportunities for existing professionals to enhance their skills and develop their careers.[16] The example of nursing, which has moved to a degree profession and then to advanced practice, while healthcare assistants have become nursing associates, has shown the importance and value of these changes.

NHS England currently employs over 1.5 million FTE members of staff.[4,7] Over half of those employed by the NHS are professionally qualified clinical staff, with the vast majority working in 'hospital and community services', as direct employees of NHS trusts. In addition, around 180,000 work in primary care.[7] Across NHS hospital, community and general practice settings, doctors and nurses constitute 38% of the total workforce and over half of professionally qualified staff. The remainder of clinical staff is made up of a multitude of other roles demonstrating the multidisciplinary nature of the NHS, which is cited as having more roles than any other healthcare system on the globe.

Over the past 10 years, doctors have seen competition ratios (the number of applications per post) increase markedly. Overall, there were far more applications for core or specialty training posts than posts available, for example in 2024, there were 49,904 applications for 9,331 posts. The scale of the increase varied by specialty, in 2024, 1,794 applicants applied for 16 places in general practice and public health medicine, representing a competition ratio of 112 : 1.[79] For anaesthesia 3,522 applicants applied for 542 training places, representing a competition ratio of 6.5 : 1.[79] This competition ratio for anaesthesia training has more than tripled since 2015.[79,80]

The NHS Long Term Workforce Plan[2] published in 2023 projected that demand for staff would reach in the region of 2.2 to 2.3 million by March 2037.[2] This would equate to 1 in 11 of all workers in England, compared with 1 in 17 now.[2] One element of the plan focussed on expanding associate roles, as well as other enhanced and advanced practitioner roles, with a stronger emphasis on generalist skills. The plan set out how the proportion of staff in these newer roles would increase from around 1% to 5% of the NHS workforce, including by increasing training places for PAs to establish a workforce of 10,000 by March 2037 and increasing the number of AAs, the comparable role in anaesthesia, from just over 160 to 2,000 by March 2037. The ratio of PAs to resident doctors currently employed by trusts is highest in acute trusts, followed by mental health trusts and community provider trusts.[81]

A new NHS workforce plan is anticipated later this year and will consider the conclusions of this review.

Cost and cost effectiveness

Overview

One element of the debate around the deployment of PAs and AAs is cost. Some groups, particularly resident doctors, have raised the issue of PA[63] and AA pay,[82] and their pay relative to other professions working in the NHS. The review has not looked in depth at or compared in detail the comparative value of professional work in different national employment contracts or the different career and pay progression expectations of the many professions covered by these contracts.

In conclusion, because of a lack of good data on effectiveness of the roles, accurate assessment of cost effectiveness has not been possible.

Physician associates in primary care

Most of the costs accruing to a GP practice relate to the payment of its salaried staff, including GPs, nurses, PAs and administrative staff. Staff are usually employed by the GP practice and not directly by the NHS and so are not subject to Agenda for Change pay scales. This means that determining costs of a professional group in primary care will vary by practice and geographical location.

There is also significant variation in the types of roles that PAs undertake in primary care, and a lack of definitive evidence on their effectiveness. For example, some studies showed that PAs may reduce need for admission, which could reduce system costs. Or, on the other hand, avoiding necessary treatment may result in increased costs later, as well as having potentially negative impacts on patient outcomes.

An international systematic review[83] stated that primary care evidence was sparse, with data insufficient to establish cost-effectiveness. One piece of peer-reviewed evidence from Germany showed no difference in outpatient medication costs or hospitalisation costs following statistical analysis, comparing practices that employ a PA with those that do not.[23] A single study found no difference in outpatient medication or hospitalisation costs when a practice employed a PA compared with when they did not. The implication was that, even when controlling for difference in salary, deployment of a PA demonstrated no cost saving to the practice. However, given the international context in which the study took place, no definitive conclusions can be drawn. An international systematic review[83] stated that primary care evidence was sparse, with data insufficient to establish cost effectiveness. One piece of peer-reviewed evidence from Germany showed no difference in outpatient

medication costs or hospitalisation costs following statistical analysis, comparing practices that employ a PA with those that do not.[23]

Physician associates in secondary care

In secondary care, the cost of employing a PA is determined by national Agenda for Change pay scales. While this reduces variation in quantifying the costs of employing a PA, there is considerable variation in the outcomes. The review found no compelling evidence for the effectiveness of a PA in ward-based settings, with all primary research relating to the emergency department. Even within the ED, the evidence base was weak, with no compelling evidence that a PA was as effective as a comparator group. As such, monetising the outcome of a PA in secondary care was not possible.

This conclusion was corroborated by one study of PAs in secondary care in the Netherlands, which found that staff costs per patient were lower on the wards where a PA had been deployed than where they had not.[84] When looking solely at staff costs, and when comparing across a lifetime, employing a PA generally costs less than hiring a doctor. This is despite the initial starting salary for a PA being greater than that of a newly qualified doctor. Despite this fact, total costs per patient did not differ between the comparators, as a ward without PAs was found to deliver shorter lengths of stay and associated cost savings.

An international systematic review[83] found that low quality evidence suggested potential modest savings in the international context. However, there was insufficient evidence from relevant settings in England to suggest that deployment of PAs is either cost effective or cost ineffective in secondary care, although it is true that they could reduce overall staff costs over lifetime employment.

Anaesthesia associates

In secondary care, the cost of employing an AA is determined by national Agenda for Change pay scales. This, coupled with more standardised ways of working makes identifying the costs and outcomes of AAs more straightforward than that of PAs. While there is some variation in supervision, most trusts use a 2 : 1 model. Under this model, one consultant anaesthetist supervises two AAs delivering two operating lists.

One study suggested that for the 2 : 1 model to be cost-effective, the combined cost of the two AAs should be equal to or less than that of a single supervisor.[85] As the supervisor could be an autonomous specialty and specialist doctor, each AA must earn less than £40,000 per year, assuming that two AAs in the same trust would be paid the same. However, current Agenda for Change pay scales dictate that AAs earn more than this figure. The study did not, however, seek to cost outcomes beyond the delivery of a single list, and did not assume any additional time gained by

the supervisor or support for pre- or perioperative care, areas where AAs have been cited as making a positive contribution to patient flow. A Cochrane review from 2024 looked at the provision of anaesthesia by non-physicians[67] and found the evidence was insufficient to draw conclusions on cost effectiveness.

Consideration of all relevant factors

The central review question might sound simple and straightforward: *are physician and anaesthesia associates safe and effective members of a multidisciplinary team*? But, as no member of staff is an island, working in isolation, these roles cannot be considered without looking across the healthcare system at the wider environment.

This section draws together an overview of the considerations that have been influential in developing the recommendations, taking into account the evidence base and the wider perspectives. Somewhat inevitably, hard science did not provide a definitive answer to the safety and effectiveness question. This lack of certainty is summed up by Tony Culyer: '*Evidence is inherently uncertain, dynamic, complex, contestable, and rarely complete"*.[86] This means that other, wider factors had to be considered to draw useful practical recommendations.

This section begins by looking backwards, considering the challenges faced in the implementation of the PA and AA roles and why the debate became so impassioned and, at times, unpleasant. It reflects on the evidence submitted to the review, patient and clinical perspectives and workforce requirements for the future. It concludes with consideration of what needs to change to support staff groups to align and collaborate for the benefit of the NHS and patient care.

Considering the introduction of physician associates and anaesthesia associates

There are well-recognised criteria that are essential for implementing any change. These are particularly important in the context of healthcare, one of the most complex businesses to operate successfully. Introducing any workforce change into this complex system requires great attention to detail, a focus on service redesign and engagement with all affected staff.

The most important, widely accepted factors for successful change include having:

- a clear vision and goals – all stakeholders must understand the proposed change, have a shared purpose and recognise the value of the future vision
- strong leadership, communication and engagement – leadership needs to be at all levels in the organisation, supported by ongoing communication of plans and an opportunity for regular engagement and genuine responsiveness to concerns (experience says that the most successful examples of change across the NHS have involved strong medical leadership who have convinced their colleagues about the need for change)

- effective change management – this requires planning and preparation, training for staff to ensure they have the necessary skills and ongoing monitoring of the change to identify the impact on patients and staff

Learning from the introduction of physician associates and anaesthesia associates

Reflecting on the introduction of PAs and AAs against the 3 main factors for successful change indicates why the expansion of the roles over more recent years has been less than optimal. Considering what might have been done better provides important insights for the next steps.

Clear vision and goals

There seems to have been little or no attempt at a national level to describe a vision for the integration of AAs and PAs into existing teams and services. There was no published, inspiring description for how a new healthcare team might operate, including where new roles would take over particular tasks and functions.

As the number of PAs increased, exacerbated by a workforce plan that announced an expansion to 10,000 PAs,[2] the absence of a clear vision for the role became stark. As a result, the role increasingly seemed to fill gaps in jobs traditionally filled by the medical profession, rather than generating a new, distinct contribution to healthcare.

Linked to the lack of a vision, there was general confusion among patients and professionals about the role of the PA in particular, and what it stood for. This led to calls for a defined scope of practice, not to introduce added rules and complexity but to provide clarity about the new role.

The absence of this basic requirement to provide a future healthcare vision and a new model of teamworking was a fundamental gap in the rollout of these professions.

Strong leadership communication and engagement

Effective rollout of the PA and AA roles needed strong leadership, especially medical leadership, to co-create and describe the model of teamworking for the future. Much good work was indeed done by the medical profession, but the fundamental lack of an agreed vision for the future resulted in significant challenge at national and local levels. Confusion about the role was said to be exacerbated when the GMC was given the function of regulator. This was perceived as creating greater alignment between PAs and the role of the doctor.

Particular challenge to medical leadership on all these issues came from resident doctors who did not feel that their concerns were being listened to. This is part of a

wider context where postgraduate training of doctors has become very fragmented, leaving residents feeling isolated, not part of a team, lacking in senior mentorship and concerned about pay. This was in stark contrast to the training and support given, in particular, to the cohort of PAs. Training of PAs is less transitory and can support the development of enduring relationships with senior doctors as well as allowing them to undertake some functions that might once have been conducted by a resident doctor.

Stronger leadership and communication should have helped mitigate the challenges relating to rollout of the PA and AA roles. Better ongoing engagement with all members of the healthcare team would have ensured that challenges were picked up earlier and solutions identified.

Effective change management

Effective local change management seems to have been lacking in the rollout of PAs in particular. When capacity was limited in local services, the easy option in some cases was simply to fill gaps in medical rotas with PAs. This seems to have been done without taking into account the more limited training of the PAs and how the roles would interact, other than with the caveat that they would be supervised by doctors. This lack of planning may have been responsible for driving the resentment felt by some residents and potentially exposed patients to unnecessary risk.

