

Hospital Pharmacy Transformation Programme

Executive Summary

The Lord Carter report (Operational productivity and performance in English NHS acute hospitals: Unwarranted variations; Feb 2016) has provided a helpful perspective with regard to what 'good' looks like. The 'Hospital Pharmacy and Medicines Optimisation' section and related requirements (recommendation 3, appended at the end of this report) have raised a number of issues and challenges within University Hospitals Bristol NHS Foundation Trust (UH Bristol), and needs to be fully implemented by April 2020. The Pharmacy service has therefore been reviewed by the Pharmacy management team, and the transformation plan has been developed by the previous Director of Pharmacy (Steve Brown) and overseen by the previous Trust Medical Director (Dr Sean O'Kelly). The draft plan has been reviewed by NHS Improvement and classified with a 'green' rating, thus providing a positive independent perspective on the priorities identified.

The Carter definition for Clinical services in the report excludes a range of patient focussed elements that we perceive as critical to individual patient care. The differentiation between technical and clinical is artificial as a number of the 'high tech' compounding services are very closely engaged with delivering the most appropriate patient therapies and are fundamental to clinical service needs by providing expertise that is unique to Pharmacy. On a similar theme the Trust perceives clinical trial management, support and governance to be a critical element of Pharmacy Clinical Services.

The Trust operates on a Divisional structure and so the Pharmacy service sits within the Division of Diagnostics and Therapies. Services have developed to meet the needs of each of the Clinical Divisions, and this has resulted in patient focused clinical services progressing further in some of the 'high risk, high cost' areas than in those with a lower level of risk and medicines cost. The HPTP therefore provides a helpful challenge regarding consistent delivery of clinical support across the trust.

Within the Hospital Pharmacy Transformation Programme (HPTP), four areas of work have been identified.

Firstly, there are areas of Pharmacy service improvement that are incorporated within the existing work programme outlined in the 2017 - 2019 & 2018 – 2020 UH Bristol Pharmacy Operating Plans. Examples include increasing the role of prescribing pharmacists and further development of the seven day service, and there has been some good progress in both of these areas. The number of prescribing pharmacists is steadily increasing but a number of challenges exist in accessing sufficient resource and staffing to backfill existing roles and achieve the critical mass of prescribers to deliver robust specialised clinical services. Seven day services likewise have increased but further clinical engagement on Sundays is necessary. There is therefore work to do to make further progress and provide more comprehensive Medicines Optimisation across the Trust.

The second area of work is to apply transformational change where required, rather than the more transitional improvements that have taken place. One of the largest transformational programmes that the Trust is experiencing is the implementation of Electronic Prescribing and Medicines Administration (EPMA). This has been completed in the four Trust Critical Care Units, and is soon being piloted in adult wards. The Trust has been awarded Digital Exemplar status for the collaborative work with System C in developing the Medway system, so EPMA implementation and interoperability of the clinical systems is a key pillar of the strategic plan. This implementation programme provides a unique opportunity to enable Medicines Optimisation transformation, particularly through enabling implementation of more efficient and effective working methods.

The third area of development is again transformational, and more strategic in nature, linking with the Sustainability and Transformation Plan (STP) and applying efficiency and longer term organisational developments that improve Medicines Optimisation across the STP footprint. A good working relationship is in existence between all of the Pharmacy stakeholders in the STP footprint which includes three acute trusts and three CCGs (Bristol, South Gloucestershire, North Somerset; BNSSG). There are opportunities to develop short term efficiencies and longer term strategic plans for the local services. Following the development of a Medicines Optimisation STP proposal, this work has been identified as a dedicated workstream in the STP programme and eleven project areas have been agreed in the STP programme. Discussions are underway to enable closer working of the acute Pharmacy services. The STP Medicines Optimisation Transformation Plan is managed by the BNSSG Drugs and Therapeutics Committee, and is overseen by the STP Acute Care Collaborative workstream, on which the Director of Pharmacy is a member.

There is therefore a substantial overlap between the UHBristol Pharmacy Operating Plans), BNSSG STP Medicines Optimisation Plan, and this document, the UHBristol Pharmacy HPTP. Each plan is therefore subject to project management and oversight, and is likely to receive further scrutiny through the 2017-2019 Medicines Optimisation CQUIN.

The fourth area of work is the 'business as usual' best practice agenda. This focuses on good financial control and people management, utilising benchmarking data and internal key performance indicators (KPIs) to measure and track performance. These issues are addressed through existing processes and committee arrangements.

In UHBristol the range of elements being addressed in the HPTP are presently embedded in existing Pharmacy and Trust structures. These are overseen by the Director of Pharmacy and managed through the Pharmacy Management Team which meets on a monthly basis. The HPTP will continue to be a standing item on this agenda, with updates to the executive lead (Dr Mark Callaway, Interim Medical Director) and overall oversight through the Clinical Quality Group. This represents a change in the reporting lines to the original HPTP sent to NHSi in March 2017. Dr Callaway also being invited to the relevant section of each Pharmacy Management Team meeting where necessary. The overview of the structure is therefore as follows:

HPTP oversight by Clinical Quality Group Executive lead – Dr Mark Callaway (Interim Medical Director) Delivery lead – Jon Standing (Director of Pharmacy) Pharmacy Management Team; Chair – Director of Pharmacy (Jon Standing) Members – Pharmacy Managers: K Gibbs; S Hepburn; A Mee; O McGrath; D Wilson; R Walker; M Palmer									
Meeting Leading Delivery	Outsourced and Community Services (Separate Oversight Groups chaired by Director of Pharmacy)	Medicines CIP workstream (Monthly chaired by Director of Pharmacy reporting to Savings Board)	Trustwide Medicines Finance (2 monthly Trustwide Medicines Finance Group)	Pharmacy Stock Management (Pharmacy Managers Meeting)	Clinical Pharmacy Services (Pharmacy Managers Meeting)	Electronic Prescribing (EPMA Board) and Clinical Systems Implementation Programme Board	Technical Services and Aseptics	Projects (reporting to Pharmacy Management Team)	Governance and Oversight Groups
Work Areas Linked to HPTP and Pharmacy OPP									
Workstream	Outsourced Pharmacy (monthly oversight group)	Contracting	KPIs / dashboards	Supply chain	Cost-effective prescribing	EPMA / electronic discharge	Pharmacy Aseptic Production Development Oversight (Divisional subgroup)	Chemotherapy Pharmacist prescribing	Staff engagement (via Pharmacy Management Team)
	Homecare Services (Trust Homecare Medicines Management Group)	Biosimilars and generics	Financial Governance	Stockholding	7 day clinical services	Paediatric chemotherapy	Licensing oversight (PQS group)	Prudent Use of Antibiotics	Trustwide Medicines Governance Group
	Community Pharmacy Integration/ PharmOutcomes (Medication Safety / AHSN)	Waste reduction	Pharmacy reporting	E-commerce	Gap analysis	Critical care e-prescribing		CQUIN oversight	Trustwide Guidance eg IV Nutrition via Medicines Advisory Group
		Divisional projects	Drugs reporting suite			Adult chemotherapy and SACT			Pharmacy Patient Experience Group

