

Methodology to create provider and CIP spells from HES APC data

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Revision History

Version	Date	Summary of Changes
2.0	09/09/21	Methodology updated to use TOKEN_PERSON_ID rather than PSEUDO_HESID. Version control added.

Contents

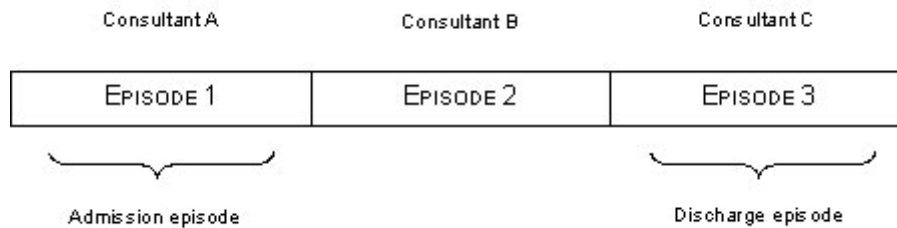
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Introduction

Episodes and spells

An episode is a single period of care under 1 consultant. The treatment of Patient A in hospital by Consultant A for a broken leg is an example of an episode.

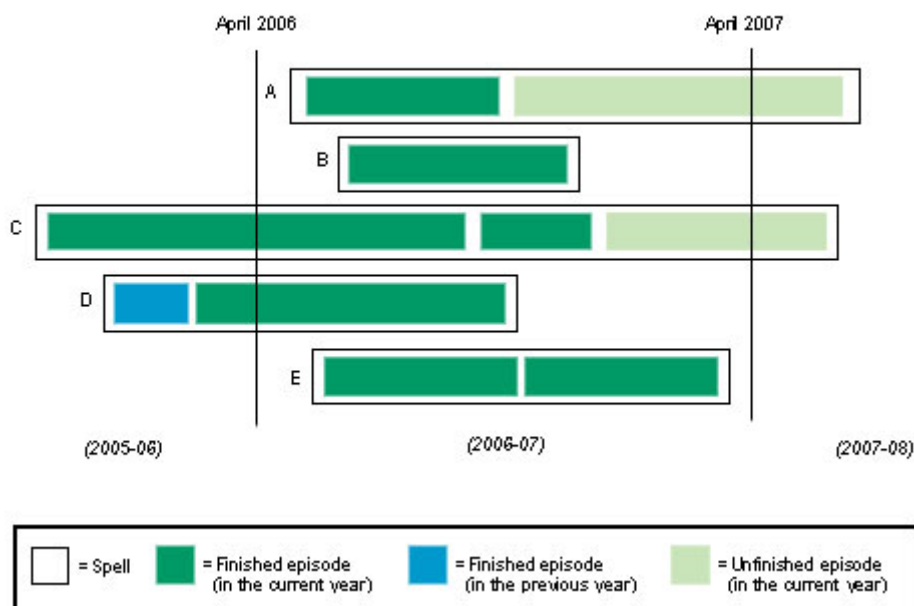
Figure 1: Admission and discharge episodes



In general, a patient's entire stay in hospital is a spell. A spell can contain 1 episode, as with Patient A in the example above, or several episodes. For example, if Patient A, while still in hospital, was diagnosed and treated for diabetes by Consultant B, there would be 2 episodes (1 for the broken leg and Consultant A, and 1 for diabetes and Consultant B). If the patient is transferred to another healthcare provider, dies or is discharged, the episode and the spell end. The vast majority of spells, however, contain only 1 episode.

The association between spells and episodes is illustrated in Figure 2 (below); the box that surrounds episode/episodes is a spell. In the example, 10 episodes make up the 5 spells. Spell B is a single episode spell, while spells A, D and E contain 2 episodes each. Spell C contains 3 episodes.

Figure 2: Association between episodes and spells



Types of spell

There are 2 types of spells - provider and continuous inpatient (CIP). The main differences between these are outlined below.

Provider spell

A provider spell (sometimes called the hospital provider spell) is the time that a patient stays in the care of a single health care provider. The patient will be using a bed that is managed by 1 health care provider and may be treated by 1 or more consultants. Therefore, a provider spell can contain 1 or more episodes. The provider spell starts when a decision has been made to admit the patient, and a consultant has taken responsibility for their care. The spell ends when the patient is transferred to another provider, dies or is discharged.

