Recommendations for UK Hepatology Pharmacy Staffing Standards: ADULT SERVICES

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INTRODUCTION

This workforce document was developed by pharmacists and pharmacy technicians from the British Hepatology Pharmacy Group (BHPG), British Liver Transplant Group (BLTG) and the Solid Organ Transplant Pharmacy Association (SOTPA).

To understand the current hepatology pharmacy workforce in terms of staffing levels, skill mix, roles and risks, a workforce survey was drafted, piloted and disseminated to all UK pharmacy teams providing pharmacy hepatology services in 2023.

This is the comprehensive report of the findings from the survey and sets out key recommendations to support the hepatology pharmacy workforce including outlining key competencies required, appropriate prescribing responsibilities and recommended staffing levels.

1. BACKGROUND

1.1 Adult hepatology pharmacy service provision

The fundamental objective of adult hepatology pharmacy services is to provide effective pharmaceutical care (direct and indirect), to promote and deliver medicines optimisation, supporting people with liver disease and post liver transplant to get the best healthcare outcomes from their medicines. The pharmacy team are integral members of the hepatology multi-professional team, who provide support to hepatology services (indirect care) in addition to direct pharmaceutical patient care by:

- Writing, reviewing and implementing local and regional medicines-related clinical guidelines;
- Overseeing medicine expenditure analysis including management of high cost medicines, compliance with regulatory authorities, medicines evaluation and horizon scanning;
- Providing patient/staff education and training, including answering queries about medicines use;
- Undertaking audit and clinical/practice research;
- Development of electronic prescribing systems;
- Investigating and preventing medicines-related patient safety incidents
- Service development;
- Clinically screening prescriptions to ensure patient safety and cost-effective prescribing;
- Facilitating the procurement, supply and management of medicines, including implementation of shared care agreements across the interface of care settings;
- Running clinics to monitor, review and initiate pharmaceutical care, including prescribing activity.

Experienced hepatology pharmacists also contribute to and influence regional and national medicines policies through clinical reference groups and national committee positions.

1.2 Liver disease and medicine optimisation

Liver disease constitutes the third commonest cause of premature death in the UK and the rate of increase of liver disease is substantially higher in the UK than other countries in western Europe.[1]

Chronic Liver Disease (CLD) encompasses a broad range of liver pathologies. Morbidity and mortality are highest among people with advanced-stage hepatic fibrosis (cirrhosis) and progressive portal hypertension.[1] People with cirrhosis often experience debilitating complications of portal hypertension, impaired synthetic function, and reduced metabolism (of endogenous and exogenous substances), including development of ascites and hepatic encephalopathy (HE). Patients also frequently experience non-liver-related comorbidities, including diabetes mellitus and cardiovascular and renal diseases.[2] To manage complications of CLD and comorbidities, patients take, on average, nine medications each day from a variety of therapeutic classes.[3] Medicines reconciliation, medicine review, optimisation and

reduction in overprescribing should be undertaken throughout the patient pathway, especially during admission and discharge from hospital/transfer to another care setting; at each outpatient clinic visit; when a new medicine is commenced or there is a change in liver function.[4]

However, medication-related problems (MRPs), such as non-adherence, mismanagement related to poor patient understanding, and suboptimal monitoring, have been linked with early hospital readmission and substantial resource burden in this group.[5,6] Pharmacist intervention has shown to facilitate identification and resolution of high-risk MRPs and is associated with reduced incidence rate of unplanned hospital admissions in this group.[7] Thus clinical pharmacists and pharmacy technicians have an essential and enhanced role in the management of hepatology patients and can identify potential or actual medication problems. Specialist hepatology pharmacy teams also improve access to specialist medication, provide advice to a wide variety of healthcare professionals, de-prescribe, optimise existing medication and improve medication pathways between care settings.[8] Additionally, as the liver is heavily involved in drug metabolism and excretion and with medications potentially being hepatotoxic, hepatology pharmacists have a key role to review and optimise medication regimens. It is well documented that around 1 in 20 hospital admissions are related to adverse drug reactions.[9]

Current hepatology pharmacy service provision includes 5 principal areas of liver care:

• General Hepatology

• Viral Hepatitis

• Transplantation

• Hepatobiliary surgery

• Liver intensive care

Therapeutic aims and recommendations include:

• Adjusting medicine/dose/dosage frequency in relation to liver function to maximise therapeutic effect and minimise adverse effect;

• Change, initiate or discontinue medicines as appropriate;

• Safe use of high risk medication and additional monitoring e.g. drug levels, blood tests, imaging;

• Improve patients' knowledge and understanding of their medicines;

• Identify/manage medicine-associated side effects including drug induced liver injury, allergies/contraindications;

• Identify and avoid potential interactions with other medicines, especially immunosuppressants and antiviral therapy when initiating any new medicine;

• Detect and manage potential medication errors;

•Explain to patients and/or carers how to identify and report medicines related patient safety incidents;

• De-prescribe and reduce pill burden;[10]

• Reduce medicines wastage;[10]

• Improve disease-orientated and person-centred outcomes by optimising medicines;

• Prevent disease progression by optimising medicines;

• Aid management of co-morbid conditions;

• Referral to a Hepatologist or transplant physician where necessary;

• Improve access to hospital only medication and continuity of medication supply in the community.

Authors of this paper acknowledge the current challenges and pressures in England impacting on patient numbers/acuity/complexity and therefore increasing the time to review individual patients and meet the therapeutic aims above. This includes:

- increasing number of transplants following opt-out law change in England from 2020 as highlighted by NHSBT;
- Wider access to liver transplantation using machine perfusion technology for marginal donors which may be more complex to manage post-op;
- Increase in mental health needs and impact on physical health of patient population due to global pandemic and cost of living crisis.

