

## Simplified Technical Information – SSNAP Key Indicators

### Introduction

The purpose of this simplified technical information document is to explain in easy-to-follow steps how each of the key indicators is calculated. It is hoped that this document will better enable teams to understand how each of the key indicators is derived and help empower individuals to understand where performance could be improved.

#### Layout of this document:

**Inclusion criteria:** Outlines which patients are applicable for the key indicator.

**Exclusion criteria:** The patients for whom the key indicator does not apply are noted in a red box to help identify which patients are applicable for each standard.

A description of how to calculate the key indicator is given.

<b>For team-centred</b>	<b>For patient-centred</b>
Which patients are included in the team centred key indicator performance	Which patients are included in the patient centred key indicator performance

#### Examples:

Examples of how to calculate each patient's achievement of the key indicator, and how to combine patients' achievements into the team's cohort median or percentage are given.

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## Definitions

### Cohorts of patients

In SSNAP reporting, the processes of care and patient outcomes are reported in two ways – patient-centred and team-centred.

#### Patient-centred

Patient-centred attribute the results to every team which treated the patient at any point in their care. This recognises that the stroke care pathway usually involves many teams treating the patient at different points. This holistic approach is aimed at encouraging teams to work closely together to ensure consistency of care. It is 'patient-centred', because it describes the care and outcomes from the patient perspective, regardless of which team treated the patient.

#### Team-centred

Team-centred attribute the results to the team considered to be most appropriate to assign the responsibility for the measure to. It is recognised that it is useful to provide results on a team-centred basis so that teams can see the results for the interventions delivered.

#### Patient-centred 72h cohort

This section shows the patient-centred results for the first 72 hours of care and is based on records locked to 72h for patients who arrived at hospital (or had their stroke in hospital) in the respective quarter.

#### Team-centred 72h cohort

The team-centred results for the first 72 hours of care are based on records locked to 72h for patients who arrived at hospital (or had their stroke in hospital) in the respective quarter, and attributed to the first team which treated the patient, regardless of which team locked the record to 72h (i.e. the second team may have locked the record to 72h, but results are attributed to first team).

Please note: For the team-centred 72h results, all measures are attributed to the first team which treated the patient. Although this does not take account of the very small number of patients transferred within 72h, it ensures that the results are as simple as possible to follow.

#### Patient-centred post-72h cohort

This section shows the patient-centred results between 72 hours and discharge from inpatient care and is based on records locked to discharge for patients who were discharged from inpatient care in the respective quarter.

It is attributed to all teams which treated the patient at any point in their care.

This means that a team which only treated the patient during the first 72h will still have the results for this patient's care between 72 hours and discharge from inpatient care. We hope that this will encourage an open dialogue between teams treating patients along a care pathway and that teams treating the patient initially reflect on the continuing care they receive, as this will also impact upon the initial team's longer term outcome results.

#### Team-centred post-72h cohort: 7 day team

For the team-centred post-72h results, measures are attributed to teams depending on the point at which they treated the patient along the inpatient pathway.

Results attributed to the '7 day team' are attributed to the team which had the patient in their care at 7 days following clock start (or, if the length of stay as an inpatient was less than 7 days, the team which discharged the patient from inpatient care).

These results include measures which are considered to be most appropriately designated to the team which had the patient in their care at 7 days, but does not necessarily indicate that the care was received within 7 days.

For instance, one measure in this section is whether the patient had a urinary continence plan by discharge. It is attributed to the team which had the patient at 7 days, but the measure is whether the patient had the plan by discharge, regardless of which team provided the plan.

The team-centred post-72h results are based on records locked to discharge for patients who were discharged from inpatient care in the respective quarter.

#### **Team-centred post-72h cohort: inpatient discharge team**

Results attributed to discharging team are attributed to the team which discharged the patient from inpatient care.

The team-centred post-72h results are based on records locked to discharge for patients who were discharged from inpatient care in the respective quarter.

#### **Team-centred post-72h cohort: all teams**

Results attributed to all teams are for measures which are answered for every patient by every team along the pathway (therapy intensity, rehab goal setting, length of stay in hospital and on stroke unit and the discharge/transfer destination).

These results are based only on what the team provided rather than what the patient received across the whole pathway, e.g. the team-centred length of stay is the length of stay at each particular team compared to the patient-centred length of stay which is the length of stay the patient had across all teams.

The team-centred post-72h all teams results are based on records locked to discharge or where a transfer to another team has been actioned in the respective quarter. This includes all records which have either been discharged out of inpatient care or transferred to another inpatient team.

#### **Clock start**

The term 'Clock start' is used throughout SSNAP reporting to refer to the date and time of arrival at first hospital for newly arrived patients, or to the date and time of symptom onset if patient already in hospital at the time of their stroke.

ie the date and time of first arrival at hospital (Q1.13) for newly arrived patients (Q1.10 is "No"), or the date and time of onset/awareness of symptoms (Q1.11) if patient was already an inpatient at the time of stroke (Q1.10 is "Yes").

#### **Proportion**

The number of patients who achieved the indicator (numerator) over the number of applicable patients (if it is expressed as a percentage then this number is multiplied by 100).

$$\text{Proportion} = \frac{\text{numerator}}{\text{denominator}}$$

#### **Percentage**

The number of patients who achieved the indicator (numerator) multiplied by 100 over the number of applicable patients.

$$\text{Percentage} = 100 * \frac{\text{numerator}}{\text{denominator}}$$

## 1. Scanning Key Indicators:

### 1.1 Percentage of patients that were scanned within 1 hour of clock start

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

**Numerator** = the number of patients who were scanned in 1 hour or less.

**Denominator** = all the patients in the cohort. Patients who are not scanned are only included in the denominator.

To calculate whether a patient is included in the numerator:

For patients newly arriving at hospital, the difference between the date and time of arrival (Q 1.13) and the date and time of scan (Q 2.4) must be less than or equal to 60 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time of symptom onset (Q 1.11) and the date and time of scan (Q 2.4) must be less than or equal to 60 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

<b>For team-centred</b>	<b>For patient-centred</b>
All patients in the team-centred 72h cohort	All patients in the patient-centred 72h cohort

#### Example

Patient X arrived (clock start) at hospital at 18:57 on Tuesday. They were then scanned at 19:16 that same day. Patient X has achieved the indicator because 19:16-18:57 = 19 minutes.

Patient Y arrived (clock start) at hospital at 12:15 on Friday. They were then scanned at 13:16 that same day. Patient Y has not achieved the indicator because 13:16-12:15 = 61 minutes.

Patient Z onset in hospital (clock start) at 20:08 on Saturday. They were not scanned. Patient Z has not achieved the indicator because they were not scanned.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{\text{(Patient X)}}{\text{(Patient X, Patient Y and Patient Z)}}$

## 1.2 Percentage of patients that were scanned within 12 hours of clock start

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

**Numerator** = the number of patients who were scanned in 12 hours or less.

**Denominator** = all the patients in the cohort. Patients who are not scanned are only included in the denominator.

To calculate whether a patient is included in the numerator:

For patients newly arriving at hospital, the difference between the date and time of arrival (Q 1.13) and the date and time of scan (Q 2.4) must be less than or equal to 720 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time of symptom onset (Q 1.11) and the date and time of scan (Q 2.4) must be less than or equal to 720 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

For team-centred	For patient-centred
All patients in the team-centred 72h cohort	All patients in the patient-centred 72h cohort

### Example

Patient X arrived (clock start) at hospital at 18:57 on Tuesday. They were then scanned at 19:16 that same day. Patient X has achieved the indicator because 19:16-18:57 = 19 minutes.

