

Benefits case study

Release of health data to the National Clinical Analysis and Specialised Applications Team (NATCANSAT)

Improvements in the breast care surgical pathway

Author: Mohammed R. Basser

Date: 25/08/2015

Version: 1.1

1 Version History

Version	Date	Summary of key changes
1.0	28/07/2014	First release.
1.1	25/08/2015	<ul style="list-style-type: none">• Updated 'Introduction' section to clarify that the benefits are based on changes enabled by the HES data set. Previously, the case study inferred that the benefits were enabled by the HES data set.• Abbreviated all 'length of hospital stay' to 'LoS'• Grammatical changes to improve readability

2 Introduction

2.1 Purpose of case study

On a monthly basis, between 2008 and 2012, the Health and Social Care Information Centre (HSCIC) released a Hospital Episode Statistics (HES) data set to the National Clinical Analysis and Specialised Applications Team (NATCANSAT). NATCANSAT is hosted by The Clatterbridge Cancer Centre NHS Foundation Trust.

The purpose of this case study is to describe:

- how NATCANSAT used the HES data sets to aid NHS Improvement (NHSI), which is now part of NHS Improving Quality (NHSIQ), to promote and implement changes to the breast care surgical pathway; and
- whether the changes realised measurable benefits (measurable improvements) in the breast care surgical pathway, as assessed against measures such as length of stay (LoS) and day case rates.

2.2 Alignment between publication and measurable benefits

The HES data is a data 'tool' that has enabled stakeholders to carry out two key activities:

1. NATCANSAT to produce data outputs
2. NHSI to use the data outputs to work with local NHS trusts in testing and implementing clinical and pathway changes to the breast care surgical pathway.

It is these activities, rather than the HES data, that contributes to the benefits. This case study aims to show the alignment between the released HES data set and the stated measurable benefits. Using a Benefits Dependency Network (BDN) map as the basis, the diagram below sets out this alignment. For completeness purposes, the map also shows how the HES data links to the overarching drivers (see [section 4](#)) and objectives (see [section 5](#)).