This is coupled with an increase in mental health needs and impact on physical health of staff population due to the global pandemic and cost of living crisis. Recruitment and retention of staff in high-cost areas that do not receive a cost-of-living weighting is also impacting the wider pharmacy workforce. With nursing, junior doctors and consultant pay disputes and strikes, pharmacy teams have continually supported and increased their workload to ensure patient safety. Despite these pressures, this document aims to highlight safe and effective pharmacy staffing levels to provide optimal care to patients living with liver disease.

1.3 Medication adherence

It is reported in developed countries, only 50% of patients with a chronic disease adhere to treatment recommendations contributing to the human and economic burden of chronic, long-term illness.[11] A variety of factors may impact on a patient's decision on how they take their medicines. By identifying barriers to medicines adherence and providing information on medicines prescribed, pharmacists and pharmacy technicians support and encourage their patients to take their medicines safely and effectively.[11,12] Regular structured patient review with a hepatology pharmacist or pharmacy technician can support adherence, improve patient medication knowledge, optimise medication regimens to align with patients' wishes and lifestyle and ensure shared decision making.[13] High-risk medication related

problems (MRPs) are prevalent among adults with decompensated cirrhosis.[6] Studies have shown pharmacist intervention can facilitate identification and resolution of high-risk MRPs and reduce incidence rate of unplanned hospital admissions in this group.[6]

1.4 Repeat Prescribing and Shared Care

Many of the medicines used for hepatology patients, including those used post liver transplant are highly specialist. They require repeat prescribing to remain within the hospital either via homecare or hospital pharmacy dispensing, rather than Primary Care. Hepatology pharmacists are often responsible for the clinical screening of these prescriptions, and have an increasing role in the prescribing of these medicines in the outpatient setting. Due to the large geographical coverage of each tertiary level hepatology service in the UK, many tertiary centres provide outreach care in other hospitals within their region. This adds to the complexity regarding medicine prescribing, supply and commissioning and there is often variation in the availability of medicines within and between different regions. The hepatology pharmacy team has a key role in facilitating the supply of medicines across affiliated Trusts in their region, liaising with colleagues in primary and secondary care as required. In addition, supporting the wider pharmacy workforce with education and training further facilities this.

1.5 Pharmacy homecare provision

As most hepatology units are involved with supply of medicines via pharmacy homecare teams (e.g. obeticholic acid, immunosuppression, anti-viral therapy, trientine) the hepatology pharmacy team often manages the whole pathway including setting up the service, prescribing, arranging deliveries of homecare medication and the ongoing governance around the service. Pharmacy homecare staffing (processing/invoicing prescriptions) is usually separate from clinical hepatology pharmacy services and has not been included in this review. Further information on homecare staffing is detailed by the National Homecare Medicines Committee.[14]

1.6 Hospital pharmacy standards

Hepatology pharmacy services observe the Royal Pharmaceutical Society (RPS) Hospital Pharmacy Standards to deliver person-centred care, support with effective medicines use and facilitate integrated transfer of care.[15] We work as part of the multi-professional team to effectively manage medicines to maximise safety, efficacy and sustainability.[15] Clinical pharmacy services should be available seven days a week, as per NHS England guidance.[16] However, as a minimum hepatology pharmacy services should be provided five days a week (Monday-Friday), with on-call pharmacy support outside of these hours.

2 LEVELS OF PRACTICE

2.1 Advanced level practice

Pharmacist

Advanced level pharmacists may be independently assessed by the Royal Pharmaceutical Society (RPS) across five domains of pharmacy practice using the RPS Core Advanced Pharmacist Curriculum.[17] A senior pharmacist with specialist hepatology training who is competent at an advanced stage would be responsible for the provision and delivery of pharmaceutical care of people with liver disease and post liver transplant due to their complex requirements. Post registration, foundation level pharmacists should have access (locally or via network) to at least advanced practice hepatology pharmacists for advice and referral. Where there is a hepatology pharmacy team, there should be a structured range of expertise, from post registration to consultant level and appropriate skill mix to optimise service delivery both on a local and regional level.

Consultant pharmacists are becoming an integral part of the pharmacy and wider healthcare team in all sectors of the UK. Their mandate is to support the delivery of a national workforce strategy aligned with health priorities, drive improvements in population health, act as clinical leaders for the pharmacy profession and be valued by the public and other healthcare professionals.[18] There are some consultant pharmacists practising in the field of hepatology across the UK. The aim should be to build on this momentum in order to develop a robust hepatology pharmacy workforce across all care settings.

Finally, Advanced Clinical Practice (ACP) is a potential route for experienced pharmacists and two pharmacists working in the field of hepatology who have gained this qualification have been identified. This level of practice is characterised by a high degree of autonomy and complex decision making and underpinned by a master's level qualification, or equivalent.

Pharmacy technician

Pharmacy technicians are also integral members of many hepatology pharmacy teams and have numerous and varied roles. They provide pharmaceutical care through person-centred consultations with people about their medicines and lifestyle. They can use clinical prioritisation skills to triage reviews, support medicines optimisation by carrying out medicines reconciliation, and are often responsible for monitoring the safe and effective use of medicines via audits and therapeutic reviews. They also contribute to policy and research. Specialist pharmacy technicians working at an enhanced level or higher, should hold or be working towards Level 4, or higher, qualifications in clinical pharmacy services and therapeutics.

Pharmacy assistants

Pharmacy assistants are increasingly undertaking supportive roles in hepatology pharmacy teams. They ensure safe storage of medicines day-to-day and ensure that people have a sufficient supply of their medicines for use in hospital and post-discharge. Pharmacy assistants must be completing a General Pharmaceutical Council (GPhC) recognised qualification, a GPhC-recognised apprenticeship pathway, or a GPhC-accredited training course in pharmacy service skills.

2.2 Professional competencies and prescribing responsibilities

Pharmacy professional registration is revalidated annually by the GPhC, the regulatory body for pharmacists and pharmacy technicians in England, Scotland and Wales, to ensure professional skills and knowledge are up to date. Chief pharmacists (or equivalent) have overall responsibility to ensure that pharmacy staff that they employ are competent for their role. Whilst no specific qualifications are required to become an advanced specialist hepatology pharmacist or pharmacy technician (adult or paediatric) the individual should be supported to undertake recognised credentialing process to verify their competence level of advanced pharmacy practice.