As effective supervision of PAs and AAs was deemed a core part of success, it is surprising that doctors do not appear to have been given training in what supervision entails or a revised job role that includes time to support these new roles. This was an important omission, as doctors are often not trained in the skills required to manage other professions in an MDT.

In other scenarios, consultants were keen to have a PA or an AA, and relied on them for continuity, as reliable, trained members of the team to carry out defined interventional procedures. However, the impact on other staff, particularly resident doctors, was not always identified or taken into account. A programme of effective change management that monitored the impact of change would have been able to identify this much earlier.

If local services had been given a better vision for how to incorporate PAs, perhaps implementation could have been managed in a more positive way. Introducing the new role required doctors to work differently, perhaps delegating some tasks while spending more time supervising and training, and this needed to be planned for and managed. A review of job planning was required to ensure that post-holders were working in appropriate roles with the support and oversight they needed, followed by ongoing monitoring.

Considering the future roles of physician associates and anaesthesia associates

From the outset, there were no preconceived ideas about the outcome or recommendations of the review. The importance of considering the evidence and listening to a wide range of perspectives was emphasised, as well as considering the whole spectrum of options for the future, from recommending complete removal of the roles to expansion in numbers and functions (Figure 7).

The first question to consider was whether there was any overwhelming evidence to support the complete abolition of the PA or AA roles, whether the roles could continue unchanged, or whether they should continue with modifications. The answer to this question informed the recommendations and the next steps.

Considering complete abolishment of the roles

Recommending complete removal of either the PA or AA roles from the workforce would be a significant, unprecedented intervention. To do this, evidence would have to demonstrate a convincing lack of safety and effectiveness, as the principal issue under review. However, other factors are also important in considering the whole picture and all need to combine in the overall judgement about the future. These factors are discussed below.

1. Convincing evidence of safety concerns and limited effectiveness

The evidence on safety and effectiveness was inconclusive and was informed largely by low quality studies. It did not provide a convincing picture that the role of either PA or AA was so inherently unsafe or ineffective that it needed to be discontinued.

There was, however, a significant body of comments on the safety of the PA role submitted via the BMA. None of the comments were verifiable but formed part of a wider picture of how the roles have been operating and the potential for safety errors to occur. Comments suggested that more safety incidents might have occurred, especially in high-risk areas such as the ED, primary care and the operating theatre, had effective and timely supervision by doctors not been in place. Data from audits conducted in the operating environment provided some assurance about the safety of AAs, but this was not all current and the numbers were small.

It was disappointing that national datasets designed to inform patient safety considerations were inconclusive and largely unhelpful. However, this is perhaps not unsurprising as they were constructed to examine system-wide issues rather than to demonstrate the safety of a particular staff group. However, gaps in data were concerning and highlighted areas for future development.

2. Overwhelming lack of confidence from within the medical profession

Significant issues have been raised by the medical profession that need to be addressed, but these concerns do not reach the threshold for the roles to be completely removed.

Support from the medical profession for PA and AAs is essential to their success, which is why any lack of support had to be considered as a fundamental challenge to their future. These two professions must work together with mutual support and respect to be effective, and significant challenges were raised before and during the period of the review.

Issues have been raised about the PA role by doctors of all grades but particularly by residents. The fundamental concern related to a lack of distinction between the roles carried out by PAs and doctors as, despite PAs having more limited training, they have nevertheless been filling gaps in medical rotas. This has led to calls for a limited scope of practice that does not encroach on work traditionally undertaken by doctors. Concerns about inappropriate deployment of PAs has been exacerbated by the GMC being chosen to be the regulator, by lack of satisfaction with medical training and doctors rotas and rotations, alongside time taken to supervise the PA roles.

Concerns raised by anaesthetists about the AA role were more limited and less consistent. The fundamental issue was about workforce planning and whether there was any need for the AA role, with acceptance of the role only if doctors cannot be recruited. A doctor-led anaesthesia service seems to be the generally preferred option, although there are definite exceptions in trusts that have employed AAs to lead on specific aspects of service delivery where there is enthusiasm for the role. Other objections related to the time taken to supervise the AA and the risks involved.

The large gap between the roles that PAs and AAs think they can perform and those that doctors think they can perform is surprising. There are many potential reasons for this gap but, for the professions to work together effectively, there needs to be a better mutual understanding of the roles and the training that each group has received.

3. Loss of trust from patients and the public

There was no evidence of widespread loss of trust from patients and the public, although significant concerns have been raised.

There has been some significant media coverage of the PA role in particular over the past 12 months, and this has undoubtedly raised questions in the minds of the public. However, research carried out several years ago reports very favourable feedback about the consultation style of PAs and their ability to listen and provide

advice. Patients are keen to understand who is providing their care, so the fundamental issues for them seem to centre around providing greater clarity about the PA role, including better communication about what PAs can and cannot do, and the training they receive.

Unlike the PA role, there has been limited feedback from patients on the role of the AA. This may be because the AA numbers are much smaller, because they are operating in much more defined areas or because there has not been such attention from the media on this group. Whatever the reason, there does not appear to be the same sense of confusion about the role.

4. Redundancy of roles from a workforce perspective

There is general acceptance of the need for a wider, more diverse workforce in the future, but there are some notable exceptions.

Gaps in workforce provision were repeatedly given as the underpinning rationale for the introduction of PAs. This was both the strategic reason for introducing the role given by NHS England, rather than cost, and was also given as the reason for employing PAs at a local level. Most doctors recognise that there are significant challenges to their day-to-day workload, and even residents would welcome additional support from PAs with the ability to delegate certain tasks. It is the deployment of PAs in roles designed for doctors that has caused the tension, and the apparent lack of local workforce planning is a significant omission. There seems to have been no redesign of the workforce or clinical services to ensure that the work being done by PAs was appropriate to their training.

Unlike for PAs, the rollout of AAs has been more measured and limited in number to approximately 200 AAs across 5 trusts. This has enabled service models to be better defined, often working in a 2 : 1 ratio with a consultant anaesthetist. However, this more measured rollout does mean that there is a significant voice among the anaesthesia community that does not wish to see any further recruitment to the AA roles. There is a fairly widespread view that, as now so many doctors wish to train as anaesthetists, the AA role may be redundant.

Considering continuation of the roles without change

Recommending continuation of either the PA or AA roles without any change requires convincing evidence of safety and effectiveness, but also wider support across a range of areas.

1. Convincing evidence of safety and effectiveness

There is a mixed picture of safety and effectiveness based on limited, poor-quality data that cannot provide full assurance that the roles are completely safe and effective.

Doubts about safety partly relate to the absence of robust data, but also to the way in which both PAs and AAs have been deployed and the varied approaches to supervision and oversight.

There is convincing evidence of the effectiveness of PAs in some areas of care, but not in all. In particular, they are valued for providing continuity in secondary care, for enabling certain procedures to be carried out systematically and for their ability to communicate well and provide advice. Some senior clinicians working directly with PAs in both secondary and primary care presented very positive support for PAs, particularly their ability to provide continuity of care, for their high standards of commitment to their work and excellent communication skills. Clinicians also welcomed their added capacity to perform routine procedures such as a lumbar puncture service.

Evidence for the effectiveness of AAs is lacking and has been informed by clinical opinion. Anaesthetists who regularly work with AAs highlight the increased efficiency and throughput of patients as result of training AAs to carry out specific procedures.

2. Complete satisfaction with the roles from both physician associates and anaesthesia associates

PAs and AAs are not completely satisfied with their current roles and have expressed the desire to have clearer opportunities for career development.

There are many highly committed, experienced PAs and AAs working across the NHS who would like to see a better career structure and opportunities for further development. Some of these views were identified systematically through the review's survey, and others through more informal feedback. Respondents highlighted the current lack of distinction between individuals who have worked in a role for many years and are highly experienced compared with those who are newly qualified. This was not an issue simply about status but about recognition of skills and experience to create a safe workforce with appropriate allocation of roles and responsibilities.

PAs and AAs are currently not allowed to prescribe any drugs or order ionising radiation. While recognising the current restrictions, associates have queried whether this could be a potential area for future development as it is for other non-doctors such as nurses and pharmacists. There was a view that, with appropriate training, there should not be an absolute bar on these activities in future. Prescribing was a contentious area with resident doctors, who may be asked to sign off prescriptions on behalf of the PA and found this challenging without directly assessing the patient.

3. Overwhelming confidence from within the medical profession

The medical profession did not demonstrate overwhelming confidence in the roles as currently structured and deployed, but there was recognition of the need for supportive roles that facilitate medical practice.

As mentioned above, support from the medical profession is essential to the success of these roles. Several royal colleges have attempted to align the profession with the new associate roles but failed to gain support from their wider membership. The RCoA is to be commended for its careful engagement with members to create a widely accepted scope of practice, but still tensions remain. The BMA, the doctor's union, has taken a prominent role in challenging the associate roles, which has increased awareness of potential issues across the profession.

All these challenges, compounded by the lack of a single medical leader, have created an impasse in alignment of the professions. The earlier model of a single chief medical officer with a broad responsibility across the profession, prior to the introduction of the medical director roles in NHS England, might have carried more weight and influence. Medical leadership is outside the scope of this review, but others might wish to consider how to overcome this fragmentation.

4. Full trust from patients and the public

There cannot be full trust from patients and the public while issues about lack of clarity remain.

As discussed earlier, there have been calls from the public for greater clarity about the PA role and more understanding about their expertise. These issues do not apply to AAs.

5. Essential requirement for the roles from a workforce perspective

Those involved in workforce planning have identified PA and AA roles as important for the future. However, there is some doubt about the need for further AAs in the consultant anaesthetic community.

Workforce planning is outside the scope of this review and therefore has not been considered systematically. However, it is important that planning carefully balances the need for doctors and their training requirements alongside the introduction of permanent PA and AA roles. The review heard significant frustration from resident doctors about the lack of training places and the lack of opportunities for gaining experience in some areas now being covered by PAs and AAs.

Considering modifications for the future

Considering all the factors, there is no convincing reason to abolish the roles of AA or PA although, from a workforce perspective, there is some doubt about the need for further AAs. There is also no case for continuing with the roles unchanged, as there are a number of significant issues that need to be addressed to effectively embed the PA and AA roles in the NHS workforce. It is important to use the opportunity of this review to reset the hostility and stimulate effective collaboration for the future.

Considerations regarding a scope of practice

One often cited option for addressing the issues raised in this review was to set a nationally defined ‘scope of practice’. The need to have defined scopes of practice for AAs and PAs was carefully considered during the review. Feedback indicated that many in the medical profession supported this approach as a way of defining the roles and preventing expansion into areas previously reserved for doctors. Others were less supportive of scopes of practice as the solution, even when agreeing that clarification about the roles was required. They were concerned that setting defined scopes would be unworkable and unenforceable in practice, and they were not a feature of other healthcare professional roles. Since then, there has been added clarity regarding training of PAs and AAs following an approval process put in place by the GMC. This standardisation of training provides a clear building block for defining the roles undertaken by PAs and AAs.