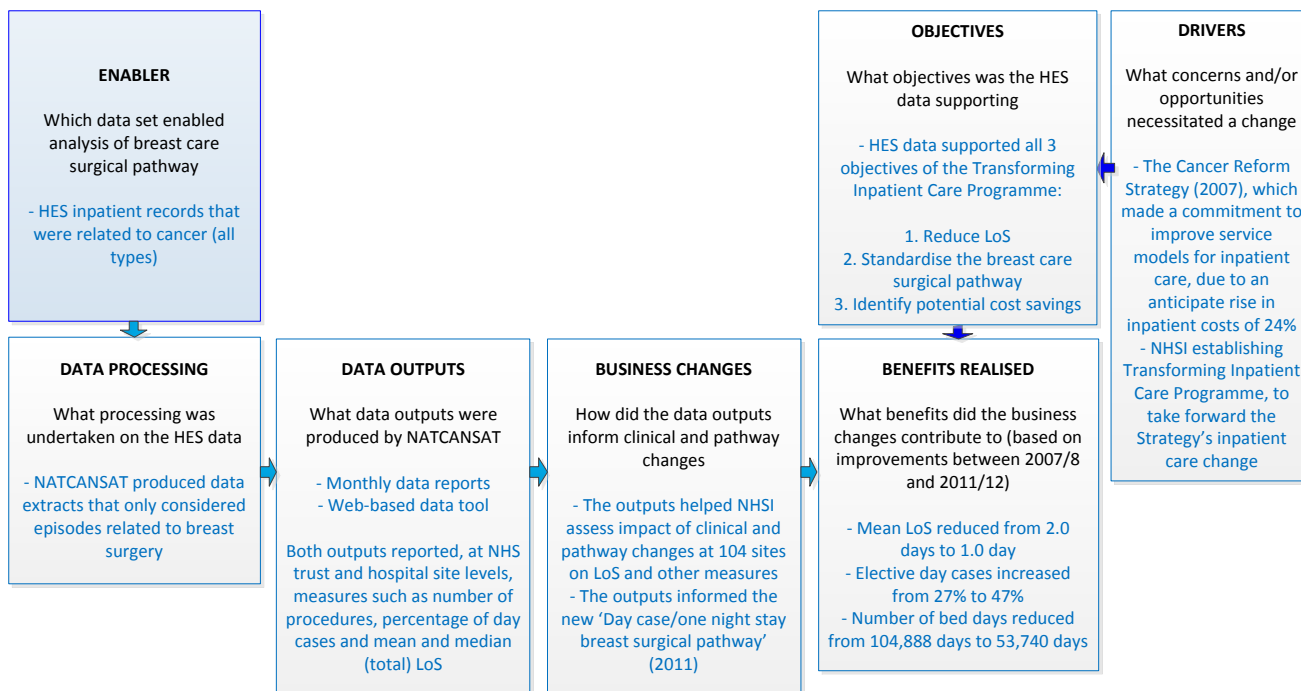


Figure 2: Alignment of HES data to realised benefits, using a BDN map

3 Released data set

The HES data set released to NATCANSAT consisted of episodes recorded in HES’s admitted patient care (APC) database for period 1997/98 - 2011/12 and for patients who, at the time of their inpatient episode, had a cancer diagnosis or underwent a cancer-related procedure.

Between April 2008 and March 2012, on a monthly basis, NATCANSAT used the HES data to produce local data extracts, which consisted of episodes relating to breast surgery (mastectomy and breast conserving surgeries, but excluding immediate reconstruction in the same episode). This case study describes the data outputs, clinical and pathway changes and subsequent measurable benefits that resulted from this local extract.

Quote

“To improve patient services it is important to measure, if you are not measuring you are not improving, but if you are only measuring you’re not improving, it is important to measure the right thing that adds value” Dr Ann Driver, Head of Programmes, NHSIQ (2014)

4 Drivers supporting the use of HES data

The need for improvements in the breast care surgical pathway was influenced by three drivers:

1. The Cancer Reform Strategy (CRS) (2007) 1, but specifically the commitment to ‘improving service models for inpatient care’². This improvement (which is categorised as a service model change by the Strategy) was identified to help service providers better manage the anticipated rise in inpatient costs of 24% between 2007 and 2022. This rise was anticipated due to an ageing population and the age profile of the breast cancer cohort.³

2. NHSI's Transforming Inpatient Care Programme⁴, which was established in 2007 to take forward the CRS's *improving service models for inpatient care* change.
3. Wide variations that existed in hospital stay for breast surgery across NHS trusts.

5 Objectives the HES data supported

Improvements in the breast care surgical pathway were being prioritised to support three objectives:

1. Improve efficiency and patient experience (quality of care) by reducing unnecessary length of stay (LoS) in hospitals.
2. Standardise the breast care surgical care pathway by moving away from various local inpatient models to a standardised day case / one night stay model.
3. Make better use of NHS resources by identifying potential cost savings.

6 Outputs produced by NATCANSAT

NATCANSAT used the local HES data extracts to generate two outputs:

1. Between April 2008 and March 2012, NATCANSAT produced monthly data reports to help NHSI assess whether hospital sites participating in their Transforming Inpatient Care Programme were realising reductions in LoS and, if so, the extent to which the reductions were realised.
2. Deployment of a web-based tool between April 2008 and March 2011, which allowed hospital sites and cancer networks participating in NHSI's Transforming Inpatient Care Programme to assess the impact of clinical practice and pathway changes on LoS within their site/network.

Examples of measures used in the two outputs, which were all based on HES data, included number of procedures, mean pre-operative LoS, mean post-operative LoS, percentage of day cases, mean and median total LoS, emergency re-admission rate and percentage of re-admissions.