The components of hepatology pharmacy services, including those that are enhanced and advanced services have been matched to professional competencies for pharmacists using nomenclature from the RPS Pharmacy Framework in Table 1.[17]

Many hepatology pharmacists are currently independent prescribers and use this advanced role in their daily clinical practice. They work as independent practitioners, often in outpatient clinics, outreach centres and via virtual modalities providing pharmaceutical care to patients with complex medicine management and clinical needs, including but not restricted to:

- Viral Hepatitis;
- Autoimmune hepatitis;
- Primary biliary cholangitis;
- Alcohol related liver disease;
- Advanced chronic liver disease;
- Metabolic associated steatotic liver disease;
- Transplantation.

In 2026, newly qualified pharmacists will be independent prescribers and Table 2 highlights the level of competency required to undertake prescribing activities with examples.

Table 3 and 4 outlines professional competencies for pharmacy technicians and pharmacy assistant respectively working within hepatology services.

TABLE 1. PROFESSIONAL COMPETENCIES FOR PHARMACISTS

	Post-registration, Foundation level	**Advanced-Practice**	**Consultant Practice**
Descriptor	***Broad but non-specialist capability, able to prescribe in low-mid complexity, defined in-patient scenarios as part of an MDT***	***Specialist capability benchmarked through RPS, prescribing in mid-high complexity scenarios, autonomous patient load such as pharmacist-led clinics***	***RPS credentialed, prescribing in high complexity scenarios with an autonomous patient load, outward facing service design***
Person-Centred Care and Collaboration			
	Communicates effectively with people receiving care and colleagues	Communicates complex, sensitive and/or contentious information effectively with people receiving care and senior decision makers	Effectively communicates with patients and colleagues in highly challenging and/or hostile environments; manages the situation collaboratively to resolution
	Treats others as equals and with dignity and respect, supporting them regardless of individual circumstances or background; actively promotes this in their practice	Demonstrates cultural effectiveness through action; values and respects others, creating an inclusive environment in the delivery of care and with colleagues	Communicates highly complex, sensitive or contentious information to inform and influence senior pharmacy and non-pharmacy stakeholders from across the healthcare system; promotes a collaborative approach working across boundaries
	Consults with people through open conversation; explores physical, psychological and social aspects for that person, remaining open to what a person might share; empowers the person creating an environment to support shared decision making around personal healthcare outcomes and changes to health behaviour	Always keeps the person at the centre of their approach to care when managing challenging situations; empowers individuals and, where necessary, appropriately advocates for those who are unable to effectively advocate for themselves	
	Demonstrates empathy; seeking to understand a situation from the perspective of each person		
	Always keeps the person at the centre of their approach to care		
	Supports and facilitates the seamless continuity of care for each person		
	Builds strong relationships across the multidisciplinary team; works in partnership to promote positive outcomes	Builds strong relationships with colleagues working as part of multidisciplinary teams influencing the delivery of positive healthcare outcomes at a team and/or organisational level	
	Demonstrates confidence in speaking to healthcare professionals across the multidisciplinary team; seeking to use appropriate language to influence others	Gains co-operation from senior stakeholders through effective influencing, persuasion and negotiation	
	Recognises the value of members of the pharmacy and multidisciplinary team across the whole care pathway, drawing on those both present and virtually, to develop breadth of skills and support own practice; delegates and refers appropriately, using the expertise and knowledge of others	Recognises, and respects, the role of others in the wider pharmacy and multidisciplinary team; optimises the care delivered for individuals and groups through appropriate delegation and referral	

	Supports members of the multidisciplinary team in the safe use of medicines and to meet the individual needs of those receiving care; effectively influences the decision-making process across the team regarding medicines, where appropriate		
Examples	Attendance at ward rounds and local MDTs, patient counselling, screening discharge medication, antimicrobial and anti-viral stewardship	Attendance at ward rounds, local/regional MDTs, outpatient clinics, outreach clinics, team management, setting up homecare services and management of governance around it, horizon scanning, answering patient and HCP helpline enquiries, contribute to Individual funding request, service review and development	Outpatient clinics, chair/ committee member of national/regional specialist groups, team management, contribution to departmental and ICB, national level strategy/vision, responding to legal enquiries Critically reviewing medication provision strategy of high cost and high risk medications e.g immunosuppressants, anti-virals, lead on service changes regionally/nationally Engagement with appropriate patient groups
Professional Practice			
	Applies evidence based clinical knowledge and up to date guidance to make suitable recommendations or take appropriate actions with confidence	Delivers care using advanced pharmaceutical knowledge and skills for individuals and/or groups with highly complex needs, including where evidence is limited or ambiguous	Possesses in-depth pharmaceutical knowledge and skills in defined clinical area(s); can apply these to manage individual patients and/or patient populations requiring the most complex pharmaceutical care
	Undertakes a holistic clinical review of a person and their medicines to ensure they are appropriate	Undertakes a holistic clinical review of individuals with complex needs, using a range of assessment methods, appropriately adapting assessments and communication style based on the individual	Influences the delivery and quality assurance of clinical services across boundaries
	Gathers information and takes histories proficiently; conducts clinical examinations and assessments; develops diagnostic skills		Demonstrates effective critical thinking, clinical reasoning and decision making where there is uncertainty, competing and/or complex clinical issues
	Accesses and critically evaluate appropriate information to make evidence-based decisions in an efficient and systematic manner; ensures high attention to detail is maintained when making decisions regarding the person receiving care	Demonstrates effective clinical reasoning skills, making autonomous, evidence informed, person-centred decisions about treatment for individuals or groups with complex clinical needs, managing risk in the presence of significant uncertainty	Implements regional and national policy and/or strategy at their level of influence within their area of clinical practice.
	Manages uncertainty and risk appropriately		Translates expertise and research into the creation of new policy influencing practice beyond their organisation. demonstrably improving patient care
	Takes the cost effectiveness of a decision into account where necessary, working to the appropriate formulary		
	Proactively recognises and corrects the overuse of medicines; positively impacts on the usage and stewardship of medicines at an individual and population level	Acts to improve the health of the population and reduce health inequalities	