In this context, a set scope of practice has not been proposed in the recommendations. Instead, a systematic way forward includes the following key elements:

1. Defined national initial job descriptions for PAs in primary and secondary care, and for AAs when they first qualify. These descriptions are based on their core training and informed by the work on initial scopes of practice produced across the royal colleges. This approach is similar to an initial scope of practice but is more practical at a local level.
2. Opportunities for further training through a national credentialling programme, approved by new faculties for PAs and AAs and supported by the host royal colleges. This mechanism, with engagement from the colleges, should ensure that the roles develop in a way that is mutually beneficial, and that also provides local services with the ability to train PAs and AAs in a flexible way that meets their needs.

Remaining issues

To support this proposal and to create a positive working culture for the future, the main issues that need to be addressed in the recommendations are listed below:

- clarity about the PA and AA roles to address concerns about confusion, overlap and safety issues that have been raised by both doctors and patients
- improved safety and effectiveness in day-to-day working through better implementation of new roles, training and clarity around MDT working
- career development opportunities for those working as PAs and AAs, emphasising tasks that can be undertaken as a newly qualified member of staff and later career progression
- leadership from within the medical profession to ensure that PAs and AAs are supported and aligned with the work of doctors, with an agreed vision on ways of working -this includes considering the roles of the royal colleges and the regulator
- workforce planning that balances the needs of doctors in training, permanent staff roles and requirements of service delivery
- systems to ensure ongoing monitoring of patient safety

There are also wider challenges relating to management capacity across the NHS and postgraduate training of doctors that are important dependent factors but are beyond the scope of this review.

Recommendations

Physician associates

Recommendation 1: positioning of the role

The role of physician associate should be renamed as ‘physician assistant’, reflecting the role as a supportive, complementary member of the medical team.

Rationale

The majority of stakeholders, particularly patient groups, expressed concern that the name physician associate is confusing and leads to people erroneously thinking they are consulting a doctor. This seems to happen even if the PA clearly says, ‘I am not a doctor’. This confusion has also frequently been reported by the wider medical profession.

The title of ‘assistant’ rather than ‘associate’ was originally used in the UK when the roles were first introduced, and generally carried much more support from the medical profession than the title ‘associate’. It positions the role as a supportive one, rather than an independent practitioner. The term ‘assistant’ is used successfully in the majority of other countries employing similar roles, with good acceptance of the role by doctors.

Anticipated workforce challenges for the future necessitate a wider skill set to support doctors and free up their time for essential medical roles. In this context, the PA role plays an important function in some settings, particularly in terms of providing continuity of care and adding capacity to perform certain core tasks.

There is research evidence showing the effectiveness of the PA role, particularly in improving access and providing continuity of care. The consistency provided by the role is also important for consultants, and some resident doctors recognise that PAs can provide local advice and knowledge.

Alongside this, there is limited data demonstrating safety, and some significant concerns and challenges have been raised by the medical profession that cannot be ignored. Some changes to the future role are therefore required to facilitate a more supportive relationship between doctor and PA. In particular, a vision is essential to demonstrate how the role sits as a distinct function in the wider medical team that is valued and respected.

Recommendation 2: credentialling

Physician assistants should have the opportunity for ongoing training and development within the context of a formal certification and credentialling programme. This should include the ability to take on added responsibilities that are commensurate with that training, including the potential to prescribe and order non-ionising radiation.

Rationale

All professions have the opportunity to undertake ongoing training and development, and the physician assistant role should be no different. At the start of a PA's career, their initial role should reflect the core training received, include generic skills and tasks, and should be based in secondary care. A template job description laying out initial responsibilities is available in the appendices.

PAs should have the opportunity to develop and progress in a way that is formally recognised across the NHS with the proviso that formal credentialing meets appropriate standards, agreed with the medical royal colleges and specialties. It should be the role of the colleges to determine at what stage it is appropriate for a PA to work in a specialist role. At a local level, the ability to practise any new procedures should be approved by the named supervisor.

There are many examples across the NHS where PAs have been undertaking additional procedures, such as lumbar punctures. Having dedicated, trained capacity to carry out such procedures can fill an important requirement in the delivery of healthcare and needs to continue provided quality is assured. In the same way that other non-doctor roles can develop the ability to prescribe and order non-ionising radiation with training and experience, where appropriate, this should be an option for PAs.

Resistance to PAs carrying out additional procedures has been primarily about the impact on training of residents, which is a clear concern. With improved focus on local and national workforce development, any ongoing training of PAs should not limit opportunities for resident doctors to receive the training they require.

Recommendation 3: career development

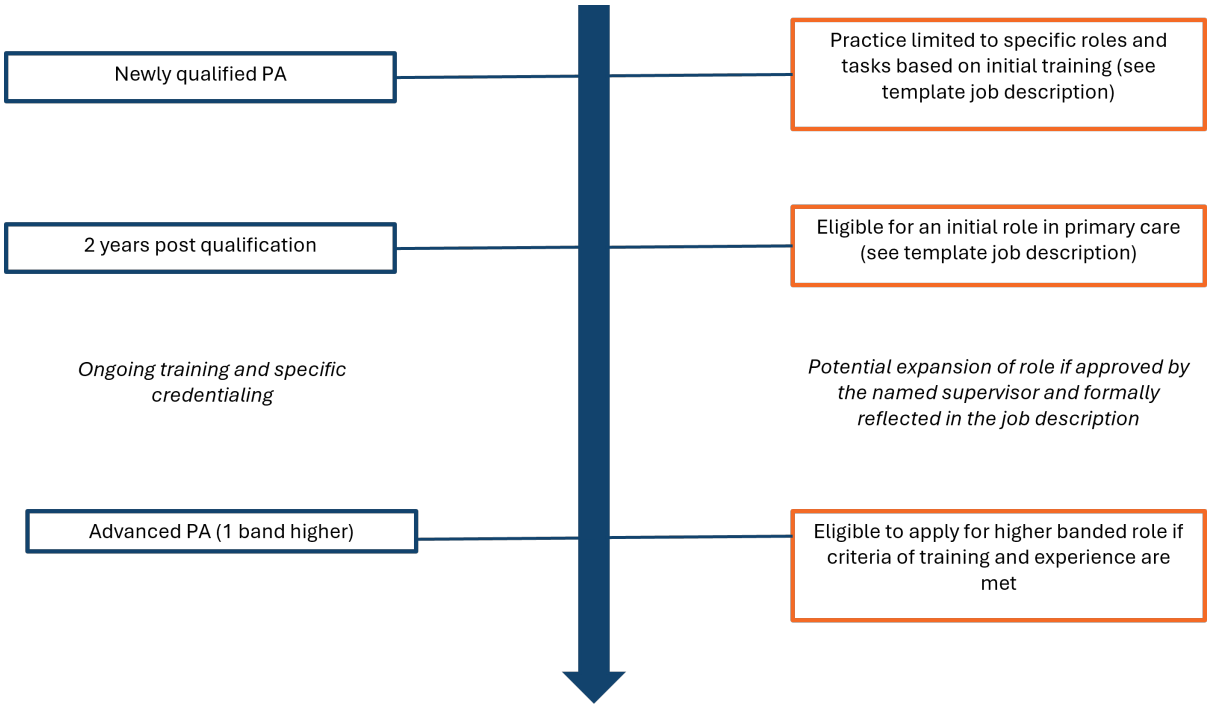
Physician assistants should have the opportunity to become an ‘advanced physician assistant’, which should be one Agenda for Change band higher and developed in line with national job profiles.

Rationale

All professions have the opportunity for career development, and the PA role should be no different. In the light of additional training and credentialling, the PA may be able to demonstrate they have sufficient skill and experience to warrant a higher Agenda for Change banding and be titled an 'Advanced PA'. Template job descriptions laying out responsibilities and requirements for a PA's first role in primary and secondary care are available in the appendices. Figure 15 illustrates that banding would be determined by a local job evaluation process, using national job profiles, and eligibility would be assessed through a standard selection process. There is no assumption that progression to an Advanced PA is automatic based on time in the role.

Allowing local discretion in determining an Advanced PA job description is important in creating a healthcare professional role that has flexibility and can be used creatively at a local level. However, career progression beyond the Advanced level is not anticipated, as the PA role is limited to working collaboratively and supportively with a doctor. Future consideration of a dedicated route from PA to doctor for those who might wish to consider this step may be beneficial.

Figure 15: PA career development



Recommendation 4: undifferentiated patients

Physician assistants should not see undifferentiated patients except within clearly defined national clinical protocols.

Rationale

Safety concerns raised in relation to PAs were almost always about making a diagnosis and deciding the initial treatment, particularly in primary care or the emergency department, where patients first present with new symptoms. It is here that the risk of missing an unusual disease or condition is highest, and where the more extensive training of doctors across a breadth of specialties is important. Making the wrong initial diagnosis and putting patients on an inappropriate pathway can be catastrophic. This was frequently flagged as the principal risk of PAs seeing undifferentiated patients.

PAs should therefore not see undifferentiated patients, unless triaged into adult patients with minor ailments and within clearly defined clinical protocols as agreed by the Royal College of Emergency Medicine and the Royal College of General Practitioners.

Recommendation 5: initial deployment in secondary care

Newly qualified physician assistants should gain at least 2 years' experience in secondary care prior to taking a role in primary care or a mental health trust.

Rationale

In the same way that doctors do not immediately work in primary care after qualification, neither should newly qualified PAs. Initial employment in secondary care provides an environment with much greater supervision, where any safety issues can be identified promptly and further training and development provided. A template job description for the initial role in primary care is given in the appendices.

After 2 years grounding in the hospital environment, PAs should be eligible for an initial role in primary care that focuses on aspects of work that reflect the strengths of the PA role. In particular, PAs are recognised as being excellent communicators and are skilled at providing advice on prevention in areas such as smoking cessation and diet. Wider public health messages are often missed in consultations with doctors because of time pressures, and the PA should have a lead role in following up at-risk individuals to ensure that they are supported and can act on preventative advice. A template job description for a PA role in primary care is given in the appendices.

Recommendation 6: teamworking and oversight

The physician assistant role should form part of a clear team structure, led by a senior clinician, where all are aware of their roles, responsibilities and accountability. A named doctor should take overall responsibility for each physician assistant as their formal line manager ('named supervisor').

Rationale

Teamworking is vital to deliver the complex healthcare and technological advances now available in the NHS. Multidisciplinary, clinically led teams are common throughout the NHS but often lack a clear line management structure or defined, accountable oversight. Medically led teams have often become fragmented over the past 20 years, leading to a lack of overall leadership, lack of mentorship for younger doctors and risks to patients from lack of continuity.

All medical staff, including the PA, should have a named line manager and mentor. This line manager, the named supervisor, should be accountable for ensuring that the PA is properly trained for the role they are carrying out, has the resources they need to succeed, and are performing to the expected standard.

