BUSINESS CASE TO SUPPORT AN eMEDICINES SYSTEM

1 EXECUTIVE SUMMARY

There are over 1.3m patient attendances in Leeds Teaching Hospitals NHS Trust (LTHT) each year and almost every patient in our care requires medicines during their stay. The systems we use for managing medicines are based on paper prescription charts and have remained broadly unchanged for many decades.

The medicines management process is a multi-disciplinary activity affecting every patient in every division, and it incorporates:

- Prescribing usually by a doctor;
- Prescribing supervision, medication preparation and supply, usually supervised by a pharmacist; and
- Administration of medicines generally undertaken by a nurse or through patient self-administration.

An electronic prescribing and medicines administration (eMedicines) system will combine three functions to provide all clinical staff with an integrated view of a patient's medication history, through:

- Electronic communication of a prescription or medication order;
- Aiding the choice, administration and supply of a medicine through knowledge and clinical decision support, such as allergy and interaction checks and information to guide and inform users
- Providing a robust audit trail for the entire medicines use process, whereby all medicines prescribed and the associated administration is recorded electronically

It will deliver the following high level outcomes:

- A reduction in medicines errors and the adverse reactions and serious untoward incidents arising inherent in pen and paper based processes;
- Reduction in infection rates through improved antimicrobial stewardship. This will also reduce antimicrobial medicines costs;
- Reduced length of stay due to overarching changes in the process of prescribing and administering medicines;
- Improved reporting and patient-level costing information;
- More efficient processes for medicines administration and prescribing;
- Increased patient satisfaction; and
- Supporting clinicians to improve clinical effectiveness

In doing so, it will deliver a broad range of benefits that can be summarised as follows:

- **Patient Safety**: a reduction in medicines errors, missed doses, adverse reactions and serious untoward incidents arising from these supported by the sharing of a patient's medicines history between different care settings e.g. GPs and hospitals;
- **Clinical Effectiveness**: legible, complete and unambiguous prescriptions; single and comprehensive view of a patient's current and historical drug record; real-time decision support to guide and improve the appropriateness and accuracy of prescribing, including warnings about allergies; real time view of medicines administration – all leading to more consistency in prescribing
- **Quality and Clinical Governance**: the ability to monitor and evaluate key performance indicators.
- **Operational Productivity**: improved communication of real-time information between prescribers, pharmacy and nursing; paperlite, streamlined operational and clinical processes; more effective control and management of drug expenditure

Procurement and Implementation

This project and the associated costs cover procurement, requirements and systems analysis and systems implementation. Procurement will be via full Official Journal of the European Union (OJEU) tender process and is forecast to take six months, starting from July 2013. Implementation is forecast to take three years from contract award to project closure, with a target start date of January 2014. Funding will be required to support procurement as well as systems implementation, as requirements and business analysis will be needed at this stage. The resource profile has been planned on this basis.

Lessons learned have been sought from other Trusts. Suppliers have been approached for recommendations on how to implement eMedicines in a Trust of this size and complexity.

To deliver the outcomes and benefits expected from this case, the project will be clinically led and will focus on transforming current process using IT as an enabler.

Fit with Strategy

This investment is identified in the Informatics Strategy for 2011-2016 as one of the key "clinical 5" systems needed to support improvements in the quality and safety of patient care and clinician access to patient data. This business case also supports the Department of Health Informatics strategy and the recommendations of the Francis Report and the Colin Norris report.

Options Considered

The following options were considered:

- Option 1: Do nothing – continue with the current situation.
- Option 2: eMedicines as a standalone system – not connected to other systems

- Option 3: eMedicines as an integrated element of the Clinical Portal and Clinical 5
- Option 4: eMedicines as a component of a PAS+ system

The preferred option is to go to market and procure an integrated solution that fits with the Trust's Informatics Strategy (option 3), meeting the requirements of an eMedicines system, supporting the development of an EPR and supporting the flow of information across multiple care settings. However, the replacement of the Patient Administration System (PAS) contract and potential opportunities in relation to national funding of the Lorenzo product also have to be considered (Option 4).

Finance Implication

Capital £2.34m. Total revenue costs £229k from Year 2 onwards. This assumes a finance model where capital outlay is required on delivery against contracted milestones. Capital funding has been identified for the scheme in the Informatics Capital Programme 2013/14 onwards. Ongoing revenue costs for this case could be funded by the cash savings related to improvements in use of medicines (forecast as £500k Year 2, £1m Year 3, £1.17m Year 4 and £1.33m from Year 5) and from the savings associated with stopping the use of paper prescription charts (forecast as £14k Year 2, £28k Year 3 and £41k per annum from Year 4).

A second financial model may be available to the Trust, where the software is taken as a managed service. This means that the Trust will not own the software licence but are given the option at the end of the contract to buy the perpetual licence rights or go back to market and reprocure. Initial costs are allocated to revenue and there is no capital outlay upfront with the supplier. This would be on the basis that the Trust signs up to a committed multi-year contract. This model would reduce the overall capital outlay for the project to £1.52m with increased ongoing revenue costs of £259k per annum from year 1 and each following year.

A managed service would allow the Trust to benefit from financial efficiencies through VAT relief estimated at £280k on a £1.4m contract. This estimate was provided by one of the suppliers who participated in the eMedicines market assessment exercise carried out by LTHT in July 2012.

Affordability of the eMedicines solution will be factored into the procurement.

2 PURCHASER SUPPORT

This business case does not relate to a planned change in income. This case is about ensuring improvements in productivity, patient safety and the delivery of patient care. Purchaser support is therefore not required in this case. However the ethos of sharing information from the Leeds Teaching Hospitals Clinical Portal as a key component of the Leeds Care Record is strongly supported by the Clinical Commissioning Groups and the Leeds Informatics Board.

3 INTRODUCTION

Medicines are a key element of modern healthcare and almost every patient under the care of this hospital requires medication during their stay. The current system for the prescribing and administration of medicines in LTHT is based on a paper model established over 40 years ago. Since then, the quantity of medicines used has grown and medication regimens have become highly complex. This demands increased knowledge and understanding from clinical staff and leads to an increased risk of prescribing and medicines administration errors and the harm caused by allergic reactions and missed doses.

eMedicine systems, where the prescribing and administration of medicines are supported by electronic systems, are widespread in primary care in England and almost all GP prescriptions are computer generated. Proven technology is also available to facilitate electronic prescribing and medicines administration in secondary care, with the number of Trusts implementing these systems steadily increasing over the past couple of years. Competitors, such as Harrogate, Newcastle and Sheffield, and other teaching Trusts, such as Salford, Pennine Acute and Leicester have either implemented or started the process of implementing eMedicines.

