ROYAL PHARMACEUTICAL SOCIETY

Updating the RPS Professional Standards for Hospital Pharmacy Services 2022

Literature Review

December 2022

Table of Contents

Introduction

The RPS Professional Standards for Hospital Pharmacy Services were originally published in 2012, with updates to them in 2014 and 2017. This literature review looks at the key changes since 2017 that may influence the development of the Standards for this 2022 update.

The 2017 update to the Standards had increasing emphasis on integrated care and clinical pharmacy to provide better patient outcomes (1). Professional development and competency frameworks were also given more focus. They were updated in line with developments in pharmacy and healthcare agendas across England, Scotland, and Wales.

In 2019, the NHS Long Term Plan was published (2). This sets out the key ambitions for the service over the next 10-years. It was accompanied in 2020 by the People Plan, which set out the workforce strategy for delivering the Long Term Plan (3). Welsh and Scottish governments have also published plans for health and social care in their respective nations (4, 5).

Alongside these, independent reports such as Gosport, Cumberlege and Messenger have shaped healthcare (6-8). These have emphasised placing patients at the heart of their care, duty of candour as well as the importance of leadership at all levels. In 2020, the COVID-19 pandemic required healthcare services to radically mobilise to respond to the virus. As well as the short-term impact, the pandemic has left a longer-term impact on the NHS with an exhausted workforce, mounting backlog of care and widening health inequalities. This has led to the publication of COVID-19 recovery plans across England, Scotland, and Wales (9-11).

In 2022, there is an increased drive towards integrated care. The Government passed the Health and Care Act 2022 which established a legislative framework that supports collaboration and partnership-working to integrate services for patients (12). The Act formalises the introduction of integrated care systems (ICSs), to bring together providers and commissioners of NHS services across a geographical area together with local authorities and other local partners to collectively plan health and care services to meet the needs of their local population.

There is an increasing importance on care becoming more integrated and clinical pharmacy to provide better patient outcomes. The recovery from the COVID-19 pandemic has demonstrated that there is a need to be more agile in how we provide services and to utilise the whole workforce as well as looking at how technology can support. New initial education and training standards mean that in 2025/26 pharmacists will register as independent prescribers on registration (13). This necessitates the upskilling of the current workforce and to ensure that clear post-registration development pathways, including the competency frameworks are utilised by the profession. The landscape for delivering hospital pharmacy services is explored further in the review.

The relevant legislative documents will be listed in an update to the Standards Handbook on the RPS website.

Literature Review – method

Primary research questions

The primary research questions for this update were as follows:

1. What has changed since the RPS Professional Standards for Hospital Pharmacy Services were last published?
2. Are there any new or updated hospital standards (or related standards)?
3. What are the key service developments (especially new roles or service innovation)?
4. What are the changes to the hospital pharmacy landscape?
5. Is there any area of practice covered by the existing standards that may no longer be applicable or relevant?

Search strategy

A scoping methodology was used to identify suitable material. This included systematic searching to identify key updates as described in the RPS standards, guidance and frameworks process development manual (14). Three online databases (MEDLINE Complete, Biomedical Reference Collection: Corporate – EBSCOhost and Embase) were systematically searched to identify English language articles from the date of the previous literature review to date that identify what is known about hospital pharmacy services. This could be in relation to the current landscape or with a focus on standards and/or quality measure of performance that impact on services to patients. To describe the nature and extent of the evidence, this was a broad search. Search terms were orientated towards clinical roles rather than the medicines supply function.

A search of the grey literature, starting with the NHS England (15), NHS Scotland (16) and NHS Wales (17) websites was conducted to identify drivers for change. Additionally, regulatory websites were investigated including the General Pharmaceutical Council (18), Care Quality Commission (19), Healthcare Inspectorate Wales (20) and Healthcare Improvement Scotland (21).

The International Pharmaceutical Federation (22) and the European Association of Hospital Pharmacists (23) have both produced hospital pharmacy standards, so their websites were searched. Additionally, the American Society of Health-System Pharmacists website was searched (24). The Royal Pharmaceutical Society (14), Specialist Pharmacy Service (25), National Institute for Health and Care Excellence (26) and Scottish Intercollegiate Guidelines Network (27) websites were searched to identify relevant standards and guidelines.

All study designs were considered for the review.

Inclusion criteria	Exclusion criteria
• English language articles • Publication date April 2017 to May 2022 • Emphasis of reference is the provision of hospital pharmacy services* • Reference focus is strategic • Specified geographical location (UK, EU, Canada, USA, Australia, New Zealand)	• Non-English language • References to practice already covered by the existing RPS Professional Standards for Hospital Pharmacy Services where no potential update is identified • Non-strategic • Studies examining medicines or clinical usage of medicines

**References on standards/best practice for delivery of services to patients in hospice, prison, ambulance, and mental health services were to be included (but a possible limitation of our search methodology is that not all references on delivery from secondary care to other settings may be located by our broad search concepts/terms [especially if there is a lack of published literature]).*

Search strategy

The search strategy and terms are described below for MEDLINE Complete. Corresponding keyword or subject headings used for searching Biomedical Reference Collection: Corporate and Embase are listed separately. The search fields were Title [TI], abstract [AB] and subject heading [MH] (or equivalent keyword field(s)). The search was limited to articles published in English from April 2017 to March 2022.

MEDLINE Complete

1. "hospital pharmac*" [TI,AB] OR ("pharmacy services" [MH] AND "hospital*" [TI,AB]) OR ("pharmaceutical services" [MH] AND "hospital*" [TI,AB])

This search step was then combined using "AND" for each of the following steps:

2. "quality" [TI,AB] OR "standard*" [TI,AB] OR "benchmarking" [MH] OR "key performance indicator(s)" [TI,AB] OR "leadership" [TI,AB]
3. "medicines optimi?ation" [TI,AB] OR "pharmaceutical care" [TI,AB] OR "clinical pharmacy" [TI,AB] OR "patient transfer" [MH] OR "delivery of healthcare, integrated" [MH] OR "integrated care" [TI,AB] OR "patient care team" [MH] OR "patient safety" [MH]
4. "patient satisfaction" [MH] OR "patients" [MH] OR "patient experience" [TI,AB]
5. "informatics" [TI,AB,MH] OR "technology" [TI,AB,MH]
6. "genomics" [TI,AB,MH] OR "pharmacogenomics" [TI,AB,MH]

A text search was also undertaken for:

7. "basel statement*" [TX] OR "European statement*" [TX]

(TX = all text)

Corresponding search terms (subject headings or keywords):

Biomedical Reference Collection [subject terms, SU]:

"hospital pharmac*"; "pharmacy services"; "pharmaceutical services";

[keyword, KW; subject terms, SU]:

"benchmarking"; "key performance indicator(s)"; "patient transfer"; "delivery of healthcare, integrated"; "patient care team"; "patient safety"; "patient satisfaction"; "patients"; "informatics"; "technology"; "genomics"; "pharmacogenomics"

Embase:

"Patient transport"; "integrated health care system"; "patient care", "patient"; "information science"

Results

The search generated 3,322 references. These were refined based on the inclusion and exclusion criteria and removal of duplicates. 131 papers were identified as suitable for further review based on title and abstract with 53 selected for full review. The results are presented by the themes identified within the literature.

Discussion

1. Legislation

The Health and Care Act received Royal Assent in April 2022 (12). This introduces significant reforms to the organisation and delivery of health and care services in England. It established a legislative framework that supports collaboration and partnership-working to integrate services for patients. One of the major changes brought about by the Act is the formalisation of integrated care systems (ICSs). Additionally, it formalises the merger of NHS England and NHS Improvement into one body, NHS England, and the role of the Health Services Safety Investigations Body, an independent body to investigate patient safety issues in England. NHS trusts and foundation trusts will have a duty to have to regard to wider effect of decisions. The Act should lead to improvements in population health and patient experience.

