



Detection and management of outliers

Purpose

An outlier is a result that is, statistically, significantly further from the expected comparator value than would usually occur by chance alone.

This policy has been developed to ensure that potential outliers are identified through the processes of national clinical audit. The policy sets out the actions that ICNARC takes when data indicate that results for a hospital significantly deviate from the expected value.

This policy is based on Health Quality Improvement Partnership (HQIP) outlier guidance on the 'Identification and management of outliers'. Should you wish to review the HQIP guidance, please follow the link below:

<https://www.hqip.org.uk/wp-content/uploads/2021/11/Appendix-10-HQIP-Outlier-guidance-v4.pdf>

Assessment of outlier status

The following criteria are considered when assessing potential outlier status:

1. *Coverage*

Data are collected according to the scope of the national clinical audit.

2. *Sample size*

Presentation of quality indicators takes account of the available sample size from each participating site.

3. *Data completeness*

Comprehensive processes are in place to maximise completeness of all fields.

4. *Data validity*

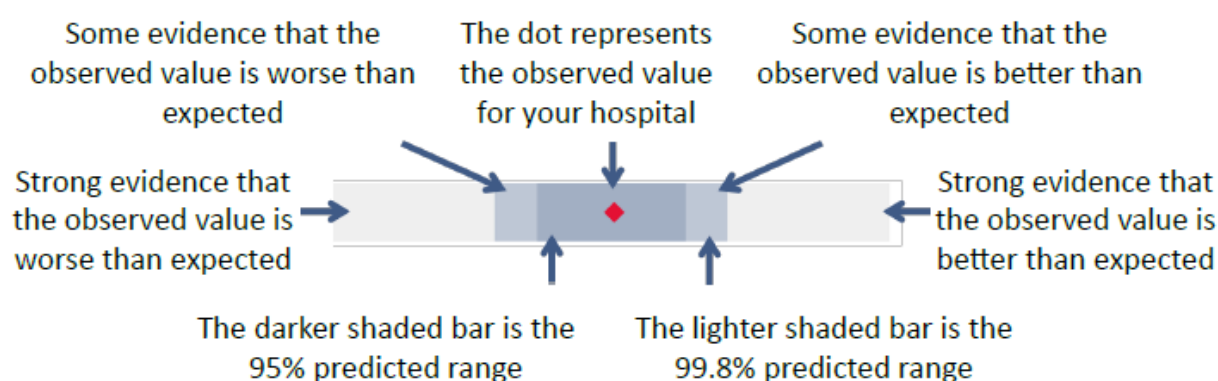
Data are collected to a set of standard definitions and are rigorously validated to identify potential unusual, inconsistent and/or invalid values (or combinations of values).

5. *Model accuracy*

Risk models are evaluated for their discrimination (ability to separate those that experience an event from those that do not) and calibration (agreement between observed and expected values) and are regularly recalibrated to ensure ongoing fit to up-to-date data.

Risk adjusted outcomes are presented in a bar format (see example below), where the observed value is compared against the expected value. The expected value is your hospital's expected value from the NCAA model, calculated as the mean predicted probability of survival for all eligible team visits in your hospital.

Results are presented showing the observed value for your hospital against the 95% and 99.8% reference ranges. Predicted ranges are calculated based on the expected value and the number of eligible team visits for your hospital. We expect a hospital's observed value to lie within the 95% predicted range 19 times out of 20 and within the 99.8% predicted range 998 times out of 1000.



Potential outliers are defined as where the observed value falls:

- below the 95% predicted range but within the 99.8% predicted range across two consecutive reporting periods; or
- below the 99.8% predicted range in one or more reporting period.