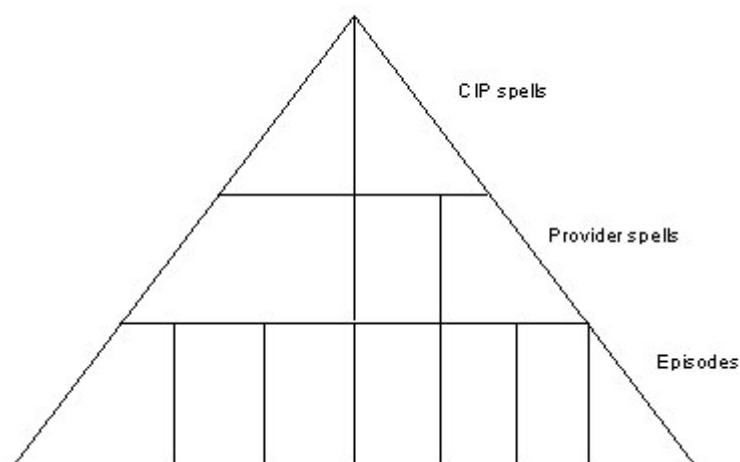
When a patient is transferred from a hospital provider to another, this shift in responsibility results in the commencement of a new provider spell following the transfer. It is important to note that if a patient is moved between hospitals or sites within the same hospital provider, the provider spell continues.

Continuous inpatient (CIP) spell

A continuous inpatient (CIP) spell is a continuous period of care within the NHS, regardless of any transfers which may take place. It can therefore be made up of 1 or more provider spells. A CIP spell starts when a decision has been made to admit the patient, and a consultant has taken responsibility for their care. The spell ends when the patient dies or is discharged from hospital.

There is a hierarchical structure to spells and episodes. A CIP spell contains 1 or more provider spells. A provider spells contains 1 or more episodes. Most of the time, each CIP spell has only 1 provider spell and 1 episode. This relationship can be seen in Figure 3.

Figure 3: Relationship between CIP spells, provider spells and episodes



Methodology for linking HES APC episodes to create provider and CIP spells

This section describes the methodology for creating provider and CIP spells from HES Admitted Patient Care (APC) episode-level data.

Source data

HES APC provisional monthly and finalised data are used to combine episodes into spells over historic and current years. The spells dataset is updated on a monthly basis in line with the monthly release of HES APC data.

Reference data

- Provider mapping files: These files are lookups for provider codes that have changed as a result of trust mergers or demergers. Using this data all activity can be mapped to the current organisation and reported against the most recent trust code. These files are available to download alongside this document. The 1-to-1 provider mapping file includes cases where all activity from 1 historic trust is mapped to a single current trust, while the 1-to-many provider mapping file includes cases where activity from 1 historic trust is mapped to multiple current trusts.

Criteria for selecting episodes

These are the criteria used for selecting episodes from the HES APC dataset for creating spells:

- Finished episodes: EPISTAT = 3
- Provider code: Episodes with non-blank provider code (PROCODET)
- Admission date: between 01/Jan/1930 and HES data period end date

Provider mapping

Provider codes issued prior to 1 October 2020 beginning with R are truncated to 3 characters¹. Provider codes that have changed are mapped to the new codes using the provider mapping reference data file and the mapped codes are stored under the field name PROCODET_MAPPED.

Creating provider spells from episodes

Episodes that have the same TOKEN_PERSON_ID, ADMIDATE, PROCODET_MAPPED and PROVSPNOPS are considered to be in the same provider spell. Regular attender

¹ From 1 October 2020 onwards, any new organisation codes that are created are given an ANANA code format (meaning the code will consist of 5 alternating alphabetic and numeric characters e.g. G7H8J). Codes beginning with the letter 'R' do not necessarily correspond to NHS trusts.

episodes (CLASSPAT = '3' and '4') are considered as separate units of care that should not be linked to other episodes and therefore are excluded from the episode ordering criteria shown below – they form single episode provider spells.

Ordering episodes within a provider spell

Episodes within a provider spell are sorted using the following criteria:

1. EPISTART
2. EPIORDER
3. EPIEND
4. EPIKEY

The order of episodes within the spell is indicated by a derived field called P_SPELL_EPIORDER. In most cases this field should match the provider submitter episode order (EPIORDER) but in a small number of cases data quality issues have caused this to be different.

1st episode in provider spell

The episode with P_SPELL_EPIORDER = 1 is the 1st episode in the provider spell. These episodes are also flagged using the derived field P_SPELL_FIRST_EPISODE = 'Y'.

Last episode in provider spell

These episodes are flagged using the derived field P_SPELL_LAST_EPISODE = 'Y'. This flag is applied only on 'closed spells' (i.e. spells with an episode containing a valid discharge date) on the episode with the highest P_SPELL_EPIORDER.

Provider spell level fields

The following fields are derived from the 1st and discharge episodes of the provider spell and are available on all episodes in the provider spell which in turn is used for creating CIP spells. In a small number of cases the maximum discharge date across episodes in a provider spell differs from the discharge date in the discharge episode. In these cases, discharge information is taken from the episode with the maximum discharge date.

