

DATA GATHERING FOR THE SAFER HANDOVER PROJECT

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Introduction

The terminology issue

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The Safer Handover project was initiated by the UK's NHS Connecting for Health. They wanted to know whether there was a 'common core data set' i.e. a set of data that health professionals would need to know at *every* point of transfer i.e. whenever a patient moved from one health setting to another eg. home to hospital, ambulance to emergency department, one department in a hospital to another, or whenever there was a change of shift.

The vision was that these essential data items would ultimately be embedded through a forcing function into future electronic handover technologies as part of the infrastructure for a solution to safer handover. The aim is to minimize the risks associated with the transfer of patients from one team or setting by reliably tying a common core data set to a patient and this accompanying the patient on their journey within and across health settings.

On the surface, finding such a core data set seemed like it should be a simple matter. Surely, there are certain aspects of patients, their conditions and their treatments that need to be conveyed at each transfer? But there were two major challenges. Firstly, every healthcare setting is very different. Secondly, even data sets proposed for the same handover type in similar settings vary wildly, and there are also multiple terms in which content can be described. We soon discovered that trying to find the one, all encompassing term to describe much of the relevant content was impossible; each can be interpreted slightly differently.

The terminology issue

The 'terminology issue' dominated the way this project was conducted and the results. Given that there is no standardization of handover or directives as to how it should be done or what should be in it, handover evolves in every health setting. eg. Is 'Diagnosis' the same as 'Active problems' or 'Reason for Admission'? Is 'Interventions' or 'Treatments' equivalent to 'Medical History'? It could be, but not necessarily. These terms are commonly used in handover documentation but with no explanation of what *precisely* they are referring to. In an individual healthcare setting, this is addressed (for regular staff) by there being an 'organizational culture' i.e. the 'way we do it here' and 'the terms we use here'. However, for any 'core' or common data set that needs to be able to cross many boundaries, if precise terms are to be used, precise definitions of what those terms mean and the level of detail which they describe, are vital.

Types of Handover

We identified 9 handover types These are as follows:

- Shift-to-shift medical handover
- Shift-to-shift nursing handover
- Handover to and from on call and night staff e.g. Hospital at Night (H@N)
- Ambulance to emergency department handover
- Inter-departmental transfer (e.g. A&E to Intensive Care Unit)
- Inter-hospital handover
- Hospital to community (secondary to primary care) handover
- Transfers within primary care
- Community to hospital (primary to secondary) handover i.e. referrals

Data gathering

We collected data in two different ways. Firstly, we undertook a thorough **literature search** involving a total of more than 60 different proposed standardized protocols and proposed minimum data sets (i.e. the least items required to perform a successful handover *of that particular type*) for each of the different types of handover, with the idea that there would be similarities.

We began the analysis of these sets by trying to create a chart. All the individual data items mentioned in any of literature were written down the left-hand side of a chart and the different handover types were across the top. The data items were organized into categories so that similar data items were placed near each other in the list. The categories chosen initially (this changed a little during the process) were as follows:

- Document details e.g. date, time, ward/location, purpose of handover, those present.
- Patient Details e.g. name, NHS no. DOB gender . . . Also: Mental state. Physical state.
- Clinical Details e.g. diagnosis, relevant history . . . Co- morbidities e.g diabetes. Potential complications.
Allergies/adverse drug reactions.
Management Plan.
Clinical Status e.g. critical, non-critical, changing . . .
- Medication and other input e.g. Food/fluid status. IV fluids
- Tasks done/ to be done e.g. test results, operations done..
- Test results waiting for, future appointments, referrals elsewhere . . .
- Family and cultural issues.
- Relevant status(es) e.g resuscitation, mobility, infection . . .
- Lead and contact clinicians.
- Any other e.g. bed availability

A tick was placed alongside a data item for each time it appeared in the literature. The expectation was that the data items that were prevalent in the majority of proposed minimum data sets for any one type of handover would become instantly clear. This did not happen.