Carter Metrics and Model Hospital Benchmarks

A review of the Carter metrics and Model Hospital Benchmarks (see appendix 1) summarises UHBristol previous performance against peer group and national medians. It should be noted that as UHBristol as a trust did not enter the NHS Benchmarking Scheme in 2016 or 2017 and much of the data reported is from 2014/15 so will not be current. UHBristol has recently re-joined NHS Benchmarking and so future projects will be open for us to submit information into. NHSi recognise the issue of old data in the dashboard, and so are looking for mechanisms for Trusts to report in some of their metrics directly where these cannot be pulled from a separate return. They are also now using a database known as 'Define' for pulling more up to date drug activity data. Define is a drug benchmarking database which collates activity data from over 90 NHS Trusts, directly from their Pharmacy systems. This is particularly useful for collating the new Top ten medicines savings metrics, which is updated on a monthly basis.

The dashboard indicates the following:

Costs

Staff and medicines costs

Staff and medicines costs are observed to be higher than the median. This is anticipated as the trust hosts a range of very high cost specialties (cancer, BMT, tertiary care paediatrics, hepatology, ophthalmology, metabolics), and the Pharmacy operates a wide range of aseptic services (including licensed facilities that provide to multiple trusts, and expensive services such as radiopharmacy), plus UHBristol also hosts three regional pharmacy services.

Medicines Costs

As the trust hosts the high cost specialties detailed above it will inevitably have high levels of expenditure for tariff excluded medicines. The NHS Improvement proposals for medicines cost savings published in January 2017 (arising from the Carter report) had all been addressed locally beforehand, and full implementation is being confirmed.

High cost medicines

The specific high cost medicines being monitored in the dashboard (biosimilar uptake) are progressing well, although the etanercept data reported predates the transition with that specific agent.

Non-high cost medicines

The Medicines Cost Improvement Programme (CIP) workstream focuses on medicines expenditure and actively addresses savings opportunities throughout the trust, meeting with each clinical division on a monthly basis. For the selected benchmarking areas on the Carter dashboard, paracetamol is rated as 'green', the reduction of the use of prednisolone soluble has been maximised (to 0%), and inhalational anaesthetics are rated as 'red'. The latter have been regularly challenged in the trust (and incorporated by Pharmacy is the 2016 'challenge questions') but the anaesthesia position is accepted by Divisions in order to enable specialist care and focus upon theatre patient flow.

Medicines Stockholding

UHBristol has a Trustwide Medicines Finance Group that is chaired by the Head of Financial Management and brings together the key stakeholders from Pharmacy and Finance. This group oversees KPIs regarding financial control of medicines expenditure and stock management. The group dashboard incorporates a broad range of indicators, including medicines stockholding, expenditure, cost improvements, pass through management, homecare, outsourced activity, invoice payment, off contract variance, losses, returns and financial incidents. Some of this data matches that of the Model Hospital, and for stockholding, the current level is lower than the current trust target and now equivalent to the current Carter peer median (although was higher than the Carter target at the time of the 2014/15 data reported). This measure is challenging due to the specialist medicines and tertiary role of the trust, and also as the trust has multiple hospital sites. This has been actively addressed through utilising the Pharmacy JAC IT system to better manage levels. The stockholding reductions must be balanced against the increased pressure on procurement (number of orders and deliveries) and the risk of out of stock medicines.

Procurement Efficiencies

An important new dashboard entry is that of e-commerce and work is underway to ensure this is being maximised in Pharmacy. The tool (AAH Medecator) is observed to be applied at a very high level for e-ordering, and the current focus in Pharmacy is to also maximise e-invoicing. (The result documented for the Alliance product is not relevant as it is not used in the trust).

Pharmacy / Finance Interface

The new 'minimum data set' dashboard entry indicates that UHBristol is well above the peer median with regard to data quality concerning medicines.

Clinical Engagement

Medicines reconciliation

There is a mismatch between the data presented in the Carter dashboard and the monthly medicines reconciliation audit data generated for the trust quality dashboard. The Carter dashboard data states a level of 53% medicines reconciliation, and I have been informed this was the level reported in a snapshot 'NHS Medicines Safety Thermometer' review in 2014. The ongoing monthly audit records of performance on nine admissions ward areas indicates an average achievement of over 95% since April 2016, so it is proposed that this provides a more accurate medicines reconciliation analysis. It can be observed that the medicines reconciliation process has been embedded into standard clinical pharmacy practice.

Prescribing pharmacists

The number of pharmacists qualified to prescribe has been increasing since the data was recorded in 2014/15, and active prescribing has also increased. The oncology service has allocated resource to provide a prescribing service using MacMillan funding but challenges are apparent where numerous 'prescribing qualified' pharmacists are going on maternity leave. The length of training and lack of 'prescribing qualified' pharmacists results in difficulty in filling temporary vacancies. The prescribing pharmacist workforce has developed (and is developing further) to provide both specialist support (eg for oncology, intestinal failure and intensive care), and in general medicine to improve service efficiency (eg AMU, OPAU).

Sunday Clinical Services

The pharmacy service is available 7 days a week and support is available through an emergency duty pharmacist 24/7. In recent years the services have been extended with regard to both time and scope. A comprehensive clinical service is available 5 days a week, and on Saturdays there is a clinical review of Medical Admissions Unit patients. On both Saturday and Sunday there is clinical review of patient discharges. The further development of clinical services on a Sunday is a key HPTP action. It should be noted though that the Dispensary is open on a Sunday for 4 hours, and so access to Clinical Pharmacy support on site is always available during that period.

Summary Care Record Usage

The data for the use of the Summary Care Record (SCR; or the equivalent local system 'Connecting Care') is incorrect as the system is being used routinely in the medicines reconciliation process and is, in reality, high in the green sector. It is assumed that the 'Connecting Care' usage is not being logged on the Carter dashboard, so the SCR data reported will only apply to 'out of area' patients.

