County Durham and Darlington **NHS**

NHS Foundation Trust

Business Case Post Implementation Review

Business Case Title	Electronic Clinical Document Management (ECDM)
Business Case Reference Number	
Business Case Sponsor	Sarah Perkins
Date of Business Case Approval	27th June 2012
Go-live date for implementation	14th October 2013
Period covered by this review	

Sign-off of Post Implementation Review:

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Purpose of this document:

The purpose of this Post Implementation Review is to understand the benefit and achievements following the implementation of the ECDM Project as per the business case presented in June 2012.

Contents:

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1 - Achievement of the overall objectives

Background

The business case proposed that an Electronic Clinical Document Management (ECDM) solution is implemented across County Durham and Darlington NHS Foundation Trust (CDDFT) to enable paper health records to be scanned, stored, indexed and presented to users in a digital format instantaneously at any Trust location. ECDM was identified as a key enabler in the Trusts 'With You All The Way' strategy, supporting the three strategic challenges and four health outcomes.

The ECDM investment objectives were summarised as:
- Improving the quality of patient care
- Improving service efficiency
- Supporting service transformation
- Improving key relationships
- Supporting Trust environmental objectives

The agreed go live dates for the ECDM Project were:

- Dermatology Pilot – 14th October 2013
- Plastic Surgery Pilot – 21st October 2013
- North Outpatients – 11th November 2013
- North Inpatients – 18th November 2013
- South Outpatients and Inpatients – 9th December 2013

2 – Project Performance

Benefits Realisation

ECDM Clinical and Patient Safety Benefits

Benefit	Description	Results
Improved patient safety / reduction in patient risk	Access to the full health record at the point of clinical need can lead to improved clinical decision making and therefore reduced clinical risk	358,031 patient records have been scanned as part of the ECDM Project. This means they are now always available when required and there is no delay in waiting for them to be

		delivered. **Outcome: Achieved**
Improved re-use of information e.g. patient clinical history	Improved patient experience as a result of not having to give repeat history in multiple settings	All new information since go live has been scanned in to the tree structure to the relevant area which makes it easier to locate in the electronic record. **Outcome: Achieved**
Reduction in patients turned away from clinic	The increased availability of patient notes will reduce the incidence of patient outpatient appointments being cancelled as a result of notes not being available.	Records no longer need to be transferred around the Organisation so once scanned are readily available when required, this has meant no patient has been turned away from clinic because their notes were not available. **Outcome: Achieved**
Reduced level of duplicate records	Reduced risk to patients of vital clinical information being available in a duplicate record elsewhere in the hospital	If a patient has duplicate records on CaMIS both records are scanned and available as one record in WinDIP. **Outcome: Achieved**
Improved clinical effectiveness and clinical productivity	Reduction in time taken to find notes, and the availability of notes 24/7 to more than one clinician simultaneously, leads to improvements in clinical decision making and productivity.	Records no longer need to be transferred around the Organisation so once scanned are readily available when required. **Outcome: Achieved**
Improved availability of health records	Health records available concurrently 24/7 to clinicians across multiple sites including community and outreach clinics.	358,031 patient records have been scanned as part of the ECDM Project. Once the record is scanned it is always available when required. **Outcome: Achieved**
Support standardisation of the clinical record across all specialties and sites	All staff will be able to use a consistent version of the record across the Trust to allow a more effective review of information by clinicians	The same record and information is available to all staff across the Trust at the same time. **Outcome: Achieved**

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Reductions in repeat testing	Improved availability of patient notes at the point of need will lead to a reduction in the need for a clinician to order either pathology and radiology tests that have already been ordered or reported	The patient record is available at point of care so access to previous results has improved. **Outcome: Achieved**
Improved patient confidentiality	Electronic records are more secure than paper records, which are at risk of breach of confidentiality both in transit and in hospital settings	The audit trail details when each page in a record is viewed and by whom providing improved control over who accesses a patients records. **Outcome: Achieved**
Ability to annotate records easily by typing direct into the patient record	Clinicians can add clinical notes in electronic format to the scanned paper records to enhance the information held in the record. This can then be shared with other clinicians as appropriate.	The use of notes and bookmarks is not widely used in WinDIP due to the functionality. This is being explored and improved functionality may be available in future versions. These developments will be monitored and prioritised by ISSC as it may be more appropriate to deliver this benefit though the planned EPR. **Outcome: Not Achieved**
Reduction in the amount of paper documents being lost or misfiled	As paper records have to be mobile throughout the organisation, they can easily be damaged or get lost in transit. This is reduced when records are scanned and available electronically	Once records are scanned they are available Trust wide this has reduced the risk in them being lost or damaged. **Outcome: Achieved**
Improved record organisation through indexing	The ECDM software will automatically index the record making it less likely for information to be misfiled in the record	The barcodes on the documents allow the document to be filed in the same location within the file. **Outcome: Achieved**
Reduced staff time in merging duplicate records	As records will be in one place on an electronic system, new records are much more likely to be scanned and added to a single patient record	If a patient has duplicate records, once scanned they appear as one record. **Outcome: Achieved**
Enhanced organisational	Records available electronically means that it is easier to transfer services to different	Records can now be accessed at any site so