In addition, in April 2022, the rebalancing medicines legislation and pharmacy regulation programme consultation outcome was published (28). This was a UK wide consultation that sought to extend defences for inadvertent preparation and dispensing errors made by registered pharmacists and pharmacy technicians to those working in hospitals and other relevant pharmacy services, such as care homes and prisons, where appropriate governance arrangements are in place. This removes the threat of criminal sanctions and to provide greater incentive for an increase in the reporting of errors and provides parity with those working in registered pharmacies. In order for the defences to apply, services must be under the direction of a chief pharmacist.

Key points for standards review

- Integrated working must be clearly reflected throughout the standards
- Term chief pharmacist to become statutory across the UK from late 2022

2. Regulation

In 2021, new standards for initial education and training of pharmacists were published (13, 29). These introduced important changes to ensure pharmacists are equipped for their future roles. The major change is that from 2026, new pharmacists will enter the register as independent prescribers. A new set of learning outcomes cover the full five years of education and training which emphasise the application of science in clinical practice and equality, diversity, and inclusion. There will be increased numbers of clinical placements throughout the MPharm degree through the addition of pharmacy to the DHSC Clinical Tariff (30). Funding was made available through Health Education England and the Pharmacy Integration Fund to support 3,000 pharmacists to become independent prescribers (31). These reforms will require support from the current workforce to enable successful delivery.

Key points for standards review

- Strengthen education and training offer, including supervision, in the workplace
- Services need to utilise independent prescribers and plan for how they will do this in the future

3. Drivers for change – policy direction

England specific

In 2019, the NHS Long Term plan was published to make the NHS fit for the future, and to get the most value for patients out of every pound of taxpayers' investment (2). The Plan covers how the NHS will improve services through a focus on targeted clinical priorities, improving care outside hospitals and integrating community-based health care with more option and support for patients. Acute services will be tackled with a focus on urgent and emergency care and wider acute services. These will be underpinned by an increased focus on digitally enabled care. A greater focus on patients and carers having shared responsibility for health as well as preventing ill health and a more concerted and systematic approach to reducing health inequalities is covered. Getting the most from taxpayers' investment is discussed including using e-rostering, centralised procurement, e-prescribing, delivering value from medicines, stopping low-value treatments, and improving access to information. Great leadership at all levels of the health and care system is stressed and how cultures of compassion, inclusion and collaboration can be developed alongside more diverse leadership at senior levels. Tackling shortages in the workforce and supporting current staff is discussed. The NHS People Plan, published in July 2020, is the workforce strategy for delivering the Long Term Plan (3). This is organised around four pillars of looking after our people, belonging in the NHS, new ways of working and delivering care and growing for the future. This is discussed in more detail in the Workforce section.

The 2017 report of the Gosport Independent Panel found during investigations into failures of care Gosport War Memorial Hospital that there was no evidence that pharmacists providing services, or the trust drug and therapeutics committee had challenged prescribing practices despite concerns being raised from nursing staff (6). This resulted in 450 patients dying following the administration of inappropriately high doses of opioids between 1988 and 2000. There was concern within and outside the profession about a repeat of an event like this occurring. Many safeguards had already been implemented since the tragic events, such as the introduction of the Controlled Drug Accountable Officer and Medication Safety Officer role in England as well as GPhC standards for pharmacy professionals and revalidation which place a responsibility on individuals to speak up when they have concerns or when things go wrong.

The RPS, in partnership with the GPhC and APTUK demonstrated key standards within the Professional Standards for Hospital Pharmacy Services to organisations that could be used as a framework for them to consider actions that they need to take in light of Gosport (32). In addition, they also highlighted four areas for action; listening, speaking up and being heard, medicines governance, use of data and benchmarking and clinical audits.

The "First Do No Harm" report of the Independent Medicines and Medical Devices Safety Review, chaired by Baroness Julia Cumberlege, discussed how the healthcare system in England responds to reports about harmful side effects from medicines and medical devices (7). It considered how to respond to these more quickly and effectively in the future. The report focussed on three cases: hormone pregnancy tests (such as Primidos), sodium valproate, and pelvic mesh implants. The report found common themes around a failure to learn from mistakes, not sufficiently engaging patients in their safety during care and a culture of blame that undermines our ambitions to design and deliver safer care. The report stressed the importance of duty of candour, the need to improve incident reporting in healthcare, removing barriers that patients face when raising concerns about the care they have received and a lack of clear roles of responsibility when it comes to patient safety. Specifically to pharmacy, the GPhC reminded all pharmacy professionals of what they must

do to ensure women and girls receive the right information about valproate and the risk of birth defects (33).

The Messenger review into leadership for a collaborative and inclusive future in health and social care recognised the difference that good leadership at every level can make in health and social care (8). It recognised leadership as an instinctive characteristic that should be instilled in everyone, not just those with the word in their job title. It identified seven key interventions:

- Targeted interventions on collaborative leadership and organisation values
- Positive equality, diversity, and inclusion action
- Consistent management standards delivered through accredited training
- A simplified, standard appraisal system for the NHS
- A new career and talent management function for managers
- More effective recruitment and development of non-executive directors
- Encouraging top talent into challenges parts of the system

The Hospital Pharmacy Transformation Programme work continues to grow and evolve on the back of the Carter Report recommendations (34). The Model Hospital system has evolved into the Model Health System and allows users to explore and compare productivity, quality and responsiveness to easily identify opportunities to improve (35). The top ten medicines list is now established and is updated regularly alongside benchmarking metrics (36).

In 2018, Carter published two further reviews into unwanted variation in mental health and community health services, and NHS ambulance trusts (37, 38). These reports aimed to identify what good looks like and what improvements could be made to improve patient care, efficiency, and support for staff. This report identified that pharmacists could be utilised in more innovative ways, particularly in mental health settings. A recommendation that a 'do-once' system to organisational medicines governance to be developed by regional medicines optimisation committees and specialist pharmacy services.

Transformation of hospital-pharmacy aseptic services is underway across England and Wales to deliver better clinical outcomes, an improved patient experience and considerable productivity gains in product costs, time and in-patient bed days (39, 40). This is planned to be achieved through investment into regional hub and spoke services. These would produce a greater number of standardised ready to use medicines. This supports the ambition to treat more patients out of hospital wherever possible through services such as outpatient antibiotic/antimicrobial therapy and broader outpatient intravenous therapy services. Studies have demonstrated this services benefit to patients and the NHS (41-44).

Virtual wards allow patients to get the care they need at home safely and conveniently, rather than being in hospital (45). They utilise the use of apps, wearable technology, and medical devices to remotely monitor patients via a digital platform. Face-to-face support can also be added to provide a Hospital at Home service (46). The COVID-19 pandemic highlighted the value of services such as these, particularly for acute respiratory infections (47-49). Their use highlights the importance of involving patients in decisions about where and how they receive care.

In 2021, the National Institute for Health and Care Excellence published guidance on shared decision making (50). The new recommendations advised that shared decision making should be part of everyday practice across all healthcare settings. There is a need to ensure that this is reflected across the standards.

Scotland specific

In August 2017, the Scottish government published 'Achieving excellence in pharmaceutical care: a strategy for Scotland' (5). This document aims to transform the role of pharmacy across all areas of pharmacy practice, increase capacity and offer the best person-centred care. For hospital pharmacy there is particular recognition of the increasing frail elderly population, a drive to decrease the length of stay, improve flow, seven days services and developments to modernise outpatient services. It recognises the need for the workforce to have enhanced clinical capacity and capability, improved service delivery through digital technologies and ensuring services are sustainable and meet population needs.

