

ECS-Lanarkshire Project :

**Emergency Care Summary (ECS) and
Medicines Reconciliation in scheduled care.**

Final Report (v 6.0)

19th March 2011

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The papers produced during the life of the NHS Lanarkshire ECS pilot, have been produced with input and support from a large number of NHS Lanarkshire and also other NHS Board colleagues. Those who are not members of the pilot data capture workstreams OR the Project Board are acknowledged here.

Information about the Fairwarning audit tool.

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Audit and Access Issues:

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The hands-on clinicians involved in the pilot and the Pilot Project Board are identified within the body of the report and without whom none of this work could have been undertaken.

Finally, the sponsorship from the national ECS Programme Board made this discovery exercise possible.

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Executive Summary

Medication errors are a major cause of harm to hospital patients and most of these errors occur at the interfaces of care. Accurate medicines reconciliation is a vital part of safe hospital care, particularly for patients with several illnesses with long lists of different drugs. Local data shows that current therapy is frequently omitted on admission to hospital, with junior doctors citing conflicting sources of medication information as the main barrier to obtaining an accurate medication history.

The use of the ECS in NHSL has been an invaluable starting point for achieving the goal of the Scottish Patient Safety Programme of 95% of patients with accurate medicines reconciliation achieved within 24 hours of admission therefore reducing harm from medication errors.

It was suggested that similar benefits could be achieved for patients in scheduled services, and this discovery project was set up to look at the potential improvements of accessing ECS records for non emergency patients.

The project examined the clinical and operational implications of accessing the ECS in four scheduled clinical areas, namely Cancer Services, Elderly Day Care, Surgical Pre-Assessment and Elective Surgery. These clinical areas tended to look after patients with significant lists of medications and included patients in both in and outpatient settings in all three of the acute hospitals in Lanarkshire.

The study looked at 405 patients and ECS was accessed for 75% (305 patients). 100 records were not accessed, either because there were other sources of data readily available to the clinician at the time (51%); the patient was not on any medications (20%) or there was a "Patient Opted out" flag on the GP system (20%).

Results show that in 22% of accesses, the ECS contained information which was not available from any other source. Clinicians reported that in their opinion, access to this information prevented harm to 23 patients. Had this information not been available, these patients would have required monitoring or intervention to preclude harm. In 3 patients it would have resulted in temporary harm which would have required clinical intervention. Most of the harm would have resulted from the omission of current treatment for chronic conditions and the potential prescription of contraindicated or interacting medicines.

In 7 patients the additional information in ECS resulted in a change to the clinical management plan. These changes included referral to an anaesthetist, alternative treatment being prescribed and interacting medicines discontinued.

Whilst the extrapolation of these findings can only be considered as a crude indicator, there is evidence to suggest that accessing ECS in planned care would have significant impact on the medicines reconciliation process and safety of patients. Indeed extrapolating the use of ECS in two of the study areas, Elderly Care and Pre-assessment, this would have averted harm in **72** and **448** patients respectively in one year.

The ECS was found to reflect the patient's current medication in two thirds of cases. The most common differences were omissions of medicines, different doses documented and discontinued medication still on the repeat list. The majority of accesses to ECS were by nursing staff and there was also significant use by pharmacists. There were no accesses by doctors which contrasts with the use of ECS in Out of Hours Organisations.

Access to ECS is strictly controlled and audited. The improvements to medicines reconciliation and saving of clinician time have to be balanced against the burden of maintaining and reviewing audit reports of all accesses. Any suspected breaches to the protocols must be followed up to guard against unlawful access. This task has been simplified by the introduction of the Fairwarning software which matches patients' data and ECS accesses but still requires resource from Boards IT departments.

Conclusions

Access to ECS records facilitates an accurate drug record for patients in unscheduled admissions. This project shows that access to ECS in scheduled care has the potential to avoid significant patient harm by improving the accuracy of medicines reconciliation at the interfaces of care.

The results of this ECS Discovery project were well received when presented to the ECS Programme Board but there were still concerns that similar results could be obtained by using the initial GP referral letter as a source of data for medicines reconciliation. An additional audit was carried out (reported in full in Annexe E) which confirms that ECS information is considerably more accurate. To rely on referral letters alone would carry a significant clinical risk.

Recommendations

- Consideration should be given to extending access to ECS by healthcare professionals in scheduled care.
- Discussion should take place to determine the framework to allow this to proceed whilst satisfying information governance requirements
- Visibility of acute prescriptions on ECS should be extended from 30 to 60 or 90 days in order to capture the increasing number of medications that are prescribed as acute prescriptions lasting 56 or 84 days.
- Further work is commissioned to examine ways of increasing the completeness of information contained within ECS

2. Introduction

Extending access to the Emergency Care Summary record (ECS) is stated as a key aim of “Better Health Better Care” and the eHealth Strategy for NHS Scotland. Currently, access to ECS patient records is widely available across Scotland for clinicians working in NHS24, Out of Hours services, A&E and Acute Receiving units. SAS (Scottish Ambulance Service) are also piloting the use of ECS for their paramedic units.

More recently clinicians working in planned care services have requested access to ECS as they do not routinely have up to date prescribing information available to enable safe medicines reconciliation processes to be undertaken (see below). This Discovery project in Lanarkshire aimed to explore any possible benefits for patient care and anticipate any future demand on the ECS service.

With over 2.1 million accesses made in 2009 and 2.5 million accesses in 2010, the use of ECS is continuing to increase across all boards in Scotland and can be presumed to demonstrate the value of ECS information in unscheduled care.

Following concerns raised by the Scottish Patient Safety Alliance, the national ECS Programme Board received an eHealth Commissioning Brief on support for Medicines Reconciliation and established a pilot discovery project in Lanarkshire.

NHS Lanarkshire were approached to run this pilot as the ECS use across the Board is high, and that the Board were best placed to support the aims and objectives of the pilot. In addition, two key players on the Lanarkshire ECS Project Board, (Dr Gregor Smith and Alexa Wall), were actively engaged in medicines reconciliation as Fellows of the Scottish Patient Safety Programme.

This is the final report of that pilot.

3. Background: Medicines Reconciliation.

It is well recognised that medicine related errors are a major cause of harm to hospitalised patients and that over half of all hospital mediated medication errors occur at the interfaces of care. Accurate medicines reconciliation continues to be a challenge both locally and nationally. Local audit data demonstrates that omission of current therapy is the most common problem with junior doctors citing conflicting sources of medication information as the main barrier to obtaining an accurate medication history on admission. The use of the ECS in NHSL has been an invaluable starting point for achieving the goal of the Scottish Patient Safety Programme of 95% of patients with accurate medicines reconciliation achieved within 24 hours of admission. ECS facilitates the establishment of an accurate drug list for patients admitted as an emergency and it is anticipated that use of ECS would be an effective tool in the safer management of medicines for elective patients at the interfaces of care.

“Every time a patient is transferred from one healthcare setting to another it is essential that accurate and reliable information about the patient’s medication is transferred at the same time. This enables healthcare professionals responsible for the care to be able to match-up the patient’s previous medication list with their current medication list; thereby enabling timely, informed decisions about the next stage in the patient’s medicines management journey. This process is called ‘Medicines Reconciliation’ and it should be one of the basic principles of good medicines management.”

(Medicines Reconciliation: A Guide to Implementation. www.npci.org.uk)

There is therefore a requirement to implement a process of safe medicines reconciliation through the timely provision of accurate prescribing information. At present this reconciliation process requires two different sources of evidence for cross checking. This is usually the patient's own (or their family's) recollection plus the patient's own medications brought in or the GP practice record obtained by fax or telephone.

This Pilot Project in Lanarkshire has evaluated the benefits of accessing the Emergency Care Summary as one of these sources of prescribing information for medicines reconciliation in scheduled care.

ECS and Medicines Reconciliation.

It is widely acknowledged that the medicines that a patient is actually taking are not always the same ones as currently recorded in their clinical records and no one source should be used in isolation to confirm a medication list. The ECS record might not be a true reflection of their current list for the following reasons:

- The patient may have been recently discharged from hospital and their discharge medications have not yet been put into the GP practice computer system and therefore not been uploaded into the Emergency Care Summary record.
- The patient may have stopped taking some prescribed medications because of the effect they were having on them or because they didn't like them.
- A patient may also have purchased over-the-counter medications or receiving medicines directly from the hospital that their prescriber is unaware of and therefore is not in any of the clinical records systems including the ECS.