P_SPELL_ADMIDATE	Admission date for the provider spell
P_SPELL_ADMIMETH	Admission method for the provider spell
P_SPELL_ADMISORC	Admission source for the provider spell
P_SPELL_DISDATE	Discharge date for the provider spell
P_SPELL_DISMETH	Discharge method for the provider spell
P_SPELL_DISDEST	Discharge destination for the provider spell

Open provider spells

Open provider spells do not have a discharge date (P_SPELL_DISDATE) or a last episode flag (P_SPELL_LAST_EPISODE = 'Y').

Creating CIP spells from provider spells

The provider spells dataset is ordered based on the following criteria:

1. TOKEN_PERSON_ID
2. P_SPELL_ADMIDATE
3. P_SPELL_DISDATE
4. Transfer (refer to Annex 2)
5. PROVSPNOPS

Regular attender episodes (CLASSPAT = '3' and '4') are considered as separate units of care that should not be linked to other episodes or spells – they form single episode-single provider CIP spells.

2 provider spells are joined if:

- they belong to the same patient (same TOKEN_PERSON_ID)

AND

- the difference between the discharge date of the 1st provider spell (P_SPELL_DISDATE) and the admission date of the next provider spell (P_SPELL_ADMIDATE) is between 0 and 2 days inclusive

AND

- 1 of the following criteria is met indicating that a transfer has taken place:

- P_SPELL_DISDEST of 1st provider spell indicates a hospital transfer (49, 50, 51, 52, 53, 84, 87)

OR

- P_SPELL_ADMISORC of next provider spell indicates a hospital transfer (49, 50, 51, 52, 53, 87)

OR

- P_SPELL_ADMIMETH of next provider spell indicates a hospital transfer (2B, 81)

AND

- **EXCLUDE** the combination where discharge destination of the 1st spell is 19 AND admission source of the next spell is 51 AND admission method of the next spell is 21.

Provider spell order

The provider spells within the CIP spell are given a sequence number (CIP_P_SPELL_ORDER) based on the criteria for ordering provider spells for creating CIP spells (see above).

1st episode in CIP spell

1st episodes are flagged in the episodes table using the derived field CIP_SPELL_FIRST_EPISODE = 'Y'. The provider spell with CIP_P_SPELL_ORDER = 1 is considered to be the 1st provider spell in the CIP spell. The 1st episode in this provider spell is already flagged in the episodes table using the derived field P_SPELL_FIRST_EPISODE = 'Y'. This episode is flagged as the 1st episode in the CIP spell.

Last episode in CIP spell

Last episodes are flagged in the episodes table using the derived field CIP_SPELL_LAST_EPISODE = 'Y'. The provider spell with the highest CIP_P_SPELL_ORDER is considered to be the last provider spell in the CIP spell. If this provider spell is a closed spell i.e. if it has a non-blank discharge date (P_SPELL_DISDATE), then last episode in this provider spell indicated by the derived field P_SPELL_LAST_EPISODE = 'Y' in the episodes table is considered to be the last episode in the CIP spell.

CIP spell level fields

The following fields are derived from the 1st and discharge episodes of the CIP spell and are available on all episodes in the CIP spell.

CIP_SPELL_ADMIDATE	Admission date for the CIP spell
CIP_SPELL_ADMIMETH	Admission method for the CIP spell
CIP_SPELL_ADMISORC	Admission source for the CIP spell
CIP_SPELL_DISDATE	Discharge date for the CIP spell
CIP_SPELL_DISMETH	Discharge method for the CIP spell
CIP_SPELL_DISDEST	Discharge destination for the CIP spell

Open CIP spells

Open CIP spells do not have a discharge date (CIP_SPELL_DISDATE) or a last episode flag (CIP_SPELL_LAST_EPISODE = 'Y').

