Detection and management of mortality outliers for the National Hip Fracture Database (NHFD)

Outlier policy for NHFD annual report 2019

Title	Detection and Management of Outliers for National Hip Fracture Database (NHFD)
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Description	This document details the identification and management of significantly outlying organisations in the NHFD 30-day casemix-adjusted mortality funnel, which will be published in the NHFD annual report 2019.
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Definitions

BGS	British Geriatrics Society
BOA	British Orthopedic Association
CCG	Clinical Commissioning Group
CQID	Care Quality Improvement Department, RCP
CEO	Chief Executive Officer
CQC	Care Quality Commission
DARS	Data Access Review Service, NHS Digital
FFFAP	Falls and Fragility Fracture Audit Programme, RCP
HIW	Health Inspectorate Wales
HQIP	Healthcare Quality Improvement Partnership
NDORMS	Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences
NHFD	National Hip Fracture Database
WDT	Workstream Delivery Team
WG	Welsh Government

DETECTION AND MANAGEMENT OF OUTLIERS

These recommendations apply to:

- comparisons of providers (hospitals) using batches of data collected over the defined period of monitoring (calendar year of report)
- the chosen key indicator, case-mix adjusted 30 day patient mortality

The webtool and database provider is Crown Informatics.
The statistical analysis is carried out by the subcontractor, Oxford University, NDORMS unit.

1. Choice of performance indicator

Case-mix adjusted 30 day mortality is the chosen key performance indicator (KPI); it is a valid measure of a provider's quality of care in that there is a clear relationship between the indicator and quality of care. The cohort is all patients over 60 admitted with a fragility hip fracture in the calendar year preceding the year of the report release.

2. Choice of target (expected performance)

The expected performance is measured against a single year's data in the funnel plot produced. The NFHD team will also review the performance of each outlying hospital against trends from the run chart of the past two years when alerting each clinical lead to hospital outlier status and when discussing hospital outlier status in the annual report. Any hospitals that are greater than two standard deviations above the NHFD total mean are considered mortality outliers. Assessment and case-mix adjustment is performed by Oxford University, NDORMS unit, as an external source.

3. Data quality

Three aspects of data quality must be considered and reported on:

- case ascertainment is difficult to measure since the NHFD typically reports on more cases than are captured by alternative data sources HES and PEDW, which could leave "case ascertainment" figures of >100%. Instead we comment on the number of patients submitted to NHFD in the 2018 calendar year compared to the number of patients submitted to NHFD in 2017 calendar year
- data completeness
- data accuracy.

4. Case-mix (risk) adjustment

Comparison of hospitals must take account of differences in the mix of patients between providers by adjusting for known, measurable factors that are associated with the performance indicator.
These are: age, sex, ASA grade, pre-fracture residence, pre-fracture mobility and fracture type.

Oxford NDORMS unit uses a funnel plot metric for case-mix adjusted mortality analysis. This model has been rigorously tested with regard to its power of discrimination and its calibration. Details of the model are available on our website.

5. Detection of a potential outlier

Statistically derived limits around a national reference of 30 day mortality line in the whole of the NHFD are used to define if a hospital is a potential outlier: more than two standard deviations from this line are deemed an 'alert'; more than three standard deviations are deemed an 'alarm'.

6. Management of a potential outlier

Management of potential outliers involves several teams:

- NHFD audit team: responsible for managing and running the audit nationally and informing participants of the outlier process, timeline and methodology
- NHFD clinical leads: responsible for assessment on data quality and direct communication with hospitals for outlier status notification
- outlying hospital NHFD lead clinician: clinician contact for NHFD in provider organisation
- outlying hospital medical director and chief executive.

The following table indicates the stages needed in managing a potential outlier, the actions that need to be taken, the people involved and the time scale. It aims to be both feasible for those involved, fair to hospitals identified as outliers and sufficiently rapid so as not to unduly delay the disclosure of comparative information to the public.

7. Involvement of the Care Quality Commission (CQC) and Welsh Government

The CQC and WG (who are responsible for assurance and then determine their approach with HIW) are included in the guidance so as to provide them with assurance that organisations are engaging appropriately in the process.

