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Announcement of methodological changes to Hospital Episode Statistics: Deaths within 30 days of a hospital procedure or of an emergency admission to hospital, Financial year 2012/13

1. Summary of changes

The production methodology of the five indicators¹ has recently been reviewed following the decision to move the process in-house from an external contractor, leading to the following changes.

The methods used to adjust for differences between populations in different parts of the country have been simplified and unified across all five indicators, and updated to better reflect the ageing population in England. All five indicators now include patients with no discharge details on their hospital records, so as to include those still in hospital or those with an official record of death that contradicts their hospital record.

Deaths within 30 days of a hospital procedure: coronary artery bypass graft now includes patients admitted as day-cases, as there are a steady number each year which had not previously been represented.

Deaths within 30 days of a hospital procedure: surgery (non-elective admissions) now excludes patients recorded as non-emergency transfers, deliveries and births, as these do not qualify as non-elective admissions. It also now includes patients with a historical but not a current diagnosis of cancer, as well as patients undergoing chemotherapy without a current diagnosis of cancer.

All changes were agreed following consultation with analysts with expertise in either the production of similar indicators or the processing of the source data. This included multiple stages of peer-review and the independent deployment of changes by two independent teams for confirmation of results.

The updates have had limited impact on the indicators, with the changes being under 2.0 per cent in each case. In nearly all cases the rates have been decreased by the changes, apart from Deaths within 30 days of a hospital procedure: coronary artery bypass graft, where the rate has increased slightly.

2. Changes to all five indicators

¹ Deaths within 30 days of a hospital procedure: surgery (non-elective admissions); Deaths within 30 days of a hospital procedure: coronary artery bypass graft; Deaths within 30 days of emergency admission to hospital: fractured proximal femur; Deaths within 30 days of emergency admission to hospital: myocardial infarction; Deaths within 30 days of emergency admission to hospital: stroke



2.1 Creating Continuous Inpatient (CIP) Spells

CIP spells are produced by identifying hospital episodes belonging to a single patient during a single spell in hospital(s), and connecting them together to represent the full journey from admission to discharge, even where it spans financial years. For indicator sets published up to March 2014, this process was carried out by an external contractor. This process is now being undertaken by the HSCIC's Hospital Episode Statistics (HES) team according to the methodology described on our website here:

<https://indicators.ic.nhs.uk/download/Additional%20Reading/Methods%20annexes/Compendium%20User%20Guide%202015%20Feb%20Annex%2013%20V1.pdf>

2.2 Age bands

These indicators standardise differences between demographics by adjusting each organisation's rate in light of the age and sex-specific rates observed across the country as a whole, and the age and sex-specific population of the organisation. For indicator sets published up to March 2014, the age-bands used in this calculation were 0-1, 1-4, 5-9... 80-84, 85+. We have now split the highest age-band into two, 85-89 and 90+, to better reflect the ageing population.

2.3 Discharge criteria

For indicator sets published up to March 2014, a patient was only counted in the indicators if their hospital record contained both a valid date of discharge and a valid method of discharge. However patients who have not yet been discharged should still be included in the count of admissions or procedures, and patients who have an Office for National Statistics (ONS) record of death should be counted regardless of discharge status. This rule has therefore been removed.

3. Changes to deaths within 30 days of a hospital procedure: coronary artery bypass graft

3.1 Patient and episode classification

For indicators published up to March 2014, records classified as either general or delivery episodes were included in the indicator, and patients were included if they were classified as either ordinary or delivery admissions. An analysis of ten years' data showed that no delivery episodes/patients underwent coronary artery bypass grafts, whilst each year a consistent number of patients (35 on average) classified as day-cases did undergo the operation. The rules have therefore changed to include general/ordinary and day-cases.

3.2 Standardisation

Indicators published up to March 2014 were standardised by age, sex and method of admission, whereas now they are standardised by age and sex only, to improve replicability and clarity for the user.

4. Changes to deaths within 30 days of a hospital procedure: surgery (non-elective admissions)

4.1 Patient and admission classification



Up to March 2014, this indicator included patients using only delivery facilities, as well as admissions classified as non-emergency transfers, deliveries and births. By definition this indicator should only include non-elective admissions, so these patients have been excluded accordingly.

4.2 Patients with cancer

Patients with a diagnosis of cancer are excluded from this indicator as they have a disproportionate effect on the rates calculated. Two changes have been made to the way these patients are identified. For indicator sets published up to March 2014, patients with a record of cancer or chemotherapy within the 15 months before or after the operation were excluded. However, where chemotherapy is part of a treatment for cancer, it should always be recorded on an inpatient episode alongside a cancer diagnosis. As such, episodes with a chemotherapy diagnosis but no cancer diagnosis are no longer excluded. Moreover, a historical or future record of cancer should have no bearing on the calculation of the indicator, therefore the indicator now only excludes patients with current cancer diagnoses. Over the 2010-11 financial year this leads to the inclusion of 17,243 more procedures (4.6 per cent) and 623 more deaths (4.2 per cent).

4.3 Standardisation

Indicators published up to March 2014 were standardised by age, sex and procedure, whereas now they are standardised by age and sex only, to improve replicability and clarity for the user.

5. Changes to deaths within 30 days of emergency admission to hospital: myocardial infarction

5.1 Standardisation

Indicators published up to March 2014 were standardised by age, sex and diagnosis, whereas now they are standardised by age and sex only, to improve replicability and clarity for the user.

6. Effects on indicator figures

Comparing new rates against old over a 9-year period at England Persons level (with both new and old calculations standardised to the same year), the three admissions-based indicators² produce lower Indirectly Standardised Rates on average:

<u>Condition</u>	<u>Effect on Indirectly Standardised Rate</u>
Myocardial Infarction	1.3 per cent lower
Stroke	1.7 per cent lower
Fractured Proximal Femur	0.7 per cent lower

² Deaths within 30 days of emergency admission to hospital: fractured proximal femur; Deaths within 30 days of emergency admission to hospital: myocardial infarction; Deaths within 30 days of emergency admission to hospital: stroke



Of the procedure-based indicators³ one shows an increase and the other a decrease:

<u>Procedure</u>	<u>Effect on Indirectly Standardised Rate</u>
Non-elective	0.9 per cent lower
Coronary Artery Bypass Graft	1.9 per cent higher

Comparing the new and old methodologies at England Persons level, standardised to the same year, should minimise the effect of changes in standardisation methodology.

Further Information

Please contact the HSCIC on 0300 303 5678 or email enquiries@hscic.gov.uk

³ Deaths within 30 days of a hospital procedure: surgery (non-elective admissions); Deaths within 30 days of a hospital procedure: coronary artery bypass graft