Whilst the case for eMedicines systems is supported at a national level, the development of this business case has come in response to the needs of the clinical teams who want to improve the safety and quality of the medicines management processes within the Trust, with allergy to medicines being the Trust's number one medication safety risk. Improving the safe use of medicines helps to avoid patient harm and individual tragedy. It also helps to prevent damage to our reputation.

4 OVERVIEW OF CURRENT SERVICE

There are over 1.3m patient attendances in LTHT each year and almost every patient in our care requires medication during their stay. Medicines are the most expensive part of healthcare after staff costs. In 2012/13 LTHT spent £66.33m on medicinal products, excluding cancer costs. Over the expected life of this contract, this equates to in excess of £500m. The growth rate in medicines spend was 11% in 2012/13, including cancer costs. Much of this increase is due to the improvements in therapies and in part due to an increase in the number of medicines used to treat many conditions. Treatment regimens can be complex and / or high risk, often requiring adjustment to account for medicines allergies and interactions, or renal and hepatic function.

Medication Related Errors

Our current system for prescribing and administering medicines is based on a model established in the 1960s, relying heavily on handwritten drug charts. This system is inherently flawed and produces numerous errors and waste. In order to understand the scale of the problem, research has been undertaken with studies in the UK showing:

- Prescribing errors occur in 1.5%-9.2% of medication orders written for hospital inpatients.
- Dispensing errors are identified in 0.02% of dispensed items.
- Medication related errors occur in 3%-8% of non-intravenous doses and about 50% of all intravenous doses.[1]

Medication errors create significant problems for patients; they lead to patient complaints and as a result damage the Trust's reputation. At LTHT, during 2011, 2,334 medication related errors were recorded on the Datix system. Of those, 53% related to administration, 21% to prescribing and 17% to preparation and dispensing. Of the 29 medication related SIs (serious incidents) reported by LTHT since 2006, 6 SIs definitely could have been prevented and other others probably would have been prevented by an eMedicines system.

Process Issues

Medicines management processes, covering prescribing and medicines administration, involve a large number of our staff. It is a multi-disciplinary activity affecting every patient in every division and incorporates:

- Prescribing usually by a doctor
- Prescribing supervision, medication preparation and supply, usually supervised by a pharmacist
- Administration of medicines generally undertaken by a nurse or through patient self-administration

Our current paper-based system ensures that there is:

- High reliance on the physical transportation and locating of drug charts and medication orders
- Medical, nursing and pharmacy staff waste time each day locating misplaced drug charts
- Handwritten drug charts may be difficult to read or interpret, leading to duplicate and inappropriate prescribing and serious incidents (SIs) resulting from medication errors
- Medicines that the patient is allergic to are still prescribed and administered and medicines are omitted unintentionally
- Time is spent checking all the prescription charts on a ward to find doses that need to be given
- Paper prescription charts have space for a limited number of administrations, and therefore need to be transcribed by prescribers after 14 days.

At present in LTHT, the risks to patients from medicines prescribing, supply and administration processes are mitigated using a mixture of policies and procedures, staff training, support, inspection and audit. These methods all rely on human intervention and therefore are subject to slips and lapses. They fail at times of staff shortage and are vulnerable to 'corner cutting'.

[1] Vincent C, Barber N, Franklin BD, Burnett S. The contribution of pharmacy to making Britain a safer place to take medicines. Royal Pharmaceutical Society of Great Britain: London; 2009

To improve the current situation, the eMedicines system will deliver the following high level outcomes:

- Enhanced patient experience
- A reduction in medicines errors and the adverse reactions and serious incidents inherent in pen and paper based processes;
- Reduction in infection rates through improved antimicrobial stewardship. This will also reduce antimicrobial medicines costs;
- Reduced length of stay due to overarching changes in the process of prescribing and administering medicines;
- Improved reporting and patient-level costing information;
- More efficient processes for medicines administration and prescribing;
- Support clinicians to improve clinical effectiveness
- Better controls over prescribing, the use of formulary based prescribing

5 FIT WITH STRATEGY

This investment will fit the Trust's strategic objectives and goals of: achieving the best possible clinical outcomes for every patient, every time; to be the hospital of choice for patients and staff; and to be a consistently high performing influential healthcare provider.

The implementation of an eMedicines system fits with the following local and national strategies and recommendations:

- The Department of Health (DH) Information and Technology Strategy
- The LTHT Informatics Strategy 2011 – 2016
- The Francis Report: The Mid Staffordshire NHS Foundation Trust Public Inquiry
- Managing for Success
- Report of the Independent Inquiry into the Colin Norris Incidents at Leeds Teaching Hospitals NHS Trust in 2002 (published 2010)

The Department of Health Information and Technology Strategy

In May 2012 the Department of Health published its information and technology strategy[2], suggesting a number of actions that organisations involved in the provision, commissioning and regulation of NHS services could take in order to *"transform information for health and care… To achieve higher quality care and improve outcomes for patients and service users"*. One of the recommended actions was *"medicines management for safer, more effective care, via electronic prescribing and the electronic exchange of medication information inside and outside organisations".*

[2] The Power of Information – putting all of us in control of the health and care information we need (Department of Health, May 2012)

At the same time, the Department of Health published an impact assessment[3] that identified and evaluated the likely benefits and implementation costs for electronic prescribing across secondary care. This was then followed by a review of the impact assessment in December 2012, commissioned by the Secretary of State[4]. The outcome of this review was a potential year 1 net benefit of c. £208m (assuming all capital expenditure occurs in year 1) and net benefits of c. £270m p.a. from year 2 onwards, from the national implementation of eMedicines systems.

The LTHT Informatics Strategy 2011 - 2016

The introduction of an eMedicines system is an integral part of the Trust's Informatics Strategy for 2011 – 2016. It has been identified as one of the key "clinical 5" systems needed to support improvements in the quality and safety of patient care and clinician access to patient data. As part of the Trust's Informatics Strategy, a wireless network infrastructure is being rolled out Trust- wide. This is a necessary pre-requisite to provide the secure and reliable infrastructure for the mobile devices (e.g. workstations on wheels) that will allow eMedicines to be used at the patient bedside.