At first, the assumption was that the various papers were dealing with the problem from a different level of granularity and that this was the major reason for the lack of commonality. Certainly, this was true. However, when we removed the data sets that were coming at the problem from a particularly high level perspective and concentrated on those dealing with (relatively) low-level specifics, it became obvious that the individual contexts for

handover were so different, even in the case of those purporting to be dealing with the same types of handover (e.g. they may be from different cultures), that nothing - even what might seem to be obviously common such as the need for a patient name - showed as a consensus or core view.

Notwithstanding all of the above, those data items that appeared *most frequently* (but not in all) of the reviewed handover literature included:

- Patient name
- Diagnosis or Problem List
- Management Plan
- Tasks to be done

Where handover was considered at a much higher level, using acronyms and mnemonics, there also seemed to be little consensus. The acronyms in summary are:

- SBAR (Situation, Background, Assessment, Recommendation)
- SOAP (Subjective data, Objective data, Assessment, Plan)
- JUMP (Jobs outstanding, Unseen Patients, Medical contacts, Patients to be aware of)
- PACE (Patient/Problem, Assessment/Actions, Continuing/Changes, Evaluation of Patient's response to interventions)
- ANTIC (Administrative information, New information/clinical update, Tasks, Is the patient sick?/Severity of Illness, Contingency planning and code status)
- DeMIST (Demographics, Mechanism of injury or illness, Injuries (sustained or expected), Signs (including observations and monitoring), Treatment given)
- ISOBAR (Identification of Patient, Situation and Status, Observations, Background and History, Assessment and Actions, Responsibility and Risk management)
- SMEAC (Situation, Mission, Equipment, Administration, Communication)
- SHARED (Situation, History, Assessment, Risk, Expectation, Documentation)
- ACCEPT (Assessment, Control, Communication, Evaluation, Preparation and Packaging, Transportation)
- PPPP (Purpose, Picture, Plan, Part)
- DAR (Data, Actions, Results)

Summarizing across these 12 acronyms:

- There is some version of 'Situation' in 8 of the 12 acronyms
- 'Assessment' is in 7
- 'Plan' or 'Actions' or 'Recommendations' is in 6
- 'Background' or 'History' is in only 3

The second means of collecting data was via a **workshop**. 36 experts in as many different types of handovers and from as many different settings and perspectives as possible were invited. These included hospital doctors, GPs, hospital and community nurses, representatives of patients' groups including the elderly and disabled, and members of organizations such as the National Patient Safety Agency (NPSA) as well as IT specialists involved in the development of handover technologies.

The day was divided into two halves. In the morning, working groups were to establish minimum sets of data for each of the different handover types in a 3 session exercise. The

method was as follows: The room was divided into ‘spaces’ for each of the handover types. In the first session, each group of approximately 4 participants each (of mixed professional roles and experience) were allocated to one of these spaces. The groups were instructed to determine a minimum data set for their handover type in 3 stages: a) an initial 5 – 10 minutes where each person worked alone and in silence, writing their suggested data items on individual post-it notes. b) The group then merged these data items onto an affinity chart, grouping and recognizing repetitions whilst noting how many of the group members suggested each data item. Finally, the group created an AGREED and a NOT AGREED list of data items on a flipchart, the AGREED list having been suggested by all members and the NOT AGREED showing each item’s corresponding ‘weighting’ i.e. how many people deemed this item essential.

The second session involved the groups being reorganized so that each individual moved to another handover type with a different group of people (taking care to ensure each group comprised a mixture of types of healthcare professional with different perspectives) and the exercise was repeated. For the third and final working group session, the groups again changed, but this time the participants were asked to rationalize the results of the previous two groups for the type of handover they were allocated to, whilst adding their own input. This resulted in one suggested minimum data set for each handover type.

The afternoon session consisted of firstly an attempt to find core data items from the morning’s working groups via a **negotiated discussion**, and secondly, we ran a “four data items” exercise in which each individual participant was asked to write on a post-it note, the four items they considered to be essential, assuming they were only allowed four and no more.

