North of England Pharmacy Technical Services (PTS) Workforce Project
REPORT

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Glossary

ATMPs	Advanced Therapy Medicinal Products. An advanced therapy medicinal product is a biological medicinal product that can be classified as either one of or a combination of the following three categories: gene therapy, somatic cell therapy and tissue engineered products.
Aseptically Prepared Products	Injectable medicines which are prepared using aseptic non-touch technique within a pharmacy cleanroom environment
EI(97)52 audit	An external audit of a hospital pharmacy departments responsible for preparing aseptic products under Section 10 exemption (see below). Audits are performed by Regional Quality Assurance Specialists.
GPhC	General Pharmaceutical Council. The General Pharmaceutical Council (GPhC) is the independent regulator for pharmacists, pharmacy technicians and pharmacy premises in Great Britain
Licensed unit	Pharmaceutical manufacturing facility operating under a MHRA Manufacturers Specials Licence. Licensed units can prepare batches of pharmaceutical products.
MHRA	Medicines and Healthcare products Regulatory Agency - UK medicines regulator. The MHRA licence and inspect pharmaceutical manufacturing facilities.
QA / QC	Quality Assurance / Quality Control
Ready-to-administer product	An injectable medicine which has been prepared by pharmacy aseptic services and requires no further preparation by the clinical team prior to administration.
QP	Qualified Person. A Qualified Person (QP) is responsible for assuring the quality of medicines manufactured under a manufacturing authorisation.
RPS	Royal Pharmaceutical Society. Professional body for Pharmacists and Pharmaceutical Scientists.
Section 10 / Unlicensed facility	Pharmacy led facility which prepares patient specific ready-to-administer medicines under the supervision of a Pharmacist. Preparation is permitted under an exemption (Section 10) of the Medicines Act.
TSET	NHS Technical Specialist Education and Training (TSET) Group. A committee of active, pharmaceutical technical specialists, who represent the principal specialist areas of hospital based pharmaceutical production, (sterile, aseptic and non-sterile), radiopharmacy, quality assurance and quality control.

Thanks and Acknowledgements

We would like to thank all of those to contributed to this report. To deliver a report like this would not have been possible without the fantastic engagement from the technical service teams across the North of England and throughout the UK.

We are particularly grateful to all those who hosted site visits, completed questionnaires and submitted evidence. It was clear from the number and quality of responses received that 'workforce' is an extremely important issue and is a key area of concern both now and in the future.

We would also like to thank Leeds Teaching Hospitals NHS Trust and South Tyneside and Sunderland NHS Foundation Trust for their support and releasing both project leads to deliver this report. Finally, we would like to thank the NHS Technical Specialist Education and Training Group (NHS TSET) for inviting the project team to committee meetings and providing insight into key workstreams.

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Introduction

Background:

The Pharmacy Technical Workforce comprises Aseptic Preparation, Manufacturing, Radiopharmacy, Quality Assurance and Quality Control. The NHS pharmacy technical workforce is critical to the safe and effective preparation, delivery and quality assurance of a range of highly specialised and bespoke medicinal products to patients. This includes ready-to-administer presentations of parenteral nutrition for premature neonates, intravenous chemotherapy for outpatients and radiopharmaceuticals for diagnostic imaging. They are often required to be supplied in a way that enables the delivery of medicines according to clinically proven protocols and efficient scheduling of treatment and investigations. These products may be outsourced or prepared in specialist NHS preparation units.

The Chief Pharmacist networks in the North of England identified the urgent need for a scoping exercise to identify the workforce issues across all grades and workforce groups, particularly critical posts.

Key drivers for the scoping exercise include:

Sustained Growth in Service Demand and increasing use of novel therapies e.g., Advanced Therapy Medicinal Products and clinical trials

Increased demand for aseptic products (approximately 5% per annum) with the need to expand current services to meet this demand.[1] Approximately 50% of clinical trials require aseptic services support.

MHRA and EI(97)52 Audit Findings:

Loss of knowledge and experience in the technical workforce has been cited as a key area of concern by regulators inspecting both licensed and Section 10 aseptic services (MHRA and EL audit). There has been a significant increase in major and critical deficiencies relating to lack of appropriate knowledge and skills in this workforce which have been identified as a significant risk to patient safety and has led to the MHRA placing limitations on both commercial and NHS aseptic compounding capacity.

Resilience of Commercial Sector:

Significant fragility of commercial market has been reported, increasing the need for resilient NHS services – outsourcing is not the solution. The commercials sector supply approximately 30% of all ready-to-administer aseptic medicines.

Resilience of NHS Workforce:

Lack of resilience in the workforce, and shortages of skilled, knowledgeable staff. In addition, senior experienced leaders have retired / are due to retire within the next 5 years.

[1]Transforming Pharmacy Aseptic Services in England, Department of Health and Social Care by Lord Carter of Coles, 2020

Introduction

Objectives:

- To perform a critical analysis of current education and training of the pharmacy technical workforce across the north of England and to facilitate the identification of career pathways across all grades and staff types.
- To inform a strategic plan for a sustainable specialist pharmacy technical services workforce model to support the current and future needs of the NHS, maximising existing resources, and building capacity and resilience.

Scope:

Workforce development of the NHS Pharmacy Technical Services within the North of England

- Aseptic Services, Aseptic Manufacture, Radiopharmacy
- Supporting Services: Quality Assurance and Quality Control
- MHRA licensed and Section 10 activity

Non-sterile manufacture was excluded from the scope of this project

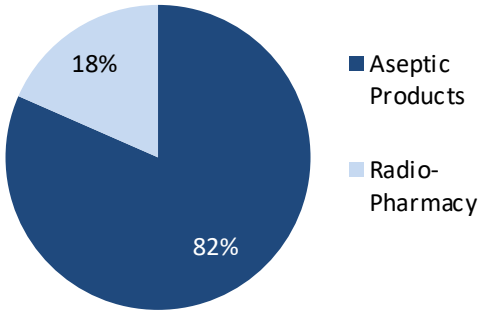
What does Pharmacy Technical Services look like across the North of England?

64 aseptic and radiopharmacy services

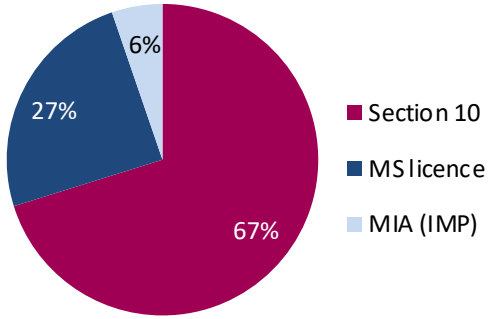
8 quality control services providing support to aseptic and radiopharmacy services

Quality assurance services range from being integrated with licensed facilities to standalone services supporting a region.

Most (82%) of facilities prepare aseptic products



Most (69%) of facilities operate under Section 10



Nationally, 70% of all supply of aseptic products is in-house; 30% outsourced to the commercial sector.[1]

Aseptically produced injectable medicines have an annual cost of £3.8 billion representing 3.1% of the total annual budget of NHS England.[1]

Services also provide cutting edge medicines such as advanced therapy medicinal products, and clinical trials are increasingly exploring the use of new technologies e.g. automation

[1]Transforming Pharmacy Aseptic Services in England, Department of Health and Social Care by Lord Carter of Coles, 2020

Methodology and Participation

Data for the project was requested from 72 services (aseptic, radiopharmacy and QC) from across the North of England using the following methodology:

- A pan-north stakeholder day
- Site visits and interviews at selected sites
- Questionnaires sent to all units
- Call for evidence for good practice documents associated with training, assessment & validation
- Call for evidence job descriptions

Data was collected between July 2019 to March 2020.

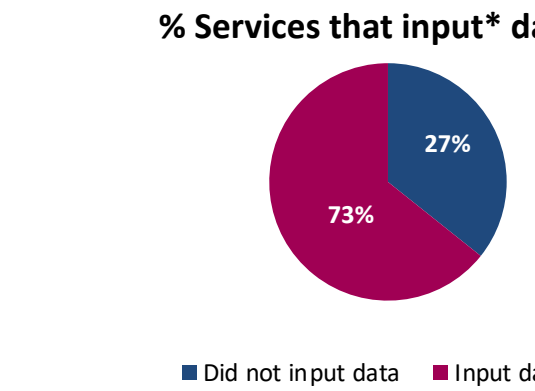
Data analysis:

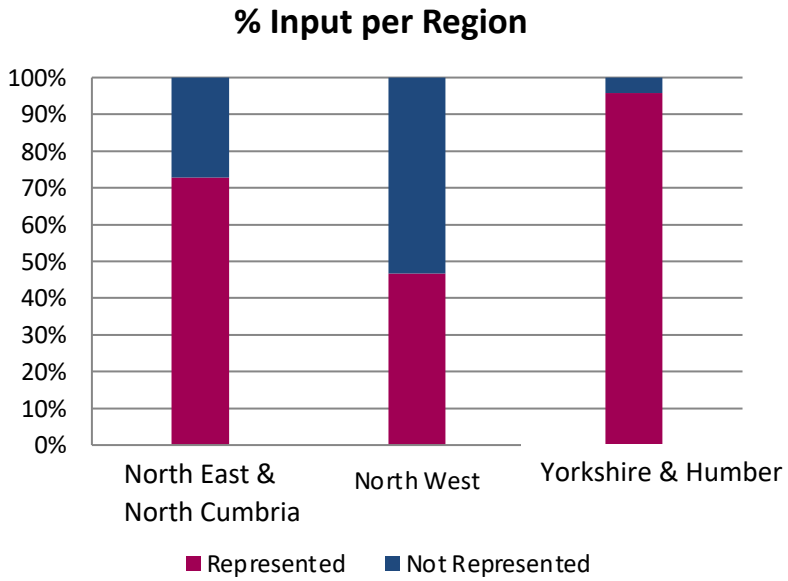
Quantitative analysis: Questionnaire data only

Thematic analysis: qualitative data obtained form all sources

5 'outside of region' facilities were also approached including one commercial company for comparison. This data has not been included in 'project participation'.

Project Participation





*Input from stakeholder event, site visits, interviews and survey completion; 49/64 Aseptic and Radiopharmacy services input data, 4/8 QC services input data.

National Policies and Reports

The need to review the Pharmacy Technical Services workforce has been brought to focus by several national policy and report developments, which have been considered throughout this scoping exercise:

The NHS Long Term Plan - sets out ambitious targets for increased treatment of cancer, reduction in anti-microbial resistance and innovative therapy for chronic debilitating diseases – all of which are built on an assumption of sufficient flexible and resilient aseptic services, with the capacity and capability to deliver the anticipated growth in treatment regimens for these patients. As well as the identified growth in demand and an unquantified area of unmet need, the NHS Long Term Plan also highlighted a number of clinical specialties where aseptic medicine production is critical to success.

The NHS People Plan – sets out actions to support transformation across the whole NHS. It focuses on how we must all continue to look after each other and foster a culture of inclusion and belonging, as well as to grow our workforce, train our people, and work together differently to deliver patient care. The principles underpinning the action through 2020/21 must endure beyond that time. Key themes include: i) responding to new challenges and opportunities, ii) looking after our people, iii) belonging in the NHS, iv) new ways of working and delivering care and v) growing for the future.

Transforming NHS Pharmacy Aseptic Services in England - The report recognised that English pharmacy aseptic services need to be transformed. It recommended that a network of collaborative industrialised, automated, regional aseptic hubs supporting aseptic spokes are created across England. This new target operating model would ensure a safe, high quality, resilient supply of aseptic medicines, release nursing time for care and enable more out-of-hospital care. This approach would require standardisation, consolidation and automation.

The report also recognised the need to support and develop the workforce in conjunction with the recommendations from the NHS People Plan. It identified that skills shortages and succession planning in aseptic services have now become key issues. A national co-ordinated strategy and supported infrastructure for the effective development of the pharmacy technical services workforce is therefore required and should explore new roles and new routes of entry.

[1]The NHS Long-term Plan, NHS England, 2019
[2]We are the NHS : People Plan for 2020/21, NHS England, 2020
[3]Transforming Pharmacy Aseptic Services in England, Department of Health and Social Care by Lord Carter of Coles, 2020

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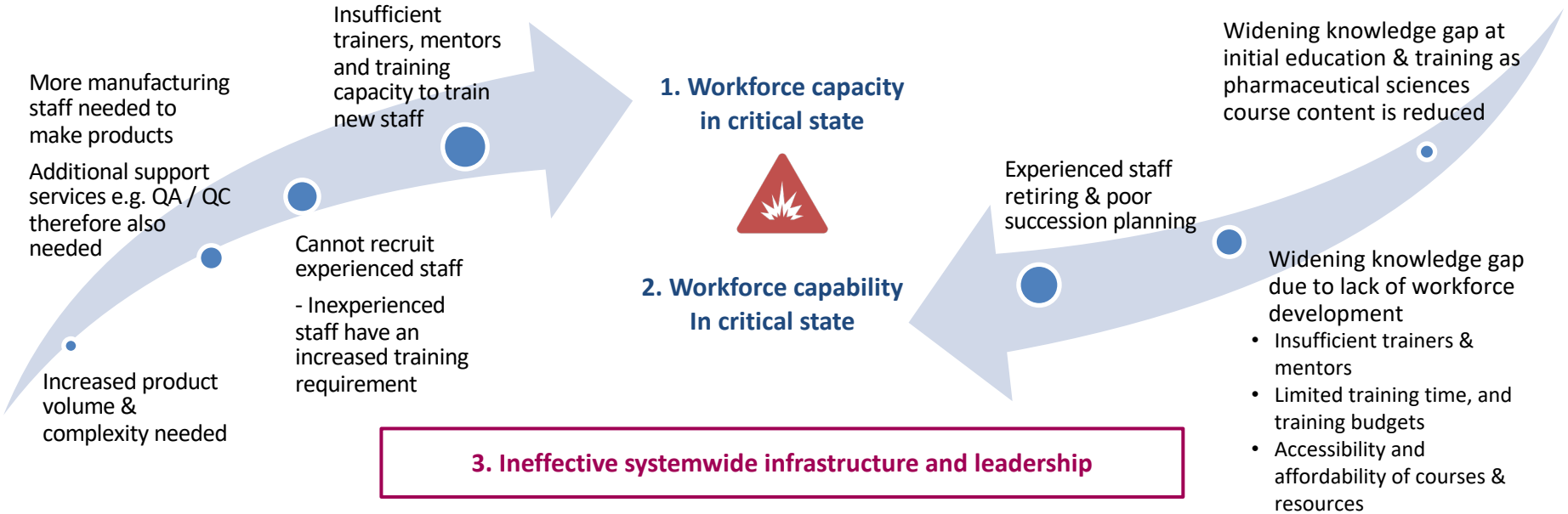
Executive Summary of Key Findings

The Pharmacy technical workforce is in a critical state and the situation is in decline. Knowledge and skills are diminishing as experienced staff retire and there is limited capability and capacity to develop this workforce. If this trend is not reversed it is likely patient care will be impacted though increased patient safety incidents, the inability to provide specific therapies and treatment delays in critical services.



Outsourcing alone is not the solution to this problem. Capacity in the commercial sector has not been able to consistently meet demand in terms of quantities and turnaround for several years. Increased capacity, resilience and growth of the workforce is therefore needed across both NHS and the commercial sector to ensure safe, high quality, resilient supply of aseptic medicines.

Provision of ready-to-administer critical injectable medicines by Pharmacy aseptic units is essential for patient care both hospital and community settings e.g. homecare. The provision of these doses has a significant benefit to the health economy by releasing nursing time to care for patients

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Part 1 Overview of Findings: Current State of Workforce

Workforce Capacity

✓ There is insufficient workforce capacity to meet service demand. This is significantly impacting on the capability to grow and diversify service provision.

Workforce Capability

✓ There has been a knowledge drain as experienced leaders retire without adequate local succession planning.

- Impacting on the capability of some services
- Increasing area of concern to regulators

Initiatives

✓ Local and national initiatives have been established to create novel workforce groups. Successes have been noted as these initiatives have filled *some* gaps but further work is required.

Recruitment & Retention

✓ Widespread problems with recruitment and retention

✓ Influencing factors include:

- a perceived negative image of technical services,
- a lack of perceived career opportunities,
- a reduced pool of potential candidates due to the Pharmacy profession's diversification and expansion

✓ Limited routes of entry

✓ Significant barriers to services 'growing their own' workforce

- agenda for change job profiles and job descriptions
- lack of local active plans for succession to grow the leaders of the future

Workforce: Summary of Key Findings (1–8)

Workforce Capacity

1. There is insufficient workforce capacity to meet service demand. This is significantly impacting on the capability to grow and diversify service provision. *See slide 17*

Workforce Capability

2. There has been a knowledge drain as experienced leaders retire without adequate local succession planning. This is beginning to have a significant impacting on the capability of some services to provide safe and effective aseptic services and is an increasing area of concern to regulators. *See slide 18*

Recruitment and Retention

3. Widespread problems with recruitment and retention were reported, particularly Pharmacist and Pharmacy Technician posts. *See slide 20*

Underlying causes:

4. Successful expansion and diversification of the profession into clinical practice has reduced the pool of potential Technical Service employees. Ultimately, this has resulted in fewer applicants and higher staff turnover. *See slide 21*

5. Pharmacy qualifications now have a reduced emphasis on Pharmaceutical Sciences and their application in Technical Services. *See slide 21*

6. Many personnel perceive that technical services are undervalued by national and local leaders as they are not seen as patient-facing, although these staff do have important clinical input. Diminishing local investment in infrastructure and workforce development have had a negative impact on recruitment and retention, undermining this area as an attractive career option. *See slide 22*

7. Lack of national recruitment strategy. Recruitment opportunities are aimed at a limited pool of potential candidates through narrow advertising and recruitment techniques. *See slide 23*

8. Recruitment is generally by accident rather than design. Most staff interviewed were attracted to a career in Pharmacy Technical Services following exposure to the specialist area. Opportunities for this exposure are, however, diminishing. *See slide 24*

Workforce: Summary of Key Findings (9-14)

Recruitment and Retention *continued*

Underlying causes:

9. Personnel perceived that there are limited opportunities to progress, particularly to advanced or consultant level practice. *See slide 26*

10. The lack of a visible career pathway, and awareness of technical roles, is detrimental to recruitment and retention, and limits the ability to inspire and actively market Pharmacy Technical Services as an attractive career option. *See slide 26*

11. There is widespread variation in local job descriptions for similar roles across the North. Job descriptions are commonly adapted from generic Pharmacy AFC profiles that do not adequately reflect or provide sufficient detail of the job role. *See slide 27*

12. Pharmacy AfC profiles only refer to traditional Pharmacy workforce staff groups. Banding depends on professional status instead of knowledge and experience and other relevant qualifications. This impacts on retention and acts as a barrier to services 'growing their own' and entry of a novel workforce. *See slide 28*

13. There is limited succession planning for senior posts. Most services have identified difficulties when recruiting for senior posts but do not have the infrastructure in place to develop their junior staff into these roles. This is particularly challenging for smaller services. *See slide 29*

Innovations

14. Local initiatives such as 'clean room supervisor' roles have been established due to problems with recruitment and are the first step to a 'grow your own' approach. Further work to provide underpinning qualifications and integration into a defined career pathway is needed. *See slide 31*

15. The Scientific Training Programme (STP) is a national initiative aimed to develop future leaders. Whilst this programme has been successful in producing high calibre graduates, however it has not yet sufficiently filled the leadership gap. *See slide 32*

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What does the Pharmacy Technical Service *Workforce* look like across the North of England?