Scotland's National Clinical Strategy in 2020/21 recognised that the contribution of pharmacists could be considerably enhanced to ensure that patients with complex medication regimes have their therapy optimised (51). It recognised the need for healthcare team to provide care that is person-centred rather than condition focused.

RPS Scotland set out a professional vision for pharmacy in 2030 (52). This describes a model where the traditional boundaries between pharmacy sectors will be broken down. It sets outs six professional roles in pharmacy:

- Being the experts in medicines
- Optimising therapeutic outcomes
- Providing person-centred holistic care
- Improving access to care
- Leading medicines' governance
- Leading evidence-based practice

Wales specific

The "A Healthier Wales" plan from Welsh government sets out a long-term future vision of a 'whole system approach to health and social care' focussing on health and wellbeing and preventing illness (4). It aspires that people take greater responsibility for their health and wellbeing with hospitals taking a greater role in urgent and emergency care, planned care and specialist treatments. Alongside this, the Welsh Pharmaceutical Committee and Royal Pharmaceutical Society in Wales developed "Pharmacy: Delivering a Healthier Wales" (53). This sets out a vision for how the pharmacy workforce can develop and further contribute their expertise for patient care from now until 2030. This has four key themes:

- Enhancing patient experience
- Seamless pharmaceutical care
- Harnessing innovation and technology
- Developing the pharmacy workforce

COVID recovery

The COVID-19 pandemic had a huge impact across the health service globally, reducing the amount of planned care that the NHS was able to provide. Recovery plans for England, Scotland and Wales have been published which look to address how services recover elective services (9-11, 54). These focus on how to increase capacity, prioritise treatment, transform the way elective care is provided and how information is provided and utilised. Pharmacy services will need to adapt considering this.

Key points for standards review

- Integrating care to offer greater options and support for patients
- Importance of responsibility to speak up when they have concerns or when things go wrong

- Involving people in decisions about their care and medicines and making shared decisions with them
- Importance of having good leadership across all levels of healthcare
- Harnessing the power of digital, innovation and technology to augment healthcare
- Utilisation of standardised doses of medications

4. New standards for hospital pharmacy services

International

The literature search identified no updates to the International Pharmaceutical Federation (FIP) Basel Statements on the Future of Hospital Pharmacy (55) or the European Association of Hospital Pharmacists (EAHP) European Statements of Hospital Pharmacy (56). Both FIP and EAHP have produced self-assessment tools to help hospital pharmacies evaluate their practice against their standards (57, 58).

The literature review also noted that in the USA, the American Society of Health-System Pharmacists (ASHP), have produced standards for pharmacies in hospitals (59). ASHP have produced an international accreditation of hospital and health system pharmacy services (60). In addition, a Practice Advancement Initiative 2030 which includes tools and resources aimed at advancing pharmacy practice (61). In Australia, the Society of Hospital Pharmacists of Australia (SHPA), produce standards of practice for clinical pharmacy services (62).

Key points for standards review:

- Self-assessment or accreditation tools are a popular method for supporting evaluation of practice against the standards

5. Genomics

The government, NHS, research and technology communities launched a strategy in 2020 to harness the power of genomic technology and science to improve the health of the population (63). There is a clear role for pharmacy as a leader in the implementation of pharmacogenomics (PGx) across all healthcare settings to offer patients the right medicine, at the right dose with optimal outcomes (64). PGx is already happening with services (65-71):

- Identifying patients who would benefit from PGx testing
- Making recommendations on pharmacotherapy based on PGx results
- Offering medicines optimisation, therapeutic drug monitoring and dose adjustment based on PGx results
- Providing advice to patients on how their genetic material will be used and how test results may affect current or future treatments
- Educating other healthcare professionals on PGx
- Supporting, contributing, and leading PGx research

Key points for standards review:

- Pharmacy has a key role to play as a leader of PGx
- Services utilising PGx will increase in the future and leaders need to ensure those providing these services have the necessary skills and knowledge

6. Sustainability

Climate change poses a major threat to our health as well as our planet. The environment is changing, that change is accelerating, and this has direct and immediate consequences for patients, the public and the NHS (72). The Greener NHS programme was established in 2020 to reduce the impact on public health and the environment, save money and commit to reach net carbon zero in England. The Scottish and Welsh governments have both committed to strategies to tackle climate change (73, 74). These require every NHS Trust or Health Board to have a green plan in place. In addition, the RPS are committed to supporting and advocating on behalf of the pharmacy profession to stimulate action in area that require change (75). The key priorities identified are:

- Improving prescribing and medicines use
- Tackling medicines waste
- Preventing ill health
- Infrastructure and ways of working

Medicines account for about 25% of emissions within the NHS in England (76). Anaesthetic gases, nitrous oxide and inhalers account for a substantial proportion of these emissions. Pharmacy has a role to play working with patients, other healthcare professionals and industry to reduce emissions by reducing waste, ensuring that the right medicines are available for patients and enabling shared, informed decision making. Examples of how pharmacy are supporting the Greener NHS agenda include green transport for delivery of life saving drugs and reducing use of certain anaesthetic and nitrous oxide gases (77-79).

Key points for standards review:

- Sustainability needs to underpin all aspects of services

7. Wellbeing, equality, diversity, and inclusion

Since 2019, RPS have been working closely with the independent charity, Pharmacist Support, to better understand the mental health and wellbeing of the pharmacy workforce and the impact of the current workplace culture on pharmacy teams (80). An annual survey of the workforce has been conducted over the last three years and a programme of work to support mental health and wellbeing in pharmacy developed. The 2021 survey showed that 89% were at high risk of burnout.

In 2021, the Community Pharmacy Workforce Development Group highlighted that 'the ongoing pandemic has led to unprecedented demand and pressure on community pharmacy colleagues' and recognised that the sector need to evolve with the needs of patients and the NHS whilst balancing challenges of workforce recruitment and retention (81). Excessive workload and pressure, inflexible working hours and a lack of opportunities for career progression were highlighted as reasons for workforce challenges. A survey conducted by the Pharmaceutical Journal found that a quarter of pharmacists reported being very stressed at work with staff shortages and the demand for services making workload unsustainable (82). Across other health professions, the importance of wellbeing to the quality of care and patient safety has been highlighted in numerous reports (83-85). These reports stress the importance of organisations tackling the underlying causes of stress, ill health, and wellbeing rather than solely focusing on their consequences.

The evidence shows that the pressures on the pharmacy workforce is continuing to have a negative impact on mental health and wellbeing with high workloads and staff shortages clearly affecting the workforce. The scale and impact of workforce burnout in the NHS and social care has been

recognised by the Health and Social Care Committee and work is underway to address the mental and physical wellbeing of all staff (86).

RPS are committed to making inclusion and diversity central to the profession. They launched an inclusion and diversity strategy in 2020 which has three main priorities (87):

- Create a culture of belonging
- Champion inclusive and authentic leadership
- Challenge barriers to inclusion and diversity

A plan for inclusive pharmacy practice in England was launched in 2021 by the Chief Pharmaceutical Officer's team, the RPS and the Association of Pharmacy Technicians UK alongside partner organisations (88). This focuses on making the workplace more inclusive for pharmacy professionals, having a senior leadership that reflects our diverse communities and to improve health inequalities in the population. Evidence suggests that diverse healthcare teams are associated with improved patient satisfaction and better staff morale (89). Creating a culture of belonging was emphasised in the NHS People Plan (3).

To support its efforts to make change happen for inclusion and wellbeing, RPS created an Inclusion and Wellbeing Pledge for individuals and for organisations/teams (90).