Any recorded list will only be as accurate as the day it was last updated and even then it may not present a complete picture of what the patient is actually taking. All ECS users need to be aware of this and a warning screen is displayed on the ECS record to remind clinicians.

It is interesting to note that there is an assumption by many patients that there already IS a single source of prescribing information and that all clinicians have access to it! As we know, this is not the case and medication histories can be found in a number of different systems including the Hospital Case Notes; GP Practice clinical system; Hospital Pharmacy system; community pharmacy databases, prescription repeat slips and residential nursing or care home prescription charts.

It is essential that a more robust process be put in place to allow this medicines reconciliation process to be undertaken reliably. Access to the ECS is one element in this process.

4. Project Management.

The Discovery exercise in Lanarkshire became a formal pilot project in Spring 2010 and a project management structure applied to it as described below.

a. Objectives

The principal objectives of this project were to

- Capture the benefits and clinical impact arising from the use of ECS in the management of elective patients in hospitals.
- Carry out an evaluation by NHS Lanarkshire utilising structured audit forms.
- Evaluate clinical benefits, assess patient acceptability and document the accuracy of the ECS data and their impact on decisions and care. These results form part of this report for the ECS Programme Board and eHealth Programme Board.

The initial objectives, described in the Project Initiation Document (PID) were as follows:

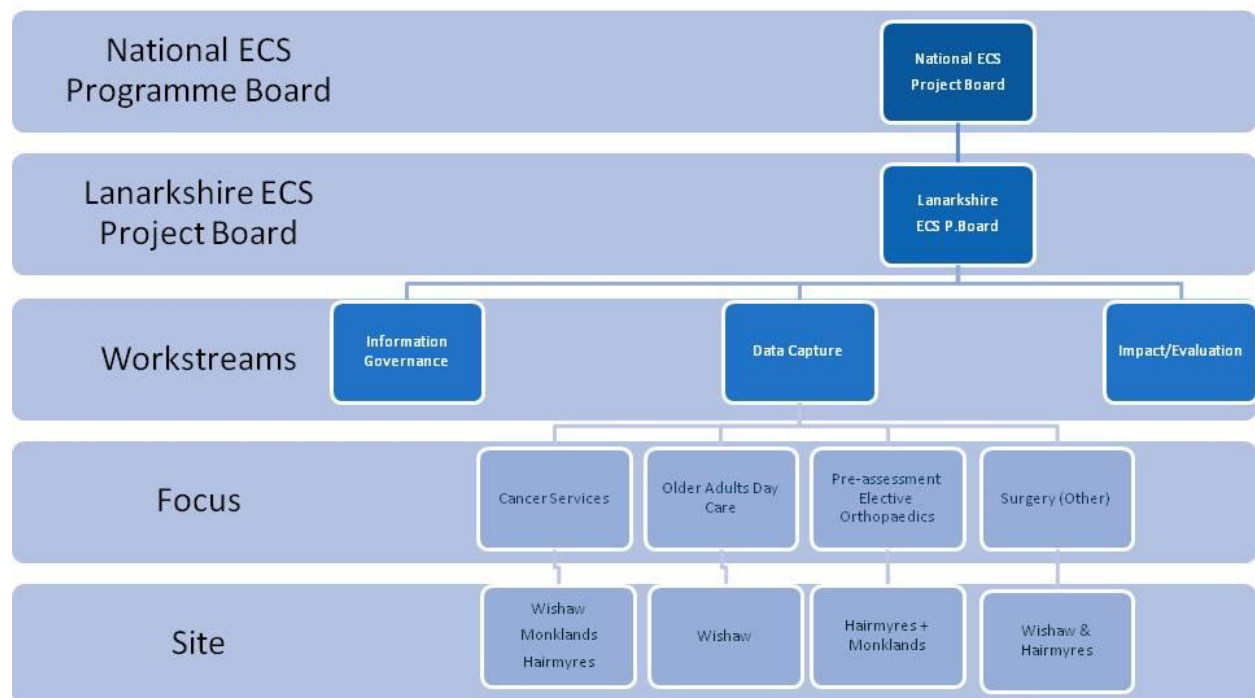
Objectives	Related Success Criteria
Extend ECS use to Out patient clinics	Document numbers of clinics where ECS was used, numbers of ECS records accessed and total numbers of patients
Extend ECS use to In patient scheduled care wards	Document numbers of wards and relevant numbers of ECS records accessed along with total number of patients
Document benefits	Number of evaluation forms completed
Assess Patient acceptability	Interview patients and record consent status on form
Document the accuracy of ECS records	Completed ECS data collection forms
Document the impact of ECS on decisions and management	From ECS data collection forms
Complete report at conclusion of project to inform future expansion of ECS across Scotland	Final project report

b. Project Control

A short life project board was established for the NHS Lanarkshire ECS Pilot to ensure that work was progressed efficiently and that the appropriate evaluations were carried out.

The board was chaired by the NHS Lanarkshire Primary Care Medical Director (Dr Gregor Smith) and comprised: Diane Campbell (Patient Safety Manager); Fraser McLellan (Head of Programmes Primary Care IM&T); Alexa Wall (Head of Pharmacy, Monklands Hospital); Robin Wright (General Manager eHealth); Sean Brennan (Project Manager); Dr Libby Morris (Chair of ECS Programme Board) and Jonathan Cameron. (ECS Programme Manager). The ECS- Lanarkshire Project Board reported to the national ECS Programme Board.

The project identified a number of work streams which were included in the pilot (see below)



Clinical Governance:

Each of the four work streams had a medical lead, a pharmacy facilitator and a data capture team. The project had an overall medical lead who co-ordinated and reported back through the established Board clinical governance framework. As the activity relating to this project took place in a hospital setting, reporting by highlight was firstly to the Acute Clinical Board, chaired by Dr Jane Burns, Medical Director, Acute Operating Division. A report was also prepared for the Joint CHP Clinical Governance and Risk Management Board chaired by Dr Gregor Smith.

The Medical/Clinical leads:

- Project Medical Lead: Dr Gregor Smith
- Surgical: Dr Jane Burns
- Cancer: Mr Hakim Ben Younes
- Elderly Day Care: Dr Julie Logan

The Pharmacy Facilitators

- Project Pharmacy Lead: Alexa Wall
- Surgical Pre-Assessment: Dawn Farmer
- Surgical (Other): Gail Richardson
- Cancer: John Milne
- Elderly Day Care: Victoria Gemmell

Data Capture/Audit

- Project Lead: Sean Brennan Project Manager
- Surgical Pre-Assessment: A team of 8 nurses led by Sandra Taylor
- Surgical (Other): 3 Pharmacists
- Cancer: A team of 5 Pharmacists led by John Milne
- Elderly Day Care: Charge Nurse Jackie Wyllie & Staff Nurse Marie Tennant

eHealth /Audit & IT Support:

Robin Wright (eHealth) and Fraser McLellan (ECS Access/Audit)

National ECS:

Dr Libby Morris. (Chair of ECS Programme Board)

Jonathan Cameron. (ECS Programme Manager)

c. Workstreams

i. Data Capture work stream:

The first stage of the project in NHS Lanarkshire was to engage with clinical stakeholders and to confirm which clinics and users should be targeted. NHS Lanarkshire ensured that a broad range of different users and clinics had access to ECS in order to provide suitable evidence/results for planning any future national rollout.

The agreed areas of study were:

Workstream	Lead Clinician	Audit Lead	Hospital
Care of the Elderly (Day Care)	Dr Julie Logan	Jackie Wyllie	Wishaw
Cancer Services	Mr Hakim BenYounes	John Milne	Hairmyres, Monklands and Wishaw General
Surgical Pre-assessments	Dr Jane Burns	Sandra Taylor	Hairmyres
Surgical -Other	Dr Jane Burns	Alexa Wall	Wishaw & Hairmyres

ii. Audit/ Information Governance:

At the onset of the project, the issue of consent was discussed at the Lanarkshire ECS Project Board. It was considered that access to Primary Care Medical records is implicitly agreed by the patient as part of the referral information flow between the GP and the hospital, and there is a general assumption by the patient that the NHS already has this information. However, as GPs don't routinely ask for patients' consent for the acute service to access the ECS, it was agreed that explicit consent would still be asked for in line with current use in a hospital emergency setting.