Annex 1 – Spells dataset

<u>Field Name</u>	<u>Description</u>
TOKEN_PERSON_ID	Unique ID for a patient from the Master Patient Service ²
PROCODET_MAPPED	Provider code – mapped to the latest organisation code if changed
FYEAR	Indicates the financial year when the episode ended
PARTYEAR	Year and month of HES dataset
EPIKEY	Unique identifier for an episode within a FYEAR of APC data
P_SPELL_NUMBER	Provider spell number - unique identifier for a provider spell
P_SPELL_EPIORDER	Order of the episode within the provider spell
P_SPELL_FIRST_EPISODE	= 'Y' on the 1st episode of the provider spell
P_SPELL_LAST_EPISODE	= 'Y' on the last episode of the provider spell
P_SPELL_ADMIDATE	Admission date for the provider spell
P_SPELL_ADMIMETH	Admission method for the provider spell
P_SPELL_ADMISORC	Admission source for the provider spell
P_SPELL_DISDATE	Discharge date for the provider spell
P_SPELL_DISMETH	Discharge method for the provider spell
P_SPELL_DISDEST	Discharge destination for the provider spell
P_SPELL_LOS	Provider spell length of stay (P_SPELL_DISDATE – P_SPELL_ADMIDATE)
CIP_SPELL_NUMBER	CIP spell number - unique identifier for a CIP spell
CIP_P_SPELL_ORDER	Order of the provider spell in the CIP spell
CIP_SPELL_FIRST_EPISODE	= 'Y' on the 1st episode of the CIP spell
CIP_SPELL_LAST_EPISODE	= 'Y' on the last episode of the CIP spell
CIP_SPELL_ADMIDATE	Admission date for the CIP spell
CIP_SPELL_ADMIMETH	Admission method for the CIP spell
CIP_SPELL_ADMISORC	Admission source for the CIP spell
CIP_SPELL_DISDATE	Discharge date for the CIP spell
CIP_SPELL_DISMETH	Discharge method for the CIP spell
CIP_SPELL_DISDEST	Discharge destination for the CIP spell
CIP_SPELL_LOS	CIP spell length of stay (CIP_SPELL_DISDATE – CIP_SPELL_ADMIDATE)

² Further information is available at <https://digital.nhs.uk/services/master-person-service>.

Annex 2 – Hospital transfers

To order same day admissions i.e. provider spells for a patient having the same admission and discharge date a transfer field has been introduced. This field indicates if:

- Provider spells which did not begin as a transfer but ended in a hospital transfer = 1
- Provider spells which began as well as ended in a hospital transfer = 2
- Provider spells which began as a hospital transfer but did not end a transfer = 3

A combination of 3 fields is used to identify hospital transfers – discharge destination (P_SPELL_DISDEST), admission source (P_SPELL_ADMISORC) and admission method (P_SPELL_ADMIMETH).

- Transfer = 1 for provider spells where

[P_SPELL_DISDEST IN (49, 50, 51, 52, 53, 84, 87) AND {P_SPELL_ADMISORC NOT IN (49, 50, 51, 52, 53, 87) OR P_SPELL_ADMIMETH NOT IN (2B, 81)}]

- Transfer = 2 for provider spells where

[P_SPELL_DISDEST IN (49, 50, 51, 52, 53, 84, 87) AND {P_SPELL_ADMISORC IN (49, 50, 51, 52, 53, 87) OR P_SPELL_ADMIMETH IN (2B, 81)}]

- Transfer = 3 for provider spells where

[P_SPELL_DISDEST NOT IN (49, 50, 51, 52, 53, 84, 87) AND {P_SPELL_ADMISORC IN (49, 50, 51, 52, 53, 87) OR P_SPELL_ADMIMETH IN (2B, 81)}]

- Transfer field is NULL in all other cases.

Annex 3 – HES transfer codes

P_SPELL_DISDEST

- 19 = The usual place of residence, including no fixed abode
- 48 = High security psychiatric hospital, Scotland (from 1999-2000)
- 49 = NHS other hospital provider - high security psychiatric accommodation
- 50 = NHS other hospital provider - medium secure unit (from 1999-2000)
- 51 = NHS other hospital provider - ward for general patients or the younger physically disabled
- 52 = NHS other hospital provider - ward for maternity patients or neonates
- 53 = NHS other hospital provider - ward for patients who are mentally ill or have learning disabilities
- 84 = Non-NHS run hospital - medium secure unit (from 2003-04)
- 87 = Non-NHS run hospital

P_SPELL_ADMISORC

- 19 = The usual place of residence, including no fixed abode
- 49 = NHS other hospital provider: high security psychiatric accommodation in an NHS hospital provider (NHS trust)
- 50 = NHS other hospital provider: medium secure unit (1999-00 to 2006-07)
- 51 = NHS other hospital provider: ward for general patients or the younger physically disabled or A&E department
- 52 = NHS other hospital provider: ward for maternity patients or neonates
- 53 = NHS other hospital provider: ward for patients who are mentally ill or have learning disabilities
- 87 = Non-NHS run hospital

ADMIMETH

- 21 = Emergency: via Accident and Emergency (A&E) services, including the casualty department of the provider
- 2B = Transfer of an admitted patient from another hospital provider in an emergency
- 81 = Transfer of any admitted patient from another hospital provider other than in an emergency; this does not include admissions to high security psychiatric hospitals (HSPH)