Inpatient survey

Model hospital dashboard rate = 74.7%; peer median = 73.1%; national median = 73.1%

The inpatient survey medicines related questions are challenging, and although the trust score is above the median we are working on a patient engagement workstream, with one of the projects being the implementation of the Mapps tool to improve the information provided to patients at discharge. This has been well received.

Innovations

e-prescribing

UHBristol has been actively developing 'Electronic Prescribing and Medicines Administration' with System C Medway. The project is well progressed with the pilot and roll-out planned for 2017. The implementation phase of this project is therefore commencing across the adult wards in the trust. All patient discharge prescribing is currently electronic, all Intensive Care (ICU, CICU, PICU, NICU) operate electronic prescribing through the Philips CareVue system, and adult chemotherapy services presently operate electronic prescribing through Chemocare. The digital exemplar status will enable the EPMA plans to progress more rapidly. Pharmacy electronic noting is being implemented to improve the communications systems and clinical prioritisation of patients.

e-prescribing chemotherapy

Adult Chemotherapy e-prescribing is fully operational.

Paediatric chemotherapy e-prescribing went live on 12th September 2017, prior to the mandated deadline of the end of September 2017, and will be on a hub and spoke model. This is creating an IT platform in UHBristol that is available to the seven paediatric oncology shared care units (POSCUs).

Medicines Use

Biosimilar uptake

As can be observed from the dashboard results UHBristol has made excellent progress in switching to biosimilar infliximab, and there is good clinician engagement in the present switch to etanercept (although as detailed above this transition postdated the dashboard). The dashboard is very selective so it should be noted that UHBristol was exceptional in managing the switch to biosimilar gCSF, and this has not been managed in such a proactive way in many other trusts. Other biosimilar projects are also being planned and prioritised.

Antibiotic Usage

Good antibiotic management is in place and UHBristol has been recognised as an exemplar in the region. Work to address the antimicrobial CQUIN is progressing well with anticipated 80-100% achievement. Total antibiotic consumption in the dashboard is close to the mean.

Non-Steroidal Anti-inflammatory Drug (NSAID) Management

The report documents good results in UHBristol in the context of diclofenac / ibuprofen / naproxen (NSAID) management.

Medicines Safety

Reporting

A good reporting culture is observed and the data sampled in March indicated a harm ratio slightly above the mean; this is closely monitored within the trust.

Pharmacy Staffing

Staff Turnover

Model hospital dashboard rate = 8%; actual current rate = 9.7%; peer median = 10%; national median = 12%

Although the trust score is good compared to benchmarked trusts, there are recognised shortages of band 7 pharmacists at present nationally; this is partly driven nationally by the implementation of pharmacists into GP practices. There are also shortages of registered Pharmacy technicians so we have increased our trainee intake. There is high turnover of band 3 staff as the most appropriate candidates recently have tended to be graduates, but then with experience they are successfully applying for higher banded posts internally and creating further vacancies. Maternity leaves are presently at a very high level and backfill arrangements are complex. The Pharmacy Management Team are reviewing the position on a regular basis and ensuring staff placements address the priority areas. There is a focus on being a good employer, particularly providing the necessary mentoring, communication and support.

Staff Sickness

Model hospital dashboard rate = 2.6%; actual current rate = 2.7%; peer median = 2.9%; national median = 3.3%

Sickness levels are generally meeting trust targets and were in a good position when benchmarked; this is actively managed.

Staff Appraisals

Model hospital dashboard rate = 81%; actual current rate = 88%; peer median = 93%; national median = 88%

The Trust prioritises annual appraisals for staff and this is monitored on a monthly basis; performance generally meets trust targets although has slipped during the winter months so is being actively addressed; the aim is to exceed 90%.

Statutory and Mandatory Training

Model hospital dashboard rate = 76%; actual rate – note trust data is separated into each section of statutory and mandatory training so is not summarised in one figure; peer median = 91%; national median = 86%

Fourteen areas of statutory and mandatory training are monitored individually within the trust, so it is assumed that the model hospital dashboard indicated that 76% of Pharmacy staff are up to date with all fourteen areas of training and have completed the refresher training as required. This is an ongoing priority to ensure a high level of compliance.

Clinical v Infrastructure Services

The Carter Assessment and Action Planning Tool document estimates the current balance of core clinical services against infrastructure support for pharmacists, pharmacy technicians and pharmacy assistants is 83%, 64% and 51% respectively. Our planned balance will increase the pharmacist patient focused engagement, and the other main target is to increase ward based pharmacy technician coverage. The pharmacy assistant proportion may not change materially due to skillmix changes.

Top Ten Medicines Savings

This information relates to the savings calculated by NHSi that UHB could make against 10 of the highest value drug switches. Data for UHB relating to September 2017 can be seen in Appendix 6. IT should be noted that 7 out of the 10 drug switches relate to High Cost Drugs which are funded on a pass through basis by commissioners and so unless gain share agreements exist, do not represent any degree of savings realisable to UHB. Of the other 3 drug switches, all of these had already been identified by UHB and were part of CIP from the last financial year. The performance issues in some areas of the drug switching for UHB relate to the phased delay in savings coming through due to the length of homecare prescriptions and national supply difficulties with delays in drugs coming to market/being launched.

HPTP Plan Summary

The plan is addressed in the following sections:

1. UHBristol Pharmacy Operating Plan Developments
2. Transformational UHBristol Medicines Optimisation Developments
3. Transformational BNSSG STP Medicines Optimisation Developments
4. 'Business as usual' best practice

UHBristol Pharmacy Operating Plan Developments

There are a number of themes identified in the review of the model hospital dashboard which are replicated in the current and future Pharmacy Operating Plan. The next steps therefore include a continuation of the journey outlined in the present plan, but utilising the opportunity provided by the Carter report to increase the scale and pace of development. This is therefore a focus on the following elements of the service:

- Increasing ward based pharmacist and pharmacy technician clinical time to focus on patient admissions, critical care, and discharges on weekends
- Increasing the application of automation, clinical technology and informatics to deliver efficiencies and enable more effective clinical prioritisation
- Increasing both the number and activity of pharmacist prescribers
- Increasing the number and impact of consultant pharmacists
- Closer clinical integration with clinical specialties including diabetes, rheumatology, gastroenterology and haematology
- Implementation of Electronic Prescribing and Medicines Administration
- Increasing the ward based input of medicines management technicians
- Further development of clinical transfer of care using PharmOutcomes to integrate with community pharmacy

With regard to the development of Pharmacist Prescribers (in both number and activity) we have been maximising uptake to training places and will continue to do so, although there are only two areas of the trust (in oncology and intestinal failure) where the pharmacists have a caseload. This model will be promoted further. Maximising generalist prescribing in admissions areas will also be developed further to assist with patient flow.