Lack of teamworking and mentorship is a significant challenge for resident doctors that risks losing good staff from the profession. This issue is not the subject of this review, but it needs to be urgently considered.

Recommendation 7: identifying the role

Standardised measures, including national clothing, badges, lanyards and staff information, should be employed to distinguish physician assistants from doctors.

Rationale

There was a large body of opinion submitted to the review indicating that PAs often wore uniforms very similar to doctors, including surgical scrubs and visible stethoscopes. Although clothing and badges are not the answer in themselves, the system needs to make greater efforts at communicating the function and identity of this assistant role. This requires a national rather than a local effort, taking into account the identity of all healthcare staff to help provide greater clarity among staff and patients.

The review regularly heard that patients needed better information about the PA role, through educational material describing the roles and responsibilities of different staff groups. This might include both online information and information set out in public spaces such as in GP practices and in communal areas of hospital wards.

The government may also wish to consider creating a unified approach to uniforms or standard lanyards with job roles for the NHS workforce in England, building upon existing work via NHS Supply Chain.

Recommendation 8: professional standards

A permanent faculty should be established to provide professional leadership for physician assistants, with standards for training and credentialling set by relevant medical royal colleges or the Academy of Medical Royal Colleges.

Rationale

Strong links between the medical profession and PAs are essential to developing the role in a way that is collaborative, supportive and builds mutual understanding. This alignment was part of the original model when PAs were first introduced, and it worked well until more recent years. The Faculty of PAs should therefore retain permanent links with the medical profession and should not become an independent entity.

The role of the Faculty should be to set standards for PAs and provide training and credentialling, with support and agreement from the medical royal colleges.

The Faculty will require a host organisation, similar to that provided for other Faculties within medical royal colleges. This host could be one of the colleges, a consortium of the colleges, the Academy of Medical Royal Colleges or another arrangement. Whatever the model, it is important to retain a strong link with the relevant colleges in relation to standard setting, training and credentialling.

Anaesthesia associates

Recommendation 9: overarching

Anaesthesia associates should be renamed as ‘physician assistants in anaesthesia’ or PAA and should continue working within the boundaries set in the interim scope practice published by the Royal College of Anaesthetists.

Rationale

There is no evidence that the role is inherently unsafe or that outcomes are out of line with expected standards of care, despite intensive scrutiny.

Unlike the PA role, AAs currently work in the much more closely regulated setting of the operating theatre, with specific models of supervision. The ability to analyse routine audits created greater assurance both about the tasks being undertaken by AAs and about the outcomes of that care.

In light of anticipated increases in complexity of procedures and case mix, the experience of consultant anaesthetists will be essential, but a supportive role provided by PAAs could help with capacity and flexibility.

As with PAs, the title of ‘assistant’ rather than ‘associate’ was originally used in the UK when the roles were first introduced. It generally carried much more support from the medical profession than the title ‘associate’. Changing it back to assistant creates alignment with the PA change, using slightly different nomenclature to avoid the cumbersome use of brackets in the original name.

Unlike with PAs, there was no feedback from patients on either the AA name or the identity. The review survey found that those working with PAs feel patients do not understand the role. However, there is evidence that most members of the public are confused about the different roles of theatre staff and are generally unaware that an anaesthetist is a consultant doctor. Although efforts should be made to better communicate the roles of theatre staff to patients, there are no specific identity requirements for the AA.

Recommendation 10: credentialling

Physician assistants in anaesthesia should have the opportunity for ongoing training and development in the context of a formal certification and credentialling programme, with the ability to take on added responsibilities that are commensurate with that training, including the potential to prescribe.

Rationale

All professionals have opportunities to undertake ongoing training and development, and the PAA role should be no different. With the proviso that formal credentialling meets appropriate standards as determined by the RCoA, PAAs should have the opportunity to develop and progress in a way that is formally recognised across the NHS. The ability to practise any additional procedures should be approved by the named supervisor.

There are many examples across the NHS where AAs have been undertaking additional procedures, such as putting in a peripherally inserted central catheter (PICC). Having dedicated, trained capacity to carry out such procedures can fill an important requirement in the delivery of healthcare and needs to continue. In the same way that other non-doctor roles can develop the ability to prescribe with appropriate training, this was generally supported as a future role for PAAs in the context of drugs required during anaesthesia.

Recommendation 11: career development

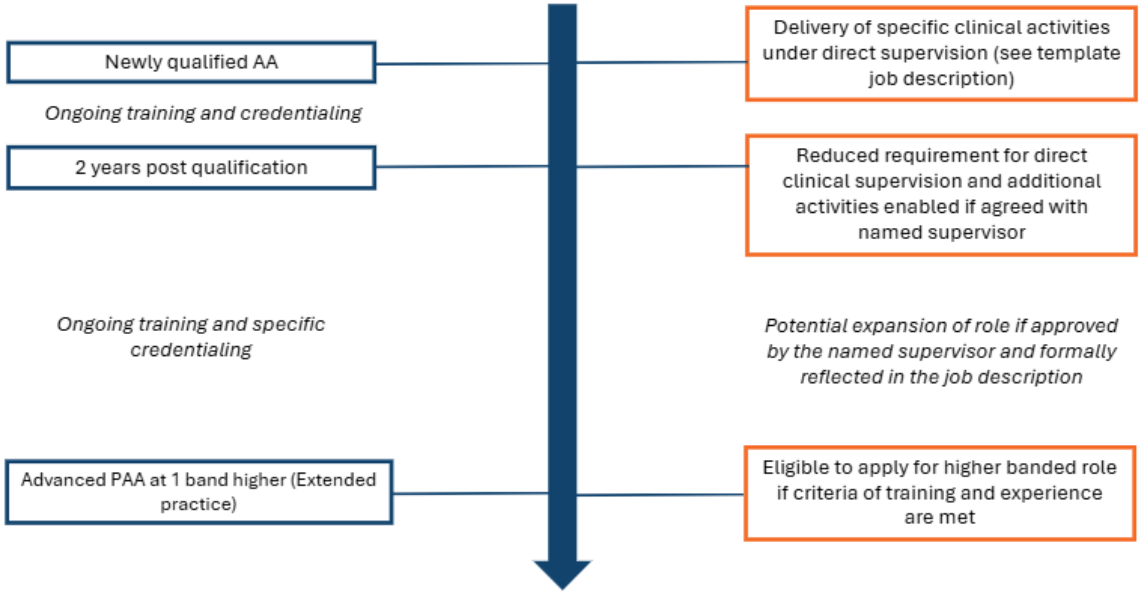
Physician assistants in anaesthesia should have the opportunity to become an ‘advanced physician assistant in anaesthesia’, which should be one Agenda for Change band higher and developed in line with national job profiles.

Rationale

At the start of a PAA's career, their initial role should reflect the core training received and include generic skills and tasks. A template job description laying out initial responsibilities is available in the appendices. Figure 16 illustrates that following additional training and credentialling, the PAA may become sufficiently skilled and experienced to warrant a higher Agenda for Change banding and be titled an Advanced PAA.

The job banding should be determined by a job evaluation process, using national job profiles, and in line with a scope of practice agreed with the RCoA, and eligibility would be assessed through a standard selection process. There is no assumption that progression to an Advanced PAA would be automatic based on time in the role. Career progression beyond the Advanced level has not been anticipated, as the PAA scope of practice is limited to describing someone who works collaboratively with a doctor.

Figure 16: PAA career development



Recommendation 12: workforce planning

Any expansion in the deployment of physician assistants in anaesthesia should be taken forward in conjunction with the Royal College of Anaesthetists to build safe and effective models of anaesthesia delivery that are supported by the consultant community.

Rationale

A survey conducted by the RCoA, and published in 2024, showed some acceptance of bringing AAs into the anaesthesia mix, with over 50% of those working directly

with AAs saying they had a positive or very positive opinion. In addition, the review's survey found those who currently supervise AAs are broadly confident in supervision arrangements (62% very or extremely confident), those who do not currently supervise are less so. Throughout the review, the main challenge to the role came from anaesthetists with little or no direct experience of AAs. They were not convinced of the rationale for introducing the role and argued that there was no longer a shortage of potential physician anaesthetists.

Robust supervision is essential to using PAAs to deliver anaesthesia. The rollout of AAs has historically been limited to a very small number of trusts, where it has generally worked well through the support and enthusiasm of consultant anaesthetists. Any future successful expansion of the role would require ongoing involvement of anaesthetists to develop new models of care delivery, as consultants would be required to work in different ways and to devote some time to supervision and training.

Recommendation 13: ongoing monitoring of safety

There should be an ongoing national audit of safety outcomes in anaesthesia practice in conjunction with the Healthcare Quality Improvement Partnership to provide assurance of the safety of the physician assistant in anaesthesia role, in teams with and without physician assistants in anaesthesia.

Rationale

The operating environment is already one in which safety is held paramount, with ongoing data collection in a number of areas. Adding in a national audit would help to provide assurance that mixed teams with PAAs are safe and spot any potential issues quickly should concerns emerge.

The data collected through this route would allow a strategic, periodic review of the role by the RCoA to determine whether the deployment of the PAA role is appropriate or needs to be changed.

Recommendation 14: professional standards

A permanent faculty should be established to provide professional leadership and set postgraduate standards for physician assistants in anaesthesia, under the auspices of the Royal College of Anaesthetists (RCoA).

Rationale

The RCoA and the Association of Anaesthetists (AoA) worked collaboratively to actively engage both consultant anaesthetists and the AA community in challenging circumstances. These leadership roles should continue, building on the work to date

and focusing on engaging their membership in workforce planning. Links between consultants and PAAs are integral to successful delivery of a new service model, and establishing a separate professional body would be a barrier to change and effective collaboration.

The role of the faculty would be to set standards for PAAs and provide training and credentialling. It should not become an independent entity but should maintain its links with the host organisation. The role of the host would be similar to that provided to other Faculties, with the added responsibility of agreeing that standards of training and credentialling within the faculty were appropriate.

General system-wide changes

Recommendation 15: regulation and accountability

The GMC requirements for regulation and reaccreditation of physician assistants and physician assistants in anaesthesia in Good medical practice should be presented separately to reinforce and clarify the differences in roles from those of doctors.

Rationale

Lack of distinction between the role of the associate and the doctor has been central to the debates about the positioning and function of the PA and AA roles, and regulation must not blur the line further. Regulation of PAs and PAAs must therefore reflect their roles in the system and underpin their different and distinct roles. The approach used by the Nursing and Midwifery Council to separate out different roles should be considered as a model.

Recommendation 16: supporting doctors as leaders and line managers

Doctors should receive training in line management and leadership and should be allocated additional time to ensure that they can fulfil their supervisory roles, and to ensure effective running of the health service.

Rationale

The review heard consistent feedback that doctors did not feel competent to supervise other professions, which is an issue in the light of current direction provided by the GMC. Training in management and oversight of staff should therefore be built into all levels of training for doctors, to help build coherent structures for leadership and oversight in healthcare teams.