It is acknowledged that making patients' clinical information available electronically brings enormous benefits to clinicians in terms of timeliness and availability but it also brings with it risks including the potential for loss of confidentiality which must be appropriately managed.

To deal with this all Health Boards have put in place various processes to a) control access to their computer systems and b) monitor subsequent accesses. This paper considers the implications for both elements as a result of extending the use of ECS. The Pilot Project in Lanarkshire addressed both these aspects of Information Governance & Security and the conclusions can be seen later in this report.

iii. Impact/Evaluation

The 3rd project Workstream was the Evaluation and Impact Assessment. This final report has been produced which reflects progress against initial objectives; technical and organisational implications and the clinical and staff impact of the ECS pilot.

5. Results:

a. Data Analysis

Q1. Access to ECS

Did you access ECS?		
Answer Options	Response Percent	Response Count
Yes	75.3%	305
No	24.7%	100
answered question		405
skipped question		0
Please indicate below why you could not /did not access ECS for this patient		
Answer Options	Response Percent	Response Count
Patient not on any medications	20%	20
Patient refused access (Verbally)	1%	1
Patient ECS details "Opted Out"	20%	20
Other accurate source available	51%	51
No access to computer.	0%	0
ECS site down	4%	4
Other (please state reason)	4%	4
Not able to get consent X2		
Transferred from another hospital		
Had up to date cancer care plan available		
answered question		100
skipped question		305

Access to ECS:

One of the initial objectives of the project was to assess the patients acceptability of the accessing their ECS as part of the medicines reconciliation process. This was achieved by asking every patient for their approval to access the ECS. In almost ALL cases (with the exception of a single patient) this consent was received. The other reasons for not accessing the ECS are as follows:

Any patients who have decided not to have an ECS record on the national system have their GP ECS record flagged as "*Opted out*".

However, during the life of this pilot, this flag was used for any GP practices undergoing the GP system transition due to issues with transferring current medication information from the old GPASS to the new GP system Vision (INPS) (see Page 23 Section 4.a). In order to minimise any potential risk, it was agreed that any such practices would have all their patients temporarily flagged as "*Opted out*". For the purposes of this pilot, genuine "*opted out*" patients were identified verbally and recorded as such on the audit form.

For this reason, "*Opted out*" attribute does not give any useful information but of 405 patients interviewed by the clinical staff as part of this project, only 1 patient did not give permission for their ECS to be accessed.

4 forms state that "the ECS Site was down" all on 3/8/2010. The ECS was NOT down on that day but there may have been problems with the local network.

As the main purpose of this pilot was to use ECS in the context of medicines reconciliation, which requires two sources of information, if those two sources already existed, then the ECS was not absolutely essential as part of the reconciliation process. This resulted in 50% of the reasons for not accessing ECS was due to "Other sources of information being available". Other sources available would be patients' own medicines, information from the patient / carer or information from the referral source to substantiate the current list of medicines.

Breakdown of data by Pilot Workgroup:

Summary by Workgroup	Total	%
Elderly Day Care	77	19%
Pre Assessment	135	33%
Oncology	84	21%
Surgical Other	109	27%
	405	100%

Breakdown by Staff:

Who accessed ECS?		
Answer Options	Response Percent	Response Count
Medical	0%	0
Nursing	63%	193
Pharmacy	37%	112
Clerical	0.0%	0
<i>answered question</i>		305
<i>skipped question</i>		

Q4. Did ECS reflect current treatment?

Did the ECS reflect the current treatment?						
Answer Options	Nursing	%	Pharmacy	%	Total %	Total Count
Yes	122	65	76	66	65.5%	198
No	65	35	39	34	34.5%	104
Total	187	100	116	100		
<i>answered question</i>						302
<i>skipped question</i>						3

Q5. If no then why not? (May have multiple reasons)

If "No" please indicate why not by ticking all the relevant reasons below:						
Answer Options	Nursing	%	Pharmacy	%	Total Response Percent	Total Response Count
Drug missing	30	39	16	29	44.2%	46
Discontinued meds still on repeat list	23	30	12	22	33.7%	35
Wrong dose	1	1	11	20	11.5%	12
ECS not updated within 24hours	5	7	5	9	9.6%	10
Allergy status not documented	9	12	1	2	9.6%	10
Acute prescriptions not documented	1	1	3	5	3.8%	4
Wrong frequency	0	0	4	7	3.8%	4
Wrong drug	1	1	2	4	2.9%	3
Drugs not all dispensed	2	3	0	0	1.9%	2
Wrong device	0	0	0	0	0.0%	0
Allergy information incorrect	0	0	0	0	0.0%	0
Other:	4	5	1	2	4.8%	5
Total	76	100	55	100		
Other Specified **						12

Other Specified Reasons:

- Drug dose changed 8/10/10. ECS accessed 11/10/10
- Risedronate and Movicol being taken since discharge from hospital but not on ECS
- Missing Drugs. Thiamine and Cyanocobalamin
- Escitalopram
- Had to phone Community Pharmacist to confirm current dose of olanzapine

- All repeat drugs not on ECS only acute meds available
- ECS only showing acute script patient is on 5 other drugs.
- Patient aware of wrong dosing. ECS to confirm patient correct.
- Atenolol 25mg. Patient states she is not on it and does not take it.
- Clopidogrel but patient has stopped it since April 10.

Did ECS reflect current treatment? Comment:

There was good correlation between the nurses and pharmacist results with 65/66% of ECS records reflecting the current medication/treatment. This result reflects previous findings and local expectations from Scottish Patient Safety Programme work on medicines reconciliation in unscheduled care of the elderly admissions.

The reasons for the 35% were mostly Drug missing (44%) and Discontinued medication still on the ECS (34%).

The relatively high number (10%) of Allergy Status missing may be genuine but could also be due to a misunderstanding. ECS was specified on the basis that it was drug allergies that are required. However, it depends on how the information is stored on the GP System. Generally speaking Allergy Status is for drug allergies and adverse reactions only, but some GP systems may pick up dust / food type allergies as well. If there is an expectation that ECS contains ALL allergies, and the patient has an allergy but it is NOT in ECS, that may be reflected scores.

It would reduce the ambiguity if there was an option to record **“no known allergies”** in the ECS system as some non drug related allergies are still clinically relevant when prescribing e.g. egg allergy.

Q6: Did ECS contain Information not available from another source

Answer Options	Nursing	%	Pharmacy	%	Response Percent	Response Count
Yes	22	12	45	39	22.2%	67
No	166	88	69	61	77.8%	235
Total	188	100	114	100		
<i>answered question</i>						302
<i>skipped question</i>						3

Q6b: Examples of ECS additional Information

- No documented medication history. ECS the only source. Patient unable to supply medication. Patient did not have details of medicines when interviewed. Could only remember 5/10 medicines.
- Patient forgotten he'd been given Movicol from GP
- Patient unable to clarify dose of Propranolol themselves also unsure of name of anti depressant they were taking
- Patients stoma information available
- ECS had additional drugs listed
- Patient did not volunteer that he received Goserelin injection but this may be discontinued as starting chemo.
- Inhalers documented on ECS but not on lists of meds.
- ECS contained allergy information that the patient was not aware of !
- Adverse Reactions - patient unaware
- Patient didn't mention she was on inhalers or eye drops
- Allergy to Salicylates documented on ECS
- Lactulose on ECS not mentioned by patient.
- Omeprazole on ECS not mentioned by patient.
- Patient states no allergies. ECS states allergies and adverse reactions
- 1 drug was identified which was NOT highlighted during the patient interview
- 3 drugs were listed that were NOT identified as part of the patient interview
- Pre assessment clerk in states patient on Bendroflumethiazide but on Ramipril
- Clarified Vitamin D preparation. Allergy Information not given by patient
- Ferrous Gluconate when patient stated Ferrous Sulphate

Q7: Identify the potential impact to the patient if the information gained from the ECS had not been available (Please select ONE)

Answer Options	Nursing	%	Pharmacy	%	Total Response Percent	Total Response Count
No harm	15	75	28	61	65%	43
Would require monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm	3	15	17	37	30%	20
Would contribute to or result in temporary harm to the patient and require intervention	2	10	1	2	5%	3
Would contribute to or result in temporary harm to the patient and require initial or prolonged hospitalization	0	0	0	0	0.0%	0
May contribute to or result in permanent patient harm	0	0	0	0	0.0%	0
May require intervention to sustain life	0	0	0	0	0.0%	0
May contribute to or result in the patient's death	0	0	0	0	0.0%	0
<i>answered question</i>						66
<i>skipped question</i>						1

Impact of ECS information NOT being available: Comment:

In the clinical opinion of the practitioners performing medicines reconciliation, access to the information contained in the ECS prevented harm to 23 patients (from the original sample size of 305).