The Francis Report: The Mid Staffordshire NHS Foundation Trust Public Inquiry

The Francis Report[5] was written following a public inquiry under the Inquiries Act 2005 into the serious failings at the Mid Staffordshire NHS Foundation Trust. The lessons learned from the events at this Trust were reviewed and a set of 290 recommendations were derived from this. The following statements apply to this case:

- Systems should be able to provide data from the same source to support clinical audit, performance review and comparative outcome statistics. Systems should be flexible to changing requirements and reduce duplication. They should also have in-built intelligence (decision support) to alert to inaccurate entries or apply rules (e.g. relating to prescribing).
- Ensuring the accuracy of patient records, ideally stored electronically across the full range of data from basic administrative to drug prescribing and clinical communications should be a priority. Wide ranging audits of data held on systems should be supported to ensure high data quality.
- Recommendation 242 focuses on the theme of Medicines Administration and states that *"In the absences of automatic checking and prompting, the process of the administration of medication needs to be overseen by the nurse in charge of the ward, or his/her nominated delegate. A frequent check needs to be done to ensure that all patients have received what they have been prescribed and what they need. This is particularly the case when patients are moved from one ward to another, or they are returned to the ward after treatment."*

[3] The Power of Information: impact assessment (Department of Health, May 2012)
[4] A review of the potential benefits from the better use of information and technology in Health and Social Care (Department of Health / PWC, January 2013)
[5] Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry chaired by Robert Francis QC (HM Stationery Office, 2013)

An eMedicines system would support the process of checking and prompting, reducing the amount of manual intervention required. The report specifically mentions the University Hospitals of Birmingham as an example of good practice, as they have a prescribing system which incorporates rule based alerts and levels of authorisation for prescribing to try to eliminate errors. A quality dashboard is automatically fed from the system and individual level data is available to managers to support performance management.

Managing for Success

'Managing for Success' (MfS) consists of seven Trust wide transformation programmes that aim to engage the whole organisation in improving service, quality and efficiency. The eMedicines project would enable the realisation of the following benefits associated with two MfS programmes: Clinical Support and Care Pathways:

- reduced consumable and contract spend;
- improved efficiency and resource utilisation e.g. releasing time to care;
- improved levels of quality, patient and staff satisfaction;
- non harm to patients;
- reduced length of stay;
- and potentially the reduction in number of theatres and wards.

The eMedicines system will also support paperlite working, as it will remove the use of the paper drug chart from the care process.

Report of the Independent Inquiry into the Colin Norris Incidents at Leeds Teaching Hospitals NHS Trust in 2002 (published 2010)

In 2008, staff nurse Colin Norris was convicted of the murder of four patients and the attempted murder of a fifth at LTHT. Following on from this, the Yorkshire and Humber Strategic Health Authority commissioned an independent inquiry. This led to a number of recommendations being made.

Recommendation 25[6] of the report supports the case for an eMedicines system and states that for medicines management the Trust should *"place a higher priority on the implementation of technological solutions to improve the audit trail of drug use and reduce patient risk. This should include… Electronic prescribing and administration of drugs."*

[6] Report of the Independent Inquiry into the Colin Norris Incidents at Leeds Teaching Hospitals NHS Trust in 2002. http://www.yorksandhumber.nhs.uk/document.php?o=4328

6 PROCUREMENT AND IMPLEMENTATION

The project is forecast to start from July 2013 and take three and a half years. This will cover procurement, requirements, benefits and business analysis, and systems implementation.

To get the best fit against requirements, procurement will be via OJEU and is forecast to take six months, starting from July 2013. During this period of time, requirements, benefits and current state business process analysis will be carried out.

To understand and quantify the best way to implement eMedicines, lessons learned have been sought from other Trusts, notably Stockport, Leicester, Guys & St Thomas and Harrogate. Suppliers have been approached for recommendations on how to implement eMedicines in a Trust of this size and complexity. To deliver the outcomes and benefits expected from this case, it is recommended that the project will be clinically led and will focus on transforming current process using IT as an enabler. Links with Managing for Success will need to be formalised as part of this project.

The eMedicines system will be implemented in three phases:

- Inpatients
- Outpatients
- Specialist areas

Each phase will incorporate a pilot prior to full rollout. Phases will overlap. The delivery of all three phases is forecast to take three years from contract award to project closure, with a target start date of January 2014. A high level timeline can be found in Appendix 7. This timeline may change, once a supplier is selected and the details of the implementation approach can be firmed up.

The system will be delivered using standard Prince2 methodology. A Project Manager has been identified and a Project Board will be established to take responsibility for the timely delivery of the solution. A multidisciplinary team for eMedicines is already in place. Lessons will be learnt from the eDAN (electronic discharge notification) project and other projects and used to shape the implementation approach, such as the importance of providing face to face training and rapid rollout. The project will form part of the overall Informatics Strategy, overseen by the Informatics Board. Formal procurement procedures will be followed and potential solutions fully evaluated both from a technical and user perspective.

7 BENEFITS APPRAISAL

eMedicines systems offer a range of benefits for patients and clinicians within the hospital as well as significant overall savings in efficiency and effectiveness. They improve the safety and efficiency of healthcare by aiding the choice, prescribing,

administration and supply of medicines. These benefits can be summarised into the following four categories:

- **Patient Safety**: a reduction in medicines errors, missed doses, adverse reactions and serious untoward incidents arising from these supported by the sharing of a patient's medicines history between different care settings; sharing of medicines information between different care settings e.g. between GPs and hospitals;
- **Clinical Effectiveness**: legible, unambiguous and complete prescriptions; single and comprehensive view of a patient's current and historical drug record; real-time decision support to guide and improve the appropriateness and accuracy of prescribing, including warnings about allergies; real time view of medicines administration;
- **Quality and Clinical Governance**: the ability to monitor and evaluate key performance indicators and to positively impact quality and safety targets such as
    - NPSA Alerts – "reducing harm from omitted and delayed medicines"
    - Never Events – contribute towards 11 of the 25 Never Events
    - NICE Guidance and Audit – this system will aid the monitoring of compliance with NICE guidance on specific drugs, audits and Medicines Reconciliation Guidance.
    - Contractual – Quality and Performance Schedule 2012-13 – Medicines Management Monitoring Framework – all targets
    - Improving patient experience - improving communication between healthcare professionals, with primary care and with patients.
    - Antimicrobial Stewardship Monitoring – all five targets
- **Operational Productivity**: improved communication of real-time information between prescribers, pharmacy and nursing; paper light, streamlined operational and clinical processes releasing time for direct patient care; more effective control and management of drug expenditure

The benefits expected from this project can also be categorised in the following way:

- Improvements in patient safety and experience
- Direct cash releasing
- Non-direct cash releasing
- Enabler to support or protect existing or future income opportunities

Direct Cash Releasing Benefits

Where eMedicines is either directly responsible for this cash saving, or will be in-directly responsible, or act as an enabler to achieve the savings.