7 Clinical and service delivery changes

The outputs were used by NHSI to inform the Transforming Inpatient Care Programme. This specifically involved:

1. NHSI working with hospital sites and cancer networks to pilot and implement changes to clinical practices and pathways. In the Transforming Inpatient Care Programme, 32 sites were part of the testing phase and 72 sites were part of the spread/implementation phase. The data reports and web-based tool helped NHSI, hospital sites and cancer networks assess the effectiveness of, and implement appropriate, pathway and clinical changes. The successful changes implemented in testing also formed the basis for changes at sites participating in the spread/implementation phase. Examples of clinical changes included:
 - a. Reduction in use of wound drains

- b. Wound drains removed prior to discharge
- c. Analgesia for mastectomy being multimodal. Various combinations of paracetamol and one more local anaesthetic technique are able to provide effective analgesia⁵

Based on local preferences, some sites used the web-based tool to assess the impact of changes and some used the data reports.

2. Working in partnership with NATCANSAT, NHSI promoted the adoption of the good practice examples documented in the Winning Principles documentation suite⁶ across the NHS. The data outputs helped establish which trusts formed good candidates for inclusion in the documentation suite.
3. Introducing the ‘Day case/one night stay breast surgical pathway’⁷ in 2011. The successful pathway and clinical changes, as evidenced by the data outputs, helped shape the new pathway.

Quotes

“The HES data was used as an indicator, a baseline, indicated the progress and potential in reducing unnecessary lengths of stay. It provided direction showing us where to explore further and learn” Dr Ann Driver, Head of Programmes, NHSIQ (2014)

“Access to regular monthly HES data enabled NATCANSAT to provide up-to-date analysis to illustrate change in practice with minimal time-lag. Being able to see reductions in length of stay month on month engages and encourages local staff. Without access to monthly data, national analysis would only have been possible on an annual basis.

This case study demonstrates how collecting good quality data on a regular basis, in a robust way and feeding it back to clinical teams can translate into real benefits to patients and to the NHS.” Dr Peter Kirkbride, Director of NATCANSAT (2014)

The changes highlighted above informed two further changes. These are:

1. Department of Health (DH) used evidence from the NHSI’s Winning Principles documentation suite and NATCANSAT’s data reports to inform the 2011 cancer strategy – ‘Improving Outcomes: A Strategy for Cancer’⁸. The Strategy states that further reductions could be made on LoS and that savings will be maximised by disseminating lessons learned from the Transforming Inpatient Care Programme to providers and commissioners.⁹
2. DH introduced a Best Practice Tariff (BPT) in April 2012 to incentivise day case surgery for breast surgery.¹⁰ The introduction of the BPT was partly influenced by the reduction in the average LoS recorded by NATCANSAT and NHSI.

8 Benefits

In conjunction with other initiatives and measures outside the scope of this case study, the changes have contributed to six key benefits. These are noted below.

8.1 Measurable benefits

The measurable benefits are all improvements between 2007/8 and 2011/12. The changes in performance are available from table 1.

1	Benefit	an intermediate benefit of a reduction in mean LoS, which has led to an end benefit of reduced bed days.
	Improvement	<ul style="list-style-type: none"> intermediate benefit: reduction in average LoS of 50% - by 1.0 day (see indicator 1 in table 1) end benefit: the number of bed days reduced by nearly 49% - 51,148 bed days (see indicator 6 in table 1). This reduction has been realised despite a 4% increase in the number of elective procedures.
	Objective delivered	<ul style="list-style-type: none"> intermediate benefit - improve efficiency in the breast care surgical pathway end benefit - make better use of NHS resources.
2	Benefit	reduction in variance in mean LoS between the trust with the longest average hospital stay and the trust with the shortest average hospital stay.
	Improvement	difference in mean LoS between trusts with the longest and the shortest hospital stay has reduced by nearly 49% - by 2.4 days (see indicator 2 in table 1).
	Objective delivered	improve efficiency in the breast care surgical pathway.
3	Benefit	increased the proportion of breast surgeries that were treated as day cases, with the aim of reducing LoS.
	Improvement	increase in proportion of day cases from 27% to 40% (see indicator 3 in table 1).
	Objective delivered	standardise the care pathway.
4	Benefit	reduction in bed day costs.
	Improvement	reduction in total bed day cost of £10,229,600 (51,148 bed days * £200 per bed day ⁱ).
	Objective delivered	make better use of NHS resources.