In the pilot 23 patients would have required monitoring to confirm that no harm had occurred and/or required intervention to preclude harm and in 3 patients it would have contributed to or resulted in temporary harm to the patient which required clinical intervention. Most of the harm avoided would have resulted from the failure to continue all prescribed medication on admission to hospital. As well as resulting in omission of current treatment for chronic conditions there would also have been the potential to co-prescribe contraindicated or interacting medicines.

The breakdown of these results into project workstreams is as follows:

Of the 43 whose impact was categorised as **“No Harm”**: Pre Assessment = 13 (10% of Pre-assessment); Care of Elderly = 4 (5% of Care of the Elderly); Oncology=9 (11% of Oncology) and Surgical = 17 (16% of Surgical)

The 20 patients in the category **“Would require monitoring”** was Oncology =7 (8% of Oncology); Pre-Assessment= 3 (2% of Pre Assessment); Elderly = 3 (3.9% of Elderly) and Surgical =7 (6% of Surgical)

And the category **“Would contribute to temporary harm”** Care of the Elderly =2 (2.6% of Elderly) and Oncology = 1 (1%)

The interpretation of the potential impact of the lack of clinical information is a subjective one and is discussed later in this paper.

Q8: Did the ECS change your advice re clinical management of the patient?

Answer Options	Nursing	%	Pharmacy	%	Response Percent	Response Count
Yes	2	9%	5	11%	10%	7
No	21	91%	39	88%	90%	60
Total	23	100.0	44	100.0	100%	
<i>answered question</i>						67

Answer Options	Nursing	Pharmacy	Response Count
Further Investigations	0	0	0
Admission	0	0	0
Referral	1	0	1
Alternative Treatment	1	3	4
Other (please state)	0	2	2*
			7
* Ensure that interacting drug not taken			
* Confirmation that interacting drugs are discontinued			

Change in Clinical Management.

Omission of current therapy not only affects the management of chronic conditions but also results in the possibility of a medicine with significant potential to interact with current therapy being prescribed. In the case of elective admissions this is most likely to concern the use of analgesics and anti-infectives. Delayed confirmation of the medication list resulted in interacting medicines already being prescribed for one patient.

Did you telephone the GP as part of this reconciliation?

Answer Options	Nursing	%	Pharmacy	%	Response Percent	Response Count
Yes	0	0	8	11	3.0%	8
No	186	100	71	90	97.0%	257
Total	186	100	79	100		
<i>answered question</i>						265
<i>skipped question</i>						40

If you didn't have access to the ECS would you have phoned?

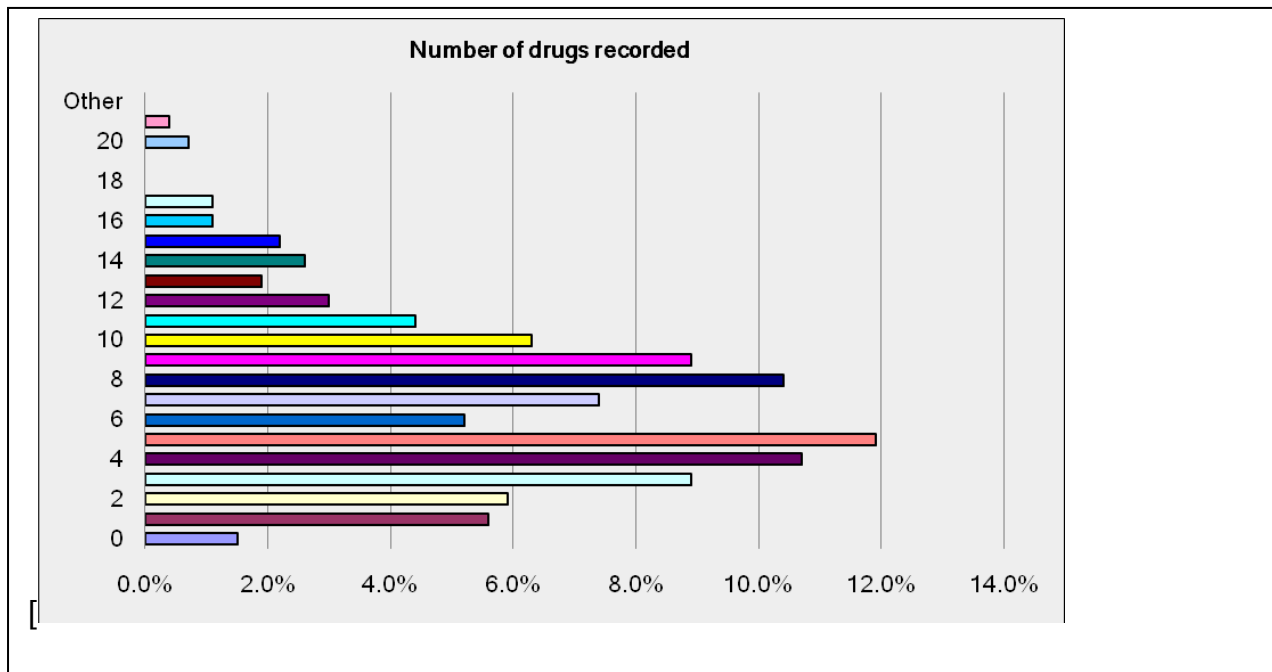
Answer Options	Nursing	%	Pharmacy	%	Response Percent	Response Count
Yes	4	2	55	70	22.6%	59
No	178	98	24	30	77.4%	202
	182	100	79	100		
<i>answered question</i>						261
<i>skipped question</i>						44

Comment:

The first component of medicines reconciliation involves the documentation of an accurate list of medicines that the patient is currently taking. In the absence of the ECS, other sources available often do not provide a fully comprehensive picture and it is necessary to communicate with the patient's GP to obtain a full history. This is time consuming for both acute and primary care practitioners and introduces clinical risk where a list of medicines is transcribed from a telephone conversation, often with a non-clinical member of the practice staff. Access to ECS negates the requirement for routine telephone interaction with the GP practice.

Telephoning the GP is often undertaken by the pharmacists and access to the ECS would have an immediate effect on the time spent on the telephone. However, it is clear from the results that at present, nurses do not routinely phone the GP as part of this process so potential time savings in that group of staff would be less.

Q12. Number of Drugs:



Comment

The graph above clearly demonstrates one of the issues associated with the reconciliation of medicines process. As drug regimens become increasingly more complex, access to reliable sources of information regarding current treatment is paramount to optimising the safe and effective use of medicines and minimising harm to patients.

The graph demonstrates clearly why some patients struggle to remember what medication they are on when they have to remember upwards of 15 medications.

As was seen in the “Additional ECS Information” section (Q6b), a number of patients come in with no knowledge of their drugs and/or doses. In these cases access to ECS is invaluable.