Key points for standards review:

- Promote positive mental and physical health and wellbeing in the workplace
- Strengthen within the standards the importance of inclusion and diversity to ensure a culture of belonging is present and patient outcomes are improved

8. Optimising therapeutic outcomes

Medicines are the most common form of medical intervention for the majority of acute and chronic conditions. Increasing numbers of patients are being treated for multiple medical conditions and the average number of prescription items per head is increasing. Around 15% of people in England are taking five or more medicines a day, with 7% on eight or more (91). Up to 11% of unplanned hospital admissions can be attributed to harm from medicines and a significant proportion of these are in elderly patients (92). Ensuring that medicines are clinically appropriate for the people who take them is becoming an increasingly key role for pharmacists.

The 'Good for you, good for us, good for everybody' review developed recommendations to reduce overprescribing (91). It suggested that both systemic and cultural factors were the drivers for patients being prescribed medicines they don't need or want, which could do them harm. Some of the key responses to tackling overprescribing include medicines optimisation (including deprescribing), medicines reconciliation, structured medication reviews and using data. These must be conducted in line with the core principles of personalised care and shared decision making. It stresses the importance of good communication at transfers of care and professionals working more effectively together across settings. To achieve this ambition, there needs to be strong leadership, research and evaluation, education and training and data analytics.

The 3rd edition of Polypharmacy guidance from the Scottish Government was published in 2018 (93). This aimed to provide guidance on preventing inappropriate polypharmacy at every stage of the patient journey. It provides a clear structure for the initiation of new treatments and the review of existing ones. A greater emphasis is placed on 'what matters to the patient' and the importance of the patient's involvement in decision making.

RPS professional standards 'Polypharmacy: Getting our medicines right' sets out a picture of what good systems could and should have in place and how healthcare professionals could behave in order to address the problems that can arise from polypharmacy (94). This set out several best practice statements including for pharmacists working in the hospital setting. These include:

- If a review of a person's medicines cannot be undertaken in hospital, to flag to another professional involved in their care
- Raising concerns about people's medicines where required
- Screening for adverse drug reactions
- Understanding the person's situation
- Understanding the risks of transfer of care and looking to mitigate against this as far as possible

Key points for standards review:

- Importance of the role of pharmacy in medicines reconciliation, optimisation and deprescribing
- Importance of shared decision making and personalised care
- Importance of working together effectively alongside the multidisciplinary team

9. Transfer of care

As part of the Global Patient Safety Challenge: Medication Without Harm, the World Health Organisation asked stakeholder to prioritize three key areas for action, including medication safety in transitions of care (95). Transfers of care, such as admission or discharge from hospital, are well documented as places for medication discrepancies to occur and confusion arise.

The discharge medicines review has been an established service in Wales since 2011. Studies have showed this services benefit and a reduction in risk of hospital readmission (96-100). In 2018, the ASHN network in England were commissioned to spread the adoption of a digital transfer of care service of patients from hospital to community pharmacy to 50% of acute trusts (101). In 2021, the Discharge Medicines Service was introduced as an essential service to the Community Pharmacy Contractual Framework (102). The inclusion of the service into the Commissioning for Quality and Innovation (CQUIN) targets for NHS trusts encourages them to make referrals into the service (103).

A service of a similar nature is planned to be introduced in Scotland over the next couple of years as part of the Scottish governments NHS Recovery Plan (11).

Key points for standards review:

- Strengthening how pharmacy teams work together across different clinical settings for best outcomes for patients

10. Developments in data, digital technology, and informatics

Advances in data, technology, informatics, and other developments will change the way that healthcare is provided in the future. These changes will ensure a safer, more effective service that can offer more personalised care for patients. The utilisation of data will allow pharmacy to connect prescribing information, product and supply information, outcomes from the use of medicines, patient factors and costs, clinical choice and efficiency of suppled medicines (104).

The Topol review sought to understand how we need to prepare the healthcare workforce to deliver the digital future (105). Technology will not replace healthcare professionals but will augment them and allow them to spend more time with patients. The review suggests that within 20 years 90% of

all jobs in the NHS will require some element of digital skills. Ensuring the workforce are equipped with the right skills will be crucial. There should be a Board-level member, along with other new senior roles, to direct the digital medicine agenda and advise on technologies. It recommends that patients need to be included as partners when considering digital healthcare technologies, a view supported by the EAHP (106). The European Statements of Hospital Pharmacy give a clear call to health system leaders about the need to involve pharmacists and pharmacy teams in the design, specification of parameters and evaluation of technology within the medicines processes (56). They emphasise the need for the universal use of electronic prescribing and medical records.

Key points for standards review:

- Considering how technology fits in with pharmacy services, considering robotics, barcode scanning technology, sensor and wearables for diagnosis and remote monitoring
- Ensuring patients are considered as partners when looking at technology
- Having clear senior leadership accountable for digital technology

11. Patient experience and patient safety

NHS England launched the National Patient Safety Strategy in 2019 (107). This looks to build on two foundations: a patient safety culture and a patient safety system. This supported by three strategic aims of insight, involvement, and improvement. As part of this strategy, the National Reporting and Learning System (NRLS) is being replaced with the Learn from patient safety events (LFPSE) service (108). This creates a single national NHS system for recording patient safety events and allows better analysis to offer greater depth of insight and learning. Alongside this, a Patient Safety Incident Response Framework will be introduced in 2022, outlining how providers should respond to patient safety incidents and when an investigation should be conducted (109).

Another key part of the Patient Safety Strategy are the National Patient Safety Improvement Programmes (SIPs) (110). These aim to create continuous and sustainable improvements in certain settings such as emergency departments and mental health trusts.

In Scotland, the Scottish Patient Safety Programme (SPSP) is in place to improve the safety and reliability of care and reduce harm (111). It is a national quality improvement programme and covers a wide range of care settings including a whole systems approach to medicines safety (112).

In Wales, the NHS Wales Delivery Unit supports organisations in NHS Wales in improving safety and quality, developing safer environments and reducing avoidable harm (113). Working with Welsh Government, they are leading the implementation of the National Patient Safety Incident Reporting Policy working with Health Boards and Trusts (114).

Key points for standards review:

- Ensure any references to specific systems are up to date
- Taking a more proactive approach to patient safety and analysing trends

12. Workforce development

The NHS People Plan focuses on five key areas for the healthcare workforce (3):

- Responding to new challenges and opportunities
- Looking after our people
- Belonging in the NHS
- New ways of working and delivering care

- Growing for the future

This highlights that pharmacy can play a key role in supporting mental health as well as developing pharmacists' skills and capabilities across different sectors, research, and data. Medicines use will be optimised and personalised across systems, achieving better outcomes and value from medicines.

In 2020, the Royal Pharmaceutical Society launched Consultant Pharmacist credentialling (115). This was followed in 2020 and 2022 by the Post-registration Foundation and Core Advanced curricula (116, 117). These curricula create a clear development pathway for pharmacists to progress. They are centred around five pillars, aligned to the GPhC Initial Education and Training Standards. The pillars are:

- Person-centred care and collaboration
- Professional practice
- Leadership and management
- Education
- Research

In addition to the curricula produced by the RPS, HEE produce a multi-professional Advanced Clinical Practice framework (118). This aims to ensure safety, quality, and effectiveness in the development of this role with a consistent framework to work against. It provides an agreed definition for advanced clinical practice and explains what is required for individuals to work at this higher level. It describes 4 pillars that underpin practice of clinical practice, leadership and management, education, and research.

13. Research

Clinical academics are qualified medical and non-medical healthcare personnel who have both a clinical role and formally undertake research through an academic institution. They provide clinical and research leadership in the pursuit of innovation, scholarship, and the provision of excellent evidence-based healthcare to inform and improve effectiveness, quality, and safety. The National Institute of Health Research (NIHR) has offered clinical research training opportunities to pharmacists since 2008. However, in 2017, a NIHR strategic review found that most trainees were medical, and pharmacy was an under-represented discipline (119). Evidence suggests that research active settings provide better care to all patients, not just those patients taking part in the research.