Developing the clinical focus of the 7 day service is also a priority, with a focus on the recommendations of the NHS England Policy document 'Transformation of seven day clinical pharmacy services in acute Hospitals' (September 2016). The implementation path needs to progress more rapidly

and recent conversations with staff concerning models of work will be progressed further. The 'seven day' policy document also includes a recommendation for Consultant Pharmacists and increasing the range of these posts is also incorporated in the Pharmacy OPP.

An increasing application of automation is an ongoing piece of work in the dispensary and ward environments, and IT systems such as Webtracker (process tracking), Connecting Care (GP patient records) and PharmOutcomes (clinical handover to community pharmacy) are creating significant benefits, enabling major improvements in both efficiency and the effectiveness of the Medicines Optimisation role. Further development of such systems is crucial in moving the service forward, and ward based electronic pharmacy noting is presently being implemented and promises transformational change.

Transformational UHBristol Medicines Optimisation Developments

The broadest transformation development is that of implementation of EPMA, and this is well progressed and will provide opportunities for new and more efficient ways of working. A review of the Trust Pharmacy services indicates a variability in the spread of the clinical service so we are aiming for a more consistent, patient focused model. EPMA implementation will enable the clinical role of pharmacists and pharmacy technicians to develop and become more efficient, specifically in the context of clinical prioritisation. UHBristol has been awarded digital exemplar site status so one of the priorities is in the context of interoperability between the elements of the Medway system, and it is envisaged that this will provide significant benefit in enabling more efficient delivery of clinical pharmacy services.

Further transformational projects include the implementation of Clinical Transfer to Community Pharmacy through PharmOutcomes. This is being supported by the AHSN Patient Safety Collaborative and when fully developed will result in reductions in patient readmissions for those patients on complex medications, and also reduced lengths of stay for those patients who are readmitted.

Pharmacy IT services are undergoing major change during the coming years with the implementation of dm+d, GS1 and PEPPOL compliance, and the introduction of the Falsified Medicines Directive. The Pharmacy is well placed in this context having been the JAC beta test site for the latest software which will be instrumental in enabling dm+d functionality.

In addition to EPMA, a number of the Medicines Optimisation Project areas may need to be prioritised as requiring a transformational approach where a transitional approach proves to be inadequate. These are likely to include substantial pieces of work such as the delivery of the seven day clinical pharmacy service.

Transformational STP Medicines Optimisation Developments

The local Sustainability and Transformational Plan provides an opportunity for strategic development across the Bristol, North Somerset and South Gloucestershire footprint. Initial 'medicines optimisation' proposals have been prioritised in order to prioritise projects that deliver significant benefits, mainly regarding cost savings, cost avoidance and efficiencies.

Eleven projects are incorporated into the STP Medicines Optimisation programme, addressing themes of biosimilar implementation, clinical handover to community pharmacy, high cost drug delivery, polypharmacy in care homes, deprescribing protocols, unlicensed medicines, waste reduction, reducing variation, technology development, acute collaboration, and strategic acute planning. Further detail is provided in appendix 2.

With regard to the final two project areas, there has therefore been discussion with North Bristol and Weston Area Health Trusts in order to define agreed areas for collaboration. This provides opportunities in the short, medium and long term and include:

- Pharmacy IT systems
- Medicines information
- Pharmacy procurement
- Stock management
- Medicines homecare
- Education and training
- Aseptic services including advanced therapy medicinal products; this being in the context of the 2023/25 plan to reprovide UHBristol compounding facilities

The Pharmacy service in the BNSSG footprint has an effective medicines optimisation network so work can clearly progress in a similar manner to that achieved through the joint work resulting in the BNSSG NICE college and implementation of the BNSSG formulary.

There is also a substantial amount of joint work already taking place in the context of regional services based in UHBristol (Medicines Information, Pharmacy Procurement, Education and Training), and in the provision of Radiopharmacy services.

Barriers are important to consider, however, particularly the short term costs of any projects within the STP (recognising the major financial challenges locally), and capacity, project management and finance support; these are being followed up in the STP workstream. Practical issues such as IT incompatibilities are also important.

'Business as usual' Best Practice Improvements

The focus on medicines financial control is overseen by the trustwide medicines finance group, chaired by the Trust Head of Financial Management. The Carter metrics have been added to the list of KPIs and progress is being reviewed every two months.

The focus on the 'well led' elements of the dashboard are incorporated in the monthly Divisional workforce review; this is addressed both departmentally and from a divisional perspective, and is reported to the Trust Board.

Management of the above elements are therefore embedded in current practice, and the Carter metrics will add to the level of scrutiny and challenge.

Summary of objectives

There are therefore a range of work programmes and plans already underway that are consistent with the HPTP, and so it is envisaged that these will be delivered with a greater pace and focus. The key aims are as follows, and these form project areas with specific objectives:

1. To progress operating plan priorities including seven day clinical services, application of clinical technology, increasing the activity of pharmacist prescribers, increasing the number of consultant pharmacists, closer clinical integration with medical specialties, increasing the ward based input of medicines management technicians, and further development of clinical transfer of care using PharmOutcomes to integrate with community pharmacy.
2. To pilot and implement Electronic Prescribing and Medicines Administration and maximise the efficiencies arising for pharmacy clinical services.
3. To address any of the more challenging elements by transformational change through engaging with the pharmacy staff and trust transformation team.
4. To further engage with neighbouring organisations with regard to collaborative working in Pharmacy in order to deliver service efficiencies.
5. To progress the STP Medicines Optimisation Programme of work.
6. To improve the 'business as usual' elements on an incremental basis with regular review according to current schedules.

The implementation plan is summarised in appendix 3.

Risks and mitigations

Risk: Increasing, ongoing work pressure and the inability to create sufficient space to implement the broad range of developments detailed in the plan.

Mitigation: Potential short term project support which may be available through the STP programme and / or the trust transformation team.

Risk: Workforce supply for clinical roles dries up, particularly if funding streams are unavailable through HEE.

Mitigation: Increasing student intake, maximising access to available programmes.

Risk: Delays outside control of Pharmacy eg EPMA implementation.

Mitigation: Review development timeline for each of the project areas.

