Full Business Case

Electronic Prescribing and Administration of Medicines (EPMA)

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Approvals & Governance History

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Full Business Case

Electronic Prescribing and Medicines Administration (EPMA)

Appendix 1	Supporting Target Information	Attached
Appendix 2	Before and After Impacts	Available upon request*
Appendix 3	Benefits realisation Plan	Attached
Appendix 4	Options Appraisal Matrix	Attached
Appendix 5	Options Appraisal Evidence Pack	Attached
Appendix 6	Option 1 IT Whole Life Cost MedChart	Attached
Appendix 7	Project Board and Workstreams Terms of Reference	Available upon request*
Appendix 8	Business Process Redesign Plan	Available upon request*
Appendix 9	IT Training Plan	Available on request*
Appendix 10	Communications Plan	Available upon request*
Appendix 11	IT Implementation Plan	Available upon request*
Appendix 12	Project Risk Register	Available upon request*
Appendix 13	Issues Log	Available upon request*

* Contact Christopher Kennedy by email for appendices

1. Executive Summary

This Full Business Case (FBC) presents the rationale for implementing an interim ePrescribing and Medicines Administration at GSTFT. It seeks approval for the capital investment required to implement the chosen solution and the release of revenue funding associated with its deployment and on-going maintenance. The detailed financials are presented within the case alongside the benefits and risks, but in summary these are:

Total Capital Requirement:

Annual Net Change to Revenue Budgets (post implementation)

Net Present Value of Investment over lifetime of the project:

Value of costed risks associated with the project:

In addition to seeking approval for the capital investment and the changes to revenue budgets, approval to commence the project is also sought.

An electronic prescribing and medicine administration (EPMA) system will enable the prescribing, supply and administration of medicines electronically and will bring with it a significant range of safety, quality and financial benefits. Medicines are the most common clinical intervention and are increasing in complexity, which requires more robust monitoring and feedback systems and processes to manage them safely. It is widely accepted that prescribing and medicines administration should be done electronically. As far back as 2001, the Department of Health (DH) has recommended electronic prescribing as the method of choice for all hospital and community prescribing and administration of medicines.

There are pressing safety, quality and productivity needs to introduce an EPMA system now as an interim solution, prior to the procurement and implementation of the “Tomorrow’s World” electronic patient record. In addition, to support eNoting and the move to a paperless/paperlite environment, there is an urgent requirement to remove the paper drug chart. If for any reason, there are delays with the introduction of the new ERP, then the chosen EPMA system would continue to meet the needs of the clinical services beyond the six year model presented in this case. The project will pay back the capital investment before it can be replaced by the new system using the current roadmap for EPR’s replacement.

The timeframes for delivery of the Trust’s new EPR system have not been finalised and this business case models costs and benefits over a 6 year period, which could result in some overlap of benefits. However, the benefits of an interim EPMA would transfer to any new EPR as it the move from paper to electronic that realises benefits. If the new EPR system is delayed for any reason, then the chosen EPMA solution would continue to function and meet the needs of the clinical teams. It could also form part of the new EPR system if the option chosen is a portal to other best of class products.

The primary aim of Electronic Prescribing and Medicine Administration (EPMA) is to remove paper based processes from prescribing and medicines administration and significantly improve patient safety and quality of care. In addition, an electronic system will improve our medicines management processes and enhance medicines optimisation. This will enable greater control over what is prescribed, how it is prescribed and how it is administered. Furthermore, direct cash releasing benefits have been identified in a range of non-pay items, including drugs, blood products, stationary and IV giving sets.

EPMA 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 medicine order
- aiding the choice, administration and supply of a medicine through knowledge and decision support
- providing a robust audit trail for the entire medicines use process

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

- **Patient Safety:** no more illegible, ambiguous or incomplete 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; real-time view of medicines administration

✓ In 2011-12, of the 1,566 adverse drug related errors that were reported, 968 (61.8%) could have been positively influenced, or removed, with the introduction of EPMA. The recent Organisational Patient Safety Incident Report (September 2012), showed that medication related incidents as a percentage of all increments reported, was 9.9% higher at GSTFT than other Teaching Hospitals

- **Quality and Clinical Governance:** ability to monitor and evaluate key performance indicators, total visibility of clinical decisions and outcomes

✓ It is anticipated that EPMA will positively contribute to achieving a range of national and local targets, including NPSA alerts, Never Events, NICE guidance, CQUINS and Antimicrobial Stewardship Monitoring

- **Operational Productivity:** improved communication of real-time information between prescribers, pharmacy and nursing; paper less; streamlined operational and clinical processes; more effective control and management of drug expenditure

✓ EPMA is estimated to reduce the time it takes to prescribe, check, supply and administer inpatient drugs from overall 3 hours 33 minutes to 1 hour 3 minutes. The business case quantifies the amount of cash releasing and potential productivity gains

To date, a considerable amount of clinical engagement has been undertaken to identify and review benefits, design an options appraisal matrix and contribute to the assessment process of the different options that were reviewed at the SOC and OBC stages.

In developing the Strategic Outline Case, a review of all options available was undertaken for possible interim solutions. This included reviewing systems already utilised within KHP or available on the market:

- CareVue/ICiP in Critical Care,
- CIS in Cancer
- Our existing EPR (used at KCH for ePrescribing)
- A review of specialist EPMA solutions available on the market; JAC, Ascribe, and MedChart

This review concluded that due to the constraints of time and the need to implement rapidly and to provide a return on investment prior to "Tomorrows World", there were only three feasible options that should be explored further. Do nothing being the first option considered at OBC with the two alternative options being; either using our current EPR system in a

similar way to KCH or a bespoke system that one of our current software suppliers provides. The bespoke option was considered due to the fact that it could be procured rapidly under an extension of our existing contract, negating the need to undertake a full OJEU procurement process (this approach has been reconfirmed with the Procurement Director). The three options proposed in the SOC were developed and presented in the OBC, this approach was supported by the IT Programme Board who approved the Strategic Outline Case in March 2012 and the Outline Business Case in July 2012. The OBC preferred option, MedChart, was approved for development into Full Business Case and is presented herein. The development of our existing EPR system was not deemed to be cost effective nor best value for money and so was dropped.

The two options presented in this business case are:

0) Do nothing
1) Implement a bespoke EPMA solution (MedChart)

If the decision is made not to progress this project, none of the identified safety, quality or productivity benefits will be realised. In one month Pharmacy dispenses over 41,000 items: typically each item utilises three pieces of paperwork a total of 123,000 pieces of paperwork moving through the system each month. EPMA is therefore an integral part of the journey towards a paperless environment.

The business case also sets out: the governance structure and change control processes that will report to ITPB and IPB; the communications plan; the IT training strategy and project plans, benefits and risks.

If the Full Business Case is approved the project is anticipated to commence in January 2013 and consist of three phases:

1) Configuration/testing– 4 months (January 2013 to April 2013)
2) Proof of Concept/Pilot – 2 months (May and June 2013)
3) Trust-wide roll out – 12 months (July 2013 to July 2014)

In developing this full business case, EPMA has been presented and discussed at a wide variety of fora led by a small project team. EPMA is a stated aim of the IT strategy and the project has received SOC and OBC approval at ITPB and IPB. It is being jointly led by Pharmacy and Transformation with the Medical Director as the Senior Responsible Officer.

Table 1 below shows that the financial benefits of EPMA offset the capital cost over the anticipated six year life of the project and virtually cover the ongoing revenue costs. The table does not however, financially quantify the significant safety and quality benefits that EPMA will realise. The costs include a 10% contingency to allow for any risks, optimism bias and slippage. Clearly, if the system is in place for longer than the project five to six years, then the benefits would continue.

£000	Option 0 Do nothing	Option 1 MedChart
Capital	£0	
Revenue Costs (over project lifetime)	£0	
Financial Benefits (over project lifetime)	£0	
Net I&E position	£0	
Net Present Value	**£0**	

Table 1: *Financial Benefits of EPMA over six years*

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As the business case highlights, there are significant productivity benefits which will be realised with EPMA, however, it is very difficult to calculate a cash figure for the increased amount of direct clinical care and the anticipated reduction in length of stay, pressure sores etc. that this will bring. The Chief Nurse has set nursing teams a target of increasing the percentage of direct clinical time provided to patients and EPMA, along with eNoting and eRoster will contribute to this. An EPMA system will also support and protect future CQUINS and Trust targets.

The approach to the productivity (non-cash releasing) benefits has been approved by the Chief Nurse, Deputy Medical Director and Chief Pharmacist for their contribution towards increasing the percentage of direct patient care time.

The original capital allocation for EPMA was £xxxx based on indicative costing, the final figure is xxx spread over two years. In discussion with the capital finance manager, the increase of xxxxx should not materially affect overall cash flows in the capital plan.

Table 2 below highlights the changes during the development of this business case and the changes are for the following reasons:

- The operating costs (revenue) have now been finalised. In the previous iterations a number of items were treated as capital which should have been revenue items, hence the change in the operating and capital costs below
- The capital requirement has been finalised and signed off, the reduction from OBC is due to the capital to revenue movements
- The savings (benefits) have increased as they now include the savings from blood products
- The 3.4 whole time equivalents shown below are for the IT support and have previously been included in the costings as bundled items. As part of the full and final costings these have now been translated into WTEs and signed off by the respective HR Business Partners

	SOC	OBC	FBC
Expected change in income p.a. when fully operational (£'000)	N/A	N/A	N/A
Expected change in operating costs (whole life – 6 years) (£'000)	X	X	
Expected change in savings (whole life – 6 years) (£'000)	X		
Expected total transitional costs (£'000)	X	X	X
Total GST capital investment incl VAT (£'000)	X		
Total capital investment incl VAT from other sources (£'000)	X	X	£0
Total risk/contingency budget incl VAT (£'000)	10%		
Estimated space required (m^2)	N/A	N/A	0
Expected change in WTE employed when fully operational	X	X	3.4 wte

Table 2: *Changes in financials since OBC*

ITPB, TME and IPB are asked to:

- ***Approve the preferred option presented in the Full Business Case and support progression to project initiation***
- ***IPB to approve the capital funding of £xxxxx***
- ***TME to approve the revenue budget spend of £xxxxxx (over 6 years) with benefits of £xxxxx***

2. Strategic case

It is widely accepted that prescribing and medicines administration should be done electronically. As far back as 2001, the Department of Health (DH) has recommended electronic prescribing as the method of choice for all hospital and community prescribing and administration of medicines[1]. Since then, GSTFT's Intensive and High Dependency Care areas and outpatient Cancer services have developed ePrescribing solutions but this leaves that vast majority of the hospital reliant on paper. Medicines are the most common clinical intervention and have increased in number and complexity. This demands increased knowledge and understanding from clinical staff and also leads to greater concern over the risk of errors and the harm they cause.

Medicines have been identified as a major preventable source of harm in healthcare in the UK. Competitors, such as Chelsea and Westminster, and other teaching Trusts, for example Leicester University Trust have either implemented or started the process of implementing EPMA. In preparing the business case a number of these Trusts were contacted for feedback about the solutions they have implemented, specifically those who have implemented MedChart. The responses were positive and their detailed feedback can be found in appendix five and were used as part of the options appraisal review. There are also a significant number of other Trusts for example, Nottingham University Hospital that are currently in the process of tendering for a solution.

The development of this FBC has come in response to the needs of the clinical teams who want to improve the safety and quality of the medicine management processes within the Trust. It is an integral part of the Trust's strategy to implement a comprehensive Electronic Patient Record (EPR), which also incorporates electronic prescribing and medicines administration. This business case develops a compelling argument on the grounds of safety, quality and productivity improvements, to implement an EPMA solution at GSTFT.

2.1 Strategic objective

The primary aim of EPMA is to remove paper based processes from prescribing and medicines administration across the hospital. In addition, an electronic system will improve our medicines management processes and enhance medicines optimisation. In reality, this will enable greater control over what is prescribed, how it is prescribed and how it is administered thereby, significantly improving patient safety and quality of care.

The Trust Board, at its meeting of 14th September 2011, agreed its core objectives for 2011-2012 as:

- to deliver highly productive, excellent and financially sustainable services and
- to progress key strategic clinical and academic service developments

An EPMA solution will aid these key objectives and furthermore, it fits in with the Trust's core values which aims to:

- Put patients first,
  - Giving priority to actions that will improve patient care and promote patient safety.
- Strive to be the best,
  - Namely constantly seeking to improve quality and efficiency.
  - Eradicating waste of resources, time and effort.

[1] "Spoonful of Sugar" Medicines Management in NHS hospitals (2001), The Audit Commission

An electronic drug chart can be used to prescribe and order non-medical products, such as Blood Products and devices. The EPMA solution will be configured to include this at no extra cost and will allow clinicians to prescribe and order directly blood products from the Pathology Laboratory. It is anticipated that this will help towards the tracking of these products to reduce the waste currently in this process. Using the EPMA system for blood products will realise further benefits and these have been included in this full business case.

There is clearly an imperative to align GSTFT and KCH systems under the auspices of the KHP umbrella. Indeed, the very first option reviewed by the team looking at EPMA options was to see if KCH's EPMA solution could be utilised at GSTFT as it was thought it could potentially save time and money on configuration and training. The detailed review of this option highlighted a number of key issues with this approach. Firstly, as there is not a shared patient record across the two organisations, it would not be possible to prescribe electronically across the two Trusts. Secondly, the vast majority of the development that has been undertaken at KCH would not be directly transferable to GSTFT due to the different ways in which drug dictionaries have been constructed. Furthermore, there would need to be validation, assurance and re-engineering of the software code for local GSTFT processes. Additionally KCH have built this in version 1.4 of iCM and GSTFT is aiming to upgrade to version 1.6 early in 2013 and the upgrade would necessitate further re-validation. The cost of undertaking this work within iCM merited other options being explored in more detail, hence the three options presented in the outline business case.

A further strategic driver is the recent publication of the Drugs and Medical Devices standard[2] whereby all systems that exchange or share information about medicines and devices must use standard identifiers. EPMA will enable this to happen and also assist with the transfer of information between the pharmacy stock system and the user, i.e. drug price information. In the meantime it may be possible to manually insert an indicative cost that will be displayed at point of prescribing for specific high cost medicines.

EPMA will be a key enabler of the Trust's strategy to implement a new EPR, delivering much of the EPR's medicine management requirements, business analysis and change readiness. The work will ultimately help inform the process for the procurement of a KHP-wide EPR solution. There will always be a cost associated with moving from a paper-based system to an electronic one. If EPMA is not taken forward now, it is only delaying the inevitable cost of change when the new EPR is rolled out.

The Trust is just starting the process of procuring the next EPR system for the hospital and possibly KHP, and there are some indicative timelines associated with this. Figure 1 below illustrates a realistic but theoretical timeframe for the development of a business case, the procurement, configuration and deployment of a new EPR system in the Trust. This timeframe is based on a 'like-for-like" change, i.e. replacing the current system with the same level of functionality as the Trust has now. As can be seen this is anticipated to be completed by the end of 2016 at the earliest. From 2017 the second phase would begin, which would involve incorporating specialist clinical systems, such as CIS, Diabeta3 and EPMA, but only if it offered greater functionality than that already provided.