Cash releasing savings are reasonable to plan for, though the sums involved are difficult to accurately forecast at this stage. The science behind the estimation of cost / benefit analysis is fairly immature and there is little published information on eMedicines savings in England. Any figures quoted are best guess estimates, based on published information or information provided by other Trusts It must be noted that through the introduction of technology, we are changing process within a complex environment – an environment where quality and safety is of paramount

importance. There is a high risk that the introduction of the eMedicines system will have effects within the environment within which it is planned to operate – effects that cannot be reasonably quantified at this stage. Any potential savings may therefore be subsumed by unknown costs associated with the changes that the eMedicines system will bring.

For this case, cash releasing benefits can be summarised as follows:

Benefit	**Value (per annum)**
Reduction in annual medicines costs – via: • Improvements to medicines management processes that create waste and loss of inventory • Access to real time information on antimicrobial doses given or due, enabling targeted reduction in antimicrobial expenditure • Facilitated IV to PO switch for antibacterials • Less inappropriate prescriptions for restricted drugs (e.g. a formulary drug being used in an unapproved indication) • Greater consistency of prescribing through prescribing to protocols	£1.33m
Reduction in stationery costs – inpatient and outpatient prescription charts	£41k
TOTAL	£1.33m

The reduction in annual medicines costs is predicted to be achieved through a 2% reduction per annum from the medicines budget. This equates to a saving of £1.33m per annum, based on a budget of £66.33m. In year 2 £500k is forecast to be saved, in year 3 £1m, in year 4 £1.17m and £1.33m from year 5 onwards. This cash savings profile has been aligned to the proposed implementation plan.

The potential stationery saving of £41k covers inpatient and outpatient prescription charts. Of this cost, £28k covers inpatient charts and the remaining £13k outpatients. It is envisaged that inpatient charts will start to be phased out during year 2, as implementation across inpatients progresses. The phasing out of outpatient charts will start in year 3. This translates to a forecast saving of £14k in year 2, £28k in year 3 and £41k in year 4. As the implementation progresses and the use of the charts is phased out, it is the intention to claw back this budget to cover part of the eMedicines ongoing revenue costs.

Another opportunity may be that this system supports the attainment of CNST level 2 and the associated reduction of NHLSA insurance premiums by 20%. As the use of an eMedicines system is one factor in the attainment of CNST level 2, an associated cash savings value has not been attributed to this case. However, it is worth noting that in 2012/13, the gross NHSLA insurance premium before the 10% level 1 CNST discount was applied was £19.56m. This comprised £8.35m for Maternity Services and £11.21m for General (i.e. everything else).

To summarise, this system offers us an additional approach to managing medicines expenditure. Ongoing revenue costs for this case could be funded by the related improvements in use of medicines.

Non-direct Cash Releasing Benefits

The benefits where waste has been identified in the current paper based processes, and where it is anticipated time can be saved for the three main clinical groups involved in prescribing, medicine management and administration. The expectation is that the majority of these savings would not be realised by the services but would be used for direct patient care, and in particular for achieving targets where there is significant income attached to this target or will avoid a fine if the target is not achieved.

Benefit	Outcome
Legible and complete orders	Time saved for direct patient care. Nurses and Pharmacy staff spend less time chasing round prescribers for interpretations.
Electronic prescription is widely available	Time saved for direct patient care. Review without travel – professional time in travel reduced. Nurses and pharmacy staff no longer required to locate lost paper charts.
Process efficiency and communication	Time saved for direct patient care
Reduction in the number of antibiotic IV's to be administered due to a facilitated switch from IV to oral	Freeing up nursing time for other patient care activities

Current paper based medicines administration processes were previously highlighted as a significant waste area as part of the 'releasing time to care' project. Time savings as a result of introducing an eMedicines system have not been quantified within this case but are felt to be significant, particularly by nursing staff. It is worth noting that Guys & St Thomas NHS Trust have estimated that each nurse would free up 30 minutes a day for direct patient care, once eMedicines was introduced, but this figure is yet to be validated.

Enabler to support or protect existing or future income opportunities

Data requirements for PbR excluded drugs will be in 'real-time' and more accurate. This will ensure that errors are highlighted and resolved earlier, and that there is an increased assurance that both data being supplied to the Clinical Commissioning Groups and NHS England is accurate and that Trust Policies and procedures are being adhered to.

Improvements in patient safety and experience

The following could directly be impacted by an eMedicines solution, leading to improvements in patient safety and experience

- Reduce the number of missed doses of medication NPSA/210/RRR009: The capability to alert and report on the missed doses.
- Robust audit trail: Better supports prescribing, supply and administration of medicines, thus improve patient care and governance processes
- Knowledge support: Better supports prescribing, supply and administration of medicines, thus improve patient care and governance processes
- Decision support: Better supports prescribing, supply and administration of medicines, thus improve patient care and governance processes
- Communication/patient allocation tool: Better supports prescribing, supply and administration of medicines, thus improve patient care and governance processes
- Standardised prescribing against pre-defined protocols and 'quick lists/order sets' reducing variation in prescribing habits.
- eMedicines systems support prescribing protocols and, if linked to completed assessments, can improve quality and patient experience by ensuring the outcome of an assessment is acted on. Similarly, eMedicines systems can help prescribers act on blood results where medicines protocols are followed. Prescribers can be prompted to prescribe anticoagulants for patients deemed to be at risk following VTE assessment. MRSA bacteraemias - prescribers can be prompted to prescribe decolonisation regimes for MRSA positive patients.

8 OPTIONS CONSIDERED

The following four options were considered:

- Do nothing
- eMedicines as a standalone system not connected to the Clinical Portal
- eMedicines as an integrated element of the Clinical Portal and Clinical 5
- eMedicines as a component of a PAS+ reprocurement

Option 1: Do Nothing

This option would be to continue with existing paper based prescribing and administration of medicines.