The benefits of building effective teams include more efficiency in day-to-day work and improved patient safety. The time required to do this must be factored into workforce planning, but savings should accrue in terms of greater efficiency.

Recommendation 17: redesigning medical and multidisciplinary teams

DHSC should establish a time-limited working group to set out multidisciplinary models of working in different settings. The group needs input from a small group of experienced leaders covering medicine, other relevant healthcare professionals, management and human resources.

Rationale

A nationally set clear vision for how medical and MDTs should operate in future is an important element in ensuring effective working in the future. This is partly about the appropriate integration of PA and PAA roles, but also about ensuring a supportive environment for resident doctors. Ultimately, the model needs to provide optimum care for patients.

A model of future teamworking is not, however, simply about limiting the functions carried out by PA and PAA roles. It is about providing a blueprint for a different way of working that might entail delegation of certain tasks to PAs and PAAs, as well as other healthcare professionals, thus enabling doctors to have more time for leadership, oversight and activities that require their greater skills and expertise. These blueprints should provide a vision for change, with information about what is required to make that change, for local teams that wish to adopt a new way of working.

Developing these new models of future teamwork is not a task that can be delegated to one profession.

Recommendation 18: safety reporting

Safety systems should routinely collect information on staff group to facilitate monitoring and interrogation at a national level, against agreed patient safety standards, to determine any system-level issues in multi-disciplinary team working.

Rationale

Previous reports have generated large swathes of recommendations relating to patient safety in the NHS, but many of the actions have not been implemented and therefore have had limited impact. While there are comprehensive, NHS-wide systems for safety reporting that are rightly focussed on system errors and do not apportion blame, there is no centrally accessible data on patient safety incidents by professional group.

The culture across the NHS appears to have engendered a fear of speaking up. This means that should there be safety concerns with the practice of any individual staff group, they cannot be identified through any routine data systems, either nationally, or at a local level. This change should not be about apportioning blame to individuals

but about early identification of unexpected incidents within a particular professional group. The expansion of existing data systems would allow for monitoring of practice by staff group, proactively highlighting systematic errors, changes over time, and local variation.

Implementation of the review recommendations

This final section of the report ends with a proposal on how to take forward the recommendations, as implementing effective change is not as simple as publishing a report, however well thought through and sensible.

Gathering support and momentum for taking forward the recommendations will need a clear medical leader, excellent communication and a vision for future team working. This report needs to reset the debate, with alignment across local and national parts of the system to create a more effective working model for the future.

In particular, there are some roles and functions that will need input from specific organisations, as proposed below.

Department of Health and Social Care

The Department of Health and Social Care has overall responsibility for implementation of the recommendations set out in this report. All changes should be delivered as soon as practically possible, with consideration of the following specific areas.

- immediately implement a name change to assistant from associate, so this becomes custom and practice - this change will give immediate clarity to PAs, AAs, patients and other healthcare professionals, although legislative changes will obviously be subject to Parliamentary time
- nominate a single responsible medical leader to take forward these recommendations in collaboration with all relevant professions, to oversee effective future deployment and management of the PA and AA workforce
- create a short-term working group to set out a vision for the way in which future services should be configured, creating an effective balance of responsibilities for PAs and doctors
- provide the necessary resources to the relevant colleges to develop new faculties for PAs and AAs
- consider whether there should be a dedicated, fast-track training route for the current cohort of PAs and AAs who may wish to retrain as doctors, with the aim of retaining this group of motivated staff within the NHS wherever possible
- work with the Staff Council, employers and trade unions to explore these issues further and assure themselves that the current arrangements, including initial job banding for PAs and AAs, are fair and appropriate

NHS England

NHS England should take lead responsibility for the following aspects of the review:

- provide standard patient-facing information about the role of the PA and disseminate it throughout the NHS - this needs to be in the context of the patient wishing to be informed about the knowledge base of the practitioners whom they might consult
- create a distinct national mechanism for identifying PAs and AAs that will make identification more straightforward for patients - this may include uniforms, lanyards and other methods
- establish a national audit on safety outcomes in operating theatres through the Healthcare Quality Improvement Partnership, taking into account the presence of different professional groups
- provide adequate local resource and expertise to deliver any change programme, both specifically in relation to PAs and AAs, but also more generally
- implement training for doctors on how to supervise other professions on a day-to-day basis and how to be an effective line manager (named supervisor) - this should be taken forward in conjunction with other bodies, including the royal colleges, the Academy of Medical Royal Colleges and the Academy of Medical Leadership and other organisations that provide postgraduate training for doctors

Training should take into account GMC advice that the named supervisor is to act as a formal line manager holding the following responsibilities:

- agreeing an appropriate job description
- setting individual goals
- monitoring progress
- providing regular feedback.

The named supervisor should also be trained in conducting performance reviews and appraisals and identifying training needs and development opportunities. More experienced PAs should have their roles reviewed by their named supervisor to confirm whether they have the appropriate skills and training, and to modify the roles if necessary. This must not include seeing undifferentiated patients unless triaged into adult patients with minor ailments, in line with the advice provided by RCEM and the RCGP.

General Medical Council

To implement the recommendations in this report, the GMC should take the following actions.

- change the name of PAs and AAs to physician assistant and physician assistant in anaesthesia (PAA) rather than associate

- with the support of the relevant royal colleges, make any necessary changes to the curriculum and training provided to PAs and AAs to reflect the role as set out in this report
- revise the text in Good Medical Practice to provide distinct categories for PAs and AAs
- oversee standards for postgraduate training programmes set by the Faculties of PA and AA
- ensure that management training is built into the curricula for future generations of doctors at both undergraduate and postgraduate level

Royal College of Anaesthetists

The RCoA organisations should take forward the following actions, liaising with the Association of Anaesthetists as appropriate.

- take forward development of a new faculty to set standards and provide professional leadership for AAs - this faculty will oversee a framework for training and credentialling that will support AAs to acquire new skills and experience
- use the existing draft scope of practice document to provide a guide on future training and development, and task the faculty with developing a new training framework
- agree a governance document that sets out the agreed delegated authority for the new Faculty
- work with NHS England and DHSC to consider future requirements for AAs and other staff groups in the operating theatre

Royal colleges

One or more of the royal colleges or the Academy of Medical Royal Colleges should work together to take forward the following activities:

- support the development of a new Faculty to set standards and provide professional leadership for PAs - this will create a framework for training and credentialling that will support PAs to acquire new skills and experience
- use any existing scopes of practice developed by the colleges to provide a guide on future training and development, and task the Faculty with developing a new training framework - this specifically includes the Royal College of General Practitioners and the Royal College of Emergency Medicine, who have an ongoing role to work with the faculty to ensure that there is clear clinical guidance on which clinical pathways are appropriate for PAs to see undifferentiated patients
- agree a governance document that sets out the agreed delegated authority for the new faculty

Unions and professional representatives

Unions and representative professional bodies will need to play an important role in supporting physician associates and anaesthesia associates through the changes associated with this report.

Local healthcare organisations

Local employers have a responsibility to ensure these recommendations are put in place efficiently, involving affected members of staff. This includes appropriate advertising of roles, methods of supervision and oversight, plus opportunities for career development. Mechanisms for clinical governance and collection of patient safety data should be reviewed if necessary.

Closing remarks and acknowledgements

The publication of this review must provide a reset in the debate about physician and anaesthesia associates. The recommendations have been constructed to provide clarity and a pragmatic way forward, based on the best available evidence. The NHS and its workforce are under immense pressure, and we now all need to work together to ensure its long-term sustainability.

The review could not have been completed without the considerable and wide-ranging input from a number of experts, healthcare professionals and key stakeholders. While there are too many names to list here, particular thanks must go to the following organisations:

The team at the Kings College London Policy Research Unit, Leeds Teaching Hospitals, University Hospitals Plymouth, University Hospitals Birmingham, and a number of general practices who are not named here for reasons of anonymity but know who they are.

I would also like to express my gratitude to all those individuals and organisations who attended meetings of the main stakeholder group. They provided consistent, constructive support throughout the review, and are listed in full in the appendices.

In addition, particular thanks must be given to the following individuals for their contribution: Dmytro Babelyuk, Sonia Barbosa, Kate Brewis, Geert van den Brink Hilary Cass, Harry Cayton, John Chamberlain, Marian and Brendan Chesterton, Nicola Cooper, Trish Greenhalgh, David Haslam, Peter Heistermann, Kuilman Lupo, Anthony Martinelli, Tim Meek, William Palmer, Roy Pollitt, David Sloman and Emma Wain.

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Glossary of abbreviations

AA – Anaesthesia associate

AARS – Additional Roles Reimbursement Scheme

ANP – Advanced nurse practitioner

AoA – Association of Anaesthetists

BMA – British Medical Association

CQC – Care Quality Commission

DHSC – Department of Health and Social Care

ED – Emergency department

EGM – Emergency general meeting

FPA – Faculty of Physician Associates

FTE – Full-time equivalent

FY1 – Foundation Year 1 doctor

FY2 – Foundation Year 2 doctor

GIRFT – Getting It Right First Time

GMC – General Medical Council

GP – General practitioner

LFPSE – Learn from Patient Safety Events

LTWP – Long Term Workforce Plan

MAPS – Medical associate professions

MDT – Multidisciplinary team

NHS – National Health Service

NHSE – National Health Service England

NIHR – National Institute for Health and Care Research

ODP – Operating department practitioner

PA – Physician associate

PAA – Physician assistant in anaesthesia

PCN – Primary care network

PFD – Prevention of Future Deaths

PGDiT – Postgraduate doctor in training

PICC – Peripherally inserted central catheter

PRU – Policy Research Unit

RCoA – Royal College of Anaesthetists

RCP – Royal College of Physicians

SoP – Scope of practice

Appendix 1: Methodological detail

Data gathering

Published literature

An independent literature review was commissioned from the National Institute for Health and Care Research (NIHR) Policy Research Unit (PRU) at King's College London. The PRU was asked to produce a report, covering national and international research to support the review, addressing the primary question of the safety and effectiveness of the PA and AA roles. This was completed using a mixed methods approach, including a search of the NIHR portfolio, identification of ongoing systematic reviews listed on the PROSPERO database and analysis of existing published systematic reviews, using the terms 'physician associate' and 'anaesthesia associate'. This rapid review drew upon a number of recent and unpublished systematic reviews to inform the evidence base.[13-15] A published version of the PRU report was shared independently of the review and is available here.

Separately, the review team searched reference lists of all submitted research and papers identified through the PRU report, and its call for evidence, and discussed directly with relevant academics and authors to identify further pieces of published, unpublished and ongoing research.