Risk: Short term financial challenges divert attention from long term cost avoidance.

Mitigation: Focus on evidence based improvements.

Risk: Barriers to collaborative working with other trusts require significant investment to overcome.

Mitigation: Escalation through STP work programme.

Risk: Project management support unavailable to enable progress at pace.

Mitigation: Prioritisation of programme of work to ensure highest value projects are delivered.

Issues and mitigations

Issue: Funding streams for new additional staff (eg additional prescribers and clinical roles) are very unlikely.

Mitigation: Need to have a major focus on clinical prioritisation in order to make best use of available workforce.

Issue: A significant amount of work will be required to deliver dm+d, GS1, PEPPOL and the falsified Medicines Directive.

Mitigation: Promote the development of a Pharmacy Clinical Information Officer to manage the future changes.

Issue: Meeting some metrics (eg stockholding) will result in failing others (eg deliveries)

Mitigation: Prioritisation of metrics to meet trust requirements.

Issue: Anticipated barriers to collaborative work eg IT incompatibilities.

Mitigation: Escalation through the STP work programme.

[REDACTED]

Appendix 2 – ‘Medicines Optimisation STP Programme’ – Project themes (October 2016)

Biosimilars

To work with medical teams (GI, Rheumatology, Dermatology) and patients to implement the more cost-effective biosimilar pharmaceutical products and manage the transfer to these drugs where clinically appropriate.

E-Referrals

To use available technology to transfer discharge information to community pharmacists to provide follow up care for patients taking complex medicines.

High Cost Drugs

To review the use of the most expensive drugs and ensure they are being used appropriately and consider if improvements could be made.

Polypharmacy (GP guidance & care homes)

To review medicines being taken by the frail elderly, particularly within the care home context, in order to ensure that all medicines are necessary and appropriate.

De-Prescribing

To identify and agree medicines that are considered to have no proven benefit and implement de-prescribing protocols.

Centralised unlicensed medicines dispensing project

To develop a project to manage all unlicensed medicines through a central hospital based service in order to avoid high commercial charges.

Repeat Prescriptions management service pilot

To manage repeat prescription services in order to avoid provision of unnecessary medicines and reduce wastage.

Implementing Right Care to reduce variation

To apply RightCare medicines data on variation to BNSSG to focus on areas for improvement and implement change.

Connecting Care

To develop utilisation of Connecting Care in the context of sharing information and data concerning medicines in order to improve efficiency.

Pharmacy Transformation Plan (Carter)

To implement changes through the acute Trusts' Hospital Pharmacy Transformation Programmes in order to improve service efficiency across BNSSG.

BNSSG aseptic pharmacy services

To plan a BNSSG wide approach to aseptic dispensing services

Appendix 3: UHBristol HPTP Implementation Plan

Table 1 – Theme / Focus / Aim

Project	Theme	Focus	Aim
1.1 ^w	Clinical Role: Increase clinical pharmacy engagement in patient care	Further develop Pharmacist prescribing	Embed an increased level of pharmacist prescribing in clinical practice
1.2 ^w	Clinical Role: Increase clinical pharmacy engagement in patient care	Further develop implementation of consultant pharmacists	Increase number of consultant pharmacists
1.3 ^w	Clinical Role: Increase clinical pharmacy engagement in patient care	Develop scale and scope of pharmacy technician role at ward level	Substantially extend medicines optimisation technician input
1.4 ^w	Clinical Role: Increase clinical pharmacy engagement in patient care	Improve specialist clinical engagement	Create more clinically specialised pharmacist posts
2.1 ^w	Service Delivery: Provide comprehensive 7 day service	Develop clinical input across 7 days	Meet NHS England standards for provision of clinical pharmacy services across 7 days
3.1	Clinical process: Improve efficiencies through digital developments	EPMA benefits realisation	Maximise clinical benefits from EPMA implementation
3.2	Clinical process: Improve efficiencies through digital developments	Pharmacy noting and clinical prioritisation	Enable clinical prioritisation through routine pharmacy access to electronic noting system
4.1 ^w	Medicines optimisation STP priorities	Acute care collaboration to deliver efficiencies	Initiate and embed areas of collaborative working across BNSSG
4.2	Medicines optimisation STP priorities	Reduce readmissions and LOS by implementing clinical handover to community pharmacy	Embed clinical handover to community pharmacy for patients on complex medication
4.3	Medicines optimisation STP priorities	Achieve best value from high cost drugs	Generate savings through implementation of clinical commissioning pharmacist
4.4	Medicines optimisation STP priorities	Effective and timely introduction of biosimilar medicines	Operate a reliable, effective process for transition to biosimilar products
4.5	Medicines optimisation STP priorities	Strategic decision making to improve efficiencies	Plan in place for BNSSG wide approach for compounded medicines
5.1	Service efficiency	Pharmacy e-commerce	Maximise uptake of e-commerce in Pharmacy
5.2	Service efficiency	Pharmacy Procurement and stock management KPIs	Delivery and assurance of best practice in procurement and stock management
5.3 ^w	Service efficiency	Pharmacy skillmix	Develop the most efficient Pharmacy skillmix

Note: Projects annotated ^w have a workforce theme, so there will be a specific focus on workforce issues, and a consideration of the overall staffing strategy and impact of the whole programme.

Table 2 – Objectives

Note that table 2 addresses the same projects as outlined in table 1, but drills down into the specific objectives.

The target date set in the Carter Report for full implementation of Carter recommendation 3 is April 2020.

Project	Objective by October 2017	Objective by April 2018	Objective by April 2019
1.1 – Pharmacist prescribing	Documented increase in number of pharmacists qualified to prescribe	Documented increase in number of pharmacists actively prescribing	40% of pharmacists with patient facing roles actively prescribing; with a plan in place to reach 50% by April 2020.
1.2 – Pharmacist consultants	At least one additional consultant post agreed	At least one additional consultant post in position	At least one further consultant post in position
1.3 – Meds opt technicians	Skillmix increase in medicines optimisation technician posts	Increase in medicines optimisation technician posts in place on wards	20% increase in medicines optimisation technician posts in place on wards
1.4 – Specialist pharmacists	At least one additional specialist post agreed	At least one additional specialist post in position	At least one further specialist post in position
2.1 – Seven day service	Documented plan to meet NHS England policy requirements	Plan agreed and implementation underway	More comprehensive 7 day service in place that meets NHS England policy
3.1 – EPMA benefits realisation	EPMA pilot actively testing benefits	Benefits of pilot identified and being rolled out	Rollout complete, benefits documented and evidence reported
3.2 – Pharmacy noting	Pharmacy noting in place on adult inpatient wards to enable piloting of clinical prioritisation	Pharmacy noting and clinical prioritisation in place across UHBristol	Publication submitted addressing UHBristol clinical noting and prioritisation outcomes