It is notable that the number of medicines prescribed to patients being seen in hospital settings in this pilot appears to have a different profile compared to the number of medications prescribed in the general population. This is probably due to the age distribution of the pilot sample: Care of the Elderly and the Pre-Assessment work streams both focussed on patients who were >60 years old. Comparison of this data with other national statistics is therefore not possible.

b. Issues Identified

i. Clinical Issues

- Complete list of medication on ECS
 - The ECS reflected the current treatment in 65% of cases. The 35% where there was discrepancies were in the main due to a) Drug (or drugs) missing (44%) OR Discontinued Medicines still on repeat list (35%) and Wrong Dose (11%). The causes of these discrepancies are already well known (e.g. delays in getting hospital discharge medicines onto the ECS) but this pilot was not charged with identifying a definitive list of causes of these discrepancies.
- Prevention of potential harm
 - The additional information that ECS brought to the Medicines Reconciliation process meant that 23 patients from the original sample size of 405 in the pilot would have required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm or it would have contributed to or resulted in temporary harm to the patient and require intervention (3 patients).
 - Extrapolation of these findings to a wider clinical context would have significant clinical implications.
- Clinical roles
 - Medicines Reconciliation process is undertaken by different staff types in different ways (usually nurses and/or pharmacists). The availability of the ECS together with a standardised structured approach to the process would ensure stricter compliance and increased reliability and improved clinical outcomes.

ii. Audit and Info Governance

Audit

The projects IG objectives included:

- That the technical and information governance/security 'basics' of ECS will remain the same e.g. Existing audit log analysis.
- to review governance arrangements, and propose adjustments if appropriate

Consent Model

As previously discussed, it was acknowledged that a patient's medication history is often an existing information flow in the form of a referral letter, done with the patient's awareness and implicit consent. It could be argued that access to the same information in the form of ECS in order to update the information is legitimate without asking for explicit consent to access. However, given the time constraints of this project and the fact that the original data sharing agreements with patient groups and GPs were maintained, it was agreed that the patient's consent to access their ECS was always sought.

a) Access Control.

Access control procedures vary from Board by Board and generally require an official "request for log-in" access form to be completed by the member of staff and countersigned by their senior manager. These signed forms are linked to the Board's Security & Confidentiality policies and the implications to the member of staff of any breach clearly identified.

However, as these computer systems evolve, from generally administrative support systems such as Patient Administration Systems (PAS) to more clinical systems (which allow ordering lab tests or prescribing and administering drugs), Boards are beginning to revise these access control policies and arrangements.

At present, Lanarkshire handle access through a number of departmental data guardians who are responsible for signing off access to department owned information and applications. This approval is sent to IT support who will then grant necessary permissions.

B) Monitoring Access

In addition to improved access control processes, a comprehensive, and effective monitoring/audit process is required. The ECS audit process is currently robust but it is acknowledged that it takes some time to complete and is difficult to match up with other systems. As access to the ECS is rolled out, this time consuming process will have resource implications for all Health Boards. In the case of monitoring who has accessed the ECS, a series of reports are already run on a regular basis and confirmation that the board is carrying out the audit checks is reported to NSS through a monthly report process.

Audit reports available on ECS to all board auditors include the following:

- **Health Board audit report**
- **Cross Border audit report**
- **Unsuccessful log in attempts**
- **Casual Browsing / suspicious behaviour**
- **Long periods worked (trap sharing of passwords)**

All of these reports are used to check and monitor the use of ECS on an ongoing basis. This is a robust monitoring process that all NHS Boards have agreed to which involve an ECS Audit Protocol.

As the use of the ECS changed with the pilot in Lanarkshire, so the Lanarkshire monitoring reports will be changed too.

As an interim process for the life of the pilot, a manual check of the ECS accesses with the list of staff engaged with the pilot were identified and used to check for legitimate accesses to ECS. In addition, the monitoring report was widened to include a manual non-emergency episodes check (within the restricted work streams of the pilot) to the validation check. Any anomalies identified as a result of these reports were then manually processed.

As before, all accesses to the ECS would be checked against a) EDIS episodes and b) PMS episodes. Additionally, a manual check of elective activity at the time of the ECS access was undertaken along with a specific Pilot Staff ECS Viewing log.

A change control has been initiated to allow the non emergency activity to be included in the standards ECS monitoring reports but for the life of this pilot, an alternative manual report (see below) and PMS look-up was undertaken on all ECS accesses.

Pilot Audit report conclusions:

This method of monitoring has a number of resource implications:

- It is retrospective. i.e. you can only see who has already accessed a record rather than be notified when someone is *accessing* a record inappropriately.
- It is a resource hungry manual process
- All anomalies identified **MUST** be followed through which requires additional resources.
- These anomalies are generally managed manually i.e. not automated.

So as the requirement to monitor clinical access increases, including the potential extension of the use of ECS in all elective cases, these mostly manual monitoring processes will become unmanageable.

Alternative (more automated) monitoring processes are already being piloted by Lothian NHS Board (Fairwarning®) and their experiences are described in Annexe C

But even with a semi-automated process (e.g. Fairwarning), there is still a requirement to follow up any “anomaly” although the intelligent Fairwarning software will reduce the total number of anomalies to pursue.

User	Role	Group	Login	Workstream	Site	Oct	Nov
Anon 1	PreAssessment	Nursing	login 1	Surgical - Pre Assessment	Hairmyres		36
Anon 2	Clinical Pharmacist	Pharmacy	login 2	Cancer	Hairmyres		
Anon 3		Pharmacy	login 3	Surgical	Wishaw	6	23
Anon 4		Pharmacy	login 4	Surgical (Other)	Wishaw		
Anon 5	Clinical Pharmacist	Pharmacy	login 5	Cancer	Monklands		
Anon 6	PreAssessment	Nursing	login 6	Surgical - Pre Assessment	Hairmyres		
Anon 7	Clinical Pharmacy Manager	Pharmacy	login 7	Surgical pre-assessment	Hairmyres	1	2
Anon 8		Pharmacy	login 8	Surgical (Other)	Wishaw	11	
Anon 9	PreAssessment	Nursing	login 9	Surgical – Pre Assessment	Hairmyres	1	17
Anon 10	Charge Nurse	Nursing	login 10	Elderly Day Care	Wishaw	8	19
Anon 11	Consultant	Medical	login 11	Elderly Day Care	Wishaw		
Anon 12		Pharmacy	login 12	Surgical (Other)	Wishaw	28	26
Anon 13	PreAssessment	Nursing	login 13	Surgical - Pre Assessment	Hairmyres		
Anon 14	PreAssessment	Nursing	login 14	Surgical - Pre Assessment	Hairmyres		13
Anon 15	PreAssessment	Nursing	login 15	Surgical - Pre Assessment	Hairmyres	6	37
Anon 16	Staff Nurse	Nursing	login 16	Elderly Day Care	Wishaw	16	8
Anon 17	Clinical Pharmacist	Pharmacy	login 17	Cancer	Wishaw		
Anon 18	Lead Pharmacist Oncology	Pharmacy	login 18	Cancer	Wishaw	1	11
Anon 19	Senior Clinical Pharmacist	Pharmacy	login 19		Wishaw		
Anon 20	PreAssessment	Nursing	login 20	Surgical - Pre Assessment	Hairmyres		5
Anon 21		Pharmacy	login 21		Wishaw	4	1
Anon 22	Senior Clinical Pharmacist	Pharmacy	login 22	Cancer	Wishaw		
Anon 23	Senior Clinical Pharmacist	Pharmacy	login 23	Cancer	Monklands		
Anon 24		Pharmacy	login 24	Surgical (Other)	Wishaw	5	9
Anon 25		Pharmacy	login 25	Surgical	Wishaw	49	21
Anon 26	PreAssessment	Nursing	login 26	Surgical - Pre Assessment	Hairmyres	4	17
Anon 27	ECS Project Manager		login 27	Project Board	Strathclyde		
Anon 28	Senior Clinical Pharmacist	Pharmacy	login 28	Cancer	Wishaw		
Anon 29		Pharmacy	login 29	Surgical (Other)	Wishaw	13	25
Anon 30	Clinical Pharmacists	Pharmacy	login 30	Elderly Day Care	Wishaw		
Anon 31	Pharmacy Manager	Pharmacy	login 31	Project Board	Monklands		
An example of a new (Manual) Audit Monitoring Report.						153*	270*
(* Note: some patients may have been accessed on more than a single occasion)							

iii. Resource Implications

Staff Time

Hospital Staff

Pro's

The availability of ECS does reduce the requirement to telephone the GP practice for confirmation of drug histories. This has been shown to be of particular value to the pharmacists as compared to the nurses. It is of note that the ECS was not accessed by any medical staff throughout the pilot. Accessing the ECS will release time from acute healthcare practitioners especially clinical pharmacists and will also reduce call volume to primary care. However, the bigger argument in favour of ECS is that although by reducing call volume clinical staff time is released, it reduces the risk of taking a drug history verbally over the telephone often from non-clinical practice staff.