Unpublished literature

The review launched a public call for evidence asking for submissions of analysis and research in the following areas:

- trust or practice-level analysis, including anything based on audit data, patient throughput or local collection of safety and efficacy data
- unpublished research
- education and training provider analysis, including quality assurance reports or local collections of data
- union-led analysis, including the function of multidisciplinary teams (MDTs), staffing levels and education and training that might impact on safety and effectiveness.

The review also accepted submissions meeting the above criteria via the Review mailbox.

National datasets relating to safety

- The review commissioned the Care Quality Commission (CQC) to search their patient safety databases for: coroners reports (Regulation 28 Prevention of Future Deaths [PFD] reports)

- reports from whistleblowers and members of the public to CQC
- the Learn from Patient Safety Events (LFPSE) service

A free text search of databases for the periods over which data were available, followed by manual screening and removal of irrelevant results and thematic analysis, was conducted for all records mentioning ‘physician associate’ or ‘anaesthesia associate’.

Search terms used are set out in Table 15.

Table 15: Search terminology (PFD reports, LFPSE and Regulatory Platform)

Profession	**Search terms used in PFD reports**	**Search terms used in LFPSE reports**	**Search terms used in Regulatory Platform**
Physician associate	Physician associate	Physician associate	Physician associate
Anaesthesia associate	Anaesthesia associate	Anaesthesia associate	Anaesthesia associate
Nurse	Nurse; RN	Nurse; RN	Nurse
Resident doctor	Resident doctor; Foundation Year doctor; FY1; FY2; Specialty Trainee; StR; ST1; ST2; ST3; ST4; ST5; ST6; ST7; ST8; ST9; SpR; Specialty Registrar; GPST; Specialty Registrar in general practice; SHO; Senior House Officer	Resident doctor; Foundation Year doctor; FY1; FY2; Specialty Trainee; StR; ST1; ST2; ST3; ST4; ST5; ST6; ST7; ST8; ST9; SpR; Specialty Registrar; GPST; Specialty Registrar in general practice; SHO; Senior House Officer	Resident doctor; Foundation year doctor; Specialty trainee; Specialty registrar; Specialty registrar in general practice; Senior House Officer
Anaesthesia resident	Anaesthesia Resident; Resident Anaesthetist	Anaesthesia Resident; Resident Anaesthetist	Anaesthesia resident; Resident anaesthetist

To obtain relevant comparator data, a separate search was conducted for the professions of ‘resident doctor’, ‘resident anaesthetist’, ‘nurse’ and appropriate synonyms. The comparator search used date ranges corresponding with the ranges for which valid results for PAs and AAs had been returned, as shown in Table 16.

Table 16: Search periods (PFD reports, LFPSE and Regulatory Platform)

Database	**PA/AA search period**	**Comparator search period**

Coroners' (PFD) reports	July 2013 to February 2025	May 2023 to February 2025
Reports from whistleblowers and members of the public to CQC	July 2023 to February 2025	July 2023 to February 2025
The LFPSE service	January 2023 to January 2025	April 2023 to January 2025

Statistical analysis was considered but not conducted due to the small number of data points for each source, the risk of double counting with multiple search terms that could not be accounted for within the time frame required, and the risk of irrelevant results being returned due to lack of manual screening and removal.

Local patient safety data

NHS trusts were commissioned to provide local level never events data relating to physician associates, anaesthesia associates, resident doctors, resident anaesthetists, and nurses, relative to the full-time equivalent (FTE) employed of each profession. Data was requested for the most recent 5-year period for which data was available but was also considered where only shorter stretches were available.

Data on never event rates[28] and workforce[4] for all NHS trusts is publicly available on gov.uk and was used to check the representativeness of the trusts responding.

National datasets relating to effectiveness

The review commissioned the DHSC and NHS England to provide analysis based on national datasets to support the determination of effectiveness. This data is caveated in that it only related to PAs employed directly by an individual practice, and not PAs employed by the PCN.

Department of Health and Social Care analysis

The DHSC used two national NHS datasets that report how many appointments GPs delivered and how many full-time-equivalent GPs were employed at every GP practice, with data from July 2023 to June 2024 used in the analysis. This was cross analysed with a workforce file showing the number of PAs directly employed by each practice as of February 2025. PA numbers were very similar across the two periods, so this file was judged to be a reasonable proxy for workforce as of 2023 to 2024.

A productivity measure was created for every practice by dividing its total GP appointments by its GP workforce and then averaging the result across the 12-month period to smooth out seasonal peaks. Practices reporting implausibly high figures (over 100 appointments per GP per day) were excluded due to a high likelihood of errors in the data. Duplicate records and those with missing information were also excluded from the analysis.

Following data cleaning, straightforward linear regression was run on the 530 practices remaining. The statistical test showed no meaningful relationship between the number of PAs employed and number of GP appointments per day. There was a small negative effect observed, but this was not statistically significant (p = 0.379).

NHS England analysis

NHS England completed an analysis and extraction of all mentions of PAs or AAs, including any names of the professions in previous use, in all published Getting it Right First Time (GIRFT) reports and provided this directly to the review team via a report.

Quality assurance and synthesis

All evidence obtained was assessed for quality and relevance for inclusion in the review. Criteria for the inclusion of data as core evidence were as follows:

- primary research or an original reanalysis of primary data
- relates to the relative safety or effectiveness of PAs, AAs or the teams in which they work
- contains a substantial quantity of data from 2010 or later
- relates to the work of three or more PAs or AAs
- available in English
- can be accessed by the review team
- based in either the UK or another eligible high-income country
- data is empirical and of a verifiable quality or origin
- meets the quality threshold or agreed through discussion with the lead reviewer to be included where data is sparse

Quality assessment

Evidence was assessed for relevance, quality, generalisability and risk of bias by two members of the review team in accordance with published guidance from the National Institute for Health and Care Excellence. One modification was made, with papers meeting the criteria of a prospective or retrospective cohort study assessed using the JBI Checklist for Cohort Studies instead of the ROBINS-I tool, as this better reflected the level of detail available. Any discrepancies in scoring were resolved by discussion. A relevant academic was on hand to answer further questions. In some cases, authors were contacted directly with relevant queries.

Studies included in the final synthesis of 2 recent published and one in-progress unpublished systematic reviews[13-15] identified by the review team, as well as the commissioned PRU report, were not further quality assured but were assessed for relevance.

National datasets relating to safety

The output of keyword searches conducted by the CQC relating to PAs or AAs was manually assessed by CQC analysts for relevance. Due to the volume of results returned for the professions of resident doctors, resident anaesthetists and nurses, and the need for large representative sample sizes, figures returned for comparable professions were left as raw, indicative data. Areas of overlap were not taken into consideration.

Local patient safety data

Local data on never events received from trusts was manually screened, with any incidents of incomplete or unexplained outlier data followed up directly with the relevant trust. Submissions with remaining incomplete or outlier data, such as missing years or implausibly low FTEs, were excluded from the analysis.

Two sample, two-tail T tests were run to test for any significant difference in number of never events per FTE for the following professions among the trusts which provided data. To increase comparability, trusts were only included in testing of the primary research question where they employed both two-test groups (for example, PAs and resident doctors) for each question as below. Data from 52 trusts employing PAs and AAs was included overall:

- PAs and resident doctors: 40 trusts
- PAs and nurses: 37 trusts
- AAs and resident anaesthetists: 12 trusts.

A two-sample, two-tail T-test was also run to test for any significant difference in total number of never events per clinical FTE between trusts employing PAs and AAs who were included in the never events rate analysis, compared with those who were not. This used publicly available data on workforce from December 2024[8] and on never events for 2013 to 2025,[87] aligned with the years for which never events data broken down by staff group FTE was available. These checks indicated whether the sample used in the analysis was representative of the wider whole in terms of their never events reporting.

National datasets relating to effectiveness

The relationship between effectiveness and the deployment of PAs in primary care was subject to DHSC quality assurance processes.

GIRFT reports were not quality assessed, as they contributed to the policy and governance strands rather than providing detailed evidence on safety and effectiveness.

Analysis

Evidence graded medium or high quality via the quality assessment process used was automatically included in outcome tables. The inclusion of low or very low quality evidence was determined via discussion among the review group, in context of the quality of the wider evidence base available as well as other factors.

Outcomes, comparator groups, study design and other considerations reported in the evidence were systematically extracted into tables relating to the safety and effectiveness of each staff group. PAs working in primary and secondary care were considered separately. Identical or similar outcomes were compared where available, but the volume of data was not sufficient to enable a meta-analysis to be performed. Reported data was not reanalysed by the review team.

Identifying wider perspectives

As outlined in the scope, the review also considered other elements relevant to safety and effectiveness including:

- treatment of complex or long-term conditions involving both primary and secondary care
- patient perspectives
- clinical opinion
- expert views
- workforce requirements
- training and regulatory factors
- cost and cost effectiveness

Information relevant to these aspects was sought through a range of approaches, summarised below.

Published literature as well as the unpublished data received directly by the review was considered in relation to all of the wider perspectives listed above. The review also completed and commissioned further bespoke research and activities to develop understanding in each thematic area.

Patient and public perspectives

The call for evidence asked for trust or practice-level analysis of patient experience, including complaints, compliments or feedback. Patients and members of the public were also welcome to share their views via the review mailbox.

Bespoke patient focus groups were run on the review's behalf by the Patients Association. Due to the increased patient exposure to the PA role these groups

focused on gaining patient views on PAs rather than AAs. There were three groups, each of which had a specific focus:

- treatment of complex or long-term conditions involving both primary and secondary care
- general practice
- hospital settings

In each session, conversation was centred around the safety and effectiveness of PAs, in line with the review's terms of reference. 5 additional one-to-one interviews were held to facilitate the participation of patients who could not attend the focus groups. In total, 31 participants took part in the project; 23 participants had been seen by a PAs, 8 had not; 23 participants reported disabilities. Transcription and thematic analysis were completed by the Patients Association, available in annexes accompanying this review.

Clinical and expert views

The experiences and opinions of healthcare workers relating to the safety and effectiveness of PAs and AAs were considered an important factor relating to the integration of these roles into the MDT. As well as a wide range of interviews, to gain a comprehensive set of views the review ran a cross-sectional online survey of healthcare professionals, with split routes for PAs and AAs (and those that work with them), which was advertised on gov.uk.

Questions were designed by the review team, developed in line with the terms of reference for the review and aligned where practical with questions from previous comparable surveys.

The methodology underpinning the survey was designed to target PAs, AAs and other healthcare professionals who work with them in MDTs. While methods of adding validation to the survey were considered, no robust methods of ensuring the data quality were identified. Therefore, an open approach was taken to allow any healthcare professional who wanted to share their views an option for completing the survey without needing to incorrectly complete the background questions (for example regarding their profession).

The survey was delivered via gov.uk using the DHSC's SurveyOptics platform.

The survey used predominantly quantitative questions, with a mixed approach to setting the options dependent on the question; for example, some were closed-ended questions while some used a scale similar to a Likert scale.