Advantages

- The main advantage of doing nothing is financial – no capital expenditure required to implement eMedicines and no on-going revenue costs.

Disadvantages

- No improvement to the current situation. The problems patients are experiencing with medication errors and missed medication doses will continue, discharges will be delayed and LTHT will bear the costs and inefficiencies of unnecessary bed occupancy secondary to these problems.

- LTHT will fall behind those organisations who are investing in eMedicines systems. Patients and the public are increasingly aware of safety issues and will choose to attend those hospitals with modern systems to manage medicines during the inpatient stay and at important points of admission and discharge.
- Staff will continue to operate inefficient processes based on paper, taking up valuable time that could be spent on hands on patient care.

In light of the above, option 1 has been rejected.

Option 2: eMedicines as a standalone system not connected to the Clinical Portal

Option 2a: purchase and configure a 'Commercial Off The Shelf' (COTS) Product. This includes integration with the Trust's Patient Administration System (PAS).

Advantages

- Ensures best fit against operational and technical requirements for the medicines management process, through a full market assessment of products and suppliers.
- Allows the Trust to benefit from best practice developed with other Trusts.
- Implementation and operating costs are known up-front.

Disadvantages

- Does not integrate with the Clinical Portal so medication history will not be part of the patient's Electronic Patient Record. This means that the associated benefits of transforming clinical practice, patient safety and improving patient care and experience, and allowing clinicians to devote more time to hands on patient care and activity will not be fully realised.
- Levels of investment (capital and revenue) may be higher than other options.
- Future integration with the replacement PAS.

Option 2b: Develop in-house alone or work with a 3rd party supplier to develop a product to meet LTHT's requirements. This covers the redevelopment of an existing system or the development of a system from new. This option includes integration with the Trust's PAS.

Advantages

- Can be developed to fit specifically with LTHTs requirements for the medicines management process.
- The potential for on-going revenue benefits through royalty payments.

Disadvantages

- Does not integrate with the Clinical Portal so medication history will not be part of the patient's Electronic Patient Record. This means that the associated benefits of transforming clinical practice, patient safety and improving patient care and experience, and allowing clinicians to devote more time to hands on patient care and activity will not be fully realised.
- Additional time and effort to specify, develop and test the system. Risk of non-delivery through scope creep.
- Resources required to develop, support and maintain the system post go-live.
- Trust would maintain responsibility for mandatory system changes.
- Does not allow the Trust to benefit from best practice developed with other Trusts.
- Unproven solution that could introduce clinical risk.
- Difficult to quantify upfront the levels of investment (capital and revenue).
- Future integration with the replacement PAS.
- This approach has already been undertaken with CIS & Theriak. This was not successful due to the software supplier (Theriak) going bankrupt in 2012 and withdrawing funding for the system. A review of the eMedicines market at this point demonstrated that there were now products on the market that would meet the Trust's requirements. In-house development of an eMedicines system was no longer the most attractive option for LTHT.

In light of the above, options 2a and 2b have been rejected.

Option 3: eMedicines as an integrated element of the Clinical Portal and Clinical 5

Procure as a 'Commercial off the Shelf' COTS product with integration capabilities with the Clinical Portal and the Clinical 5. This option includes integration with the Trust's PAS.

Advantages

- Ensures best fit against operational, strategic and technical requirements, through a full market assessment of products and suppliers.
- Fits with the Trust's strategic 'best of breed' approach, by picking a system to work with the portal and other clinical systems.
- Enables the timely realisation of benefits expected from this case.
- Operating costs are known up-front
- Allows the Trust to benefit from best practice developed with other Trusts.
- Procurement timescales: a six month procurement process is planned, from business case approval. Business case approval is forecast for July 2013 which gives a target implementation start date of February 2014.

Disadvantages

- Levels of investment (capital and revenue), may be higher than other options.

Option 4: eMedicines as a component of a PAS+ solution

Option 4a: Implement as part of a PAS+

Advantages

- Reduces the maintenance and support overheads of multiple critical data interfaces. Integration delivered as part of the PAS+.
- Potential lower capital and revenue costs if procured as part of a PAS+.

Disadvantages

- Extended timescales for procurement. Procurement for a replacement PAS not due to start until 2014/15, which could delay implementation until 2015/16.

Option 4b: Implement as part of Lorenzo

Advantages

- Five year costs covered by the Department of Health (DH) offering. The software is free and implementation costs covered by the DH, up to an approved limit. Potentially lower capital and revenue costs over the lifetime of the contract.
- Removes the need to reintegrate with a replacement PAS.
- Reduces the maintenance and support overheads of multiple critical data interfaces. Integration delivered as part of the Lorenzo solution.
- Cuts out the procurement process - potential time savings

Disadvantages

- This is a 10 year contract. The costs from year five are currently unclear.
- There is uncertainty if LTHT qualifies for the DH offering – a business case would need to be approved by the DH.
- Removes the process of a full market assessment of products and suppliers so cannot ensure best fit against operational, strategic and technical requirements.
- Potentially does not fully fit with the Trust's Informatics Strategy, which is based around integrating existing systems and introducing 'best of breed' wherever possible, to provide access to the developing Electronic Patient Record (EPR).
- The deployment schedule of the elements of Lorenzo is unknown and could potentially delay the implementation of eMedicines, potentially negating the time savings made by not going through a full procurement process.
- Lack of proven capability about the e-Medicines capability – no current implementation in a large teaching hospital in England.

9 PREFERRED OPTION

The preferred option is to go to market and procure an integrated solution that fits with the Trust's Informatics Strategy (option 3), meeting the requirements of an eMedicines system, supporting the development of an EPR and supporting the flow of information across multiple care settings. This will ensure timely implementation and best fit against operational, technical and strategic requirements, and will enable the benefits associated with the MfS Clinical Support and Care Pathways programmes.

However, it must be noted that the current PAS replacement is under review. If this proved to be beneficial we may need to widen our approach to include eMedicines. (option 4).