[2] The Information Standards Board for Health and Social Care, NHS Dictionary of Medicines and devices (dm+d) (Gateway reference number: 17849) www.isb.nhs.uk/news-folder/dmd

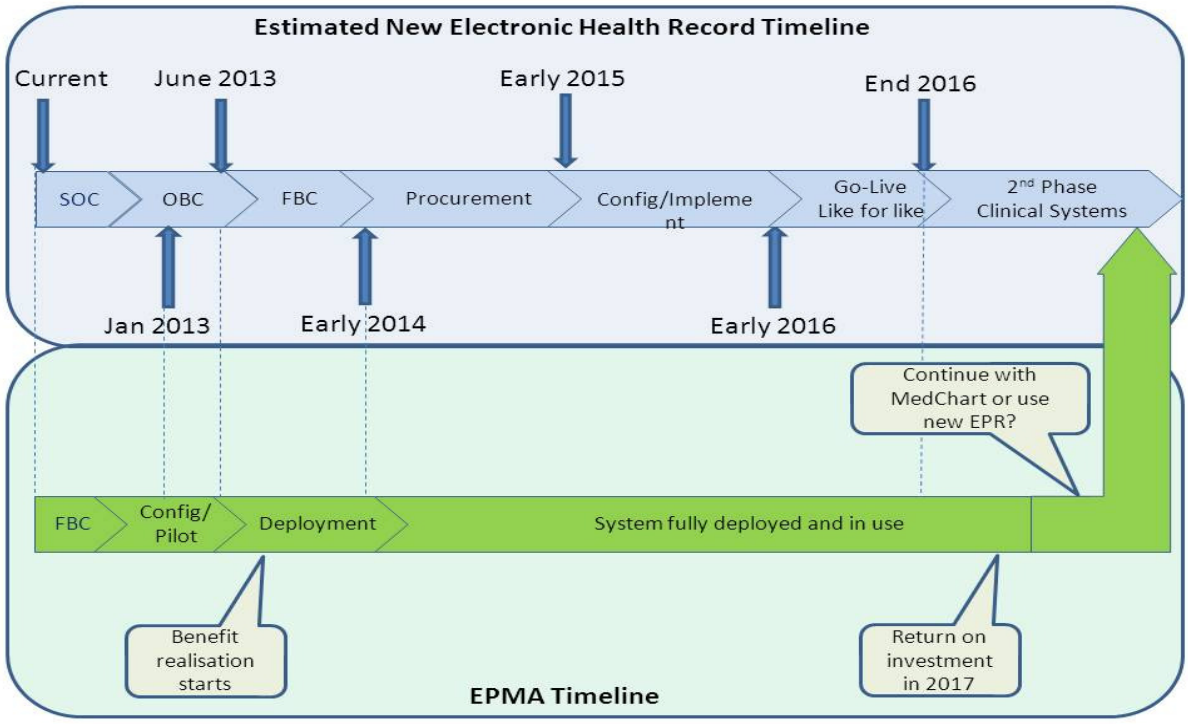

Figure 1: *Comparison timeframes for a new EPR and the proposed EPMA solution*

The financial modelling for the proposed EPMA solution shows that it will start generating benefits in 2013 and will make a full return on investment in 2017. This neatly dovetails into the timeframe for when a decision would need to be made to either continue with a separate EPMA or utilise the new EPR system. Once the EPR solutions and associated timeframes are clearer a decision will need to be taken as to when, if at all, the EPMA solution will be replaced.

2.2 Overview of current service

The systems employed at GSTFT and most Trusts for prescribing and administering medications are based on a model established in 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 a lot of 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 administration errors occur in 3.0%- 8.0% of non-intravenous doses and about 50% of all intravenous doses[3]

In addition our current paper-based system ensures that there is:

- High reliance on the physical transportation and locating of drug charts and medication orders
- Drug wastage
- Delayed discharges
- Disconnect between clinical professional groups

[3] 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

- Medical, nursing and Pharmacy staff waste, on average up to half an hour a day each locating misplaced drug charts
- In any month Pharmacy dispenses over 41,000 items. Typically each utilise around three items of paperwork, totalling 123,000 pieces of paper moving through the system each month which in turn leads to a high level of inefficiency and increased rate of error

The current process for inpatient prescribing, checking and dispensing is summarised in figure 2 overleaf. As can be seen it takes a considerable amount of time and manual processing which builds delays into the patient pathway and Medicines Management is one of the most common nursing clinical tasks – taking up approximately 40% of their clinical time[4].

Medicines are the most common clinical intervention, and errors in their prescribing, supply or administration can lead to significant harm, and re-admission of patients. It is therefore imperative that GSTFT moves to electronic prescribing and medicine administration.

There is a significant body of evidence at a local and national level illustrating the scale and scope of risks and incidents associated with the prescribing and administration of medicines GSTFT currently uses, many of which could be addressed with an EPMA solution. Those that remain will be primarily administration errors, where the nurse or doctor has chosen the wrong route of administration, or wrong dose. Table 3, which is taken from the National Patient Safety Agency (NPSA), provides an aggregated summary of incidents reported to them totalling over 72,000 in one year alone.

The latest "Organisation Patient Safety Incident Report", published in September 2012 by the NHS Commissioning Board Special Health Authority, collates incidents reported from the 1st October 2011 to 31st March 2012. This highlights that medication incidents account for 22.1% of all incidents reported and were the second highest category after patient accident, 23.1%, within the Trust. This is 9.9% higher than other Teaching Trusts.

The most common types of medication incidents reported to the NPSA were wrong dose, strength or frequency; omitted medicine; and wrong medicine. Together these accounted for over half (57.3%) of all medication incidences reported. An EPMA solution could mitigate against many of these types of incidents.

[4] (Pentin J & Smith J (2006) 'Drug Administration

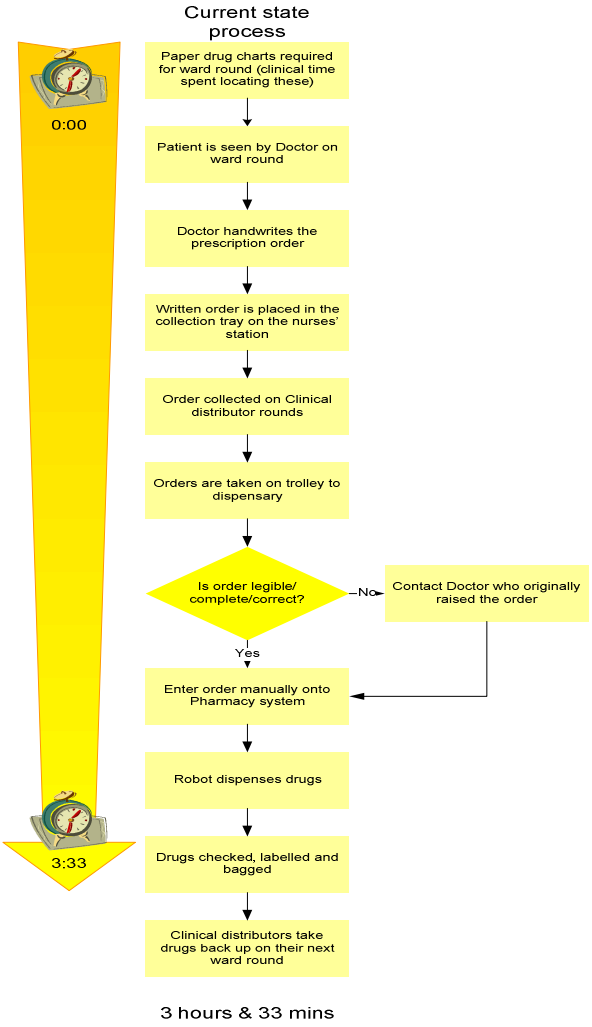

Figure 2: *Summarised process of current inpatient prescribing at GSTFT*

Medication incidents that report death and severe harm by stage of medication process, 2007

Stage	Death	Severe harm	Total
Prescribing	12	20	32
Preparation/ dispensing	5	11	16
Administration	17	29	46
Monitoring	3	3	6
Total	**37**	**63**	**100**

Types of medication incident that report death and severe harm, 2007

Incident type	Death	Severe harm	Total
Unclear/ wrong dose or frequency	17	16	33
Wrong medicine	7	13	20
Omitted/delayed medicines	6	12	18
Contraindicated medicine	3	8	11
Adverse drug reaction	1	7	8
Allergy to medicine	1	4	5
Wrong route	1	1	2
Mismatching patients	1	2	3
Total	**37**	**63**	**100**

Medication incidents by incident type, 2007

Medication error category	Incidents	Percentage
Wrong/unclear dose, strength or frequency	17,000	23
Omitted medicine/ingredient	9,658	13
Wrong drug/medicine	6,927	10
Wrong quantity	3,674	5
Mismatching between patient and medicine	2,871	4
Wrong/transposed/omitted medicine label	1,874	3
Unknown	1,783	2
Wrong/omitted/passed expiry date	1,680	2
Wrong formulation	1,656	2
Patient allergic to treatment	1,562	2
Wrong storage	1,256	2
Wrong method of preparation/ supply	1,223	2
Wrong route	1,133	2
Contraindication to the use of the medicine in relation to drugs or conditions	917	1
Adverse drug reaction (when used as intended)	815	1
All other medication incident types	18,453	25
Total	**72,482**	**100**

Table 3*: NPSA Safety in Doses (2009)*

The figures represented in table 3 illustrate the scale and scope of the problems that occur with paper prescriptions in the UK and are considered representative of the current state within GSTFT.

2.3 Market share and competitor analysis

EPMA is an internal change to improve safety and clinical quality which will also have operational efficiency and financial benefits. In terms of market share, it will currently not impact on this, however if the local strategic direction in the future is to facilitate the sharing of patient and in particular medication information across the two sectors via a web portal, MedChart, the preferred option, has the technical capability to import or export medication related information.

Many Trusts across the country are in the process of moving towards standalone electronic prescribing or combined EPMA solutions so it is not envisaged EPMA will give GSTFT a significant market advantage. The positive contribution EPMA will make to GSTFT's safety and quality agenda should improve our reputation and potentially increase GP referrals.

2.4 Case for investment

The case for investing in an EPMA solution focuses on three inter-related factors:

- **Patient Safety:** no more illegible, ambiguous or incomplete 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; real-time view of medicines administration
- **Quality and Clinical Governance:** ability to monitor and evaluate key performance indicators; total visibility of clinical decisions and outcomes
- **Operational Productivity:** improved communication of real-time information between prescribers, pharmacy and nursing; paper less; streamlined operational and clinical processes; more effective control and management of drug expenditure

The following case for investment deals with each of these three factors in turn and draws upon a wealth of information, research and evidence. Table 4 below summarises the key investment objectives that EPMA aims to meet and the business need that it addresses.

	Investment objective	Existing arrangements	Business needs
Patient Safety			
1.	Improve the legibility of prescriptions	Hand-written prescriptions	Ability to improve the legibility of prescriptions and reduce the potential interpretation errors in Secondary, Primary Care and Community.
2.	Reduce the number of prescribing errors, drug form or strength, frequency	Reliant on individual Clinicians' knowledge of drug, forms strength and frequency and interventions by the pharmacy team	Ability to reduce the number of prescribing errors due to inappropriate drug, form, strength or frequency by utilising pre-filled service specific drug order sets
3.	Reduce the variation in the quality of prescribing	Junior Doctors are reliant on 'inherited' knowledge for disease specific medicines, and drug interactions	Ability to reduce the variation in prescribing by utilising protocols, decision support and rules based prescribing and reporting

	Investment objective	Existing arrangements	Business needs
4.	Improve medicines optimisation and reduce drug expenditure	Hand-written prescriptions may it difficult to restrict prescribing and supply of restricted, or non-formulary items. Anti-microbial Stewardship program is paper-based and labour intensive	Ability to monitor in real time the prescribing of restricted or non-formulary medicines. Ability to generate reports or alerts for prescribing of antibiotics to generate review by the specialist anti-microbial team
Quality & Clinical Governance			
5	Improve and automate the clinical audit processes	Clinical audits are paper based manual exercises that are resource intensive	Ability to improve the clinical audit data collection processes for research and development
Operational Productivity			
6.	Improve the information flow of out-patient medications to the GPs	Reliant on the patient transferring a copy of the out-patient prescription to the GP, or prescribers recording all information in the clinic letter	Ability to transfer information about prescriptions processed by the Trust or requests to GPs to prescribe safely and efficiently via an electronic transmission.
7.	Ensure visibility of medication orders history in an integrated EPR.	'Pink' copy of the out-patient prescription or in-patient chart is not always filed in the blue notes, so visibility of historical medication orders is limited.	Ability to allow all EPR (EPMA solution will be launched in either EPR or the clinical desktop) users to electronically review historical information about medication orders remotely.
8.	Improve the flow of medication information throughout the patient pathway	Reliant on information being requested from the patient and recorded in more than one location	Ability to access the medication information in one location reducing the need to repeat information, and remove waste from the process
9.	Improve the transfer of discharge information to decrease the delays to patient discharge	Reliant on discharge information being manually transferred to the dispensary teams	Ability to electronically transfer discharge prescriptions to the dispensaries and decrease the discharge time
10.	Improve the transfer of out-patient prescription information to reduce the length of wait for patients collecting their medication from the dispensaries	Reliant on manual transfer of paper out-patient prescriptions to the dispensaries by either the patient or their representative	Ability to improve information flow of out-patient prescriptions to the dispensaries and decrease the waiting time for the patients

Table 4: *Summary of Investment Objectives that EPMA aims to meet*

The vision is to ensure the Trust is EPMA enabled. This vision will deliver the objectives displayed in figure 3 below.

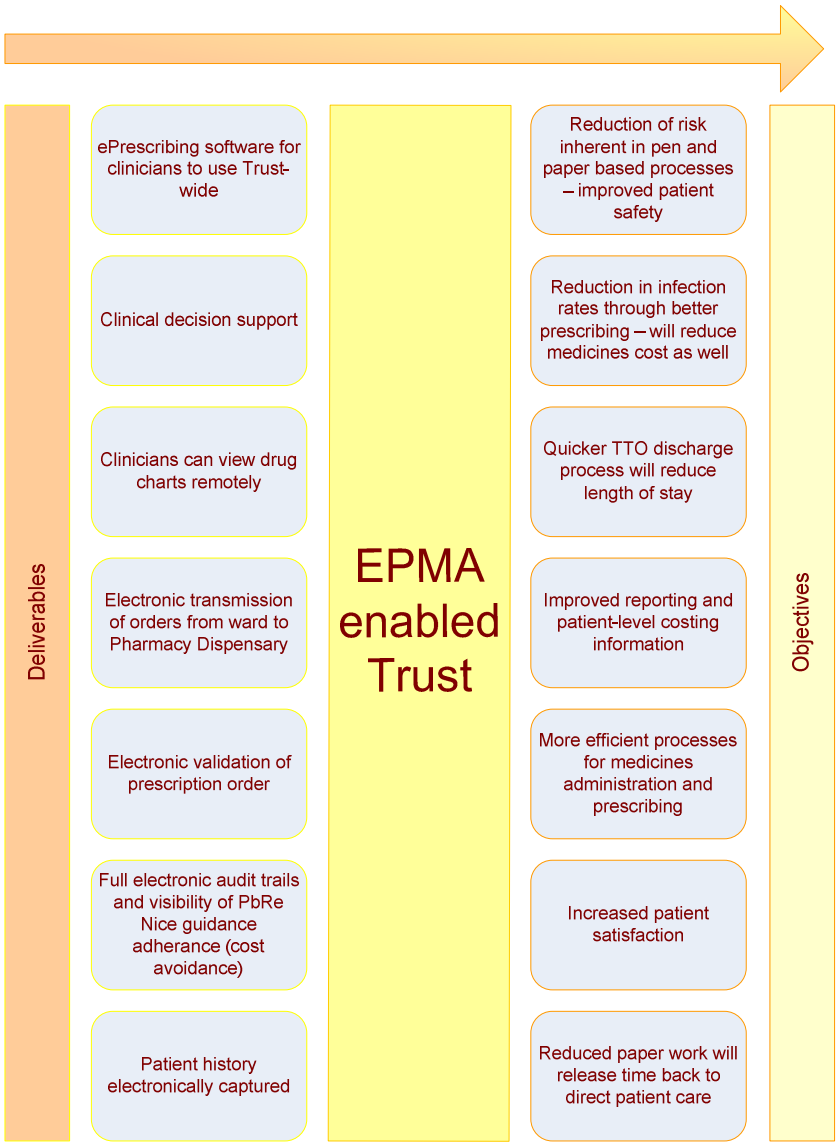

Figure 3: *High Level Summary of EPMA Deliverables and Objectives*

Factor 1 Patient Safety

It is widely accepted that the mismanagement of medicines can have a significant negative impact on patient care and service efficiency in areas such as avoidable health complications, lengthened stays of care in hospital, bottlenecks in processes such as discharge, higher rates of re-admittance and excessive expenditure.

The Risk Management team at GSTFT reviewed all drug related incidents in the Trust between April 2011 and March 2012, and split these into either prescribing or administration errors. These were then reviewed to see if EPMA would reduce these; the results can be seen in tables 5 and 6 below.

As the tables show, of the 1566 adverse drug related that occurred during 2011-12, 968 (61.8%) could be positively influenced by EPMA.