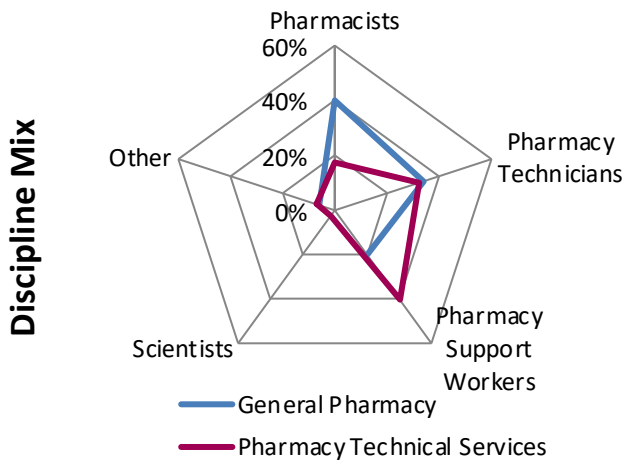
The pharmacy workforce is the third largest single staff group in the NHS, predominantly comprising Pharmacists, Pharmacy Technicians and Support Workers.[1]

The Pharmacy Technical Services discipline mix differs from the general pharmacy workforce

⬆ Pharmacy Support Workers

⬇ Pharmacists

~ Pharmacy Technicians



Data: General Pharmacy[2] , Pharmacy Technical Services – survey results

Key facts:

- The workforce is highly skilled and knowledgeable in the manufacture, preparation, quality control and quality assurance of a range of injectable medicines.
- Most staff do not rotate between pharmacy technical services and other sectors of pharmacy.
- Significant unwarranted variation in skill mix / task allocation between services has been reported.[3]
- Unlicensed Aseptic Services legally require Pharmacists to be employed in key roles such as Accountable Pharmacist. This role takes responsibility for all aspects of the services within an aseptic preparation unit.
- Pharmacy Technicians occupy a number of essential roles including service and people management and delivery of training.
- Pharmacy support workers routinely undertake critical roles including supporting activities e.g. transfer sanitisation and making medicines.
- Scientists are predominantly employed within Quality Control and Quality Assurance services.

[1] Leading integrated pharmacy and medicines optimisation , NHS England and NHS Improvement, 2020
[2]Pharmacy and Medicines Optimisation Benchmarking Project 2019 Summary Report, NHS Benchmarking Network, 2019
[3]Transforming Pharmacy Aseptic Services in England, Department of Health and Social Care by Lord Carter of Coles, 2020

Workforce Capacity

Finding 1: There is insufficient workforce capacity to meet service demand. This is significantly impacting on the capability to grow and diversify service provision.

Evidence:

*"We are struggling to meet **current** demand due to staffing levels"*

"Capacity is the biggest problem"

"The operational need takes over, this is our biggest barrier to completing other activities such as training and quality work"

Overtime is a weekly occurrence for 41%[1]

"There are not enough [staff] to meet the demand of our growing service"

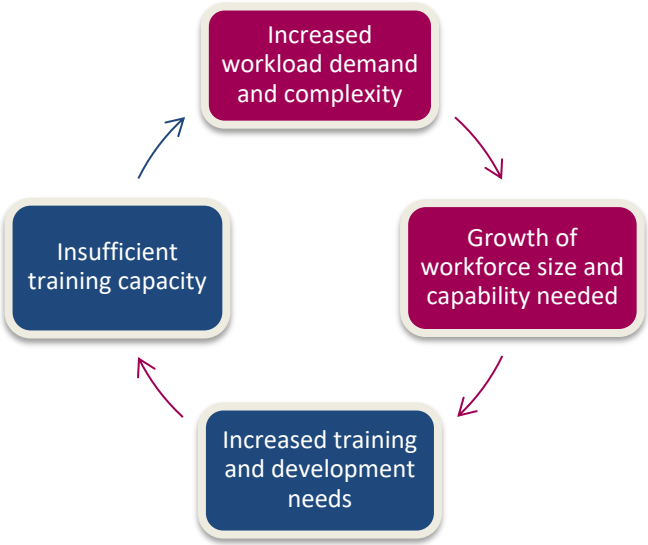
50% of commercial clinical trials require support from aseptic services "we have limited capacity to support the continued growth of clinical trials"

Demand for aseptically prepared products is increasing (circa. 5% per annum).[1]

Lancet Oncology (May 2019): Demand for chemotherapy likely to increase by >50% by 2040 which will require corresponding 50% increase in support service capacity.[2]

Long Term Plan: redesign of outpatient services will require an extension of aseptically prepared ready to administer injectable medicines.[3]

Workforce capacity needs to take into account making medicines and other supporting activities such as quality assurance and workforce training and development.[4]



Transforming Aseptic Services highlighted lack of nursing capacity. Preparation of time-consuming aseptic medicines within the Pharmacy setting significantly increases nursing time to care. Preparing only the top 12 injectable antimicrobials could release as much as 4,000 whole time equivalent nurses across England.[5]

[1]Pharmacy Aseptic Services Review Summary of Key Findings, NHS Improvement, 2018
[2]Wilson *et al*. Estimates of global chemotherapy demands and corresponding physician workforce requirements for 2018 and 2040: a population-based study, Lancet Oncol 2019: 20: 769–80
[3]The NHS Long-term Plan, NHS England, 2019
[4]MHRA. Guidance for 'specials' manufacturers. 25 February 2021
[5]Transforming Pharmacy Aseptic Services in England, Department of Health and Social Care by Lord Carter of Coles, 2020

Workforce Capability

Finding 2: There has been a knowledge drain as experienced leaders retire without adequate local succession planning. This is beginning to have a significant impacting on the capability of some services to provide safe and effective aseptic services and is an increasing area of concern to regulators.

Evidence:

Accountable Pharmacists are in post for an average of 13 years, with some nearing retirement.[1]

"We are worried - what would happen if we lost any of our more senior staff as we do not have anyone with the experience to take on these roles and external recruitment is almost impossible".

1. Knowledge gap identified from initial education and training
2. Widening knowledge gap due to lack of local workforce development
   - Insufficient trainers & mentors
   - Limited training time, and training budgets
   - Accessibility and affordability of courses & resources
   - Poor access to subject matter experts
3. Poor succession planning
4. Experienced trainers and subject matter experts leaving e.g. due to retirement. Reducing knowledge & experience available to provide safe & effective services and also train successors.

Workforce capability in critical state

Loss of knowledge and experience in the technical workforce has been frequently cited as a key area of concern by regulators inspecting both licensed and unlicensed aseptic services (MHRA and EL audit).

There has been a significant increase in major and critical deficiencies relating to a lack of appropriate knowledge and skills in this workforce which have been identified as a significant risk to patient safety and has led to the MHRA placing limitations on their aseptic compounding capacity.

Emerging themes from a review of MHRA Inspections and EL audit findings 2019-2020[2]

- Diminishing knowledge of workforce
- Staff in senior positions without sufficient knowledge and experience
- Poor clean room behaviour
- Staff not sufficiently knowledgeable to identify poor practices
- Insufficient or ineffective supervision of aseptic preparation
- Knowledge & capability is commonly cited as a root cause for inadequate investigation into incidents & deviations

1 The Future of Pharmacy Aseptic Services in England. Pharmacy & Medicines Optimisation Team, NHS Improvement, 2019.
2 NHS QA Committee Data. Presented at NHS Pharmaceutical Quality Assurance and Technical Services Symposium November 2019.

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Recruitment & Retention

Finding 3: Widespread problems with recruitment and retention were reported, particularly in relation to Pharmacist and Pharmacy Technician posts.

Evidence:

"Unfortunately we always have vacancies…the unit is growing and we are adding in more posts"

"Our worst [recruitment] problem is with registered Pharmacy Technicians… there is not enough of them to keep up with the demand."

"We wait for [Pharmacy] Technicians to qualify – this has been the cycle for the last 4 or 5 years… we can go for months every year with gaps whilst waiting on them [to qualify] and this means that numerous newly qualified staff start at the same time, which is a huge training burden."

"We tried to recruit a band 4 [Pharmacy] Technician 3 times but there were no appropriate candidates… we are now looking to try to recruit a [AfC] band 3 or 5 instead, whoever is available."

"We feel like we are constantly recruiting support workers; we recruit them at band 2 level, then they usually step up to a band 3 post, which is great for them, but then we lose them to student technician posts – and the don't return"

"We are worried - what would happen if we lost any of our more senior staff as we do not have anyone with the experience to take on these roles and external recruitment is almost impossible".

"We try to recruit Pharmacists but we are lucky if get a suitable / good applicant"

"We want a band 7 [Pharmacist] post but can't find anyone suitable"

"We need a band 8a Pharmacist to help with some of my duties, but it is unlikely we will get any suitable candidates – we don't have the time to train someone from scratch"

"We struggle to recruit when we have internal promotions"

"We predominantly recruit from within – the quality and availability of external applicants is low"

- The greatest recruitment problems were identified with Pharmacists and Pharmacy Technicians, particularly newly qualified AfC band 4 posts. This will in turn, significantly impact the future specialist technician workforce.
- Each service relies on a small number of experienced personnel for expertise and leadership. There is significant difficulty recruiting into these type of roles
- High turnover of staff (15-20%[1]) results in a high training need.

[1]Pharmacy Aseptic Services Review Summary of Key Findings, NHS Improvement, 2018

Recruitment and Retention
Underlying Causes (1) : Pharmacy Expansion & Initial Education and Training

Finding 4: Successful expansion and diversification of the profession into clinical practice has reduced the pool of potential Technical Service employees. Ultimately, this has resulted in fewer applicants and higher staff turnover.

Finding 5: Pharmacy qualifications now have a reduced emphasis on pharmaceutical sciences and their application in Technical Services. This has perpetuated problems with recruitment and retention owing to reduced knowledge, understanding and awareness of the area.

Evidence:

"We can't recruit and staff are going elsewhere due to opportunities in primary care, CCGs etc."

"We advertised a [AfC band 4] Pharmacy Technician post advertised on 4 occasions with no suitable candidates applying"

"We have had a high band 4 [Pharmacy Technician] turnover as they are leaving due to opportunities elsewhere"

"I moved away from technical services as I wanted to progress and there were more opportunities to progress elsewhere for me as a Pharmacist"

"Staff leave as they know they can progress quickly in other areas such as GP commissioning and Medicines Management roles"

"No aseptic route for [Pharmacy] Student Technician's - once they go on the [pre-registration Pharmacy Technician] course they don't come back as they are recruited from the rotations they have experienced – they don't get experience of aseptics at our Trust"

"My only option to progress is to train as a student [Pharmacy] Technician but then I wouldn't work within the speciality I enjoy – the training does not include aseptic services "

"I didn't have much experience of aseptics when I was a student [Pharmacy] Technician"

"We have experienced a lack of suitably experienced and knowledgeable job applicants as they have no basic [technical] training"

"We have significant difficulty in identifying candidates with suitable knowledge and experience for a variety of Pharmacist positions"

"We receive applications from pharmacists with passion and drive, but no knowledge or skills in NHS Pharmacy Technical Services".

'Pharmacists have an essential role to play in delivering the [NHS] Long Term Plan' in community, primary care, urgent care, care homes, learning disabilities and prevention — Keith Ridge (@keithridge1) January 7, 2019

Recruitment and Retention
Underlying Causes (2): Leadership & Investment

Finding 6: Many personnel perceive that technical services are undervalued by national and local leaders as they are not seen as patient-facing, although these staff do have important clinical input. Diminishing local investment in infrastructure and workforce development have had a negative impact on recruitment and retention, undermining this area as an attractive career option.

We saw and heard:

"People's perception is that this is a diminishing area, but we are actually at the forefront of patient care and heavily involved with emerging treatments such as gene therapy"

"We feel less of a priority than the clinical services. We receive limited investment and don't feel as valued"

"We are just left to get on with it – we are separate to the rest of Pharmacy"

"We struggle to recruit as staff think they will be limited [in terms of opportunity and progression] if they join us"

"People think Technical Services doesn't change but it is an evolving service – we need to publicise this better"

"We need to invest in people's development, or they won't stay"

Story of success:

Pharmacy departments reported positive recruitment and retention where staff felt valued and invested in (both their own development and the service). These departments strategically integrated clinical and technical services and reported active engagement from senior pharmacy management fostering a culture of inclusivity and a shared vision.

The Carter review and the subsequent Hospital Pharmacy Transformation Programme (HPTP) encourages pharmacists to spend the majority of their time carrying out clinical functions in support of medicines optimisation and the clinical care of patients to reduce the amount of resource devoted to infrastructure services [Pharmacy Technical Services].[1]

Unintended consequences of Carter report:

- Technical services not perceived as an essential clinical service as reduced resource is to be devoted
- Perceived as dead end career with limited prospects.
- Lack of investment linked to "waiting for outcome of aseptic services review"
- Expectation that many aseptic units will close and services will be outsourced, further reducing opportunities leading to poor recruitment & retention.

[1]Shaping pharmacy for the future, Hospital Pharmacy: A briefing for members in England, RPS, 2017

Recruitment
Underlying Causes (3): Recruitment Strategy

Finding 7: Lack of national recruitment strategy. Recruitment opportunities are aimed at a limited pool of potential candidates through narrow advertising and recruitment techniques.

How are vacancies advertised?

Advertise vacancies on NHS Jobs only

Recruitment is confined to personnel who are searching for a role within NHS Pharmacy which people often associate with clinical services. Adverts may not not be reaching their desired target audience e.g. Industry personnel, science graduate, school leavers etc.

Word of Mouth

"I was told about a job within Aseptic Services from a friend – I had never considered it before as I never rotated there as a student [Pharmacy] Technician"

Emails from Regional QA Specialists on request

Emails of vacancies are sent to management networks. These emails may never reach the desired audience for fear of losing skilled staff to another service.

Social media e.g. facebook groups, Twitter

"This approach relies on a large and relevant follower base to receive the notification"

'Headhunt'- *"I know someone who may be interested, I'll contact them"*

Opportunistic - "*I applied for a production role but was offered to interview for a QA job as it aligned more with my background"*

Recruitment is still aimed at the traditional pharmacy workforce staff groups where there are significant problems attracting them to the speciality

"Recruitment is currently from the same pool of people and therefore difficulty filling vacancies just moves between sites"

"Most staff are recruited through Internal promotion – not through a planned succession pathway"

Innovative approach

The Clatterbridge Cancer Centre NHS Foundation Trust reported successful recruitment of a large number of support workers following a "speed recruitment event" which allowed for mass interviews and candidate assessments in a short space of time.

Recruitment
Underlying Causes (3): Career Opportunities

Finding 8: Careers in technical services are generally by accident rather than design. Most staff interviewed were attracted to a career in Pharmacy Technical Services following exposure to the specialist area. Opportunities for exposure are diminishing due to service consolidation and a reduction in rotational posts.

We heard:

"I always thought I'd pursue a career in clinical pharmacy then I had the opportunity to rotate into the QA/QC department. I really enjoyed it and applied for a job when it came up"

"I didn't know it [Pharmacy Technical Services] existed before my rotation. I am hoping there will be a permanent position available when I finish my training"

"My diploma included aseptics as an optional module… this opened my eyes to aseptics, and I wouldn't have pursued a career in this area if I hadn't had this exposure."

"We no longer have any rotational technical staff . We found it difficult to keep on top of their training and competency-based validations."

Nearly all personnel interviewed cited exposure to pharmacy technical services e.g., through rotational posts and work-based experience as pivotal to them pursuing a career within the area.

Most services no longer host rotational staff due to the associated training burden and lack of trainers to support this, further reducing exposure.

What's the problem?

- The likelihood of exposure has significantly reduced;
- Consolidation and subsequent closure of aseptic services, QC and manufacturing facilities;
- National Pharmacy workforce strategy [1,2] is to grow a clinical practitioner workforce, reducing opportunities for exposure.

Pharmacists with split technical and clinical roles perceived many advantages;

- Attractive career option, particularly for more junior positions - not limited to one specialism allowing staff to develop a broader range of knowledge and skills.
- Service improvements through improved integration between clinical and technical specialities. However they noted that split posts appear to be diminishing due to the associated training burden.

Pre-registration Pharmacy Technician Training

There is no requirement for trainees to gain competency-based work experience within Pharmacy Technical Services therefore the level of experience, and exposure to the specialist area is highly variable.

Models which worked well incorporated extended training time and trainees contributed to the service once competent.

"We invest in [pre-registration] technician training to provide exposure to aseptic services, usually we have a couple of applicants for permanent jobs when they qualify – we rely on this pipeline"

Significant challenges recruiting Pharmacy Technicians were reported due to lack of exposure from training programmes.

[1]The NHS Long-term Plan, NHS England, 2019
[2]Facing the Facts, Shaping the Future. A draft health and care workforce strategy for England to 2027, Public Health England, 2017.

Recruitment and Retention
Underlying Causes (4): Opportunities for Progression and Career Pathways

Finding 9: Personnel perceived that there are limited opportunities to progress, particularly to advanced or consultant level practice.

Finding 10: The lack of a visible career pathway limits awareness of technical roles and is detrimental to staff recruitment and retention. It also limits the ability to inspire and actively market Pharmacy Technical Services as an attractive career option.

We heard:

"*There's no real defined career pathway for staff… "I don't know what I could apply for next "*

"I don't know what my career prospects are once I finish the STP (Scientist Training Programme)."

"Student [Pre-registration Pharmacy] Technicians and Pre-registration Pharmacists don't know what it [Pharmacy Technical Services] is!... they can only see a career path in clinical services. This impacts our ability to recruit."

"I have progressed from support worker to band 5 Pharmacy Technician in Aseptics. I am however unsure of the next steps needed to continue to progress and meet my career goals."

"I was interested in applying for a QA post but don't want to limit my ability to progress, so I have opted to stay in a clinical pharmacy role as I can see opportunities to progress"

"There are limited opportunities to advance… I feel like I have become stagnant.""

Limited outreach to inspire the next generation e.g. engaging with school children and young people promoting careers and attracting them to Pharmacy Technical Services.

There is no promotional material available to showcase career options within Pharmacy Technical Services.

Advanced practice roles:

Accountable Pharmacists are in post for an average of 13 years, with some nearing retirement. Tenure increases for higher bands, indicating a slower pace of advancements at senior bands.[1]

In comparison to the Clinical Pharmacy Service, there are fewer leadership positions and only one consultant Pharmacist post, within radiopharmacy.

There are limited consultant level practitioners currently employed with no growth in the number of advanced roles.

- There is no definition of advanced practice within Pharmacy Technical Services, unlike clinical practice 'HEE Advanced *Clinical* Practice'.
- The RPS Roadmap to Advanced Practice is only available to Pharmacists.
- There are no specific initiatives such as fellowships to inspire and grow leaders of the future.