Patient Y arrived (clock start) at hospital at 12:15 on Friday. They were then scanned at 13:16 that same day. Patient Y has achieved the indicator because 13:16-12:15 = 61 minutes.

Patient Z onset in hospital (clock start) at 20:08 on Saturday. They were not scanned. Patient Z has not achieved the indicator because they were not scanned.

Therefore the cohort percentage is 0.67 or 67% or  $\frac{2}{3} \frac{(\text{Patient X and Patient Y})}{(\text{Patient X, Patient Y and Patient Z})}$

### 1.3 Median time between clock start and scan (hours:mins)

**Included:** all patients who were scanned are included in this indicator.

**Excluded:** Patients who were not scanned are excluded from this indicator

For patients newly arriving at hospital, the time between clock start and scan is the difference between the date and time of arrival (Q 1.13) and the date and time of scan (Q 2.4).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the time between clock start and scan is the difference between the date and time of symptom onset (Q 1.11) and the date and time of scan (Q 2.4).

Cohort median: To find the median time, all the times between clock start and scan need to be listed from smallest to largest. The median is then the number in the middle of this list.

<b>For team-centred</b>	<b>For patient-centred</b>
All patients in the team-centred 72h cohort who receive a scan	All patients in the patient-centred 72h cohort who receive a scan

#### Example

Patient A arrived (clock start) at hospital at 12:57 on Tuesday. They were scanned at 13:18 that same day. Patient A's time from clock start to scan was 0:21.

Patient B arrived (clock start) at hospital at 09:15 on Friday. They were scanned at 10:16 that same day. Patient B's time from clock start to scan was 1:01.

Patient C arrived (clock start) at hospital at 13:08 on Sunday. They were not scanned so are excluded.

Patient D arrived (clock start) at hospital at 07:00 on Friday. They were scanned at 07:38 that same day. Patient D's time from clock start to scan was 0:38.

Patient E arrived (clock start) at hospital at 03:15 on Monday. They were scanned at 04:47 that same day. Patient E's time from clock start to scan was 1:32.

Patient F arrived (clock start) at hospital at 23:33 on Friday. They were scanned at 00:03 on Saturday. Patient F's time from clock start to scan was 0:30.

Listing in numerical order: 0:21 0:30 0:38 1:01 1:32

The cohort median is 0 hours 38 minutes.

## 2. Stroke Unit Key Indicators

### 2.1 Percentage of patients directly admitted to a stroke unit within 4 hours of clock start (CCG OIS C3.5)

**Included:** all patients who were admitted to hospital are included apart from patients whose first ward they were admitted to was Intensive Therapy Unit (ITU) / Coronary Care Unit (CCU) / High Dependency Unit (HDU) or patients who received an intra-arterial intervention for acute stroke.

**Excluded:** patients who were first admitted to an ITU/CCU/HDU ward or patients who received an intra-arterial intervention for acute stroke are excluded from this indicator

**Numerator** = the number of patients who were admitted to a stroke unit within and including 4 hours of clock start.

**Denominator** = all the patients in the cohort (excluding the patients who were admitted to ITU/CCU/HDU or patients who received an intra-arterial intervention).

To calculate whether a patient is included in the numerator:

- Firstly, identify the number of patients where “Stroke Unit” is the first ward the patient was admitted to at the first hospital (Q 1.14) and who did not receive an intra-arterial intervention (Q2.11 is “No”).
- Then identify the number of these patients:
  - newly arriving at hospital where the difference between the date and time of arrival (Q 1.13) and the date and time the patient first arrived on the stroke unit (Q 1.15) is less than or equal to 240 minutes
  - already in hospital where the difference between the date and time of symptom onset (Q 1.11) and the date and time the patient first arrived on the stroke unit (Q 1.15) is less than or equal to 240 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

#### For team-centred

All patients in the team-centred 72h cohort except those who went to ITU/CCU/HDU or received an intra-arterial intervention

#### For patient-centred

All patients in the patient-centred 72h cohort except those who went to ITU/CCU/HDU or received an intra-arterial intervention

#### Example

Patient Q arrived (clock start) at hospital at 18:57 on Wednesday. They were directly admitted to the stroke unit at 20:57 that same day. Patient Q has achieved the indicator. They were directly admitted to a stroke unit in 120 minutes.

Patient R arrived (clock start) at hospital at 14:15 on Sunday. They were directly admitted to the stroke unit at 20:16 that same day. Patient R has not achieved this indicator. They were admitted to the stroke unit in 361 minutes which is more than 240 minutes.

Patient S arrived (clock start) at hospital at 20:08 on Saturday. They were not directly admitted to a stroke unit, they were first admitted to a general ward (MAU/AAU/CDU) before being admitted to a stroke unit at 21:08. Patient S has not achieved this indicator as they were not **directly** admitted to a stroke unit (or ITU/CCU/HDU).

Patient T arrived (clock start) at hospital at 03:45 on Tuesday. They were directly admitted to HDU. Patient T is excluded because they were first admitted to HDU.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{\text{(Patient Q)}}{\text{(Patient Q, Patient R and Patient S)}}$

## 2.2 Median time between clock start and arrival on stroke unit (hours:mins)

**Included:** all patients who were admitted to a stroke unit at the first hospital they were admitted to are included in this indicator.

**Excluded:** patients who were not admitted to a stroke unit are excluded from this indicator

For patients newly arriving at hospital, the time between clock start and scan is the difference between the date and time of arrival (Q 1.13) and the date and time the patient first arrived on the stroke unit (Q 1.15).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the time between clock start and scan is the difference between the date and time of symptom onset (Q 1.11) and the date and time the patient first arrived on the stroke unit (Q 1.15).

Cohort median: To find the median time, all the times between clock start and arrival on stroke unit need to be listed from smallest to largest. The median is then the number in the middle of this list.

<b>For team-centred</b>	<b>For patient-centred</b>
All patients in the team-centred 72h cohort who went to a stroke unit at the team the patient was first admitted to	All patients in the patient-centred 72h cohort who went to a stroke unit at the team the patient was first admitted to

### Example

Patient A arrived (clock start) at hospital at 12:57 on Tuesday. They were admitted to the stroke unit at 16:18 that same day. Patient A's time from clock start to stroke unit was 3:21.

Patient B onset in hospital (clock start) at 09:15 on Friday. They were admitted to the stroke unit at 11:16 that same day. Patient B's time from clock start to stroke unit was 2:01.

Patient C arrived (clock start) at hospital at 13:08 on Sunday. They were not admitted to the stroke unit at this team. They stayed on a medical assessment unit (MAU). Patient C was not admitted to a stroke unit so is excluded.

Patient D arrived (clock start) at hospital at 07:00 on Friday. They were admitted to the stroke unit at 07:38 that same day. Patient D's time from clock start to stroke unit was 0:38.

Patient E arrived (clock start) at hospital at 03:15 on Monday. They were admitted to the stroke unit at 04:47 that same day. Patient E's time from clock start to stroke unit was 1:32.