Cons

Accessing the ECS as part of the medicines reconciliation process adds another layer of process. However, it is potentially a more accurate and less time consuming process than, say, telephoning the GP Receptionist and probably reduces the time spent getting the drug list. Depending on the availability of the ECS, it also adds time to the interview process. However, if consent could be granted BEFORE the patients actual attendance and the ECS was printed off and put in the notes, to support that interview process, then time would be saved. It should be noted that in some areas of emergency care, they already have a process where admin staff print (after consent obtained) therefore reducing clinical time.

That notwithstanding, the medicines reconciliation process WITH ECS (even given that consent has to be requested before printing) is still faster.

Another negative resource implication of extending the use of the ECS is in the resource required to audit the ECS accesses. As discussed on page 19-20 re the IG implications, the additional ECS accesses will have to be monitored by extending the existing (mostly manual) process. This will have potential staffing consequences.

Practice Staff

Pro's

The Hospitals use of ECS would reduce the number of telephone calls that they have to respond to. More accurate drug lists on admission results in more comprehensive medication information on discharge which reduces the risk of a clinical incidents resulting from ambiguity on transfer between care settings

Cons

There may be more effort required by the practices to ensure the ECS is kept up to date. Again this probably would be better if there was a more accurate list on admission, and if the hospital staff ensured there was a more comprehensive list on discharge which would be less ambiguous for practice staff.

iv. Technical Issues

a. GP Migration Issues

An issue had been identified in practices that recently migrated from GPASS GP system to INPS Vision. Due to differences in the ways that the two systems recorded types of prescriptions, the medication information was not transferred accurately to ECS.

In order that clinical risk was minimised, and until the problem had been resolved, it was decided that any GP practice who had already or were about to be migrated to INPS Vision, would have ALL the patients “Opted Out” of ECS.

This meant that when the ECS was accessed, no clinical detail could be seen as it appeared as if the patient had opted out.

During the life of this pilot, Vision developed a patch which corrected the anomaly and following successful testing at the Lincluden Surgery (as well as in NHS Lothian), Dr Gregor Smith, Medical Director, Primary Care, authorised that this patch was to be installed in all NHS Lanarkshire practices which had already migrated, as well as those currently scheduled for migration.

This forced “Opting Out” did not result in a significant reduction of total numbers of patients available for the study - Only 20 of the 405 were forced “opted out” patients and the conclusions drawn from the ECSs that were accessed are still valid.

b. Implications for ECS’ technical infrastructure.

In parallel with this discovery project, the ECS Programme have been carrying out performance testing on the central ECS system to ascertain the likely impact of increased use in hours of ECS. A full report is due to be published in February 2011 to the ECS Programme Board, however initial results have identified some risks on database locking and on the storage requirements for the audit trail.

It is anticipated that there may be limited service or help desk implications arising out of increased in-hours use. It should also be noted that all ECS maintenance down-time will continue to be scheduled for in-hours periods and that appropriate processes for alternative access to ECS information will need to be in place during these periods.

c. The preferred way of accessing ECS is from within an existing electronic record for the patient using standard web services, for information governance and security reasons. This Discovery Project used the standalone ECS web browser to access ECS as this is quicker to set up and does not require any additional development. Development of a web services interface to the National PMS system (Trak Care) is currently planned for 2011, and it is expected that this will form the basis of access to ECS in scheduled care across boards.

Boards using web services access will reduce the impact on IT and audit departments, as less user accounts will be needed and the reconciliation of accesses against patients will be easier to carry out.

v. Communications/Training

Training & User Guides.

A comprehensive User Guide was developed for staff involved in the pilot in Lanarkshire. In addition, a laminated User Guide card was trialled and could be used if a full roll out was to be considered. The User Guide is available as a separate document - Annexe D.

Before any member of staff was allowed to access ECS Live, they attended a training session, incorporating operational access and navigation of the ECS together with the clinical interpretation of ECS (including its limitations) and the importance of gaining consent prior to ECS access was a pivotal element of the training session. The regular monitoring of ECS access and the implications for inappropriate access of ECS by staff were consistently reiterated throughout the training.

Newsletter.

A staff newsletter (on line and hard copy) was produced describing the pilot and progress with it.

vi. Staff Survey.

A survey was undertaken at the end of the pilot phase to assess the staff views of ECS and its potential role in medicines management. The results can be seen in full in Annexe B.

Staff concluded that the ECS was easy to use, was generally up to date and provided information that was not consistently available from other sources. However, they also recognised that there were ongoing issues with the completeness of the ECS (see Section 6. Conclusions below). Access to the ECS reduced the frequency with which contact had to be made with GPs which would subsequently reduce the inherent risk in verbal communications. Staff were unanimous in their opinion that access to the ECS would reduce the time spent constructing an accurate drug list on admission.

Reliable compliance with the Scottish Patient Safety Programme goals for medicines management is extremely challenging and easy access to reliable sources of medicines information is essential to reducing the risk to patients from medicine inaccuracies at the interfaces of care.

In general, staff have a good understanding of the clinical governance requirements for use of the system this has been underpinned in NHSL by delivery of structured training incorporating the operational, clinical and information governance and interpretation aspects of utilising the ECS. This was supported by written material available for reference at the point of access.

6. Conclusions

1) Clinical Conclusions

Whilst more formalised training in the use of the “Harm Matrix” may have resulted in greater consistency of interpretation of harm, it is recognised that these experienced staff used their clinical judgement to assess this potential impact.

The evidence obtained in this project supports findings from elsewhere that there continues to be issues with the completeness of the medicines list contained in ECS. This may occur for a variety of reasons and was beyond the scope of this project to determine. However, it is felt important that this is explored further. That notwithstanding, the pilot project demonstrated real value in the use of the ECS in the medicines reconciliation process.

The staff views reflected this too with 64% not agreeing with the statement *“In my experience, the ECS is always an accurate reflection of patients current medicines as it is information obtained directly from GPs’ prescribing systems”*. However, 86% of the staff considered that the availability of ECS helped during the medicines reconciliation process with 75% of staff advocating it’s use in all elective admissions and clinic attendances.

To support the data captured from the audit forms, a random sample of case notes were identified and reviewed to pick out ones where the lack of ECS data would have resulted in harm or potential harm to the patient:

Patient a. Non-access of ECS in an elective patient

26 year old female patient admitted electively. Past medical history involved a long history of abuse and multiple interventions for depression - one of which was the prescription of antidepressants. The ECS was not accessed for this patient during the course of her journey and she was not prescribed her paroxetine. Not only does this affect the management of her depression, but also puts the patient at a high risk of serious withdrawal reactions as paroxetine should not be stopped abruptly.

Patient b. Additional information available from ECS.

Male patient reviewed to commence chemotherapy for prostate cancer. Patient failed to mention that he was receiving goserelin implants which were documented on ECS. This is essential to know prior to commencing chemotherapy as there is a requirement for a clinical decision to be made regarding whether this should be discontinued prior to the commencement of chemotherapy or continued for 3 months while chemotherapy is started.

Patient c. Clarification of chronic medication doses following access to ECS.

Female patient admitted for chemotherapy. Drug history documented from patient interview contained different doses of oral anti-diabetic medication from those obtained from the ECS. Contact with the patient’s GP was made and it was ascertained that the patient had misunderstood some verbal instructions and the doses were changed to those on the ECS.

There were also several patients who did not mention allergies or adverse drug reactions when the initial drug histories were documented. This additional information was obtained from the ECS and confirmed with the patients which ensured that harm was prevented from exposure to medicines which were known to cause adverse reactions.