Lack of availability of advanced roles were reported to impact retention;

"I left technical services and moved to a clinical role after some time in a band 7 [Pharmacist] position, there were no advanced posts for me to progress to"

"We develop very capable staff but then they leave as there are no opportunities for them to progress… this is particularly an issue for QPs"

[1]The Future of Pharmacy Aseptic Services in England. Pharmacy & Medicines Optimisation Team, NHS Improvement, 2019.

Recruitment and Retention
Underlying Causes (5): Agenda for Change (AfC) Profiles and Job Descriptions

Finding 11: There is widespread variation in local job descriptions for similar roles across the North. Job descriptions are commonly adapted from generic Pharmacy AFC profiles that do not adequately reflect or provide sufficient detail of the job role.

AfC Profiles

AfC National *Pharmacy* Profiles only include traditional pharmacy staff groups – Pharmacist, Pharmacy Technicians and Support Workers.

Non-Pharmacy profiles have therefore been locally adapted in an attempt to resolve this issue for novel roles (e.g. Healthcare Science Associate Practitioner) increasing the potential to further variation.

Pharmacist Job profiles are available advanced roles (AfC band 8a+). Within Pharmacy Technical Services other professionals also occupy advanced roles e.g. Pharmacy Technicians and Pharmaceutical Scientists within licensed Production facilities.

Job Descriptions

Job Descriptions are designed around traditional Pharmacy roles restricting recruitment to a defined pool of staff and excluding appointment of a non-traditional workforce or personnel with an 'Industry' background.

We observed examples where Job Descriptions did not reflect the individual's actual job role (e.g. generic job description used for aseptic operator) and irrelevant qualifications were deemed as essential criteria e.g. Accountable Pharmacist roles specifying the need for a Clinical Pharmacy Diploma, but with no requirement for a qualification relevant to the technical aspect of the role e.g. in Pharmaceutical technology or Quality Assurance

Widespread variation was observed e.g. similar roles being awarded different AfC banding.

Where new or updated roles require an 'AfC approved' Job Description, it is common for local colleagues to be contacted requesting a suitable job description that can then be adapted.

Progression

Job descriptions are not linked to a defined career pathway.

Variation within job descriptions confuses requirements of the workforce at each 'career stage' and limits transferability of the workforce across different organisations.

Profiles and job descriptions currently limit progression of staff based on their professional status, rather than knowledge and experience.

Recruitment and Retention
Underlying Causes (6): Agenda for Change (AfC) Profiles

Finding 12: Pharmacy AfC profiles only refer to traditional Pharmacy workforce staff groups. Banding depends on professional status instead of knowledge and experience and other relevant qualifications. This impacts on retention and acts as a barrier to services 'growing their own' and entry of a novel workforce.

Profile Title	AfC Banding
Pharmacy Support Worker Higher Level	3
Pharmacy Technician	4
Pharmacy Technician Higher Level (Pharmacy or Primary Care)	5
Pharmacy Technician Specialist	6
Pharmacist	6
Pharmacy Technician Team Manager	7
Pharmacist Specialist	7
Pharmacist Advanced	8a-b
Pharmacist Team Manager	8b-c

The Pharmacy Pre-registration Technician Qualification is the only route of [continued] progression beyond Support Worker but is no longer suitable to support the Pharmacy Technical Services workforce.

> *"Support workers tend to then be 'stuck' [in that role]. They need to train to become a [Pharmacy] Technician before they could become a Band 4… we end up losing them as the training takes them to clinical services" "I would like to progress **and** stay in the speciality I enjoy, not have to move to clinical [services]"*
>
> *"We need to employ [Pharmacy] Technicians for our more specialist roles [due to job descriptions] - it can take over 1 year to get them to standard of support worker if they have no previous experience – I wish we could grow our own with GPhC registered status"*
>
> *"We want to support progression of support workers to band 4 roles, but training them to a consistent standard with no accredited training pathway is a challenge"*
>
> *"We have non-GPhC registered staff who have the knowledge and skill to successfully perform higher level roles but the AfC and GPhC reg requirements associated with job descriptions precludes this. We can't grow our own"*

Unlicensed Aseptic Services require Pharmacists to be employed in key roles who take **legal responsibility** for the safety and quality of medicines preparation. This is not a requirement in licensed facilities where other professions such as Pharmacy Technicians and Scientists can perform similar roles.

Pharmacy Technicians can complete the 'Product Approval Accreditation Programme' to perform product approval (traditional Pharmacist role) under the supervision of a Pharmacist. This has allowed some flexibility between professional disciplines and roles performed.

There are a limited number of clinical scientists and no strategy to integrate into current workforce planning – see 'National Innovation'. The Pharmacy Scientist workforce does not have a specific job profile within the Pharmacy Professional Group.

[1] Summary of National Profiles for Pharmacy, https://www.nhsemployers.org,2018

Recruitment and Retention
Underlying Causes (7): Succession Planning

Finding 13: There is limited succession planning for senior posts. Most services have identified difficulties when recruiting for senior posts but do not have the infrastructure in place to develop their junior staff into these roles. This is particularly challenging for smaller services.

Evidence:

"We are worried what would happen if we lost any of our more senior staff as we do not have anyone with enough experience to take on these roles"

- *"Only a small number of higher roles are available - there is often often no active training, mentoring and exposure to opportunities to help people confidently step up to fill these type of roles when an opportunity becomes available."*
- *"I left the NHS to gain experience, then returned for an 8a [Pharmacist] post. This was the only way to gain suitable experience."*
- Personnel were unsure what they needed to do [training and experience] to enable them to be eligible to apply for more advanced positions.
- Workforce structure, and sometimes department size, leads to gaps between junior and senior roles e.g.
  - Accountable Pharmacist is the only fixed Pharmacist post, all other Pharmacists are junior and / or rotational
  - Band 7 deputy to band 8b/c managers
- Regional Quality Assurance Specialists (critical QA leadership posts) had varied succession plans in place
  - North East and Yorkshire & Humber: no deputies in place.
  - North West: active succession plan and deputy in place

Production / aseptic specialists - few departments have deputies which impacts their ability to build resilience within teams and services for the future.

Case Report

The Sheffield QC laboratory manager highlighted that no succession plan was in place as they neared retirement. It was felt limited suitable candidates would apply to the manager post (when available) due to the diminishing pool of suitably knowledgeable and experienced personnel e.g. due to consolidation of QC services. A deputy role was therefore created and successfully recruited to. The deputy could then be internally trained and mentored according to a tailored personal development plan with the aim to enable a future seamless transition to the manager role .

Case Report

Leeds Teaching Hospital Trust appoints Lead Pharmacists to deputise for the Accountable Pharmacist – this strategy has previously enabled suitable replacement of key roles. It is however noted, that recruiting into these deputy posts is becoming more challenging due to the pipeline of available 'junior' pharmacists.

Each facility relies on a small number of highly qualified key individuals for leadership and QMS and the slowing pace of advancement at senior bands may cause band 7 staff to leave to progress their careers[1]

[1]Pharmacy Aseptic Services Review Summary of Key Findings, NHS Improvement, 2018

Contents

Finding 14: Local initiatives such as ‘clean room supervisor’ roles have been established due to problems with recruitment and are the first step to a ‘grow your own’ approach.

Further work to provide underpinning qualifications and integration into a defined career pathway is needed.

Local Initiative: Cleanroom Supervisor Role

What’s the initiative?

Introduction of a novel (AfC band 4) cleanroom supervisor role at Leeds Teaching Hospitals and Clatterbridge NHS Foundation Trust. Personnel, in this role, are responsible for performing higher level duties such as supervision of aseptic medicines preparation.

What are the benefits?

This workforce group can perform roles traditionally performed by AfC band 4 Pharmacy Technicians, a role which is difficult to recruit and retain. This initiative reduces recruitment issues, provides career development opportunities and retains specialist skills within the service.

What are the limitations?

This initiative is a step in the right direction to allow a ‘grow your own approach’ however personnel cannot progress further in unlicensed aseptic units without successfully qualifying as a Pharmacy Technician.

These personnel are not registered with the GPhC, unlike AfC band 4 Pharmacy Technicians performing a similar role.

The lack of standardisation (associated relevant qualification, professional registration & education, and further opportunity to progress) is a barrier to further developing this workforce group.

National initiative: Scientific Training Programme (STP)

Finding 15: The Scientific Training Programmes (STP) is a national initiative aimed to develop future leaders.

This programme has been successful in producing high calibre graduates and enabling entry of a novel workforce, however it has not yet sufficiently filled the leadership gap.

What's the initiative?

The Scientific Training Programme - Clinical Pharmaceutical Science is a 3-year programme of work-based learning supported by a University accredited master's degree (Pharmaceutical Technology and Quality Assurance) and was designed to develop future leaders within Pharmacy Technical Services. Graduates can register as clinical Scientists with the Health & Care Professions Council.

What are the benefits?

Clinical scientists are a novel staff group, highly skilled and knowledgeable in their specialist area and have successfully been recruited into NHS positions including critical posts within radiopharmacy and quality roles associated with licensed manufacturing.

What are the limitations?

Although, the graduates themselves are highly skilled and knowledgeable they have not yet sufficiently filled the leadership gap, particularly in Section 10 Aseptic Units where pharmacists are required for product approval within the existing regulatory framework.

Graduates also reported that the curriculum doesn't provide necessary knowledge and skills required of some more senior posts this is being addressed in the curriculum review which is currently in-progress.

One of the key limitations reported is the lack of a defined career path which integrates with the traditional pharmacy workforce. In addition, there has been a relatively low number of graduates to date. Growth and integration of this novel pharmacy workforce group would be advantageous.

Contents

Part 2 Overview of Findings:
Current State of Education & Training Infrastructure

In-House Training & Assessment Programmes

- There is significant and widespread variation within in-house training and assessment programmes limiting the opportunity for 'fast track' training and cross-organisational assurance of competence.
- Training programmes focus on providing operational skills to entry level staff with less emphasis on underpinning knowledge and continued professional development.

Trainers, Mentors & Training Capacity

There is a lack of time and resource dedicated to workforce development due to insufficient numbers of trainers and mentors across the system and local service pressures.

The impact of this includes;

- Training resource is focused on entry level staff to 'do the doing' rather than developing staff into more complex senior roles
- Recruitment of new staff is widely perceived as an additional burden
- Poor learning culture
- Poor morale and limiting career progression

Local trainers are predominantly technical experts 'the how' without access to subject matter experts.

Local trainers are isolated with limited opportunity to further develop their training skills – insufficient "train the trainer" or support infrastructure.

Part 2 Overview of Findings:
Current State of Education & Training Infrastructure

Qualifications

- Role profiles have changed over time and qualifications have not been adapted accordingly, resulting in a knowledge gap which has been widened further as entry level qualifications are no longer fit for purpose.
- There are insufficient qualifications to develop the workforce across all areas, notably between entry level and Pharmaceutical Technology and Quality Assurance, and within specialist services such as Quality Control.
- The Science Manufacturing Technician apprenticeship pilot is an improvement but integration into career pathways is key to success.

Courses and Resources

Specialist courses are deemed “valuable” and attendance was predominantly to acquire underpinning knowledge.

However key issues include:

- Accessibility due to the current delivery model - funding, geography and workplace capacity.
- Attendance is generally on an ad-hoc basis as courses are not linked personal development plans.
- Gaps in course content with local and regional initiatives being established aiming to bridge these gaps.

Limited national resources are currently available.

Summary of Key Findings (16-22):
In-house Training and Assessment Programmes

16. Widespread variation within training and assessment programmes was identified, with potentially 68 similar, yet different, programmes in use across the North of England – there is no 'do it once' approach. Widespread variation in local practice, including job roles, has contributed to this diversity. *See slide 44*

17. There are limited fast track training and competency assessment induction programmes for experienced staff who have been recruited from other organisations. Commonly, they are required to complete a full training and assessment programme due to a lack of assurance of transferable competency which leads to delays and inefficiencies. *See slide 44*

18. Education and training delivery follows a 'read, see, do' approach. There is limited use of other learning tools and experiences to better support varied learning styles. *See slide 45*

19. Most training and assessment programmes focus predominantly on acquisition of practical skills for new, inexperienced staff: they do not have a strong knowledge component to underpin practice. *See slide 46*

20. Training programmes not do not support the continued development of practitioners, including into advanced roles / critical posts. *See slide 46*

21. Assessment and re-assessment strategies aim to evidence that personnel can maintain competency in their role and not encourage continuous development. *See slide 47*

22. Re-training, re-assessment and continuous development is limited, and are often only implemented following identification of a problem rather than taking a pro-active approach. *See slide 47*

Summary of Key Findings (23-28):
Trainers and Mentors

23. A shortage of trainers and mentors and limited training capacity is a major barrier to growing the workforce and increasing capacity. *See slide 49*

24. A widespread shortage of trainers and mentors was identified. Those with training as a key component of their role were routinely re-deployed to operational service leaving little time for training. Available training resource is directed at providing new entry level staff with practical skills to meet service demands, not on-going development and mentoring. *See slide 50*

25. Trainers are predominantly technical experts who have considerable experience in performing manufacturing-based tasks and are good at teaching 'how to'. *See slide 51*

26. Insufficient trainers with underpinning knowledge ('the why') and teaching skills. Trainers have limited access to mentors to develop their skill set. *See slide 51*

27. No NHS services reported having any trainers with a teaching qualification. *See slide 51*

28. Poor learning culture was identified; staff training and development is perceived as a burden and not as a priority. Service pressure frequently takes precedence over staff development and up-skilling. Consequences include poor morale, lack of career progression and problems with retention of staff. *See slide 52*

Summary of Key Findings (29-36):
Qualifications

29. Insufficient relevant qualifications to support career progression within Pharmacy Technical Services are available, particularly between level 3 and 7. *See slide 54*

30. Pharmacist and Pharmacy Technician role profiles have changed to reflect their move to a clinical patient facing role. Consequently, their entry level qualifications have a reduced emphasis on technical services. This has led to a gap in knowledge and skills of staff performing highly complex technical roles for which there is a need to apply professional judgment. *See slide 55*

31. The knowledge gap between entry level training and the roles of Technical Services Pharmacists and Pharmacy Technicians is widening and entry level candidates are less prepared for working in this sector. *See slide 56*

32. Pharmacist and Pharmacy Technician Qualifications do not sufficiently provide the knowledge & skills required in Pharmacy Technical Services, resulting in significant additional in-house training to bridge the gap. *See slide 57*

33. There are insufficient relevant GPhC accredited qualifications, linked to apprenticeships, to develop the learning needs of support workers working in Pharmacy Technical services. *See slide 58*

34. The Science Manufacturing Technician apprenticeship pilot includes a specific relevant qualification for aseptic processing. Further work is required to integrate this into a career pathway to enable services to grow a novel aseptic operator workforce. *See slide 59*

35. Limited suitable qualifications are available to support the development of the Pharmacy Quality Control workforce. *See slide 60*

36. PTQA was reported as a “valuable” qualification used to develop technical knowledge and critical appraisal skills at an advanced practitioner level. Flexibility in delivery, cost and application to practice could be improved. *See slide 61*

Summary of Key Findings (37-43):
Courses and Resources

37. Courses are hosted by various providers and primarily provide attendees with underpinning knowledge. Many of these courses provide attendance certificates but involve no form of assessment. *See slide 63*

38. The reasons cited for staff attending external courses were predominantly reactive and opportunistic, rather than being part of a personal development plan. *See slide 64*

39. Courses were reported as 'valuable', and acquisition of underpinning knowledge was a key driver for attendance. Value for money, limited travel and frequency of the event further encouraged attendance. *See slide 65*

40. Conversely, cost, workforce capacity, geographical location and limited frequency were identified as barriers to attendance. *See slide 65*

41. The awareness of the range of available courses was varied; managers cited increased awareness particularly of 'long-standing' courses whilst reduced awareness was reported amongst the workforce. *See slide 66*

42. Awareness of current course content was also limited. Course content was often assumed from previous personal experience rather than an understanding of the current programme. *See slide 66*

43. Gaps in nationally available course content were reported. There have been initiatives to bridge this gap with the development of short courses and study days run by local and regional NHS networks and teams. *See slide 67*

Summary of Key Findings (44-52):
Courses and Resources (continued)

44. The North West QA Service successfully adapted their short courses to an online webinar format following COVID-19 restrictions. This resulted in a marked increase in the number of delegates attending, highlighting an appetite for the use of technology and a more flexible approach to learning. *See slide 68*
45. QC managers reported that there were insufficient accessible courses and material resources to support the development of the Pharmacy Quality Control Workforce. *See slide 69*
46. Managers reported that there were insufficient courses and material resources to support the development of Quality Assurance expertise across the workforce. *See slide 70*
47. Commercial courses, often aimed at trainee Qualified Persons (QPs), are available, many of which could be suitable for training the Quality Assurance workforce. The cost is however prohibitive. *See slide 70*
48. King's College London Radiopharmacy course is deemed valuable for more advanced radiopharmacy personnel. *See slide 71*
49. There are no other specific courses or resources tailored to radiopharmacy at other career stages. *See slide 71*
50. NHS Leadership Academy and CPPE Programmes are underused as they are felt to be aimed at clinical colleagues. *See slide 72*
51. Insufficient specific management training across the North of England was also reported. *See slide 72*
52. Varied attendance at study days and symposia was reported. Events were regarded as highly valuable to continuous professional development. *See slide 73*

Summary of Key Findings (53-55):
Courses and Resources (continued)

53. Aseptic Processing Programme (APP) is the only nationally available NHS resource for Pharmacy Technical Services personnel. This resource is generally well accessed within Aseptic Services and was reported as "valuable" to supplement in-house training. Improvements to further support local training have been suggested. *See slide 74*

54. Limited awareness of the 'TPD Portal' was reported, where its availability was recognised, it was under utilised and not integrated with local training programmes. *See slide 75*

55. Inequitable access and a protracted funding application process to support workforce development was reported. *See slide 76*

Summary of Key Findings (56-63):
Leadership, Management and Additional Findings

56. The NHS Technical Specialist Education and Training (TSET) Group provides education and training to meet technical service needs on a national basis. *See slide78*
57. Effectiveness of TSET's reach and influence is limited by the lack of education and training networks, and therefore particularly local dissemination, within Pharmacy Technical Services. *See slide 79*
58. Limited awareness and understanding of TSET's activity, and the users' relationship with TSET, was frequently reported across the North. *See slide 79*
59. Inadequate education and training infrastructure limited the ability to fast-track train new staff and up-skill existing pharmacy staff to boost the technical workforce in support of the pandemic response. *See slide 80*
60. New technologies were successfully established to facilitate remote working during the COVID period including delivery of education and training. *See slide 81*
61. The future Clinical Pharmacy workforce will require upskilling in pharmaceutical sciences and technology to support the effective implementation and oversight of innovative medicines within the NHS. *See slide 82*
62. There is currently a shortage of Pharmacy Technical Service leaders to successfully deliver a transformation within the sector. *See slide 83*
63. Service providers shared a common wish list for the future. Increased use of technology, improved access to funding, standardisation of training and access to trainers and mentors were amongst the most desired improvements reported. *See slide 84*

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In-house Training Programmes, Assessment and Re-Assessment

Finding 16: Widespread variation within training and assessment programmes was identified, with potentially 68* similar, yet different, programmes in use across the North of England – there is no 'do it once' approach. Widespread variation in local practice, including job roles, has contributed to this diversity.