	Analyses and uses data and digital technologies to inform clinical decision making, and improve clinical outcomes and patient safety		
	Actively practises honesty and integrity in all that they do; upholds a duty of candour		
	Is accountable and responsible for own decisions and actions, understanding the potential consequences of these decisions across the whole care pathway	Makes, and is accountable for, own decisions and takes responsibility for performance at a team and/or service level	
	Works within ethical guidelines and legal frameworks, including consent and confidentiality; seeks to gain permission from the person before accessing confidential records where necessary		
	Recognises and works safely within own level of competence, understanding the importance of working within this; knows when it is appropriate to escalate a situation or refer	Defines and articulates 2.6 own advanced scope of practice to others; uses professional judgement to appropriately seek help when needed for complex and/or high stakes decisions	
Examples	Inpatient management, discharge planning, communication with community services (e.g. DMS referrals), supporting DTC applications, support implementation of NPSA alerts	Outpatient clinics, writing local guidelines/SOPs, writing DTC/chairman's action applications, leading on shared care guidelines, NPSA alert implementation strategies	Outpatient clinics, writing/contributing to national guidelines, participation in local/ regional complex case MDTs, expert advice for complex case management, introducing new drugs including off license drugs, committee member of NHSE and related bodies e.g HBP Clinical Reference Group membership
Leadership And Management			
	Proactively demonstrates and promotes the value of pharmacy to the public and other healthcare professionals	Pro-actively contributes to defining a strategic vision for their team and/or service in collaboration with other senior stakeholders; engages others to support the delivery of the strategic vision	Creates and embeds a shared strategic vision for service delivery within their organisation and beyond; relates goals and actions to wider strategic aims of the organisation, profession and healthcare system
	Communicates vision and goals to the wider pharmacy and multidisciplinary team to support with achieving group tasks	Motivates and supports individuals and/or teams to improve performance	Leads on innovation and improvement to service delivery at organisational level and beyond; manages change effectively to achieve demonstrable improvement(s) to patient care
	Critically analyses business needs; is mindful of commercial aspects within the pharmacy context; recognises the changes to and the opportunities within the future role of pharmacists; seeks out opportunities to modify own approach and deliver/promote new pharmacy services		Motivates and effectively manages individual and/or team performance at an organisational level4
	Draws upon networks to understand the range of clinical, medicines related and public health activities offered by pharmacy across sectors and the care pathway	Works collaboratively with multi-disciplinary resources across care settings to develop and implement strategies to manage risk and improve safety and outcomes from medicines and care delivery	Manages resources effectively to maximise impact on patient care at an organisational level

	Is open to new approaches and ways of completing work tasks and appropriately challenges others to consider change to improve the quality of care; shares own innovative ideas to improve working practices, both internally and externally	Demonstrates team leadership, resilience and determination, managing situations that are unfamiliar, complex and/or unpredictable to deliver positive outcomes at a team and/ or service level	Shapes and contributes to the governance agenda at a senior level within their organisation and beyond; develops and monitors standards of practice and risk management policies/protocols at a team and/or service level
	Effectively identifies and raises concerns regarding patient safety; applies principles of risk management; seeks to improve the quality and safe use of medicines routinely	Critically analyses data as part of quality improvement and/ or innovation in the development and delivery of services, the identification and mitigation of medicines related risks, and the management of resources	
	Demonstrates self awareness and emotional intelligence within the role, reflects on and understands the impact a situation may have on one's own health and wellbeing		
	Remains composed even in challenging or high-pressured situations; develops and draws upon support network in challenging situations	Demonstrates emotional intelligence when managing challenging and complex situations; remains composed and de-escalates potential and actual conflict situations	
	Effectively, efficiently and safely manages multiple priorities; maintains accuracy when in a challenging situation; manages own time and workload calmly, demonstrating resilience		
	Adapts and works effectively in different environments within pharmacy by applying previous learning to new settings		
Examples	Investigation of ward-based incident, resolution of ward related issues, on-call responsibilities, ward based audits, management of trainee pharmacists and MPharm students	Team management, appraisals, attendance to local service meetings, audits/QI projects for service evaluation/improvement, incident investigations, finance reporting, blueteq management, identify and contribute to cost improvement projects, writing business cases	Leads on pharmacy service change on a local/regional and national level, member of CPGs, writing business cases to expand team, directorate level input, contribution to Serious Incident investigations, talent management of team
Education			
	Demonstrates a positive attitude to self-development throughout current and towards future career; proactively seeks learning experiences to support own practice, and has a desire and motivation to try new things	Reflects on practice to critically assess own learning needs and pro-actively engages in professional development	Manages the professional development of individuals within a team and/or service
	Develops a personal development plan that reflects the breadth of ongoing professional development and includes potential innovations in medicine and practice development		Shapes and contributes to educational provision for patients and healthcare professionals in their area of expertise within and beyond their organisation
	Seeks feedback and support from colleagues and service users where appropriate; is receptive to information or advice given to them	Supervises others' performance and development; provides high quality feedback, mentorship, and support	Interprets national policy to create strategic approaches to local workforce education, planning and development