The commitments of the NHS Long Term Plan and The NHS People Plan 2020/21 are that research is considered core business (2, 3). The development of a flexible clinical pharmacy workforce that embraces innovation, education and research is needed.

The GPhC standards for initial education and training stress the importance of research and MPharm and Foundation trainees will be required to demonstrate that they 'take part in research activities, audit, service evaluations and quality improvements, and demonstrate how these are used to improve care and services' (13). Research is also a core competency in the current RPS Post Registration Foundation, Advanced and Consultant curricula, and HEE Advanced Clinical Practice framework (115-118).

Key points for standards review:

- Ensuring that research, audit, service evaluation and quality improvement are seen as core pillars of pharmacy practice

Conclusion

Since 2017, there have been significant changes to the healthcare landscape in Great Britain. Whilst many of these have been driven through planned developments, others have not. Many reports from the literature review show a drive towards integrated care with greater joined up working across the system. The role of pharmacy professionals is rapidly shifting from supply to a clinically focussed one focusing on optimising therapeutic outcomes, deprescribing and the best use of medicines. The changes to initial education and training standards to allow pharmacists to qualify as prescribers on registration is one of the biggest changes to occur to the profession.

No updates have been made to either the FIP Basel Statements or the standards produced by the European Association of Hospital Pharmacists since the 2017 update to the RPS Standards. However, tools, including a self-assessment, have been developed to support the use of EAHP standards in practice. Looking at similar tools to accompany the RPS Standards could support organisations to implement the Standards in practice.

Areas where pharmacy input is expanding include genomics, sustainability, and clinical informatics. Within genomic services, pharmacy have the ability to support the optimisation of therapeutic outcomes, therapeutic drug monitoring, dose adjustments and leading research in this area. Pharmacy has a role to play working with patients, other healthcare professionals and industry to reduce emissions by reducing waste, ensuring that the right medicines are available for patients and enabling shared, informed decision making. Advances in data, technology, informatics, and other developments are changing the way that healthcare is provided in the future. Pharmacy needs to ensure they are at the forefront of these developments to ensure safer, more effective services.

The literature review shows that the pressures on the pharmacy workforce is continuing to have a negative impact on mental health and wellbeing with high workloads and staff shortages clearly affecting the workforce. Alongside developing good wellbeing practices in the workplace, ensuring inclusion and diversity is made central within the profession is a priority. This will create a culture of belonging, champion inclusive and authentic leadership and address health inequalities.

References

1. Royal Pharmaceutical Society. Professional Standards for Hospital Pharmacy Services, 2017. Available from: https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Professional%20standards/Professional%20standards%20for%20Hospital%20pharmacy/Hospital%20Standards-2017.pdf?ver=2017-12-21-132808-697. [Accessed on: 31/03/2022]
2. NHS England. The NHS Long Term Plan, 2019. Available from: https://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf. [Accessed on: 31/03/2022]
3. NHS England. We are the NHS: People Plan 2020/21 - action for us all, 2020. Available from: https://www.england.nhs.uk/wp-content/uploads/2020/07/We-Are-The-NHS-Action-For-All-Of-Us-FINAL-March-21.pdf. [Accessed on: 31/03/2022]
4. Welsh Government. A Healthier Wales: our plan for Health and Social Care, 2019. Available from: https://gov.wales/sites/default/files/publications/2019-10/a-healthier-wales-action-plan.pdf. [Accessed on: 31/03/2022]
5. Scottish Government. Achieving excellence in pharmaceutical care: a strategy for Scotland, 2017. Available from: http://www.gov.scot/publications/achieving-excellence-pharmaceutical-care-strategy-scotland. [Accessed on: 31/03/2022]
6. The Gosport Independent Panel. Gosport War Memorial Hospital: The Report of the Gosport Independent Panel, 2018. Available from: https://www.gosportpanel.independent.gov.uk/media/documents/070618_CCS207_CCS03183220761_Gosport_Inquiry_Whole_Document.pdf. [Accessed on: 31/03/2022]
7. Cumberlege J. First Do No Harm - The report of the Independent Medicines and Medical Devices Safety Review, 2020. Available from: https://www.immdsreview.org.uk/Report.html. [Accessed on: 31/03/2022]
8. Messenger G, Pollard L. Health and social care review: leadership for a collaborative and inclusive future, 2022. Available from: https://www.gov.uk/government/publications/health-and-social-care-review-leadership-for-a-collaborative-and-inclusive-future. [Accessed on: 31/06/2022]
9. Cabinet Office. Our plan to rebuild: The UK Government's COVID-19 recovery strategy, 2020. Available from: https://www.gov.uk/government/publications/our-plan-to-rebuild-the-uk-governments-covid-19-recovery-strategy/our-plan-to-rebuild-the-uk-governments-covid-19-recovery-strategy. [Accessed on: 31/03/2022]
10. Welsh Government. Health and Social Care in Wales - COVID-19: Looking forward, 2021. Available from: https://gov.wales/sites/default/files/publications/2021-03/health-and-social-care-in-wales--covid-19-looking-forward_0.pdf. [Accessed on: 31/03/2022]
11. Scottish Government. NHS recovery plan, 2021. Available from: https://www.gov.scot/publications/nhs-recovery-plan/. [Accessed on: 31/03/2022]
12. UK Parliament. Health and Care Act 2022, 2022. Available from: https://bills.parliament.uk/bills/3022. [Accessed on: 31/03/2022]
13. General Pharmaceutical Council. Standards for the initial education and training of pharmacists, 2021. Available from: https://www.pharmacyregulation.org/sites/default/files/document/standards-for-the-initial-education-and-training-of-pharmacists-january-2021_0.pdf. [Accessed on: 31/03/2022]

14. Royal Pharmaceutical Society. Professional standards, guidance and frameworks process development manual, July 2016. Available from: https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Manuals/How%20the%20RPS%20develops%20standards%20and%20guidance.pdf?ver=2017-05-31-143135-447. [Accessed on: 31/03/2022]
15. NHS England. Available from: https://www.england.nhs.uk/. [Accessed on: 31/03/2022]
16. NHS Scotland. Available from: www.scot.nhs.uk. [Accessed on: 31/03/2022]
17. NHS Wales. Available from: www.wales.nhs.uk. [Accessed on: 31/03/2022]
18. General Pharmaceutical Council. Available from: www.pharmacyregulation.org. [Accessed on: 31/03/2022]
19. Care Quality Commission. Available from: www.cqc.org.uk. [Accessed on: 31/03/2022]
20. Healthcare Inspectorate Wales (HIW). Available from: www.hiw.org.uk. [Accessed on: 31/03/2022]
21. Healthcare Improvement Scotland (HIS). Available from: www.healthcareimprovementscotland.org. [Accessed on: 31/03/2022]
22. International Pharmaceutical Federation (FIP). Available from: https://www.fip.org/. [Accessed on: 31/03/2022]
23. European Association of Hospital Pharmacists (EAHP). [31/03/2022]. Available from: https://www.eahp.eu/.
24. American Society of Health-System Pharmacists (ASHP). Available from: https://www.ashp.org/. [Accessed on: 31/03/2022]
25. Specialist Pharmacy Service (SPS). Available from: www.sps.nhs.uk. [Accessed on: 31/03/2022]
26. National Institute for Health and Care Excellence (NICE). Available from: www.nice.org.uk. [Accessed on: 31/03/2022]
27. Scottish Intercollegiate Guidelines Network (SIGN). Available from: www.sign.ac.uk. [Accessed on: 31/03/2022]
28. Department of Health & Social Care. Rebalancing medicines legislation and pharmacy regulation programme: consultation outcome, 2022. Available from: https://www.gov.uk/government/consultations/pharmacy-legislation-on-dispensing-errors-and-organisational-governance/outcome/rebalancing-medicines-legislation-and-pharmacy-regulation-programme-consultation-outcome. [Accessed on: 09/08/2022]
29. General Pharmaceutical Council. Standards for initial education and training of pharmacy technicians, 2017. Available from: https://www.pharmacyregulation.org/sites/default/files/standards_for_the_initial_education_and_training_of_pharmacy_technicians_october_2017.pdf. [Accessed on: 31/03/2022]
30. Department of Health and Social Care. Healthcare education and training tariff: 2022 to 2023, 2022. Available from: https://www.gov.uk/government/publications/healthcare-education-and-training-tariff-2022-to-2023. [Accessed on: 31/03/2022]
31. Health Education England. Pharmacy Integration Programme, 2022. Available from: https://www.hee.nhs.uk/our-work/pharmacy/initial-education-training-pharmacists-reform-programme/pharmacy-integration-programme. [Accessed on: 31/03/2022]
32. Royal Pharmaceutical Society. Gosport Report: Areas for action following the report of the Gosport Independent Panel, 2018. Available from: https://www.rpharms.com/about-us/who-we-are/expert-advisors/hospital-expert-advisory-group/gosport-report. [Accessed on: 31/03/2022]