As well as taking into consideration the pros and cons of each approach detailed in section 7, each option was assessed against the non-financial benefits expected from this case

- Option 1 – do nothing – scored 0 as this did nothing to improve the current situation.
- Option 2 – eMedicines as a standalone system not connected to the portal scored 64. This option scored lower than Option 3 and 4 as it does not fit with the development of the Trust's EPR or support the flow of information between different care settings.
- Option 3 – eMedicines as an integrated element of the Clinical Portal scored 90. This option scored the highest as it supports the development of the Trust's EPR and supports the flow of information across different care settings.
- Option 4 – eMedicines as part of a PAS+ replacement – scored 72. This option scored lower than Option 2 and option 3, as it is not clear if this solution would support the flow of information across different care settings.

The detailed outcome of this assessment can be found in Appendix 3.

10 FINANCIAL APPRAISAL

The estimated capital cost of the preferred option - Option 3: eMedicines as an integrated element of the Clinical Portal and Clinical 5 is: **£2.34m over the next four years.**

A summary of the revenue \ capital costs associated with each option are summarised in the table below. A detailed analysis is provided in Appendix 4.

CAPITAL	Yr. 1 £'000s	Yr. 2 £'000s	Yr. 3 £'000s	Yr. 4 £'000s	Yr. 5 £'000s
Supplier Costs	153	591	410	146	0
Trust Pay Costs	197	295	295	197	0
Trust Non Pay Costs	0	0	0	0	0
Other Costs and Income	11	17	17	11	0
TOTAL CAPITAL The Capital costs will be funded from the Informatics Programme	**361**	**903**	**722**	**354**	**0**
REVENUE	**Yr. 1 £'000s**	**Yr. 2 £'000s**	**Yr. 3 £'000s**	**Yr. 4 £'000s**	**Yr. 5 £'000s**
Supplier Costs	0	199	199	199	199
Trust Pay Costs	0	30	30	30	30
Trust Non Pay Costs	0	0	0	0	0
TOTAL REVENUE	**0**	**229**	**229**	**229**	**229**
Other Costs and Income – stationery savings	0	-14	-28	-41	-41
Other Costs and Income – medicines cost savings	0	-500	-1,000	-1,170	-1,330
NET REVENUE	**0**	**-285**	**-799**	**-982**	**-1142**

A second financial model may be available to the Trust, where we take the software as a managed service. This means that we do not own the software licence but are given the option at the end of the contract to buy the perpetual licence rights or go back to market and reprocure. Initial costs are allocated to revenue and there is no capital outlay upfront with the supplier. This would be on the basis that the Trust signs up to a committed multi-year contract. This model would reduce the overall capital outlay for the project to £1.52m but increase the ongoing revenue costs to £259k per annum from year 1 and each following year.

A managed service would allow the Trust to benefit from financial efficiencies through VAT relief estimated at £280k on a £1.4m contract. This estimate was provided by one of the suppliers who participated in the eMedicines market assessment exercise carried out by LTHT in July 2012.

Affordability of the eMedicines system will be factored into the procurement exercise.

11 RISK ANALYSIS

Option	Financial	Clinical	Other	Mitigation
1.Do nothing		Maintains current level of clinical risk and operational issues	Does not support business case benefits	
2.eMedicines standalone		Maintains the risks associated with Medicines history not part of the EPR or shared between care settings		
3.eMedicines as integrated	Capital cost of £2.34m	No suitable product on the market		Market testing has identified suitable systems
4. Part of a PAS+	Capital costs unknown	Potentially reduces the risks associated with medicines history information not being shared between care settings but this is to be clarified	Delays the enablement of business case benefits	

A full risk analysis of Option 3 – the preferred option – can be found in Appendix 5.

SUPPORTING SCHEDULE

Appendix 1 – Activity Plan – not applicable

Appendix 2 – Performance Plan – not applicable

Appendix 3 – Non Financial Benefits Breakdown Appraisal

Appendix 4 – Financial Schedules

Appendix 5 – Risk Management for Preferred Option

Appendix 6 – Quality Impact Assessment – not applicable

Appendix 7 – Timetable

Appendix 3 – Non Financial Benefits Appraisal

11.1 Non-financial benefits appraisal

The business case objectives and how the options rate against them are identified in the chart below:

Element	Weighting	Business Case Specific Objective	Option 1 Do Nothing		Option 2 eMeds standalone		Option 3 eMeds integrated		Option 4 PAS+	
			Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result	Score 1(10)	Result
Patient Safety	20	**A reduction in medicines errors and the adverse reactions and serious untoward incidents arising inherent in pen and paper based processes through:** • electronic system for prescribing - legible, unambiguous and complete prescriptions; • a single and comprehensive view of a patient's medication orders history via an EPR, shared between care settings e.g. GPs and Hospitals • the use of pre-filled service specific drug order sets rather than an individual clinician's knowledge and interventions by the pharmacy team; • real-time decision support to guide and improve the appropriateness and accuracy of prescribing, including warnings about allergies; and • a real time view of medicines	0	0	5	10	9	18	7	14

Element	Weighting	Business Case Specific Objective	Option 1 Do Nothing		Option 2 eMeds standalone		Option 3 eMeds integrated		Option 4 PAS+	
			Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result	Score 1(10)	Result
		administration. • improved information flow of out-patient medications to the GP via electronic transfer of information about prescriptions processed by the Trust or requests to GPs to prescribe. **Reduction in infection and antimicrobial resistance rates through improved antimicrobial stewardship. This will also reduce antimicrobial medicines costs**								
Operational productivity	20	**Improved reporting and patient-level costing information.** • the ability to automate the clinical audit process • monitor and control the cost-effective use of medicines from patient to ward to trust level. Support accurate costing of the medication for specific patients or patient groups, through improved access to clinical teams of detailed financial and medicines use information.	0	0	5	10	9	18	7	14

Element	Weighting	Business Case Specific Objective	Option 1 Do Nothing		Option 2 eMeds standalone		Option 3 eMeds integrated		Option 4 PAS+	
			Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result	Score 1(10)	Result
		More efficient processes for medicines administration and prescribing. • improved communication of real-time information between prescribers, pharmacy and nursing. • paperlite, streamlined operational and clinical processes releasing time for direct patient care. • less time wasted by Pharmacists clarifying prescribers' intentions e.g. illegible and/or ambiguous prescriptions. • less time wasted by Nurses searching through paper medical charts for administration information. • more effective control and management of drug expenditure; • improved medicines optimisation by monitoring in real time the prescribing of restricted or non-formulary medicines • generate reports or alerts or prescribing of antibiotics for review by the specialist antimicrobial team • improve information flow of out-patient medications to the GP via Electronic transfer of information about								

