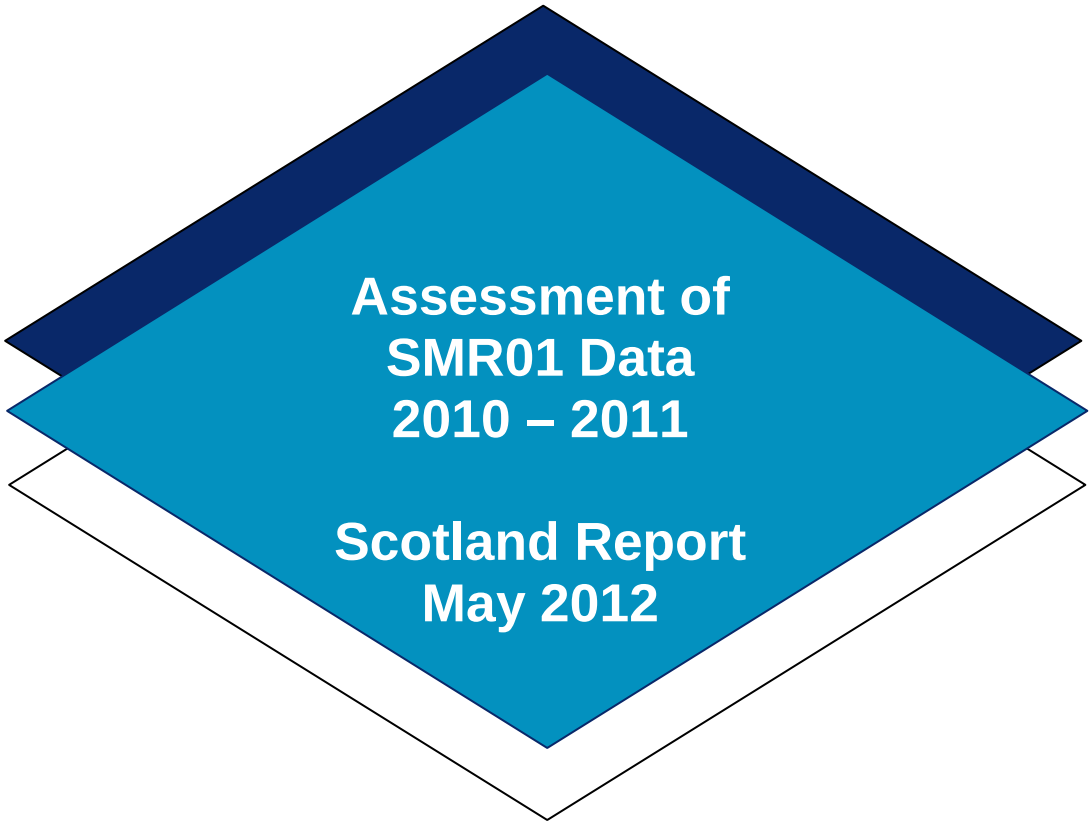


Assessment of SMR01 Data 2010 – 2011

Scotland Report May 2012

Contents

Background and Introduction

This quality assurance assessment was undertaken to ensure that SMR01 (General / Acute Inpatient and Day Case) data items are being recorded consistently and to a high standard throughout NHSScotland. It also identifies any issues that may require further guidance and training at a local level. These issues were addressed with hospitals individually post-assessment.

The Data Quality Assurance (DQA) team is responsible for evaluating and ensuring that the Information Services Division's (ISD) Scottish Morbidity Record (SMR) datasets are accurate, consistent and comparable across time and between sources. Evaluation of quality of data in any information system involves a comparison of data against an agreed set of standards. This is conducted retrospectively in order to support the credibility of ISD's national patient based data.

The quality of national data is key to all those who use it both externally and internally at ISD as, without it, it would be impossible to interpret results with any accuracy or confidence. Without this assurance in the data it would undermine the use of information in a range of areas such as: service planning, epidemiological research, contributions to evidence based medicine, generation of healthcare costs and the support of quality improvement and performance management. In particular, SMR01 data contributes to HEAT targets.

ISD is aware that the accuracy rate of some data items has remained fairly stable over a long period of time therefore the main focus of this project is around the completeness of data. Particular groups of commonly recorded diagnoses (co-morbidities) and operations/procedures have been selected to show accuracy rate, sensitivity and completeness of the data.

For this SMR01 project the number of hospitals assessed was reduced from 39 (as in the 2004-06 SMR01 project) to 24 NHS acute hospitals in Scotland (see appendix 1 for details). A total of 4857 SMR01 episodes were assessed covering discharges from the period 2010 to 2011. Of the assessed episodes, 3474 (72%) were inpatient and 1383 (28%) were day case admissions

This report contains the findings on the quality of selected SMR01 data items at both a Scotland level and for individual hospitals. In certain instances hospitals have been grouped together to allow for peer comparison. Also, it should be noted that during the sample period assessed, only services from Falkirk and District Royal Infirmary (FDRI) had moved across to the new Forth Valley Royal Hospital. This report therefore makes comparison to the last assessment carried out at FDRI in 2005.

The Data Quality Assurance website (http://www.isdscotland.org/data_quality_assurance) gives further information on the following:

- Methodology
- Error type definitions
- DQA source documents
- DQA abbreviations
- How clinical coding accuracy rates are calculated

Key Points

- The DQA team have been assessing the quality of SMR01 data for over 20 years now and throughout this time the accuracy rate of Main Condition and Main Operation/Procedure has remained relatively stable at around 88% and 94% respectively and this has remained unchanged for this assessment.

- Of the 16 assessed data items held in the SMR01 record, nine (56%) were between 90% and 100% accurate.

- Main Condition and Main Operation/Procedure were recorded with an accuracy rate of 88% and 94% respectively. Due to some significant changes in practice (see page 8) some clinical coding staff perceived that accuracy rates would drop since the last SMR01 project in 2004-06 however the findings do not reflect this.

- Thirteen of the 24 hospitals assessed did not achieve the recommended minimum 90% standard for accuracy rate of Main Condition.

- Findings suggest that if the final discharge letter had been available, and fully utilised, at the time of coding then the accuracy rate of Main Condition and Main Operation, at 3-digit level, would have improved from 88% to 94% and 94% to 97% respectively (which exceeds the recommended minimum standard accuracy rate of 90%).

- Since the last assessment in 2004-06, the accuracy rate of Other Conditions has increased by 10% points to 82% across Scotland. However, it was found that there are many codes omitted which ultimately affects the completeness of this data item (see Table 2 on page 14).

- It was found that when codes are grouped together the accuracy rate improves thus making these codes more “fit-for-purpose” for analyses in specific areas.

- Waiting List Date improved from 76% in 2004-06 to 84% in 2010-11 possibly showing that New Ways of Defining and Measuring Waiting Lists has had a positive effect on the recording accuracy.

- Admission/Transfer From and Discharge/Transfer To are both poorly recorded at 61% and 67% respectively.

- Ready for Discharge Date is an optional data item and it was found that this is rarely recorded in the casenotes or on the SMR01 by the hospitals assessed.

- 27% of final discharge letters were not available in the case notes (or electronically) at the time of assessment. As a consequence they were not available for the assessment process or, presumably, the clinical coding process if required.

Results and Commentary

Table 1 below shows the 16 data items assessed, and gives the Scotland accuracy rates where data recorded in SMR01 matched the evidence DQA found.

Table 1 - Summary of Assessed Data Items

Data Item	2004-06 SMR01 % Accuracy Rate	2010-11 SMR01 % Accuracy Rate	% Point Difference
90-100%			
Specialty	..	99.6	-
Admission Date	..	98.4	-
Discharge Date	..	98.0	-
Other Operation 2-4[1]	92.4	96.4	+4.0
Date of Main Operation	91.8	96.1	+4.3
Main Operation[1]	93.2	94.3	+1.1
Admission Type	..	93.6	-
Discharge Type	..	92.8	-
Consultant/HCP Responsible for Care	90.9	90.4	-0.5
80-89%			
Main Condition[1]	87.8	88.3	+0.5
Waiting List Date	75.5	84.0	+8.5
Other Conditions 2-6[1]	72.2	82.1	+9.9
Clinician Responsible for Main Operation	80.5	80.3	-0.2
Less than 70%			
Discharge/Transfer To	..	67.4	-
Admission/Transfer From	..	61.4	-
Not Recorded			
Ready for Discharge Date[2]			

Key: .. not audited in 2004-06 - zero
Numbers assessed: 2004-06 – 5430 episodes 2010-11 – 4857 episodes
Source: DQA, ISD Scotland
[1]: 3-digit level
[2] : This data item is optional and was rarely recorded by the sampled hospitals

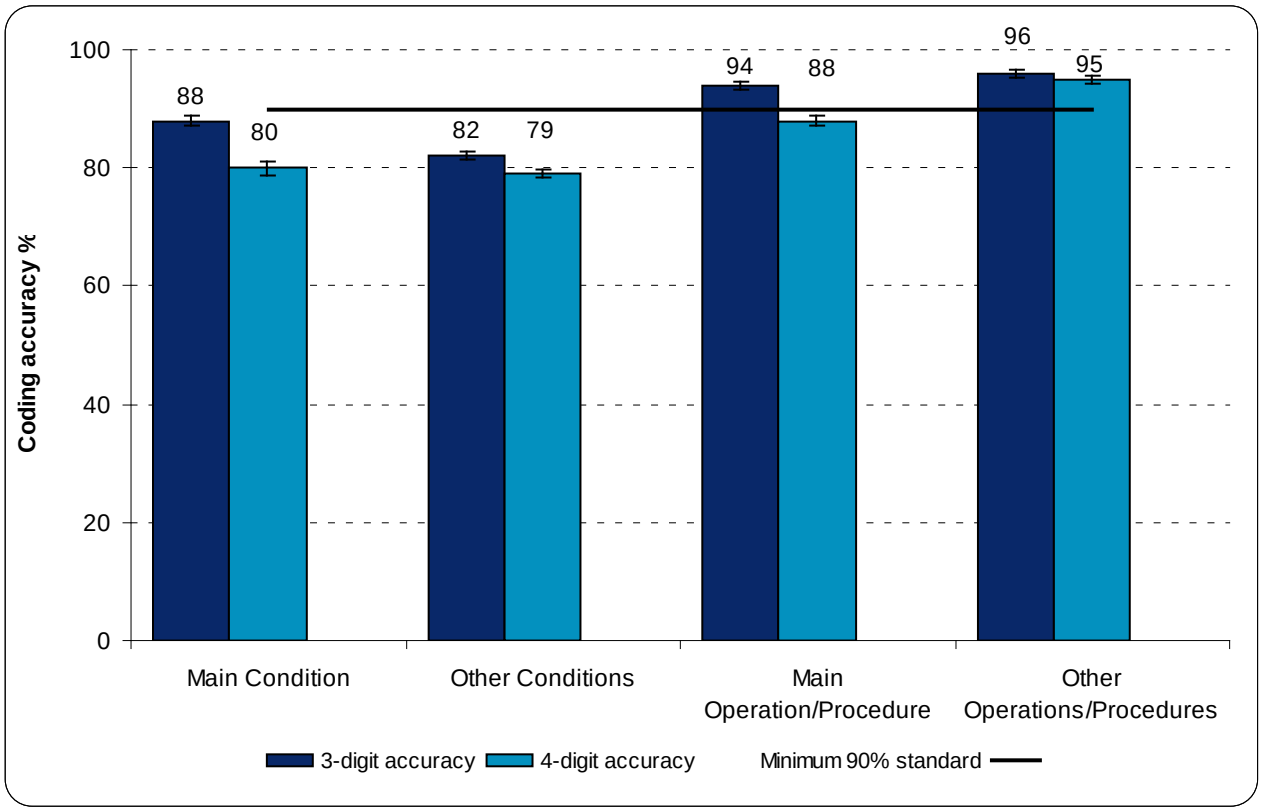
- Nine (56%) of the 16 data items assessed are between 90% and 100% accurate.
- Six (75%) of the eight comparable data items have increased in accuracy rate since the last SMR01 assessment in 2004-06.
- Consultant/HCP Responsible for Care and Clinician Responsible for Main Operation are the only comparable data items to drop very marginally in accuracy rate since 2004-06.


Clinical Coding Accuracy and Completeness at Scotland Level

Overall Clinical Coding Accuracy

The charts in this report include 95% confidence intervals (CIs). A CI indicates how reliable the coding accuracy rate is as an estimate of the true coding accuracy rate for the hospital. If 20 similar samples were taken, the accuracy rate would lie within the confidence interval 19 times and outside it once. For example, Main Condition accuracy would be expected to lie between 87.4% and 89.2% 19 times out of 20.

Chart 1 - Clinical coding accuracy for conditions, operations and procedures



- The 3-digit accuracy rate for Main Condition is 88% which is below the minimum 90% standard. In the 2004-06 SMR01 project the Main Condition accuracy rate was also 88%.

- The 3-digit accuracy rate of Main Operation/Procedure is 94% which is a 1% increase since the last SMR01 project and exceeds the minimum 90% standard.

- Other Operations/Procedures also exceeds the minimum 90% standard with a 3-digit accuracy rate of 96%. This is also 4% higher than reported in the 2004-06 SMR01 project and this represents a high standard of accuracy.

- 4-digit accuracy rates are:

	2004-06	2010-11
- Main Condition	81%	80%
- Other Conditions	70%	79%
- Main Operation/Procedure	84%	88%
- Other Operations/Procedure	93%	95%

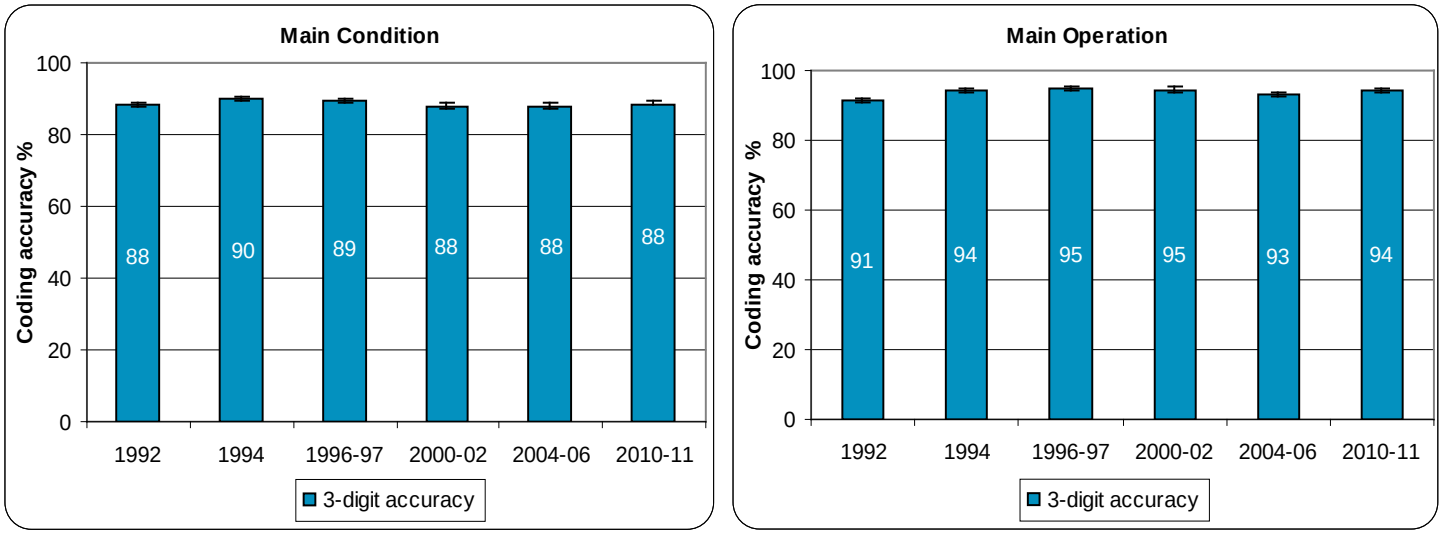
Clinical Coding Accuracy – 1992 to 2011

During the time period shown in the charts below there have been some significant changes in SMR01 recording, such as from April 1996 the introduction of COPPISH (Core Patient Profile Information in Scottish Hospitals) and most recently in 2007 it was recommended by the Strategic Review of Health and Care Statistics in Scotland that timescales for the receipt of SMRs to ISD should be reduced to six weeks.

In addition to these changes in SMR01 recording, in late 2010 and early 2011 five NHS Boards implemented a new Patient Management System (TrakCare) (although only two hospitals had data assessed after implementation). Along with the Scottish Government reduced timescales, this has also added to the pressure for hospitals to submit data to ISD.

Although there have been these significant changes over this time period, these changes have had little or no impact over the 3-digit accuracy rate of either Main Condition or Main Operation.

Chart 2 - Main Condition and Main Operation accuracy at 3-digit level - 1992 to 2011

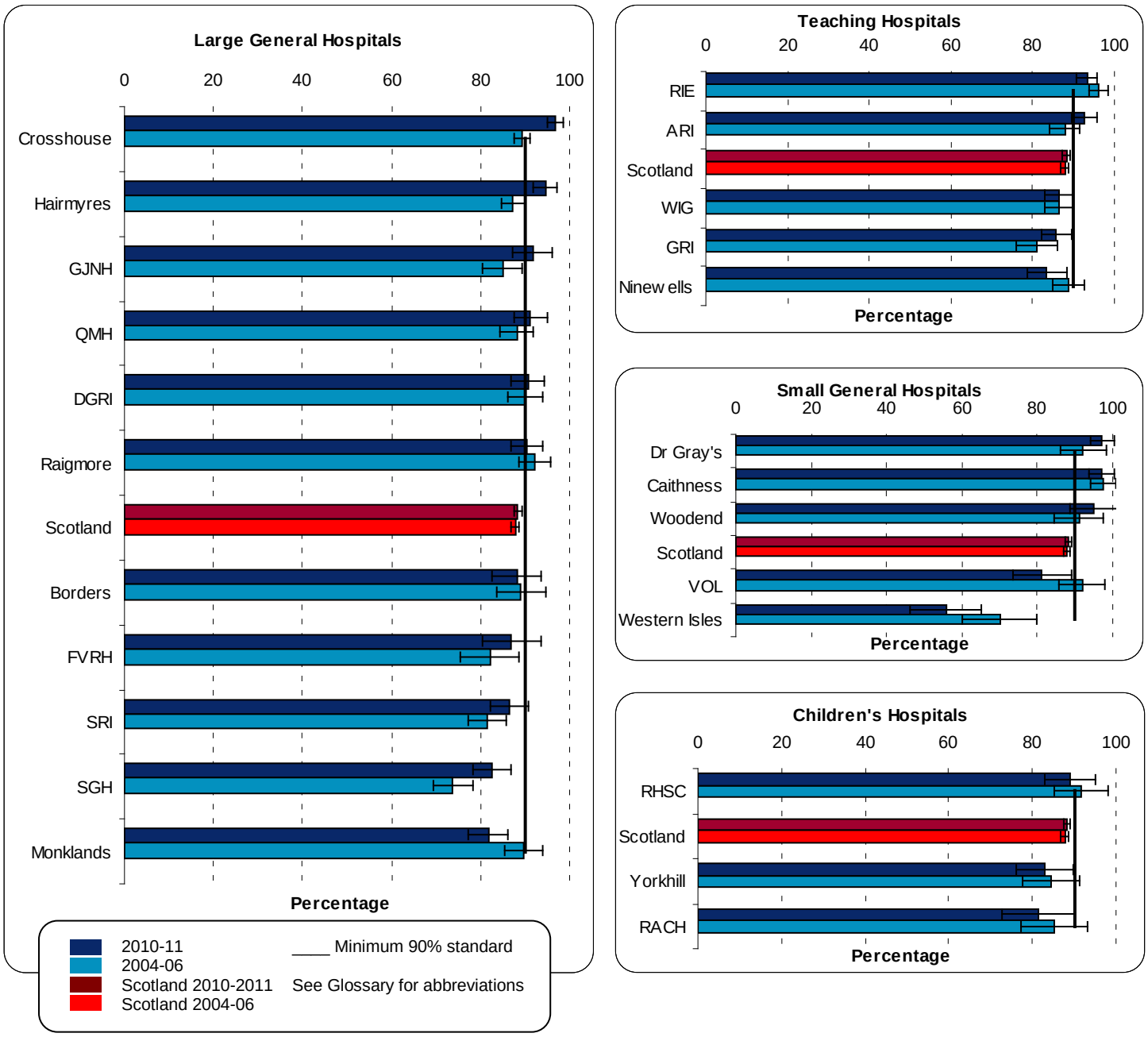


These figures come from the current and previous SMR01 projects. The 1996-97, 2000-02 and 2004-06 national SMR01 DQA reports are available at: www.isdscotland.org/Products-and-Services/Data-Quality/Previous-Projects.

Clinical Coding Accuracy – Main Condition

Chart 3 below show 3-digit accuracy rate of Main Condition in 2010-11 in comparison to 2004-06 with hospitals grouped to allow peer comparison.

Chart 3 - Main Condition accuracy at 3-digit level



Many of hospitals assessed have seen an increase in the 3-digit accuracy rate of Main Condition since 2004-06 however, overall the accuracy rate across Scotland has remained the same at 88%.

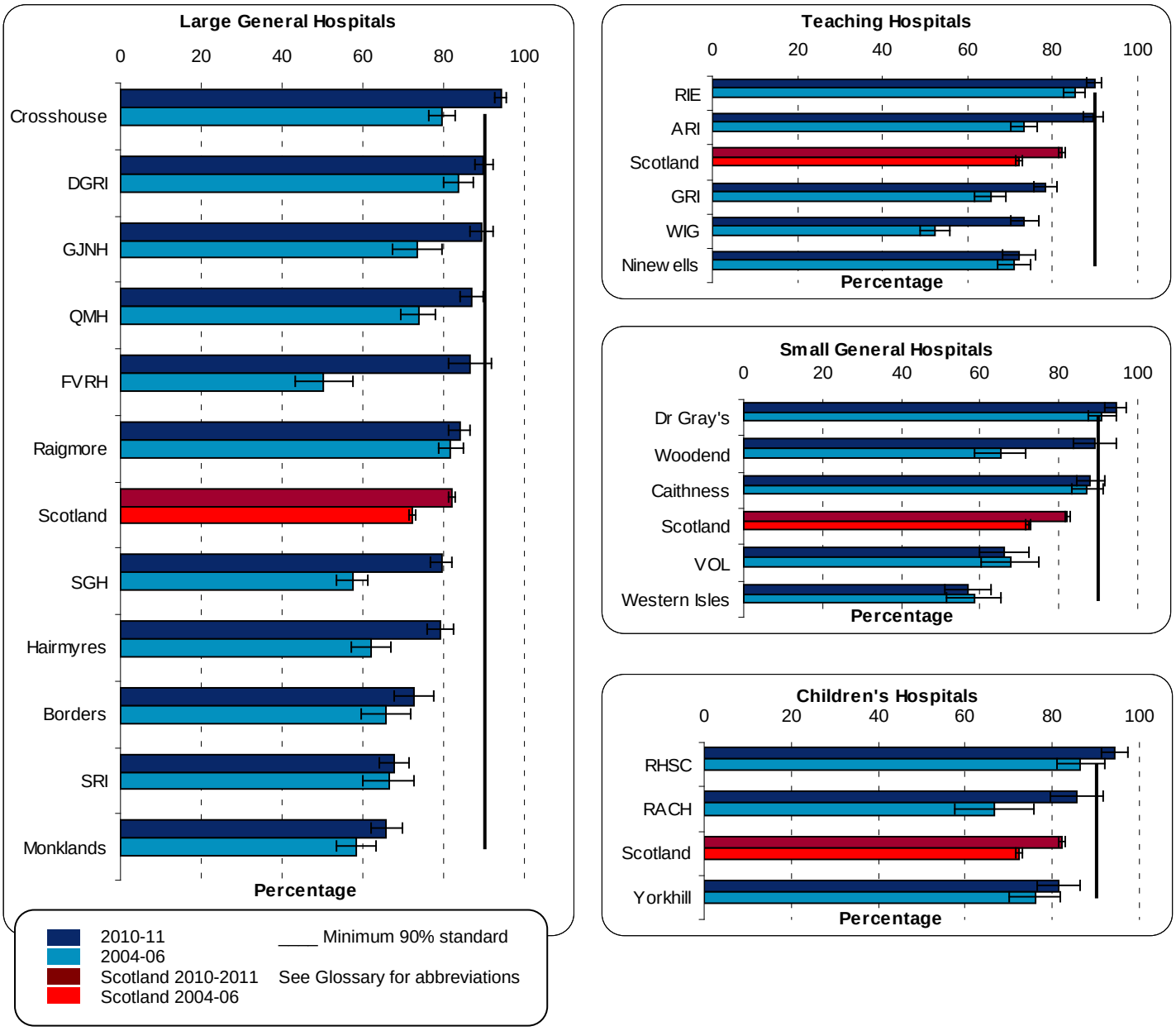
Eleven hospitals achieved or exceeded the recommended minimum 90% standard for accuracy rate of Main Condition, compared to the seven hospitals in the previous SMR01 project in 2004-06. Thirteen of the 24 hospitals assessed did not achieve the recommended minimum 90% standard for accuracy rate of Main Condition.

Main Condition should be seen as describing the main medical (or social) condition managed/investigated during the patient's stay.

Clinical Coding Accuracy – Other Conditions

Chart 4 below shows 3-digit accuracy rate of Other Conditions in 2010-11 in comparison to 2004-06 and the hospitals are grouped to allow peer comparison.

Chart 4 - Other Conditions accuracy at 3-digit level



- Other Conditions 3-digit accuracy rate across Scotland has increased from 72% in 2004-06 to 82%.
- All hospitals have seen an increase in the accuracy rate of Other Conditions except for Vale of Leven District General Hospital and Western Isles Hospital who both decreased by 1.7% points since the last SMR01 project in 2004-06.
- Aberdeen Royal Infirmary, Crosshouse Hospital, Dumfries and Galloway Royal Infirmary, Dr Gray's Hospital, Royal Infirmary of Edinburgh and the Royal Hospital for Sick Children Edinburgh are the only hospitals to achieve or exceed the recommended minimum standard of 90% accuracy.

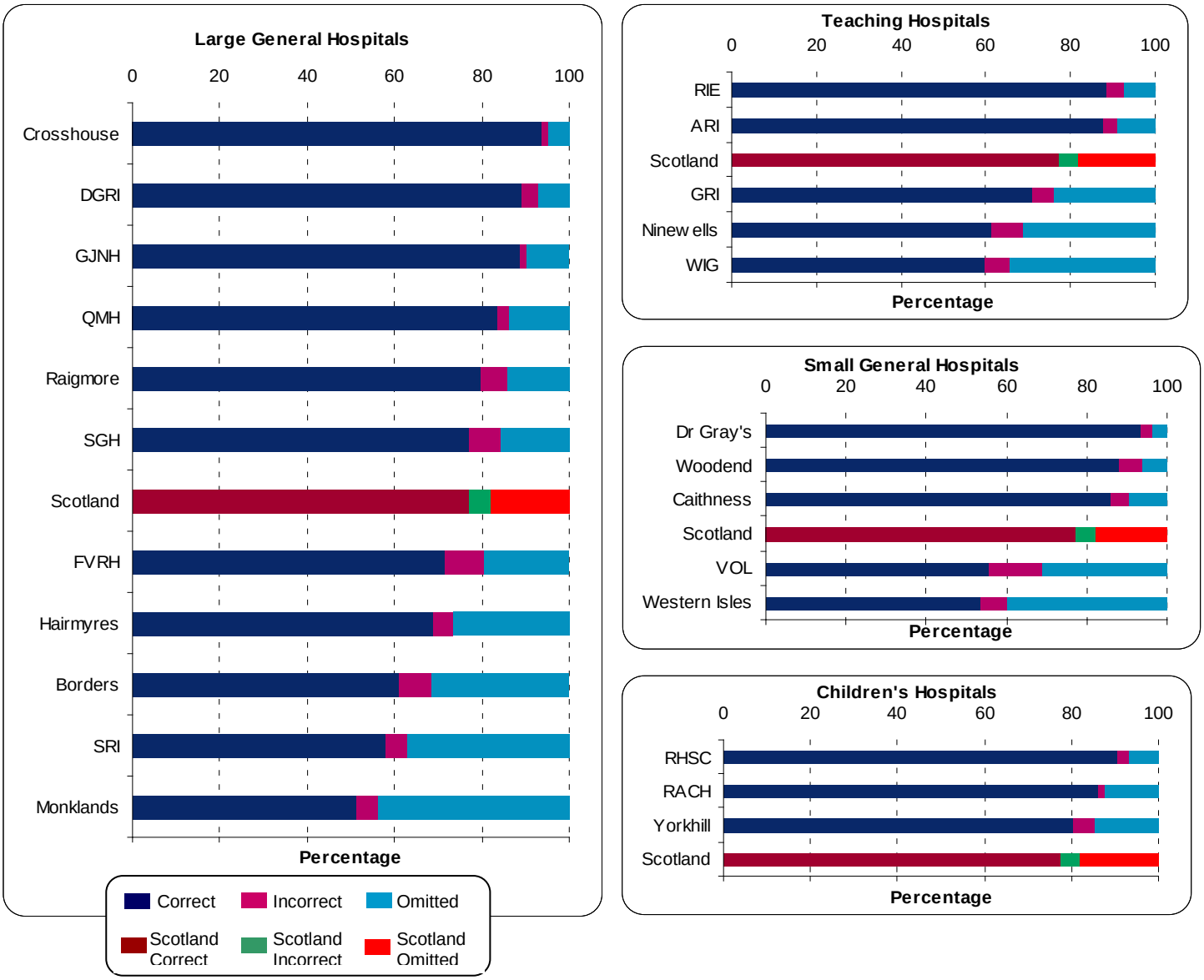
Other Conditions are defined as those conditions that co-exist or develop during the episode of healthcare and affect the management of the patient.

Omitted Other Conditions

In November 2007 a new ICD10 coding guideline was issued in respect of coding co-morbidities in SMR01. This guideline stated that "It is not necessary to record **background** co-morbidities in day case SMR01 episodes, although this may be done if space permits and the information is required for local use." However, "all of the patient's **active** problems should be recorded in both inpatient and daycase SMR01 episodes."

Chart 5 below shows the percentage breakdown of all **required** Other Conditions, where they are correctly coded, incorrectly coded (where an attempt has been made to code the condition but the wrong code has been selected) or where the condition has been omitted altogether.

Chart 5 - Omitted Other Conditions



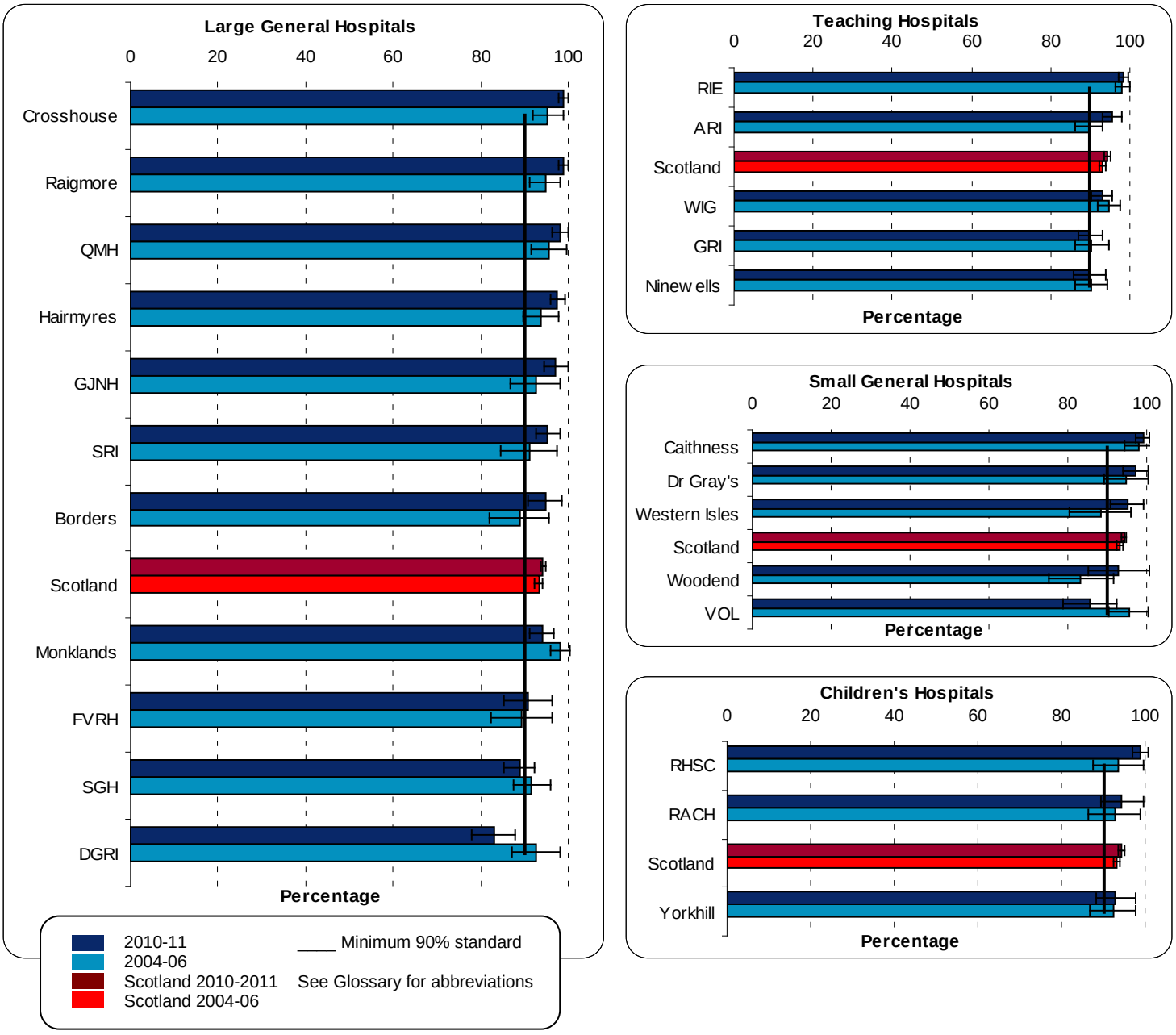
- Overall there is a high number of Other Condition codes which have not been recorded by hospitals where they were required. Monklands Hospital and Western Isles Hospital both omitted 40% or over of the required Other Condition codes whereas less than 5% of the required codes were omitted at Crosshouse Hospital and Dr Gray's Hospital.

The co-morbidity guideline can be found at http://www.isdscotland.org/Products-and-Services/Terminology-Services/Clinical-Coding-Guidelines in Coding Guideline number 21, November 2007.

Clinical Coding Accuracy – Main Operation/Procedure

The chart below shows the accuracy rate of Main Operation/Procedure in 2010-11 in comparison to 2004-06 and the hospitals are grouped to allow peer comparison.

Chart 6 - Main Operation/Procedure accuracy at 3-digit level



- Across Scotland Main Operation/Procedure has increased in accuracy rate by 1% point since the last SMR01 project in 2004-06.
- Seventeen of the 24 hospitals assessed have seen an increase in accuracy rate of Main Operation/Procedure. However, Western Infirmary/Gartnavel, Glasgow Royal Infirmary, Ninewells Hospital, Monklands Hospital, Southern General Hospital, Dumfries and Galloway Royal Infirmary and Vale of Leven District General Hospital have all dropped in accuracy rate since 2004-06.
- Only four hospitals (Dumfries and Galloway Royal Infirmary, Ninewells Hospital, Southern General Hospital and Vale of Leven District General Hospital) were below the recommended accuracy rate of 90% for Main Operation/Procedure.

Clinical Coding Accuracy, Sensitivity and Completeness within Defined Groups

The main focus of this SMR01 project is to highlight any issues with the completeness of data as well as reporting on the accuracy rate. Completeness is affected where there are codes that should have been recorded and were not. This could be due to two main reasons:

1. The medical staff have not identified these conditions/operations/procedures on the discharge letter.
2. The clinical coders have not selected the condition/operation/procedure.

Tables 2 to 4 show a selection of commonly encountered conditions and operation/procedure groups. Also, in the case of Tables 2 and 4 these groups are based on the criteria used for defined groups in the previous SMR01 project in 2004-06 as to allow comparison.

A group code is classed as being correctly recorded - when assessed, ANY code from the defined group should be recorded - in other words the recorded code 'hit the group target'. We know from previous assessments that accuracy rate improves when codes are grouped together.

The three tables can be interpreted as follows:

- **Correctly recorded:** episodes where a group code was correctly recorded in Main Condition, Other Conditions or Main Operation/Procedure.
- **Over-recorded:** episodes where a group code was recorded in Main Condition, Other Conditions or Main Operation/Procedure but should not or a non-group code should have been recorded instead.
- **Under-recorded:** episodes where a non-group code was recorded in Main Condition, or Main Operation/Procedure and a group code should have been recorded instead or in Other Conditions where it was either left blank or a non-group code was recorded and a group code should have been recorded instead.
- **Accuracy:** means the percentage of episodes where the Main Condition, Other Condition or Main Operation/Procedure recorded on SMR01 hit the group target.
- **Sensitivity:** is the number of times the group was correctly recorded as a percentage of the true number of times it should have been recorded.
- **Completeness:** is the net balance of correctly recorded, under-recorded and over-recorded group codes as a proportion of the true number of group codes required as Main Condition, Other Condition or Main Operation/Procedure in the assessed sample.

Tables 2 to 4 demonstrate that when codes are grouped together the accuracy rate improves thus making these codes more "fit-for-purpose" for analyses in specific areas.

Table 2 - Accuracy, sensitivity and completeness of selected Main Condition groups

Description		SMR01 Total	Correctly Recorded	Over Recorded	Under Recorded	Accuracy %	Sensitivity %	Completeness %
Ischaemic Heart Disease	2010-11	224	218	6	12	97.3	94.8	97.4
	2004-06	240	226	14	16	94.2	93.4	99.2
Cerebrovascular Disease	2010-11	91	86	5	1	94.5	98.9	104.6
	2004-06	97	92	5	9	94.8	91.1	96.0
Fractures	2010-11	144	143	1	7	99.3	95.3	96.0
	2004-06	151	149	2	7	98.7	95.5	96.8
COPD	2010-11	89	85	4	9	95.5	90.4	94.7
	2004-06	79	73	6	9	92.4	89.0	96.3
Myocardial Infarction	2010-11	112	110	2	7	98.2	94.0	95.7
	2004-06	89	82	7	11	92.1	88.2	95.7
Alcohol	2010-11	42	39	3	4	92.9	90.7	97.7
	2004-06	49	47	2	6	95.9	88.7	92.5

Main Condition and ICD10 codes:

Ischaemic Heart Disease	I20-I25
Cerebrovascular Disease	I60-I69, G45.0, G45.1, G45.8, G45.9
Fractures	S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T14.2
COPD	J40-J44
Myocardial Infarctions	I21, I22
Alcohol	E52X, F10.0-F10.9, G31.2, G62.1, G72.1, I42.6, K29.2, K70.0-K70.9, K86.0, O35.4, P04.3, Q86.0, R78.0, T50.6, T51.0, T51.9, Z13.3, Z50.2, Z63.7, Z72.1, Z81.1, Z86.4

DQA have found that, for the six defined groups of Other Condition diagnoses, the completeness of data is below 80%. This is shown in Table 3 below.

Table 3 - Accuracy, sensitivity and completeness of selected Other Condition groups

Description	SMR01 Total	Correctly Recorded	Over Recorded	Under Recorded	Accuracy %	Sensitivity %	Completeness %
Asthma	134	131	3	74	97.8	63.9	65.4
Coronary Heart Disease	453	433	20	183	95.6	70.3	73.5
COPD	144	127	17	62	88.2	67.2	76.2
Diabetes	238	237	1	109	99.6	68.5	68.8
Heart Failure	81	72	9	33	88.9	68.6	77.1
Hypertensive Diseases	451	431	20	256	95.6	62.7	65.6

Other Conditions and ICD10 codes

Asthma	J45, J46
Coronary Heart Disease	I20-I25
COPD	J40-J44
Diabetes	E10-E14
Heart Failure	I50
Hypertensive Diseases	I10-I15

Table 4 - Accuracy, sensitivity and completeness of selected Main Operation/Procedure groups

Description		SMR01 Total	Correctly Recorded	Over Recorded	Under Recorded	Accuracy %	Sensitivity %	Completeness %
Cardiac Catheterisation	2010-11	69	68	1	1	98.6	98.6	100.0
	2004-06	94	91	3	2	96.8	97.8	101.1
Fracture Fixations and Manipulations	2010-11	62	58	4	1	93.5	98.3	105.1
	2004-06	69	68	1	2	98.6	97.1	98.6
Upper GI Endoscopy	2010-11	185	182	3	6	98.4	96.8	98.4
	2004-06	238	237	1	16	99.6	93.7	94.1
Colonoscopy and Sigmoidoscopy	2010-11	200	200	0	12	100.0	94.3	94.3
	2004-06	253	244	9	6	96.4	97.6	101.2

Main Operation/Procedure and OPCS 4.6 codes:

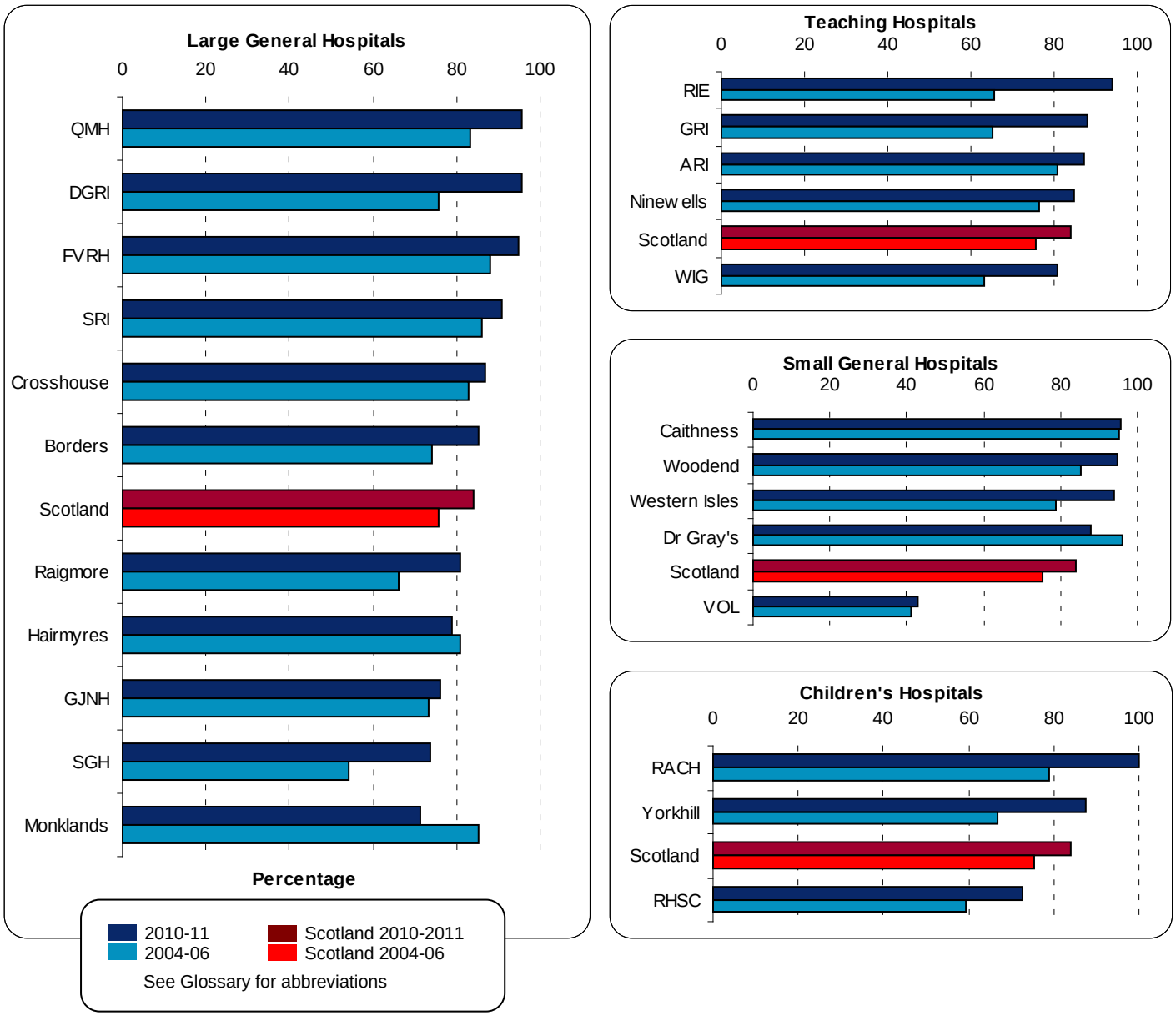
Cardiac Catheterisation	K49-K51, K57, K58 and K63-K65
Fracture Fixations and Manipulations	W19-W26
Upper GI Endoscopy	G14, G19, G43-G45
Colonoscopy and Sigmoidoscopy	H20-H28


Non-Clinical Data
Item Findings
at
Scotland Level

Waiting List Date

Since the last SMR01 assessment in 2004-06 Waiting List Date accuracy rate has increased from 76% to 84%, an increase of 8% points. Chart 7 below shows a comparison at hospital level to the 2004-06 accuracy rate.

Chart 7 - Waiting List Date



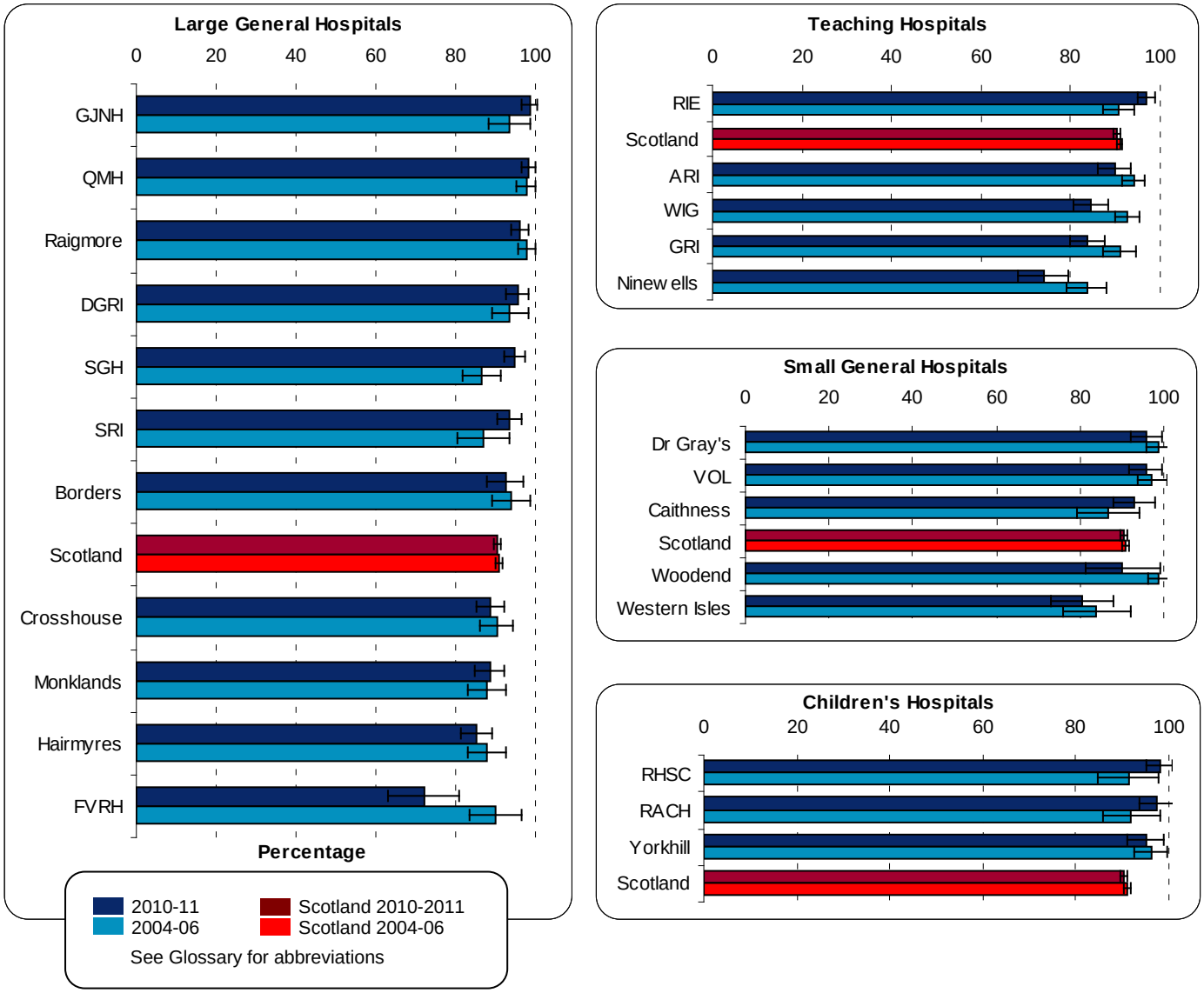
- All hospitals, with the exception of Hairmyres Hospital, Monklands Hospital and Dr Gray's Hospital, saw an increase in the accuracy rate of Waiting List Date since the last SMR01 assessment in 2004-06.

Waiting List Date is the date that a decision is made, by the healthcare professional responsible for a patient's care, to put the patient on a waiting list.

Consultant/HCP Responsible for Care

The accuracy rate in recording of Consultant/HCP Responsible for Care has decreased slightly from 90.9% in 2004-06 to 90.4% in 2010-11.

Chart 8 - Consultant/HCP Responsible for Care



- Only 10 of the 24 hospitals assessed saw an increase in the accuracy rate of Consultant/HCP Responsible for Care:

  - Caithness General Hospital
  - Dumfries and Galloway Royal Infirmary
  - Golden Jubilee National Hospital
  - Monklands Hospital
  - Queen Margaret Hospital
  - Royal Aberdeen Children's Hospital
  - Royal Hospital for Sick Children Edinburgh
  - Royal Infirmary of Edinburgh
  - Southern General Hospital
  - Stirling Royal Infirmary

The Health Professional Responsible for Care (HCP) is the person who carries clinical responsibility for a patient's healthcare during an episode. This is usually a consultant but may be another healthcare professional, for example a midwife or GP.

Admission/Transfer From and Discharge/Transfer To

The data items Admission/Transfer From and Discharge/Transfer To are generally poorly recorded throughout Scotland with an accuracy rate of 61% and 67% respectively across Scotland.

Chart 9 - Admission/Transfer From

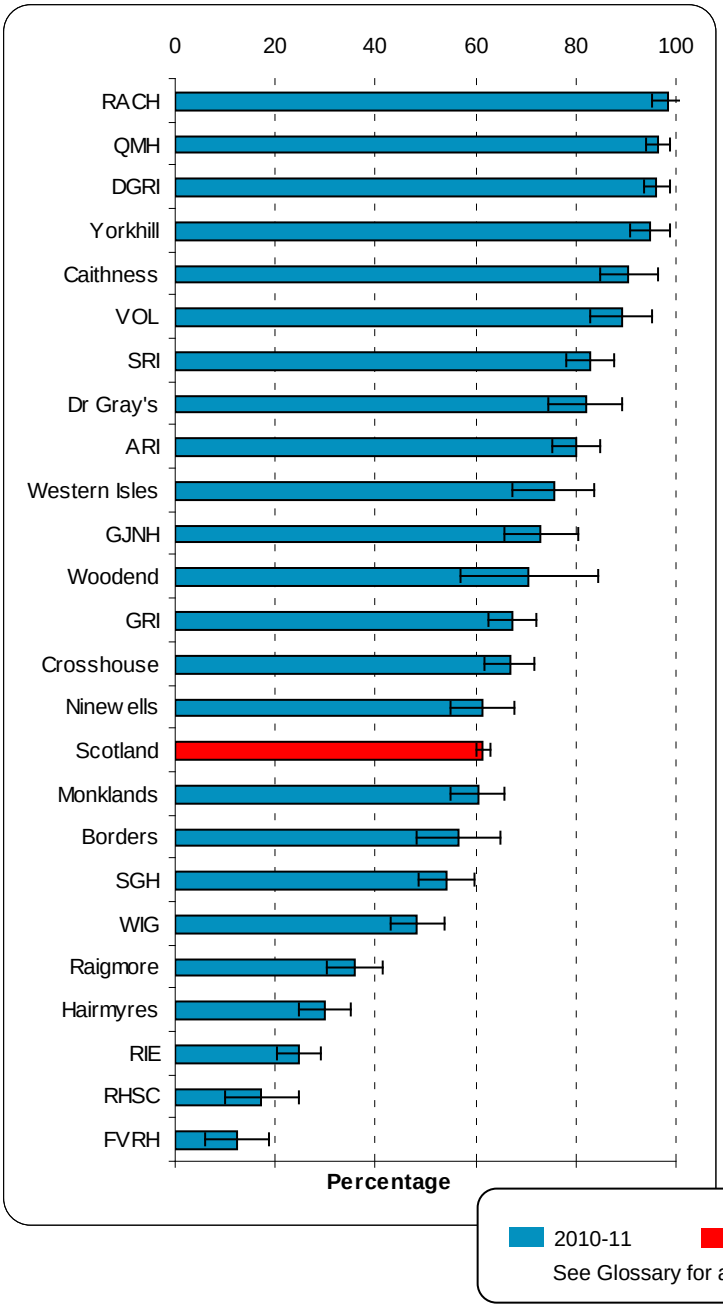
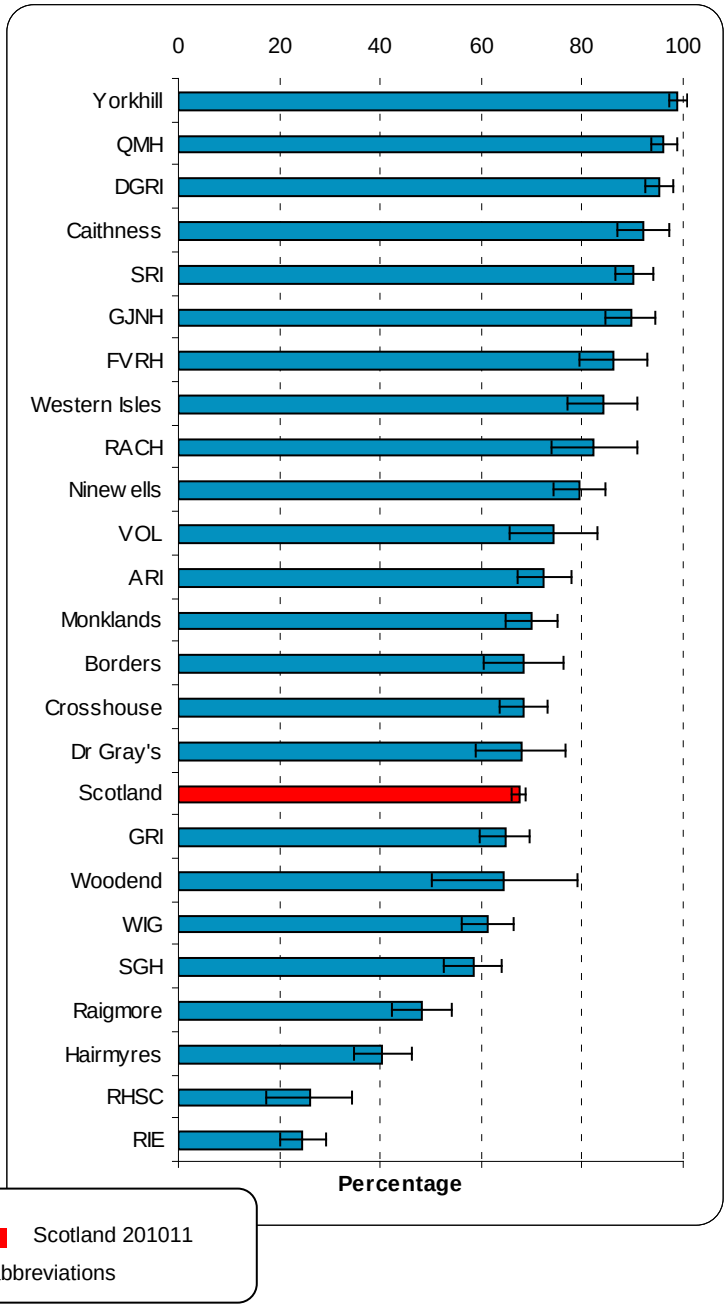


Chart 10 – Discharge/Transfer To



Both of these data items have two digits which can be broken down as follows:

- first digit – broad category, for example
  - 0 patient died (Discharge/Transfer To only)
  - 1 private residence
  - 2 institution
  - 3 temporary place of residence
  - 4 transfer within the same health board/provider
  - 5 transfer from/to another health board/provider
  - 6 other type of location
- Second digit – fuller details e.g. 12 - private residence - living with relatives or friends

In the 4857 episodes assessed across Scotland, DQA were unable to tell whether or not the data items were correctly recorded in 1628 (34%) of the episodes for Admission/Transfer From and 1526 (31%) of episodes for Discharge/Transfer To. These episodes are excluded from any further analysis.

Where these data items were in error, 137 episodes (11% of episodes in error) had an incorrect first digit for Admission/Transfer From, and 97 episodes (9% of episodes in error) for Discharge/Transfer To. Thus, around 90% of the episodes in error were assigned to the correct category (first digit).

Most errors occurred in the second digit - fuller details:

- **Admission/Transfer From** – there were 923 episodes (74% of episodes in error) where the first digit was correctly recorded and a second digit of '0' (no additional detail added) had been recorded incorrectly as DQA found evidence to assign a digit providing fuller details e.g. 11 – private residence – living alone.

- **Discharge/Transfer To** – there were 797 episodes (73% of episodes in error) where the first digit was correctly recorded and a second digit of '0' (no additional detail added) had been recorded incorrectly as DQA found evidence to assign a digit providing fuller details e.g. 12 – private residence – living with relatives or friends.

- **Admission/Transfer From indicates the source of admission, or type of location from which a patient has been admitted. Refer to the SMR Data Manual for codes and value.**
- **Discharge/Transfer To gives the type of location to which a patient is discharged or transferred following an episode of care. See SMR Data Manual for codes and values.**

Community Health Index (CHI) Number

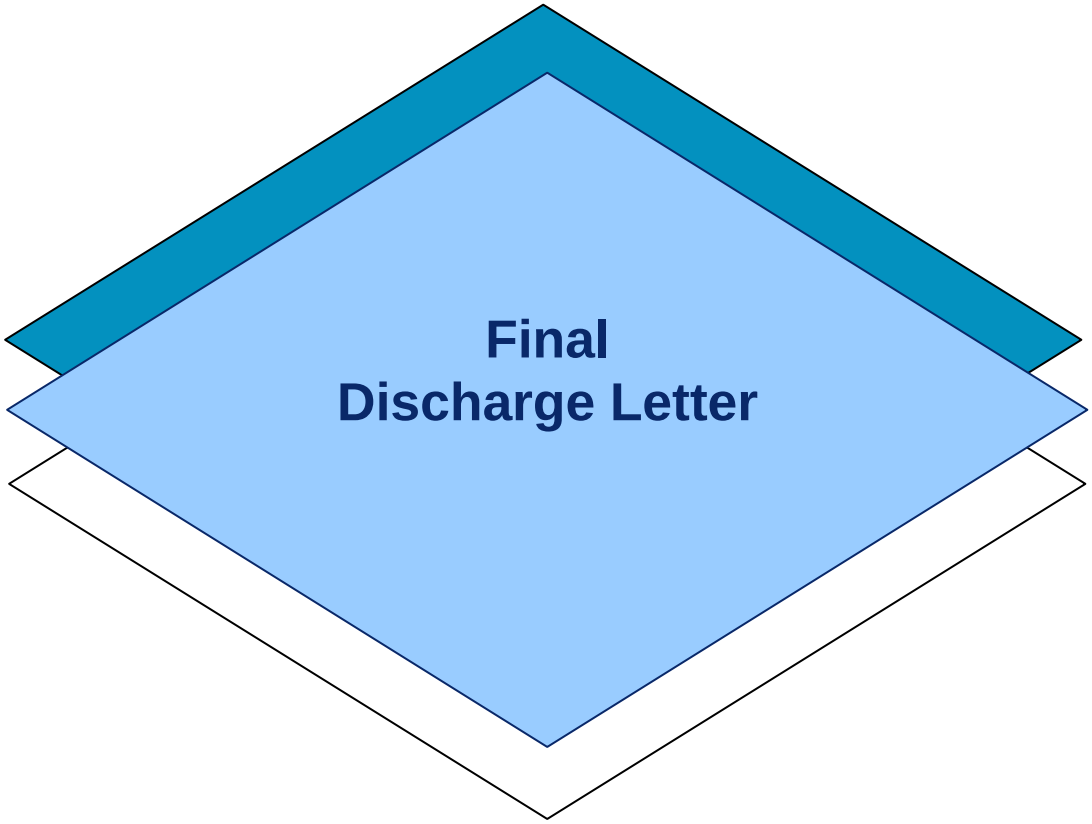
DQA assessed whether or not the most recent GP referral letter contained a CHI number. The GP referral letter was not necessarily the referral letter for the episode or specialty being assessed.

- The CHI number was recorded on 95% of GP referral letters when applicable, though it was observed that most hand-written GP referral letters did not have a CHI number present.

DQA also assessed whether a CHI number was present on the discharge letter of the episode being assessed.

- The CHI number on the discharge letter relating to the episode assessed was well recorded, being present on 98% of letters.

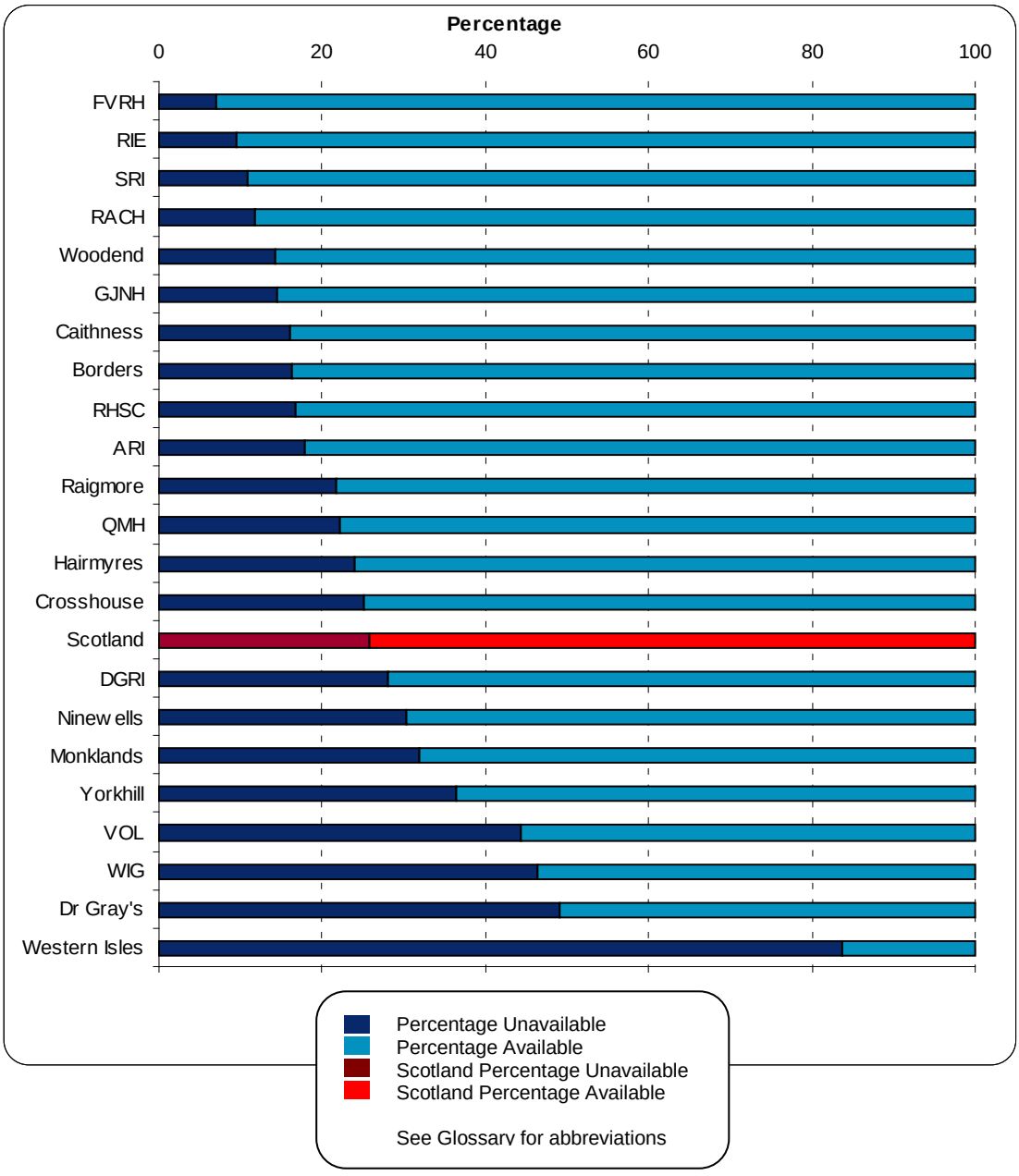
The Community Health Index (CHI) is a population register, which is used in Scotland for health care purposes. The CHI number uniquely identifies a person on the index.


Final
Discharge Letter

Final Discharge Letter

In December 2005 the Strategic Review of Health and Care Statistics in Scotland made the recommendation that timescales for the receipt of SMR to ISD should be reduced. Subsequent to this, Medical Directors were encouraged in September 2006, by Kevin Woods, then Chief Executive, NHS Scotland, to ensure that clinical teams produced final discharge letters in good time so that clinical coding departments were supplied with the information required to produce SMR data. This is the first national data quality assessment of SMR01 returns since these changes have taken place.

Chart 11 - Availability of final discharge letter



Note: ISD recognise that for day case endoscopies only the endoscopy report may be available for coding. Also, Glasgow Royal Infirmary and Southern General Hospital are excluded from this chart and table 5 as DQA did not access all electronic documents during the assessment.

DQA found that 27% of final discharge letters across Scotland were not available in the case notes (or electronically) at the time of assessment. As a consequence they were not available for the assessment process or, presumably, the clinical coding process if required.

Table 5 below shows the number of episodes, split by specialty, which at the time of assessment, had a final discharge letter, either in the case note or electronically (columns 5-8), or did not (column 4). Where the final discharge letter was available in the case notes the table goes on to show how many of the final discharge letters were typed within 6-weeks of the discharge date (column 5) and how many were outwith (column 6). This shows how many were produced in time to allow coding and submission of the SMR01 return within six weeks of the discharge date. The table also shows a split by specialty to identify where any potential problems with the production of final discharge letters might lie.

Table 5 - Final discharge letter availability

				Final discharge letter in case note or electronically at time of assessment			
Specialty	**Description**	**Number of episodes**	**No discharge letter in case note at assessment**	**Typed within 6 weeks of discharge**	**Typed out with 6 weeks of discharge**	**Discharge letter not dated**	**Total**
A1	General Medicine	1002	258	610	122	12	744
A11	Acute Medicine	42	4	21	17	-	38
A2	Cardiology	207	21	167	14	5	186
A6	Infectious Diseases	23	14	8	1	-	9
A7	Dermatology	11	3	6	2	-	8
A8	Endocrinology & Diabetes	12	4	8	-	-	8
A81	Endocrinology	1	-	1	-	-	1
A9	Gastroenterology	89	52	29	7	1	37
AB	Geriatric Medicine	202	29	144	26	3	173
AC	Homeopathy	2	-	2	-	-	2
AD	Medical Oncology	32	24	7	-	1	8
AF	Paediatrics	204	43	116	15	30	161
AG	Renal Medicine	28	8	15	3	1*	19
AH	Neurology	16	3	12	1	-	13
AM	Palliative Medicine	5	1	3	1	-	4
AP	Rehabilitation Medicine	9	-	8	1	-	9
AQ	Respiratory Medicine	86	17	62	6	1	69
AR	Rheumatology	10	5	4	1	-	5
AW	Allergy	1	-	1	-	-	1
C1	General Surgery	364	149	195	13	7	215
C11	General Surgery (excl Vascular)	342	112	210	19	1	230
C12	Vascular Surgery	42	4	34	2	2	38
C13	Oral and Maxillofacial Surgery	40	9	29	-	2	31
C2	Accident & Emergency	38	2	34	2	-	36
C3	Anaesthetics	52	6	41	4	1	46
C4	Cardiothoracic Surgery	3	3	-	-	-	-
C41	Cardiac Surgery	58	5	40	3	10	53
C42	Thoracic Surgery	28	3	23	2	-	25
C5	Ear, Nose & Throat (ENT)	127	19	99	6	3	108
C6	Neurosurgery	12	-	11	-	1	12
C7	Ophthalmology	149	45	93	3	8	104
C8	Trauma and Orthopaedic Surgery	385	81	272	24	8	304
C9	Plastic Surgery	43	8	32	2	1	35
CA	Paediatric Surgery	57	9	38	6	4	48
CB	Urology	166	18	136	7	5	148
D1	Community Dental Practice	15	15	-	-	-	-
D3	Oral Surgery (excl C13)	21	5	16	-	-	16
D6	Restorative Dentistry	2	2	-	-	-	-
D8	Paediatric Dentistry	16	-	15	-	1	16
F2	Gynaecology	152	35	112	4	1	117
H1	Clinical Radiology	2	1	1	-	-	1
H2	Clinical Oncology	23	22	1	-	-	1
J4	Haematology	92	41	45	3	3	51
J5	Immunology	3	3	-	-	-	-
	TOTAL	**4214**	**1083 (26%)**	**2701 (64%)**	**317 (8%)**	**112 (3%)**	**3130**

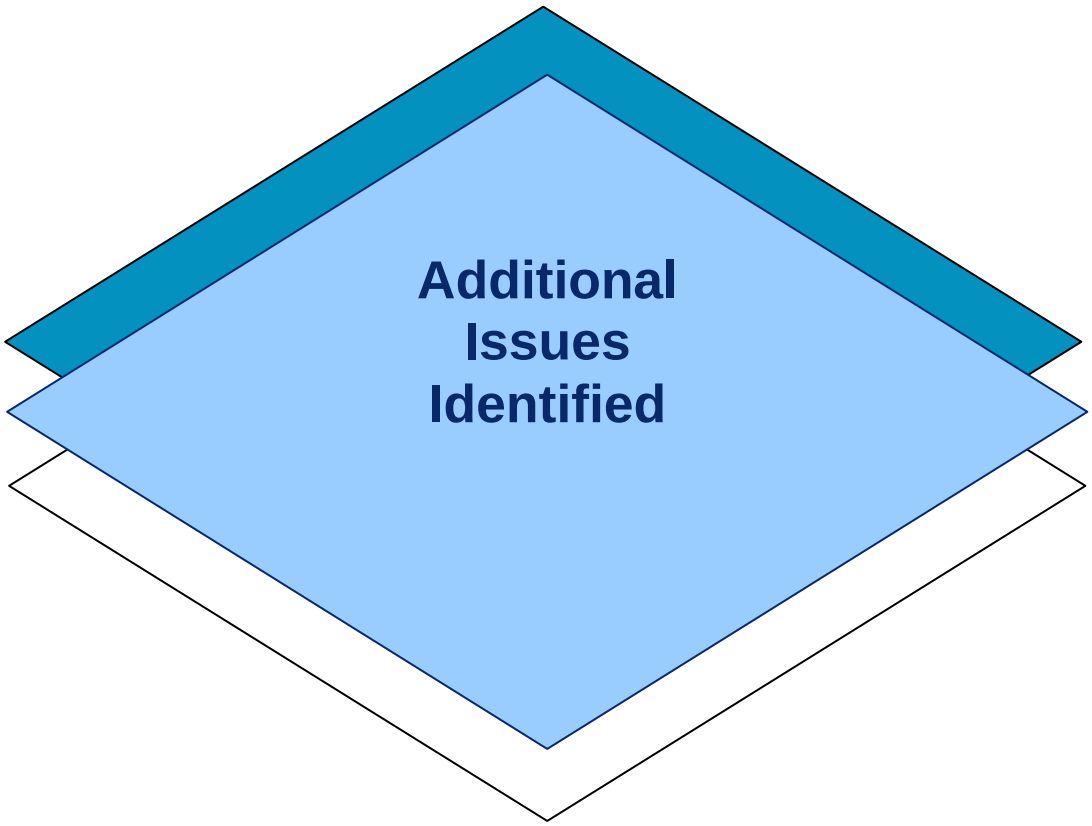
Key: - zero value * One additional episode excluded as the final discharge letter was dated 40 days before the admission date

It is recognised that the introduction of reduced timescales for the receipt of SMR01 returns to ISD and the availability of accurate information within that reduced time causes problems for clinical coders. Some hospitals have indicated that they now take information from any source available in order to achieve the six week target. It was also often stated that the clinical coders find it hard to meet the reduced submission target due to final discharge letter backlogs and providing cover for other jobs outwith the coding department. However, DQA have found that the quality of data has not been affected by any of these issues.

For specialty code AD (Medical Oncology) and J4 (Haematology), the final discharge letters were missing for 75% and 45% respectively. However, patients in these specialties are often admitted repeatedly and the casenotes are seldom released by the Consultant for coding.

Where the final discharge letter was available to DQA at the time of assessment, either in the case note or electronically, if these final discharge letters had been available and fully utilised at the time of coding the accuracy rate of Main Condition and Main Operation, at 3-digit level, would have improved from 88% to 94% and 94% to 97% respectively (both of which are above the recommended minimum standard accuracy rate of 90%).