Project	Objective by October 2017	Objective by April 2018	Objective by April 2019
4.1 – Acute collaboration	One collaborative BNSSG project agreed and commenced	Agreed collaborative project completed and further developments scoped	Collaborative programme in place and delivering projects
4.2 – Clinical handover	Process for PharmOutcomes e-handover to community pharmacy in place	PharmOutcomes referral of complex patients embedded in routine practice through automated process	Data collected and published regarding patient outcomes
4.3 – Value from high cost drugs	Plan from clinical commissioning pharmacist compiled and agreed	Planned developments and financial savings achieved in year and 2018/19 plan agreed	2018/19 plan delivered and 2019/20 plan agreed
4.4 – Biosimilar introduction	All available biosimilar products implemented to 90% (within licence) within 12 months of availability	All available biosimilar products implemented to 90% (within licence) within 12 months of availability	All available biosimilar products implemented to 90% (within licence) within 12 months of availability
4.5 – Strategic decisions	Strategic options appraisal for pharmaceutical compounding services commissioned	Option agreed and strategic outline plan for pharmaceutical compounding services compiled	Strategic plan for pharmaceutical compounding services and timeline agreed and process commenced
5.1 – Pharmacy e-commerce	e-commerce data reliable and delivering at >90% of highest level accessible by available software	e-commerce delivering at >95% of highest level accessible by available software and plan agreed to increase further	Delivery of agreed plan and documented step increases of e-commerce over time
5.2 – Best practice stock KPIs	Financial control group to set KPI performance targets, and deliver improvement against unmet targets	Meet KPI performance targets and set stretch targets	Meet stretch targets
5.3 – Pharmacy skillmix	Complete skillmix review aiming to maximise efficiency opportunities	Implement skillmix developments in identified areas to improve efficiency	Demonstrate further skillmix developments maximising efficiencies from review

Appendix 4 - The Lord Carter report (Operational productivity and performance in English NHS acute hospitals: Unwarranted variations; Feb 2016)

Recommendation 3:

Trusts should, through a Hospital Pharmacy Transformation Programme (HPTP), develop plans by April 2017 to ensure hospital pharmacies achieve their benchmarks such as increasing pharmacist prescribers, e-prescribing and administration, accurate cost coding of medicines and consolidating stockholding by April 2020, in agreement with NHS Improvement and NHS England so that their pharmacists and clinical pharmacy technicians spend more time on patient facing medicines optimisation activities.

Delivered by:

- a) developing HPTP plans at a local level with each trust board nominating a Director to work with their Chief Pharmacist to implement the changes identified, overseen by NHS Improvement and in collaboration with professional colleagues locally, regionally and nationally; with the Chief Pharmaceutical Officer for England signing off each region's HPTP plans (brigaded at a regional level) as submitted by NHS Improvement;
- b) ensuring that more than 80% of trusts' pharmacist resource is utilised for direct medicines optimisation activities, medicines governance and safety remits while at the same time reviewing the provision of all local infrastructure services, which could be delivered collaboratively with another trust or through a third party provider;
- c) each trust's Chief Clinical Information Officer moving prescribing and administration from traditional paper charts to Electronic Prescribing and Medicines Administration systems (EPMA);
- d) each trust's Finance Director, working with their Chief Pharmacist, ensuring that coding of medicines, particularly high cost drugs, are accurately recorded within NHS Reference Costs;
- e) NHS Improvement publishing a list of the top 10 medicines with savings opportunities monthly for trusts to pursue;
- f) the Commercial Medicines Unit (CMU) in the Department of Health undertaking regular benchmarking with the rest of the UK and on a wider international scale to ensure NHS prices continue to be competitive, and updating its processes in line with the Department of Health's NHS Procurement Transformation Programme as well as giving consideration as to whether the capacity and capability of the CMU is best located in the Department of Health or in the NHS, working alongside NHS England's Specialist Pharmacy Services and Specialised Commissioning functions;
- g) consolidating medicines stock-holding and modernising the supply chain to aggregate and rationalise deliveries to reduce stock-holding days from 20 to 15, deliveries to less than 5 per day and ensuring 90% of orders and invoices are sent and processed electronically; and,
- h) NHS improvement, building on and working with NHS England commissioned Specialist Pharmacy Services, should identify the true value and scale of the opportunity for rationalisation and integration of hospital pharmacy procurement and production, developing an NHS Manufactured Medicines product catalogue and possibly moving towards a four region model for these services.

Appendix 5 – November 2017 Update on HPTP Objectives

Project (RAG)	Objective by October 2017	Update November 2017
1.1 – Pharmacist prescribing	Documented increase in number of pharmacists qualified to prescribe	2014/15 NHSi Dashboard figure 4.8% October 2017 = 20% (n=15) Qualified Independent Prescribers, 9% (n=7) Actively Prescribing (difference due to IPs on Maternity Leave and others recently qualified). NHSi Benchmark target is 50%. Main barrier additional funding for places. NHS Benchmarking Survey 2017 indicated national average was 53%, BUT this was interpreted by most Trusts as the % of Active Pharmacist Prescribers of the Prescribing Pharmacist workforce. The UHB figure for this interpretation would be 47%.
1.2 – Pharmacist consultants	At least one additional consultant post agreed	No progress to date. Additional Pharmacist support to Critical Care to be discussed as part of Surgery OPP & GICU/CICU proposal. If agreed and progresses UHB could submit for a Band 8b post to become Consultant level.
1.3 – Meds opt technicians	Skillmix increase in medicines optimisation technician posts	Difficulty recruiting Pharmacy Technicians. Skill mix to date focussed on Pharmacy Assistants where we have been able to recruit and develop roles. Training additional Student Technicians, but 2 year lead time for qualification.
1.4 – Specialist pharmacists	At least one additional specialist post agreed	Hep C Pharmacist in post and made significant progress for CQUIN achievement. Nutrition Pharmacist post significant progress, internal funding model identified. Critical Care Pharmacist posts within surgery OPP & GICU/CICU proposal.
2.1 – Seven day service	Documented plan to meet NHS England policy requirements	7DS Four Priority Standards, Pharmacy has no direct impact on delivering. No documented plan in place for UHB Pharmacy 7DS. NHSi Model Hospital Dashboard target measure is ≥ 6 hours in Medical Admissions Unit on a Sunday, current UHB provision is 0 hours.
3.1 – EPMA benefits realisation	EPMA pilot actively testing benefits	ePMA and new discharge summary pilot went live 23/10/17 on C805 (BHI). Positive results, eMPA Board (30/10/17) approved expansion of pilot to other areas within BHI. Further roll out currently being scoped and prioritised for further in-patient areas in early 2018.
3.2 – Pharmacy noting	Pharmacy noting in place on adult inpatient wards to enable piloting of clinical prioritisation	In place in BRI & BHI, roll out to BHOC & StMH in early 2018. Drug history, medicines reconciliation and pharmacy handover now recorded digitally.