Data analysis:

After the workshop, we summarized and categorized the data from the workshop sessions into a table to show the most common data items captured during the working groups exercise. For each data item, we showed the number of handover types where it appeared in the agreed data set and stated the handover types that did not include this data item with any relevant explanatory notes. The table is shown below:

Data Item	Handover types where data item was agreed (max: 8)	Handover types that did not include this item (and/or qualifying notes)
<i>Patient Identifiers</i>		
Name	8	To include ‘known as’ (medical shift handovers). ‘First name, surname preferred’. (Inter-departmental)
DOB (6) or DOB/age (2)	8	DOB/age (inter-hospital and nursing shift handovers)
Patient ID no (or Hospital number)	5	Not in: Ambulance to A&E, inter-departmental, inter-hospital
Gender	4	Not in: Nursing shift, H@N, Ambulance to A&E, inter-hospital
Location	5	Not in: within primary care, inter-departmental, Ambulance to A&E
Next of kin/carers	5	Not in shift handovers i.e. medical, nursing and H@N

<i>Clinical Information</i>		
History	8	
Plans	6	Not in: Ambulance to A&E, inter-hospital
Interventions/ Results / Investigations/ Treatment/ Changes	8	
Medications	5	In all but shift handovers (i.e. medical, nursing and H@N)
Diagnosis	6	Not in : nursing shift, Ambulance to A&E
Reason for: admission/ referral / transfer (In Ambulance to A&E : Presenting complaint)	7	Not in: medical handover group
Vital signs	3	Not in: Nursing, H@N, inter-hospital, discharge, or transfers within primary care
<i>Statuses, Risks and Warnings</i>		
Allergies, Resus status, Infection status . . .	8	NB. Allergies was specified in 7 of the 8 handover types i.e. all but H@N.
<i>Responsible Clinician</i>		
Responsible consultant / team / clinician e.g. GP	6	Not in: within primary care, Ambulance to A&E
<i>Tasks to be done/Plans</i>		
Tasks and/or plans (management, care, rehab.)	7	Not in: Ambulance to A&E NB. For the primary care handovers, plans are future clinics and GP appointments.

Table: Common data items from the working groups exercise and the number of handover types where they appeared in the “agreed” list

Taking into account the comments made about terminology above (i.e. they were described using different terms) we did find 5 data items that were common to all the 8 handover types. These were:

- Name
- DOB (or DOB/age)
- Clinical History
- Interventions/Results/Treatments to date
- Statuses, Risks and Warnings e.g. allergies, resus status etc.

The results from the negotiated discussion were less satisfactory. Inevitably, some voices were louder than others and it was hard work keeping the discussion focused on *core* items relevant to *all* handovers (as opposed to particular instances where some item or other may be vital). Again, terminology was a major issue, with some participants determined that their choice of word was more appropriate than another. There was also the problem of ‘data creep’ i.e. the tendency to keep including more data items (rather than

stick with less) as the discussion continued. However, as a precursor to the final “four data items” exercise, the discussion was useful. For example, in the discussion, one participant came up with the term ‘Alerts’ for the ‘Risks / Warnings / Allergies etc. ‘field’ and this was considered to be a good general term that could encompass many things. Several participants then used this term in the following exercise, the results of which again showed the terminological problems, but – taking this into account - did provide some sort of consensus on a few items.

The data set (and the categorization) that was generally decided on during the negotiated discussion included:

Patient demographics:

- Patient name (could be ‘unknown’)
- D.O.B. (calculate age)
- Patient identifier (number - NHS/other) **NB.** not everyone agreed that this should be included.

Clinical information:

- Reason for presentation/admission/referral?
- Active problems
- Relevant past medical history
- Working diagnosis?
- Alerts
- Treatment to date
- Action plan

Other Maybes . . .

- Gender/sex
- Next of kin

Also:

- Responsible clinician
- Responsibility transfer (from/to)
- Location (from/to)

NB. Many of these were not fully agreed. Some people (strongly) opposed any version of these. Others felt just as strongly that they were very important.