The CQC and/or WG, if applicable, are to be notified of both 'alert' and 'alarm' level outliers. This is inclusive of the correspondence from the clinical leads, the replies from organisations and steps taken to rectify/ improve the status. The regulators will be notified in the form of:

- written letter (signed by the clinical leads)
- email (copy of the letter above).

The CQC/WG will not usually take regulatory action if organisations are responding appropriately to each stage of the outlier management process at alert and alarm level.

Policy

Stage	What action?	Who?	Schedule
1	Report data slice (1 Jan to 31 Dec 2018) extracted from database and sent to NHS-Digital	Crown Informatics	February 2019
2	Data transferred to Oxford NDORMS unit via secure transfer mechanism	NHS Digital	March 2019
3	Identification of centres with unusual patterns of case-mix adjustment which may impact on mortality analysis	University of Oxford, NDORMS	March 2019
4	Linked data transferred to Oxford NDORMS via secure transfer mechanism	Crown Informatics	April 2019
5	Provisional funnel plot provided to NHFD WDT • Outliers (both high and low mortality) identified • Table of case-mix factors for outliers provided, alongside national descriptor figures (mean/range) - as a credibility check on data quality • Careful scrutiny of data handling, matching and analyses performed to determine in which hospitals there is a case to answer Where outlier status can be clearly associated with poor case-mix data quality	University of Oxford, NDORMS, and NHFD clinical leads	May 2019

	• Centre will not be excluded from analysis or reporting • Commentary in report will describe context of finding ie data quality issue		
6	Updating of all Trust contact details for outlying hospitals (both high and low outliers) – CEO, lead clinician, medical director, clinical governance lead	NHFD team	May 2019
7	Final funnel plot provided to NHFD team	University of Oxford, NDORMS	May 2019
8	Organisations informed – email and phone call from NHFD leads to site lead clinicians. Advised on data quality/checking in advance of next report period	NHFD team	June 2019
9	Organisations informed – email and letter, offering advice including the potential for seeking an BOA review, signed by NHFD leads; sent to organisation CEOs, MDs and WG for Health Boards	NHFD team	July 2019
10	Acknowledgement of receipt received by NHFD which, if Welsh Health Board, also copies in WG. Follow-up letters if no acknowledgement received in five working days	Provider CEO/MD	August 2019
11	Once all site acknowledgements received, CQC and WG informed of initial outlier status	NHFD team	September 2019
12	Provider appeals outlier status and provides evidence to support this: **Provider failure** • Provider accepts/claims that there has been a failing in local coding and data checking • If this appears true we indicate in report that finding is on the basis of data quality • If no evidence to support a claim of coding failure then reported as clinical finding **NHFD error** Site highlights an error in NHFD analysis. Corrections applied, and reconsideration of outlier status is made	NHFD site lead clinicians/CEOs/ MDs	August 2019
13	Provider fails to respond to initial letter within 14 working days • Letter resent NHFD clinical lead phones provider CEO and asks for acknowledgement with action plan. For Welsh Health boards, if not received within 5 working days, WG notified of non-compliance.	NHFD clinical leads	August 2019
14	Provider fails to respond to NHFD telephone call within 7 working days • Final letter to CEO • Copied to CQID clinical director	NHFD clinical leads	August 2019
15	Final draft of NHFD report is submitted to HQIP	NHFD team	October 2019
16	Once all action plans received, final detailed letters sent to CQC and WG regarding site action plan summary and run charts	NHFD team	November 2019
17	Report published as per HQIP SRP timeline	NHFD team	December

			2019
18	Review of the progress/results of investigations undertaken by Outlier Provider **Follow-up protocol** Until adequate update on findings/remedial measures received from Provider CEO: • Further reminder letter sent at 2 weeks • Telephone call to provider lead clinician at 4 weeks • Notification of FFFAP and CEEU leads if no response before end of January Notification of HQIP if no response before end of February (see below)	NHFD clinical leads	September 2019 – March 2020
19	All outlier issues finally closed • either closed as adequate responses or escalated to HQIP as inadequate responses	NHFD team	March 2020

Scope
This policy will be applied to measures of specific patient safety concern – currently 30 days mortality rate. Other unusual findings identified by the NHFD annual report will be managed out with the scope of this policy by communication between the NHFD clinical leadership and the local lead clinician.

Process
Prepared on behalf of the NHFD team, NHFD Advisory Group and FFFAP Board by:

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