Patient F arrived (clock start) at hospital at 23:33 on Friday. They were admitted to the HDU. Patient F was admitted to HDU so is excluded.

Patient G arrived (clock start) at hospital at 16:15 on Monday. They were admitted to the stroke unit at 17:59 that same day. Patient G's time from clock start to stroke unit was 1:44.

Listing in numerical order: 0:38 1:32 1:44 2:01 3:21

The cohort median is 1 hour 44 minutes.

## 2.3 Percentage of patients who spent at least 90% of their stay on stroke unit (ASI and proxy for NICE QS Statement 6)

**Included:** all patients are included in this indicator, except those who went directly to ITU/CCU/HDU during their stay in hospital and those who died on the same day as arrival/onset of symptoms.

**Excluded:** patients who were admitted to ITU/CCU/HDU and those who died on the same day as arrival/onset of symptoms are excluded from this indicator

**Numerator** = patients who spent at least 90% of their stay on a stroke unit.

**Denominator** = all patients in the cohort (apart from the patients who were admitted to ITU/CCU/HDU and those who died on the same day as arrival/onset of symptoms).

To calculate the number of patients who spent at least 90% of their stay on a stroke unit, the length of stay must first be calculated.

The length of stay is calculated as the difference between the date and time of discharge/death and either date and time of arrival for newly arrived patients or onset of symptoms for inpatient strokes.

To identify **date and time of discharge/death** for patients:

- who were discharged alive, use:  
**Q 7.3** Date and time of discharge/ transfer from team
- who died on a stroke unit (Q 7.1.2 is Yes), use:  
**Q 7.1.1** What was the date of death? with an assumed time component of 23:59
- who died in hospital but not on a stroke unit (Q 7.1.2 is “No”) and were discharged from the stroke unit on the same day as death (Q 7.2 and Q 7.1.1 is the same date), use:  
**Q 7.2** Date and time of discharge from stroke unit
- who died in hospital but not on a stroke unit either because they were not admitted to a stroke unit at that team (Q 4.3 is Did not stay on a stroke unit) or because they were discharged from the stroke unit before the date of death (Q 7.1.2 is “No” and Q 7.2 is before Q 7.1.1), use:  
**Q 7.1.1** What was the date of death? with an assumed time component of 00:00
- who were transferred to another inpatient team (Q 7.1 is “Was transferred to another inpatient care team”), use:  
**Q 7.3** Date and time of discharge/ transfer from team

### **For team-centred**

The length of stay at each team is the difference between the date and time of team discharge/death as calculated above and either the date and time patient arrived at this hospital team (Q 4.1), or the date and time of symptom onset (Q 1.11) for patients already in hospital (Q 1.11 is only used for the first team).

### **For patient-centred**

The length of stay across the whole inpatient stay is the difference between the date and time of final inpatient discharge for each patient and either date and time of arrival (Q 1.13), or date and time of symptom onset (Q 1.11) for patients already in hospital.

**4 hours is then taken away from the length of stay, as this makes the inclusion of patients with short lengths of stay feasible for this indicator.**

Next, the length of stay on a stroke unit must be calculated.

To identify **the length of stay on a stroke unit** for patients:

- discharged/transferred alive:  
the length of stay on a stroke unit is the difference between Q 4.3 (the date and time the patient arrived on stroke unit at this hospital) and Q 7.2 (date and time of discharge from stroke unit)
- who die on a stroke unit (Q 7.1.2 is “Yes”):  
the length of stay on a stroke unit is the difference between Q 4.3 (date and time the patient arrived on stroke unit at this hospital) and the date component given in Q 7.1.1 (What was the date of death?) with a time component of 23:59
- who die in hospital but not on a stroke unit (Q 7.1.2 is “No”):  
the length of stay on a stroke unit is the difference between Q 4.3 (date and time the patient arrived on stroke unit at this hospital) and Q7.2 (date and time of discharge from stroke unit)
- who did not stay on a stroke unit at a given team (Q 4.3 is “Did not stay on a stroke unit”):  
the length of stay on the stroke unit is **0 min**

**For team-centred**

As calculated above

**For patient-centred**

overall length of stay is calculated by adding length of stay on the stroke unit per team as calculated above

To calculate the percentage of a patient’s stay on a stroke unit:

$$\frac{\text{overall length of stay on a stroke unit}}{\text{length of stay in hospital}} \times 100$$

If the percentage of a patient’s stay on a stroke unit is **greater than or equal to 90%** the patient has achieved this indicator.

If the patient’s length of stay on the stroke unit is less than 4 hours and the patient went to the stroke unit at any time during those 4 hours, the patient is counted as having achieved the indicator.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

**Example**

Patient A arrived (clock start) at hospital at 12:57 on 1<sup>st</sup> January. They were admitted to the stroke unit at 22:18 that same day. They stayed at the stroke unit until they were discharged home at 16:18 on 3<sup>rd</sup> January.

Patient B arrived (clock start) at hospital at 09:15 on 3<sup>rd</sup> January. They were admitted to the stroke unit at 11:16 that same day. They died on the stroke unit on 16<sup>th</sup> January.

Patient C arrived (clock start) at hospital at 13:08 on 10<sup>th</sup> January. They were not admitted to the stroke unit. They stayed on a medical ward. They were discharged home at 17:00 on the 15<sup>th</sup> January.

Patient D arrived (clock start) at hospital at 03:15 on 20<sup>th</sup> January. They were admitted to the stroke unit at 10:15 on the 21<sup>st</sup> January. They were transferred to another inpatient team at 09:30 on 25<sup>th</sup> January. They were discharged to a care home at 09:30 on 26<sup>th</sup> January.

Patient E arrived (clock start) at hospital at 23:33 on Friday. They were admitted to the HDU.

Step 1) Identify the **date and time of discharge/death**:

Patient A – discharged alive so 16:18 on 3<sup>rd</sup> January

Patient B – died on stroke unit so 16<sup>th</sup> January with assumed time of 23:59

Patient C – discharged alive so 17:00 on 15<sup>th</sup> January

Patient D – transferred to another team at 09:30 on 25<sup>th</sup> January (**team-centred**) and discharged to alive so 09:30 on 26<sup>th</sup> January (**patient-centred**)

Patient E – excluded because they were admitted to HDU

Step 2) Calculate the **length of stay in hospital**

Patient A – clock start 12:57 on 1<sup>st</sup> January and discharged home so 16:18 on 3<sup>rd</sup> January

The length of stay is 4521 min – 240 min (4 hours) = 4281 min.

**Patient-centred** will be the same as **team-centred** as the patient was only at one team.

Patient B – clock start 09:15 on 3<sup>rd</sup> January and died on stroke unit so 16<sup>th</sup> January with assumed time of 23:59.

The length of stay is 19574 min – 240 min (4 hours) = 19334 min.

**Patient-centred** will be the same as **team-centred** as the patient was only at one team.

Patient C – clock start 13:08 on 10<sup>th</sup> January and discharged home so 17:00 on 15<sup>th</sup> January.

The length of stay is 7432 min – 240 min (4 hours) = 7192 min.

**Patient-centred** will be the same as **team-centred** as the patient was only at one team.

Patient D – **Patient-centred**: clock start 03:15 on 20<sup>th</sup> January and discharged to a care home so 09:30 on 26<sup>th</sup> January.