	by others to make changes to own practice		
	Acts as a positive role model and mentor within the pharmacy and multidisciplinary team, where appropriate		
	Effectively uses own expertise to provide the pharmacy and multidisciplinary team with education and training; supports and supervises less experienced members of the team	Designs and delivers educational interventions that impact at a team and/ or organisational level, supporting members of the pharmacy team, wider multi- disciplinary team, and/ or service users, to safely and effectively use medicines.	
Examples	Ward based teaching, supporting trainee pharmacist/ students training	Junior pharmacist training/supervision of PG diploma, MDT teaching, departmental teaching, regional pharmacist trainee teaching and training, honorary lecturers at HEIS, presentation at national conferences, mentorship, DPPs	Honorary and senior lecturers at HEIs, regional and national MDT education e.g. via presentation at national/international conferences and other organised educational events, supports local E+T strategy, sets up/leads local education forums (e.g. consultant pharmacist forum), mentorship on a national and international level. Talent management of team
Research			
	Seeks to be involved in research activities; actively disseminates outcomes to appropriate audiences	Interprets and critically appraises the evidence base to inform practice and care delivery at a team and/or service level.	Applies critical evaluation skills in the context of their working practice; uses research and evidence-base to inform and develop practice and services improving patient care at an organisational level and beyond
		Identifies gaps in the evidence base; uses appropriate methods for addressing the identified gap(s), generating new evidence.	Formulates research questions based on gaps in the evidence base; designs rigorous research protocols to address these and at organisational level and beyond
		Implements changes at a team and/or service level based on the outputs of their research and/or quality improvement activity and disseminates findings.	Generates new evidence through research; communicates findings to influence practice and improve patient care beyond their organisation. a. Understands effective research methods, including qualitative and quantitative approaches to scientific enquiry. Develops, implements and reviews research strategy in line with organisational priorities
		Collaborates with others in undertaking research and supports others to engage with research and improvement activities.	Contributes to research supervision in collaboration with research experts
			Collaborates with the wider multidisciplinary team to conduct research projects
Examples	Audit, service evaluation, abstract publication at pharmacy only conference, pharmacy only publication	Audits, research, abstract publication at MDT conference, MDT national publication collaborative research projects	Dedicated time allocation to research as part of a job plan, research supervisor for MPharm or MSc students, first authorship, lead on QI projects, leading a research agenda for team and supporting publication, multicentre

			abstract publication at MDT international conference, MDT publication international journal, CI or PI of clinical studies

TABLE 2: EXAMPLES OF SUGGESTED APPROPRIATE PRESCRIBING RESPONSIBILITIES

	Post-registration, Foundation- Practice	Advanced-Practice	Consultant Practice
Descriptor	*Broad but non-specialist capability, able to prescribe in low-mid complexity, defined in-patient scenarios as part of an MDT*	*Specialist capability benchmarked through RPS, prescribing in mid-high complexity scenarios, autonomous patient load such as pharmacist-led clinics*	*RPS credentialed, prescribing in high complexity scenarios with an autonomous patient load, outward facing service design*
CMV management	Optimising CMV prophylaxis for stable renal function, adjustment of non-complex CMV treatment to MDT, discussion/referral to advanced practice colleagues for complex CMV treatment	Autonomous adjustment and monitoring of CMV prophylaxis and non-complex CMV therapy (treatment & prophylaxis), suggestions to advanced MDT (SPR/consultant) on modifying complex CMV	Senior MDT collaboration (virology consultant, hepatology consultant) managing complex CMV- choice of therapy, adjustment/switching of therapy, directing monitoring of therapy, obtaining funding/approvals for therapy
Discharge management	Correction of clinician transcription errors on discharge, restarting appropriate pre-admission drugs e.g. statins based on a protocol, initiating low complexity therapy in-line with a protocol e.g. bone protection	Optimising TDM immunosuppression autonomously based on defined target level, management of mid- high complexity interactions, adjusting analgesia based on pain assessment and patient consultation, a Adjusting insulin therapy to optimise blood sugar control in response to changes in steroid dosing, prepping discharge medication lists with review by medical team	Pharmacist led discharge high complexity patients with appropriate follow-up planned and scheduled, optimising TDM immunosuppression autonomously with understanding of expected target level for patient, managing complex interactions, senior MDT collaboration on switching immunosuppression for adverse drug reactions
Outpatient clinics- transplant	Not appropriate	Management of patients in MDT clinics supporting prescribing, treatment recommendations and long term monitoring. Supporting other HCPs including GPs re drug interactions and treatment choices	Managing an independent caseload including comprehensive evaluation and care for the overall wellbeing and risk management of post liver transplant patients
Outpatient clinics – Hepatitis C	Not appropriate	Prescribing of treatment course on discussion and approval by MDT, advanced drug-drug interaction checks, autonomously ordering and reviewing blood tests and liver ultrasound scans with escalation if needed	Independent management of complex re-treatment patients including those with hepatocellular cancer (HCC)
Outpatient clinics – Hepatitis B	Not appropriate	Prescribing and monitoring of anti-viral treatment, switching and commencing treatment, HCC surveillance and antenatal clinics	Independent management of complex patients including those co-infected with hepatitis D
Outpatient Clinics- Autoimmune disease – PBC, AIH	Not appropriate	Initiation of second line PBC therapies via following MDM approval, initiation of long term immunosuppression and monitoring	Independent management of complex patients requiring second line therapy and symptom management

Outpatient clinics – MASLD	Not appropriate	Direct prescribing advice to primary care to optimise risk factors such as diabetes, hypercholesterolaemia, hypertension.	Direct prescribing advice to primary care to optimise risk factors such as diabetes, hypercholesterolaemia, hypertension.
Outpatient Clinics - Advanced Chronic Liver Disease	Not appropriate	Optimisation of diuretics, beta blockers and medication for the management of hepatic encephalopathy. Deprescribing of inappropriate therapies	Independent management of complex patients including initiation of diuretics, medication for the management of portal hypertension and hepatic encephalopathy
Providing advice on prescribing to MDT and external HCP	Provision of information from recognised first-line professional reference sources eg BNF, SPC, SPS. Low to mid complexity	Interpretation of information from wider range of professional reference sources, application to patient situation. Mid to high complexity	Clinical opinion based on wide range of professional reference sources and application to patient situation in high complexity scenarios where there may be a lack of evidence/licensed treatment options