Finding 17: There are limited fast track training and competency assessment induction programmes for experienced staff who have been recruited from other organisations. Commonly, they are required to complete a full training and assessment programme due to a lack of assurance of competency which leads to delays and inefficiencies.

We saw and heard:

All sites visited coordinated, managed, designed and delivered their training and competency assessment programmes locally in-house – there are likely 68+ versions of similar, but different training programmes in use across the North of England.

Common methods e.g. reading SOPs and demonstrating practice are used for training and competency assessment, particularly for practical skill-based tasks. However, the programmes themselves differed across key elements:

- Inclusion of underpinning knowledge
- Type of assessment for skills and underpinning knowledge
- Trainer and mentor resource
- Access to training budgets
- Integration with national and regional courses and resources

"Training and keeping up-to-date is labour intensive as all training is in-house with no support "

Round table discussion surprised service leaders that even training for core aseptic practice was significantly different, although the outcome was the same i.e. competent staff. "There is no 'one best way' in practice, and therefore no 'one best way' to train"

"We try to share good practice at e.g. regional meetings etc. but there isn't much co-ordination to 'do things once' – we are all doing the same things separately, it isn't efficient."

"We need to share more [across different services] to ensure we all work to best practice"

"We have limited peer review and cross-organisational learning – I would like to see more formal and informal opportunities for this to aid learning, service development and standardisation"

Personnel recruited from another organisation:

"We don't know how people have been trained, so we need to do it all again"

"We train all employees from the start, regardless of previous experience – we have no assurance of their training from previous roles"

"We assume they [Pharmacist / higher level Pharmacy Technicians] have the necessary knowledge but that might not always be the case"

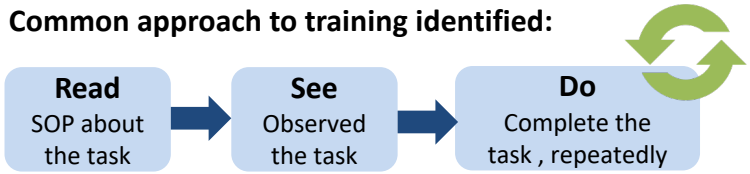
"Training takes a long time for any recruit – regardless of their background. This is time consuming when you need the extra manpower"

* Aseptic and Radiopharmacy services

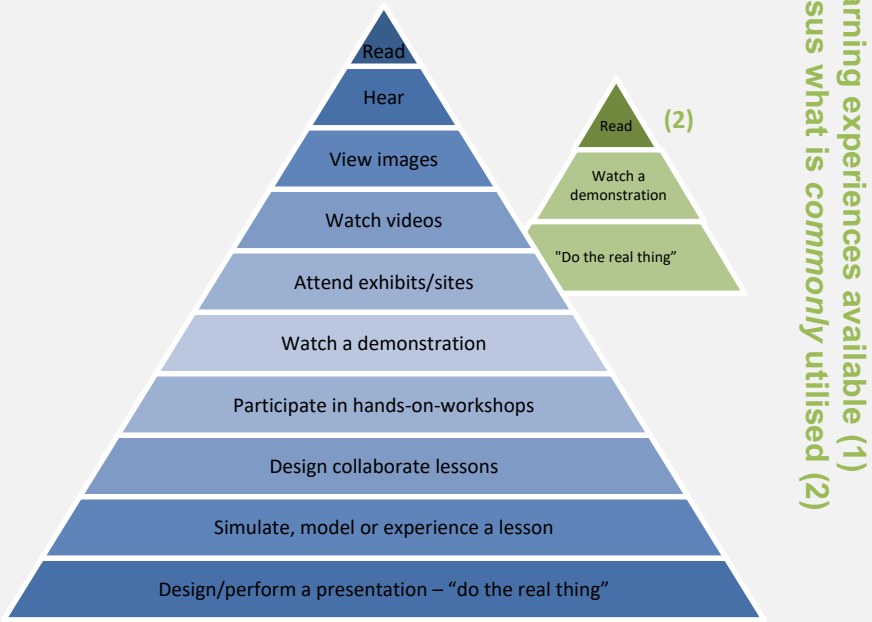
In-house Training Programmes: Learning Style and Delivery Mode

Finding 18: Education and training delivery follows a 'read, see do' approach. There is limited use of other learning tools and experiences to better support varied learning styles.

Common approach to training identified:



Learners retain more information by what they "do" as opposed to what is "heard", "read" or "observed".



(1) Edgar Dale's Cone of Experience

"*"[My training] started by reading SOPs, they didn't make much sense until I had seen it [the process] being performed."*

"I don't remember from just reading, I learn better from seeing or doing"

"Face to face training is better than just reading"

"I find I learn better from interactive sessions – when I work late, I can't participate and reading the notes just isn't the same"

"We don't use them often, but I have found critiquing varied practice from videos e.g., at PTQA a really useful learning tool"

"The use of on-line trouble shooting webinars were invaluable to my [QP] training, but I know they are not widely accessible"

"Technology could really help us access more [training resource] but a lack of investment and computer access is a barrier"

"Initial training is usually reading sops… I find it more helpful when pictures are included, but this is not the norm"

"Cross-organisation and mentoring and support e.g. from larger sites would be an extremely useful learning opportunity and an opportunity to improve through shared learning"

"Practical hands-on visits / experience is invaluable"

"Training staff with practical skills is difficult as the isolators are always in use & busy… we need to do most of our training using 'live' doses""

Local Training Programmes

Finding 19: Most training and assessment programmes focus predominantly on acquisition of practical skills for new staff: they do not have a strong knowledge component to underpin practice.

Finding 20: Training programmes do not support the continued development of practitioners, including into advanced roles / critical posts.

We saw and heard:

Training programmes focus on on the acquisition of practical skills, rather than underpinning knowledge across all staff groups.

"We do the doing well, our problem is providing underpinning knowledge 'the whys'"

"The knowledge of staff just doesn't seem to be the same as in previous years".

"Unfortunately, sometimes we only realise there are huge knowledge gaps when something goes wrong"

"My training in aseptics has only included [final product] checking, I would really like to have more background knowledge [Pharmacist]"

Access to shadowing, coaching and mentoring as a key training method was varied. Different trainers also provided different degrees of explanation / background knowledge e.g. when showing someone how to perform a skill-based task.

Underpinning knowledge components of training programmes were often "as and when" they could be "fitted in" due to capacity and in many cases relied on reading with limited mentor or trainer input.

"Due to lack of underpinning knowledge, personnel can progress without the necessary understanding {as they become practical skill-based experts}"

A lack of underpinning knowledge can act as a barrier to change *"we have always done it this way"*

Training programmes focus on training staff new to a role at entry level. They do not include a programme of continued development.

"Learning is commonly 'ad-hoc' and only through experience 'on the job' this risks in-experienced decision making or doing things as they have always been done, as they are afraid to make changes"

Personnel in advanced roles reported limited exposure to – and experience of – problem solving, leadership or management prior to being appointed to the role, particularly in smaller services with no deputy roles.

Some individual identify their own learning needs and undertake relevant training e.g. MBA for Pharmacy Technicians in preparation for future career opportunities

*"A framework for Advanced **Clinical** Practice is available – this could be adapted for Pharmacy Technical Services"*

RPS Roadmap could be used but it is limited to Pharmacists

Salford Royal Hospital delivers monthly GMP training sessions during facility maintenance. The aim is to develop underpinning knowledge and provide real time learning from events e.g. errors.

"They [training sessions] help with my understanding and to appreciate the importance of what we are doing"

Assessment and Re-Assessment

Finding 21: Assessment and re-assessment strategies aim to evidence that personnel can maintain competency in their role and not encourage continuous development.

Finding 22: Re-training, re-assessment and continuous development is limited, and are often only implemented following identification of a problem rather than taking a pro-active approach.

We Saw and Heard:

"We only have assessments for practical tasks, they are designed to prove competency [of practical skill-based tasks] only"

"We don't have an assessment for underpinning knowledge. We do however try to ask the operator questions whilst they perform the task, this can however vary between assessors depending on their ability and knowledge"

- A person's ability to apply underpinning knowledge to problem solve and trouble shoot are not assessed in most programmes.
- Assessment programmes due not cater for more complex roles.

Re-assessment and training:

- Focus of re-training and re-assessment (e.g. broth tests) is maintaining competence of practical task-based ability. An abbreviated version of initial training and assessment is often used. This approach was perceived by operators as being 'tick box' rather than useful to their development.
- Many sites have very limited re-assessment and training programmes which are employed only after a problem rather than taking a pro-active approach.
- All sites ensure operator broth tests are repeated, as this is seen as a 'must do' regulatory requirement. Broth tests are observed and/or accompanied by assessment of critical point of understanding in some units, but not in others.
- Refresher GMP training often associated with no assessment.

Assessment Techniques

Review 'logs'
i.e. record of performing the task

Observe Practice

Mentor Discussion
approach was less commonly used

> "Feedback and reflection are important, but this is not always done / done well - more mentors are needed to achieve this."

Good Practice Observed:

- 'QP style' viva assessment and application of underpinning knowledge.
- Mentor case-based discussions used to assess understanding and ability to problem solve.

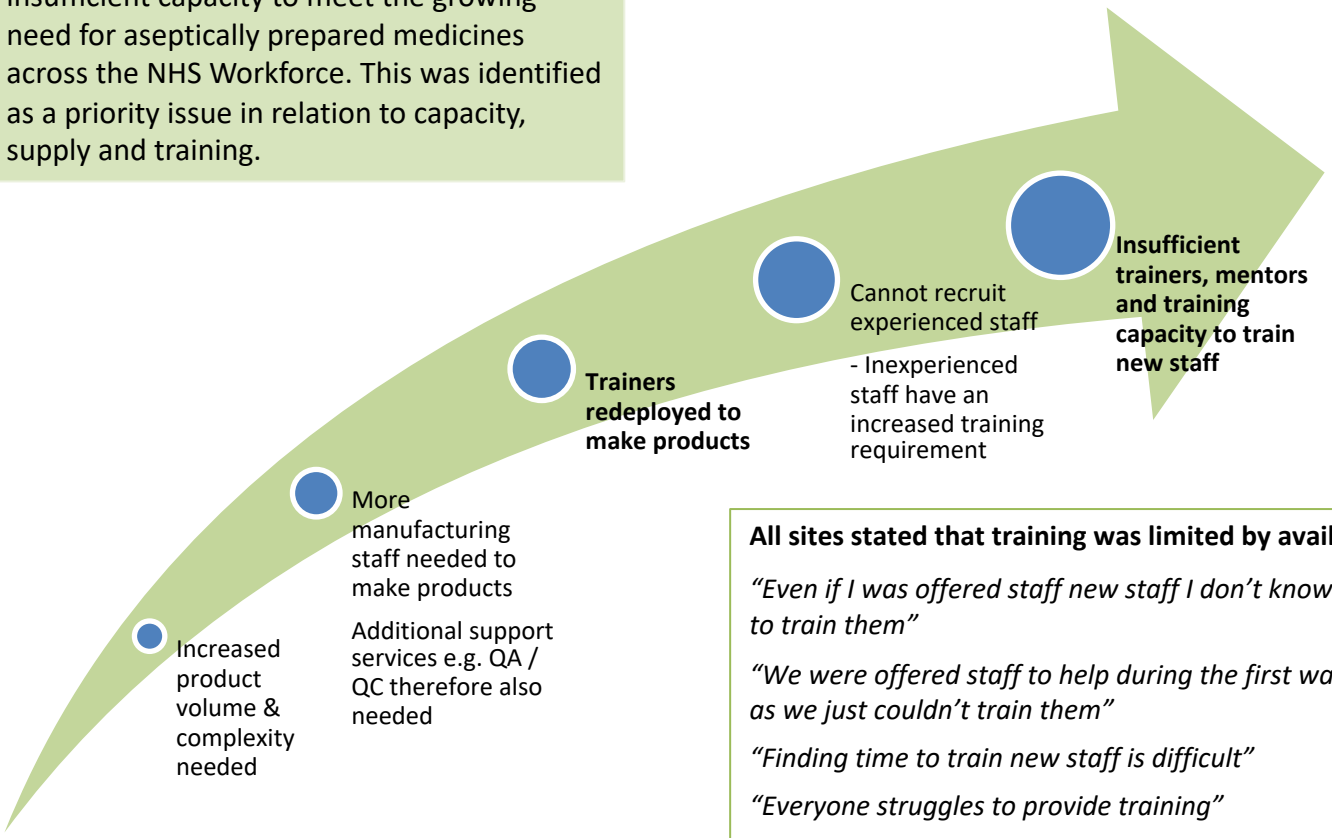
Contents

Trainers and Mentors: Overview

Finding 23: A shortage of trainers and mentors and limited training capacity is a major barrier to growing the workforce and increasing capacity.

NHSI Aseptic Review Finding:
The Pharmacy Aseptic Services Review concluded that there was currently insufficient capacity to meet the growing need for aseptically prepared medicines across the NHS Workforce. This was identified as a priority issue in relation to capacity, supply and training.

All sites stated that service capacity was their primary barrier to delivering training and developing their workforce



All sites stated that training was limited by availability of trainer / mentors

"Even if I was offered staff new staff I don't know where we would find the time to train them"

"We were offered staff to help during the first wave of COVID, we didn't accept as we just couldn't train them"

"Finding time to train new staff is difficult"

"Everyone struggles to provide training"

"We all have a responsibility for training but struggle due to workload"

Trainers and Mentors – Available time & capacity to train

Finding 24: A widespread shortage of trainers and mentors was identified. Those with training as a key component of their role were routinely re-deployed to operational service leaving little time for training. Available training resource is directed at providing new entry level staff with practical skills to meet service demands, not on-going development and mentoring.

We Saw and Heard:

Training Lead *"Difficult to provide training as I have ~70% checking duties at present "*

"We recruited a specialist education and training [Pharmacy] Technician but they are more or less just operational at the minute because of workload"

"Workload has an impact on the availability of time to train, coach and mentor but also on the quality and consistency of training"

"The Training burden is huge, I don't like this term as I know training is important, but due to current staffing problems this is how it feels."

"There is no time to mentor [personnel] and allow them to shadow more complex activities"

"We have 5 or 6 new support staff who have recently filled vacancies - training is really challenging"

"We plan training however it is often re-arranged due to overwhelming operational need"

"We don't have not enough staff to allow for a normal day to happen, never mind training"

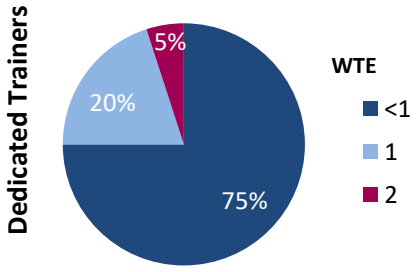
"Having staff available for training is a challenge due to operational demands"

"The availability of our trainers definitely slows training progress."

"Training can be slow – we are either waiting for the trainer to be available or the trainee gets pulled into service"

"More than 50% of allocated training time is pulled due to service demands"

"We only do the essential practical training to get someone started, that's all we have time for"



- 18% (Range 8 – 50%) of staff cannot currently fulfil their entire job role as they are awaiting / completing training.
- 75% of services have < 1wte dedicated training resource
- There is no correlation between the size of the workforce and the number of dedicated trainers employed
- *The largest workforce employing 0 dedicated trainers had 20.23 wte staff members*
- *For those units with dedicated trainers, there were large differences in dedicated trainer to staff ratio (1wte trainer: 18.6 wte staff to 1 wte trainer : 58.2 wte staff)*

Developing Trainers and Mentors

Finding 25: Trainers are predominantly technical experts who have considerable experience in performing manufacturing-based tasks and are good at teaching 'how to'.

Finding 26: Insufficient trainers with underpinning knowledge ('the why') and teaching skills. Trainers have limited access to mentors to develop their skill set.

Finding 27: No NHS services reported having any trainers with a teaching qualification.

We Saw and Heard:

Trainers generally have no formal training qualifications, instead they are assigned the 'lead trainer' role due to their level of practical experience and longevity.

Most trainers predominantly train staff to acquire practical skills i.e. "how to do". Their focus is to train new staff due to their available capacity.

"We only do they essential practical training to get someone started, that's all we have time for"

Many trainers themselves have largely only received practical skill based training. Additional learning is through ad-hoc opportunities and their own desire to learn.

Trainers receive variable in-house training and mentorship impacting on their own level of underpinning knowledge / understanding of the theory behind processes.

"I haven't received any official training to be in my current role [lead trainer]. It is all from my practice based experience… there are some QA type topics that I need a better understanding of. I have asked to do the PTQA, it's definitely a gap"

Many trainers are generally staff who can already perform the practical skill – they show the trainee 'how' but do not always explain the 'why'.

Few trainers and mentors were available to develop staff into advanced practice**,** with complex problem solving and decision making ability.

"We have a lack of suitable resource [trainers and mentors] dedicated to developing specialists for more senior critical posts."

"Access to expert mentorship is variable, it really depends where you work"

- Limited relevant qualifications or accredited courses relating to workforce development, training and assessment were attended by trainers or mentors
- HEE North School of Pharmacy and Medicines Optimisation mentor study day was attended by some training personnel;
- Comprises a study followed by a portfolio
- Many attendees found the study day informative and useful for their practice but did not complete the portfolio as they felt it provided limited value without mentorship, had no allocated in-house study time and it is not accredited.

Learning Culture

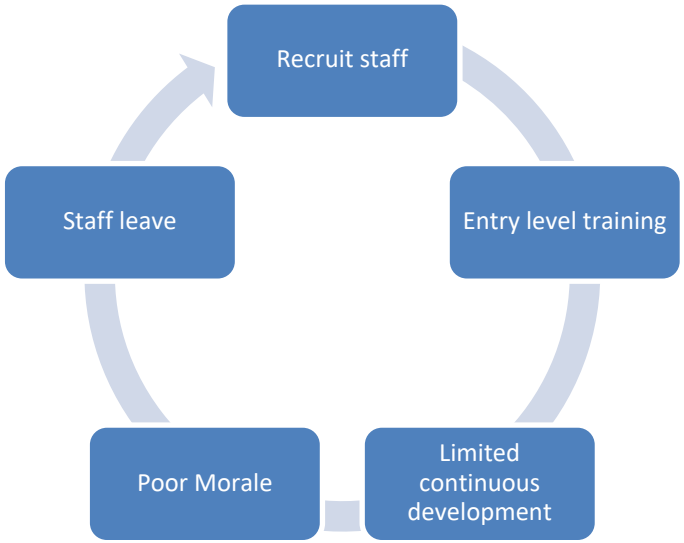
Finding 28: Poor learning culture was identified; staff training and development is perceived as a burden and not as a priority. Service pressure frequently takes precedence over staff development and up-skilling. Consequences include poor morale, lack of career progression and problems with retention of staff.

We Saw and Heard:

"The Training burden is huge, I don't like this term as I know training is important, but due to current staffing problems this is how it feels."

"We need to change culture, the way we currently do it [train] allows us to get by day but doesn't help us plan for the future"

"I plan training time but often this is significantly reduced due to the workload – and training unfortunately always takes a back-seat"



Training capacity was reported as reactive to operational service needs.

"Immediate service demands dictate how and when we deliver our training 'programme' - rather than a structured or strategically based approach"

Training is commonly only prioritised for new staff entering the department as there is a service need to fill. After initial training, there are limited development opportunities.