The length of stay is 9285 min – 240 min (4 hours) = 9045 min.

**Team-centred**: clock start 03:15 on 20<sup>th</sup> January and transferred to another team on 09:30 on 25<sup>th</sup> January.

The length of stay is 7845 min - 240 min (4 hours) = 7605 min.

Step 3) Calculate the **length of stay on the stroke unit**

Patient A – admitted to stroke unit 22:18 on 1<sup>st</sup> January and discharged home from stroke unit at 16:18 on 3<sup>rd</sup> January.

The length of stay on the stroke unit is 2520 min.

**Patient-centred** will be the same as **team-centred** as the patient was only at one stroke unit.

Patient B – admitted to stroke unit 11:16 on 3<sup>rd</sup> January and died on the stroke unit on 16<sup>th</sup> January with assumed time of 23:59.

The length of stay is 19449 min.

**Patient-centred** will be the same as **team-centred** as the patient was only at one stroke unit.

Patient C – was not admitted to the stroke unit so length of stay is 0 min.

**Patient-centred** will be the same as **team-centred** as the patient was only at hospital.

Patient D – admitted to stroke unit 10:15 on the 21<sup>st</sup> January and transferred to another team on 09:30 on 25<sup>th</sup> January.

The length of stay is 5760 min.

**Patient-centred** will be the same as **team-centred** as the patient was only at one stroke unit.

Step 4) Calculate the percentage of time the patient spends on the stroke unit

$$\text{Patient A} = \frac{2520}{4281} \times 100 = 59\% \quad \text{Patient-centred and team-centred will be the same value}$$

$$\text{Patient B} = \frac{19449}{19334} \times 100 = 101\% \quad \text{Patient-centred and team-centred will be the same value}$$

$$\text{Patient C} = \frac{0}{7192} \times 100 = 0\% \quad \text{Patient-centred and team-centred will be the same value}$$

**Patient-centred:**

$$\text{Patient D} = \frac{5760}{9045} \times 100 = 64\%$$

**Team-centred:**

$$= \frac{5760}{7605} \times 100 = 76\%$$

Therefore only patient B has achieved this indicator.

The percentage of patients who spend at least 90% of their stay on a stroke unit is 0.25 or 25%

$$\text{or } \frac{1}{4} \frac{(\text{Patient B})}{(\text{Patient A, Patient B, Patient C and Patient D})}$$

Note that since patient B was admitted to a stroke unit within 4 hours of clock start, the percentage stay on stroke unit is greater than 100%.

### 3. Thrombolysis Key Indicators\*

*\*Please note - teams are excluded from all team-centred domain 3 indicators if the team did not directly admit any patients who were deemed eligible for thrombolysis according to the minimum threshold in KI 3.2, nor did the team thrombolysed any patients.*

#### 3.1 Percentage of all stroke patients given thrombolysis (CCG OIS C3.6)

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

**Numerator** = the number of patients who were given thrombolysis.

**Denominator** = all the patients in the cohort. Patients who were not thrombolysed are included in the denominator, regardless of the reason why thrombolysis was not provided.

To calculate the numerator, count the number of patients who were given thrombolysis (Q2.6 is “Yes”)

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

<b>For team-centred</b>	<b>For patient-centred</b>
All patients in the team-centred 72h cohort	All patients in the patient-centred 72h cohort

#### Example

Patient X was given thrombolysis.

Patient Y was not given thrombolysis for a “no” reason, and therefore did not achieve the indicator.

Patient Z was not given thrombolysis for a “no but” reason, and therefore did not achieve the indicator.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{\text{(Patient X)}}{\text{(Patient X, Patient Y and Patient Z)}}$

### 3.2 Percentage of eligible patients (according to the RCP guideline minimum threshold) given thrombolysis

**Included:** patients who were eligible for thrombolysis based on the Recommendation 4.6.1B in National Clinical Guidelines for Stroke (see below) are included in this indicator.

**Eligible patients:**

Patients are included who are either:

- newly arrived patients aged under 80 with a precise or best estimate onset time and an onset to arrival time of less than 3.5h
- newly arrived patients aged 80 or over with a precise or best estimate onset time and an onset to arrival time of less than 2h
- patients already in hospital at time of stroke

except patients with **at least one “no but” reason for thrombolysis (Q2.6)** that is **consistent** with information given in other sections.

Information that is **not consistent** is determined as:

- Precise onset time, and “symptom onset time unknown/wake-up stroke” is the “no but” reason selected.
- Age is under 80 years, and “age” is the “no but” reason selected.
- Onset to arrival time is precise and less than 3.5 hours, age is under 80 years, and time window is the no but reason selected.
- NIHSS at arrival is 4 or more and too mild/severe is the no but reason selected.
- Onset to arrival time is precise and less than 2 hours, age is 80+, and “age” and/or “time window” is the “no but” reason selected.
- Patient is an inpatient in hospital at the time of stroke, and did not have a stroke during sleep, and “time window” is the “no but” reason selected.

**Excluded:** patients who are not eligible based on the Recommendation 4.6.1B in National Clinical Guidelines for Stroke (see below)

**Excluded patients:**

Patients are excluded who are either:

- newly arrived patients aged under 80 with a precise or best estimate onset time and an onset to arrival time of more than 3.5h
- newly arrived patients aged 80 or over with a precise or best estimate onset time and an onset to arrival time of more than 2h
- newly arrived patients with an unknown onset time
- patients who have a consistent **“no but” reason for thrombolysis (Q2.6)**

**Numerator** = the number of patients who were eligible for thrombolysis (according to the RCP guideline minimum threshold) and given thrombolysis.

**Denominator** = the total number of patients who were eligible for thrombolysis (according to the RCP guideline minimum threshold), irrespective of whether they received thrombolysis.

To calculate the numerator:

Firstly, identify all patients who were:

- either newly arrived at hospital and
  - aged under 80 years, have a precise or best estimate onset time (Q 1.11.2), and the difference between onset time (Q1.11) and arrival time (Q 1.13) is less than 3.5 hours, or
  - aged 80 years or over, have a precise or best estimate onset time (Q 1.11.2), and the difference between onset time (Q1.11) and arrival time (Q 1.13) is less than 2 hours

OR

- already in hospital at time of stroke.

Once these patients are identified, count the number of these patients who were given thrombolysis.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

<b>For team-centred</b>	<b>For patient-centred</b>
All patients eligible for thrombolysis in the team-centred 72h cohort	All patients eligible for thrombolysis in the patient-centred 72h cohort

### Example

Patient A was 74 years old, their precise symptom onset was at 10:00, they arrived (clock start) at hospital at 12:30 the same day, and were given thrombolysis.

Patient A was eligible as they were under 80 years old, had a precise onset time, and their onset to arrival time (2.5 hours) was less than 3.5 hours. Patient A has achieved the indicator because they were eligible and given thrombolysis.

Patient B was 65 years old, their precise symptom onset was at 13:00, they arrived (clock start) at hospital at 14:30 the same day, and were not given thrombolysis.

Patient B was eligible as they were under 80 years old, had a precise onset time, and their onset to arrival time (1.5 hours) was less than 3.5 hours. Patient B has not achieved the indicator because they were eligible and not given thrombolysis.