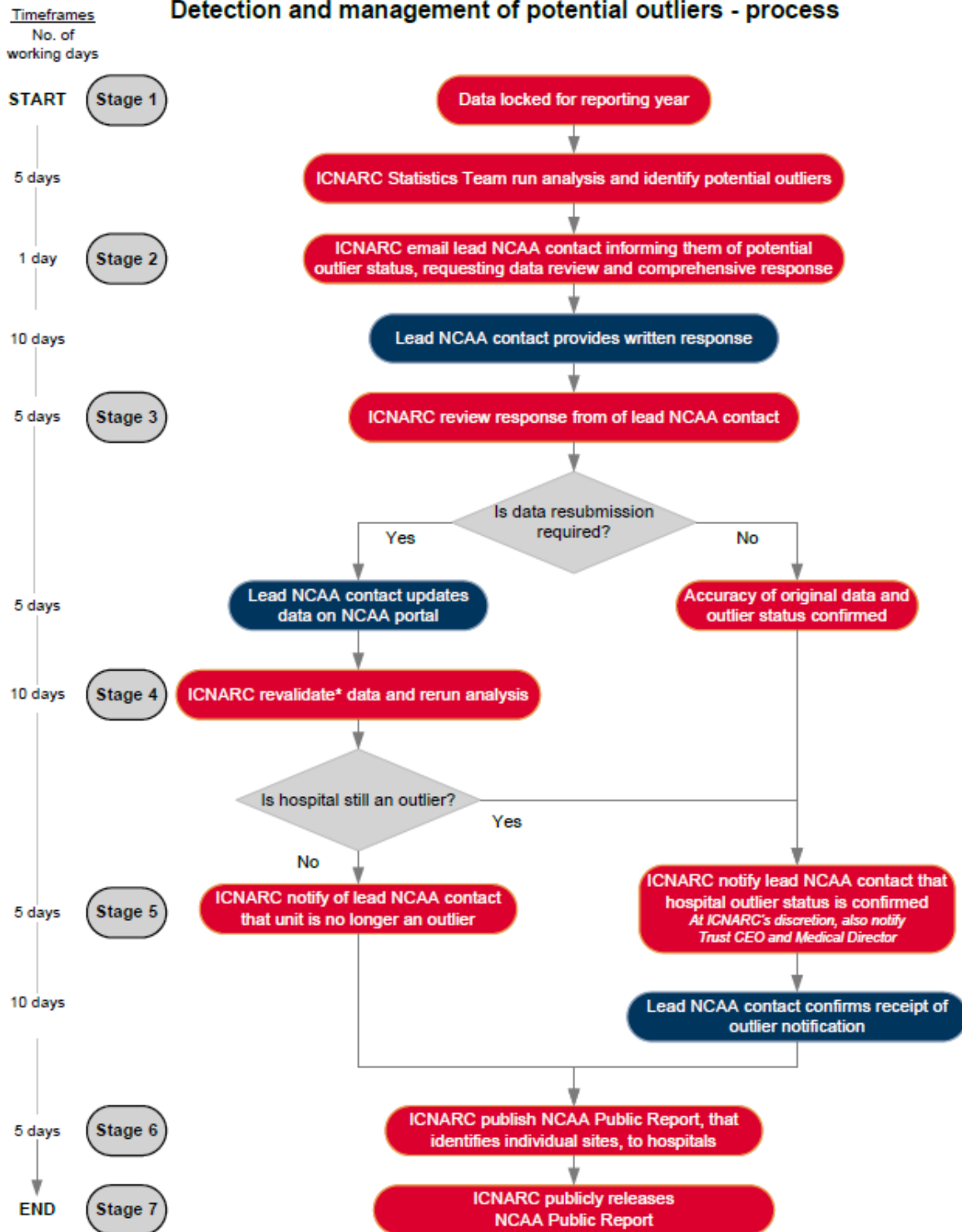
Results that lie outside the predicted range are said to exhibit *special cause variation*: the observed results in these hospitals being different to the expected value, and more so than would be expected to occur by chance. This difference may be due to a number of different factors, including the data and the model, and should not, on its own, be taken as a marker of quality.

The reason for any differences should be investigated.

Guidance

The flow diagram on the following page outlines the actions and timeframes that are required in the process of detecting and managing a potential outlier.

Detection and management of potential outliers - process



**Hospital must respond to revalidation queries within two working days of receipt*

Timeframes

Should a hospital fail to meet the timeframes set in this policy (see: flow diagram), resulting in the process not being completed by the date of publication, ICNARC will consider publication of results in the absence of a response.

Contact us

If you have any feedback or questions about this policy, please contact:

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