- 2) Organisational Conclusions
 - a) The widening of access to ECS will require an expansion in the audit capability to monitor appropriateness.
 - b) It must be clearly understood by staff that the ECS information should not be used in isolation.
 - c) It is important that staff are trained to interpret ECS
 - d) To simply give all clinicians' access to ECS would be difficult to manage and control, Consideration should be given to allowing some administrative staff members to download and print a (dated) record of the ECS and file it in the notes for use by clinicians during the patient consultation.
- 3) Technical Conclusions
 - a) The main conclusions for the technical impact on ECS will be provided by the Performance Test report due for publication in 2011. Initial risks were identified on database locking and the storage of the audit trail from the discovery project.
 - b) Access to ECS should be through web services wherever possible.
Uploading from ECS into hospital EPR systems. If a hospital had the technical means to 'inherit' ECS data into a common medication record then this is not only acceptable but avoids the risk of transcription errors. This development is expected to form part of the National PMS (Trak Care) interface planned for development in 2011.

Project Lessons Learned.

The project has identified clear issues (both clinical and organisational) associated with the roll out of the ECS to scheduled care which have been reported elsewhere in this report.

However, the projects process itself: how it was established and the way in which it was executed, has identified a number of issues which should be considered by others intending on doing similar work.

- **The project sample/cohort**

The patients included in this study were mostly all day cases or short stay episodes admitted for a procedure and then discharged in one or two days. This means that the ability to detect harm in such a compressed time is difficult.

- **Interpretation of potential impact**

A considerable amount of time was spent on training staff to access ECS and to navigate through it and understand the clinical content together with it's limitations. However, there was not as much effort put into the training of staff to interpret, (and standardise) the recording of potential harm caused by the anomalies of data within ECS. This resulted in data which was more qualitative and subjective than would have been preferred.

- **Testing**

More thorough testing and re-designing of the data capture forms would have been preferable but the rigid and demanding timescale of the project precluded this.

Future roll out

It is beyond the scope of this project to recommend whether access to ECS in scheduled care should be granted and instead evidence is presented to the ECS Project Board for consideration. However, it is possible to draw some conclusions that may be relevant to any such plans should they proceed.

Given the substantial increase in the use of the ECS that this is likely to create, there are significant implications for each NHS board in managing this activity. Some of this will be in relation to delivering appropriate training for staff to satisfy correct governance and usage, whilst ensuring adequate audit of activity will also be a consideration.

For this reason, it is concluded that any future expansion of access into scheduled care should be taken with an incremental approach according to local needs. The project has highlighted evidence where the use of ECS has prevented harm in four work streams but these should not be viewed as the only areas where this may apply.

Of particular interest, however, was the use of ECS in patients with multiple medications and in this respect its use in all areas highlighted the significant problem of poly-pharmacy. Though most episodes of harm were prevented in the environment of care of the elderly, the numbers alone are perhaps too small to inform a strategy for roll out.

Annexe B: Staff Feedback / Survey - Results

There were 17 staff actively involved in accessing ECS during this pilot (see Page 23) and 14 of those staff have completed the on-line survey. (82% response rate)

The survey is included in this report at Annexe B

Did you find that the availability of ECS to you helped during the medicines reconciliation process?		
Answer Options	Response Percent	Response Count
Yes	85.7%	12
No	7.1%	1
Not sure	7.1%	1
answered question		14
skipped question		0

Answer Options	(Strongly) Agree	Agree	Don't agree	(Strongly) Disagree	No.
Easy to use	71%	29%	0	0	14
Gave information I didn't always have available to me	29%	64%	7%	0	14
Saved me from having to telephone GP	43%	29%	14%	14%	14
Wasn't really needed	0	0	62%	38%	14
Was up to date	0	64%	29%	7%	14
Total					14

Confidentiality				
Answer Options	Correct (%)	Unsure (%)	Incorrect (%)	Response Count
Patients permission has to be obtained before I can access ECS	100	0	0	14
Patients permission is only needed to USE the ECS which I have printed off before their arrival.	0	14	86	14
It can be assumed that patients have given their permission if they are referred by their GP	0	0	100	14
If I access any patient on ECS, their GP is notified.	71	14	14	14
Inappropriate access of ECS is a disciplinary offence	100	0	0	14
answered question				14
skipped question				0

Do you think that accessing ECS as a routine part of the medicines reconciliation process would reduce the time you spent on that process?

Answer Options	Response Percent	Response Count
Yes	93%	13
No	7%	1
Not sure	0%	0
<i>answered question</i>		14
<i>skipped question</i>		0

If you were asked, would you advocate the use of ECS for ALL admissions and Outpatient clinic visits?

Answer Options	Response Percent	Response Count
Yes	79%	11
No	0%	0
Not sure	21%	3
<i>answered question</i>		14
<i>skipped question</i>		0

In my experience, the ECS is always an accurate reflection of patients' current medicines as it is information obtained directly from GPs' prescribing systems

Answer Options	Response Percent	Response Count
Yes	14%	2
No	64%	9
Not sure	21%	3
<i>answered question</i>		14
<i>skipped question</i>		0

Whilst medicines reconciliation requires TWO separate sources of information, on which would you place the greatest weight?

Answer Options	Least weight	Little weight	Some weight	Most weight	Rating Average	Response Count
ECS record	0	1	4	7	3.50	12
Patients verbal information	2	1	1	1	2.20	5
Patients "Brought in medicines"	1	1	3	5	3.20	10
GP repeat prescription slips	3	2	1	0	1.70	6
Telephone the GP	0	1	0	1	3.00	2
Other (please specify)						3
<i>answered question</i>						14
<i>skipped question</i>						0

Staff Survey Comments:

- Telephone the pharmacy for an up to date list
- Patients' medicines brought in generally up to date and gives start dates, frequency. ECS at times duplicates prescriptions.
- This depends on how sure patients are about their medication and the order may change depending on their knowledge and individual circumstances eg dosette box/ nursing home/ dementia
- ECS would be a valuable tool if it was up to date and staff had the confidence in it's accuracy
- Extremely valuable tool to all healthcare professionals in planned & emergency care. If use is extended to outpatients & planned care, should probably have 'emergency' dropped from the title.
- Audit process and completion of forms time consuming and at times stressful as added to already heavy workload but would imagine that future use without audit forms would be beneficial. ECS most useful when any discrepancy or uncertainty.
- The ECS is an extremely useful tool but cannot be used in isolation. It needs to be confirmed with the patient and/or their carer who has responsibility for their medication
- ECS is probably the best tool available for healthcare professionals to support the medicines reconciliation process. Although there are limitations with the system, I believe that ECS contributes significantly to patient safety and is a convenient, responsive system that has a built in auditable record of which records have been accessed and by whom. It should be rolled out wherever there is a need to perform medicines reconciliation. Inappropriate access to ECS should continue to be highlighted as a disciplinary offence.

Annexe C. An alternative monitoring approach. Lothian Fairwarning/ Canned Reports

FairWarning® is a privacy breach detection system used to identify users who are engaging in patient access patterns that are indicative of snooping, identity theft or other risky behaviours. An automatic ECS audit data feed for FairWarning® has been developed for Lothian NHS Board that makes it significantly easier to monitor all ECS accesses and flag potential access breaches, in conjunction with checks on other systems. This system has been implemented in NHS Lothian and is expected to be implemented in other NHS Boards in the near future.

TrakCare has been implemented across NHS Lothian and was implemented several years before Fairwarning. To do a pro-active audit of who is logging on to clinical systems, with 4 staff you could only do 2 wards/clinics/week plus the mandatory SCI Store and ECS audit reports.

If patient asked “who has looked at my record and why?” you couldn’t answer without considerable effort and research.

“Our concerns were that with full set EPR through major investment in applications If there was a major breaking of public confidence in the EPR then we could be faced with adverse publicity and legally enforced opt outs. This would set NHS Lothian back over a decade in its ability to manage patients. This will also apply to every eHealth lead

We attempted proactive manual audit but this was highly labour intensive and although it produced excellent results and had high visibility it was unsustainable. Reactive audit when required produced results but was dependent on information being received or allegations made. But of concern particularly during the reactive audits was the resource implications of the number of other staff caught up in the enquiries. Look for one abuse and find 6 others.