TABLE 3. PROFESSIONAL COMPETENCIES FOR PHARMACY TECHNICIANS

	Post-registration	**Specialist Practice**
Descriptor	***Broad but non-specialist capability, able to practise medicines optimisation and final accuracy checking as an extension of initial education and training.***	***Specialist capability, able to practise in mid-high complexity scenarios, autonomous patient load such as pharmacy technician-led clinics or patient lists on hepatology wards.***
Medicines reconciliation	Satisfactorily obtains patient consent if appropriate Understand and apply information governance and confidentiality requirements Medication history taking, including confirmation of allergy status, social history etc Identifying and raising medication reconciliation discrepancies, checking adherence Identify and refer drug-drug, drug-patient or drug-disease interactions and refer appropriately. Apply the use of clinical and non-clinical Guidelines within scope of practice. Document consultations where appropriate in the patient's records **Note: For pharmacy technicians whose initial education and training does not meet the post-2017 GPhC standards, this competency is only applicable after completion of appropriate training and competency has been assessed as safe by an external training provider or appropriately trained pharmacy professional.**	As per post-registration, plus: Communicate rationale behind why medications are not prescribed e.g.. anti-hypertensives held due to low blood pressure, and highlight any unintentional omissions, escalating any time critical medicines where these is the potential for missed doses Discuss interventions where protocolised treatments have not been routinely prescribed, e.g. standard immunosuppression post transplant, post procedure antibiotics and antiemetics Provide anti-microbial stewardship, in line with local policies and guidelines.

Medicines supply	Ensure patient has sufficient supply of medicines, taking into account the patients individual circumstances Ensure prescribing decisions have been discussed, e.g. temporary cessation of anti-coagulants pre-surgery	As per post-registration, plus: Ensure any changes to medicines that will continue post-discharge are documented for communication to patient and primary care teams.
Discharge preparation	Dispensing and final accuracy checking of medicines supplied on discharge Provision of information to patients and discussion about medicines use and future supplies. Identification of shared care opportunities, completion of relevant paperwork/requests **Note: Completion of in-house counselling training and assessment, for specialist medicines.**	As per post-registration, plus: Discharge planning with MDT, including communication with community services e.g. DMS referrals and MDS dispensing, Identification of shared care opportunities, completion of relevant paperwork/requests Transcription of appropriate inpatient items onto discharge summary, ready for clinical screen by a pharmacist. **Note: This competency is only applicable after completion of appropriate training and competency has been assessed as safe by an external training provider or appropriately trained pharmacy professional, and only in some trusts.**
Medicines management	Demonstrates knowledge of safe and secure handling of medicines and is familiar with RPS guidance: https://www.rpharms.com/recognition/setting-professional-standards/safe-and-secure-handling-of-medicines Demonstrates knowledge of when to escalate problems – e.g.. temperature excursion, stock list amendment, returned discharge medication, expired /short-dated stock Escalates issues and risks in relation to medicines use on wards. Able to carry out medicines management tasks including processing returns, ensuring safe storage of medicines in clinical rooms and drug / crash trollies, temperature checks Undertake controlled drugs audits, in line with local medicines management policy. Provides oversight of pharmacy assistants (if applicable)	As per post-registration, plus: To lead on medicines management, liaise with ward managers to continuously improve safe and secure handling of medicines processes
Education delivery	Deliver training to pharmacy trainees, other healthcare professionals and members of the pharmacy team, where appropriate, under supervision of specialist pharmacy technician or pharmacist	As post-registration, plus: Actively arrange and deliver training where the need arises e.g.. new staff, learning from incidents Practice / Educational Supervisor role, providing training and support for pharmacy professionals in hepatology Deliver presentations at local / regional conferences or events Provide mentorship for other peers and others

Homecare	Provide homecare governance – assurance, technical/invoice reconciliation Liaise with homecare companies, investigate problems such as delayed deliveries, processing of invoices **Note: This competency is only applicable after completion of appropriate training and competency has been assessed as safe by an appropriately trained pharmacy professional.**	As post-registration, plus: Screen homecare prescriptions – **Note: This competency is only applicable after completion of appropriate training and competency has been assessed as safe by an external training provider or appropriately trained pharmacy professional, and only at certain trusts** Audit Hackett compliance and make recommendations to service lead.
Identifying and supporting cost saving measures	Support the pharmacy team as and where applicable including high-cost drug financial reporting Actively seek out cost saving initiatives	As post-registration
Patient helpline service – responding to medication queries from patients and other healthcare professionals	Responding to queries where appropriate and able to identify when to refer	As post registration, plus: Actively researching in order to respond to more complex queries in line with scope of practice
Research, Audit and Quality Improvement projects	Understand the principles of clinical audit, as per initial education and training requirements and undertake audits Demonstrate knowledge of Good Clinical Practice (GCP) Seeks to be involved in and support the pharmacy team with research activities	As post-registration, plus: Seek to be involved in research activities; actively disseminates outcomes to appropriate audiences Describe current clinical trials related to hepatology Interpret and critically appraise the evidence base to inform practice and care delivery at a team and/or service level. Leading on research within scope as part of team research agenda in area of practice
Outpatient services	Pre-assessment clinics – confirmation of medication histories Counselling patients on new hospital only therapies including in transplantation, viral hepatitis, autoimmune liver diseases	As post-registration, plus: Pre-assessment surgical clinics – confirmation of medication histories and ensuring medications are appropriately held prior to surgery Independently conducting initiation clinics to counsel patients, check drug-drug interactions for escalation, reviewing bloods prior to renewing repeat prescriptions, ensuring adherence Participate in multi-professional clinics for new transplant recipients
Professional practice	Undertake ethical decision-making in the best interests of patients and the public, and be able to robustly justify decision Write and review SOPs Ensure shared care guidelines are followed Blueteq completion for high cost drugs in viral hepatitis, PBC	As post-registration, plus: Writing / contributing to local guidelines, including shared care agreements Completing DTC applications and researching evidence-base for advancing practice Supporting with stock management of high cost medicines