MEDICATION INCIDENTS - DETAIL PRESCRIBING BY ADVERSE EVENT APR 11 - MAR 12	NO.	INFLUENCED BY EPMA
Medication prescribed to which p. had a known allergy	85	y
Wrong quantity	4	
Contra-indication to the use of the medication	22	
Dose or strength was wrong or unclear	105	y
Formulation of medication was wrong	6	y
Frequency for prescribing medication was wrong	29	y
Mismatch between patient and medicine	5	
Never Event - Opioid overdose of an opioid-naive patient	1	
Medicine not prescribed	65	y
Other medication incident	1	
Prescribing - Delay	17	y
Prescribing incorrect or incomplete	152	y
Wrong route for administration of medication	5	
Wrong method of preparation or supply	2	y
Transcription Error	3	y
Wrong drug / medicine	23	
Totals:	**525**	**464 (88%)**

Table 5: *Prescribing Errors at GSTFT that EPMA aims to address*

MEDICATION ADMINISTRATION INCIDENTS BY ADVERSE EVENT APR 11 - MAR 12	NO.	INFLUENCED BY EPMA
Medicine not administered	235	y
Wrong dose of medication administered to patient	127	
Frequency of administering medicine wrong	91	
Wrong drug / medicine	86	
Medicine prescribed but not administered	78	y
Rate of infusion incorrect	76	y
Medication given but not signed for	69	y
Wrong route for administration of medication	37	
Medication incorrectly stored	36	
Self Administration of medication error	27	
Expiry date wrong, omitted or passed	25	
Wrong method of preparation or supply	21	
Formulation of medication was wrong	19	
Medication administration delayed	17	y
Medication administered without completed prescription	16	y
Mismatch between patient and medicine	15	
Labelling Error	13	
Discontinued medication administered	13	y
Adverse reaction when drug used as intended	11	
Others adverse events removed -	29	
Totals:	**1041**	**504 (48%)**

Table 6: *Medication Administration errors at GSTFT that EPMA aims to address*

The increase to the anti-microbial stewardship programme facilitated by the EPMA solution will have a positive impact on patient safety and outcomes, whilst saving the Trust money on drug expenditure. This will also have a positive impact on the releasing time to care objectives as nurses will save time on medicine administration as there will be a reduction in the number of patients requiring IV antibiotics.

Factor 2 – Quality and Clinical Governance

The Trust is seeking to improve the patient experience for both inpatients and outpatients and also, their interaction with the provision of their medications. Furthermore, it is proposed that this solution will help improve the information flows across the secondary care, primary care and community interface, as well as assisting General Practitioner colleagues in their medication management of their patients with an improvement to the flow of medication information in an electronic format.

As the most common clinical intervention, medicines feature in a very large number of the quality and safety targets that all Trusts have to meet. It is envisaged that EPMA will support these through forced data entry and data interrogation. There is an extensive list of targets and the full details of each can be found in appendix one. The list below provides a brief summary to illustrate the breadth of targets that EPMA will positively impact upon.

- **NPSA Alerts** – "reducing harm from omitted and delayed medicines"
- **Never Events** – contribute towards 11 of the 25 Never Events
- **NICE Guidance and Audit** – adherence to NICE guidance on specific drugs, audits and Medicines Reconciliation Guidance.
- **CQUINS** – medicines feature in nearly all CQUINS targets
- **Contractual** – Quality and Performance Schedule 2012-13 – Medicines Management Monitoring Framework – all targets
- **Patient Experience –** information about medicines
- **Internal KPIs,** a number of the Safe in Our Hands objectives
- **Antimicrobial Stewardship Monitoring** - all five targets

Factor 3 – Operational Productivity

There are a range of cash releasing and productivity benefits that will be delivered by implementing EPMA, which will also enable the Trust to move towards an e-Noting environment. This includes the removal of the in-patient chart and out-patient and discharge paper prescription. This has significant productivity improvements. EPMA and e-Noting are standalone projects in their own rights and neither is co-dependent on the other. EPMA productivity gains will take place if e-Noting were to be delayed for any reason.

A detailed process mapping exercise of the current medicines management processes in General Medicine and Women's Services, (which include Gynaecology surgery and maternity, and are representative of medical or surgical wards in the Trust), has shown that our processes are very labour intensive, prone to error with much replication and "waste" in the system. This waste has been categorised by the different clinical staff groups, and the potential time that could be saved by stream-lining the processes discussed with the relevant Senior Clinical teams. After working in collaboration with the Releasing Time to Care (RTTC) and e-noting teams it is anticipated that this time will be used to improve direct patient care metrics, this will be calculated at individual ward level, more detail can found in table 17, section 5.2 of this business case.

One shared aim of the three e- projects; e-Rostering, e-Noting and e-prescribing is contribute to the overall target of nursing time being released back to frontline clinical care. This approach has been supported by the Chief Nurse.

Figure 4 highlights the difference between the known current state and the anticipated future state following implementation of EPMA. The various steps in the pathway below happen in differing frequencies and have been included in more detail in the benefits register found in appendix two.

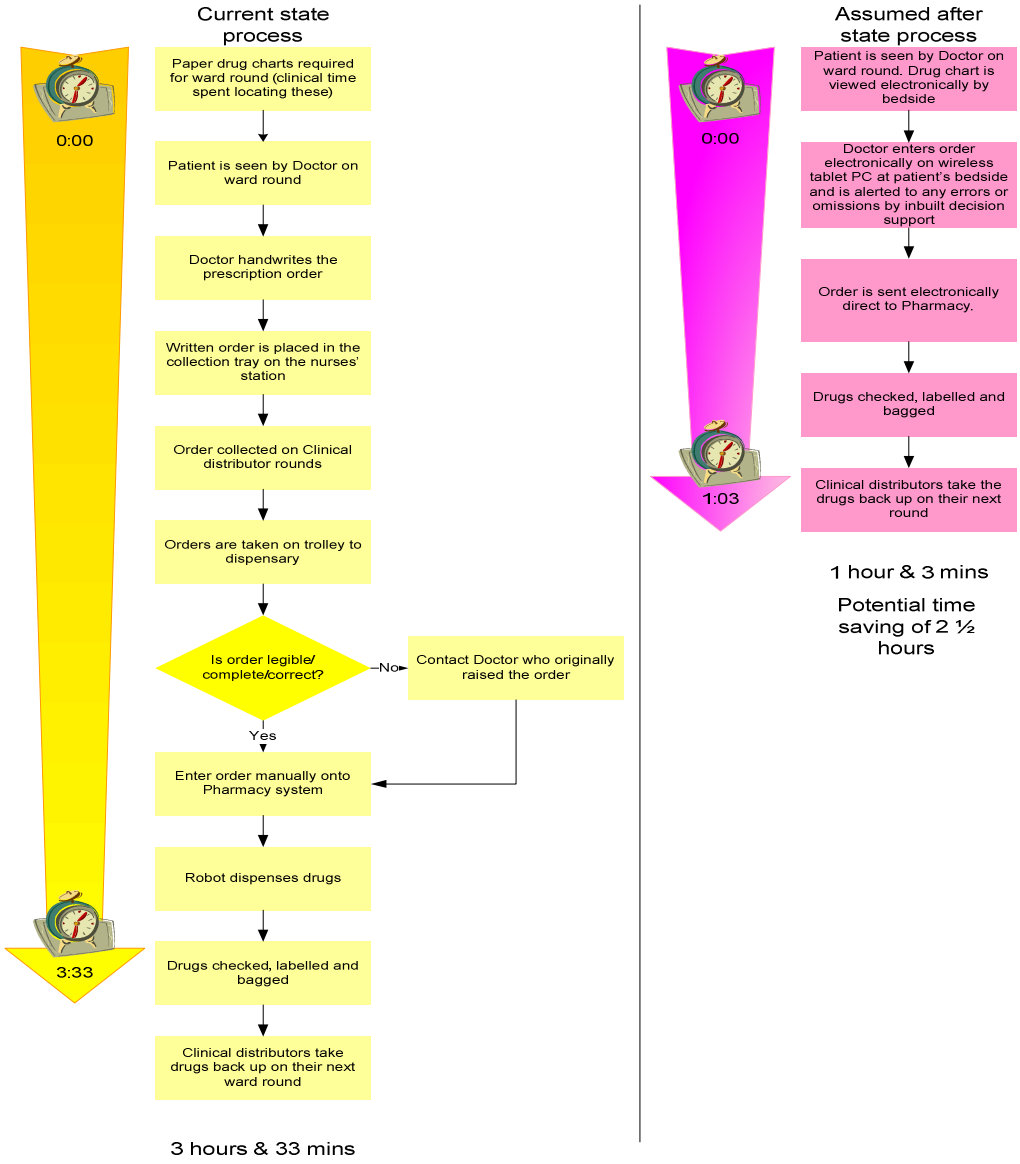

Figure 4: *Current and Future state process and timings for prescribing and medicines administration*

The summary above is underpinned by detailed process maps and known issues with the current prescribing processes and how it is anticipated that EPMA will address them. The detailed range of known issues and potential future processes can be found in appendix two. The diagram assumes that waste will be removed in either the prescribing process, or in the processing time delays that are inherent in a manual system.

2.4.1 Alignment with Clinical Academic Group (CAG)

All members of the CAG agree and support the use of EPMA which will constitute a step-change in the Trusts' ability to collect and share medication information. However, until there is a single, integrated electronic patient record across the partner organisations of KHP it is not possible to have a shared EPMA.

2.4.2 Alignment with Community

Engagement with the Community services has been undertaken, including site visits to map medicine management processes, as well as understanding end user technology requirements in the three community wards. These are therefore in scope to have the

EPMA solution, however this deployment is dependent on the wider IT integration strategy within community services, and until this is resolved the community wards will not be reflected on the deployment plan.

2.5 Benefits

The benefits for EPMA are broad and diverse, falling across the three factors of patient safety, quality and governance and operational productivity. A full benefits assessment has been undertaken but it is helpful to initially visualise how EPMA will positively impact each of the key stakeholder groups affected, see figure 5 below.

Figure 5: *Benefits of EPMA by stakeholder group*

As can be seen in figure 5 above, all stakeholders would benefit considerably from an EPMA system and these benefits have been reviewed by a multi-disciplinary team at formal working groups to analyse their impact in terms of the three factors of patient safety, quality and governance, and operational productivity. These benefits have been reviewed and approved by the EPMA project board.

After extensive discussion and consultation it has been agreed that the benefits be categorised in four different ways. These are:

1. Direct cash releasing , where EPMA is either directly responsible for this cash saving, or will be in-directly responsible, or act as an enabler to achieve the savings
2. Non-direct cash releasing
3. Enabler to support or protect existing or future income opportunities
4. Enabler to support improvements in patient safety or experience

1. Direct cash releasing, where EPMA is either directly responsible for this cash saving, or will be in-directly responsible, or act as an enabler to achieve the savings. These are described in table 7 below with the amounts showing full year effect of each benefit.

Benefit Description	Current state	Primary Outcome/ Impact	Cash Releasing
Reduction in stationary cost	There is a reliance on paper based processes for prescribing, administration and ordering and supply of medicines, which requires paper in-patient prescription charts, out-patient prescriptions to be purchased by each Directorate	Savings on stationary costs would be generated by negating the need to order in-patient charts and out-patient prescriptions. As well as a reduction in paper and printer cartridges in Pharmacy, as transcription sheets will not be required.	£ 30,000
Reduction in medicine management processes that create waste and loss of inventory	There is a reliance on paper based processes which make it hard to track prescribing, supply and administration of medicines	Reduction in wasted medication due to increased visibility of prescribing and administration. It will help facilitate the following: a reduction in duplicate prescriptions; reduction in redundancy of medications (expired drugs); reduction in Pharmacy inventory as it assists with supplying forecastable data on usage, which will be essential if the Trust moves towards a 'ward order assembly' supply system; and reduction in misappropriation of medicines (theft)	£ 50,000
Less inappropriate prescriptions for restricted drugs (e.g. a formulary drug being used in an unapproved indication)	All drugs can be prescribed by anyone with a paper based system	Improved medicine optimisation processes, reduces drug costs, better supports prescribing, supply and administration of medicines, thus improve patient care and governance processes	£ 50,000
Increase in the antimicrobial stewardship programme to target a reduction in the annual antifungal expenditure The majority of these savings will be for the PCT's however, a percentage of the savings will be to GSTFT and are therefore included	Reliant on paper-based audit processes that are labour intensive and retrospective data capture, not 'real-time'	Reduced costs, improved patient outcomes, medicines optimisation	£ 200,000
Facilitated IV to PO switch for antibacterial, reducing the cost of the annual antibacterial expenditure	Reliant on paper-based audit processes that are labour intensive and retrospective data capture, not 'real-time'	Reduced costs, improved patient outcomes, medicines optimisation	£ 140,000 (drugs and equipment costs)

Increase in the antimicrobial stewardship programme to target a reduction in the annual antibacterial expenditure	Reliant on paper-based audit processes that are labour intensive and retrospective data capture, not 'real-time'	Reduced costs, improved patient outcomes, medicines optimisation	£75,000
Incorporating the blood products on the electronic chart	Reliant on paper-based processes for ordering, and auditing of supply and administration, leads to variation in prescribing, and waste of blood products	Reduced costs, and reduction in wasted products.	£200,000
TOTAL			**£745,000**

Table 7*: Direct Cash Releasing Benefits*

In the OBC all of the benefits were included in the financial appraisal, but as stated above, only those benefits that are directly cash releasing and can be tracked to budgets have been included in the financial appraisal for the full business case. The benefits presented in the OBC amounted to £700k annually, of this only £30k was directly cash releasing and all of the benefits detailed above in table 7 have been identified and included subsequently. The £690k of non-cash releasing benefits are not included in the financial appraisal for the FBC but are shown in tables 8 and 9 for information as they contribute to the overall productivity improvements that EPMA will bring.

2. Non-direct cash releasing

these are described in table 8 below. The savings in table 8. below represent the volume of time it is anticipated the EPMA solution will save for the three main clinical groups. It has been represented as a cash figure, and it is assumed that the services will want to use this time to improve key performance targets that either have an income directly attributed to it, or will avoid a fine if not achieved.

Benefit Description	Current state	Primary Outcome/ Impact	Non –Direct Cash Releasing
Legible & complete orders	Potentially illegible or incomplete orders	Better supports prescribing, supply and administration of medicines, thus improve patient care	£ 2,500
Electronic Prescription is widely accessible	Single, paper record	Better supports prescribing, supply and administration of medicines, thus improve patient care	£ 267,032
Electronic chart or prescription cannot run out of space	Finite space on paper chart, means frequent re-writes and additional charts	Better supports prescribing, supply and administration of medicines, thus improve patient care	£ 66,500
Process efficiency & communication	Actions are dependent on an individual knowing it needs to be done	Better supports prescribing, supply and administration of medicines, thus improve patient care	£ 340,317
Reduction in the number of antibiotic IV's to be administered due to a facilitated switch from IV to oral,	Paper based prescribing make it difficult to identify and follow up on patients prescribed IV antibiotics	Supports the time available for direct patient care, as nurses time freed up by the reduction in the number of IV antibiotic doses required to be administered	£ 86,412

freeing up nursing time			
TOTAL			**£762,759**

Table 8: *Summary of EPMA Non-Direct Cash Releasing Benefits*

3. Enabler to support or protect existing or future income opportunities, EPMA will facilitate data collection in 'real-time' at the point of prescribing, which other Trusts have demonstrated has led to 100% compliance with for example VTE assessment and prevention, these are described in table 9 overleaf.

Benefit Description	Current state	Primary Outcome/ Impact	Enabler to support/protect Income generation
CQUINs VTE prevention	Paper based information gathering	The VTE assessment form could be part of the prescribing process ensuring 100% compliance	Yes
CQUINs Dementia	Paper based information gathering	The dementia assessment form could be part of the prescribing process ensuring 100% compliance	Yes
CQUINs End of life care	Paper based information gathering	Design and implement order sets for prescribing appropriate medicines, and also providing better transfer of information of in-patient medicines received and intended plan for discharge on the EDL	Yes
CQUINs Alcohol brief intervention	Paper based information gathering	Order set of drug management for alcohol withdrawal and referral, can prompt a brief intervention form at the point of prescribing	Yes
CQUINs COPD	Paper based information gathering	Can add in a form at the point of prescribing or validation that oxygen or inhaler technique ahs been checked	Yes
Data requirements for PbR excluded drugs will be in 'real-time' and more accurate. Which will ensure that errors are highlighted and resolved earlier, and that there is an increased assurance that both data being supplied to the PCT is accurate and that Trust Policies and procedures are being adhered to.	Paper based information gathering	The automation of data collection will remove the need for clinical Pharmacists to be involved in this part of the process, and support the minimum data set requirements by supplying the indication as per NICE guidance at the point of prescribing	Yes

Table 9: Summary of benefits that enabler or supports income protection

Table 9 highlights the benefits where EPMA will be an enabler to collect data to demonstrate compliance with either a CQUIN or NICE prescribing recommendations. As the project

transfers to Business as Usual, the revenue costs for the Pharmacy e-prescribing team will be off-set by the savings for QIPP and CQUIN targets or a separate business case will need to be developed for the on-going revenue requirements.