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flexibility	physical locations (less transport arrangements required)	clinics can be relocated if required **Outcome: Achieved**
Less stress for staff - improved staff morale	All staff should find their job easier to undertake as a result of less time spent looking for missing or misfiled records	Casenotes no longer need to be searched for allowing staff more time for other duties. **Outcome: Achieved**
Improved access to records for clinical coding	Patient records are available quicker for clinical coding, to enable payment to be requested from PCTs	Clinical Coding can now be completed at any site as the records can be accessed at any site once scanned. **Outcome: Achieved**
Improved support for clinical audit	Reduction in time spent obtaining patient records for undertaking clinical audit activity	Medical Records are readily available so clinical audit can be completed once the patients are identified. **Outcome: Achieved**
Supporting compliance with NHS Litigation Authority Risk Management Standards	Improved support for NHS LA requirements related to the retention, destruction and disposal of health records and well as general health records keeping. Potential for reducing insurance premiums as a result	Medical Records are now held more securely and the risk around transporting the records has been removed. **Outcome: Achieved**

ECDM Cash Releasing Benefits

Benefit	Description	Results
Reduced Medical Records staff costs	ECDM will mean that fewer health records staff are required to maintain the service.	CDDFT reduced the costs associated with medical records staff by £1,766,931 by implementing ECDM. **Outcome: Achieved**
Reduced medical records administrative costs	Finding lost or replaced notes, chasing and transporting/ tracking notes is time consuming for many other staff groups in addition to health records staff. This will be reduced by the introduction of ECDM.	CDDFT reduced the costs associated with secretaries and Ward Clerks by £280,074 a year. **Outcome: Achieved**
Reduction in the costs of storing and retrieving health records	Space used for storage and preparation of case notes will be reduced in size, including off-site storage and notes preparation and collection areas	Although we are unable to quantify the costs associated with onsite storage areas that have been released the ECDM Project reduced the offsite

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		storage costs by £255,750 a year. **Outcome: Achieved**
Reduction in the use of paper	The implementation of scanning and e-forms will mean a reduction in the costs for the purchase of stationary (including health records folders), dividers and a reduction in paper handling costs.	The costs associated with stationary for medical records has been reduced by £75,000 a year and further increases will be made as ECDM integrates with other electronic clinical systems. **Outcome: Achieved**

The following benefit was realised with the introduction of ECDM but was not identified in the original ECDM Benefits section in the full business case.

Benefit	Detail
Reduction in the costs related to transporting medical records	The introduction of ECDM has substantially reduced the transport costs. (including use of taxis and Trust transport)
Improved quality of Medical Photographs when viewed using WinDIP and hard copy photographs are no longer printed.	The scanned medical photographs could not be used for clinical decisions due to the quality of the scanned image. Medical Photography now upload the photographs directly to WinDIP so the quality is better and they are no longer printed.

Project Engagement

Engaging with the system users was a large part of the ECDM Project plan, this was achieved by attending care group meetings and holding roadshows across the Organisation to allow all staff members to comment on the project. Demonstration sessions were held with the shortlisted suppliers so all staff members had the opportunity to view and provide feedback on the proposed systems.

To ensure the executive teams and care group leads were fully engaged in the project all key decision points were taken to Executive Clinical Leads (ECL) and all members signed up to making the decision and progressing with the project plan.

As part of the ECDM Project an ECDM Clinical Reference Group (CRG) was set up in December 2012 and meets once a month with the aim of clinical staff engaging with the system configuration and provide clinical feedback on changes required. Since the implementation of WinDIP the ECDM Clinical Reference Group has transitioned to an IT Systems Clinical Reference Group which allows clinical staff from all areas to discuss and request changes to the systems used across CDDFT. This ensures that all systems are constantly reviewed on a regular basis.