33. General Pharmaceutical Council. GPhC statement on supplying valproate safely to women and girls, 2018. Available from: https://www.pharmacyregulation.org/news/gphc-statement-supplying-valproate-safely-women-and-girls. [Accessed on: 09/08/2022]
34. Lord Carter of Coles. Operational productivity and performance in English NHS acute hospitals: unwarranted variations, 2015. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/499229/Operational_productivity_A.pdf. [Accessed on: 31/03/2022]
35. NHS England. Model Health System, 2022. Available from: https://model.nhs.uk/. [Accessed on: 31/03/2022]
36. East London NHS Foundation Trust. NHS Benchmarking Network, 2022 [Available from: https://www.nhsbenchmarking.nhs.uk/. [Accessed on: 31/03/2022]
37. Lord Carter of Coles. Operational productivity: unwarranted variations in mental health and community health services, 2018. Available from: https://www.england.nhs.uk/publication/lord-carters-review-into-unwarranted-variations-in-mental-health-and-community-health-services/. [Accessed on: 31/03/2022]
38. Lord Carter of Coles. Operational productivity: unwarranted variations in NHS ambulance trusts, 2018. Available from: https://www.england.nhs.uk/publication/lord-carters-review-into-unwarranted-variation-in-nhs-ambulance-trusts/. [Accessed on: 31/03/2022]
39. Department of Health and Social Care. Transforming NHS pharmacy aseptic services in England, 2020. Available from: https://www.gov.uk/government/publications/transforming-nhs-pharmacy-aseptic-services-in-england/transforming-nhs-pharmacy-aseptic-services-in-england. [Accessed on: 31/03/2022]
40. Welsh Government. Five year plan set to transform hospital pharmacy services in Wales, 2021. Available from: https://gov.wales/five-year-plan-set-transform-hospital-pharmacy-services-wales. [Accessed on: 31/03/2022]
41. Gilchrist M, Barr D, Drummond F, Muir A, Williams J, Scriven J, et al. Outpatient parenteral antimicrobial therapy (OPAT) in the UK: findings from the BSAC National Outcomes Registry (2015–19). Journal of Antimicrobial Chemotherapy. 2022;77(5):1481-90.
42. Dimitrova M, Gilchrist M, Seaton RA. Outpatient parenteral antimicrobial therapy (OPAT) versus inpatient care in the UK: a health economic assessment for six key diagnoses. BMJ Open. 2021;11(9):e049733.
43. Chapman ALN, Patel S, Horner C, Gilchrist M, Seaton RA. Outpatient parenteral antimicrobial therapy: updated recommendations from the UK. Journal of Antimicrobial Chemotherapy. 2019;74(11):3125-7.
44. Scottish Health Technologies Group. Outpatient parenteral antimicrobial therapy (OPAT), 2021. Available from: https://shtg.scot/our-advice/outpatient-parenteral-antimicrobial-therapy-opat/. [Accessed on: 31/03/2022]
45. NHS England. Virtual wards, 2022. Available from: https://www.england.nhs.uk/virtual-wards/. [Accessed on: 31/03/2022]
46. Hospital at Home. What is Hospital at Home?, 2022. Available from: https://www.hospitalathome.org.uk/whatis. [Accessed on: 31/03/2022]

47. Greenhalgh T, Knight M, Inada-Kim M, Fulop NJ, Leach J, Vindrola-Padros C. Remote management of covid-19 using home pulse oximetry and virtual ward support. BMJ. 2021;372:n677.
48. Chauhan U, McAlister FA. Comparison of Mortality and Hospital Readmissions Among Patients Receiving Virtual Ward Transitional Care vs Usual Postdischarge Care: A Systematic Review and Meta-analysis. JAMA Network Open. 2022;5(6):e2219113-e.
49. Shah J, Paz E, Elias E, Alimo A, Sharma S, Elizondo I, et al. 114 The challenges and opportunities of starting a heart failure virtual ward, experience from london north west university healthcare nhs trust. Heart. 2022;108(Suppl 1):A85-A.
50. National Institute for Health and Care Excellence. Shared decision making [NG197], 2021. Available from: https://www.nice.org.uk/guidance/ng197. [Accessed on: 31/03/2022]
51. Scottish Government. Chief Medical Officer - annual report: 2020 to 2021, 2021. Available from: https://www.gov.scot/publications/cmo-annual-report-2020-21/pages/1/. [Accessed on: 31/03/2022]
52. Royal Pharmaceutical Society. Pharmacy 2030: a professional vision, 2022. Available from: https://www.rpharms.com/pharmacy2030. [Accessed on: 31/03/2022]
53. Welsh Pharmaceutical Committee. Pharmacy: Delivering a Healthier Wales, 2019. Available from: https://www.rpharms.com/wales/pharmacy-delivering-a-healthier-wales. [Accessed on: 31/03/2022]
54. NHS England. Delivery plan for tackling the COVID-19 backlog of elective care, 2022. Available from: https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2022/02/C1466-delivery-plan-for-tackling-the-covid-19-backlog-of-elective-care.pdf. [Accessed on: 31/03/2022]
55. International Pharmaceutical Federation (FIP). Basel Statements. Available from: http://fip.org/basel-statements. [Accessed on: 31/03/2022]
56. European Association of Hospital Pharmacists (EAHP). The European Statements of Hospital Pharmacy. European Journal of Hospital Pharmacy. 2014;21(5):256.
57. Lyons K, Blalock SJ, Brock TP, Manasse HR, Jr., Eckel SF. Development of a global hospital self-assessment tool and prioritization tier system based on FIP's Basel Statements. Int J Pharm Pract. 2016;24(2):123-33.
58. European Association of Hospital Pharmacists (EAHP). European Statements of Hospital Pharmacy Self-Assessment Tool. Available from: https://statements.eahp.eu/self-assessment/self-assessment-tool. [Accessed on: 31/03/2022]
59. American Society of Health-System Pharmacy (ASHP). ASHP Guidelines: Minimum Standard for Pharmacies in Hospitals. American Journal of Health-System Pharmacy. 2013;70(18):1619-30.
60. American Society of Health-System Pharmacists. International Accreditation of Hospital and Health System Pharmacy Services, 2018. Available from: https://www.ashp.org/global/international-accreditation-of-hospital-and-health-system-pharmacy-services?loginreturnUrl=SSOCheckOnly. [Accessed on: 31/03/2022]
61. American Society of Health -System Pharmacists. PAI 2030, 2020. Available from: https://www.ashp.org/pharmacy-practice/pai?loginreturnUrl=SSOCheckOnly. [Accessed on: 31/03/2022]
62. Society of Hospital Pharmacists of Australia. Standards of Practice for Clinical Pharmacy Services, 2015. Available from: https://www.shpa.org.au/publications-resources/standards-of-practice/standards-of-practice-for-clinical-pharmacy-services. [Accessed on: 31/03/2022]