4. Enabler to support improvements in patient safety or experience. These may also help achieve or protect current or future income; these are described in table 10 overleaf:

Benefit Description	Current state	Primary Outcome/ Impact	Safety/patient experience
Robust audit trail	Paper based information gathering	Better supports prescribing, supply and administration of medicines, thus improve patient care and governance processes	Yes
Knowledge support	Prescribing and administration are physically separate to the info sources	Better supports prescribing, supply and administration of medicines, thus improve patient care and governance processes; reduce the number of prescribing and medication related errors which will have a positive impact on length of stay; reduction in negligence claims	Yes
Decision support	Prescribing is not integrated with other patient data	Better supports prescribing, supply and administration of medicines, thus improve patient care and governance processes, reduce the number of prescribing errors and adverse drug reactions, which will have a positive impact on length of stay, reduction in negligence claims	Yes
Communication/patient allocation tool	Patient allocation is on wipe boards	Better supports prescribing, supply and administration of medicines, thus improve patient care and governance processes	Yes
Reduce the number of missed doses of medication NPSA/210/RRR009	Reliance on manual audits to obtain data, inability to alert the senior team if doses are either late or missed	The capability to alert and report on the missed doses will ensure compliance with DH requirements	Yes
Standardised prescribing against pre-defined protocols and 'quick lists/order sets' reducing variation in prescribing habits	Variation in both quality of prescribing, and products chosen which leads to errors and time spent verifying prescriptions	Remove the variation in the prescribing, which will help reduce the number of reported medication errors. Improve the speed of prescribing , and subsequent validation by the Pharmacy team , impact on the length of stay; reduction in negligence claims	Yes

Table 10: Summary of benefits that impact on patient safety or experience

The majority of the benefits will aid and improve patient safety and experience, the table above highlights additional benefits which may not have a monetary value but is important in achieving one of the Trust's primary objectives to improve patient safety.

The benefits have been discussed with the senior clinical leadership involved in prescribing or medicine administration, Pharmacy, Nursing and Doctors, and owners assigned, time-

frames for realisation and also where available benchmark data identified and a measure agreed to demonstrate the achievement of the benefits. The detail is collated in the Benefits Realisation Plan, which is found in Appendix 3.

The Governance and accountability for the benefits will be the responsibility of the Project Board throughout the life of the project, and thereafter it will transfer to the management structures within each service. All the benefits have owners have agreed the benefits as has the project board.

3. Economic case

3.1 Options considered

As stated previously, in developing the SOC and OBC a range of options were reviewed and a preferred option recommended. The decision now is whether to proceed with EPMA or not and therefore the decision is either to do nothing or to proceed with the preferred EPMA solution. Although the chosen solution is marginally more expensive (£300k) than the iCM option considered at the OBC stage, the benefits that MedChart offer more than outweigh the marginally higher cost. In the view of the project team, the preferred solution represents best value for money.

Option 0 – Do Nothing

Description – This option would be to remain with the current paper based prescribing and administration of medicines at ward level, and in out-patients. This would require the Trust to wait until a new EPR is implemented in 2015/6 (approximately) with an anticipated roll-out of an EPMA solution in 2017 (approximately).

Advantages: – The main advantage of doing nothing is the opportunity cost of the capital required to implement EPMA and the saved revenue costs.

Disadvantages: – If there is no move to an EPMA system the following key disadvantages could occur:

- The safety, quality and productivity benefits of an EPMA system are not achieved
- Without an EPMA system on the wards there is an associated risk to working with two different systems, clinical notation and paper prescriptions
- When the e-Noting project proceeds, the ‘blue medical notes’ will be removed and all clinical notation will occur in the ‘desktop’. This will mean the management of medications is the only remaining clinical process that remains on the ward as paper-bound.
- Continued reliance on labour intensive administration processes for the collation of Payment by Result excluded drugs minimum data sets, and there is a risk this information may not be accurate and result in non-payment by the Business Support Units.
- There will be a residual need to ensure the in-patient charts are scanned and up-loaded in to the Electronic Patient Record, this cost has been accounted for in the e-Noting business case.

Option 1 - Uplift the existing CSC contract to include Medchart

Description – Uplift the current contract with CSC to include Medchart, a specialist EPMA Software solution

Advantages:–

- During scripted demonstration, hands-on events and options appraisal, Medchart was the preferred software
- Complete specialist prescribing and medicines administration package which will require minimal resource to configure and maintain
- Inbuilt business continuity functionality
- Currently implemented in five UK Trusts– one of equal complexity and scope as GSTFT. User feedback from exisiting sites was used as part of the options appraisal process and can be found in appendix 5.
- Has greatest functionality of all options considered to date
- Has a 'user friendly' drug chart view screen
- Has extensive, and well developed training tools, which include an e-learning package
- Has decision support, supplied by First Data Bank
- Has a rules engine which will provide extensive and user friendly reports
- Has enhancements in future updates which will provide a robust solution for prescribing and administering complex infusions
- Configuration costs (as seen in other UK deployment sites) is minimal due to the speed of configuration
- Excellent support from the provider's dedicated business support unit, pre and post implementation, (as seen in other UK deployments)
- More future-proofed as software configured on a more modern technical platform for delivery
- Comprehensive reporting and dashboard tools, which can be queried as per users' needs in individual specialties
- Ability to integrate with existing PAS and EPR – single log-in potential

Disadvantages:-

- An additional system that staff would need to be trained on
- Not consistent with KCH EPMA deployment
- Cost for procurement of the Software and service contract over a 6 year life-time
- Disruption to the service provision
- Training costs to deliver the solution
- Change fatigue, a number of electronic systems are being deployed within similar timeframes

3.2 Constraints

The key constraints associated with EPMA are financial and IT related with timescale to deliver the return on investment being the third. There are a number of high-level constraints listed in table 11 below.

It is important to note that considerable work has been undertaken to ensure that the EPMA, eRostering and eNoting projects will be complementary to one another and minimise the impact of change for staff. Where possible, shared training facilities will be used and implementation/roll out plans has been crosschecked with one another. While this is not a specific constraint to the EPMA project, the overall impact of all three projects needs to be managed and mitigated against as far as possible.

Constraint	Option 0	Option 1
Benefit Realisation of EPMA	✖	✓
Ability to replicate drug charts	✓	✓
Cost	✖	✓
Training	✖	✓
Workforce & deployment teams	✖	✓
e-Noting roll-out plan	✖	✓
Change fatigue	✖	✓
IT Strategy – delay in upgrade	✖	✓

Table 11: *High Level Constraints*

3.3 Benefit evaluation

There are two options presented in this full business case and of these have been developed in partnership with the clinical teams. Each benefit has an assigned owner and a benefits realisation profile has been developed. All of the benefits were subjected to a rigorous and iterative options appraisal against the two systems considered at OBC. This process consisted of a number of steps, these were:

- Initial review and technical assessment by Pharmacy, Transformation and IT to ensure meets basic benefit criteria
- Stakeholder engagement to compare the two systems heuristically
- Detailed scripted demonstrations of both systems, evaluated by internal stakeholders
- Detailed feedback from Trusts who have deployed these systems
- Whole life costing model developed by IT
- Detailed technical assessment by IT

During each stage of the process there has been involvement by representatives of all relevant internal stakeholder and user groups.

The final options appraisal pulled together all of the constituent parts for the two options considered in the outline business case. Table 12 below only includes the information for MedChart but also iCM for comparison. The detailed weighted options appraisal matrix can be found in appendix four along with the options appraisal pack in appendix five that was used to score each system. The team that conducted the options appraisal consisted of a range of staff from the following internal stakeholders:

- Medical (Adults and Paediatrics)
- Nursing
- Pharmacy
- Dietetics
- IT
- Transformation

Benefit	Weight	iCM		MedChart	
	W	S	WS	S	WS
Clinical functionality	4.1	1181.0	4842.1	1611.0	6605.1
System administration	4.0	846.0	3384	1270.0	5080
Systems integration	3.1	1542.0	4780.2	1671.0	5180.1
Track record	4.5	741.0	3334.5	904.5	4070.25
Implementation	4.3	1360.0	5848	1676.5	7208.95
Business and strategic fit	4.0	756.5	3026	824.5	3298
Affordability	4.5	428.0	1926	475.0	2137.5
User experience	4.8	715.0	3432	1000.0	4800
Future developments	4.0	250.0	1000	378.0	1512
Total		**7819.5**	**31572.8**	**9810.5**	**39891.9**
Rank		**2**		**1**	

Table 12: *Summary Benefit Appraisal*

3.4 Risk scoring

As part of the options appraisal process EPMA specific benefits and risks were assessed as part of the scripted demonstrations, whereby each solution had to demonstrate how they would achieve the benefit or off set the risk. See appendices four and five for the detailed content of these sessions. Table 13 details the overall risks and its impact upon the options.

Risk	Impact	Option 0 – Nothing		Option 1 - MedChart	
	I	P	**RS**	P	**RS**
Failure of IT to deliver Infrastructure strategy	5	0	**5**	4	**20**
Project Delays	3	0	**3**	2	**6**
Scope Creep	3	0	**3**	2	**6**
Does not address safety issues	4	4	**16**	3	**12**
Lack of Capital Funding	4	0	**4**	4	**16**
TOTALS			**31**		**60**

Table 13: *Risk Scoring*

3.5 Economic appraisal

The economic appraisal below details the finalised whole life IT cost model, project and implementation costs alongside the anticipated financial benefits of EPMA. These costs have only been finalised for the chosen option, however, the comparison costs for iCM option considered in the outline business case have been reviewed and the iCM solution total cost was £300,000 less, and it was felt that this could be the Trust's fall-back position if the contract with the preferred solution either did not progress or failed to meet expectations.

As mentioned in section 2.5 there are a range of benefits associated with EPMA, some are directly cash releasing whilst others will free clinical staff up to provide direct clinical care. There are two economic appraisals detailed below with table 14 showing all costs but only those benefits which will directly release cash and table 15 showing all costs and all benefits for information. Table 15 overleaf is provided to illustrate the scale of the productivity improvements that EPMA will bring but as posts will not be removed, it should be seen as proxy for the potential productivity improvements.

The full IT costs can be found in appendix 6 and the full benefits realisation plan in appendix 3. The costs of integration with other hospital systems are also included for each option. The IT costs have been reviewed and approved by the IT Senior Management Team.

Table 14: *Financial Summary for Option 1 (MedChart) with Cash Releasing Benefits only*

Table 15: *Financial Summary for Option 1 (MedChart) with All Benefits*

Since the outline business case was approved a number of the IT hardware elements have changed. It had originally been discussed that the Better Basics business case would address the additional requirement for end user technology on the wards, but this is now not the case. A detailed piece of analysis has looked at the concurrency of usage for devices on the wards between eNoting and EPMA, this found a shortfall in end user devices in some areas and the cost of this has now been included in the EPMA business case. This figure is £xxxx and roughly equates to the increase over the original prediction of £xxxm capital requirement.

When the OBC was presented the possibility of using this system for "prescribing" blood products was raised. This has now been reviewed and cash benefits have been identified at £200k per annum in benefits profile and financial appraisal.

The costs also include a 10% contingency budget to allow for optimism bias, slippage and to address risks.

The financial analysis has been undertaken by the Senior Finance Manager for Pharmacy and has been reviewed by the Financial Planning Manager.

3.6 Summary of options evaluation

Although this Full Business Case does not consider options other than the chosen solution, it is useful to understand the process that was gone through in getting to this choice. In developing the outline business case a robust and thorough options appraisal was undertaken comparing benefits, costs, risk, speed and ease of implementation. This involved a detailed technical appraisal of both systems by IT, a number of site visits and feedback from Trusts using both systems. In addition, a two day engagement event with clinical staff to review both systems and detailed demonstrations of the systems' functionality to around 50 staff was carried out. All of this information was collated and presented to key stakeholders and marked against a detailed criteria list.

The options appraisal consisted of nine sections, namely;

1. Clinical Functionality
2. System Administration
3. Integration with existing systems
4. Track record of the software (scale of deployment and responsiveness to change)
5. Implementation
6. Business and strategic fit
7. Affordability
8. User experience
9. Future developments

The options appraisal matrix along with the results can be found in appendices four and five respectively. The following figures, six to 21 draw out some of the key results showing

preference of system and how each section scored in the 14 “critical” questions/scenarios from the scripted demonstration.

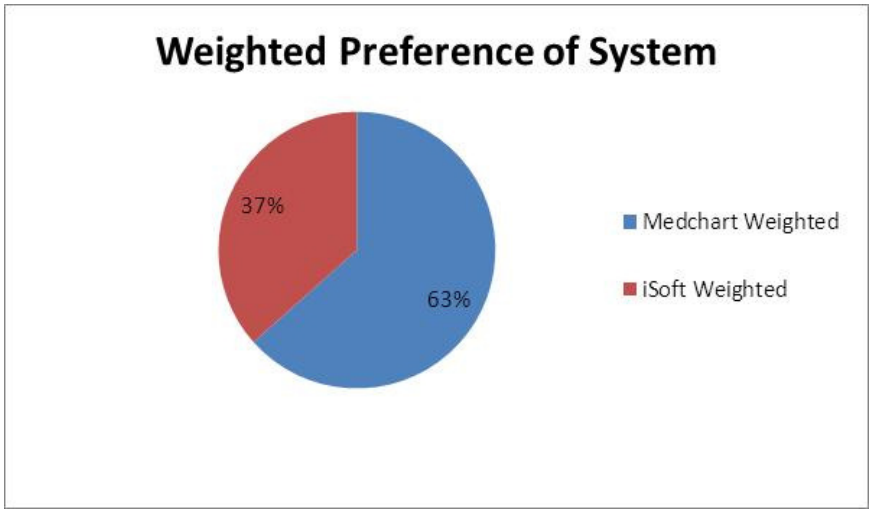

Figure 6: *Staff Preference of Systems*

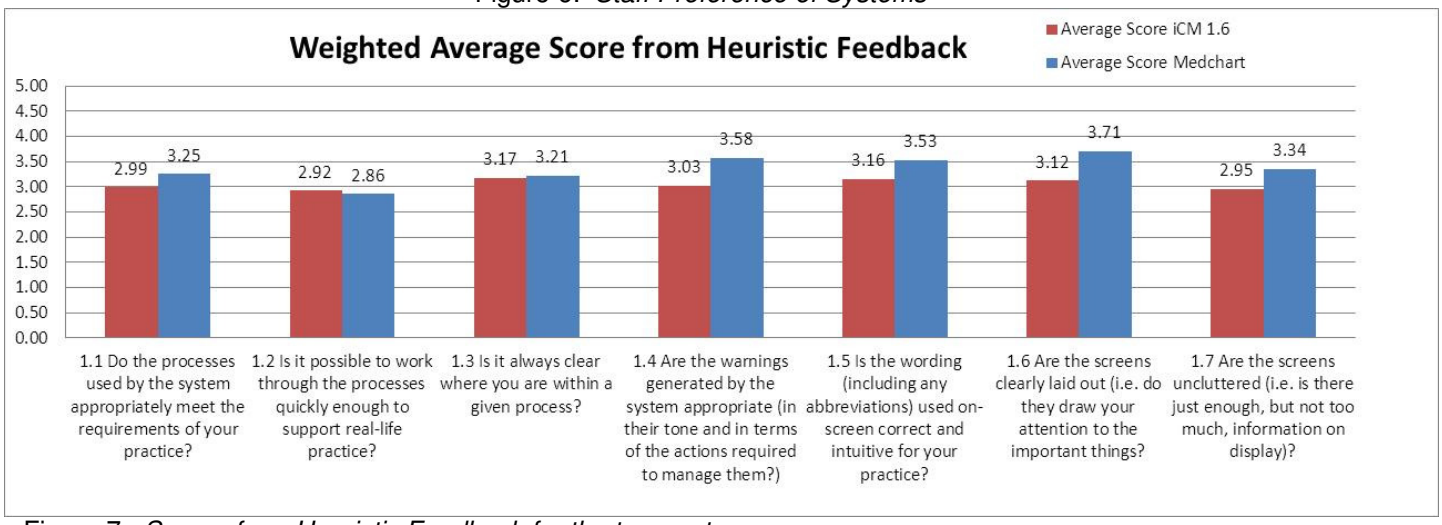

Figure 7: *Scores from Heuristic Feedback for the two systems*

During the scripted demonstrations of the two pieces of software each was scored against specific clinical scenarios and within these scenarios key items were scored, for example allergy status being clearly shown at all stages of the process.