ⁱ £200 is the lower estimate of bed day costs, as specified in:

NHS Networks, 2012. *Quality and Productivity: Proven Case Study. Ambulatory breast surgical care: day case and one night stay* [Online] Available at: http://www.networks.nhs.uk/nhs-networks/commissioning-zone/support/online-resources/ambulatory-breast-surgical-care-day-case-and-one-night-stay/link_popview [Accessed 3 June 2014] p. 6

The quantifiable improvements relating to the measurable benefits are set out in table 1. The outturns specified in the table are based on HES data, which have been calculated by NATCANSAT.

Table 1 **			
ID	Indicator	2007/08 outturn	2011/12 outturn
1	Mean LoS for elective admissions – overall (day cases and inpatients)	2.0 days ¹¹	1.0 day
2	Variance in mean LoS between trusts with the longest and shortest hospital stays – overall (day cases and inpatient) Note: This indicator is based only on trusts conducting 20 or more procedures in a year.	4.9 days (0 days to 4.9 days)	2.5 days (0 days to 2.5 days)
3	Percentage of elective procedures that resulted in day cases ⁱⁱ	27% (13,828 / 51,849) ¹²	40% (21,387 / 54,020)
4	Percentage of hospital stay of zero or 1 day – inpatients only ⁱⁱⁱ	29% ¹³	68%
5	Percentage of procedures where patients were admitted on day of surgery – overall (day cases and inpatients)	78%	96%
6	Number of bed days – overall (day cases and inpatients)	104,888 bed days ¹⁴	53,740 bed days

** The clinical and service delivery changes highlighted in this case study are just one of many activities and initiatives that have contributed to the improvements specified in table 1.

At the outset, there was a concern that the shift to day care could result in increased readmissions for breast surgery (i.e. a dis-benefit), however this was not realised. The readmission rate actually decreased fractionally. (see table 2).

Table 2			
ID	Indicator	2007/08 outturn	2011/12 outturn
1	Percentage of readmissions within 28 days of episode end date	3.1% (1,619 / 51,849)	3.0% (1,647 / 54,020)

ⁱⁱ Indicators 3 and 4 supplement benefit one (reduction in mean LoS), but are not direct measurable improvements related to the benefit, so they have not been used to evidence benefit one.

ⁱⁱⁱ See footnote above.

8.2 Non-measurable benefits

1	Benefit	patients able continue with their normal lives more quickly and, possibly, return to work sooner, due to shorter hospital stays ^{iv}
	Improvement	no measurement available
	Objective delivered	enable patients to continue rehabilitation sooner in their home environment (this was not one of the key objectives set out at the outset. It is one that has been realised as a result of delivering the key objectives)
2	Benefit	increase in patient satisfaction due to shorter hospital stays. ^v
	Improvement	no measurement available
	Objective delivered	improve patient experience (quality of care)

Quotes

“We want to get back to normal as soon as possible”. “The new pathway should value our time”. “Highly recommend day surgery is better” patients (2011)¹⁵

9 Contributions

This case study has had contributions from, and been reviewed and approved by:

- Tracey Ellison, Senior Data Analyst, NATCANSAT
- Chris Ball, Head of NATCANSAT
- Dr Ann Driver, Head of Programmes, NHSIQ
- Marie Tarplee, Service Improvement Manager/Deputy Head of Programme, NHSIQ

NATCANSAT publications are available from <http://www.natcansat.nhs.uk/> and NHSIQ publications are available from www.nhsiq.nhs.uk.