63. NHS England. NHS Genomic Medicine Service, 2018. Available from: https://www.england.nhs.uk/genomics/nhs-genomic-med-service/. [Accessed on: 31/03/2022]
64. Royal Pharmaceutical Society. The Role of Pharmacy in Pharmacogenomics, 2022. Available from: https://www.rpharms.com/development/pharmacogenomics/pgx-position-statement. [Accessed on: 09/08/2022]
65. Owusu-Obeng A, Weitzel KW, Hatton RC, Staley BJ, Ashton J, Cooper-Dehoff RM, et al. Emerging roles for pharmacists in clinical implementation of pharmacogenomics. Pharmacotherapy. 2014;34(10):1102-12.
66. Haga SB, LaPointe NM, Cho A, Reed SD, Mills R, Moaddeb J, et al. Pilot study of pharmacist-assisted delivery of pharmacogenetic testing in a primary care setting. Pharmacogenomics. 2014;15(13):1677-86.
67. Bättig VAD, Roll SC, Hahn M. Pharmacogenetic Testing in Depressed Patients and Interdisciplinary Exchange between a Pharmacist and Psychiatrists Results in Reduced Hospitalization Times. Pharmacopsychiatry. 2020;53(4):185-92.
68. Patel JN, Boselli D, Hamadeh IS, Symanowski J, Edwards R, Susi B, et al. Pain Management Using Clinical Pharmacy Assessments With and Without Pharmacogenomics in an Oncology Palliative Medicine Clinic. JCO Oncology Practice. 2020;16(2):e166-e74.
69. Hicks JK, Bishop JR, Gammal RS, Sangkuhl K, Bousman CA, Leeder JS, et al. A Call for Clear and Consistent Communications Regarding the Role of Pharmacogenetics in Antidepressant Pharmacotherapy. Clinical Pharmacology & Therapeutics. 2020;107(1):50-2.
70. Turner RM, Newman WG, Bramon E, McNamee CJ, Wong WL, Misbah S, et al. Pharmacogenomics in the UK National Health Service: opportunities and challenges. Pharmacogenomics. 2020;21(17):1237-46.
71. Royal College of Physicians, British Pharmacological Society. Personalised prescribing: using pharmacogenomics to improve patient outcomes, 2022. Available from: https://www.bps.ac.uk/getmedia/b43a3dca-1bbf-4bff-9379-20bef9349a8c/Personalised-prescribing-full-report.pdf.aspx. [Accessed on: 09/08/2022]
72. NHS England. Greener NHS. Available from: https://www.england.nhs.uk/greenernhs/. [Accessed on: 31/03/2022]
73. Scottish Government. NHS Scotland climate emergency and sustainability strategy 2022 to 2026 - draft: consultation, 2022. Available from: https://www.gov.scot/publications/nhs-scotland-draft-climate-emergency-sustainability-strategy/. [Accessed on: 31/03/2022]
74. Welsh Government. NHS Wales decarbonisation strategic delivery plan, 2021. Available from: https://gov.wales/nhs-wales-decarbonisation-strategic-delivery-plan. [Accessed on: 31/03/2022]
75. Royal Pharmaceutical Society. Sustainability, 2022. Available from: https://www.rpharms.com/about-us/sustainability. [Accessed on: 31/03/2022]
76. NHS England. Greener NHS - Delivering a net zero NHS: Areas of focus, 2021. Available from: https://www.england.nhs.uk/greenernhs/a-net-zero-nhs/areas-of-focus/. [Accessed on: 31/03/2022]
77. NHS England. Green transport delivers life-saving drugs and improves patient experience, 2021. Available from: https://www.england.nhs.uk/greenernhs/whats-already-happening/green-transport-delivers-life-saving-drugs-and-improves-patient-experience/. [Accessed on: 31/03/2022]