There is no continued focus on **up-skilling** across the North.

"We really need to explore extended roles for our support workers [due to lack of registered Pharmacy Technicians] but don't have the time"

"Staff often 'work down' a grade or more due to the [unsuitable] skill mix and capacity issues – this can be extremely frustrating and de-motivating"

"Commonly, Pharmacy Technicians perform supporting roles usually performed by support workers due to capacity, we just don't have the time to up-skill them like other units have done"

"People can't see career development opportunities – they can feel stuck or when do apply for next post they aren't ready as they haven't received enough investment"

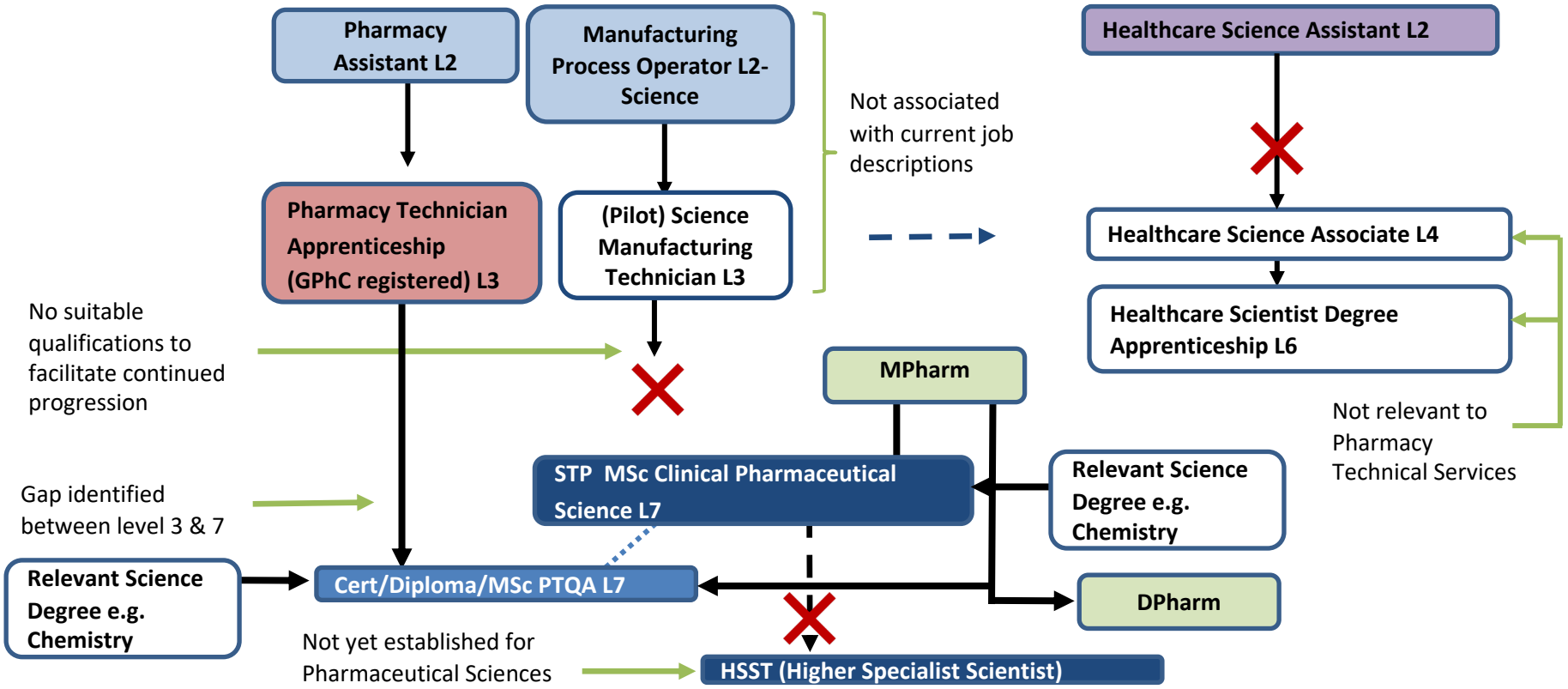
"I would like further development to progress – I know other colleagues who have left because of this"

"One of the top reasons for people leaving is that they do not receive the development and career progression that they need"

Contents

Summary of Available Qualifications & Apprenticeships

Finding 29: Insufficient relevant qualifications to support career progression within Pharmacy Technical Services are available, particularly between level 3 and 7.



Key:

Qualifications associated with staff groups;

- Pharmacist
- Pharmacy Technician
- Pharmacy Support Workers

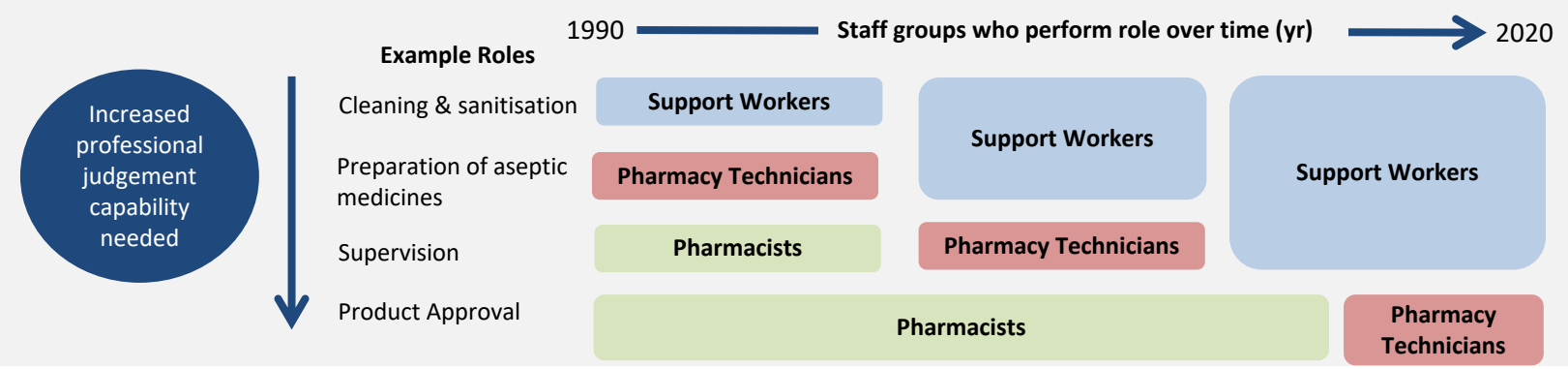
L = level

- STP can be accessed by Pharmacists or with a degree in a relevant Scientific discipline; PTQA is the associated qualification
- PTQA can be accessed by staff groups with appropriate level of previous education and / or experience
- Modules available for Scientists and Support Workers

Deskilling the Workforce: Professional Judgment & Decision Making

Finding 30: Pharmacist and Pharmacy Technician role profiles have changed to reflect their move to a clinical patient facing role. Consequently, their entry level qualifications have a reduced emphasis on technical services. This has led to a gap in knowledge and skills of staff performing highly complex technical roles for which there is a need to apply professional judgment.

1 Changes in role profile



2 Lack of transfer of knowledge and skills

Key elements from Pharmacist and Pharmacy Technician Qualifications associated with professional decision making have not been made available to staff now performing the role e.g. support workers performing supervision.

3 Qualifications, courses and resources

No mandatory qualifications for non-registered staff in supervisory roles. Courses and resources have been developed locally but without accreditation or formal evaluation of candidates.

4 Trainers and mentors

A lack of trainers and mentors with appropriate skills and knowledge has also limited the ability to bridge this gap at a local level.

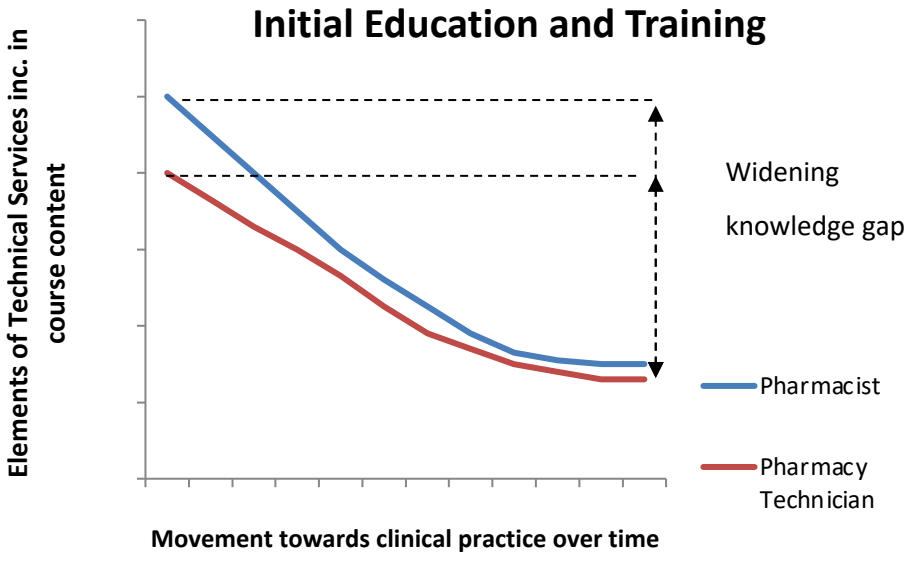
Loss of essential knowledge and skills within the workforce. This will worsen if not addressed and will not prepare future leaders to make safe decisions.

Example: Supervisor Roles

- No qualification for staff group to develop underpinning knowledge and skills required for decision making: no specialist qualifications are essential criteria in job descriptions.
- In-house training is predominantly skill based – *"the what, not the why"* with a lack of opportunity to develop decision-making skills.
- Short courses and study days have been developed e.g. 'Comportment' or 'Supervision', however they do not form part of a formal training programme.
- Limited access to mentorship to support and develop decision making skills e.g. supervisors' ability to identify poor practice and assess the impact on product quality – *"do they know when they should intervene?" "can they identify poor practice?"*

Qualifications: Gaps

Finding 31: The knowledge gap between entry level training and the roles of Technical Services Pharmacists and Pharmacy Technicians is widening and entry level candidates are less prepared for working in this sector.



The educational gap is also significantly impacting on clinical service provision

Example: Pharmacists were required to provide oversight and advice on the safe preparation of COVID vaccines and cold chain management.

Knowledge gaps were identified within the pharmacy clinical workforce (non-technical services staff) who were not fully competent to provide effective oversight of medicine preparation and administration in clinical areas.

We saw and heard

- Reduced emphasis on Pharmaceutical sciences and their application in Technical Services, although variation was identified depending on where training was completed.
- Significant variation in experiential learning for Pharmacy Technicians (no longer mandatory within Pharmacy Technical Services)
- "Pharmacist and Pharmacy Technician qualifications have diminished and are less relevant to the job"

Key knowledge and skills required within Pharmacy Technical Services – summary;

- Formulation of medicines
- Medicines stability & compatibility
- Manufacturing techniques
- Quality control and quality assurance
- Risk assessment, risk evaluation & applying judgement
- Asepsis & aseptic preparation
- Microbiology
- Chemistry
- Cleanroom technology
- Cleanroom behaviours
- Temperature controlled storage / cold chain
- Manufacture and QC of radiopharmaceuticals

Pharmacist and Pharmacy Technician Entry Level Qualifications

Finding 32: Pharmacist and Pharmacy Technician Qualifications do not sufficiently provide the knowledge & skills required in Pharmacy Technical Services, requiring significant additional in-house training to bridge the gap.

Undergraduate, pre-registration and foundation training has successfully adapted, and continues to do so, to ensure that newly qualified Pharmacists and Pharmacy Technicians have the necessary knowledge, skills and experience required of the extended clinical pharmacy practitioner role. This has however reduced, or in some cases, eliminated the pharmacy technical services from the core curricula.

Pharmacy Technician Training Programme

- No requirement for trainees to gain competency-based work experience within Pharmacy Technical Services therefore the level of experience, and exposure to the specialist area is highly variable.
- Benefits were seen where Trusts supported trainees with Technical Services.

"I luckily spent time in Aseptics which allowed me to experience the role and follow a career in this area. Once I qualified, I could just step into the job."

We heard

"I had no 'technical' modules within my [MPharm] degree… the first experience I had was when I qualified"

"I didn't have much experience of aseptics when I was a student [Pharmacy] Technician"

"We are increasingly recruiting people who have no knowledge or experience [and] therefore more training is needed."

"We often need to recruit Pharmacy Technicians [AfC band 4] with no aseptic background – it can take 1 year to get them to the level of a good support worker"

"It [Pharmacy Technician Qualification] does not provide the relevant knowledge or skills required for a 'day 1' registered pharmacy technician within aseptic services… local training programmes are used to fill this gap."

"We have to employ Pharmacists with limited specialist skills and knowledge. The internal training load is therefore high once they are in post.

Local Innovation (Leeds Teaching Hospital Trust):
Pre-registration Pharmacy Technicians complete the majority of work based competencies within Aseptic Services - a unique approach to the GPhC Initial Education and Training (IET) Standards. This approach may however, no longer feasible when revised GPhC IET Standards are introduced.

Support Worker Qualifications and Apprenticeships - Level 2

Finding 33: There are insufficient relevant GPhC accredited qualifications, linked to apprenticeships, to develop the learning needs of support workers working in Pharmacy Technical services.

Education and training requirements for pharmacy support staff

- The GPhC set requirements for support staff, to ensure they continue to have the necessary knowledge, attitudes and behaviours to provide safe and effective care to people using pharmacy services.
- Support staff must enrol on the programme within 3 months of employment in accordance with GPhC guidance and role requirements.

Apprenticeship available, GPhC accredited but limited relevance to Pharmacy Technical Services

Buttercups Training: Pharmacy Services Assistant
Content generic, not specific for Pharmacy Technical Services

GPhC accredited, increased relevance but no apprenticeship to encourage use

Pearson's BTEC Certificate in Principles and Practice for Pharmacy Support Staff
Good general overview – focus on pharmaceutical manufacture; however, most support workers will be in a preparation workplace. Some inclusion of QA / QC although some additional clarity needed.

Not GPhC accredited (not suitable for use within Pharmacy) and limited relevance

Manufacturing Process Operator – Science

- Apprenticeship only
- Not yet in use
- Aimed at classical pharmaceutical manufacturing only

Healthcare Science Assistant

- Mandatory units are general for healthcare science contains units which are not relevant e.g. introduction to diagnostic techniques
- Optional "Prepare Aseptic Products" unit available
- Unit "Introduction to laboratory practice" is relevant for QC staff however this covers basic principles and there are no additional relevant units

Currently, the only route for a support worker to progress is to undertake the Pharmacy Technician Pre-registration Training which does not sufficiently provide the knowledge & skills required in Pharmacy Technical Services

Initiative: Pilot Science Manufacturing Technician Apprenticeship – Level 3

Finding 34: The Science Manufacturing Technician apprenticeship pilot includes a specific relevant qualification for aseptic processing. Further work is required to integrate this into a career pathway to enable services to grow a novel aseptic operator workforce.

The qualification appears comprehensive and a suitable for aseptic operators.

Access to mentorship and appropriate work-based experience is essential to apprentice development.

Access to mentors and trainers in some areas especially QC and QA could be limiting, especially if rolled out nationally.

Awareness of the pilot was significantly limited outside of departments undertaking the workplace training.

Apprentices will undertake the Science Manufacturing Technician Apprenticeship and the associated Diploma in the Principles of Aseptic Pharmaceuticals Processing. Pilot to start early 2021.

This apprenticeship is new to NHS Pharmacy Technical Services; however, it is established within the industrial manufacturing setting.

Upon successful completion apprentices will be eligible for registration with the Science Council, **professional body**, as a Science Technician (RSciTech).

The **qualification** is specifically designed to develop understanding of the fundamentals associated with aseptic processing within an NHS setting.

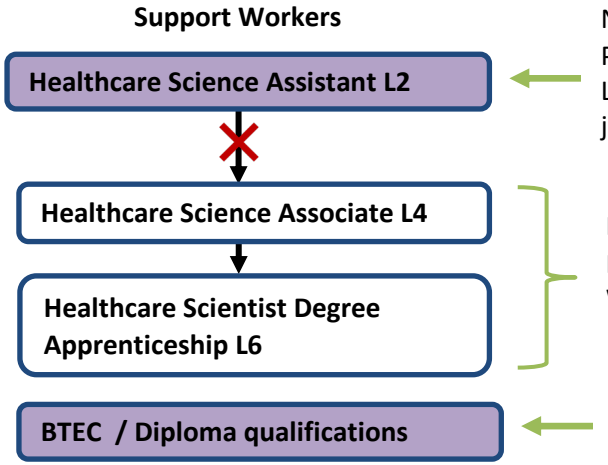
- Learning outcomes associated with quality management, quality control and radiopharmacy are also included.
- The qualification is therefore ideally suited to develop a novel workforce of knowledgeable aseptic operators

What are the limitations?

- No regulatory body for Science Technicians, unlike Pharmacy Technicians (registration with GPhC). Both staff groups will handle medicines and prescriptions.
- Trainees must have completed the minimum GPhC training requirement prior to entry (if working in a Section 10 environment) as the qualification is not recognised by the GPhC.
- There are currently no defined roles or career paths associated with completion of this apprenticeship.
    - No reference, yet, within job descriptions
    - No subsequent qualifications to support continued development
    - Unclear how Science Technicians will integrate with current workforce
- The SMT is currently only suitable for aseptic operators, while this is advantageous it does not fill the gap for the other specialisms.
- Apprenticeship designed by private industry for licensed manufacturing, there is therefore a disconnect between the apprenticeship and qualification (which is aimed at NHS aseptic preparation).

Qualifications: Pharmacy Quality Control

Finding 35: Limited suitable qualifications are available to support the development of the Pharmacy Quality Control workforce



We Saw and Heard:

"All of our training is in-house, there are no qualifications to support the development of new staff"

"We can't support staff [Support Workers] who want to progress within QC – our current support worker is considering the Pharmacy Technician Qualification – he has asked if there is anyway to progress but stay within QC – sadly, there isn't"

"[workforce development] usually all in-house training and mentorship, this can be very time consuming"

"We can't really grow our own within QC – only if they come with a suitable undergraduate degree"

MSc Pharmaceutical Technology & Quality Assurance (PTQA) – L7
NHS TSET / University of Manchester

- 2 modules are specific to QC (QC – mandatory module and Medical Gas Testing – optional module)
- Other modules may be useful for a holistic overview of Pharmacy Technical Services especially for more advanced roles such as 'Quality Controller'
- Part time, taught
- No degree-level scientific qualification required for entry

MSc Pharmaceutical Industry Advanced Training (PIAT) – L7
University of Manchester

2 options available: Industrial Pharmacy (less relevance for QC specialism) and Pharmaceutical Microbiology (relevant for microbiological QC esp. when associated with classic pharmaceutical manufacture).

Part time, distance learning

Degree-level scientific qualification required for entry (or CPD entry route by completing separate modules)

Pharmaceutical Technology & Quality Assurance (PTQA) – Level 7

Finding 36: PTQA was identified as a "valuable" qualification used to develop technical knowledge and critical appraisal skills at an advanced practitioner level. Flexibility in delivery, cost and application to practice could be improved.