The survey was shared via the regular review newsletter and via the review's 'X' account and was open from 7 March 2025 to 30 March 2025. A wide range of

stakeholders were also encouraged to share among their networks to ensure that the response received was as representative as possible. A total of 8,558 responses were received: 6,864 for the PA survey and 1,694 for the AA survey. Responses were checked post hoc for any indication of scripted, duplicate or non-human answers. Given widespread public interest, a convenience sample with no limitation on participant numbers was used instead of random or targeted sampling. Further information on the survey's methodology and results is available on the Independent review of physician associates and anaesthesia associates: survey of healthcare professionals page.

The review also hosted three formal feedback panels. These invited experts to answer questions on the following areas:

- international approaches to the PA and AA professions
- the AA role
- workforce planning and delivery
- financial sustainability and cost effectiveness.

Informal feedback from clinicians and experts was also heard through a number of site visits and a wide range of listening exercises, including with royal colleges and wider professions through webinars.

Workforce trends and requirements

Formal feedback from workforce experts within and outside government was sought during dedicated evidence gathering sessions on workforce as well as on an ad hoc basis throughout the review. This included a bespoke expert panel to understand the future workforce requirements of the NHS, the role of skill mix in NHS sustainability, and the vision for future models of care. The review also scrutinised the assumptions made by NHSE which underpinned the planned expansion of PA and AA roles in the Long Term Workforce Plan. Planning documentation, policy analysis and consideration of the published literature made an important contribution to the contextualisation of PA and AA employment.

Education, training and regulatory requirements

The review received a large volume of evidence relating to education, training and regulation via the call for evidence. This largely included course curricula from educational institutions, training requirements and governance protocols from both primary and secondary care settings, which were considered in full. The review team also consulted directly with the GMC, education and training providers, PA and AA students, the Royal College of Physicians and individual academic institutions to understand implications of current regulatory processes, the adequacy of institutions in meeting set standards and the function of institutional and national level assessment processes in place for both professions.

To determine how the education, training and regulatory requirements of the roles relate to comparator groups, the review also reviewed the current physician associate's national examination, and content maps, and compared this with the examination and content maps of key professional groups. Published and unpublished literature received by the review comparing the clinical reasoning abilities, examination scores, and training processes of PAs and AAs with comparable staff groups was all considered in full.

Where the review received evidence pertaining to the education and training of resident doctors, it shared relevant findings with the review of postgraduate medical training led by Sir Chris Whitty and Sir Stephen Powis.

Cost and cost effectiveness

Published and unpublished literature as well as planning documentation and policy analysis relating to cost and cost effectiveness was considered. Cost effectiveness modelling was not conducted due to concerns over the evidence base available to support necessary assumptions about PA and AA impacts on patient and efficiency outcomes.

Appendix 2: Included studies for the safety and effectiveness of the physician associate role in primary care

Table 17: Core studies: physician associates in primary care

Study	Data collection	Design	Participants and Intervention	Outcomes
CQC, 2025[21]	2013 to 2025	Free text database search for and thematic analysis of coroner's reports	1 referencing PAs in primary care	Frequency of references to PAs working in primary care fewer than expected
de Lusignan and colleagues, 2016[18]	2012	Published comparative observational study using video recordings of consultations by volunteer PAs and GPs with consenting patients in single surgery sessions. Recordings assessed by blinded GPs using the Leicester Assessment Package	21 PA consultations with a less complex patient group; 41 GP consultations	Consultation safety; identification of consultation practitioner
DHSC analysis, 2025[24]	2023 to 2024	Regression analysis of number of PAs employed per GP practice against number of appointments per GP	530 GP practices across England	Appointments per GP at practices and/or PCNs employing PAs; appointments per GP at practices and/or PCNs not employing PAs
Drennan and colleagues, 2015[19]	2011 to 2012	Published observational study of patients presenting at same-day appointments in 12 general practices in England. In designated sessions over 4	2086 patient records total in 12 GP practices; 932 seen by PAs, 154 by GPs	Re-consultation within 14 days for the same or linked problem; rates of diagnostic tests ordered; referrals; prescriptions issued; patient satisfaction; appropriateness of

		weeks: 2 weeks in winter and 2 weeks in summer, 2011to 2012		records of initial consultation; consultation duration; consultation cost
Halter and colleagues, 2018[22]	2011 to 2012	Published secondary analysis of routinely collected patient consultation records (controlled observational data) to design and adjust for a case mix classification system on outcomes of consultations with PAs and with GPs	12 GP practices in England, 6 with PAs (932 consultations), 6 without PAs (1154 consultations)	Case-mix-classification-system adjusted rates for: giving general advice; giving advice on medication management; rates of requesting/ordering diagnostic tests; rate of requesting/ordering referrals; rate of requesting/ordering prescriptions; re-consultation rate for the same or a related problem; number of procedures
Harrison and colleagues, 2025[20]	2024	Unpublished 6-month observational study of patients presenting at same-day appointments in one large English GP practice	1,878 patients seeing PAs, 1,765 seeing ANPs and 1,336 PGDiTs, all managing a mixture of differentiated and undifferentiated patients	Re-consultation within 14 days; number of diagnostic tests ordered; prescriptions issued; referrals onto secondary care; use of imaging resources; patient satisfaction (via survey of 50% of patients)
Senft, 2019[23]	2014	Published retrospective cross-sectional analysis and records regression of patients at practices employing at least one healthcare assistant in Germany compared with those without	397,493 patients in HCA practices and 463,730 in non-HCA practices	Rate of specialist consultations, hospitalisation, readmissions, follow-on drug prescriptions, total medication, consultation rate of general practitioners, hospital costs

Appendix 3: Included studies for the safety and effectiveness of the physician associate role in secondary care

Table 18: Core studies: physician associates in secondary care

Study	Data collection	Design	Participants and intervention	Outcomes
Armitage and Black, 2025[32]	2025	Published 1.5 years of retrospective audit of patient wait times at English emergency admissions unit employing PAs	Emergency admissions unit employing PAs; national quality benchmarks	Mean wait time to doctor review; mean wait time to consultant review; mean wait time to review by doctor/nurse practitioner/PA
CQC, 2025[21]	2013 to 2025	Free text database search for and thematic analysis of coroner's reports	4 reports referencing PAs in secondary care, 1 referencing PAs in primary care, and 0 referencing AAs	Frequency of references to PAs working in primary care, secondary care and AAs in coroners' reports
Drennan and colleagues, 2019b[29]	2016	Published mixed methods, multiphase PASCER study across 6 hospitals using PAs in England including a pragmatic retrospective record review of patients presenting at emergency departments	305 patients seen by PAs at ED presentation; 308 patients seen by FY2 at ED presentation; total of 8816 patients	X-ray investigation conducted. Consultation records judged as appropriate: requests for radiography, past medical history, examinations, treatment plan and decision, advice given, follow up. Senior doctor review of the treatment plan and decision. Proportion of consultations assessed by independent reviewer as likely to

				have been carried out by a FY2 rather than a PA
FOI: Significant and Never Events Involving Medical Associate Professionals, 2025[30]	Financial years 2019/20 to 2024/25	Analysis of responses from an external freedom of information request made to trusts of never events and significant events against headcount in each role	39 respondent trusts, 23 recording details of staff involved in events. No trusts reported employing AAs. Number employing PAs unclear due to partial data	Involvement of PA in significant event compared with composition in sample; involvement of PA in never event compared with composition in sample
Halter and colleagues, 2020[27]	2016	Published reanalysis of 4 months of patient records of those presenting at 3 English emergency departments (Drennan, 2019). Review of 40 records for clinical adequacy; semi-structured interviews with staff and patients; observations of physician associates	8,816 patients (3,197 with primary outcome recorded - (*n* = 1,129 PAs, *n* = 2,068 doctor); 25 semi-structured interviews with 14 clinicians and managers and 6 patients or relatives; 5 PAs for observations	Reattendances within 7 days X-ray investigation conducted; consultation records judged as appropriate: requests for radiography; consultation records judged as appropriate: past medical history; consultation records judged as appropriate: examinations; consultation records judged as appropriate: treatment plan and decision; consultation records judged as appropriate: advice given. consultation records judged as appropriate: follow-up; patient perceptions
King and Helps, 2024[31]	2018 to 2020	Published quantitative study, 16 months of retrospective observational chart review of anonymised adult patients seen by PAs or FY1s in English ED	4580 seen by PAs; 2825 seen by FY1s (with complete records)	Wait time to consultation in ED; length of stay; patients leaving without being seen; reattendance at ED within 72 hours with the same presenting complaint

No. 10 analysis, 2025[28]	2013 to 2025	Regression analysis from an internal request made to NHS trusts to provide FTE and never event rates per year for a range of medical professionals in secondary care	52 respondent trusts, 40 employing PAs and resident doctors, 37 employing PAs and nurses, over a range of time periods from FY 2013 to 2014 to 2024 to 2025	Involvement of PAs in never events compared with resident doctors by FTE; involvement of PAs in never events compared with nurses by FTE
Timmermans, 2017[26]	2013 to 2015	Published multicentre, non-randomised, matched control study across 34 wards in the Netherlands, with analysis of inpatient outcomes for MD/PA model compared with MD only model	2307 patients at 34 wards (17 case, 17 control) followed from admission until 1 month after discharge. Patients receiving daycare, terminally ill patients and children were excluded	Included length of stay, pain scores, in-hospital mortality and infection, unplanned ICU transfer, ED presentation or non-elective readmissions post discharge

Appendix 4: Included studies for safety and effectiveness of the anaesthesia associate role

Table 19: Core studies: anaesthesia associates

Study	Data collection	Design	Participants and intervention	Relevant Outcomes
Association of Physician Associates in Anaesthesia, 2017[33]	2017	7-day retrospective SNAP audit with data submitted by 49 AAs	870 operations in 1 week	Requirement to 'call for immediate help' from supervisor during procedure; involvement in morbidity or mortality event concerning a patient
Barron and colleagues, 2018[38]	2015 to 2017	Retrospective 2-years and 7 months audit	487 PICC lines and 790 midlines inserted by AAs under unclear supervision model; no control	Catheter-related bloodstream infection rate (central access; midline infection rate; failure rate
Cox, 2015[35]	2010 to 2012	Retrospective audit of operations where AAs delivered general, regional or local anaesthesia in areas including orthopaedics, gynaecology, general surgery, ophthalmic surgery and ear, nose and throat surgery	418 operations under direct supervision; 4,033 operations at 2:1 model; no control	30-day mortality rate