Project (RAG)	Objective by October 2017	Update November 2017
4.1 – Acute collaboration	One collaborative BNSSG project agreed and commenced	11 Projects agreed within BNSSG Medicines Optimisation STP (see Appendix 7)
4.2 – Clinical handover	Process for PharmOutcomes e-handover to community pharmacy in place	PharmOutcomes consent and referral process fully embedded to adult inpatient services. 3326 referrals made since commencing. Patients identified via dashboards and records of consent automatically referred to Pharmacy IM&T for referral to community pharmacies at discharge. Next steps for 2018 include: 1. Wider adoption of consenting as part of medicines reconciliation on admission and at discharge (specifically targeting discharge processes) 2. Potential to broaden consenting process to MDT 3. Automation of referral process via HL7 links to Medway (to undergo procurement exercise from Pinnacle Health)
4.3 – Value from high cost drugs	Plan from clinical commissioning pharmacist compiled and agreed	Clinical Commissioning Pharmacists (joint post) in place and making progress with Medicines Optimisation CQUIN targets and other CIP opportunities. Updated High cost drugs policy draft being refined.
4.4 – Biosimilar introduction	All available biosimilar products implemented to 90% (within licence) within 12 months of availability	Infliximab 90% Etanercept 76% (7 months) Rituximab 62% (6 months) Challenge with clinical engagement in some areas to switching existing patients
4.5 – Strategic decisions	Strategic options appraisal for pharmaceutical compounding services commissioned	NHSi tender awarded (Ref T-OPPRO-0717-244), project completion April 2018 'External support for Operational Productivity work stream on options for a pharmacy aseptic services review including licensed and unlicensed activity, chemotherapy, clinical trials and radiopharmacy'

Project (RAG)	Objective by October 2017	Update November 2017
4.6 – BlueTeq Commissioner Assurance		New project line added. BlueTeq is a commissioner assurance eDatabase used by NHSE to provide approval for individual patients to be treated under NICE TAs for High Cost Drugs. NHSE has increasingly used information in the database to challenge UHB reporting. CCG wish to use this database for the approval of their High Cost Drugs. This will create considerable admin burden on clinicians and pharmacy to maintain this database and ensure the eForms are completed and approved prior to treatment commencing. Risk of reduced income from drugs to UHB if treatments are not approved. ICP submitted for B7 Pharmacist to support implementation and reporting.
5.1 – Pharmacy e-commerce	e-commerce data reliable and delivering at >90% of highest level accessible by available software	October 2017 TOTAL for all procurement, eOrders = 63% & eInvoices = 58% This includes all orders and invoices. Some suppliers are not able to engage with eCommerce, which we are unable to filter from these figures. NHSi Dashboard data 2015/16, 92% eCommerce against 2 main wholesalers
5.2 – Best practice stock KPIs	Financial control group to set KPI performance targets, and deliver improvement against unmet targets	Bi-Monthly Trustwide Medicines Finance Group chaired by Head of Financial Management. KPI targets set and performance managed through this group. http://workspaces/sites/Committees/TrustwideMedicinesFinanceGroup/default.aspx
5.3 – Pharmacy skillmix	Complete skillmix review aiming to maximise efficiency opportunities	Skill mix review underway in Pharmacy Production. Opportunities now and in the future for closer working within this and the other two technical services (PSU & Radiopharmacy). Additional Pharmacy support into the discharge lounge has seen a significant rise in discharges through this area (from 103/week to 137/week), with corresponding improvements in patient flow.

Appendix 7 – BNSSG Medicines Optimisation STP

Bristol, North Somerset & South Gloucestershire | Sustainability & Transformation Plan