PTQA is a level 7 qualification developed by TSET and administered by the University of Manchester. It is aimed at pharmacy, health and biomedical professionals working in technical services within NHS or private sector organisations. It is run in parallel with the Scientist Training Programme (STP) with which it shares a considerable portion of the course content.

PTQA is an MSc qualification but there are options to "step off" at certificate and diploma level. The course content is delivered by experts from the NHS and industry in a variety of formats including lectures, practical workshops and visits to NHS and

Traditionally, Pharmacists primarily access the qualification (53%), however an increased number of Pharmacy Technicians are now attending (33%) as are *"more junior staff"*. Baseline underpinning knowledge and previous qualifications is therefore highly variable.

- 100% of those who attended identified the qualification as 'valuable'
- c.50% attended were experienced in their role
- 95% of personnel stated PTQA helped them to do their job more effectively

Diminishing relevant entry level knowledge of Pharmacists and Pharmacy Technicians has resulted in PTQA having to adjust its content to plug this widening knowledge gap.

PTQA was successfully delivered on-line during the COVID pandemic restrictions.

We Saw and Heard:

"I have a new role which means I have had sufficient exposure to coincide with PTQA learning, without it I think I would have really struggled and not got the same out of it"

"I learnt a lot from PTQA, I also had a lot of exposure and mentorship from my manager – this was invaluable to getting the most out of it. It has definitely helped me progress my career."

"I didn't have the mentorship I feel was needed so sometimes struggled to link PTQA learning with local practice"

"I gained a lot of knowledge and theory but not how to put it into practice, I feel the main limitation was that it lacked practical application."

"More problem solving, and trouble shooting would be extremely helpful"

"The content is good but very rigid and broad – for example does everyone need all of the QC module? I would like to see a more optional modular or bite size approach."

"I enjoyed when they used different learning styles – videos were great, and I found the networking invaluable too"

"The cost is unfortunately prohibitive for us to send anyone"

"It would have been helpful to have had something that provides some academic exposure at a lower level, before I started PTQA."

"PTQA is all that's available, for some people this is too big of a jump"

"People usually obtain qualifications to allow them to progress, we can't offer them anything other than PTQA – there's definitely a gap"

Contents

NHS Courses: Overview

Finding 37: Courses are hosted by various providers and primarily provide attendees with underpinning knowledge. Many of these courses provide attendance certificates but involve no form of assessment.

Short Courses Available - Providing *Technical* Knowledge and / or skills

TSET / UNIVERSITY OF LEEDS

- Aseptic preparation and dispensing of medicines (APDM)
- Aseptic services for managers (ASfM)
- Cleanroom Behaviour and Comportment for Aseptic Services
- Understanding Microbiology for Aseptic Services
- Supervisory skills for Technical Services

NHS Health Education England

- Pre- and in-process checking (PIPC)

PWDS Pharmacy Workforce Development SOUTH

- Product approval accreditation programme (PAAP)

North West Pharmaceutical Quality Assurance NHS
www.nwpqa.nhs.uk | nwpqatraining@liverpoolft.nhs.uk

- Various short courses covering a variety of topics

King's College London

- King's College London Radiopharmacy course

Symposia e.g., MHRA GMDP

North West initiative 'Primary Level Training"

- Many courses are available, provided by a variety of hosts.
- Many specialist courses contain no form of assessment of new knowledge or skills gained.
- Courses aim to fill a knowledge gap but are no substitute for qualifications with formal assessment.
- Courses are currently not linked to a career pathway.

Short Courses Available - Providing *General* Knowledge and / or skills

NHS Leadership Academy

- Various courses available

CPPE

- Leading for Change

NHS Health Education England

- HEE North School of Pharmacy and Medicines Optimisation mentor study day

Courses: Reasons for Attendance - Managers

Finding 38: The reasons cited for staff attending external courses were predominantly reactive and opportunistic, rather than being part of a personal development plan.

Evidence:

Commonly reported reasons for attending:

- Self interest / personally identified development opportunity
- Identified by manager at appraisals as part of personal development
- To enable staff to perform a new role e.g. Product Approval Accreditation Programme
- Ad-hoc following notification of course availability (e.g. email notification received)
- Reward staff member for "good work"
- Sent by employer to help address a specific issue arising at work e.g. action required following raised audit deficiency

'Opportunity' was reported as influential to attendance:

"Courses don't come around often, so if you miss it you have to wait for it come around again which can take a while"

"I can generally only send 1 person on this course each year – some staff could be waiting years until it is their turn"

"I would have like to have done APDM before ASfM, I missed the opportunity in my previous role"

"I would like to attend the Leeds Micro Course [Understanding Microbiology for Aseptic Services] but I didn't get to go as there was a queue"

We heard

"We use some of them [external courses] but they are not linked with e.g. a career path, new to post etc. so it is more of a 'nice to have' than essential"

"I will send anyone to anything relevant – it isn't part of a plan."

"I have asked [my manager] to do APDM – I've heard it is good from colleagues"

"It would be useful to tie courses in with the job role. I attended ASfM in a previous role, but I think I would get more out of it now"

"a stepwise approach [to attending courses] would be better as it would have made the transition easier"

"We don't use courses to incrementally build knowledge – but we should"

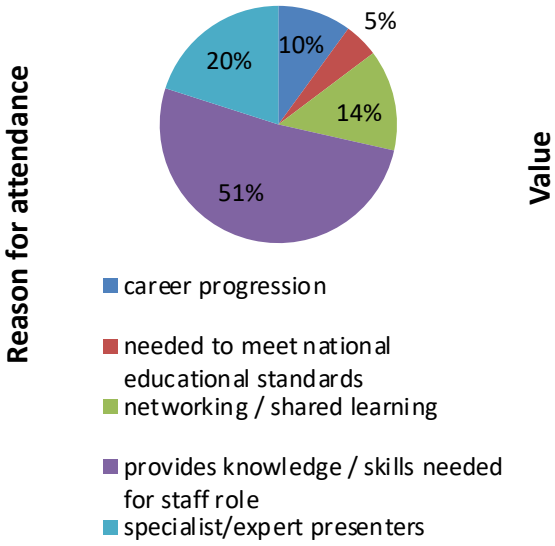
Variation reported

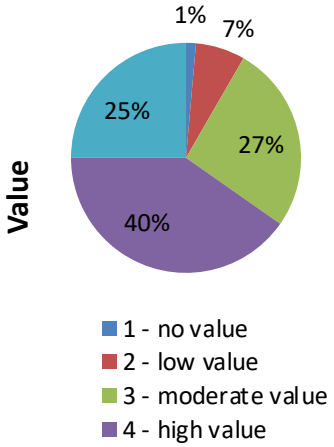
- Services select courses based on staff group, but the staff group vary across organisations.
- Attendance at courses was perceived as polarised: Trusts either attend many courses and/or send a high number of delegates, or they attend few or courses.

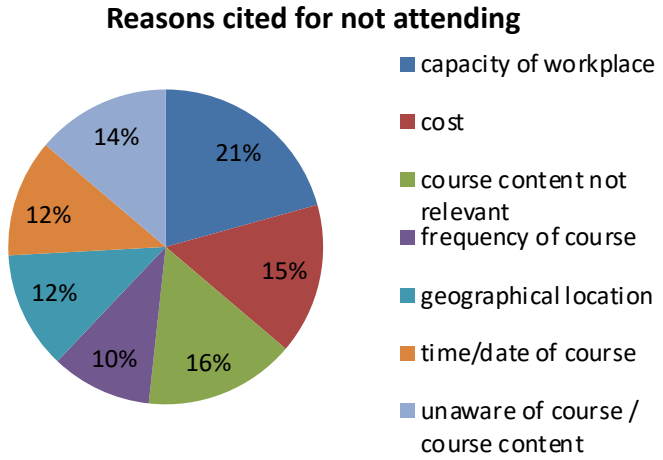
Courses*: Pros & Cons – Delegates

Finding 39: Courses were reported as 'valuable' and acquisition of underpinning knowledge was a key driver for attendance. Value for money, limited travel and frequency of the event further encouraged attendance.

Finding 40: Conversely, cost, workforce capacity, geographical location and limited frequency were identified as barriers to attendance.







Additional factors cited as important

- Cost
- Value for money

"Availability is a challenge. I can only send one person at a time due to cost and capacity of the unit"

"We are unable to release staff for 5 days to attend a course e.g. APDM"

"I wish I could send more people on this course, but currently I struggle to get financial approval to send more people each year."

"Due to funding most people attended many years ago and have not had a refresher since."

"The frequency of these courses don't meet our needs… they need to be more than once a year and more accessible"

"It's easier to get into Glastonbury [than access APDM]… the demand outweighs availability"

*Courses: National courses; PIPC, PAAP, APDM, ASFM, LCPD Micro, LCPD Comportment, RP; Regional courses; SWCL, NW PL, NW PQA

National Courses*: Awareness

Finding 41: The awareness of the range of available courses was varied; managers cited increased awareness particularly of 'long-standing' ** courses whilst reduced awareness was reported amongst the workforce.

Finding 42: Awareness of current course content was also limited. Course content was often assumed from previous personal experience rather than an understanding of the current programme.

Evidence:

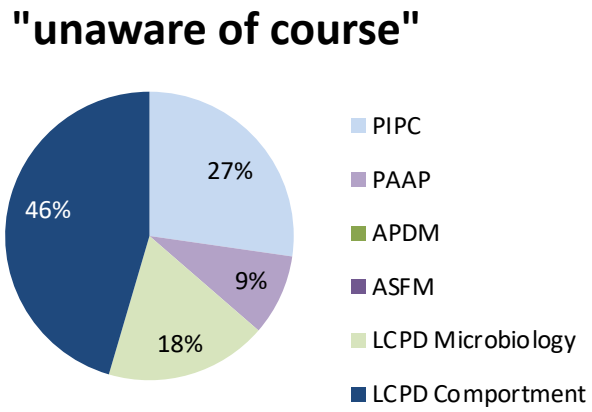
We heard

A high number of course providers were identified. Each provider advertised their course on their individual website. Details regarding course content varied between providers.

"I am not aware of what courses are available"

"It can be difficult finding what is out there, it would be useful to have all courses in one place"

"I don't know what courses are available or who they are for. It would be good to have this information"



How are you made aware of available courses?

- Word of mouth *"I heard APDM is good so I asked if I could go"*
- Explore the TSET website *"I stumbled across…"*
- Emails from / attendance at e.g. Technical Services Groups
- Emails from providers with course event dates
- Previous attendance by trainer / manager

"I wasn't aware this course was running"

"There are so many emails [advertising courses], it can be hard to keep up"

Do you know the content of each content?

"We generally send staff based on previous experience rather than assessing the content"

"I don't know the content, but I went years ago and got a lot from it… so I now send our staff"

"I'm not aware of the refreshed content"

*Courses: National courses; PIPC, PAAP, APDM, ASFM, LCPD Micro, LCPD Comportment, RP; Regional courses; SWCL, NW PL, NW PQA **Long standing courses: APDM and ADfM

National Courses: Gaps

Finding 43: Gaps in nationally available course content were reported. There have been initiatives to bridge this gap with the development of short courses and study days run by local and regional NHS networks and teams.

We saw and heard

"There is nothing between APDM and higher level ASFM"

"I feel there is a gap between basic training and PTQA, particularly for colleagues in QA/QC"

"A mid-level training programme for Band 4/5 technicians, including QA, would be valuable."

"People usually obtain qualifications to allow them to progress, we can't offer them anything other than PTQA – there's definitely a gap"

"Aseptic Services CPD Diploma which is no longer available. The course was suited to technician development, cheaper, distance learning, equitable qualification, like the level 4 clinical diploma, a more suitable education level and was relevant to technician posts as an interim qualification between APDM & PTQA"

"No training courses for Pharmacists in our region other than APDM which is time consuming - unable to release pharmacist for five days."

"Wider range of courses on specialist topics like the ones run by NW RQA would be good too - help for new senior staff to gain knowledge and skills."

"A one-day course on aseptic technique/using isolators aimed at new B3/B4 staff would be good."

"[NE site] A regional or local training day to provide staff with the very basics prior to them starting in the unit – legal aspects, this is what a clean room is etc. would be really valuable… something more interactive than simply an online programme".

Key gaps in available courses were identified:

- **Induction** - for staff who are new to technical services.
- **Middle grade staff** – post basic training but before PTQA (level 7 qualification)
- **Specialist subject areas** such as QA, technology and product approval

Initiatives

- **NW Primary Level Training**
- **PQANW Short Courses**

- A North West initiative 'Primary Level Training' was established to provide 'an interactive introduction to aseptics' providing basic underpinning knowledge and understanding was felt to benefit staff induction, reducing the need for local training and driving standardisation.
- North West Pharmaceutical QA Short Courses have been established to fill educational gaps identified by service users and from audit / inspection findings.

Learning from COVID
Local Initiative: NWPQA Short Courses

Finding 44:

NWPQA successfully adapted their short courses to an online webinar format following COVID-19 restrictions. This resulted in a marked increase in the number of delegates attending, highlighting an appetite for the use of technology and a more flexible approach to learning.

Short courses (1 day) have been developed to fill specific knowledge gaps:

- Stability & Shelf life
- Maintenance & Monitoring of cleanrooms
- Designing a Pharmaceutical Quality system
- Responding to incidents
- Process control & supervision
- Risk management & change control
- Design & commissioning of cleanroom facilities & equipment

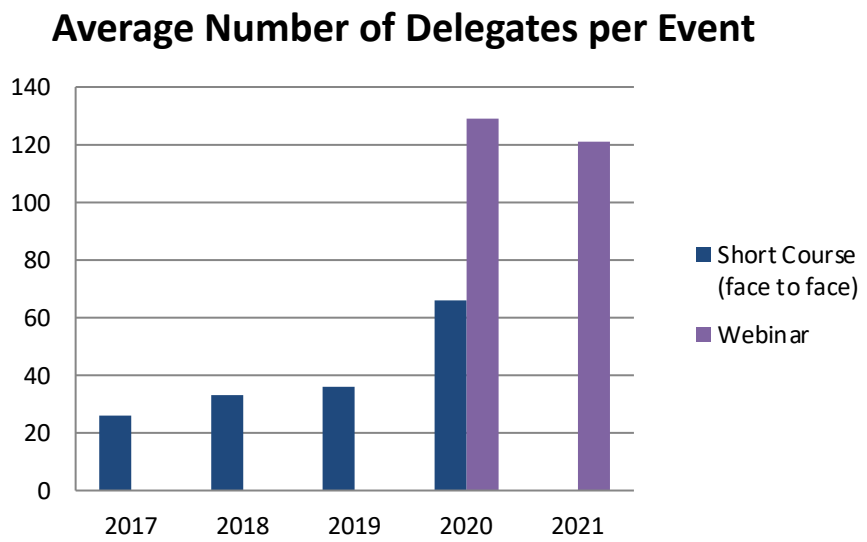
Learning from COVID:

Face-to-face short courses were adapted into short recorded webinar sessions with live Q&As (1 hour) over the COVID period (delivered via Microsoft Teams) and were offered to a national audience in response to COVID restrictions. Webinars have been recorded and posted on the NWPQA website and available for all staff to view at their convenience.

This change in delivery method and duration has seen a marked rise in the number of attendees. It Is important to note attendance increased even though workforce capacity was stretched due to increased pressures from the pandemic. This highlights the appetite to utilise this flexible approach to learning.

5 webinar sessions have been run to date:

- Deviation management – data capture & trending
- Investigation deviations and establishing root causes
- Supervising Cleanrooms
- Self Inspection
- Assessing drug stability in Aseptics



A marked increase in delegates attending the learning events was noted following the change to an online webinar format

Pharmacy Quality Control

Finding 45: QC managers reported that there were insufficient accessible courses and material resources to support the development of the Pharmacy Quality Control Workforce.

There are 8 QC services across the North of England providing a variety of core services:

- Pharmaceutical analysis and stability testing
- Cleanroom testing
- Microbiological testing
- Medical gases

Courses / study days identified during site visits

NHS input into content

- Pharmaceutical Medical Gas Testing
- Medical Gases for Service Managers

Industry focused content or bespoke system training

- Pharmaceutical Industry Advanced Training (PIAT) units: Quality Control Laboratory Testing & Microbiological Quality Control
- Cleanroom Testing & Certification Board International – Associate & Professional Levels
- PharMIG – various short courses
- NSF – Pharmaceutical Training
- Tutela Study Day; this is only relevant if Tutela temperature monitoring system in use
- Equipment manufacturers bespoke training

We saw and heard

"There are no specific and relevant QC training courses or resources available" [analytical chemistry lab].

"Accessibility of courses is an issue e.g. HPLC training. It can be difficult to find something that's not too expensive and is local. Sometimes courses are offered by service providers who provide onsite training when new equipment is purchased. "

"We don't access external courses, I don't think there is anything available"

"We have accessed some of the generic courses such as LCPD Comportment and APDM etc. for new starters or staff in a broader management role"

"There are commercial courses available but they are too expensive for us to use… and the content is not always directly relevant"

PIAT - Limited awareness and potentially limited relevance depending on job role / service provided

The NHS QC Northern Operational Group identified the lack of accessible educational resources and plan to organise a symposium style learning event to support the QC Workforce.

Pharmacy Quality Assurance Roles

Finding 46: Managers reported that there were insufficient courses and material resources to support to development of Quality Assurance expertise across the workforce.

Finding 47: Commercial courses, often aimed at trainee QPs, are available, many of which could be suitable for training the Quality Assurance workforce. The cost is however prohibitive.

Evidence:

"There is nothing [resources or courses] out there for us, we need to do it all ourselves"

"We sometimes use a root cause analysis course, but it is designed for our clinical colleagues, it's better than nothing"

"We can use some of the aseptics resources for general knowledge, but it isn't specific to our job roles"

"I feel there is a gap between basic training and PTQA (level 7 qualification), particularly for colleagues in QA/QC. A mid-level training programme for staff in QA/QC would be really valuable."

"We now send our [QA] staff to the North West [regional] study days, they have run a few sessions which are relevant to us such as managing deviations and audit. There was nothing before."

The QA workforce relies heavily on mentorship and coaching from more experienced colleagues to translate learning from external courses into practice. The availability of QA specialists to support this is limited."

Commercial Training Suppliers – QP target audience

"I often see QP training events advertised. The content looks great, but they are too expensive to access as I am not a QP trainee"

"QP trainees have access to fantastic tools such as webinars to improve quality risk management related decision making, root cause analysis etc. It would be great if we could access something tailored to our practice in the NHS"

"I identified some QP courses which would be useful, but they are too expensive"

Larger NHS QA departments demonstrated increased opportunities to work alongside QA specialists, integrating experiential learning and mentorship alongside external learning resource - similar to the approach to QP training.

Newcastle upon Tyne NHS Foundation Trust have successfully developed and mentored a pipeline of QPs using this approach.

Radiopharmacy

Finding 48: King's College London Radiopharmacy course is deemed valuable for more advanced radiopharmacy personnel.

Finding 49: There are no other specific courses or resources tailored to radiopharmacy at other career stages.

Evidence:

- King's College London 'Radiopharmacy' short course is available nationally.
- No specific Radiopharmacy training resources available.
- *"A 'pick and mix' approach is taken to select what non-radiopharmacy specific courses to use."*

King's College London 'Radiopharmacy' short course

- 100% of respondents thought the course helped the attendees do their job more effectively
- 100% of respondents described the course as 'valuable'

"Excellent course, lots of detail, well explained and presented"

UK Radiopharmacy Group annual study day

- Showcase new developments and good practice
- Attended widely by the Radiopharmacy community

"It's essential for keeping up-to-date and great for networking too"

"[King's 'Radiopharmacy' short course] gives a good overview of technical knowledge, but you need some experience before you go"

"We can use the other aseptic courses for general knowledge particularly for more junior staff. There is only really the 'King's' course that is specific for us… this is suitable for staff who already have experience in the area, it isn't suitable for junior staff"

"There are no specific radiopharmacy resources, other than what we have locally"

"We pick and choose [courses] from other aseptics and QA type courses which are available, there isn't a set approach"

"There is a postgraduate course available, but no-one has attended as you need to attend the modules in London. There is no distance learning option."

Additional UKRG Study Days:

- Radiopharmacy Design symposium
- Radiolabelling platelets
- Radiopharmacy capacity planning
- GMP Ga-68 (Galium) manufacturing

Management and Leadership Courses

Finding 50: NHS Leadership Academy and CPPE Programmes are underused as they are felt to be aimed at clinical colleagues.

Finding 51: Insufficient specific management training across the North of England was also reported.

NHS Leadership Academy

CPPE Leading for change

We heard

"No-one has used the NHS Leadership Academy courses, that I am aware of"

"I think they have more of a clinical focus, I don't know if it would be right for us... is it not for aspiring Chief Pharmacists?"

"We have accessed some of the NHS Leadership Academy courses such as Edward Jenner, I am not aware of anyone completing any of the more advanced programmes"

"We have signposted to Edward Jenner but I don't know what value it brings other than awareness, we don't mentor alongside it or really integrate it into development programmes etc."

We heard

"I've had no people management training at university or afterwards, I'm just expected to do it".

"We have no internal [management] courses, everything is online – it would be helpful to have face to face discussions, mentorship, coaching etc."

"There is nothing to help with service management type roles such as capacity planning etc."

"My prescribing course included management and leadership but I have never come across anything in the technical area"

"I'm aware of NHS leadership courses but want something on the 'nitty gritty', day to day management."

"I don't know what value the NHS leadership courses will bring to the department"

"There isn't anything from CPPE for us to use"

Scientist Training Programme

"This programmes aims to develop technical leaders of the future, but it lacks learning outcomes around leadership and management needed for more senior leadership roles"

Study Days and Symposia – 'Staying Current'

Finding 52: Varied attendance at study days and symposia was reported. Events were regarded as highly valuable to continuous professional development.

We heard

NHS Pharmaceutical Quality Assurance and Technical Services Symposium

- Well attended from across UK
- Predominantly attended by staff in more senior positions
- Attitudes to event varied from encouraging many staff to attend due to high perceived value "essential for us to keep up to date and drive the service forward" to the perception that the symposium is a perk with limited practical value

"We need to limit the number of attendees from our site due to workforce capacity"

"I attend for the relevant topics and knowledgeable speakers"

MHRA-GMDP:

- Content aimed at pharmaceutical manufacturers and wholesale dealers
- 29% of licensed facilities surveyed attended; no unlicensed facilities attended

"This was attended by the training lead to gain GMP updates which could then be relayed within annual GMP training to the whole team."

"Senior Managers have attended this but it not offered to Technicians or Operators – the information is not therefore shared further during in house training"

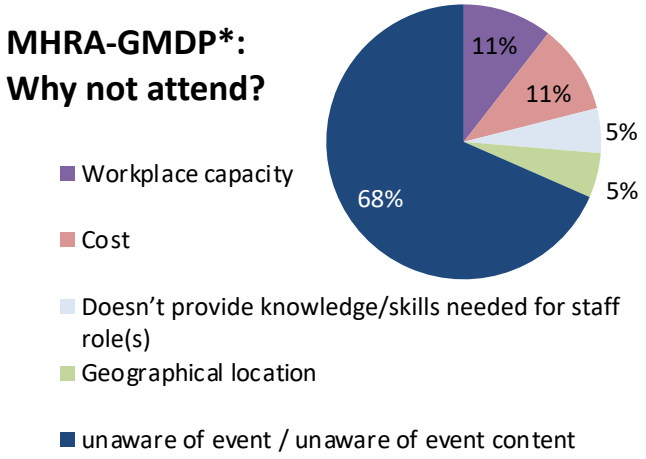
"Extremely beneficial event, good quality presentations and ability to interact with industry colleagues and MHRA inspectors"

"Not all areas of the course are relevant but give it does give background knowledge"

NHS Pan-North Joint Technical Services Update:

- Broad content suitable for all technical services specialities
- Well attended across the North ~ 50 delegates
- Predominantly attended by staff in more senior positions
- 88% of delegates scored the event as 'high' with respect to favourability
- 98% of delegates felt the event met their own specific aims
- Delegates enjoyed, and would like more of,
  - Practical 'how to' topics
  - Sessions with a high level of discussion
  - Employing a regional approach

MHRA-GMDP*: Why not attend?



*Survey of Northern Services - all respondents included in dataset

National Resource: Aseptic Processing Programme (APP)

Finding 53: Aseptic Processing Programme (APP) is the only nationally available NHS resource for Pharmacy Technical Services personnel. This resource is generally well accessed within Aseptic Services and was reported as "valuable" to supplement in-house training. Improvements to further support local training have been suggested.

What is it?

APP is designed and hosted by TSET. It comprises a manual of information with assessment questions relating to aseptic processing (significant update 2018/2019) and provides videos of practice (last updated 2010).

- > 3500 people across the UK have registered to use APP
- 63% of survey respondents accessed this resource; the primary reason for not accessing it was due to lack of awareness.
- All staff groups including trainees access this resource; primarily to provide underpinning knowledge as part of an in-house training programme or when refresher training is needed e.g. following involvement in an error or concerns over practice.
- 91% of respondents believed APP helped their team do their job more effectively.

"Staff are encouraged to use it [APP] but their learning is self-directed and not mandatory… we would like to use the question section but don't have time to go through it with staff"

"We stopped using it as it was too out of date" "I thought it had closed down"

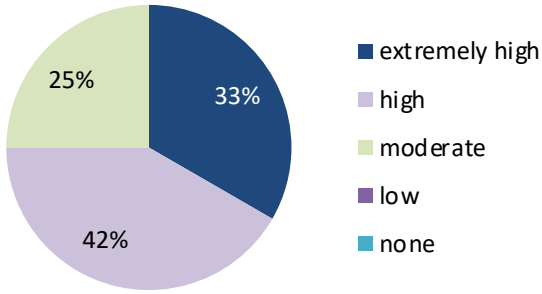
"We use the resource to supplement internal training but need to explain that some of the information is different to what trainees will see in our unit" "TSET slides often portrayed activities being done differently so they are not all that helpful for in-house training."

"easy to read" "no jargon" "useful, but only reading"

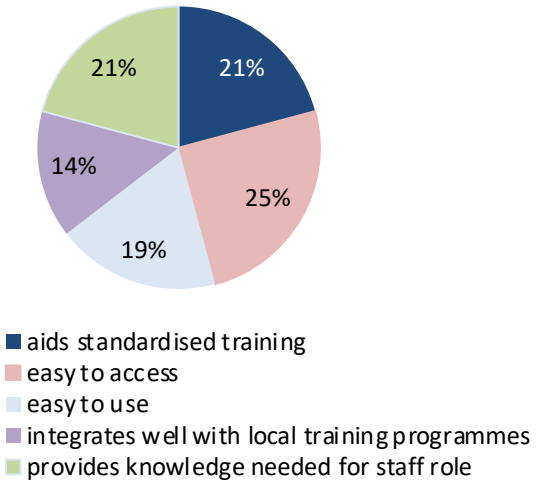
Most common suggested improvements:

- More support to deliver training into practice
- Increased interactivity
- Inclusion of practical tasks

Perceived Value



Reason for Accessing Resource



National Resource: Technical Professional Development Portal

Finding 54: Limited awareness of the TPD Portal was reported, where its availability was recognised, it was under utilised and not integrated with local training programmes.

What is it?

The TPD Portal is designed and managed by NHS TSET. NHS TSET worked with the RPS to align the TPD portal with the knowledge and competency frameworks, which were in development at the time. It is aimed at all of the Pharmacy Technical Services workforce, across all staff groups and grades.

The Portal is an electronic competency framework which allows individuals to create their own competency profile to reflect their individual role. Evidence can be uploaded to a portfolio for a trainer or manager to review.

Seven clusters of technical competences are linked to, and supported by, suggested underpinning knowledge requirements. These can be searched and used as a personal development tool and / or a managerial aid.

Only 30% of survey respondents had accessed the TPD Portal

"I've not heard of it" - this was commonly quoted at site visits

"I stumbled upon it and thought "what is this?" but didn't go into it."

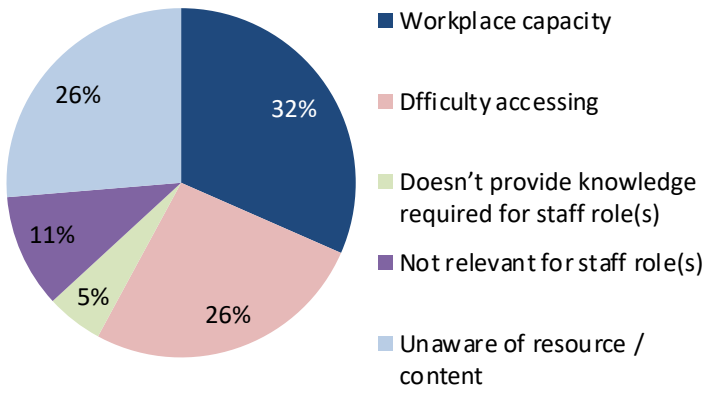
"I like the idea of it [TPD Portal] but I find it complicated to use."

"I used it [TSET Portal] to help design [a local] training pack… I haven't added anything to the Portal, I think that's what you are meant to do"

"I have found the portal useful when trying to design new competency packs"

"I have reviewed this in the past but didn't find it easy to use."

Why not access?



"NHS TSET worked extensively with the RPS to align the TPD portal with the knowledge and competency frameworks they were and still are developing".

"NHS TSET carried out an extensive PR exercise throughout the UK when the TPD portal was developed"

Barriers reported:

- Workplace capacity was cited as a key barrier to accessing and using the TPD Portal
- Lack of integration with other training platforms / systems e.g. RPS, NVQ portfolios etc.
- The TPD portal requires updating to reflect current practice.

Training Budgets and Funding

Finding 55: Inequitable access and a protracted funding application process to support workforce development was reported.

We Saw and Heard:

Funding is generally obtained via:

- Local training budgets (Pharmacy department wide budget)
- Health Education England

Funding is needed for qualifications, courses, study days, material resources and local trainers and training teams.

HEE Funding

- Variation was identified in amount of funding available across the North of England regions.
- HEE budgets are limited, meaning they cannot support all applications for funding. They have, however, provided over £150k / year to enable trainees to attend PTQA alone.
- HEE North skills investment funding is allocated through an expressions of interest process. When funding is approved services are required to pay for courses and then HEE reimburses for a proportion of the course cost. This process was felt to create a delay in accessing courses.

"It is great that the funding is available, but it feels like a bit of a lottery"

"The process of applying for funding doesn't work for us, by the time we get a PO number [local process] the course is full - as they won't hold the place - so people miss out. We don't always have the option to fund ourselves awaiting the HEE decision. There must be better way"

Availability of local funding was significantly varied:

"We don't have a problem with funding, our Trust is good with things like that" – consistent finding across larger Trusts

"We have no internal funding for courses etc." – more common finding in smaller Trusts

"Training resource is not part of our budget"

"It can be difficult to justify why we need funding for a course when it isn't linked to e.g. a job role – other clinical qualifications and resources e.g. for prescribing or the clinical pharmacy diploma will be prioritised within the Pharmacy dept. budget."

"Difficult to obtain funding"

"No paid study leave for courses"

"Funding is a problem, there are too many barriers… The system is not reactive enough"

PTQA funding is highly variable, ranging from fully funded, 50% funding and no study time permitted (annual leave to be used) to no funding being available.

Health Education England

Contents

Co-ordination and Leadership of Education and Training

Finding 56: TSET provides education and training in response to the needs of technical services on a national basis.

Who are the Technical Specialist Education and Training group (TSET):

The Technical Specialist Education and Training group are an NHS committee actively supporting and promoting the work of NHS staff working in the technical aspects of hospital pharmacy.[1]

They are "a committee of active, pharmaceutical technical specialists, who represent the principal specialist areas of hospital based pharmaceutical production, (sterile, aseptic and non-sterile), radiopharmacy, quality assurance and quality control."[1]

TSET is accountable to Specialist Pharmacy Services.

The committee includes a range of highly specialist members who are passionate about education and training.

Representation includes, but is not limited to;

- NHS National Production Committee
- NHS National QA Committee
- UK Radiopharmacy Group
- NHS Health Education England (HEE)
- Pharmaceutical Aseptics Group (PASG)
- Academia: University of Leeds – Continuing Professional Development Unit & University of Manchester PTQA Course Committee

TSET does not routinely include funded positions which limits the resource available to cover the span of work needed to fully co-ordinate and manage education and training throughout Pharmacy Technical Services.

What do NHS TSET do:

"The Group has developed a vital role in identifying training requirements and stimulating the provision of targeted education programmes to meet service need."

CPD and short courses:

- Aseptic preparation and dispensing of medicines (APDM)
- Aseptic services for managers (ASfM)
- Cleanroom Behaviour and Comportment for Aseptic Services
- Understanding Microbiology for Aseptic Services
- Supervisory skills for Technical Services
- Clinical Trials
- Pharmaceutical Medical Gas Testing
- Medical Gases for Service Managers

All CPD courses routinely undergo a review process utilising feedback from delegates to ensure that course development continues to meet service need. This has resulted in recent additions to the CPD portfolio which include Understanding Microbiology for Aseptic Services, Cleanroom Behaviour and Comportment and Supervisory Skills.

MSc Qualification:

- Pharmaceutical Technology and Quality Assurance

Resources:

- Aseptic Processing Programme
- TPD Portal

Information and signposting to these resources can be found on their website

Future Work

- Website update to augment visibility of activities and training courses, access to APP etc.
- Review of CPD courses to establish feasibility of blending with on-line delivery to widen access.

[1]TSET, accessed Nov 2020, www.tset.org.uk

NHS Technical Specialist Education and Training (TSET) Group

Finding 57: Effectiveness of TSET's reach and influence is limited by the lack of education and training networks, and therefore particularly local dissemination, within Pharmacy Technical Services.

Finding 58: Limited awareness and understanding of TSET's activity, and the users' relationship with TSET, was frequently reported across the North.

We saw and heard

TSET currently reach technical service providers via existing networks e.g. NHS National QA Committee, Pharmaceutical Aseptics Group (PASG). TSET have well established links with these groups.

TSET have struggled to reach and influence practice across the north due to the lack of established training posts and education and training networks. This is a barrier to effective consultation, communication and co-ordination of activities.

"There are significant challenges in promoting "technical services" at professional body level". **This has been reported as a barrier to developing education and training within Pharmacy Technical Services**

Opportunities to reach and communicate with a wider audience have increased following the implementation of MS teams across the NHS. This tool can be used to explore and improve communication strategies.

Technical Service Providers:

Interviewees frequently referred to the Aseptic Processing Programme as 'TSET'. This highlighted a misconception that TSET was a resource rather than a committee.

"I think TSET is something to do with aseptics and training but I'm not sure"

"TSET is the website with the training document [APP]"

"They [TSET] send us a list of [University of] Leeds courses"

"They [TSET] deliver courses with the universities"

Interviewees also reported the were unaware that TSET represented them or that they could actively engage with a TSET representative, as they are effectively a stakeholder.

"I am not sure what TSET does for us"

The TSET committee has previously identified the need for a PR campaign to raise awareness of their work and promote engagement with Technical Service providers. This campaign is to launch 2021.

Learning from COVID

Finding 59: Inadequate education and training infrastructure limited the ability to fast-track train new staff and up-skill existing pharmacy staff to boost the technical workforce in support of the pandemic response.

Aseptic services provided extremely valuable, short term, focused capacity to support the increased demand for aseptically prepared medicines to critical care units, and effectively managed global shortages of critical medicines as part of the UK's response to the pandemic .

Pharmacy aseptic teams also played an essential role in the National Covid Vaccine Programme providing expertise and professional oversight of the safe preparation and handling of vaccines in vaccination centres across the country.

This increased demand forced services to think differently, rapidly adapt service provision, change ways of working and change how they interacted with one another.

Services rose to this challenge, however the response also exposed key weaknesses. Learning points must now be used to motivate change across the Pharmacy profession, and not just within Pharmacy Technical Services.

- Significant concerns regarding the resilience of pharmacy technical services workforce were raised during the pandemic due to potential staff sickness and isolation periods. This was in addition to already demanding operational pressures and fragility in the commercial sector.
- De-skilling the wider Pharmacy profession in relevant knowledge and skills reduced the ability of colleagues outside technical services to act as contingency within technical services should it be needed. Training was also hampered by the difficulties in delivering fast -track training.
- The lack of standardised practice resulted in an inability to effectively move staff between organisations, or even between services within the same Trust, to fill acute workforce gaps.
- Pharmacy teams were required to provide oversight and supervision to vaccine programmes including preparation and vaccine management including cold chain. Limited relevant knowledge to successfully fill this role was identified as a gap across the wider pharmacy profession.
- It is imperative that the resilience of the workforce is improved, particularly as Pharmacy Technical Services prepare to move to a model of hub and spoke system working. There is a danger that, as services are potentially consolidated, this gap could continue to widen.

Learning from COVID

Finding 60: New technologies were successfully established to facilitate remote working during the COVID period including delivery of education and training.

MS Teams was utilised across the NHS due to COVID pandemic restrictions. This improved communication and reduced travel time needed for physical meetings. Remote working and meetings have now become common practice.

Changing ways of education and training - embracing digital solutions:

- Use of MS Teams and Zoom as a training platform
- Online remote mentoring was introduced
- Use of videos to demonstrate practice
- Online GMP training was introduced reaching larger audiences across more regions
- Bespoke training sessions were designed and delivered in response to specific service needs and delivered on-line
- Education and training sessions were recorded and uploaded to digital platforms such as YouTube improving accessibility

The use of technology improved communication and accessibility

Examples:

1) QA committee meetings

Meetings were also held more frequently for a shorter durations as travel did not need consideration

2) Regional technical service groups

Increased personnel number and broader role types could attend as staff could remain in the workplace

3) WhatsApp messaging used by the QC Northern Operational Group

Improved speed of communication including troubleshooting and responding to queries.

PTQA moved to a blend of online and remote learning from a fully face-to-face programme.

- This was achieved in a short time period without having a detrimental effect on student experience.
- This change allowed for a record number of students to be admitted in September 2021.

“having the videos of the lectures to re-watch later has been amazing…. the technology has still enabled us to network and share experiences”

How have other professions adapted their training?