Patient C was 90 years old, their best estimate symptom onset was at 20:00, they arrived (clock start) at hospital at 23:00 the same day, and were not given thrombolysis.

Patient C was not eligible as they were over 80 years old and their onset to arrival time (3 hours) was more than 2 hours. Patient C was excluded as they were not eligible.

Patient D was 87 years old, their onset time was not known, they arrived at hospital at 09:00, and were not given thrombolysis. Patient D was not eligible as the onset time was not known.

Patient D was excluded as they were not eligible.

Patient E was 92 years old, their precise symptom onset was in hospital at 14:00 (clock start), and they were not given thrombolysis. The only 'no but' reason was age which is an inconsistent reason as there is no age limit on patients with onset in hospital. Patient E was eligible as their onset was in hospital and their 'no but' reason was inconsistent.

Patient E has not achieved the indicator because they were eligible and not given thrombolysis.

Patient F was 77 years old, their precise symptom onset was at 13:30, they arrived (clock start) at hospital at 14:30 the same day, and were not given thrombolysis. The 'no but' reason was 'other medical reason'.

Patient F was not eligible as even though they were under 80 years old, had a precise onset time, and their onset to arrival time (1 hour) was less than 3.5 hours the 'no but' reason was consistent. Patient F was excluded as they were not eligible.

Patient G was 77 years old, their precise symptom onset was at 13:30, they arrived (clock start) at hospital at 15:15 the same day with a NIHSS at arrival of 4, and were not given thrombolysis. The 'no but' reason was 'stroke too mild or too severe' which is not a consistent reason as the NIHSS at arrival was greater than 3.

Patient G has not achieved the indicator because they were eligible and not given thrombolysis.

Therefore the cohort percentage is 0.25 or 25% or  $\frac{1}{4}$   $\frac{\text{(Patient A)}}{\text{(Patient A, Patient B, Patient E and Patient G)}}$

### 3.3 Percentage of thrombolysed patients given it within 1 hour of clock start (door to needle time within 1 hour)

**Included:** all patients who were thrombolysed are included in this indicator.

**Excluded:** all patients who were not thrombolysed are excluded from this indicator

**Numerator** = the number of patients who were thrombolysed within and including 60 minutes.

**Denominator** = the total number of patients who were thrombolysed.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the date and time patient was thrombolysed (Q 2.7) and date and time of arrival (Q 1.13) must be between 0 minutes and 60 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time patient was thrombolysed (Q 2.7) and the date and time of symptom onset (Q 1.11) must be between 0 minutes and 60 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

<b>For team-centred</b>	<b>For patient-centred</b>
All patients who were thrombolysed in the team-centred 72h cohort	All patients who were thrombolysed in the patient-centred 72h cohort

#### Example

Patient K arrived (clock start) at hospital at 12:15 on Friday. They were thrombolysed at 12:40 that same day. Patient K has achieved the indicator because 12:15-12:40 = 25 minutes.

Patient L had an onset in hospital (clock start) at 16:01 on Friday. They were thrombolysed at 16:37 that same day. Patient L has achieved the indicator because 16:01-16:37 = 36 minutes.

Patient M arrived (clock start) at hospital at 10:15 on Tuesday. They were thrombolysed at 11:16 that same day. Patient M has not achieved the indicator because 10:15-11:16 = 61 minutes.

Patient N arrived (clock start) at hospital at 20:08 on Saturday. They were not thrombolysed. Patient N is excluded because they were not thrombolysed.

Patient O arrived (clock start) at hospital at 08:10 on Tuesday. They were thrombolysed at 09:30 that same day. Patient O has not achieved the indicator because 08:10-09:30 = 80 minutes.

Therefore the cohort percentage is 0.50 or 50% or  $\frac{2}{4}$   $\frac{(\text{Patient K and Patient L})}{(\text{Patient K, Patient L, Patient M and Patient O})}$

**3.4 Percentage of applicable patients directly admitted to a stroke unit within 4 hours of clock start AND who either received thrombolysis or had a pre-specified justifiable reason ('no but') for why it could not be given (NICE QS Statement 3)**

**Included:** all patients who were admitted to hospital are included apart from patients whose first ward they were admitted to was Intensive Therapy Unit (ITU) / Coronary Care Unit (CCU) / High Dependency Unit (HDU) or patients who received an intra-arterial intervention for acute stroke

**Excluded:** patients who were first admitted to an ITU/CCU/HDU ward or patients who received an intra-arterial intervention for acute stroke are excluded from this indicator

**Numerator** = the number of patients who were admitted to a stroke unit within 4 hours of clock start AND either received thrombolysis or had a 'no but' reason for why it could not be given.

**Denominator** = all the patients in the cohort (excluding the patients who were admitted to ITU/CCU/HDU or patients who received an intra-arterial intervention). Patients who did not stay on a stroke unit and/or patients where the reason for not being thrombolysed was "No" (Q2.6 is No) are included in the denominator.

To calculate whether a patient is included in the numerator:

- Firstly, identify the number of patients where "Stroke Unit" is the first ward the patient was admitted to at the first hospital (Q 1.14) and who did not receive an intra-arterial intervention (Q2.11 is "No").
- Then identify the number of those patients:
  - newly arrived to hospital where the difference between the date and time of arrival (Q 1.13) and the date and time the patient first arrived on the stroke unit (Q 1.15) is less than or equal to 240 minutes.
  - already in hospital where the date and time of symptom onset (Q 1.11) and the date and time the patient first arrived on the stroke unit (Q 1.15) is less than or equal to 240 minutes.
- Lastly, identify the number of those patients who were thrombolysed or had a justified reason as to why not (Q2.6 is "Yes" or "No but").

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

<b>For team-centred</b>	<b>For patient-centred</b>
All patients in the team-centred 72h cohort except those who went to ITU/CCU/HDU or received an intra-arterial intervention	All patients in the patient-centred 72h cohort except those who went to ITU/CCU/HDU or received an intra-arterial intervention

**Example**

Patient Q arrived (clock start) at hospital at 18:57 on Wednesday. They were admitted to the stroke unit at 20:57 that same day. They were thrombolysed.

Patient Q has achieved the indicator. They were admitted to a stroke unit in 120 minutes and were thrombolysed.

Patient R arrived (clock start) at hospital at 14:15 on Sunday. They were admitted to the stroke unit at 20:16 that same day. They were thrombolysed.

Patient R has not achieved this indicator. They were admitted to the stroke unit in 361 minutes (above 4 hours) and were thrombolysed.

Patient S had an onset in hospital (clock start) at 20:08 on Saturday. They were not admitted to a stroke unit, they stayed on a general ward (MAU/AAU/CDU).

Patient S has not achieved this indicator as they were not admitted to a stroke unit.

Patient T arrived (clock start) at hospital at 03:45 on Tuesday. They were directly admitted to HDU.

Patient T is excluded because they were admitted to HDU.

Patient U arrived (clock start) at hospital at 08:57 on Monday. They were admitted to the stroke unit at 10:57 that same day. The reason for not being thrombolysed was a justifiable 'no but' reason.

Patient U has achieved the indicator. They were admitted to a stroke unit in 180 minutes and were not thrombolysed with a 'no but' reason.

Patient V had an onset in hospital (clock start) at 04:01 on Tuesday. They were directly admitted to the stroke unit at 06:30 that same day. The reason for not being thrombolysed was a 'no' reason.