Element	Weighting	Business Case Specific Objective	Option 1 Do Nothing		Option 2 eMeds standalone		Option 3 eMeds integrated		Option 4 PAS+	
			Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result	Score 1(10)	Result
		prescriptions processed by the Trust or requests to GPs to prescribe.								
Meets requirements of other mandatory guidance (e.g. H&S)	5	**Reduction in antimicrobial resistance rates through improved antimicrobial stewardship. This will also reduce antimicrobial medicines costs** • reduce the number of missed doses of medication NPSA/210/RRR009: The capability to alert and report on the missed doses will ensure compliance with DH requirements	0	0	9	4.5	9	4.5	9	4.5
Meets requirements of national performance targets	10	**Improved reporting and patient-level costing information** **The ability to monitor and evaluate key performance indicators and to positively impact quality and safety targets such as:** • NPSA Alerts • Never Events • NICE Guidance and Audit • Contractual – Quality and Performance Schedule 2012-13 – Medicines Management Monitoring Framework – all targets	0	0	9	9	9	9	9	9

Element	Weighting	Business Case Specific Objective	Option 1 Do Nothing		Option 2 eMeds standalone		Option 3 eMeds integrated		Option 4 PAS+	
			Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result	Score 1(10)	Result
		• Patient Experience – information about medicines • Antimicrobial Stewardship Monitoring								
Meets Commissioner capacity requirements (including maintaining levels)	10	**Improved reporting and patient-level costing information** **Reduced length of stay due to overarching changes in the process of prescribing and administering medicines** **The ability to monitor and evaluate key performance indicators**	0	0	9	9	9	9	9	9
Improves clinical effectiveness	10	**More efficient processes for medicines administration and prescribing** **Supporting clinicians to improve clinical effectiveness** • no more illegible, ambiguous or incomplete prescriptions; • a single and comprehensive view of a patient's medication orders history via an EPR, shared between care settings e.g. GPs and Hospitals	0	0	5	5	9	9	5	5

Element	Weighting	Business Case Specific Objective	Option 1 Do Nothing		Option 2 eMeds standalone		Option 3 eMeds integrated		Option 4 PAS+	
			Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result	Score 1(10)	Result
		• real-time decision support to guide and improve the appropriateness and accuracy of prescribing, including warnings about allergies; • real time view of medicines administration • clinical monitoring and individual prescribing trending, re-education and focussed information to users / prescribers								
Has patient and stakeholder support	5	**Increased patient satisfaction** **A reduction in medicines errors and the adverse reactions and serious untoward incidents arising inherent in pen and paper based processes through:** • patient experience – information about medicines • improve information flow of out-patient medications to the GP via Electronic transfer of information about prescriptions processed by the Trust or requests to GPs to prescribe. • clinicians access medication information from one location,	0	0	5	2.5	9	4.5	5	4.5

Element	Weighting	Business Case Specific Objective	Option 1 Do Nothing		Option 2 eMeds standalone		Option 3 eMeds integrated		Option 4 PAS+	
			Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result	Score 1(10)	Result
		reducing the need to ask patients to repeat information • increased ease of access to medicines information for patients.								
Improves the patient experience	10	**A reduction in medicines errors and the adverse reactions and serious untoward incidents arising inherent in pen and paper based processes** **Reduction in infection and antimicrobial resistance rates through improved antimicrobial stewardship. This will also reduce antimicrobial medicines costs** **Reduced length of stay due to overarching changes in the process of prescribing and administering medicines** **More efficient processes for medicines administration and prescribing** **Increased patient satisfaction**	0	0	7	7	9	9	7	7

Element	Weighting	Business Case Specific Objective	Option 1 Do Nothing		Option 2 eMeds standalone		Option 3 eMeds integrated		Option 4 PAS+	
			Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result	Score 1(10)	Result
Meets demographic and other needs	5	**Improve information flow of out-patient medications to the GP** **Integrates with the Trust's Patient Administration System**	0	0	5	2.5	10	5	5	2.5
Meets other Trust development aims e.g. R&D and marketing	5	**Improved reporting and patient-level costing information.** **Fully auditable data available to support research**	0	0	9	4.5	9	4.5	9	4.5
Total Score	100		0	0	63	64	91	90.5	72	72

Appendix 4 – Financial Schedules

	2013/14		2014/15		2015/16		2015/16		2016/17	
Item Description	**Capital Cost (£)**	**Revenue Cost (£)**	**Capital Cost (£)**	**Revenue Cost (£)**	**Capital Cost (£)**	**Revenue Cost (£)**	**Capital Cost (£)**	**Revenue Cost (£)**	**Capital Cost (£)**	**Revenue Cost (£)**
eMedicines site licence	35,000		280,000	170,000	280,000	170,000	105,000	170,000		170,000
Supplier Implementation	12,000		48,000		48,000		12,000			
Hardware - servers	75,000		75,000	15,000		15,000		15,000		15,000
JAC Pharmacy Interface			35,000	7,000		7,000		7,000		7,000
Trust Integration Interface			35,000	7,000		7,000		7,000		7,000
Total Supplier Costs	**122,000**		**473,000**	**199,000**	**328,000**	**199,000**	**117,000**	**199,000**		**199,000**
Project Manager	31,929		47,894		47,894		31,929			
Programme Manager	4,556		6,834		6,834		4,556			
Senior Nurse	15,965		23,947		23,947		15,964			
Nurse Analysts	35,862		53,793		53,793		35,862			
Implementers (Systems Admin)	35,705		53,557	29,754	53,557	29,754	35,705	29,754		29,754
Pharmacy Lead	20,435		30,653		30,653		20,435			
Pharmacy Technician	13,752		20,628		20,628		13,752			
Lead Clinician	9,600		14,400		14,400		9,600			
Data migration costs at go-live	7,644		11,466		11,466		7,644			
Integration Costs	3,832		5,748		5,748		3,832			
Project Support Office Costs	1,267		1,901		1,901		1,268			
Backfill support for go-live	4,000		6,000		6,000		4,000			
Training Administrator	2,694		4,041		4,041		2,694			
Total Trust Pay Costs	**187,241**		**280,862**	**29,754**	**280,862**	**29,754**	**187,241**	**29,754**		**29,754**

eLearning development	3,000		4,500		4,500		£3,000			
Test Management	6,000		9,000		9,000		£6,000			
PCs, laptops, mobile devices										
Total Trust Non Pay Costs	**9,000**		**13,500**		**13,500**		**9,000**			
Printing cost savings				-14,000		-28,000		-41,000		-41,000
Medicines cost savings				-500,000		-1,000,000		-1,170,000		-1,330,000
Total Savings & Income				**-514,000**		**-1,028,000**		**-1,211,000**		**-1,371,000**
TOTAL COSTS	**318,241**		**767,362**	**228,754**	**622,362**	**228,754**	**313,241**	**228,754**		**228,754**
NET COSTS (inc. savings & income)	**318,241**		**767,362**	**-285,246**	**622,362**	**-799,246**	**313,241**	**-982,246**		**-1,142,246**
VAT (20%)	26,200		97,300		68,300		25,200			
Project Contingency (5%)	15,912		38,368		31,118		15,662			
TOTAL Inc. CONTINGENCY	**360,353**		**903,030**	**285,246**	**721,780**	**-799,246.00**	**354,103**	**-982,246**		**-1,142,246**