Medicine Optimisation	
<p>Aim The aim is to deliver transformational improvement in medicines optimisation in BNSSG. This will deliver cost savings, improve efficiencies, maximise benefits from medicines including cost avoidance, and improve patient outcomes.</p> <p>Current State More than £250m pa is spent on medicines in BNSSG; are we really making the most of this investment? The following information is extracted from national data:</p> <ul style="list-style-type: none"> Do patients take their medicines? Only 16% of patients who are prescribed a new medicine take it as prescribed, experience no problems and receive as much information as they need. Ten days after starting a medicine, almost a third of patients are already non-adherent - of these 55% don't realise they are not taking their medicines correctly, whilst 45% are intentionally non-adherent. How well do we use medicines? A study conducted in care homes found that over two thirds of residents were exposed to one or more medication errors. Over half a million medication incidents were reported to the NPSA between 2005 and 2010. 16% of them involved actual patient harm. In hospitals the General Medical Councils EQUIP study demonstrates a prescribing error rate of almost nine percent. In general practice an estimated 1.7 million serious prescribing errors occurred in the NHS in 2010. Is the NHS getting best value from medicines? In primary care in England around £300 million per year of medicines are wasted (this is likely to be a conservative estimate) of which £150 million is avoidable At least 6% of emergency re-admissions are caused by avoidable adverse reactions to medicines Are patients getting the right medicines? Analysis of the NHS Atlas of variation highlights unwarranted variations in the prescribing of some medicines across England. <p>Objectives The Medicines Optimisation Transformation Programme incorporates a wide range of projects, all of which result in financial and patient benefit. Objectives include:</p> <ul style="list-style-type: none"> Maximisation of biosimilar implementation Embedding of e-referral to Community Pharmacy Efficiency improvements in high cost drug delivery Reduce polypharmacy in care homes Implement BNSSG de-prescribing protocols Implement centralised dispensing of unlicensed medicines pilot Implementation of repeat prescription project Improve outcomes from RightCare Technology linkage regarding medicines data and information Acute service centralisation project efficiencies from Carter Centralisation of aseptic dispensing services <p>Risks</p> <ul style="list-style-type: none"> Risk that the BNSSG Pharmacy services (and clinical colleagues) do not have the capacity or project management support to implement the identified projects. Risk that the cost avoidance savings from medicines optimisation (eg improved patient safety, reduced admissions, reduced length of stay) are not recognised as they are not readily measurable. Risk that the underlying financial impact of activity increases and the cost of new innovative medicines will mask the direct cost savings available and delivered. 	<p>Projects Biosimilars To work with medical teams (GI, Rheumatology, Dermatology) and patients to implement the more cost-effective biosimilar pharmaceutical products and manage the transfer to these drugs where clinically appropriate.</p> <p>E-Referrals To use available technology to transfer discharge information to community pharmacists to provide follow up care for patients taking complex medicines.</p> <p>High Cost Drugs To review the use of the most expensive drugs and ensure they are being used appropriately and consider if improvements could be made.</p> <p>Polypharmacy (GP guidance & care homes) To review medicines being taken by the frail elderly, particularly within the care home context, in order to ensure that all medicines are necessary and appropriate.</p> <p>De-Prescribing To identify and agree medicines that are considered to have no proven benefit and implement de-prescribing protocols.</p> <p>Centralised unlicensed medicines dispensing project To develop a project to manage all unlicensed medicines through a central hospital based service in order to avoid high commercial charges.</p> <p>Repeat Prescriptions management service pilot To manage repeat prescription services in order to avoid provision of unnecessary medicines and reduce wastage.</p> <p>Implementing Right Care to reduce variation To apply RightCare medicines data on variation to BNSSG to focus on areas for improvement and implement change.</p> <p>Connecting Care To develop utilisation of Connecting Care in the context of sharing information and data concerning medicines in order to improve efficiency.</p> <p>Pharmacy Transformation Plan (Carter) To implement changes through the acute Trusts' Hospital Pharmacy Transformation Programmes in order to improve service efficiency across BNSSG.</p> <p>BNSSG aseptic pharmacy services To plan a BNSSG wide aseptic dispensing services facility to meet strategic STP requirements.</p> <p>Outcomes The benefits include the following, (with the assessment in the Carter efficiencies, that for every £1 that is spent on medicines optimisation there is a £5 benefit to the NHS).</p> <ul style="list-style-type: none"> Cost savings; eg Biosimilar implementation results in reduced medicines expenditure; better management of medicines results in reduced wastage Cost avoidance; eg Improved medicines optimisation results in reduced readmission rates and reduced length of stay Patient harm reduction; eg medicines safety improvements have a direct impact on avoidance of harm and therefore also result in cost avoidance Service efficiencies; eg service centralisation in order to focus attention on medicines optimisation

GE3: Medicines Optimisation CQUIN
Trigger 1, 2017/18 , Q1 data submission

Agreed List of Drugs (can be amended with mutual agreement)

Drug Name	Drug Form	Eligible Indications	Target Quarter and Year	Baseline no of eligible patients	Baseline no of doses (DDD) (Use mg for rituximab)	Anticipated new patients p.a.
Voriconazole	Tablets, Injection	Chemotherapy, BMT, ITU	Q2 16/17	16	7200	150
Kivexa	Tablets	HIV	Q4 16/17	7	1685	5
Velagluarase	Injection	Metabolic diseases	Q4 16/17	**	28	**
Imatinib	Tablets	Chemotherapy (not GIST)	Q4 16/17	15	7000mg	5

GE3: Medicines Optimisation CQUIN
Trigger 1, 2017/18 , Q2 data submission

Agreed List of Drugs (can be amended with

Drug Name	Drug Form	Eligible Indications	Target Quarter and Year	Baseline no of eligible patients	Existing patients receiving generic/biosimilar	Existing patient %	Anticipated new patients p.a.	Total of new patients	Number of new patients receiving generic/biosimilar	Number of new patients receiving originator	New Patients %
Voriconazole	Tablets, Injection (oral liquid unavailable as generic)	Chemotherapy, BMT, ITU	Q1 17/18	11	11	100	150	63	63	0	100
Imatinib	Tablets	Chemotherapy (not GIST)	Q1 17/18	15	12	80	5	5	5	0	100
Kivexa	Tablets	HIV	Q1 17/18	**	**	50	5	**	**	0	100
Entecavir	Oral	Hep B	Q2 17/18	38	0	0	12	5	**	0	100
Rituximab	IV	5 Paediatrics, 41 Adult haematology (not existing due to treatment course length)	Q2 17/18	5	0	0	41	40	19	21	48

Biosimilar/Generic product Implementation plan

Product Information

Branded product: _____
Biosimilar/Generic products available: _____

Conditions product used in:					
Condition	Commissioner	Division	Pharmacist	Consultants	Specialist nurses

Predicted date of biosimilar/generic availability	
Date for introduction of biosimilar/generic at UHB	

Number of eligible patients		
	Total number of patients prescribed drug under review	Patients eligible for biosimilar usage according to Trust policy (all patients without indication protected by patent or research protocol)
IV		
SC		
Oral		
Clinical trial patients		
Patients on commercial stock		
Patients on sponsor funded trial stock		
Drug acquisition costs		
Current Drug cost		
Current Service delivery model		
Do you expect this model to change as a result of using a biosimilar/ generic?		
Service costs		
Service delivery model alternatives		
Costs associated with additional stock storage and risk minimisation activities		
Wastage (vial wastage, expired or unused infusions etc.)		
Do you use dose banding?		
Costs associated with biosimilar implementation		
Counsel +/- consent patients		
Preparation of patient materials and education		
Time associated with clerking patient		

Administration costs i. Chair time (Vs. total capacity) ii. Monitoring	
Resources associated with ensuring reimbursement from commissioners	
Costs associated with prescribing or administration errors	
Preparation and validation of aseptic worksheet	
Preparation for formulary application	
Development/adaption of biosimilar policy and guidance	
Development and delivery of patient focused and staff educational material	
Costs of further education of staff (initial and ongoing)	
Updating electronic prescribing and dispensing software	
Costs due to lack of stability data/validated method	
Costs associated with changes to prescribing activities and uncertainty	
Patient satisfaction survey	
Costs to perform patient satisfaction survey	

Staff consulted	
Patient information strategy	
Patient outcomes monitoring	
Enablers required	
Predicted PA cost savings	
Data collection and reporting	

Comments:

- ☐ New JAC files added
- ☐ Stocks of branded product reduced, new re-order levels set
- ☐ All relevant guidelines updated
- ☐ Implementation discussed at MAG
- ☐ Commissioner agreement for implementation plan

Completed by: