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**IRF Specification for adding Long Term Condition flags to PLICS analysis files**

## Health & Social Care Pathways – IRF & Linkages

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***Linked Documentation***

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| **Document Title** | **Document File Path** |
| All document links are linked to files in the noted file path | <\\nssstats01\irf\11-Development team\Dev00-PLICS-files\LTCs  (see sub folders) |

***Acronyms/Pneumonics Used***

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| **Acronym/Pneumonic** | **Details** |
| **CHI** | Community Health Index |
| **COPD** | Chronic Obstructive Pulmonary Disease |
| **CSV** | Comma Separated Values |
| **CVD** | Cerebrovascular Disease |
| **GLS** | Geriatric Long Stay |
| **ICD9/10** | International Statistical Classification of Diseases and Other health related problems, Revision 9/10 |
| **IRF** | Integrated Resource Framework |
| **LTC** | Long Term Condition |
| **NRS** | National Records of Scotland (amalgamation of former GROS and National Archives Scotland) |
| **NSS** | National Services Scotland |
| **PCOS** | Polycystic ovaries |
| **PHI** | Public Health & Intelligence SBU |
| **PIS** | Prescribing Information System |
| **PLICS** | Patient Level Costing methodology |
| **SMR01** | Acute inpatient and day case hospital discharges from non-obstetric/non-psychiatric NHS hospitals in Scotland |
| **SMR04** | Mental health admissions and discharges from NHS hospitals in Scotland |
| **SMR01\_1E** | Geriatric Long Stay records from SMR01, identified by significant facility code 1E |
| **SPARRA** | Scottish Patients At Risk from Readmission |
| **UPI** | Unique patient identifier |
| **URI** | Unique record identifier |

***Glossary***

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| **Term** | **Description** |
| **Delimited output file** | A file that has been created that has been delimited by a specific character for example ~. |
| **SMR01 linked catalog** | SMR01 linked catalog contains all acute (including geriatric long stay), mental health, cancer registrations and death registrations from 1 January 1981. All records belonging to one patient are brought together to form patient record sets identified by a linkage number. |
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9. **Background**

There are several files that are a created for patient level costing.

The following data sets that are included in the master and CHI master PLICS files are:

* Acute inpatient and day case discharges (SMR01)
* Maternity discharges (SMR02)
* Mental health admissions and discharges (SMR04)
* Geriatric Long Stay discharges (SMR01 significant facility 1E – SMR01\_1E)
* Outpatient appointments (SMR00)
* Accident and Emergency attendances (AE2)
* Prescribing Information System (PIS)
* NRS death registrations (NRS deaths).

Summary prescribing data has been included in the master PLICS file, so there is only very limited information for each patient. The full prescribing data set cannot be included due to the volume of records. Information would need to be included at the lowest grain of prescribing data, which would be the approved drug name. There were approximately 95 million items dispensed in 2011/12.

One of the frequent requests for information from the IRF team is based on Long Term Conditions. This project aims to put flags on to the master and CHI master PLICs files for people with a long term condition(s). Two sources will be used to capture those with long term conditions. They are:

* The incidence of a long term condition (LTC) based on patients who have been admitted to hospital, either an acute or mental health environment
* Have been prescribed medication that is known to be prescribed for particular LTCs.

1. **Summary of process to add LTC flags**

The full process of adding LTC flags to the master and CHI master PLICs file is summarised below:

* determine hospital incidence independently of each LTC looking back to discharges from 1st January 1981;
* determine patient prescribed drugs (that are only prescribed for the LTCs of interest) only from April 2009 onwards.

Patient data from the prescribing information system (PIS) is not appropriate to use for identifying patients prior to April 2009 due to the low capture rate of the Community Health Index (CHI) number on prescription forms.

1. **Long term conditions (LTCs)**

The long term conditions that will be considered for adding flags to the master and CHI master PLICs files are (included are the ICD9 and ICD10 codes):

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| **Long Term Condition** | **ICD9 codes** | **ICD10 codes** |
| Cerebrovascular Disease (CVD) | 430-438 | I60-I69, G45 |
| Chronic Obstructive Pulmonary Disease (COPD) | 494, 496 | J41-J44, J47 |
| Dementia | 290.0, 290.1, 290.2, 290.4, 290.8, 290.9 | F00-F03, F05.1 |
| Diabetes | 250 | E10-E14 |
| Heart disease | 410-414 | I20-I25 |
| Heart Failure | 428 | I50.0, I50.1 and I50.9 |
| Renal Failure | 582, 585, 403.9, 404.9 | N03, N18, N19, I12, I13 |

ICD9 was used to code hospital diagnosis from 1975 – 31st March 1996. ICD10 has been in use since 1st April 1996.

1. **Incidence of LTCs on the SMR01 linked catalog**

Specification for determining the incidence of LTCs via the SMR01 linked catalog.

A program that will need to be amended has been saved in the following file path:

[\\nssstats01\irf\11-Development team\Dev00 - PLICS files\LTCs\programs](../programs) called **LTC-incidence-UPIs.sps**

* Read in all acute (record type 01A and 01B) and mental health (record type 04A and 04B) and geriatric long stay (record type 50A and 50B). Base the time stamps for reading in records on the date of discharge.
* Create LTC marker fields (type: numeric; format f1.0) for all the LTCs in the table below, considering all diagnostic positions.

|  |  |
| --- | --- |
| **Long Term Condition** | **LTC marker name** |
| Cerebrovascular Disease (CVD) | CVD |
| Chronic Obstructive Pulmonary Disease (COPD) | COPD |
| Dementia | Dementia |
| Diabetes | Diabetes |
| Heart disease | CHD |
| Heart Failure | HeFailure |
| Renal Failure | ReFailure |

* Aggregate the records by UPI number (seeded CHI in the linked file layouts) for the first record where diagnosis is mentioned. Keep the full date of admission at this point as well.
* Save a file with the UPI number and the date of admission in the data folder. Naming convention for output LTC\_marker\_name\_hospital\_incidence.SAV. Note that output is only required in SAV format as this will be matched on to the PLICS analysis files that are held as SAV files.
* Create individual year files for the three financial years that master PLICS files are available for. In the 2010/11 file only people with a hospital admission on or before the 31 March 2011 should be included. Repeat this for 2011/12 and 2012/13. Save with the name convention LTC\_marker\_name\_hospital\_incidence\_year.SAV (year should be in the format 201011).

1. **Identifying patients from PIS using specific BNF codes**

Two business objects reports need to be run for each of the different LTCs. Please note that there will not be specific drugs for all the LTCs that information is required for. For example, drugs prescribed for COPD will be the same as Asthma. However, for dementia there are only four drugs that are prescribed and they are only prescribed for dementia.

Business objects reports should be saved in the folder (only available in BOXi):

Public Folders > Scotland > NHS > NSS > IRF Reports > Standard Reports > 04 Prescribing > Long Term Conditions

The two reports to be run for each set of drugs for the LTCs are:

1. CHI capture completeness by NHS board area. This report is required to be run so that a measure of how well CHI is recorded for prescriptions dispensed for the specific drugs.
2. Extracting UPI number and creating an LTC flag (the LTC flag can be added in either Business Objects or SPSS).

At the time of writing version 0.1 of this document, information regarding specific drugs has not been received.

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| **Long Term Condition** | **BNF information** | **BO query filter selection(s)** |
| Chronic Obstructive Pulmonary Disease (COPD) | N/A | PI Approved Name Equal to TIOTROPIUM and Age Greater than or Equal to 50 |
| Dementia | Section 4.11 | PI BNF Section Code Equal to 0411 |
| Diabetes | Section 6.1 | PI BNF Section Code Equal to 0601  *It should be noted that this code will pick up females aged under 40 who are being treated for PCOS. This will account for approximately 1-2% of people being prescribed metformin. We cannot exclude these patients as they may have diabetes too.* |
| Heart disease | Sub section 2.6.1 | PI BNF Sub Section Code Equal to 020601 |
| Heart Failure | BNF Sub sections 2.2.1; 2.2.2; 2.2.3; 2.2.4 and 2.2.8 | PI BNF Sub Section Code Between 020201 and 020204 or PI BNF Sub Section Code Equal to 020208 |
| Renal Failure | Paragraph 9.5.2.2 | PI BNF Paragraph Code Equal to 0905022 |

PI Approved Name, PI BNF Section Code etc – are dimension objects within the New\_PIS universe. The dimension objects for filtering the query are all in the class Prescribable Item (sub class of Scanned/DCVP). The BNF dimensions are in the BNF sub class and Approved Name is in the Prescribable Item Details sub class.

In the table below are the long term conditions for which there are no specific drugs for the treatment of the illness.

|  |
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| **Long Term Condition** |
| Cerebrovascular Disease (CVD) |

For the second report:

Results objects panel – only dimension returned should be UPI Number

Query filters panel – Paid date greater than or equal to 2009

Select the drugs based on the table above

Reports should be scheduled as there is the potential for there to be a lot of patients who have been prescribed these drugs. Depending on the codes for selecting drugs, the business objects query can be set up with prompts, and each instance of the report run for the different drugs will be name according as the LTC.

The following steps should be worked through:

* Output from each Business Objects instance/report should be saved as XLS file (save in to the **data** folder in [\\nssstats01\irf\11-Development team\Dev00 - PLICS files\LTCs](file:///\\nssstats01\irf\11-Development%20team\Dev00%20-%20PLICS%20files\LTCs));
* Check that the leading zeros for UPIs that start with a zero has been maintained
* Save the output in CSV format
* The CSV files should then be read in to SPSS and saved as SAV files as PIS\_ltcname.sav.

1. **Match data files together**

Once UPI numbers have been obtained from both hospital admission data and prescribing data, these two files will need to be matched together using the IN subcommand.

The LTC marker should be updated for the marker created on the hospital admission output for any cases that have been identified using prescribing data.

An output file (with the same name as the hospital admissions files in the data folder) should be saved in the output folder in [\\nssstats01\irf\11-Development team\Dev00 - PLICS files\LTCs](file:///\\nssstats01\irf\11-Development%20team\Dev00%20-%20PLICS%20files\LTCs) with only the UPI number and LTC flag (in that order) sorted by UPI number.

1. **Matching to the master PLICS and CHI master PLICS files**

These files will be matched to the master PLICs and CHI master PLICs files by Denise Hastie in one of the updates to both these files. There are several developments underway regarding the PLICs files that Denise is responsible for implementing.

1. **Documentation**

Documentation of the adding on the long term condition cohort flags will be added in to the documentation that Denise Hastie maintains for the creation of the PLICS analysis files for the IRF team.