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Members of the ECDM Project Board attended the following meetings during the project to update and gain approval for different stages of the project:

Executive and Clinical Leads (ECL):

09/05/2013	24/07/2013	24/10/2013
22/05/2013	29/08/2013	07/11/2013
04/07/2013	10/10/2013	05/12/2013

Medical Advisory Committee (MAC):
03/04/2014

Risks and Issues

<u>**Performance**</u>

Background

A number of issues were encountered following the 9th December Go-Live when Darlington and Bishop Auckland Hospitals came on line. This particular issue caused significant performance degradation of the system which had not been seen or anticipated when the additional workload and users came on line.

A significant amount of effort was applied to this over the following months with incremental improvements to performance being applied. By July 2014 the incremental improvements led to an agreement by the Clinical Reference Group that performance was at a satisfactory level for operational use pending a system upgrade.

Upgrade Issues

Following detailed planning and testing an upgrade to the system took place on 28th March 2015. Unfortunately the upgrade had a marked detrimental effect on system performance that had not been seen during extensive testing. The supplier identified 3 key areas that they had not managed correctly during the upgrade and the additional patches were applied to the system, to restore the overall performance of the system to an operational level.

Following the upgrades to the system the performance has been continually monitored and all reports of inconsistent system performance are reported to the supplier and full investigations are carried out. We continue to monitor developments of the new version of WinDIP and we will look at implementation of this system in line with the Health Informatics Strategy.

Medical Photography

During the implementation of ECDM an issue was raised about the quality of scanned photographs. The Dermatology clinicians requested the original photographs to allow them to compare the images with the patient. In November 2016 a solution was implemented that meant the medical photographs were electronically ingested in to WinDIP and no longer printed in hard

copy format. The clinicians confirmed the quality of the ingested image was better than the hard copy image and they could make clinician decisions from the ingested image. The departments were also provided with iPads to test the iWinDIP functionality and they are now using this solution to view the medical photographs.

ECDM Phase 2

Automated Ingestion

Significant work has been done to reduce scanning requirements by automatically importing documents into the system.
Automatic Ingested documents are processed from:
Digital Dictation Letters
Discharge Letters
Ophthalmology documents from the Ophthalmology system
Further work on other electronic system outputs will continue.

eForms

Work on eforms which are a means of making the paper form an electronic document has been slow due to some issues with the functionality of the system. The outpatient history sheet, operation note and Pre-Assessment form have been developed within WinDIP but due to the functionality and workflow attached to these forms they have not been rolled out to the Organisation. Any additional requirements will be closely monitored by ISSC as we move towards an EPR.

Results Acknowledgement

A technical solution has been developed and has been available in iCM since the winter of 2014 and in early 2015 a pilot was launched. Progress for results acknowledgment is being monitored through the Clinical Reference Group. The project has found an interim solution and a post project activity will be to remove the need for the results to be printed and scanned.

Growth Charts

Following the introduction of WinDIP an issue was raised with the process around recording the measurements on growth charts as the reports needed to be printed and then annotated. An electronic solution was developed and this was implemented in December 2015. This solution is now being used by the pediatricians across the Organisation.

Financial Summary

The ECDM Project was delivered on time and within budget. Since implementation the project has continued to make the savings that were identified in the business case and has successfully met the targets.

The image below shows the savings that have been achieved following the implementation of WinDIP.