Providing the clinical coders with a timely and complete final discharge letter will ultimately improve the timeliness of SMR01 submissions and increase the level of accuracy and completeness in clinical coding. As more hospitals implement electronic systems where the immediate discharge document becomes the final discharge document (by incorporating the SIGN 65 guidelines) the availability of a final discharge letter may become less of an issue.


Additional
Issues
Identified

System Issues

Crosshouse Hospital

Clinician Responsible for Main Operation was recorded by clinical coders, however due to a Patient Administration System (PAS) (COMPAS) issue this data was not present in the SMR01 sample assessed. It is hoped by the hospital, that the implementation of the new PMS will resolve this issue.

Dumfries and Galloway Royal Infirmary

There was an issue where their PAS (TOPAS) did not always submit all OPCS operation codes within an episode in the SMR01 submission to ISD. The system supplier was made aware of this issue and a fix was due to be implemented in early 2012. This affected DGRI's Main Operation/Procedure accuracy rate and when the 33 records suspected of being affected by this issue were excluded then the accuracy rate rose from 83% to 97% at 3-digit level.

Forth Valley Royal Hospital

An electronic structured immediate discharge letter (IDL) is produced from eWARD. It was noted during the assessment that the section entitled "*Active diagnosis for this episode*" was often either incorrect or misleading based on what was written in the body text of the "*Summary of clinical observations*" section. It was stated by the coders that the doctors have a limited list of diagnoses to choose from in eWARD when completing the "*Active diagnosis for this episode*" section for the IDL and therefore they select the most closely related diagnosis.

It was also noted that there is a similar problem with the operation note produced by the theatre system to that noted with the IDL in eWARD. In some cases the OPCS4 code and description on the operation note differ from the account of the operation given in the body text.

The IDL is an important method of communication between the hospital and GP and should be an accurate depiction of what occurred in the episode of care described. This is especially important if the IDL becomes the final discharge letter and no further communication is sent to the GP.

Forth Valley Royal Hospital have stated that there is already an ongoing project in place which is looking at improving the quality of information held in eWARD.

Royal Infirmary of Edinburgh

At the time of the sample the Simplecode system at the Royal Infirmary of Edinburgh had not been updated to allow the recording of 5th digits to identify ST elevation and Non-ST elevation myocardial infarctions. DQA have been advised that this issue has now been addressed and Simplecode has been updated.

Vale of Leven District General Hospital

There was an issue with their PAS (COMPAS) where the supplementary operation codes are not included in the SMR01 submission to ISD. This affected 16 assessed episodes and ultimately the 4-digit accuracy rate. This issue was also reported in the last SMR01 assessment in 2005. It is noted that the implementation of the new Patient Management System (PMS) at Vale of Leven District General Hospital will resolve this issue.

General Issues

Forth Valley Royal Hospital

1. The clinical coders stated that when a patient dies the electronic systems are often not updated. It is recommended that all systems are complete and up to date for all patients.
2. The IDL, which in the majority of episodes is the final discharge letter also, very rarely tells the coders what the external cause of an injury is hence they have to use X599 for *Exposure to unspecified factor*. If the IDL is also used as the final discharge letter then it should be a full account of the episode including the causes of any injuries.

Golden Jubilee National Hospital

There is an ongoing issue with the availability of information for the Waiting List Date. Many of the patients in the assessed sample were referred to Golden Jubilee National Hospital from other acute hospitals, and as such are placed on the waiting list elsewhere.

Raigmore Hospital

The ICD10 code R69.X *Unknown and unspecified causes of morbidity* was recorded on occasion. This code should be avoided where possible. At Raigmore Hospital R69.X is used when at three months post discharge clinical coders still have no information to allow correct coding of the episode.

Vale of Leven District General Hospital

There were 24 errors all associated with day case admissions from the repeat waiting list for Haematology. These errors involved the recording of an apparently artificial Waiting List Date with the date recorded close to (mostly the day before) the date of the admission from the repeat waiting list. Without these (repeat) Waiting List Date errors, the Waiting List Date accuracy rate would have been 87%. It should be noted that Waiting List Date is not mandatory for patients admitted from a planned repeat waiting list. This issue was also reported in the last SMR01 assessment in 2006.

Western Isles Hospital

During the assessment DQA found that the layout of the immediate discharge letter (IDL) did not easily assist the clinical coders in extracting the correct diagnoses. The correct selection and sequencing of clinical codes by the clinical coders is an essential part of the coding process. At 3-digit level there were 16 episodes where the Main Condition had been incorrectly coded and a further 30 episodes where the Main Condition had been incorrectly *selected* using the Admission Notes section on the IDL.

The selection of the Main Condition could improve if the layout of the IDL was slightly amended to show diagnoses 1-6 and that medical staff complete this section thus providing more specific information for the clinical coders. Also, clinical coders should be aware that the Reason for Admission as seen on the current IDL may not necessarily reflect the final diagnosis following clinical investigations.

It was also noted that the date the IDL was dictated and typed was not evident on the document.


Findings From
Additional Samples

Diagnosis Findings

In addition to the sample taken for this SMR01 project, extra samples which targeted specific diagnoses were taken for the purpose of investigating the quality, accuracy and completeness of certain defined groups. These extra episodes were added to the SMR01 sample (to give a larger sample of around 6,250) and used to investigate other topical diagnoses. Some interesting findings are detailed below (based on ICD-10 codes):

Alcohol Misuse (F10.0, F10.1, T51.0 and T51.9)

- Overall there were 117 correct codes from this group, 71 under recorded codes, and 45 over recorded codes.
- The accuracy in the recording of these codes ranged from 43.5% for F10.1 to 100% for T51.0.
- The sensitivity in the recording of these codes ranged from 59.6% for F10.0, to 73.5% for T51.0.

Assaults (X85.- to Y09.-)

The selection criterion for this additional sample looked specifically at males between the ages of 16 and 34 who were admitted as emergencies on a Thursday, Friday, Saturday or Sunday with an injury (Admission Type - home incident (33), incident at work (34) or other injury (35)).

- There is a 16% under recording of assaults.
- There is a 21% under recording of X99.- *Assault by sharp object* (which includes stabbings).
- There were 80 episodes assessed where the external cause was recorded on the SMR01 as unknown. Eleven of these were at the Southern General Hospital and should have been recorded as X99.- *Assault by sharp object* (which includes stabbing). These accounted for the full 21% of under recorded assaults by sharp object.

Psychoactive Substance Abuse (F10.- to F19.-)

- The accuracy in the recording of these codes ranged from 66.7% for F12.- to 100% for F13.-, F14.- and F15.-.
- Overall there were 427 correct codes from this group, 124 under recorded codes, and 30 over recorded codes. The overall accuracy of the group is 93.4%.
- There has been very few occurrences of F19.-, with only two instances of it being coded when a more specific code from F10.- to F18.- could have been used.

Operation/Procedure Findings

The following three operation/procedure findings were specifically sampled to target these operations/procedures as previous SMR01 projects have shown that there would have been too few episodes across all hospitals with these operations/procedures to allow meaningful analysis. Some interesting findings are detailed below (based on OPCS 4.6 codes):

Dental Extractions (F09.- and F10.-) in Children and Young People

Across Scotland dental extractions are recorded with a 3-digit accuracy rate of 99% in Main Operation/Procedure and this figure drops to 73% when looking at the 3-digit accuracy rate of Other Operations/Procedures. It was also noted that 28% of the patients in the sample who received a dental extraction were under the age of five years.

Dental Procedures – Administration of General Anaesthetic

- In the assessed sample of dental procedures a general anaesthetic was administered in 74% of episodes.
- In 64% of these episodes the supplementary code was left blank and therefore a code from Y80.- could have been recorded.

Tonsillectomy (F34.-)

Across Scotland the 4-digit accuracy rate of tonsillectomy in either Main or Other Operation/Procedure has dropped from 86% in the last SMR01 project in 2004-06 to 74% in this project. The main issue identified was the use of F34.9 *Excision of tonsil, unspecified* when a more specific code such as F34.1 *Bilateral dissection tonsillectomy* should have been used.

Endolaryngoscopy (E34.- and E36.-)

Accuracy rate of endolaryngoscopy as the Main Operation/Procedure at 3-digit level across Scotland has increased from 70% in 2004-06 to 84% in this project.

Glossary

Hospital Abbreviations

Teaching Hospitals	
RIE	Royal Infirmary of Edinburgh
ARI	Aberdeen Royal Infirmary
WIG	Western Infirmary & Gartnavel General
GRI	Glasgow Royal Infirmary
Large General Hospitals	
DGRI	Dumfries & Galloway Royal Infirmary
QMH	Queen Margaret Hospital
GJNH	Golden Jubilee National Hospital
FVRH	Forth Valley Royal Hospital
SRI	Stirling Royal Infirmary
SGH	Southern General Hospital
Small General Hospitals	
VOL	Vale of Leven District General Hospital
Children's Hospitals	
RACH	Royal Aberdeen Children's Hospital
RHSC	Royal Hospital for Sick Children, Edinburgh

List of Tables and Charts

Web Links and Contact Details

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Address	Data Quality Assurance Data Intelligence Group Information Services Scotland Area 143E Gyle Square 1 South Gyle Crescent EDINBURGH EH12 9EB	
ISD Health and Social Care Data Dictionary	http://www.datadictionary.scot.nhs.uk/	
Terminology Advisory Service	Telephone: 0131 275 7283	Email: NSS.terminologyhelp@nhs.net
Coding Guidelines	http://www.isdscotland.org/Products-and-Services/Terminology-Services/Clinical-Coding-Guidelines	

Appendix 1

Sampling

In the previous SMR01 project in 2004-06 a 1.75% sample of three months' data was sampled, however for this project it was decided to assess a larger number of records but in fewer hospitals. The number of hospitals assessed was reduced from 39 (as in the 2004-06 SMR01 project) to 24, while still keeping a total sample size of around 5,000 episodes. This was achieved by taking a 2.7% sample of three months discharges from each hospital. The numbers sampled were capped at a minimum of 100 episodes and a maximum of 350 episodes.

Whilst reducing the number of hospitals assessed it was important to maintain coverage across Scotland and also not to introduce any bias in calculating the accuracy rate of Main Condition at Scotland level. It was decided to assess data from all of the teaching and children's hospitals. A range of other hospitals across Scotland were selected by using a weighting factor and by geographical spread. It was assumed that the accuracy rates of the excluded hospitals would not change substantially, so that the 24 selected hospitals would still be representative of Scotland.

In addition to the aforementioned sample, extra samples targeting specific diagnoses, operations/procedures and non-clinical data items were also taken for the purpose of investigating the quality, accuracy rate and completeness. The additional samples equated to approximately an extra 1250 records bringing the total number of records assessed to about 6,250.