Patient V has not achieved the indicator. They were admitted to a stroke unit in 159 minutes but the reason for not being thrombolysed was a 'no' reason.

Patient W arrived (clock start) at hospital at 13:45 on Tuesday. They received thrombolysis and an intra-arterial intervention and were then admitted to the stroke unit at 16:45.

Patient W is excluded because they received an intra-arterial intervention, even though they were admitted to the stroke unit within 4 hours and received thrombolysis.

Therefore the cohort percentage is 0.40 or 40% or  $\frac{2}{5}$   $\frac{(\text{Patient Q and Patient U})}{(\text{Patients Q, R, S, U and V})}$

### 3.5 Median time between clock start and thrombolysis (hours:mins)

**Included:** all patients who were thrombolysed are included in this indicator.

**Excluded:** all patients who were not thrombolysed are excluded from this indicator

For patients newly arriving at hospital, the time between clock start and thrombolysis is the difference between the date and time of arrival (Q 1.13) and the date and time patient was thrombolysed (Q 2.7).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the time between clock start and thrombolysis is the difference between the date and time of symptom onset (Q 1.11) and the date and time patient was thrombolysed (Q 2.7).

Cohort median: To find the median time, all the times between clock start and thrombolysis need to be listed from smallest to largest. The median is then the number in the middle of this list.

<b>For team-centred</b>	<b>For patient-centred</b>
All patients who were thrombolysed in the team-centred 72h cohort	All patients who were thrombolysed in the patient-centred 72h cohort

#### Example

Patient A arrived (clock start) at hospital at 12:57 on Tuesday. They were thrombolysed at 13:18 that same day. Patient A's time from clock start to thrombolysis was 0:21.

Patient B arrived (clock start) at hospital at 09:15 on Friday. They were thrombolysed at 10:16 that same day. Patient B's time from clock start to thrombolysis was 1:01.

Patient C arrived (clock start) at hospital at 13:08 on Sunday. They were not thrombolysed so are excluded.

Patient D arrived (clock start) at hospital at 07:00 on Friday. They were thrombolysed at 07:38 that same day. Patient D's time from clock start to thrombolysis was 0:38.

Patient E arrived (clock start) at hospital at 03:15 on Monday. They were thrombolysed at 04:47 that same day. Patient E's time from clock start to thrombolysis was 1:32.

Patient F arrived (clock start) at hospital at 23:33 on Friday. They were thrombolysed at 00:03 on Saturday. Patient F's time from clock start to thrombolysis was 0:30.

Listing in numerical order: 0:21 0:30 0:38 1:01 1:32

The cohort median is 0 hour 38 minutes.

## 4. Specialist assessment Key Indicators

### 4.1 Percentage of patients assessed by a stroke specialist consultant physician within 24h of clock start

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

**Numerator** = the number of patients who were assessed by a stroke specialist consultant physician within 24h of clock start.

**Denominator** = all the patients in the cohort. Patients who are not assessed by a stroke consultant are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the date and time of assessment by stroke consultant (Q 3.3) and date and time of arrival (Q 1.13) must be greater than or equal to 0 minutes and less than or equal to 1440 minutes.

For patients already in hospital stroke (Q 1.10 is 'Yes'), the difference between the date and time of assessment by stroke consultant (Q 3.3) and the date and time of symptom onset (Q 1.11) must be greater or equal to 0 minutes and less than or equal to 1440 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

For team-centred	For patient-centred
All patients in the team-centred 72h cohort	All patients in the patient-centred 72h cohort

#### Example

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were assessed by a stroke specialist consultant at 10:00 the following day. Patient X has achieved the indicator because 10:00 Wednesday – 15:00 Tuesday = 1140 minutes (19 hours).

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were assessed by a stroke specialist consultant at 11:15 the following Monday. Patient Y has not achieved the indicator because 11:15 Monday – 12:15 Saturday = 2820 minutes (47 hours).

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. They were not assessed by a stroke specialist consultant so have not achieved the indicator.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{(\text{Patient X})}{(\text{Patient X, Patient Y and Patient Z})}$

## 4.2 Median time between clock start and being assessed by a stroke consultant (hours:mins)

**Included:** all patients who were seen by a stroke consultant within 72h of clock start.

**Excluded:** patients who were not seen by a stroke consultant within 72 hours of clock start are excluded from this indicator

For patients newly arriving at hospital, the time between clock start and being assessed by a stroke consultant is the difference between the date and time of arrival (Q 1.13) and the date and time of assessment by stroke consultant (Q 3.3).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the time between clock start and being assessed by a stroke consultant is the difference between the date and time of symptom onset (Q 1.11) and the date and time of assessment by stroke consultant (Q 3.3).

Cohort median: To find the median time, all the times between clock start and assessment by stroke consultant need to be listed from smallest to largest. The median is then the number in the middle of this list.

<b>For team-centred</b>	<b>For patient-centred</b>
All patients in the team-centred 72h cohort who were seen by a stroke consultant within 72h of clock start	All patients in the patient-centred 72h cohort who were seen by a stroke consultant within 72h of clock start

### Example

Patient A arrived (clock start) at hospital at 12:57 on Tuesday. They were assessed by a stroke consultant at 15:18 that same day. Patient A's time from clock start to being assessed by a stroke consultant was 2:21.

Patient B arrived (clock start) at hospital at 09:15 on Friday. They were assessed by a stroke consultant at 19:16 that same day. Patient B's time from clock start to being assessed by a stroke consultant was 10:01.

Patient C arrived (clock start) at hospital at 13:08 on Sunday. They were not assessed by a stroke consultant so are excluded.

Patient D had an onset in hospital (clock start) at 22:00 on Friday. They were assessed by a stroke consultant at 09:38 the following Monday. Patient D's time from clock start to being assessed by a stroke consultant was 59:38.

Patient E arrived (clock start) at hospital at 03:15 on Monday. They were assessed by a stroke consultant at 11:47 on Tuesday. Patient E's time from clock start to being assessed by a stroke consultant was 20:32.

Patient F arrived (clock start) at hospital at 23:33 on Wednesday. They were assessed by a stroke consultant at 11:03 on Saturday. Patient F's time from clock start to being assessed by a stroke consultant was 59:30.

Listing in numerical order: 2:21 10:01 20:32 59:30 59:38

The cohort median is 20 hours 32 minutes.

### 4.3 Percentage of patients who were assessed by a nurse trained in stroke management within 24h of clock start

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

**Numerator** = the number of patients who were assessed by a nurse trained in stroke management within 24h of clock start.

**Denominator** = all the patients in the cohort. Patients who are not assessed by a nurse trained in stroke management are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the date and time of assessment by stroke nurse (Q 3.2) and date and time of arrival (Q 1.13) must be greater than or equal to 0 minutes and less than or equal to 1440 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time of assessment by stroke nurse (Q 3.2) and the date and time of symptom onset (Q 1.11) must be greater or equal to 0 minutes and less than or equal to 1440 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

<b>For team-centred</b> All patients in the team-centred 72h cohort	<b>For patient-centred</b> All patients in the patient-centred 72h cohort
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#### Example

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were assessed by a stroke nurse at 10:00 the following day. Patient X has achieved the indicator because 10:00 Wednesday – 15:00 Tuesday = 1140 minutes (19 hours).