We realised that this culture needed to be changed and quickly or it would affect our ability to progress with the EPR”

Lothian decided not to do real-time audits, as it had the potential to slow down the operational systems and would require 24/7 resource to be available to action. Audit logs are downloaded from TRAK: SCI STORE: ECS and Empower (The Human Resources system) on a daily basis. National PACS and CareFx will be added as a future development. Empower delivers the staff detail BUT Empower does not hold GP staff information so audits can not be done at user level for OOH.

Lothian Requirements:

“What we wanted was:

Pro active - real time if possible; Automate discovery process with a number of scenarios preset and ad hoc; Manage more than one application simultaneously; Measure not Log-Ins or network traffic but Application Internal work flows allowing minimal false positives; it should exclude/miss staff doing appointments centres; booking out records electronically. It should link to HR systems if possible; issues with female staff surnames.

It needs to deter: Self snooping, Colleagues, Neighbours, “VIPs”

(It must be) User Friendly”

Future Monitoring using Fairwarning

Lothian currently monitor **password matching** – i.e. when someone logs on one machine and the same password is used on another machine and/or at another place. (It is interesting to note that you can open ECS, then close down the window and log in again with same log in and password. i.e. have three or four concurrent sessions open with same log in and password!)

Alert Reports are run against a) specific staff or b) specific patients. You have to filter out the “legitimate” access i.e. medical records staff accessing demographics etc. The monitoring occurs at the patient banner level – which is the point when the user goes beyond initial search

Investigations / ad hocs can be run by selecting the system interested in (TRAK; ECS; SCI STORE or any combination) and the users ID, then run the report.

There are also reports for:

- **Self-snooping e.g.** have you looked at your own record?
- **Family snooping** – have you looked at records of patients with same surname as you?
- **Post code snooping** report is also being developed (i.e. viewing your neighbours records)

Sharing Passwords is NOT allowed and it is the OWNER'S responsibility to make sure no-one else uses it. Lothian can now monitor access to “VIP's” by adding a list of CHI numbers to a scheduled report and these we can identified overnight. There are issues about who is a VIP which must be agreed locally.

Canned reports currently available and being developed by Lothian :

ECS /SCI/ TRAK Care

Specific patient

Specific user

Random Patient

Random User

Self Examination

SCI /TRAK Care

Family Members

Neighbours

TRAK Care

Simultaneous Log Ons -Password sharing

Under development:

TRAK Care

Colleague snooping but issues with HR data not being fully up to date, duplicate records, staff with multiple part time posts or roles

TRAK Care / ECS.

It is for the wider roll out of ECS into Acute services. The report compares ECS access with TRAK admissions and activity within 48 hours of ECS look up.

Comparison of Drug Histories from Emergency Care Summaries and SCI Referral Documentation in Pre-assessment

Situation

This discovery project in NHSL scoped the implications of extending access to the ECS to scheduled care. Following presentation of the results to the National ECS Programme Board the Lanarkshire project team were asked why it was necessary to access the ECS as the drug history was always included in the referral letter. It was hypothesised that the referral letter could simply be one of the sources of data in the medicines reconciliation process. In order to assess the potential of that proposed strategy, the project team were asked to conduct an additional piece of work comparing drug histories from the initial SCI referral documentation and the ECS at the point of pre-assessment.

Background

It is well recognised that several weeks can elapse between GP referral to a specialist service and patients being seen at pre-assessment and subsequent attendance for their procedure. The aim of this additional element of the ECS pilot project was to evaluate the usefulness of the initial referral letter as an element of the medicines reconciliation process. This was done by examination of the differences that occurred in medication histories documented firstly at referral and then at pre-assessment and grading those for potential harm using a nationally recognised rating scale.

Assessment

Thirty sets of case notes were randomly selected from the pre-assessment arm of the original cohort from the discovery pilot. A senior pharmacist* retrospectively compared the medication lists from the referral letter with the medication information from the ECS accessed at pre-assessment. Any discrepancies were graded using the following scale:

Category	Description
C	No harm
D	Would require monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm
E	Would contribute to or result in temporary harm to the patient and require intervention

The grading was then independently validated by the Primary Care Medical Director *.

* As Fellows of the Scottish Patient Safety Programme, both reviewing clinicians have considerable experience of using the harm scale

No of episodes of care	31
Age in years (range)	56 (21 – 79)
Male / Female	77% Female
Number of episodes with referral paperwork and ECS available	24
Average length of time between referral and pre-assessment in days (range)	110 (20-316)
Total number of discrepancies	119
Average Number of Discrepancies / Episode	5

The average time between referral and pre-assessment was 110 days with a maximum of 316 days; this resulted from several patients who underwent additional investigations before being put on the waiting list for a surgical procedure via the specialist clinic and reflects the time from referral to the clinic not for the procedure. Each patient episode was allocated a harm score taking into account the impact of multiple discrepancies. This was further divided into day cases and elective in-patient admissions.

	% of episodes (n=)		
Harm Score	Total	Admissions	Day Case
C	58 (14)	30 (3)	79 (11)
D	21 (5)	20 (2)	21 (3)
E	21 (5)	50 (5)	0

58% of the episodes were undertaken as day cases. It was felt that the potential for harm would have been different in these patients had they required to be admitted unexpectedly post-day surgery.

The following table shows a comparison in the grading of potential harm for day surgery patients managed as day cases and also the potential harm graded had they been admitted unexpectedly.

	% of episodes (n=)	
Harm Score	Day Case	If admitted
C	79 (11)	57 (8)
D	21 (3)	29 (4)
E	0	14 (2)

Examples of discrepancies between the referral documentation and the ECS:

- Patient prescribed acute prescription of diclofenac on referral, subsequently developed allergy which was documented on ECS but not elsewhere
- Referral states no medicines, patient on medicine for gout, inhalers and cardiovascular medicines at pre-assessment
- 22 year old female on anti-depressants doses and products changed; could have resulted in paroxetine withdrawal syndrome
- 39 year old female being weaned off antidepressants, venlafaxine dose reduced from 225mg daily to 37.5mg daily between referral and pre-assessment
- No mention of penicillin allergy in referral letter but documented in ECS .
- Patient started antidepressants between referral and pre-assessment
- Change in dose of ACE inhibitor, discontinued beta blocker and calcium channel blocker since the initial referral.
- Change in dose of levothyroxine since the referral.

There were also two incidents where medication was mentioned on the referral letter but was not recorded on the ECS (HRT and citalopram). This is most likely due to the fact that they have been issued as acute prescriptions and therefore, due to the 30 day limit on visibility of acute prescriptions on ECS, they were not on the ECS. This is a known limitation of ECS.

Harm prevented is significantly less in the day case as opposed to the in-patient population, this is due to the fact that day cases would not usually be administered any medication for chronic disease management during the course of the procedure, the main harm in day cases would result from medicines which have the potential to interact with anaesthetics and the potential to administer medicines to which the patient is allergic.

Recommendations

The initial results of the ECS Discovery project were well received when presented to the ECS Programme Board. However, it was suggested by the Board that the potential of using the initial GP referral letter as a source of data (as part of the medicines reconciliation process) should be evaluated. This audit demonstrates the limitations of this information and suggests that to rely on this would carry a significant clinical risk.

It is interesting to note that the lack of a readily available, accurate current medication history has been an issue for some time. In fact in the 2005 QIS review on anaesthesia, an audit was undertaken on Standard 2.3.6; *"Prior to undergoing a procedure that includes anaesthesia, the patient or the GP provides the anaesthetist with a written record of the patient's current medication"*. The results at that time, (when there were 19 NHS Boards in Scotland), were met by 2 boards and not met by 17 NHS Boards.

Given the demonstration of the significant potential for harm avoidance in scheduled care currently, the ECS Programme Board is asked to consider:

- the continuation of the NHS Lanarkshire scheduled care access in the pilot areas only
- extension of access to healthcare professionals in scheduled care
- additionally, it is recommended that there is an extension of the visibility of acute prescriptions from 30 to 60 or 90 days in order to capture the increasing number of medications that are prescribed on 56 or 84 day cycles.

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