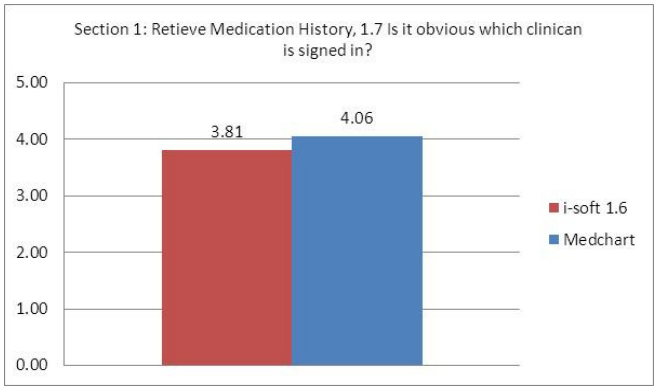

Figure 8

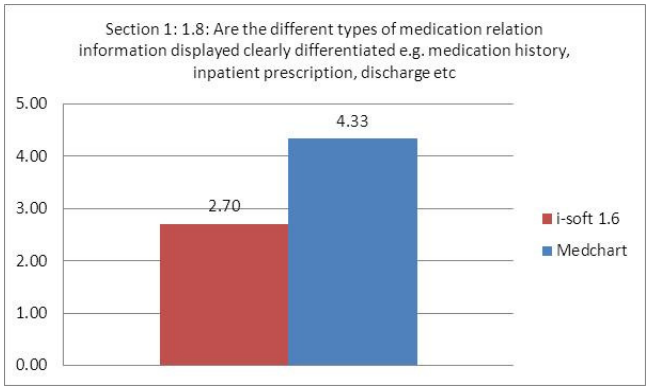

Figure 9

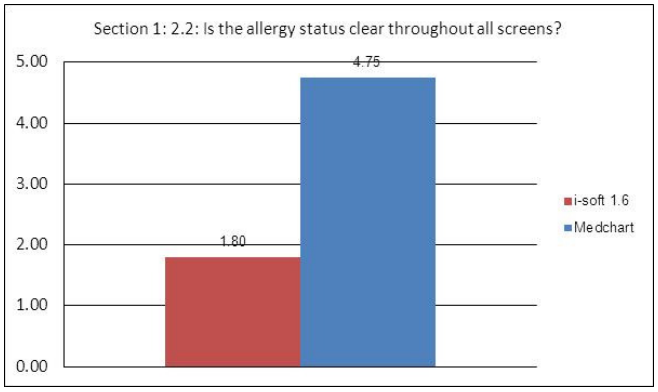

Figure 10

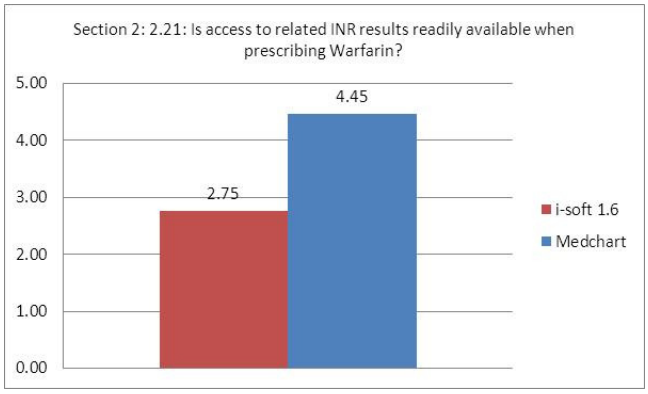

Figure 11

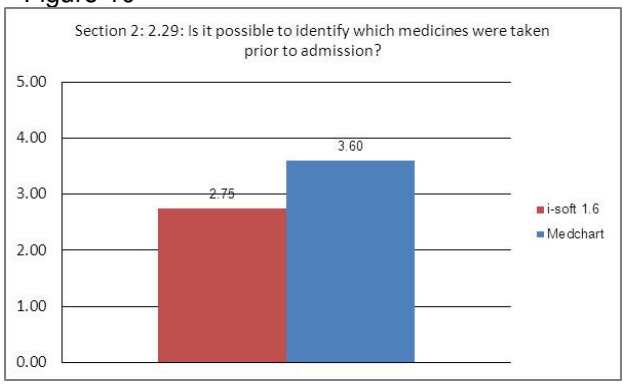

Figure 12

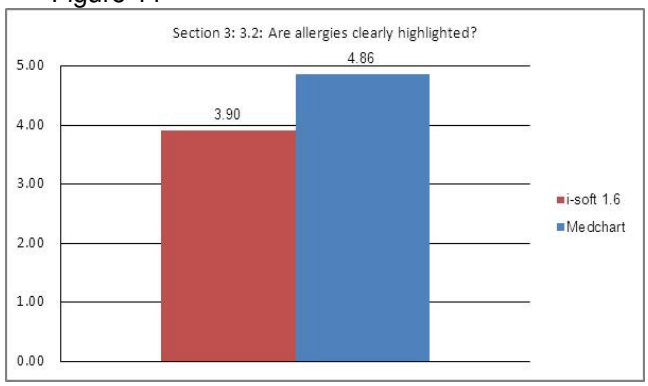

Figure 13

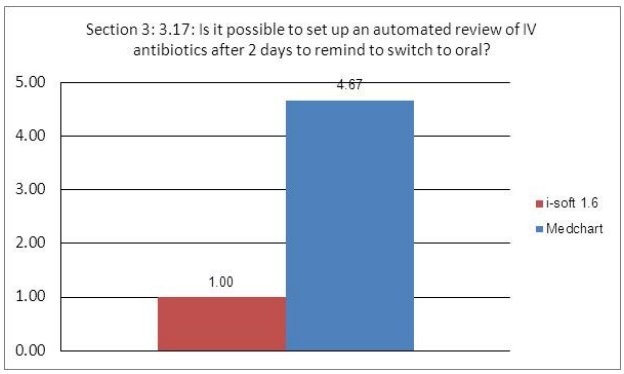

Figure 14

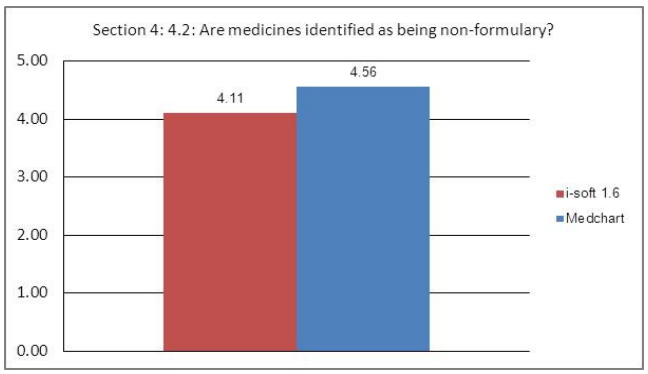

Figure 15

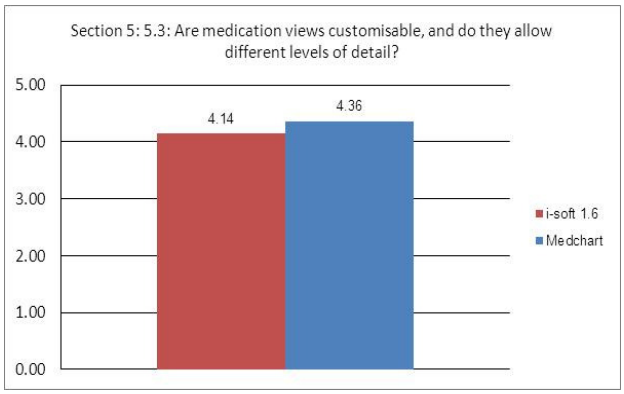

Figure 16

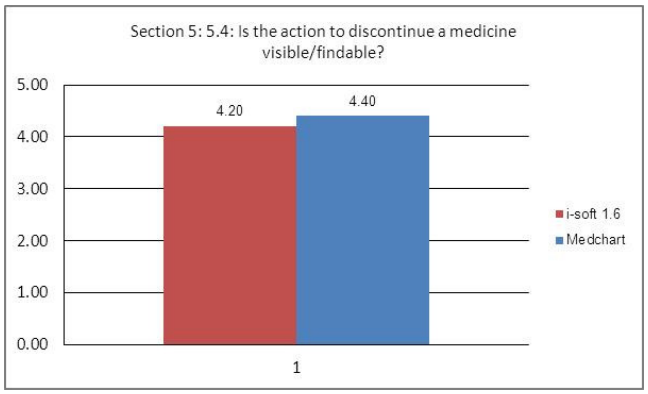

Figure 17

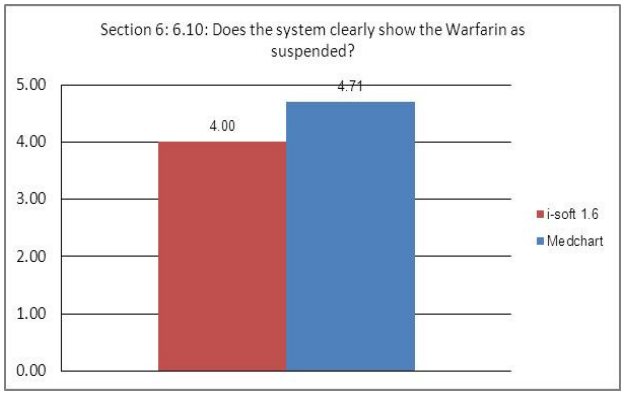

Figure 18

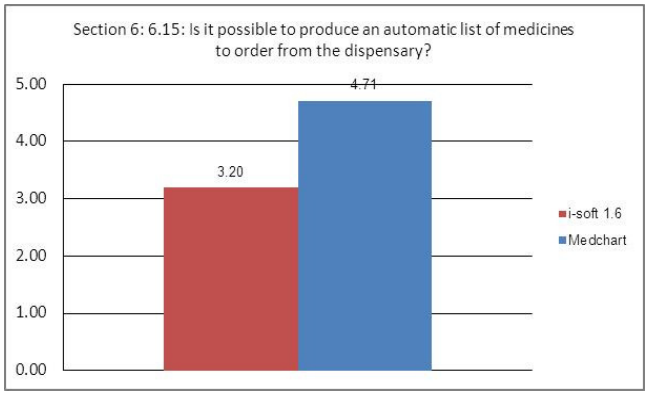

Figure 19

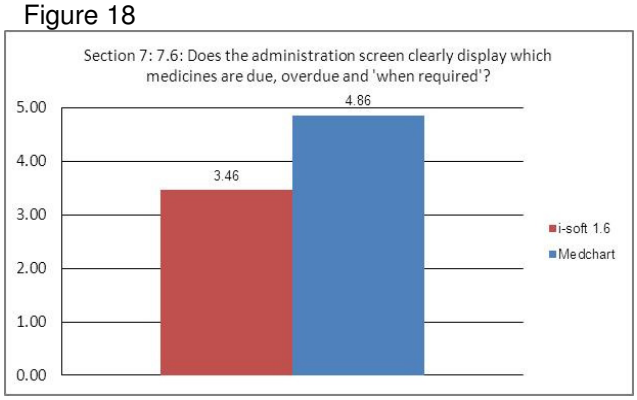

Figure 20

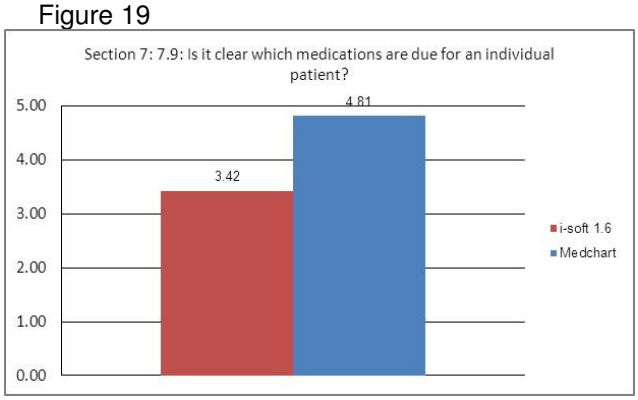

Figure 21

In summary, 63% of staff preferred Medchart, Medchart scored higher in six out of the seven heuristic questions. Medchart scored higher in all 10 sections of the scripted demonstration (but not significantly in all). Of the 14 “critical” criteria/questions from the scripted demonstration, Medchart scored higher for all.

In each of the nine domains of the options appraisal, the MedChart option scored significantly higher and as a result of this detailed appraisal, it was the recommended option in the outline business case. Table 16 below ranks the two options and shows that option 1 (Medchart) is the best option and is therefore recommended

Evaluation results	**Option 0** Do-nothing	**Option 2** Medchart
Benefits	3	**1**
Risks	3	**1**
Economic appraisal	3	**2**
Overall rank	**3**	**1**

Table 16: *Options Appraisal Summary*

4. Commercial case

4.1 Scope of commercial involvement

There is very little scope for commercial investment in this business case as it proposes the procurement of an ‘off the shelf’ IT software package.

4.2 Procurement strategy

A range of procurement options were considered when deciding which strategy to follow with advice being sought from KHP’s joint Director of Procurement throughout. Currently KHP is

intending to procure a joint Electronic Patient Record within the next couple of years to start deployment in around 2014-2015. As such the proposed EPMA solution would only ever be considered on an interim basis and must therefore be implemented swiftly to ensure an adequate return on investment. GSTFT's current EPR and PAS provider (CSC) has two EPMA solutions, with MedChart being available as an uplift to our existing contract for iCM. In order to achieve the speed of implementation required this was considered to be the only option, hence the two options reviewed in the outline business case. This approach has been approved (and subsequently been confirmed on 24/07/2012) by the Director of Procurement.

4.3 Risk, contractual, payment and workforce issues

The proposed procurement solution is an extension/uplift to our existing contract with CSC and there are no contractual workforce issues associated with this approach. A new EPMA solution will allow the Pharmacy Directorate to review its staffing structure and allow re-configuration to job-roles to support the cost savings listed in the Direct Cash Saving benefits.

5. Financial case

5.1 Activity analysis

This business case will not affect clinical activity for the Trust but will support the anticipated increased activity highlighted in the Clinical Directorate 2012-13 Delivery Plans.

5.2 Workforce analysis

The IT department has identified an on-going WTE requirement to support EPMA once it has been fully deployed and there will be an on-going need for an ePrescribing pharmacist to maintain and update the product's drug dictionary and rules. These are included in the yearly revenue cost figures in the financial appraisal and have been signed off by the Senior Finance Manager and HR Business Partners for IT and Pharmacy. The posts are as follows:

▪ IT Application Support	0.5 WTE at band 6
▪ IT End User Technology Technician	0.5 WTE at band 5
▪ IT Trainer	0.5 WTE at band 7
▪ IT Training administrator	0.9 WTE at band 3
▪ ePrescribing Pharmacist	1.0 WTE at band 7
Total WTE requirement	3.4 WTE

Although these costs have always been included in the financial modelling for EPMA, in the indicative costs for the OBC these costs were bundled and so the exact WTE requirement was not extracted and specifically highlighted at that stage.

The benefits review has highlighted significant opportunities to remove waste from current processes and the ability to then release this time for direct patient care. Working with the Releasing Time to Care Team (RTTC) and e-Noting these opportunities have been summarised for Nurses in the table below. Each Ward Manager will then be responsible for identifying which patient care target they need to focus on.

Waste (potential efficiency saving)	RTTC Category	RTTC Code and Reason
Transporting charts to Pharmacy	Motion	A - Walking
Time spent walking to location at which drug charts are stored, to review	Motion	A - Walking
Time spent searching for Drug Charts	Motion	B - Looking
Time spent photocopying and faxing out of hours requests from Guys to STH on - call Pharmacist	Admin	C - Other
Time spent searching through different drug charts to prioritise drug rounds	Medicines Management	A - Medicines Admin
Time spent searching for guidance/ protocols	Medicines Management	A - Admin
Time spent on complex calculations	Direct Care	G - Observations
	Medicines Management	A - Admin
Time spent deciphering other's handwritten notes	Medicines Management	A - Admin
Time spent transcribing information from loose paper to paper notes/ electronic system (e.g. observations, clinical indicators)	Medicines Management	A - Admin
Time spent waiting for a free PC to enter notes/ make orders/ review results	Admin	B - Computer
Time spent waiting to enter/ review clinical information if someone else is using the prescription chart	Direct Care	A - Medicines Admin
	Direct Care	B - Medicine Round
	Handovers	On Ward AFP
		Off Ward AFP
		On Ward ATB
Error Reduction (legibility, transcription errors, incomplete prescriptions)	Direct Care	A - Medicines Admin
Less time duplicating information	Medicines Management	A - Medicines admin
Inappropriate access to the notes/ time spent collating information if adverse patient event occurs	Medicines Management	A - Medicines admin
Time spent undertaking manual clinical audits	Medicines Management	A - Medicines admin
Time spent on lengthy free text noting	Medicines Management	A - Medicines admin
Time spent requesting clinical review from Pharmacist, CNS, Dietician, Doctor	Medicines Management	A - Medicines admin

Table 17: *RTTC opportunities with EPMA*

If there is a requirement for additional posts after implementation a separate business case would need to written and this would need to be offset by benefits over and above those included in this business case. The training requirements for the deployment and transition to Business As Usual have been agreed with IT Training and the Senior Pharmacy team.