	Identify CPD opportunities for self and others Motivate and support individuals and teams to improve performance Participate in peer networks to develop own practice Report incidents and safety issues, considering potential solutions	Provide CPD opportunities for self and others, including at regional level and beyond Create peer networks to share and develop practice Participate in multi-professional hepatology networks Investigate and prevent medicines-related patient safety incidents, implementing learning and systemic solution.
Leadership and management	Demonstrates insight into impact of own actions within the role and reflect on how these can affect others. Demonstrates the value of pharmacy to the public and other healthcare professionals Describe the key drivers for national and local service development Participate in own appraisals and contribute feedback to appraisal of others Supports others in their development	As post-registration, plus: Act as a role model for other members of the pharmacy team, actively demonstrating the GPhC Standards for Professional Professionals Able to remain composed and de-escalate potential and actual conflict situations. Effectively, efficiently and safely manage multiple priorities; maintain accuracy when in a challenging situation; manage own time and workload calmly, demonstrating resilience Shapes and contributes to the governance agenda within their organisation Monitor standards of practice, assess risk and address training needs for self and others Lead on innovation and improvement in relation to hepatology pharmacy technician service delivery Manage or supervise others, including appraisal of performance, identifying development needs and celebrating achievements. Able to perform a service evaluation with options appraisal for service development and suggestions to improve the quality of service.

TABLE 4. COMPETENCIES FOR PHARMACY ASSISTANTS

	Senior Pharmacy Assistant
Qualification required	**Competencies associated with ward-based duties in hepatology pharmacy teams.**
Patients' Own Drugs (POD) check training and assessment (for POD checks on admission).	Checking medicines that patients have brought in from home are suitable for use against items prescribed for the patient on hospital systems. **Note: Only applicable after completion of appropriate training and competency has been assessed as safe by an external training provider or appropriately trained pharmacy professional, and only at certain trusts.**
Transcribing / ordering training and assessment.	Ordering a supply of medicines for use during inpatient stay and planning ahead for discharge. **Note: Only applicable after completion of appropriate training and competency has been assessed as safe by an external training provider or appropriately trained pharmacy professional, and only at certain trusts.**
Final accuracy check or Patients' Own Drugs (POD) check training and assessment.	Final accuracy check of medicines labelled for patients use during inpatient stay, prior to discharge. **Note: Only applicable after completion of appropriate training and competency has been assessed as safe by an external training provider or appropriately trained pharmacy professional, and only at certain trusts.**
Dispensing as part of GPhC approved Level 2 qualification or training.	Dispensing prescribed items for patients to take home on discharge.
Safe and secure handling of medicines as part of GPhC approved Level 2 qualification or training and in-house training.	Demonstrates knowledge of safe and secure handling of medicines and is familiar with RPS guidance: https://www.rpharms.com/recognition/setting-professional-standards/safe-and-secure-handling-of-medicines Demonstrates knowledge of when to escalate problems – e.g.. temperature excursion, stock list amendment, returned discharge medication, expired /short-dated stock Escalates issues and risks in relation to medicines use on wards. Able to carry out medicines management tasks including processing returns, ensuring safe storage of medicines in clinical rooms and drug / crash trollies, temperature checks.
Ensuring compliance with national patient safety alerts	As delegated by the pharmacy team
Identifying and supporting cost saving measures	Support the pharmacy team as and where applicable Actively seek out cost saving initiatives
No minimum requirement	Support the pharmacy team as and where applicable with Research, Audit and Quality Improvement projects

3. PHARMACY SERVICE STAFFING

There is countrywide variation in hepatology pharmacy service skill mix and staffing levels ranging from a sole hepatology pharmacist practitioner, including part-time or split roles, to a multi-staffed and multi-skilled hepatology pharmacy team (incorporating 8-10 WTE staff graded between band 3-8c Agenda for Change [AfC]). In line with recent and updated guidance, some localities have and others may review and identify a need and opportunity to appoint a consultant pharmacist to deliver care and drive change across the healthcare system.[18]

The reason for this variation is multifactorial, often based on historical, local funding arrangements, hepatology unit size, skill mix and direct patient need. Transplanting centres generally are found to have the higher staffing levels, including specialist pharmacy technicians and consultant pharmacists.

Service provision for hepatology, as for other services, should be based upon local patient case-mix whilst considering acuity, dependency and patient complexity.

There are also interdependencies between other clinical areas, for example in some centres the surgical team will cover hepatobiliary wards and the general critical care pharmacy team will review critically unwell hepatology patients. The number of pharmacists required to review critically unwell patients are based on the critical care workforce recommendations. As this is competency based, we have outlined minimum staff numbers per type of hepatology patient with the assumption they are competent to review these patients.

Consideration must be given to hepatology pharmacy service continuity during rostered days off, annual leave, sick leave and training leave. Additional resources will be required to provide this cover (20% minimum is recommended).

3.1 Pharmaceutical patient care (direct and indirect)

The UK hepatology pharmacy staffing summary recommendation is derived from data collected from a national survey completed by pharmacy staff working within hepatology services around the UK in 2023. A total of 17 centres responded and they varied from district general hospitals to tertiary level centres, providing an overview of the spread of varying levels of hepatology pharmacy service provision. There was also a mix of paper based prescribing systems and electronic based prescribing systems.

Inpatient care

The number of pharmacists and pharmacy technicians that are currently undertaking direct patient care on a ward level is shown in Table 5.

Based on survey results, experienced hepatology pharmacists (advanced and consultant level) and a specialist pharmacy technician have reviewed and agreed the time required to complete essential core inpatient pharmaceutical activities (direct patient care) (Table 6).

This can be used to support local service development, where full electronic prescribing systems are in place, these activities may be more time consuming, but for the purpose of this document the times below are an average of both systems.