10 References

¹ Department of Health, 2007. *Cancer Reform Strategy* [Online] Available at: <http://www.nhs.uk/NHSEngland/NSF/Documents/Cancer%20Reform%20Strategy.pdf> [Accessed 16 May 2014]

² Department of Health, 2007. *Cancer Reform Strategy* [Online] Available at: <http://www.nhs.uk/NHSEngland/NSF/Documents/Cancer%20Reform%20Strategy.pdf> [Accessed 16 May 2014] p. 93

³ Department of Health, 2007. *Cancer Reform Strategy* [Online] Available at: <http://www.nhs.uk/NHSEngland/NSF/Documents/Cancer%20Reform%20Strategy.pdf> [Accessed 16 May 2014] p. 97

^{iv} Patient feedback is available that supports patients continuing with their normal lives more quickly. See further detail and example quotes in:

NHS Improvement, 2011. Figure 1 on *Delivering major breast surgery safely as a day case or one night stay* [Online] Available at: <http://www.natcansat.nhs.uk/data/pubs.aspx> [Accessed 16 May 2014] p.19

^v Patient feedback is available that supports patients being more satisfied with the reduced hospital stay. See example quotes in:

NHS Improvement, 2011. Figure 1 on *Delivering major breast surgery safely as a day case or one night stay* [Online] Available at: <http://www.natcansat.nhs.uk/data/pubs.aspx> [Accessed 16 May 2014] p.19 and p.25

- ⁴ NHS Improvement. *NHS Transforming inpatient Care Publications* [Online] Available at: <http://collections.europarchive.org/tna/20100509080731/improvement.nhs.uk/cancer/transforminginpatientcare/cancerinpatientspublications/tabid/105/default.aspx> [Accessed 4 June 2014]
- ⁵ NHS Improvement, 2011. *Delivering major breast surgery safely as a day case or one night stay* [Online] Available at: <http://www.natcansat.nhs.uk/data/pubs.aspx> [Accessed 16 May 2014] pp. 15-16
- ⁶ NHS Improvement. *NHS Improvement – Cancer* [Online] Available at: <http://collections.europarchive.org/tna/20100509080731/improvement.nhs.uk/cancer/transforminginpatientcare/cancerinpatientspublications/tabid/105/default.aspx> [Accessed 11 June 2014]
- ⁷ NHS Improvement, 2011. *Delivering major breast surgery safely as a day case or one night stay* [Online] Available at: <http://www.natcansat.nhs.uk/data/pubs.aspx> [Accessed 16 May 2014]
- ⁸ Department of Health (DH), 2011. *Improving Outcomes: A Strategy for Cancer* [Online] Available at: <http://www.cancerscreening.nhs.uk/breastscreen/improving-outcomes-strategy-for-cancer.pdf> [Accessed 3 June 2014]
- ⁹ Department of Health (DH), 2011. *Improving Outcomes: A Strategy for Cancer* [Online] Available at: <http://www.cancerscreening.nhs.uk/breastscreen/improving-outcomes-strategy-for-cancer.pdf> [Accessed 3 June 2014] p. 63
- ¹⁰ Department of Health (DH), 2012. *Payment by Results Guidance for 2012-13* [Online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216212/dh_133585.pdf [Accessed 30 May 2014] p. 66
- ¹¹ NHS Improvement, Figure 2 on *Delivering major breast surgery safely as a day case or one night stay*. <http://www.cancerscreening.nhs.uk/breastscreen/improving-outcomes-strategy-for-cancer.pdf> [Accessed 3 June 2014]
- ¹² NHS Improvement, 2011. Figure 1 on *Delivering major breast surgery safely as a day case or one night stay* [Online] Available at: <http://www.natcansat.nhs.uk/data/pubs.aspx> [Accessed 16 May 2014]
- ¹³ NHS Improvement, 2011. Figure 3 on *Delivering major breast surgery safely as a day case or one night stay* [Online] Available at: <http://www.natcansat.nhs.uk/data/pubs.aspx> [Accessed 16 May 2014]
- ¹⁴ NHS Improvement, 2011. Figure 3 on *Delivering major breast surgery safely as a day case or one night stay* [Online] Available at: <http://www.natcansat.nhs.uk/data/pubs.aspx> [Accessed 16 May 2014]
- ¹⁵ NHS Improvement, *Delivering major breast surgery safely as a day case or one night stay*. <http://www.cancerscreening.nhs.uk/breastscreen/improving-outcomes-strategy-for-cancer.pdf> [Accessed 3 June 2014] p. 19