Appendix 5 – Risk Management for Preferred Option

A risk analysis was undertaken on option 3 and this is summarised in the chart below:

Risks	***Risk Level***	***Risk Mitigation***
Lack of or inappropriate clinical sponsorship	Low	Change to be promoted at a high level in the organisation.
Lack of support from clinicians for eMedicines	Low	Promote the overall vision of a more robust medicines use practice and the change that accompanies eMedicines. Publicise early wins.
Lack of support from clinicians for the chosen system	Medium	Clinicians to be involved in requirements definition, system evaluation and system selection.
Dual running of electronic and paper based systems introduces clinical risk	Medium	Rollout to minimise impact of dual running. Resource for rapid rollout, including use of locum/agency staff. Minimise other changes during this period. Measure the baseline of the old system and then re-measure to build confidence and ensure safety.
Speed of wireless rollout impacts eMedicines timeline	Low	Wireless roll out completed June 2013, testing in July 2013. Ongoing monitoring and reporting.
The configuration of the system may take longer than anticipated	Medium	Confirm scope of configuration activity and resource appropriately. System supplier to advise based on scope. Obtain feedback from other sites. Ensure resource available for continued support post go-live.
Resources identified for the project may not be adequate	High	Confirm scope and rollout plan and resource accordingly. Raise via exception reporting mechanisms if this becomes an issue during implementation.
A successful implementation will rely on a working interface with other systems	High	Specify interface requirements as part of the procurement and assess systems against these.
Scope creep delays rollout	Medium	Agree project baseline within the PID. Handle changes to scope through a formal process of change control.
Knowledgeable / experienced Clinical Service/Support Unit resources not readily available to support implementation	Low	Confirm scope, rollout plan and resource profile. Raise via exception reporting mechanisms resourcing becomes an issue during implementation. Budget for backfill.
Data quality issues relating to the catalogue of drugs and	Low	Data files to be double checked for accuracy

Risks	***Risk Level***	***Risk Mitigation***
decision support may compromise successful implementation and introduce clinical risk		Ensure all prescribable items are on the database Implement Drugs and Therapeutics Committee policy Continue with paper based prescribing in early stages for difficult drugs Careful consideration of rule sets
Technical incompatibility with Trust's clinical processes and systems infrastructure	Low	The evaluation process will assess clinical and technical aspects.
Suitable product not available to meet the Trust's requirements	Low	Market assessment has indicated products are available. Suitability to be assessed via competitive tender.
The organisation resists necessary change	Low	Staff to be engaged and actively involved in any process re-design affecting their services. Publicity around early benefits.
Training programme ineffective	Low	Training approach based on the needs of each user group. Timely delivery of training. Ongoing support.
Project fails as try to do too much too soon	Medium	Identify where current processes are broken and prioritise what to fix. Careful consideration of the sequence and pace of implementation. Plan for early success.
Inadequate technology on the wards to support effective system use	Medium	Conduct technology assessment early in the project. Assess system use of early implementers. Take on board lessons learned from early implementers, prior to wider rollout.
Not easy to incorporate eMedicines into some clinical areas. Some areas may have specific regimens that are too complex for the eMedicines.	Medium	Identify those areas and document as out of scope. Short to midterm solution – maintain existing systems (paper, electronic) and make reference to these in the eMedicines system. Mid to long term solution – solutions that remove all paper charts
Wireless black spots affect system use	Low	Identify and monitor wireless black spots prior to and after implementation
Problems identified with system use post go-live	Medium	Provide mechanisms for feedback e.g. support desk, appropriate out of hours support, user groups, change control processes, service delivery board including supplier
Agency nurses or doctors may not have been trained to use the system	High	Build up a bank of agency staff that are trained and have their own passwords.

Risks	***Risk Level***	***Risk Mitigation***
Decision support may cause harm if not implemented or used properly, or if people unsure they are available	Medium	Identify decision support available. Clinical team to decide early on if these types of decision support can be implemented safely and reliably in the initial stages of implementation. Clinical team to agree how/when initial clinical decision support will be reviewed.
Patients may not be able to receive drugs if the system crashes	Low	Backup / business continuity processes need to be in place and tested prior to go-live.
Error introduced when paper drug charts transferred to the electronic system.	Medium	Transfer quickly and double check data entry by a second person.
Faulty hardware could raise problems e.g. sticky keys on keyboards, batteries need replacing in laptops	Medium	Active replacement of faulty or worn out equipment to be budgeted for.
System outage may affect business continuity	High	Escalation procedures in the event of system outage, including out of hours support. Identify solution in event of outage. Update and test business continuity plan, as part of the go-live process.
Out of hours support may not be adequate	Medium	Review current provision and assess if any changes required.
The system may not meet the expectations of end users around eDischarge	High	The eMedicine and eDischarge systems may need to be used concurrently for a period of time, until a strategic decision is made about the future of the current eDischarge system. Need to manage user expectations through engagement and communication plans

Appendix 7 – Timetable

ID	Task Mode	Task Name
1		**eMedicines**
2		Business Case Approval
3		OJEU Procurement
4		**Phase 1: inpatients**
5		System configuration and set up
6		Pilot
7		Review & rollout planning
8		Full Rollout
9		**Phase 2: Outpatients**
10		System configuration and set up
11		Pilot
12		Review & rollout planning
13		Full Rollout
14		**Phase 3: Specialist areas**
15		System configuration and set up
16		Pilot
17		Review & rollout planning
18		Full Rollout