5.3 Financial analysis

5.3.1 Revenue analysis

The changes to revenue detailed in section 2.5 comprise of non-pay savings as detailed in the benefits plan and ongoing revenue requirements to support the system after the project has completed. These are detailed in the IT costing model, appendix 6.

The revenue costs are shown below in table 18.

Revenue Costs	Value Option 1 £000	Purpose/comment
Revenue costs associated with capital expenditure		Project, training and ongoing revenue costs
On-going revenue - Total for 6 year life of the project (annual revenue cost)		On-going IT revenue costs to support the product, including annual license fee
Total		

Table 18: *Summary of Revenue costs*

5.3.2 Capital analysis

The capital costs for EPMA sit entirely with IT, there are no estates or facilities costs associated with this project. The ability to charge mobile devices can be achieved using lockable charging trolleys which can charge multiple devices utilising an existing power point on the wards. These are summarised in table 19 below.

A whole life costing model was developed for both options considered in the outline business case. The final option taken forward in this full business case has been refined and now includes finalised costs for all elements details can be found in Appendix 6. In addition the capital costs have been included in the summary financial analysis found in tables 11 and 12.

Capital expenditure type	Value Option 1 £000	Purpose/comment
IT (see appendices 6 & 7)		New IT system, configuration, training, deployment and associated hardware
Project Capital Costs (see section 6.1.2)		Project team deployment costs over 1 year
Total		

Table 19: *Summary of IT Capital and Project Costs*

It should be noted that the capital costs have increased by £200k since the OBC as hardware for the wards is now included. It was originally believed that this would be funded by the Better Basics business case, but this is no longer the case. Furthermore a number of items were incorrectly treated as capital in the indicative IT costs and have now been moved to revenue.

5.4 Non-NHS sources of funding

None.

6. Management case

6.1 Project management arrangements

The EPMA project is a joint Clinical and Transformation programme, enabled by an IT solution, which is being undertaken to deliver critical improvements in the three identified areas:

- Patient Safety
- Quality and clinical governance
- Organisational productivity

As such, day-to-day leadership, management and monitoring of the organisation's readiness to deploy the solution most logically rest within Operations and Clinical teams. To meet this objective the Programme has established a Project Board, which comprises of senior clinical and operational staff, with the balance of membership emphasising clinical representation. The project Board will meet monthly and have oversight and operational management control of the entire project and will hold the IT and Transformation to account for delivery of agreed plans within budget and to agreed timelines. The project Board will also oversee the change control management.

Specifically, the group will be accountable for ensuring that:

- the purpose and vision of the project is clearly defined, stated and disseminated
- operations are ready to deploy the solution
- the entire solution (technical and revised operational process) is fit for purpose
- consistent communications are delivered to the organisation about the project that state the "case for change"
- it provides tangible and visible management commitment to the project for its duration

Acting as the Champions for the project, the group will be a conduit between the project and the clinical users, and provide guidance on operational issues that are identified. In addition, the Project Board will create four Workstreams to help facilitate the configuration and implementation phases of the project.

The full terms of reference for this group are provided in appendix seven and the overall governance model for the project is shown in the figure 21 overleaf. The workstreams will be supported by the change team who will be responsible for the change management and business process redesign, more detail is found in Appendix 8.

6.1.1 Project team and governance

The overall governance structure is shown in figure 22 along with the membership of the Workstreams by role. The Project team to deliver EPMA is shown in figure 23.

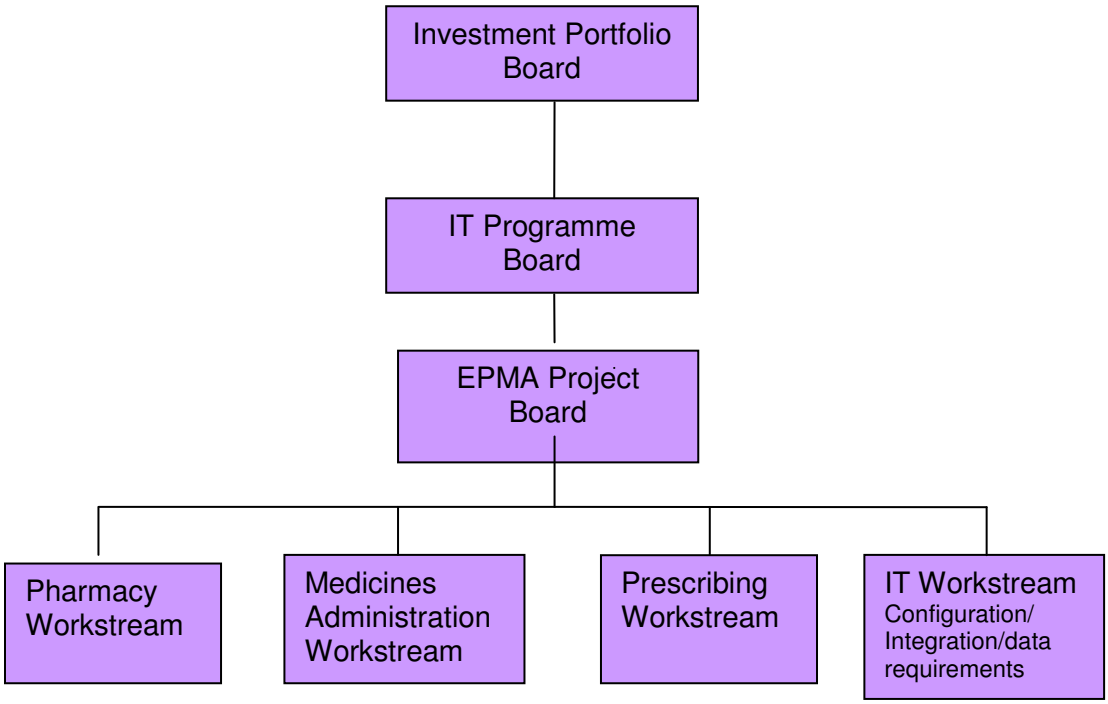

Figure 22: proposed EPMA Project Governance Structure

Project Board

POSITION	SUGGESTED PERSON
Chair	Dr John Scoble
Portfolio Manager	Christopher Kennedy
Change Agent	Shirley North
Project Manager	Tbc
IT Project Manager	Tbc
ePrescribing Pharmacist	Tbc
Director of IT (or Dep)	Scott Sommerville
Finance Director	Martin Shaw
Prescribing Workstream Chair	Tbc
Administration Workstream Chair	DCN
Medicines Management Chair	Duncan McRobbie
IT and Informatics Workstream Chair	Cormac Breen
E-Noting Representative	Steve Wilkerson
Director of Clinical Operations	Jon Findlay
Paediatric Pharmacy Representative	Steve Thomlin or Will Thornhill
Pharmacy Operations	Amanda Scott-Clarke

Pharmacy Workstream

POSITION	SUGGESTED PERSON
Chair	Duncan McRobbie
Dispensary Manager	Anya Vasloff
Paeds Pharmacist	Will Thornhill
ED Pharmacist	Ursula Corrignan
PCCP pharmacist	Ruth Wan
Pharmacy Governance	Chi Wong
Anti-microbial Consultant Pharmacist	Paul Wade
CIS Pharmacist	Marcus Warner
ePrescribing Pharmacist	Tbc
Project Manager	Tbc
IT Project Manager	Tbc

Medicine Administration Workstream

POSITION	SUGGESTED PERSON
Chair	Eamonn Sullivan (Chair)
Nursing Rep from Service/Directorates??	For discussion with HoNs
Midwifery	tbc
Junior Doctor/or Leadership group	tbc
ED Representative	Lee Patient
Theatres Representative	tbc
Community Representative	tbc
Paediatrics Representative	tbc
ePrescribing Pharmacist	tbc
Project Manager	tbc
IT Project Manager	tbc

Prescribing Workstream

POSITION	SUGGESTED PERSON
Chair	tbc
Medical Consultant	John Archer
Paediatric Representative	Chris Reid
ED Representative	Nicola Drake
Surgical Representation	tbc
Community Representative	tbc
Midwife/Maternity Rep	tbc
Nurse Prescriber	tbc
Junior Doctor/or Leadership group	tbc
Prescribing Pharmacist	Andrew Clarke
ePrescribing Pharmacist	Tbc
Project Manager	Tbc
IT Project Manager	Tbc

IT & Informatics Workstream

POSITION	SUGGESTED PERSON
Chair	Cormac Breen
IT Project Manager	tbc
Application Support	tbc
Informatics	tbc
IT Training	tbc
Clinical ProgrammeManager	Nicola Hope
Finance	tbc
Information Governance	Yinka Williams
Pharmacy Procurement	Danny Palmer
Formulary Pharmacy	Gaurang Purohit
General Manager	Alice Carter
Pharmacy IT manager	Jonathon Tolhurst

The EPMA project team will be structured as shown below in figure 23 below.

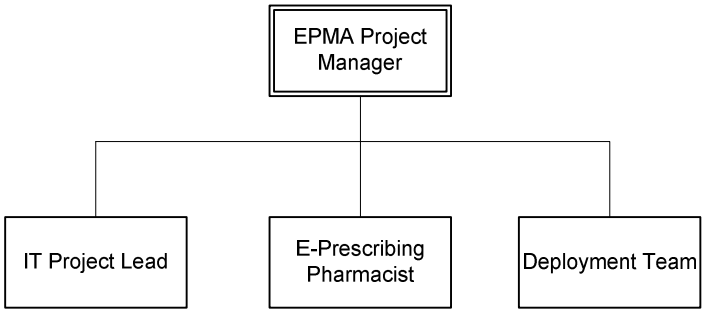

Figure 22: *Project Team Structure*

The ratified terms of reference for the Workstreams can be reviewed in appendix 7.

6.1.2 Change Management

Change to specification of scope can potentially jeopardise any project unless this is carefully controlled. The control of change means the assessment of the impact of potential changes, their importance, their risk, their cost and a judgemental decision by the Workstream on whether to include them or not.

All changes should be treated as project issues and handled using the technique and tolerances described in section 6.3. Changes include:

- A request to change what the project is set to deliver, e.g. the specification of requirements (request for change)
- A suggestion to improve one or more of the project's products (request for change)
- A record of some current or forecast failure to meet a requirement (off-specification)

Emergency Change Process

Emergency changes should also be subject to formal rigour but the process can be accelerated by deferring steps 2 and 3 and completing these retrospectively. However, the separation of impact analysis from executive authority must be maintained in all cases. Table 20 details the level of change and the authorised officers.

LEVEL	AUTHORISED OFFICER FOR IMPACT ANALYSIS	EXECUTIVE AUTHORITY	ESCALATION ROUTE
Project	Project Manager	Project Board	Workstream
Workstream	Workstream Manager	Workstream Board	Programme Board
Programme	Programme Director	Programme Board	Trust Executive/Trust Board

Table 20: *Authorised offices*

6.1.3 Project budget

The project budget is split across IT and Transformation with figure 23 above showing how this will be structured. Table 21 below summarises these costs and they have been included in the economic appraisal. Most of the project costs have been capitalised but some are treated as revenue.

Phase	Time	Cost
Configuration	4months	
Pilot	2 months	
Deployment	13 months	
TOTAL	18 months	

Table 21: *EPMA Project Costs*

6.1.4 Partnerships/other working arrangements

It is anticipated that GSTFT will need to work with Sainsbury's, who will be delivering outpatient dispensing services across the Trust.

6.1.5 Project timelines and key milestones

A high level project plan is shown in figure 24 & 25 below. It has been necessary to provide two plans, as the deployment is very dependent on the 'Better Basics' business case providing the up-lift to the IT infrastructure and providing the enabling technologies to ensure the preferred mobile devices can be deployed successfully. The preferred plan is to start implementation with the inpatient areas followed by outpatients, but this can be swapped if necessary.

The key mile-stones post sign -off of the Full Business case are as follows:

- Post configuration, testing and product handover from IT
- Post pilot evaluation
- Post Monthly Project Board meetings, this equates to approximately every six ward deployments and after each out-patient geographical phased roll-out

At any of these mile-stones the Project Board has the ability to escalate to the ITPB and IPB and recommend suspension, extension, or closure of the project. The IT project plan has been approved by the Programme Manager responsible for EPMA, who also supports the project governance arrangements.

There is a key dependency on the IT infrastructure, in that EPMA cannot be rolled out Trust-wide before March 2013. It is thought that at this stage the configuration and testing can take place on the existing infrastructure, if this is not the case however, the timescales will be slipped. No recruitment to the project roles will take place before the infrastructure confirmation is received, therefore not posing a financial risk to the project.

6.1.6 Information Governance

The focus of the EPMA project is the creation and maintenance of an electronic medicines record, and therefore it is recognised that Information Governance considerations must be at the heart of the project's plans.

This section sets out the high level Information Governance principles that will provide the framework for the EPMA project as it develops.

- Senior members of the Information Governance Committee, and Clinical Governance and Risk Management Committee will be invited to sit on the EPMA Project Board
- During the deployment phase, the project team will present a briefing to the Information Governance Committee, which will advise the Group of all the format for electronic medicine charts, and out and in-patient prescriptions

- The project will seek to maintain as a minimum the current levels of Information Governance assurance within the Trust
- The project will seek to manage out and mitigate actively any Information Governance risks and issues that are identified in the course of the configuration phase
- The programme will capture, record and monitor all Information Governance risks and issues identified in its RAID Register

6.2 Implementation plans

The implementation of EPMA consists of three phases:

1) Configuration
2) Pilot
3) Deployment

The implementation and deployment plan to date, has been based on the experiences of other large Trusts implementing EMPA, site visits to Trusts with iCM and Medchart and detailed feedback from a range of Trusts who have gone live with an EPMA solution.

The project will be a joint initiative between the Clinical Teams and Transformation, facilitated by the IT Department, where close collaborative working relationships are underpinned with a set of integrated plans. A project manager, working jointly with IT and Transformation, will develop and manage the plans ensuring shared milestones and deliverables, and consistency. The two plans below demonstrate a draft deployment plan which starts either in in-patient wards or out-patient clinics.