Indirect pharmaceutical patient care has not been formally evaluated but is integral to hepatology pharmacy service provision. There is, again, variation across the country, and experienced hepatology pharmacists have stated that between 10% and 50% of their time is involved with indirect pharmaceutical patient care as per examples detailed in Table 1.

TABLE 5. CURRENT HEPATOLOGY PHARMACY TEAM STAFFING LEVELS FOR INPATIENT (DIRECT CARE) SERVICES PER 20 INPATIENTS

	Mean
Pharmacist - Hepatology patients	0.84
Pharmacist - Liver transplant patients	1.3
Pharmacist – HPB patients	0.75
Pharmacist - Liver Intensive Care patients	2
Pharmacy Technician, Band 7*	0.5
Pharmacy Technician, Band 5 or 6	0.6
Pharmacy Assistant	0.20

*Only present in 1 tertiary level hospital in addition to one Band 5/6 pharmacy technician

TABLE 6. CORE PHARMACEUTICAL CARE (DIRECT PATIENT CARE) PRACTICE FOR HEPATOLOGY PHARMACY INPATIENT SERVICES.

General Hepatology Patients	**Time (mins) per patient**
New inpatient admission pharmacist review, medicines reconciliation and checking patients own drugs (POD) on admission	25
Existing in-patient daily pharmacy review	10
Discharge planning	20
Complex discharges – e.g. patients requiring multi-compartmental compliance aids (dosette boxes), care home referrals, district nurse/other healthcare professional referrals. This is set up time and does not include dispensing	25
Transplant Patients	
New inpatient admission pharmacist review, medicines reconciliation and checking patients own drugs (POD) on admission	40
Existing in-patient daily pharmacy review	15
Discharge planning and health education (newly transplanted patients)	45
Discharge planning (subsequent admissions)	20
Hepatopancreobiliary (HPB) Patients	
New inpatient admission pharmacist review, medicines reconciliation and checking patients own drugs (POD) on admission	15

Existing in-patient daily pharmacy review	10
Discharge planning	10
Complex discharges – e.g. patients requiring multi-compartmental compliance aids (dosette boxes), care home referrals, district nurse/other healthcare professional referrals. This is set up time and does not include dispensing	20
Liver Intensive Care Patients	
New inpatient admission pharmacist review, medicines reconciliation and checking patients own drugs (POD) on admission	45
Existing in-patient daily pharmacy review	25

Outpatient care

Contribution to outpatient activity and enhanced services undertaken by hepatology pharmacy teams is increasing. A summary of the time taken to review patients, including administrative time to write correspondence, to request and review blood tests and imaging and to organise homecare is highlighted in Table 7. Clinical pharmacists who provide enhanced services including independent outpatient consultations should have the minimum competencies to allow them to do so (at least advanced level) and must have access to a senior member of the multi-professional team for advice and referrals.

Pharmacy technicians providing enhanced outpatient services should have completed or be working towards a level 4 or higher clinical qualification, and must be working under the supervision of the hepatology multi-disciplinary team. Internal standard operating procedures and competencies must be completed prior to pharmacy technicians conducting independent outpatient activity; including consultations, reviewing blood tests and writing correspondence.

TABLE 7. ADVANCED PHARMACEUTICAL CARE (DIRECT PATIENT CARE) PRACTICE FOR HEPATOLOGY PHARMACY OUTPATIENT SERVICES.

Outpatient hepatology pharmacy practice	Time to review new patient including administrative time (mins)	Time to review follow up patient including administrative time (mins)
General Hepatology		
Primary Biliary Cholangitis	50	40
Autoimmune Hepatitis	50	30
Fatty Liver Disease	50	30
Advanced Chronic Liver Disease	50	30
Viral Hepatitis		
Hepatitis B	50	20
Hepatitis C	50	20
Hepatitis D	50	30
Transplant		
Post discharge follow up	40	

Immunosuppression titration		50
Long term follow up		50
HPB Pre-assessment surgical clinic	20	

3.2 Staffing level recommendation

Based on the data outlined above, pharmacists and pharmacy technicians from the British Hepatology Pharmacy Group (BHPG), British Liver Transplant Group (BLTG) and Solid Organ Transplant Pharmacy Association (SOTPA) have made recommendations on the minimum staffing complement to provide essential and core adult hepatology pharmacy services (using average 70:30 direct versus indirect pharmaceutical patient care), as a seven day clinical service. These are presented within Table 8. The WTE pharmacist range is indicative for hepatology unit staffing at District General Hospitals and Teaching Hospitals and relates specifically to activities that can only be performed by a pharmacist.

Of note, seven day working with rostered days off, annual leave, sick leave and training has been taken into consideration. A minimum of 20% additional resource is recommended.

TABLE 8: UK HEPATOLOGY PHARMACY EXPERT PANEL RECOMMENDATION FOR MINIMUM STAFFING FOR ESSENTIAL AND CORE ADULT HEPATOLOGY PHARMACY SERVICE PER 20 INPATIENT BEDS (DIRECT AND INDIRECT CARE)*

1 – 1.5 WTE pharmacist for general hepatology patients
2 WTE pharmacists for transplant patients (transplant centres only)
1 WTE pharmacist for HPB patients
2 WTE pharmacists for liver intensive care patients
1 WTE pharmacy technician
0.3 WTE pharmacy assistant

*The ratio of time spent on direct versus indirect care is approximately 70:30.

The numbers above are similar to workforce requirements from recent literature including the renal workforce plan, solidifying the validity of this reccomendation[19-22].

Enhanced and extended clinical pharmacy practice, including those at a consultant pharmacist level will require local business case submission as part of service development and staff skill mix review. It is for this reason that a recommendation for pharmacist staffing in outpatient clinics and homecare medication related activities has been excluded. However, Table 7 highlights the time pharmacy staff currently spend in undertaking direct patient care via face to face and virtual outpatient clinics.

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