The results of the ‘four data items exercise’ showed a few items occurred more frequently in people’s answers than others. These (plus the number of answers they were present in) were:

- Current diagnosis/assessment (also referred to as: Current clinical state/active problems/ Problem/ Current problems/What’s wrong with them?/Clinical information/Working diagnosis) (24)
- Action plan/tasks (also referred to as: Action Plan/Management Plan/Action required/ Advance directive /What needs doing next?/Tasks/What do I need to do?) (22)
- Alerts (also referred to as: Anything else I should know? or Risks) (13)
- Presenting complaint (also referred to as: Reason for presentation/referral) (9)

A possible solution?

As a way of getting round the terminology problem, and inspired by the reportedly relatively successful adoption of the SBAR mnemonic (Situation, Background, Assessment and Recommendation) acronym, it was decided to lift the data items up to a ‘higher’ level and express them as questions. So, for example, ‘Diagnosis’ or ‘Presenting problems’ became ‘What is wrong with this patient?’ Similarly, ‘Treatment to date’ or ‘Medical history’ became ‘What has been done?’ ‘Tasks’ or ‘Action plan’ became ‘What needs to be done?’ But we needed to know what the health professionals would make of this.

Evaluation.

In a validation exercise, which was emailed to all the participants and some more of their colleagues, subjects were asked to validate a) the 9 data items that scored *most highly* in either all or the majority of the handover types considered i.e. were prevalent (but not universal) in both the literature review sets and the results from the workshop, and b) the same set but expressed as a set of 6 questions:

1. Who is the patient? (e.g. What is their Name and Date of Birth?)
2. What is wrong with this patient?
3. Why are they being admitted/transferred/ referred?
4. What has been done?
5. What needs to be done?
6. Anything else I should know? (e.g. Risks, allergies, statuses etc.)

Participants were asked again whether they considered the 9 items to be common to all handover types and, if not, to say which data items they felt should be excluded. The 9 were:

- Name
- DOB (or DOB/age),
- Clinical History
- Treatment
- Statuses, Risks and Warnings
- Diagnosis
- Action Plan
- Reason for admission
- Responsible consultant /team / clinician

It was stressed that there would be the possibility of overriding a data item or inputting proxy data until the real data became known. Participants were also asked what they thought of the idea of an electronic handover tool presenting them with questions such as the list above and whether any of the questions are inappropriate to any handover contexts.

Although there was a majority in favour of using the set of questions, there was still a significant number against (half as many. It would be interesting to know whether some of the negative responses arose because it is an unfamiliar approach.)

Final Results

In order to take account of all the views expressed, we ultimately proposed an approach that used the best aspects of both. We proposed that the core data set for handover should take

the form of the questions that the participants considered flexible and useful, and that these should be accompanied with guidance for what is expected in response in the form of their corresponding specific data item(s). This also allows for different levels of expertise. i.e.

- Name (as ISB endorsed ‘first name’ and ‘last name’)
- Date of Birth
- NHS Number
- What is wrong with this patient? e.g. Active Clinical Problems
- What has been done? e.g. Relevant Investigations & Treatments to date
- What needs to be done? e.g. Action plan – including when and by whom.
- Anything else I should know? / Alerts. e.g. risks, allergies, statuses, disability etc
- Responsible consultant/team/clinician. e.g. GP

NB. Presenting patient name as ‘first name’ and ‘last name’ was included due to results from another NHS Connecting For Health study. Similarly with the inclusion of the NHS number.

We also suggested a further validation exercise to test this proposed core data set as an exercise that (via several iterations) would engage a wider range of stakeholders and in greater numbers, and offer participants the opportunity to work through scenarios in order to validate the core data set.

Connecting for Health was very pleased with our results and the expectation is that, once piloted in a specially selected NHS Trust, the final core data set will become an NHS Information Standard. It should be relevant to each and every setting (whilst acknowledging that each specific handover setting will also have additional essential data to be transferred) and be embedded through a forcing function into future electronic handover technologies.