ID	Task Name	Duration	Start	Finish
14	**Project Board review**	0 days	Fri 28/06/13	Fri 28/06/13
15	George Perkins & Alan Apley	10 days?	Mon 01/07/13	Fri 12/07/13
16	Luke & Nightingale	10 days?	Mon 15/07/13	Fri 26/07/13
17	Northumberland & Page	10 days?	Mon 02/09/13	Fri 13/09/13
18	**Project Board review**	0 days	Fri 13/09/13	Fri 13/09/13
19	Gynae & Evan Jones	10 days?	Mon 16/09/13	Fri 27/09/13
20	Samaritan & hedley Atkins	10 days?	Mon 30/09/13	Fri 11/10/13
21	Antenatal & postnatal	10 days?	Mon 14/10/13	Fri 25/10/13
22	**Project Board review**	0 days	Fri 25/10/13	Fri 25/10/13
23	Home from Home, Hospital Birth centre	10 days?	Mon 28/10/13	Fri 08/11/13
24	Mountain	10 days?	Mon 11/11/13	Fri 22/11/13
25	Savvanah	10 days?	Mon 25/11/13	Fri 06/12/13
26	**Project Board review**	0 days	Fri 06/12/13	Fri 06/12/13
27	Stephen & Beckett	10 days?	Mon 09/12/13	Fri 20/12/13
28	Doulton & CCU	10 days?	Mon 06/01/14	Fri 17/01/14
29	Mark & Henry	10 days?	Mon 20/01/14	Fri 31/01/14
30	**Project Board review**	0 days	Fri 31/01/14	Fri 31/01/14
31	Anne & Alexandra	10 days?	Mon 03/02/14	Fri 14/02/14
32	Hillyers	10 days?	Mon 17/02/14	Fri 28/02/14
33	William Gull & Albert	10 days?	Mon 03/03/14	Fri 14/03/14
34	**Project Board review**	0 days	Fri 14/03/14	Fri 14/03/14
35	Sarah Swift & Victoria	10 days?	Mon 17/03/14	Fri 28/03/14
36	Howard & Guy's Nuffield, Landsdell	10 days?	Mon 31/03/14	Fri 11/04/14
37	ED	20 days	Mon 14/04/14	Fri 09/05/14
38	**Review**	0 days	Fri 17/05/13	Fri 17/05/13
39	Gassiot House Out-patients	40 days	Mon 03/06/13	Fri 26/07/13
40	**Project Board review**	0 days	Fri 26/07/13	Fri 26/07/13
41	Guy's Out-patients	40 days	Mon 29/07/13	Fri 20/09/13
42	**Project Board review**	0 days	Fri 20/09/13	Fri 20/09/13
43	STH Out-patients	40 days	Mon 23/09/13	Fri 15/11/13
44	**Project Board review**	0 days	Fri 15/11/13	Fri 15/11/13
45	ECH Out-patients	40 days	Mon 18/11/13	Fri 10/01/14
46	**Project Board review**	0 days	Fri 10/01/14	Fri 10/01/14
47	Dental Out-patients	40 days	Mon 13/01/14	Fri 07/03/14
48	**Project Board review**	0 days	Fri 07/03/14	Fri 07/03/14
49	Other Out-patient areas	20 days?	Mon 10/03/14	Fri 04/04/14
50	**Project Close**	0 days	Fri 04/04/14	Fri 04/04/14

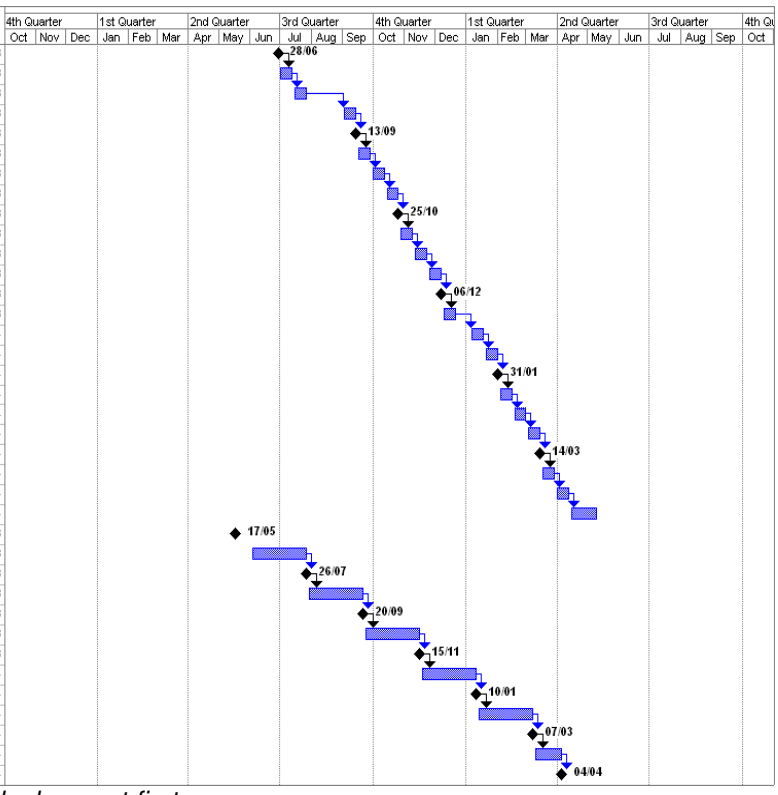

Figure 23: *Summary Project Plan: In-patient deployment first*

ID	Task Name	Duration	Start	Finish	Predecessors
9	**Wash-up**	0 days	Fri 17/05/13	Fri 17/05/13	8
10	**Rolling deployment**	**275 days?**	**Fri 17/05/13**	**Fri 06/06/14**	**9**
11	Gassiot House Out-patients	40 days	Mon 20/05/13	Fri 12/07/13	
12	**Project Board review**	0 days	Fri 12/07/13	Fri 12/07/13	11
13	Guy's Out-patients	40 days	Mon 15/07/13	Fri 06/09/13	12
14	**Project Board review**	0 days	Fri 06/09/13	Fri 06/09/13	13
15	STH Out-patients	40 days	Mon 09/09/13	Fri 01/11/13	14
16	**Project Board review**	0 days	Fri 01/11/13	Fri 01/11/13	15
17	ECH Out-patients	40 days	Mon 04/11/13	Fri 27/12/13	16
18	**Project Board review**	0 days	Fri 27/12/13	Fri 27/12/13	17
19	Dental Out-patients	40 days	Mon 30/12/13	Fri 21/02/14	18
20	**Project Board review**	0 days	Fri 21/02/14	Fri 21/02/14	19
21	Other Out-patient areas	20 days	Mon 24/02/14	Fri 21/03/14	20
22	**Project Board review**	0 days	Fri 17/05/13	Fri 17/05/13	
23	Florence & Aston key	10 days?	Mon 03/06/13	Fri 14/06/13	
24	Sarah & Queen	10 days?	Mon 17/06/13	Fri 28/06/13	23
25	Blundell & Esther	10 days?	Mon 01/07/13	Fri 12/07/13	24
26	**Project Board review**	0 days	Fri 12/07/13	Fri 12/07/13	25
27	George Perkins & Alan Apley	10 days?	Mon 02/09/13	Fri 13/09/13	26
28	Luke & Nightingale	10 days?	Mon 16/09/13	Fri 27/09/13	27
29	Northumberland & Page	10 days?	Mon 30/09/13	Fri 11/10/13	28
30	**Project Board review**	0 days	Fri 11/10/13	Fri 11/10/13	29
31	Gynae & Evan Jones	10 days?	Mon 14/10/13	Fri 25/10/13	30
32	Samaritan & hedley Atkins	10 days?	Mon 28/10/13	Fri 08/11/13	31
33	Antenatal & postnatal	10 days?	Mon 11/11/13	Fri 22/11/13	32
34	**Project Board review**	0 days	Fri 22/11/13	Fri 22/11/13	33
35	Home from Home, Hospital Birth centre	10 days?	Mon 25/11/13	Fri 06/12/13	34
36	Mountain	10 days?	Mon 09/12/13	Fri 20/12/13	35
37	Savvanah	10 days?	Mon 06/01/14	Fri 17/01/14	36
38	**Project Board review**	0 days	Fri 17/01/14	Fri 17/01/14	37
39	Stephen & Beckett	10 days?	Mon 20/01/14	Fri 31/01/14	38
40	Doulton & CCU	10 days?	Mon 03/02/14	Fri 14/02/14	39
41	Mark & Henry	10 days	Mon 17/02/14	Fri 28/02/14	40
42	**Project Board review**	0 days	Fri 28/02/14	Fri 28/02/14	41
43	Anne & Alexandra	10 days	Mon 03/03/14	Fri 14/03/14	42
44	Hillyers	10 days	Mon 17/03/14	Fri 28/03/14	43
45	William Gull & Albert	10 days	Mon 31/03/14	Fri 11/04/14	44
46	**Project Board review**	0 days	Fri 11/04/14	Fri 11/04/14	45
47	Sarah Swift & Victoria	10 days	Mon 14/04/14	Fri 25/04/14	46
48	Howard & Guy's Nuffield, Landsdell	10 days	Mon 28/04/14	Fri 09/05/14	47
49	ED	20 days	Mon 12/05/14	Fri 06/06/14	48
50	**Project Close**	0 days	Fri 06/06/14	Fri 06/06/14	49

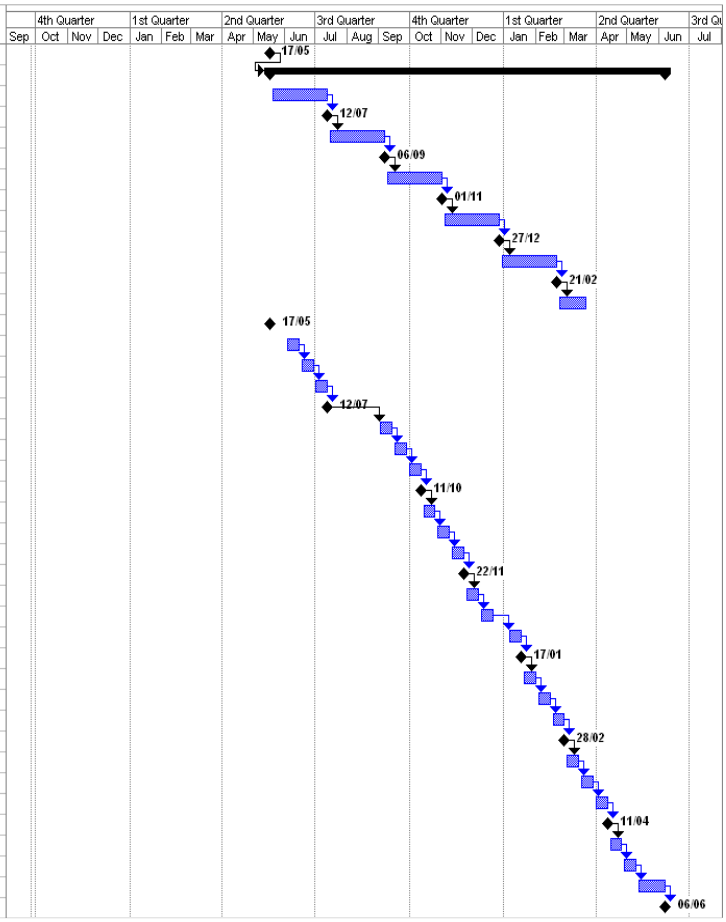

Figure 25: *Summary Project Plan: Fall back plan Out-patient deployment first*

Whilst working closely to contribute to the success of the project as a whole, the two departments will focus their activities as follows:

- The IT department will manage the configuration and integration of the EPMA product into other Trust IT systems. Their line of accountability will be to the EPMA Project Board and through formal project reports and the IT Programme Board (ITPB)
- Utilising a Prince-compliant methodology the Transformation team will work closely with Clinical and Operational teams to facilitate ownership of a locally-led transformation to ensure successful adoption of the new technology. The Transformation team will support clinical teams with expert guidance and will develop formal communications, training, user readiness, and benefits realisation strategies.

This section, which assumes Full Business Case approval in January 2013; and deployment early to mid 2013, is dependent on the solution chosen. The timelines will change dependent on requirements. To support the deployment across the organisation, IT training and communication plans have been developed. These can be found in appendices 9 and 10 respectively.

The deployment plan will then comprise of:

- A series of deployment waves,
- This includes an initial “pilot” period with the first set of users, which will provide a final test of the suitability of the EPMA solution for operational use and provide an opportunity for configuration enhancements to be made to the solution prior to widespread release

- The pilot will be followed by successive deployment waves within the other in-patient ward settings. This deployment will be dictated by patient flow and co-morbidity dependencies. It will also be influenced by the speed and location of roll-out of the e-Noting solution.
- The final in-patient wave will be within the Emergency Department
- Deployment will then be directed to the out-patient environment, and will include an initial "pilot" period with the first set of users.
- The pilot will be followed by successive waves within out-patients. This deployment will be dictated by patient flow and co-morbidity dependencies, and geographical location, with the Trust being split in to five main key areas, Gassiot House, Guy's, St Thomas', Evelyna Children's Hospital, and finally other miscellaneous areas which may also include off-site Community clinics if appropriate. It will also be influenced by the speed and location of roll-out of the e-Noting and e-Rostering solutions.

However, if the 'Better basics' business case has not delivered the supporting infra-structure and technology up-lifts, the deployment plan will need to reverse, starting with the out-patient areas first, and moving to the in-patient clinical areas last.

6.2.1 IT Training Plan

The IT Training Plan was designed and approved in collaboration with the IT Training teams and with the support of the key clinical stakeholders. Using a blended learning approach that builds on the proven methods utilised by the GSTFT IT Training Team, the following basic assumptions and requirements are specified:

- Training will be tailored to the following professional roles:
  - Doctors
  - Nurses
  - AHP (primarily Dieticians)
  - Pharmacy staff, this will be delivered by the specialist e-prescribing pharmacists
- As a minimum, the following three delivery types will be offered:
  - Classroom based delivered 'near' to the clinical areas, by a mobile training team (maximum 10 per class)
  - On-line "E-Learning" (self-taught)
  - Embedded access to a test environment (self-learning - a full-featured familiarisation version of the IT Solution in a separate physical domain)

- The final stage of each of these training formats will be an embedded Competence Test that will confirm the user's ability to navigate and use the system correctly
- Training will be linked with the individual professional's prescribing, or medicine management competencies, to ensure access is granted to the IT solution only after these competencies have been achieved
- The training materials and competence test will be developed by the IT training team in conjunction with the specialist e-prescribing pharmacists who will describe the scenarios required to demonstrate a wide range of practical skills which will enable the clinical teams to effectively and efficiently deliver clinical care using the EPMA solution.

Completion of this process, indicated by successful completion of the on-line Competence Test, will be mandated and overseen by the individual Work-streams. The training will be supported post implementation by a team of highly trained subject matter specialist floor-walkers.

The training and deployment team will consist of IT training Specialists, Project team members and a group of seconded Band 6 nurses and Pharmacy Technicians. Further detail can be found in the IT Training plan in appendix 9.

6.2.3 Equipment plan

Provision for the end-user technology has been a joint venture with the e-Noting team, and has included an end-user technology analysis, which highlighted the potential type of device the clinical teams required, and the volume of devices that are required throughout the day. The volume is calculated on concurrent usage, which also includes an overage to cover for breakages, loss, and battery charging. A proportion of the total need is incorporated in both business cases, therefore EPMA is dependent on the e-Noting project progressing.

Provision for end user technology equipment to support the rollout of EPMA has been apportioned in the EPMA business case as well as the already approved e-Noting business cases. In the event that e-Noting does not go ahead, there is limited provision in EPMA budget for end user technology, and this would require and up-lift in finance to fully support appropriate deployment across the Trust.

The end user technology costs may decrease if the Trust decides to invest in up-grading the Hospedia bed-side patient television devices. This would offer the wards the opportunity of providing a digital device at the bed-side. This could potentially substantially reduce the number of mobile devices required in each clinical area.

6.2.4 IT plan

A full IT plan has been developed by the IT project manager assigned to EPMA thus far. This is supported by a whole life cost model and includes provision for:

- Software purchase and ongoing license costs
- Hardware requirements, both back office and end user devices
- IT training during the project phase
- Post project revenue allowance for IT training and support

The whole life costing model can be found in appendix 6 and the IT implementation in appendix 11.

The IT High Level Design has been reviewed and signed off by the IT Head of Architecture and Design.

6.2.5 Workforce plan

There is no forecast loss of posts; however the implementation of EPMA will provide Pharmacy with an opportunity to reconfigure its workforce. Part of this reconfiguration will involve reallocating pharmacy staff to the antimicrobial stewardship team to facilitate benefits realisation but will not increase the number of pharmacy whole time equivalents.

EPMA will improve the productivity of those staff currently engaged with the paper intensive processes of prescribing, checking and administering medicines. This improved productivity will allow clinical staff to increase the amount of patient facing clinical time. The project team have worked with the Releasing Time to Care Team to identify possibilities where waste can removed from current processes, see table 17 section 5.2.

It is assumed that the three current e-projects, e-Rostering, e-Noting and e-Prescribing would collectively be able to release sufficient nursing time to impact on the over all percentage of

direct patient care. The individual Ward Managers and Matrons would be expected to propose targets for their respective areas and the Medical Director for the medical staff.

6.3 Stakeholder views

Internal stakeholders views, which include medical, nursing, pharmacy and AHPs, have been represented to date in an engagement process led by Transformation and supported by IT. Clear communication and stakeholder engagement is vital to the success of this project and a detailed Communications plan is included in appendix 10.

6.3.1 Internal Stakeholders

The views to date have been positive from the clinical teams, and there is recognition that this is the direction of travel the Trust should be embarking on. There was enthusiasm for the ability to store the medication details electronically for all EPR users to view, and also the ability to re-order quickly from a previous order was welcomed by the Chronic Disease specialities where they are likely to review the same patients on a number of occasions either in an in or out-patient setting. There was concern expressed that changing to electronic processes will slow down activity in the out-patient clinics, but this would be counter-balanced by ensuring high turnover drugs are collated together in dDrug order sets, negating the need to manually search for them in the solution. User stories are currently being collated to identify the 'as is' medicine management processes for all clinical teams and will be a useful tool in further engaging and disseminating the information about the deployment of EPMA.

As part of the engagement process with internal stakeholders, a two day event was held on 18th and 19th June. This consisted of a 'hands-on event' and live demonstrations of the two proposed solutions. Attendees were asked to complete a short heuristic evaluation form, over 100 staff attended either event and the results were analysed. 63% of staff "preferred" Medchart and it scored higher in six out of the seven heuristic questions.

A formal scripted demonstration of the two solutions took place on 19th June 2012. An agreed invited audience that included a cross-selection of clinical and IT staff attended and evaluated the two solutions.

- Medchart scored higher in all 10 sections of the scripted demonstration (but not significantly so in most)
- Of the 14 critical questions from the scripted demonstration, Medchart scored higher for all

The detailed analysis can be reviewed in appendix five.