Option 3: Contract Lots	Year 0	Year 1	Year 2	Year 3	Year 4	Y
Capital Costs						
Hardware & Infrastructure	£928,944	£0	£0	£0	£0	
Software - Licence & Implementation	£1,860,000	£0	£0	£0	£0	
Software Infrastructure	£288,000	£0	£0	£0	£0	
Interface	£100,000	£0	£0	£0	£0	
Printers	£50,000	£0	£0	£0	£0	
Trust Hosting	£738,972	£0	£0	£0	£0	
Total Capital	**£3,965,916**	**£0**	**£0**	**£0**	**£0**	
Recurring Operational Costs						
Salaries						
Health Records	£0	£2,591,378	£824,447	£824,447	£824,447	
Coding & Admin	£0	-£17,521	-£17,521	-£35,042	-£35,042	
Medical Secretaries	£0	-£70,019	-£210,056	-£280,074	-£280,074	
Legal Services	£0	-£3,843	-£3,843	-£7,686	-£7,686	
Cancer Trackers	£0	-£2,701	-£2,701	-£5,401	-£5,401	
Porters DMH & BAGH	£0	£48,660	£48,660	£48,660	£48,660	
Redundancy & Pension Provision	£0	£1,275,359	£0	£0	£0	
Health Records & ECDM Contract Manager	£0	£52,477	£52,477	£52,477	£52,477	
IT Support	£0	£0	£247,844	£247,844	£247,844	
Training Support	£0	£0	£24,267	£24,267	£24,267	
Project support & Change Management (Project Team)	£84,000	£324,572	£0	£0	£0	
Project support & Change Management (IT)	£0	£346,133	£0	£0	£0	
Project support & Change Management (Training)	£0	£145,604	£0	£0	£0	
Total	**£84,000**	**£4,690,100**	**£963,575**	**£869,492**	**£869,492**	
Printing & Stationery						
Health Records	£0	£152,902	£150,000	£93,404	£77,000	
Non Health Records	£0	£180,000	£180,000	£150,000	£139,801	
Total	**£0**	**£332,902**	**£330,000**	**£243,404**	**£216,801**	
Storage & Transport						
Transport	£0	£117,607	£117,607	£117,607	£117,607	
Total	**£0**	**£117,607**	**£117,607**	**£117,607**	**£117,607**	
Accommodation						
Lingfield Point (rent)	£0	£187,000	£187,000	£187,000	£187,000	
Lingfield Point (utilities)	£0	£68,750	£68,750	£0	£0	
Removal Expenses	£0	£100,000	£0	£0	£0	
Total	**£0**	**£355,750**	**£255,750**	**£187,000**	**£187,000**	
Training						
Training for new users and refresher courses	£0	£20,000	£0	£0	£0	
Total	**£0**	**£20,000**	**£0**	**£0**	**£0**	
Scanning Solution	£0	£3,460,547	£968,286	£730,861	£730,861	
Storage Destruction Services	£0	£470,182	£417,388	£147,992	£109,684	
Trust Hosting (not VAT reclaim)	£0	£144,120	£144,120	£144,120	£144,120	
Software Maintenance	£0	£288,000	£288,000	£288,000	£288,000	
VAT (Reclaimable)	£0	-£703,121	-£278,946	-£194,476	-£188,091	
Trust Hosted Solution	**£0**	**£3,659,727**	**£1,538,848**	**£1,116,498**	**£1,084,574**	
Capital Charges	**£0**	**£528,458**	**£514,578**	**£500,697**	**£486,816**	
EDM & Scanning Solution Total	**£84,000**	**£9,704,544**	**£3,720,358**	**£3,034,698**	**£2,962,290**	
Total Current Costs (Do Minimum)	£0	£3,430,733	£3,448,655	£3,540,733	£3,588,676	
Annual Expenditure / Savings	**£84,000**	**£6,273,811**	**£271,703**	**-£506,035**	**-£626,386**	

Lessons Learned

Although the ECDM Project was delivered on time and within budget listed below are some of the lessons that have been learned during the implementation.

Medical Records Staffing

Due to the previously failed procurement Medical Records staff were aware they would no longer be required in 2011. This led to a large number of staff members leaving the department before the service transferred over to TNT. This meant the medical records knowledge was lost as the staff were replaced by temporary staff who were new to the department. This affected the service the medical records department was able to provide.

Medical Records Management

Several issues with casenote availability occurred following the introduction of the TNT tracking system within the medical records department. The introduction of the new tracking system, new medical records processes and temporary staff led to a reduced service provided by the department. On reflection the management of medical records should have remained with the Trust and only records due for scanning should have been given to TNT. This may have stabilised the service before the implementation of ECDM.

Communication

During the implementation of ECDM and the transfer of the medical records service to TNT the number of medical records available for clinics or attendances was dramatically reduced. This led to long waits in clinics and cancelled operations. A standard communication was not provided to all patients and some were led to believe their records were lost. The cancellation of appointments and operations as well as the belief their information had been lost led to poor patient experience. A standard communication should have been provided to all patients and clinicians to guarantee a consistent message was being communicated across the Organisation.

New Processes

Following the introduction of ECDM all documentation requires both a patient ID barcode and a form ID barcode to guarantee it can be scanned. The ECDM Team continue to receive two boxes returned each day where the document has been incorrectly barcoded. The ECDM Team communicate the errors to the Organisation and areas who continue to incorrectly barcode documents are visited to explain the errors and provide support. On reflection it may have been beneficial to implement barcoded forms to the Organisation before ECDM so any issues could have been corrected before go live.

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Project Closure

The ECDM Project has now been closed and all additional work will be managed through the business as usual process through Health Informatics.