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were assessed by a stroke nurse at 11:15 the following Monday. Patient Y has not achieved the indicator because 11:15 Monday – 12:15 Saturday = 2820 minutes (47 hours).

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. They were not assessed by a stroke nurse so have not achieved the indicator.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{(\text{Patient X})}{(\text{Patient X, Patient Y and Patient Z})}$

#### 4.4 Median time between clock start and being assessed by a stroke nurse (hours:mins)

**Included:** all patients who were seen by a stroke nurse within 72h of clock start are included in this indicator.

**Excluded:** patients who were not seen by a stroke nurse within 72 hours of clock start are excluded from this indicator

For patients newly arriving at hospital, the time between clock start and being assessed by a stroke nurse is the difference between the date and time of arrival (Q 1.13) and the date and time of assessment by stroke nurse (Q 3.2).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the time between clock start and being assessed by a stroke nurse is the difference between the date and time of symptom onset (Q 1.11) and the date and time of assessment by stroke nurse (Q 3.2).

Cohort median: To find the median time, all the times between clock start and assessment by stroke nurse need to be listed from smallest to largest. The median is then the number in the middle of this list.

##### **For team-centred**

All patients in the team-centred 72h cohort who were seen by a stroke nurse within 72h of clock start

##### **For patient-centred**

All patients in the patient-centred 72h cohort who were seen by a stroke nurse within 72h of clock start

##### **Example**

Patient A arrived (clock start) at hospital at 12:57 on Tuesday. They were assessed by a stroke nurse at 15:18 that same day. Patient A's time from clock start to being assessed by a stroke nurse was 2:21.

Patient B arrived (clock start) at hospital at 09:15 on Friday. They were assessed by a stroke nurse at 19:16 that same day. Patient B's time from clock start to being assessed by a stroke nurse was 10:01. Patient C arrived (clock start) at hospital at 13:08 on Sunday. They were not assessed by a stroke nurse so are excluded.

Patient D arrived (clock start) at hospital at 22:00 on Friday. They were assessed by a stroke nurse at 09:38 the following Monday. Patient D's time from clock start to being assessed by a stroke nurse was 59:38.

Patient E arrived (clock start) at hospital at 03:15 on Monday. They were assessed by a stroke nurse at 11:47 on Tuesday. Patient E's time from clock start to being assessed by a stroke nurse was 20:32.

Patient F arrived (clock start) at hospital at 23:33 on Wednesday. They were assessed by a stroke nurse at 11:03 on Saturday. Patient F's time from clock start to being assessed by a stroke nurse was 59:30.

Listing in numerical order: 2:21 10:01 20:32 59:30 59:38

The cohort median is 20 hours 32 minutes.

#### 4.5 Percentage of applicable patients who were given a swallow screen within 4h of clock start

**Included:** all patients are included in this indicator, except those who are either medically unwell until time of screening or refused to be screened.

**Excluded:** patients who are medically unwell until time of screening or refused to be screened (ie patients where Q 2.10.1 is answered 'Patient refused' or 'Patient medically unwell until time of screening') are excluded from this indicator

**Numerator** = the number of patients who were given a swallow screen within 4h of clock start.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but not given a swallow screen are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the date and time of first swallow screen (Q 2.10) and date and time of arrival (Q 1.13) must be greater than 0 minutes and less than or equal to 240 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time of first swallow screen (Q 2.10) and the date and time of symptom onset (Q 1.11) must be greater than 0 minutes and less than or equal to 240 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

For team-centred	For patient-centred
All patients in the team-centred 72h cohort except those who are medically unwell until time of screening or refused to be screened	All patients in the patient-centred 72h cohort except those who are medically unwell until time of screening or refused to be screened

#### Example

Patient W arrived (clock start) at hospital at 10:00 on Monday. They were medically unwell until 10:00 on Friday. Patient W is excluded from the indicator because they were medically unwell until the time of screening.

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were given a first swallow screen at 16:30 that day. Patient X has achieved the indicator because 16:30 - 15:00 = 90 minutes

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were given a swallow screen at 17:15 that day. Patient Y has not achieved the indicator because 17:15 – 12:15 = 300 minutes

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. They were not given a swallow screen so have not achieved the indicator.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{\text{(Patient X)}}{\text{(Patient X, Patient Y and Patient Z)}}$

#### 4.6 Percentage of applicable patients who were given a formal swallow assessment within 72h of clock start

**Included:** all patients are included in this indicator, except those who are either medically unwell, refused to be assessed or passed swallow screening.

**Excluded:** patients who are medically unwell, refused to be assessed or passed swallow screening (ie patients where Q 3.8.1 is answered 'Patient refused', 'Patient medically unwell' or 'Patient passed swallow screening') are excluded from this indicator

**Numerator** = the number of patients who were given a formal swallow assessment within 72h of clock start.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but not given a formal swallow assessment are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the date and time of formal swallow assessment by a Speech and Language Therapist or another professional trained in dysphagia assessment (Q 3.8) and date and time of arrival (Q 1.13) must be greater than 0 minutes and less than or equal to 4320 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time of formal swallow assessment by a Speech and Language Therapist or another professional trained in dysphagia assessment (Q 3.8) and the date and time of symptom onset (Q 1.11) must be greater than 0 minutes and less than or equal to 4320 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

##### For team-centred

All patients in the team-centred 72h cohort except those who are medically unwell, refused to be assessed or passed swallow screening

##### For patient-centred

All patients in the patient-centred 72h cohort except those who are medically unwell, refused to be assessed or passed swallow screening

#### Example

Patient W arrived (clock start) at hospital at 10:00 on Monday. They were medically unwell until 10:00 on Friday. Patient W is excluded from the indicator because they were medically unwell.

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were given a swallow assessment at 16:30 on Wednesday. Patient X has achieved the indicator because Tuesday 15:00 – Wednesday 16:30 = 1530 minutes.

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were given a swallow assessment on Wednesday 12:15. Patient Y has not achieved the indicator because Saturday 12:15 – Wednesday 12:15 = 5760 minutes.

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. They were not given a swallow assessment for organisational reasons so have not achieved the indicator.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{\text{(Patient X)}}{\text{(Patient X, Patient Y and Patient Z)}}$

## 5. Occupational therapy Key Indicators

### 5.1 Percentage of patients reported as requiring occupational therapy

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

**Numerator** = the number of patients who were reported as requiring occupational therapy.

**Denominator** = all the patients in the cohort.

To calculate the numerator:

Count the number of patients who were considered to require this therapy at any point in the admission (Q 4.4 is “Yes”)

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

<b>For team-centred</b>	<b>For patient-centred</b>
The patient must be considered to require occupational therapy by the specific team	The patient must be considered to require occupational therapy by at least one inpatient team that the patient has been seen by

#### Example

Patient X was reported to require occupational therapy.

Patient Y was reported to require occupational therapy.

Patient Z was not reported to require occupational therapy.

Therefore the cohort percentage is 0.67 or 67% or  $\frac{2}{3}$   $\frac{(\text{Patient X and Patient Y})}{(\text{Patient X, Patient Y and Patient Z})}$

## 5.2 Median number of minutes per day on which occupational therapy is received

**Included:** all patients who are considered to require occupational therapy are included in this indicator.

**Excluded:** patients who are considered to not require occupational therapy are excluded from this indicator

The number of minutes of occupational therapy (OT) received per team is given in Q 4.6.  
The number of days on which OT is received per team is given in Q 4.5.