The initiative has the support of Executive and Clinical Directors, and the Medical Director is the Executive Sponsor.

In addition, the outline of the proposal has been:

- approved by the IT Senior Management Team
- consultation has taken place with Clinical Directors
- presented for consultation at the joint General Managers' and Head of Nursing meeting
- presented for consultation at the Senior Consultant Staff Committee

The governance structure, as described in section 6.1.1, shows the vital role that clinical staff will play in driving the project forward. Members of the various Workstreams will be expected

to seek the views of the staff groups to ensure maximum internal, including community. stakeholder involvement.
An important internal stakeholder that the project team have invested time in understanding is the Community Wards and their needs. Current medicine management processes are being mapped and their end-user technology needs gathered. There is a dependency for EPMA deployment in these areas on the wider Community IT strategy to deliver access to EPR in the community.

6.2.3 External Stakeholders

The Transformation Team met with the Chief Pharmacist for Lambeth and Southwark, who was appreciative of the improvements to patient safety and the electronic transfer of prescription information to their practices.

The Chief Pharmacist felt that this would help deliver improvements in cost effective prescribing.

Local GPs responsible for medicine management have been approached and are fully supportive of this proposal, and are also keen to represent their views on what information they would require from an electronic system.

It also has the support of the Pharmacy CAG, led by David Taylor, with Tony West the Chief Pharmacist as GSTFT the champion.

6.2.4 Public and patient involvement

As key stakeholders, it will be essential to involve and inform patients and carers of the impact of an EPMA system. This involvement will take the form of targeted Focus Groups, and there will be a joint engagement event with the e-Noting team. After consultation with the PPI and Communication's team it has been agreed to complete this once the products for both projects are ready and available to demonstrate, this is likely to be during the pilot phases of each project. A joint PPI engagement plan will be drafted in collaboration with the e-Noting team and it is expected that the engagement will commence in early December 2012.

6.3 Risk summary

As part of the options appraisal an extensive risk register has been compiled and can be found in appendix 12. Of the 17 risks currently listed on the Risks Log for EPMA, seven could potentially have a monetary value; these are listed below in table 16, with the potential cost to the project before and after the mitigating action have taken place. There is specific issues log and this is in appendix 13.

Table 22 below summarises the key risks associated with EPMA and is based on the Trust's standard risk register.

Risk	I	P	Risk Value	Mitigating Actions	Residual Risk	Contingency plan to address risk
There is a risk that between the e-Noting and EPMA projects there is insufficient end user technology costs in both business cases	£ 400k	25%	£100k	Collaboration with e-Noting throughout OBC, FBC stages and lifespan of project to ensure processes mapped and EUT assessed. Liaison with Better Basics and VDI teams to ensure end-users requirements are communicated to them	FBC	A end user technology analysis has been commissioned jointly between e-Noting and Epma projects, which has identified con-current users of devices, and the cost of these have been reflected in both business cases. Hospedia devices if used on the ward would be an additional device, and the overall budget for devices may decrease. . The initial analysis confirmed that a blend of devices was required on the wards; this assumption will be confirmed through a series of workshops with the key stakeholders, and primarily nurses.
There is a risk with assisted (e.g. weight-based) dose calculations that staff may become reliant on computers and not think about whether the number is correct/ appropriate. There has been a concern raised that this could de-skill staff.	4	5	20	e-PMA training and Business process Redesign will take in to account that it is unacceptable to introduce risk to patient's due to a total reliance on an automated process.	12	The preferred solution offers robust functionality and it will be important to pilot this adequately before the final deployment to ensure that the training has addressed all residual risk
There is a risk that staff will not be released to attend EPMA training or that the training delivery method is too inflexible creating delays to the deployment plan	£200k (£50k per month delay)	20%	£40k	The training strategy which has been appended in FBC has defined a coherent training plan in collaboration with clinical teams that minimises operational impact. The governance model will support the release of staff to attend training.	£40k (this is included in the 10% project contingency budget)	A robust deployment plan has been developed in conjunction with IT Training and clinical services and deployment progress will be monitored closely by the Workstreams and Project Board

Risk	I	P	Risk Value	Mitigating Actions	Residual Risk	Contingency plan to address risk
There is a risk that the technical solution does not meet all the business requirements of the Trust, and that specialty requirements across all relevant settings have been confirmed.	£30k	50%	£20k	Robust requirements gathering involving key stakeholders across all relevant specialties and settings have be undertaken. Adherence to the CfH functional specifications document for robustness of the chosen solution has been adhered to. The option appraisal process has clearly defined a preferred solution that meets the requirements of the Trust. Once the product catalogue has been released to the Trust the functionality can be assessed again against the business requirements to ensure it meets them adequately	£20k	The preferred solution has demonstrated during the option appraisal that it has the functionality requirements for all services including paediatrics, however there may be amendments to the product or forms that are required at the point of prescribing which have to be developed. The provider will assess if these are beneficial to the advancement of the product, and therefore no cost, or if they are GSTT specific and therefore require an additional cost for development time
There is a risk that the assumption that staff will want to use e-learning and sandpit training tools is not correct	£200k (total IT trainin g spend)	10%	£20k	Engagement, communication and understanding current processes and constraints	£20k	The training strategy allows sufficient capacity for all staff if required to be class room based trained. If smaller groups are required the additional £20k would need to be utilised.
There is a risk that the deployment plan is delayed to individual areas due to complexity of needs	£200k (£50k per month delay)	20%	£40k	Gather user requirements in a timely manner to allow flexing of resource.	£40k (this is included in the 10% project contingenc y budget)	A robust deployment plan has being developed in conjunction with IT Training and clinical services. deployment progress will be monitored closely by the Workstreams and Project Board
There is a risk that the IT strategy, specifically the Better Basics, may not meet the requirements of project timelines and deliver the infrastructure changes to enable mobile devices on the wards. This may add in a delay to the project.	200k which =to a four month delay at 50k per month.	20%	£40k	Delay to project timelines and project costs could go beyond contingency. However the deployment could be reversed to deploy to out-patients first and wards last. This would then add a reduced delay to the project	£40k	Endure all Out-patient clinical areas have sufficient end-user technology to deploy first. Identify in-patient areas that require no up-lift to Wi Fi and are able to deploy using Computers on Wheels and C5 devices.

Risk	I	P	Risk Value	Mitigating Actions	Residual Risk	Contingency plan to address risk
There is a risk that deployment of the solution temporarily creates an additional operational burden	4	3	12	Ensure that clinicians and operational staff are involved in configuration. Extensive User Acceptance testing will challenge how intuitive the solution is. A pilot will be undertaken, which will provide An accurate representation of clinical requirements and benefits.	8	Ensure that communication between the three e-project teams (e-Rostering, e-Noting and e-prescribing) to identify optimum deployment plans to negate change fatigue

Table 22: *Costed Risks*

During the lifetime of the project, risks and issues will be managed in line with best practice. In summary all risks and issues must be reported to the Workstream leads once identified for addition to the master risks and issues log. Risks should be graded using the standard Trust grading system of consequence and likelihood. To raise a risk, any member of the project team should enter it on the Risk or Issue log entry sheet.

Each new risk will be discussed and agreed with any actions noted and entered onto the master risk or issues log by the Workstream Lead.

- Green rated risks and issues (<5% slippage in benefits, costs or time of project) will be managed by the project team and no ongoing reporting will be required unless they escalate to amber or red.
- Amber risks and issues (moderate 5-10%, major 11-25%) slippage in benefits, costs or time of project) will be managed by the project specific team but must be reviewed at each meeting and the outcomes reported to the Workstream Progress Review Meeting
- Red risks and issues (>25% slippage in benefits, costs or time of project) need to be reported to the Programme Board

6.4 Benefits realisation

The full list of benefits and realisation plan associated with the implementation of EPMA can be found in appendix three. The plan highlights the following:

- Benefit ID
- Benefit description
- Outcome
- Type of benefit, which are categorised as:
  - Patient safety
  - Quality
  - Productivity
  - Releasing time to care
  - Cost saving
- Financial value/year Direct cash releasing
- Financial value/year non-direct cash releasing
- Baseline
- Enabler(s)
- Measure
- Owner

- Date improvement expected
- Improvement expected
- Frequency of measure
- Date to start measure
- Provided by

The benefits have been discussed and agreed with the relevant owners and the metrics required to measure them post implementation have been agreed. The Pharmacy specific benefits will be added to the Pharmacy CIP tracker, and used to identify drug savings for both individual directorates, and PCT's.

6.4.1 Disbenefits

EPMA brings with it a significant number of safety, quality and productivity benefits and improvements. It does however have a small number of disbenefits which are list in table 23 below.

Dis-Benefit	Dis-Benefit Description	Dis-Benefit Owner(s)	Dependent Changes & Responsibilities	Measures	Expected Value	Due Date
1.	*Disruption to the service*	*EPMA Project team*	*Time away from clinical care. To mitigate backfill is costed in the deployment plan*	Monitor use of bank/backfill hours required	*1 wte band 6 nurse (inc. in costs)*	*Deployment*
2.	*Change fatigue*	*EPMA Project team*	*Reluctance to change overcome with clear comms and case for change. Business engagement from the outset*	*Speed of change and deployment timetable met*	*£50k month (included as costed risk)*	*Deployment*
3.	*Training*	*Dena O'Gorman*	*Robust IT training planning developed (appendix 12)*	*Number of people trained*	*£20k (10% of training budget)*	*Deployment*
4.	*Further reliance on technology*	*Scott Somerville*	*Increasing need for improved infrastructure and end user technology. "Better Basics" plan to meet clinical need*	*Time-line achieved for delivery of 'Better basics' Business case*	*See IT Strategy*	*Prior to deployment*

Table 23: *Dis-benefits of EPMA*

6.5 Equality Impact Assessment

Table 24 below shows the EIA that has been undertaken for EPMA.

Equality Group	Positive impact	Negative impact	Reason / comment
Age	Yes	No	This will benefit all patients who attend GSTT as outpatients or inpatients. The project will enable the Trust to deliver a more efficient and safer service to patients and enhance patients' perception of the way in which it manages their medication records. Clinicians' ability to access medication records and make the most appropriate decisions will be improved.
Disability	Yes	No	This will benefit all patients who attend GSTT as outpatients or inpatients. The project will enable the Trust to deliver a more efficient and safer service to patients and enhance patients' perception of the way in which it manages their medication records. Clinicians' ability to access records and make the most appropriate decisions will be improved.
Ethnicity	Yes	No	This will benefit all patients who attend GSTT as outpatients or inpatients. The project will enable the Trust to deliver a more efficient and safer service to patients and enhance patients' perception of the way in which it manages their medication records. Clinicians' ability to access records and make the most appropriate decisions will be improved.
Gender	Yes	No	This will benefit all patients who attend GSTT as outpatients or inpatients. The project will enable the Trust to deliver a more efficient and safer service to patients and enhance patients' perception of the way in which it manages their medication records. Clinicians' ability to access records and make the most appropriate decisions will be improved.
Religion / belief	Yes	No	This will benefit all patients who attend GSTT as outpatients or inpatients. The project will enable the Trust to deliver a more efficient and safer service to patients and enhance patients' perception of the way in which it manages their medication records. Clinicians' ability to access records and make the most appropriate decisions will be improved.
Sexual orientation	Yes	No	This will benefit all patients who attend GSTT as outpatients or inpatients. The project will enable the Trust to deliver a more efficient and safer service to patients and enhance patients' perception of the way in which it manages their health records. Clinicians' ability to access records and make the most appropriate decisions will be improved.
Following the screening stage of the impact assessment, it has been decided that a full impact assessment is not necessary.			

Table 24: *Equality Impact Assessment Table*

7.0 Recommendation

ITPB/TME is asked to:

- ***Approve the preferred option presented in the Full Business Case and support progression to project initiation***
- ***Approve the capital funding of £xxxxx***
- ***Approve £ xxxxxx,***

Annexes and Appendices

Annex 1	Assumptions Log
Annex 2	Stakeholder Views

Appendix 1	Supporting Target Information	Attached
Appendix 2	Before and After Impacts	Available upon request*
Appendix 3	Benefits realisation Plan	Attached
Appendix 4	Options Appraisal Matrix	Attached
Appendix 5	Options Appraisal Evidence Pack	Attached
Appendix 6	Option 1 IT Whole Life Cost MedChart	Attached
Appendix 7	Project Board and Workstreams Terms of Reference	Available upon request*
Appendix 8	Business Process Redesign Plan	Available upon request*
Appendix 9	IT Training Plan	Available on request*
Appendix 10	Communications Plan	Available upon request*
Appendix 11	IT Implementation Plan	Available upon request*
Appendix 12	Project Risk Register	Available upon request*
Appendix 13	Issues Log	Available upon request*

* Contact Christopher Kennedy by email for appendices

Annex 1 – Assumptions log

The following table of assumptions should be read in conjunction with the assumptions listed in the whole life IT costing model for each solution. Pending approval of the FBC these assumptions and dependencies will be refined for the preferred option and the owners identified.

The assumptions below have not changed since the SOC, however, those listed in the IT whole life costing are new, see appendix six and seven.

	Dependency	Description
1.	IT infrastructure audit and consequent IT Infrastructure upgrade	The success of the project is critically dependent upon the correct definition and deployment of a suitable technical infrastructure within all relevant clinical environments, including but not limited to a wireless communication network and appropriate devices.
2.	Knowledge of specialty-system changes, e.g. e-ITU	The project must be made aware of any planned system upgrades, replacements or roll-outs during project development and analysis period to ensure can be factored into plans for future integration if appropriate and future state process mapping.
3.	IT support	The success of the project is heavily dependent on the IT department providing an on-call 24-hour support service for all user support, system, as per other Priority 1 clinical systems, e.g. EPR
4.	End User Technology	The project has a dependency on e-Noting providing a proportion of the end user devices to support tasks within both e-Noting and e-Prescribing
	Assumption	**Description**
4.	Integration in to existing e-prescribing Trust systems	If full integration is not possible, it is assumed that 'read only access to these other systems is available to other electronic prescribers
7.	Release of senior staff to review requirements	The Trust will commit appropriate authorised resources to sign off the scope in the form of high level requirements before solution configuration begins.
8.	Release of clinical staff for system design	The Trust will commit clinical staff time to engage with the configuration stage of the project
9.	Release of clinical staff to lead change activities	The Trust will facilitate the release of clinical staff to engage in the change activities required to rationalise trustwide medicine management processes in all settings across the hospital
10.	Board-level leadership	The Trust will provide senior leadership to ensure operational ownership of the project and to make delivery of the project a key priority
11.	EPR procurement	A new full EPR system cannot be procured and implemented across the Trust until the current iSoft contract terminates in 2016
12.	Pre-operative Assessment services	Pre-operative Assessment services will be included within the roll-out if processes are introduced that include prescribing of in-patient and discharge medication during this attendance

Annex 2 – Views from other directorates and stakeholders

Directorate agreement-in-principle for SOC to be submitted	Impact (L,M,H)	Influence (L,M,H)	Name	Comments
Pharmacy	H	H	Tony West	There is a need for this to happen now, it is a key driver and deliverable for the Pharmacy CAG, and it will ensure that KCH and GSTFT both have an EPMA system deployed.
Finance	H	H	Martin Shaw	The patient experience and safety benefits make this a key project to be delivered. Cost savings will be identified as a result of the improvements in processes.
Dietetics	H	H	Scott Pendleton	Fully supports EPMA and doesn't support option 1 (iCM)
Clinical Directors	H	H	All specialities	There was an acknowledgement that the business requires this now. The question was raised if this was dependent on the up-grade to i-CM 1.6, which is not.
Head of Nursing	H	H	All specialities	There was agreement that this was the direction of travel the Trust should be moving in.
General Managers	M	M	All specialities	
Information Governance	H	H	Yinka Williams	There is a clear need to ensure all the IG processes are adhered to correctly.
Clinical Governance, Risk and Assurance	H	H	Dr Frances Flinter	
Medicines Safety Forum	H	H	Alice Oborne	This will be an enabler for reducing some medication errors and improving patient safety.
Senior Consultant's Staff Committee Chair	H	H	Mark Kinirons	This is an excellent step forward in improving the patient safety and clinical effectiveness in the Trust.
Medical Director	H	H	Dr Ian Abbs	One of the key drivers of this project should be to remove the variation in the quality of prescribing.
Chief Operating Officer	H	H	Amanda Pritchard	Supports the concept and keen to see in place. Wants to be clear on how interim this product is.
Chief Nurse	H	H	Eileen Sills	Enthusiastic and supportive, but mindful of the impact of the three e projects and change fatigue
Staff Side	H	H	Dino Williams	Case discussed and supportive from safety grounds and educational possibilities of system for staff