CQC, 2025[21]	2013 to 2025	Free text database search for and thematic analysis of coroner's reports	0 reports referencing AAs	Frequency of references to AAs in coroners' reports
Dixon, 2025[36]	2011 to 2024	Retrospective 3-year audit	5298 sub-tenon blocks carried out by AAs under unclear supervision model; no control	Complication rate; conjunctival chemosis; subconjunctival haemorrhage
Hepburn and colleagues, 2015[34]	2012 to 2015	Retrospective 3-year audit	433 cardioversions performed by AAs under unclear supervision model; no control	Complications occurring during surgery requiring consultant assistance
Hepburn and Gray, 2025[41]	2015 to 2025	Retrospective 10-year audit	36,279 sub-tenon blocks performed by AAs; no control	Clinical incidents associated with a named AA via Datix reporting
No. 10 analysis, 2025[28]	2013 to 2025	Regression analysis from an internal request made to NHS trusts to provide FTE and never event rates per year for a range of medical professionals in secondary care	52 respondent trusts, 12 employing AAs, over a range of time periods from FY 2013/14 to 2024/25	Involvement of AAs in never events compared with anaesthesia residents by FTE
Phillips and colleagues, 2013[39]	2011 to 2012	Retrospective audit over 2011 to 2012	159-day surgery operations under 2 : 1 model vs sole anaesthetist model. Case mix and size of case and control groups not specified	Pain score of 0; requirement for additional anaesthesia; requirement for rescue antiemetics; unplanned overnight admissions as a result of anaesthetic complications

Phillips and Cox, 2015[40]	2011 to 2014	6-year retrospective audit of operations where AAs delivered general, regional or local anaesthesia at the day procedure unit	4,498 cases under direct supervision; 5,589 cases at 2 : 1 model	Case throughput
Phillips and Cox,2012[37]	2010 to 2011	Prospective audit over 18 months	406 sub-tenon blocks performed by AAs under unclear supervision model; no control	Conjunctival chemosis rates; subconjunctival haemorrhage rates
Prins and colleagues, 2017 [42]	2015 to 2016	Follow up review of upper limb regional anaesthesia, focusing on the effectiveness of AAs in ultrasound-guided axillary brachial plexus blocks	2,510 blocks performed between January 2015 and April 2016, with 60% performed by AAs	Top-up anaesthesia rate for AAs (3.5%) was similar to that of consultants (3%). The volume of local anaesthetic used was similar between AAs (25 ml) and consultants (25 ml)

Appendix 5: Template job descriptions

Example job description for a new physician assistant in primary care

Physician Assistant in primary care

Overview of the role

As a new physician assistant in primary care, you will be given an initial induction programme to provide basic experience of working in this setting. In general practice this will be in line with an induction guide provided by the RCGP. You will be supported to work within the wider practice team to promote and maintain patient care. Your role will include the provision of care under the supervision of a doctor, using a wide range of technical and communication skills to support the smooth running of the practice. In general practice, your supervision will be provided in line with the supervision guide provided by the RCGP.

You will play a central role in all aspects of preventative care, including undertaking NHS health checks and provide lifestyle support, and support the administration of basic therapeutic procedures. You will provide annual health checks (excluding patients with learning disabilities, severe mental health issues, or other complications) and act as an initial point of assessment for minor or common conditions. You will help facilitate the pathway of care for patients, providing a key point of contact to ensure management plans, hospital visits, admissions and discharge are carried out effectively and efficiently. You will undertake audits and routine clinical administrative tasks. You will not be able to see undifferentiated patients. You should not be seeing patients for a second time if their first consultation with you did not result in a diagnosis and management success – all patients re-attending will need to see a GP.

Principal duties and responsibilities

The physician assistant will be expected to carry out the following roles, with the scope of role within general practice being as set out in the RCGP guidance:

- act as first point of contact for suspected minor or common conditions in adults, within clear clinical pathways and escalation processes
- carry out in-person assessments of patient health by interviewing patients and performing physical examination including obtaining and updating medical histories
- administer referrals to secondary care on behalf of a GP and provide relevant information
- order agreed diagnostic tests including laboratory studies as instructed by a GP and interpret agreed test results
- administer the referral of an adult safeguarding concern on behalf of a GP, when confirmed by a GP clinical supervisor or GP with delegated responsibility for supervision

- implement agreed management plans, and review and suggest any changes in agreement with the GP
- document ongoing patient care by contemporaneous recording in the medical record
- make referrals to community and social services in agreement with the supervising GP
- take an active role in practice clinical audits, learning events, research and service development, and support practice outreach initiatives
- perform basic therapeutic procedures by administering injections and immunisations if trained to do so (with exclusion of steroid injections or any intra-articular injections) and managing wounds and infections
- review test results as part of the NHS Health Check, discuss the results with patients and offer advice on ways to make lifestyle improvements such as diet and smoking cessation
- take part in prevention initiatives, working with the supervising GP and the multidisciplinary team
- maintain professional and technical knowledge by attending educational workshops, reviewing professional publications, establishing personal networks, and participating in professional societies
- undertake clinical audit, research and quality improvement to deliver effective patient care and learn from best practice
- undertake mandatory and priority training within the required timescales
- undergo an annual appraisal
- maintain professional registration as required through the relevant professional body through maintenances of a professional portfolio and or revalidation processes

Person specification

Qualifications – a postgraduate Masters or Diploma (PGDip) in Physician Associate Studies, or an integrated undergraduate Masters in Physician Associate Studies (MPAS). A pass in the Physician Associate Registration Assessment (PARA).

Regulated – on the GMC list of registered PAs.

Working experience – at least 2 years' experience in a secondary care setting

Communication skills - excellent communication and interpersonal skills

Technical skills - competent undertaking primary care-based minor therapeutic procedures and diagnosing suspected minor or common conditions in adults within clear clinical pathways and under consultant supervision

Infection control - maintain safe and clean working environment by complying with procedures, rules, and regulations and adhere to infection-control policies and protocols.

Example job description for a new physician assistant in secondary care

Overview of the role

As a new physician assistant in secondary care, you will work in the wider multidisciplinary team to promote and maintain patient care. You will provide clinical care under the supervision of a senior doctor as part of a supported team and use a wide range of technical and communication skills to ensure the smooth functioning of ward-based care.

You will be a central part of the team ensuring continuity for patients in all parts of their pathway of care. This includes supporting the initial assessment, following-up the management plan, providing health promotion advice and liaising with other services to support efficient discharge planning.

Accountability

Managerial accountability: named consultant.

Ongoing clinical advice during working hours: individual named doctor for each shift.

Principal duties and responsibilities

The physician assistant will be expected to carry out the following roles:

- carry out assessments of patient health by interviewing patients and performing physical examination including obtaining and updating medical histories
- order and perform agreed diagnostic tests including laboratory studies and interpret test results
- implement management plans as agreed with the doctor
- document ongoing patient care by recording in the medical record
- perform basic therapeutic procedures by administering all injections and immunisations, suturing and managing wounds and infections
- provide relevant health promotion advice in patients on aspects on disease prevention such as diet, exercise and smoking cessation
- provide a key focus for continuity of care for patients on a day-to-day basis, through effective communication with patients, the responsible consultant, the wider multiprofessional team (for example, physiotherapy and community social services)
- contribute to efficiency by identifying patient care issues and highlighting them to the responsible doctor
- ensure safe and effective handover of patients to the appropriate ward
- work with the multidisciplinary team in creating an appropriate discharge plan for the patient, including liaising with family and social services

- co-ordinate consultant ward rounds and follow up actions as required
- maintain professional and technical knowledge by attending educational workshops, reviewing professional publications, establishing personal networks, undertaking reputable online learning and participating in professional societies
- help to develop other members of the multidisciplinary team by providing information and educational opportunities as appropriate
- undertake clinical audit, research and quality improvement to deliver effective patient care and learn from best practice
- undertake mandatory and statutory training within the required timescales
- maintain professional registration as required through the relevant professional body through maintenances of a professional portfolio and or revalidation processes

Person specification

ESSENTIAL (E) – assessed by CV

Qualifications – a postgraduate Masters or Diploma (PGDip) in Physician Associate Studies, or an integrated undergraduate Masters in Physician Associate Studies (MPAS). A pass in the Physician Associate Registration Assessment (PARA).

Regulated – on the GMC list of registered PAs.

DESIRABLE (D) – assessed at interview

Communication skills – excellent communication and interpersonal skills.

Technical skills – competent undertaking basic ward-based therapeutic procedures under consultant supervision.

Infection control – maintain safe and clean working environment by complying with procedures, rules and regulations, and adhere to infection-control policies and protocols.

Example job description for a new physician assistant in anaesthesia

Overview of the role

As a new physician assistant in anaesthesia, you will work in the wider multidisciplinary team in the delivery of anaesthetic care for patients. Under the supervision of a consultant or autonomously practising anaesthetist you will provide elements of perioperative care for patients including preoperative assessment, preparation and delivery of anaesthesia and immediate postoperative care.

You will be a central part of the team ensuring high quality care for patients in the perioperative period and will use a wide range of technical and communication skills to ensure the smooth functioning of operations and care in the ward and operating theatre.

Accountability

Managerial accountability: named consultant.

Ongoing clinical advice during working hours: named consultant or autonomously practising anaesthetist.

Principal duties and responsibilities

The anaesthesia assistant will be expected to carry out the following roles under supervision as outlined in the RCoA Anaesthesia Associate Scope of Practice 2024:

- perform preoperative assessment of the patient including taking a history and conducting an examination and airway assessment and reviewing tests and medication
- prior to theatre, obtain consent for anaesthesia, agree the plan for proceeding with anaesthesia with the supervising anaesthetist and insert a peripheral IV cannula
- prepare the operating theatre for anaesthesia, including full machine and equipment checks, preparing drugs and IV fluids
- perform induction of general anaesthesia including securing of the patients' airways, perform spinal anaesthesia under direct supervision, and perform anaesthesia or sedation where required outside the operating room
- conduct intraoperative monitoring and maintenance of anaesthesia, monitor vital signs and administer IV fluids
- as necessary, manage routine emergence from anaesthesia, and provide immediate postoperative handover and recovery care
- perform ultrasound-guided midline or PICC line insertion

Person specification

Qualifications – a postgraduate Masters or Diploma (PGDip) in Anaesthesia Assistant Studies, and a pass in the Anaesthesia Associate Registration Assessment.

Regulated – on the GMC list of registered AAs.

Communication skills – excellent communication and interpersonal skills.

Technical skills – demonstrably safe performance of procedures specified within designated supervision levels.

Infection control – maintain safe and clean working environment by complying with procedures, rules and regulations, and adhere to infection-control policies and protocols.

Appendix 6: Stakeholder group attendees

The Leng review convened a core stakeholder group to provide perspective, direction and assurance throughout review's methodology. Organisations represented are listed below.

Academy of Medical Royal Colleges

Academy of Resident Doctors' Committee

Association of Anaesthesia Associates

Association of Anaesthetists

British Medical Association

Care Quality Commission

Council of Medical Associate Professionals

General Medical Council

Healthwatch

National Voices

NHS Employers

NHS England

Patient Safety Commission

Patients Association

Physician Associates Schools Council

Royal College of Anaesthetists

Royal College of General Practitioners

Royal College of Physicians

UNISON

United Medical Associate Professionals

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