Leeds Teaching Hospitals Trust medical undergraduate training successfully incorporated Microsoft’s HoloLens-2 device to deliver live-streamed remote teaching sessions such as live ward rounds. This type of device could have many applications within Pharmacy practice – such as ***remote*** live demonstrations, troubleshooting and practice assessment.

Clinical Pharmacy Services: Looking Forward…
How do we equip the future Pharmacy workforce for upcoming challenges?

Finding 61: The future Clinical Pharmacy workforce will require upskilling in pharmaceutical sciences and technology to support the effective implementation and oversight of innovative medicines within the NHS

Many new innovative medicines (e.g. advanced therapy medicinal products are now being used in practice with more in the pipeline e.g. Point of Care medicines). These medicines require a new skill set for clinical staff.

Case Study: Point of care (POC) manufacture of medicinal products

What are POC medicines?

Innovative medicines which cannot be manufactured in a traditional licensed manufacturing facility and will require a marketing authorisation to be granted to a hospital. These medicines will offer great benefits to patients but will require to be manufactured at the point of care / administration and will be disruptive to existing NHS systems.

Safety, quality and efficacy must be assured, however they cannot be subject to QC testing after manufacture or traditional QP release processes. Governance of these medicines will therefore be key.

Key features:

- Short shelf life (e.g. as short as 60 seconds).
- Highly personalised products
- Wide range of product types
  - ATMPs e.g. non-homologous use
  - Biological and blood products
  - Medical gases
- Large number and wide range of NHS manufacturing sites
- Intermittent need for manufacturing – unlike bulk manufactured ‘traditional medicines’
- Multidisciplinary approach needed for set up and delivery.

The role of Pharmacy?

- Chief Pharmacists will have responsibility for POC medicines
- Receipt of highly bespoke, potentially irreplaceable starting materials
- Extension of clinical pharmacy role to provide governance and suitable oversight at point of care
- Assurance of the manufacturing process needed
- Clinical and financial approval
- Designing systems for recording patient supply e.g. on e-prescribing systems.
- Oversight and potential involvement with release process prior to patient administration

Workforce needs

- Up-skilling of the **Clinical** Pharmacy workforce is needed to ensure they have suitable Pharmaceutical Science knowledge and skills to ensure the safe and effective manufacture and administration of these medicines.
- Pharmacy Personnel equipped with skills to identify process requirements are currently employed within Pharmacy Technical Services – the knowledge and skills will soon also be required within the clinical area.
- Skills from other disciplines will be required within the pharmacy Team such as biomedical science and genomics.

Pharmacy Technical Services: Looking Forward…
How do we equip the future Pharmacy workforce for upcoming challenges?

Finding 62: There is currently a shortage of Pharmacy Technical Service leaders which will impact the ability to successfully deliver a transformation within the sector.

Future Developments

- Proposed implementation of a hub and spoke model for the production of aseptic injectable medicines;[1]
  - A national network of regional hubs with the capacity to produce high volume products on an industrialised scale in off-hospital sites will free up nursing staff for the business of care, enable care closer to home.
  - 'Spokes' maintaining aseptic facilities in hospitals to deliver the more complex, individualised medicines much closer to the patient.
- Use of automation e.g. robotic technology, which can be employed in aseptic-medicine hubs to open up critical new opportunities for increased efficiency and productivity.
- Standardised aseptic services in hospitals and the home.
- Increased use of new innovative medicines e.g. advanced therapy medicinal products such as gene therapies.
- Increased demand for existing product types such as chemotherapy and parenteral nutrition.
- Development in diagnostics e.g. specialist gallium services (Ga-68)

These proposed changes will have an impact on existing licensed and unlicensed aseptic services, quality control and quality assurance functions, and in turn their workforce needs.

Workforce needs

- Increased size of the workforce (across aseptic services, QA and QC) to respond to the rising demand for aseptically produced injectable medicines. Demand is increasing for current product types already prepared within Pharmacy and additional capacity will be needed to produce standardised products within the Pharmacy environment rather than in clinical areas.
- Exploring new routes of entry into the workplace and ensure integration with the traditional workforce
- Up-skilling of the **Technical** Pharmacy workforce
  - To meet the changing needs of the NHS service provision – integrating expansion of technical services with clinical serves
  - Support large scale aseptic manufacture
  - Safely handle innovative medicines e.g. gene therapies
  - Implement and utilise new technology such as robotics
- Focused learning needs for this staff group including a bespoke qualification to provide detailed knowledge an experiential learning
- Skills from other disciplines will be required within the pharmacy team such as biomedical science and genomics.

Suitable leadership and a knowledgeable, experienced workforce is needed to drive transformation and deliver change, respectively, within Pharmacy Technical Services.

There are currently insufficient leaders and experienced workforce members within Pharmacy Technical Services to enable this change in the short – medium term.

Movement of staff from service roles could have a significant impact unless suitable replacements can be identified and developed.

[1]Transforming Pharmacy Aseptic Services in England, Department of Health and Social Care by Lord Carter of Coles, 2020

Workforce Development: Service Providers Wish List for the Future

Finding 63: Service providers shared a common wish list for the future. Increased use of technology, improved access to funding, standardisation of training and access to trainers and mentors were amongst the most desired improvements reported.

Questionnaire outcome	
Improvements	**%**
• online resources	90
• improved access to funding for external courses	86
• standardised training frameworks	86
• access to trainers / mentors / assessors	81
• improved access to nationally approved resources	76
• transferable knowledge and skills e.g. passport of competence	76
• defined career pathways	62
• education and training linked with career pathways	62
• templates for competency assessment e.g. following attendance at a course	62
• national training frameworks	57
• regional training hubs	57
• training framework to up-skill non-GPhC registered staff	57
• access to mock cleanroom / equipment	52

Feedback from stakeholder day and site visits:

- Going 'digital' - increased need to use technology to delivery education and training, improve communication & shared learning.
  - Interactive scenario based webinars (especially useful for decision making), interactive e-learning with assessment, videos and scenario based learning.
  - Virtual reality & simulation and technology enhanced learning
- Standardisation would enable 'one best way'
- Relevant qualifications
- Access to on-line modular learning – "like CPPE or open university"
- Hub and spoke model for workforce development consistently favoured
- Central school / academy for pharmacy technical services
  - Teacher practitioners, 'train the trainer' infrastructure, trainer networks, nationally approved resources / templates
- Face-to-face training time remains important but could be blended with other learning tools
- Workforce passport to enable sharing of staff (ESR like database) with an underpinning accredited portfolio
- Centralised funding is key to success

Contents

Recommendations

System Leadership, Transformation & Investment

The capacity and capability of the pharmacy technical workforce is in a critical state and unless addressed will have a significant impact on NHS services requiring a supply of ready-to-administer critical injectable medicines. A transformation of workforce planning and development is urgently needed which will require system wide multidisciplinary leadership, collaboration and significant investment.

A national strategy is required to:

1. Address the urgent workforce shortage and develop a pipeline to grow the workforce needed for the future.
2. Upskill the workforce to address the widening knowledge gap to ensure the safe and effective preparation of medicines.
3. Transform the training and development infrastructure across the whole system.

The strategy should embrace the principles of the NHS People Plan and include the following:

- ❑ Raising the profile and awareness of technical services and their essential roles in supporting high quality 21st century care e.g., genomics, ATMPs, clinical trials and point of care manufacturing.
- ❑ A nationally co-ordinated recruitment drive to build and develop the workforce for the future.
- ❑ A programme of talent management and leadership development to support succession planning for senior posts.
- ❑ System-wide investment in workforce training and development infrastructure to grow the numbers of trainers & mentors
- ❑ Development of clear career pathways within technical services.
- ❑ Development of a national training and assessment programme aligned to future standardisation of best practice across the NHS to improve transferability of the workforce.
- ❑ Development of an on-line academy for technical services to support local trainers and trainees and improve access to resources (on-line training and assessment resources and courses).

Recommendations – Pharmacy Technical Services

Address the Shortage

Recruitment Strategy is required

- ✓ Nationally co-ordinated
- ✓ Brochure showcasing variety of career opportunities within pharmacy technical services
- ✓ Actively market career & development opportunities e.g. careers events, promotion within schools, colleges and universities

Review & revise syllabus of existing initial education and training for Pharmacists and Pharmacy Technicians

- ✓ Expand and strengthen applied Pharmaceutical Science content to:
- Underpin careers within technical services
- Ensure patient-facing staff are knowledgeable about safe and effective preparation and administration of medicines

Develop new routes into the profession

- ✓ Create a new bespoke entry level qualification
- ✓ Review Pharmacy AfC job profiles to include a novel workforce group
- ✓ Integrate a novel workforce into Technical Services career pathways
- ✓ Enable professional registration of a novel workforce

Address the Knowledge Gap

Improve access and availability of trainers, assessors and mentors

Train the new workforce

- ✓ Increasing local training capacity
- ✓ Additional time and resources to be allocated to workforce development

Up-skill the current workforce

- ✓ Utilise new technology to improve access to specialists / subject matter experts
- ✓ Additional time and resources to be allocated to workforce development
- ✓ Set up trainer networks
- ✓ Train the trainer programmes & qualifications
- ✓ Introduce teacher practitioners within technical services to support the development of advanced practitioners
- ✓ Advanced & consultant level practice development / training posts
- ✓ Improve opportunities to work alongside specialists e.g. fellowships, secondments

Improve access to resources

- ✓ Equity of access, regardless of geographical location
- ✓ Improve and facilitate easy access to funding for training

Transform Infrastructure

Embrace new technology to improve access and availability to trainers and training materials

- ✓ Establish an Academy for Pharmacy Technical Services
- ✓ E-learning and assessment packages
- ✓ Ensure central development and co-ordination of resources
- ✓ On-line access to trainers, assessors and mentors
- ✓ Interactive learning and demonstrations of best practice utilising a wide range of learning tools

Develop defined career pathways

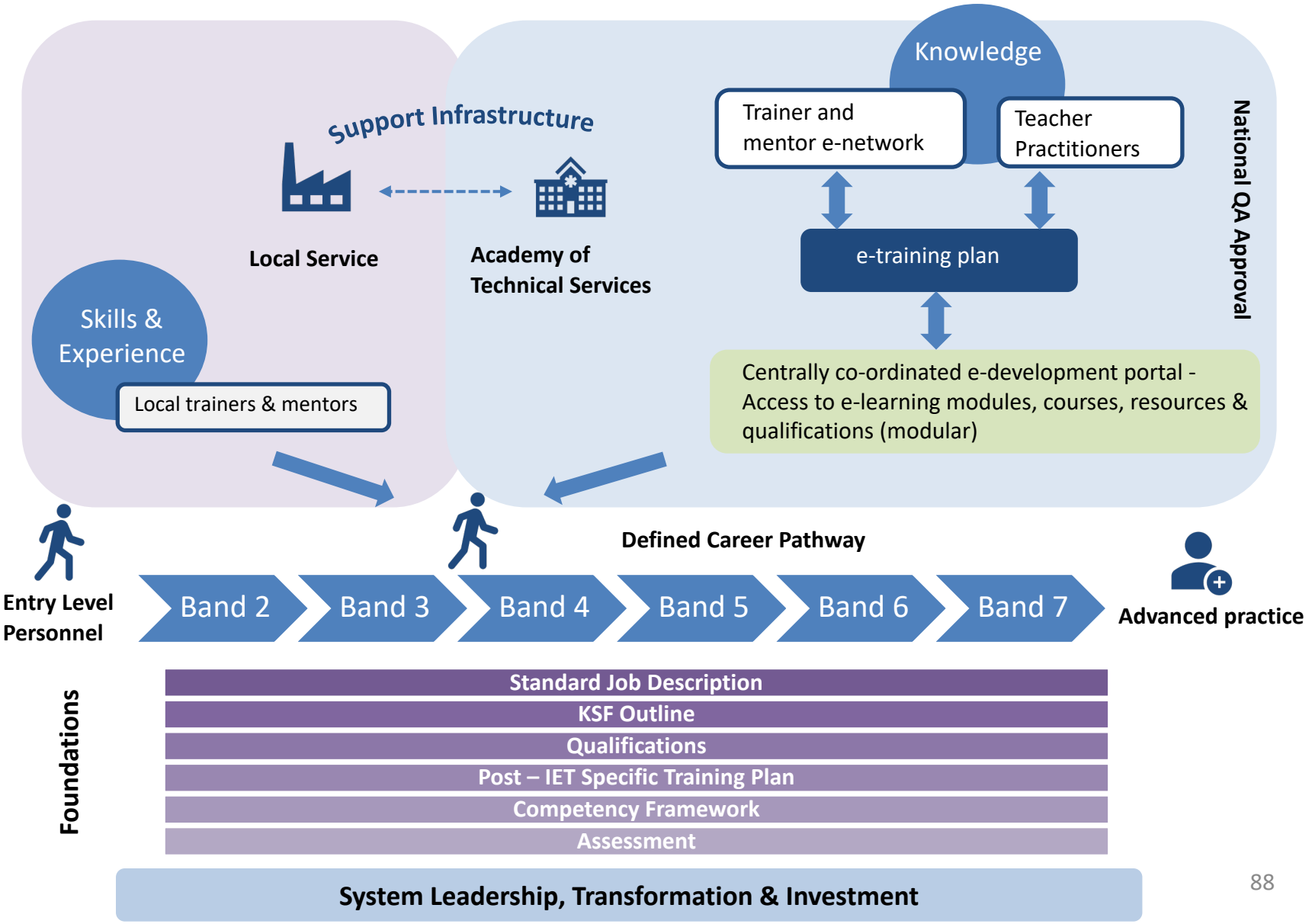
- ✓ Common job descriptions
- ✓ Standardised competency framework
- ✓ Common training and assessment pathway
- ✓ Specific post initial education and training practice qualifications
- ✓ Apprenticeships

Develop a skills passport

- ✓ Improve transferability of the workforce
- ✓ Fast-track training
- ✓ Drives standardisation of practice

System Leadership, Transformation & Investment

Recommendations – Pharmacy Technical Services
Personalised Training Plan



Recommendations – Clinical Pharmacy Services

An underpinning knowledge of pharmaceutical sciences is essential for any pharmacist to perform or provide oversight of medicine preparation under section 10

Service needs requiring pharmaceutical science knowledge and skills:

- Oversight safe and effective preparation and administration of medicines
- Governance and oversight of innovative medicines e.g. advanced therapy medicinal products and point of care medicines
- Medicines formulation
- Homecare services
- Chemotherapy and parenteral nutrition services
- Provision of radiopharmaceuticals
- Medicines compatibility
- Cold chain – storage and distribution
- Modifying formulations e.g. for paediatric doses

Pharmaceutical Science knowledge and skills are needed across primary and secondary care.

Addressing the Current Knowledge Gap & Planning for the Future

- ✓ Review & revise syllabus of existing initial education and training for Pharmacists and Pharmacy Technicians.
- ✓ Expand and strengthen ***applied*** Pharmaceutical Science content to ensure patient-facing staff are knowledgeable about safe and effective preparation and administration of medicines.
- ✓ Improve integration of Technical and Clinical teams enabling support from technical subject matter expert networks to aid e.g. delivery of innovative medicines such as point of care manufacture into the clinical areas.
- ✓ Utilise the on-line academy of Pharmaceutical Science to provide bespoke tailored courses and resources to develop the clinical Pharmacy workforce in specialist areas which overlap with technical specialities e.g. safe innovative medicine manufacturing and administration.
- ✓ Teaching relevant and applied elements of Pharmaceutical Science and technology when teaching specialist clinical modules requiring the provision of high risk ready-to-administer injectable medicines e.g. oncology

Recommendations

Promoting Standardisation and Continuous Quality Improvement

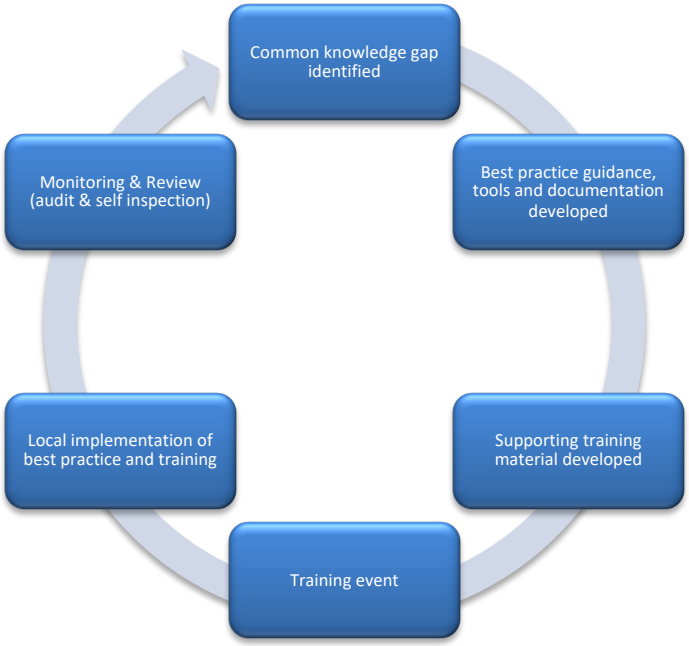
Training courses & resources content need to be:

- Service-led
- Responsive to knowledge gaps identified through audit & inspection
- Aligned to the development & implementation of best practice guidance and resources to help drive standardisation
- Compliant with current regulations
- Authorised and accredited by the NHS (TSET)
- Adopted by ICS training networks and future hub and spoke models
- Co-ordinated and delivered via a National Academy working in collaboration with TSET
- Integrated into local training programmes
- Aligned to career pathways, job profiles and personal development plans

Education & Training providers should be commissioned to deliver material against service specifications developed by TSET on behalf of service users

Content should be constantly reviewed as part of a continuous improvement model to ensure course and resources reflect current and best practice across the NHS.

The NHS and Industry should work collaboratively to explore a common training programme to support workforce training & development across the system



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Arrowe Park Hospital
Barnsley Hospital
Bart's Health NHS Trust
Bassetlaw District General Hospital
BBraun Medical, Sheffield
Blackpool Victoria Hospital
Bradford Royal Infirmary
Calderdale Royal Hospital
Castle Hill Hospital
Clatterbridge Cancer Centre
Countess of Chester Hospital
Cumberland Infirmary
Darlington Memorial Hospital
Diana POW Hospital
Doncaster Royal Infirmary
Harrogate District Hospital
Hexham General Hospital
Huddersfield PMU
Huddersfield Royal Infirmary
Hull Royal Infirmary
James Cook University Hospital
Leeds Teaching Hospitals Trust
Leighton Hospital
Liverpool Heart and Chest Hospital
Macclesfield District General Hospital
Manchester Oxford Road Campus
NCCC, Freeman Hospital
NHS Greater Glasgow and Clyde Technical Specialist Education and Training Group (NHS TSET)
North Manchester Hospital
Pinderfields General Hospital
Queen Elizabeth Hospital
Rotherham General Hospital
Royal Blackburn Hospital
Royal Bolton Hospital
Royal Free
Royal Hallamshire Hospital
Royal Lancaster Infirmary
Royal Liverpool Hospital
Royal Oldham Hospital
Royal Preston Hospital
Royal Victoria Infirmary
Salford Royal Hospital
Scarborough General Hospital
Sheffield Children's Hospital
South Tyneside District Hospital
Southport Hospital
St James's University Hospital
Stepping Hill Hospital
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