78. NHS England. Putting anaesthetic-generated emissions to bed, 2021. Available from: https://www.england.nhs.uk/greenernhs/whats-already-happening/putting-anaesthetic-generated-emissions-to-bed/. [Accessed on: 31/03/2022]
79. NHS England. Zooming into a greener future: The case for a zero-emissions courier services, 2021. Available from: https://www.england.nhs.uk/greenernhs/whats-already-happening/zooming-into-a-greener-future-the-case-for-a-zero-emissions-courier-services/. [Accessed on: 31/03/2022]
80. Royal Pharmaceutical Society. Workforce Wellbeing, 2022. Available from: https://www.rpharms.com/recognition/all-our-campaigns/workforce-wellbeing. [Accessed on: 31/03/2022]
81. Community Pharmacy Workforce Development Group. A review of the community pharmacy workforce: 2021 and beyond. June 2021. Available from: https://communitypharmacyworkforce.files.wordpress.com/2021/06/cpwdg-report-a-review-of-the-community-pharmacy-workforce-final.pdf. [Accessed on: 31/03/2022]
82. Connelly D. Work-related stress: the hidden pandemic in pharmacy. The Pharmaceutical Journal; 18 November 2021.
83. West M, Coia D. Caring for doctors, caring for patients. General Medical Council; 2019. Available from: https://www.gmc-uk.org/-/media/documents/caring-for-doctors-caring-for-patients_pdf-80706341.pdf. [Accessed on: 31/03/2022]
84. West M, Bailey S, Williams E. The courage of compassion. Supporting nurses and midwives to deliver high-quality care. The King's Fund; September 2020. Available from: https://www.kingsfund.org.uk/sites/default/files/2020-09/The%20courage%20of%20compassion%20summary_web_0.pdf. [Accessed on: 31/03/2022]
85. Sizmur S, Raleigh V. The risks to care quality and staff wellbeing of an NHS system under pressure. The King's Fund & Picker.
86. Health and Social Care Committee. Workforce burnout and resilience in the NHS and social care, 2021. Available from: https://committees.parliament.uk/publications/6158/documents/68766/default/ [Accessed on: 31/03/2022]
87. Royal Pharmaceutical Society. Improving Inclusion and Diversity across our profession: our strategy for pharmacy 2020 – 2025, 2020. Available from: https://www.rpharms.com/LinkClick.aspx?fileticket=plJ2cLMj2H4%3d&portalid=0. [Accessed on: 31/03/2022]
88. NHS England, Royal Pharmaceutical Society, APTUK. Joint National Plan for Inclusive Pharmacy Practice in England, 2021. Available from: https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Inclusive%20Pharmacy%202021/Joint%20National%20Plan%20for%20Inclusive%20Pharmacy%20Practice%20-%2010%20March.pdf. [Accessed on: 31/03/2022]
89. Health Education England. Literature search results: 'Evidence around the effect of more diverse leadership teams (particularly gender and ethnicity) on patient care and clinical outcomes', 2020. Available from: https://www.hee.nhs.uk/sites/default/files/Diverse%20leadership%20teams%20and%20patient%20care.pdf. [Accessed on: 31/03/2022]
90. Royal Pharmaceutical Society. Pledge for Inclusion and Wellbeing, 2021. Available from: https://www.rpharms.com/pledge. [Accessed on 31/03/2022]
91. Department of Health & Social Care. Good for you, good for us, good for everybody, 2021. Available from:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1019475/good-for-you-good-for-us-good-for-everybody.pdf. [Accessed on: 31/03/2022]
92. Kongkaew C, Hann M, Mandal J, Williams SD, Metcalfe D, Noyce PR, et al. Risk factors for hospital admissions associated with adverse drug events. Pharmacotherapy. 2013;33(8):827-37.
93. Scottish Government Polypharmacy Model of Care Group. Polypharmacy Guidance, Realistic Prescribing (3rd edition), 2018. Available from: http://www.therapeutics.scot.nhs.uk/wp-content/uploads/2018/04/Polypharmacy-Guidance-2018.pdf. [Accessed on: 31/03/2022]
94. Royal Pharmaceutical Society. Polypharmacy: Getting our medicines right, 2018. Available from: https://www.rpharms.com/recognition/setting-professional-standards/polypharmacy-getting-our-medicines-right. [Accessed on: 31/03/2022]
95. World Health Organisation. Medication safety in transitions of care: Technical report, 2019. Available from: https://www.who.int/publications/i/item/WHO-UHC-SDS-2019.9. [Accessed on: 31/03/2022]
96. Wilcock M, Sibley A, Blackwell R, Kluettgens B, Robens S, Bastian L. Involving community pharmacists in transfer of care from hospital: Indications of reduced 30-day hospital readmission rates for patients in Cornwall. The International journal of pharmacy practice. 2020;28(4):405-7.
97. Nazar H, Brice S, Akhter N, Kasim A, Gunning A, Slight SP, et al. New transfer of care initiative of electronic referral from hospital to community pharmacy in England: a formative service evaluation. BMJ Open. 2016;6(10):e012532.
98. Sabir FRN, Tomlinson J, Strickland-Hodge B, Smith H. Evaluating the Connect with Pharmacy web-based intervention to reduce hospital readmission for older people. International journal of clinical pharmacy. 2019;41(5):1239-46.
99. Mantzourani E, Nazar H, Phibben C, Pang J, John G, Evans A, et al. Exploring the association of the discharge medicines review with patient hospital readmissions through national routine data linkage in Wales: a retrospective cohort study. BMJ open. 2020;10(2):e033551.
100. Hodson K, Blenkinsopp A, Cohen D, Longley M, Alam M, Davies P, et al. Evaluation of the discharge medicines review. Independent report, 2014. Available from: http://www.cpwales.org.uk/Contract-support-and-IT/Advanced-Services/Discharge-Medicines-Review-(DMR)/Evaluation-of-the-DMR-Service/Evaluation-of-the-DMR-service.aspx. [Accessed on: 31/03/2022]
101. Wessex Academic Health Science Network. Transfers of Care Around Medicines - now the NHS Discharge Medicines Service, 2021. Available from: https://wessexahsn.org.uk/projects/54/transfers-of-care-around-medicines-now-the-nhs-discharge-medicines-service. [Accessed on: 31/03/2022]
102. NHS England. NHS Discharge Medicines Service, 2021. Available from: https://www.england.nhs.uk/primary-care/pharmacy/nhs-discharge-medicines-service/. [Accessed on: 31/03/2022]
103. NHS England. Commissioning for Quality and Innovation (CQUIN): 2022/23, 2022. Available from: https://www.england.nhs.uk/publication/combined-ccg-icb-and-pss-commissioning-for-quality-and-innovation-cquin-guidance/. [Accessed on: 31/03/2022]
104. NHS England. Supporting and enabling early career pharmacy professionals in delivering data driven care: A guidance document for the profession, 2018. Available from:

https://www.sps.nhs.uk/wp-content/uploads/2018/10/NHS-England-report-Supporting-early-career-pharmacy-professional-in-data-Final._-1.pdf. [Accessed on 31/03/2022]
105. Health Education England. The Topol Review: Preparing the healthcare workforce to deliver the digital future, 2019. Available from: https://www.hee.nhs.uk/our-work/topol-review. [Accessed on: 31/03/2022]
106. European Association of Hospital Pharmacists. EAHP Position Paper on eHealth and mHealth, 2019. Available from: http://www.eahp.eu/sites/default/files/position_paper_on_ehealthmhealth_1.pdf. [Accessed on 31/03/2022]
107. NHS England. The NHS Patient Safety Strategy, 2020. Available from: https://www.england.nhs.uk/wp-content/uploads/2020/08/190708_Patient_Safety_Strategy_for_website_v4.pdf. [Accessed on 31/03/2022]
108. NHS England. Learn from patient safety events (LFPSE) service, 2021. Available from: https://www.england.nhs.uk/patient-safety/learn-from-patient-safety-events-service/#:~:text=LFPSE%20is%20replacing%20the%20current,all%20health%20and%20care%20sectors. [Accessed on: 31/03/2022]
109. NHS England. Patient Safety Incident Response Framework, 2022. Available from: https://www.england.nhs.uk/publication/patient-safety-incident-response-framework-and-supporting-guidance. [Accessed on 31/03/2022]
110. NHS England. The National Patient Safety Improvement Programmes - Medicines Safety Improvement Programme (MedSIP), 2022. Available from: https://www.england.nhs.uk/patient-safety/patient-safety-improvement-programmes/#MedSIP. [Accessed on 09/08/2022]
111. Healthcare Improvement Scotland. Scottish Patient Safety Programme, 2022. Available from: https://ihub.scot/improvement-programmes/scottish-patient-safety-programme-spsp/. [Accessed on 31/03/2022]
112. Healthcare Improvement Scotland. SPSP Medicines Collaborative, 2022. Available from: https://ihub.scot/improvement-programmes/scottish-patient-safety-programme-spsp/spsp-programmes-of-work/spsp-medicines/. [Accessed on 31/03/2022]
113. NHS Wales Delivery Unit. Patient Safety Wales, 2022. Available from: https://du.nhs.wales/patient-safety-wales/. [Accessed on 31/03/2022]
114. NHS Wales Delivery Unit. Patient Safety Incidents, 2022. Available from: https://du.nhs.wales/patient-safety-wales/patient-safety-incidents/. [Accessed on 31/03/2022]
115. Royal Pharmaceutical Society. Consultant Pharmacist Curriculum, 2020. Available from: https://www.rpharms.com/Portals/0/Consultant/Open%20Access/RPS%20Consultant%20Pharmacist%20Curriculum%202020_FINAL.pdf?ver=-TmAIYQLYxE5Xh924jA0MA%3d%3d. [Accessed on: 31/03/2022]
116. Royal Pharmaceutical Society. Post-registration Foundation Pharmacist Curriculum, 2021. Available from: https://www.rpharms.com/Portals/0/Foundation%20Curriculum/RPS%20Post-registration%20Foundation%20Curriculum-FINAL.pdf?ver=gPy42LspTywTVu6VgEg4dA%3d%3d. [Accessed on: 31/03/2022]
117. Royal Pharmaceutical Society. Core Advanced Pharmacist Curriculum, 2022. Available from: https://www.rpharms.com/development/credentialing/core-advanced-pharmacist-curriculum. [Accessed on: 09/08/2022]

118. Health Education England. Multi-professional framework for advanced clinical practice in England, 2017. Available from: https://www.hee.nhs.uk/sites/default/files/documents/multi-professionalframeworkforadvancedclinicalpracticeinengland.pdf. [Accessed on 31/03/2022]
119. National Institute for Health Research. Ten Years On: Adapting and Evolving to New Challenges in Developing Tomorrow's Health Research Leaders, 2017. Available from: https://www.nihr.ac.uk/documents/explore-nihr/academy-programmes/NIHR%20Strategic%20Review%20of%20Training%202017.pdf. [Accessed on 31/03/2022]