Please note that SSNAP only records the **total** number of minutes of OT per team (Q 4.6) and the total number of days on which OT is received and does not take into account the number of therapy sessions or the length of the individual sessions. If a patient received therapy on 3 days and they received 15 minutes on the first day of therapy, 10 minutes on the second day of therapy and 25 minutes -split into two sessions of 10 and 15 minutes- on the third day of therapy then the total number of minutes entered on to SSNAP would be 50 minutes.

### For team-centred results:

Divide the number of minutes of OT each patient received at an individual team by the number of days the patient received OT at that team.

Cohort median: To find the median number of minutes per day received, all numbers for each patient need to be listed from smallest to largest. The median is then the number in the middle of this list.

### For patient-centred results:

First, calculate the total number of minutes of OT each patient received by adding together the minutes of OT the patient received at each of the inpatient teams the patient was seen by. Then, divide by the total number of days of OT the patient received across all inpatient teams.

Cohort median: To find the median number of minutes per day received, all numbers for each patient need to be listed from smallest to largest. The median is then the number in the middle of this list.

### **For team-centred**

Patients in the team-centred post-72h cohort (records attributed to all teams) who are considered to require occupational therapy by the specific team

### **For patient-centred**

Patients in the patient-centred post-72h cohort who are considered to require occupational therapy by at least one inpatient team that the patient has been seen by

### **Example**

#### **Team-centred:**

Patient X received 3 days of OT at Team A. On the first day of therapy they received 25 minutes, on the second day they received 45 minutes split over two sessions of 25 minutes and 20 minutes, and on the third day they received 35 minutes of therapy. The number and length of sessions are not recorded in SSNAP, so a total of 105 minutes of OT entered on to SSNAP. They also received 7 days of OT at Team B with a total of 210 minutes of OT but this is not included in the team-centred results.

Patient Y received a total of 15 days of OT with Team A. On the first five days of therapy they received 25 minutes per day and on the remaining 10 days they received 40 minutes per day split

into two therapy sessions of 20 minutes. Patient Y received a total of 425 minutes of OT to be entered onto SSNAP.

Patient Z received a total of 8 days of OT at Team A. On all 8 days they received 30 minutes per day. Patient Z received total of 240 minutes of OT to be entered onto SSNAP.

Team A

Patient X:

$$\text{Number of minutes per day} = \frac{105 \text{ minutes}}{3 \text{ days}} = \underline{35 \text{ minutes per day received}}$$

Patient Y:

$$\text{Number of minutes per day} = \frac{425 \text{ minutes}}{15 \text{ days}} = \underline{28.3 \text{ minutes per day received}}$$

Patient Z:

$$\text{Number of minutes per day} = \frac{240 \text{ minutes}}{8 \text{ days}} = \underline{30 \text{ minutes per day received}}$$

The median number of minutes per day on which OT is received in numerical order=  
28.3 minutes 30 minutes 35 minutes

Team A's **team-centred** median number of minutes per day on which OT is received 30 minutes.

**Patient-centred:**

Patient X received 3 days of OT at Team A. On the first day of therapy they received 25 minutes, on the second day they received 45 minutes split over two sessions of 25 minutes and 20 minutes, and on the third day they received 35 minutes of therapy. They also received 7 days of OT at Team B. On all seven days of therapy with Team B Patient X received 30 minutes of therapy with a total of 210 minutes of OT at Team B. For Patient-Centred results the number of days on which therapy was received is added for all the teams so for Patient X this is 10 days of OT. The numbers of minutes at the all teams are also added up so for Patient X that is 315 minutes of OT.

$$\text{Number of minutes per day} = \frac{315 \text{ minutes}}{10 \text{ days}} = \underline{31.5 \text{ minutes per day received}}$$

Patient Y received a total of 15 days of OT with Team A. On the first five days of therapy they received 25 minutes per day and on the remaining 10 days they received 40 minutes per day split into two therapy sessions of 20 minutes. They did not receive any OT at any other team. Patient Y received a total of 425 minutes of OT to be entered onto SSNAP.

$$\text{Number of minutes per day} = \frac{425 \text{ minutes}}{15 \text{ days}} = \underline{28.3 \text{ minutes per day received}}$$

Patient Z received a total of 8 days of OT at Team A. On all 8 days they received 30 minutes per day. They did not receive any OT at any other team. Patient Z received total of 240 minutes of OT to be entered onto SSNAP.

$$\text{Number of minutes per day} = \frac{240 \text{ minutes}}{8 \text{ days}} = \underline{30 \text{ minutes per day received}}$$

The median number of minutes per day on which OT is received in numerical order=  
28.3 minutes 30 minutes 31.5 minutes

The **patient-centred** median number of minutes per day on which OT is received 30 minutes.

### 5.3 Median percentage of a patient's days as an inpatient on which occupational therapy is received

**Included:** all patients who are considered to require occupational therapy are included in this indicator.

**Excluded:** patients who are considered to not require occupational therapy are excluded from this indicator

To calculate the length of stay at an inpatient team a patient was considered to require OT at:

**The team centred length of stay at a team, if the patient was considered to require OT and the team was the first team the patient was seen by:**

For newly arrived patients, the difference between the date the patient was considered to no longer require Occupational Therapy (Q 4.4.1b) with a time component of 00:00 and date and time of arrival (Q 1.13).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date the patient was considered to no longer require Occupational Therapy (Q 4.4.1b) with a time component of 00:00 and date and the date and time of symptom onset (Q 1.11).

**The team centred length of stay at a team, if the patient was considered to require OT and the team was NOT the first team the patient was seen by:**

The difference between the date the patient was considered to no longer require Occupational Therapy (Q 4.4.1b) with a time component of 00:00 and date and time of arrival at this hospital (Q 4.1).

Please note that the date of assessment for therapy is **not** used when calculating the length of stay. Question 4.4.1b was added to the data set on the 1<sup>st</sup> April 2014. A different end date is used for patients with a clock start before this date.

The shortest length of stay in a given team where a patient is deemed to require OT is set at 24 hours, therefore any shorter lengths of stay are rounded up to reflect this.

**Team-centred:** The length of stay applicable for OT at that team (if the patient was considered to require OT) is the patient's length of stay applicable for OT.

**Patient-centred:** The length of stay applicable for OT at each team where the patient is considered to require OT are summed together to give the patient's total inpatient length of stay which is applicable for OT.

2) Then, calculate the number of days on which the patient received OT:

For **team-centred:** the number of days of OT the patient received (Q 4.5) at the specific team.

For **patient-centred:** the number of days of OT the patient received (Q 4.5) at each inpatient team the patient was deemed to required OT at are summed together to give the total number of days on which OT was received.

3) Then, calculate the percentage of a patient's days in hospital on which occupational therapy is received:

Divide the total number of days on which OT was received, by the patient's length of stay which is applicable for OT.

Due to the way length of stay is calculated, some patients' percentages may be over 100%. This is capped then capped at 100%.

Cohort median:

4) Lastly to find the median percentage, all percentages for each patient need to be listed in numerical order. The median is then the number in the middle of this list.

<b>For team-centred</b>	<b>For patient-centred</b>
The patient must be considered to require occupational therapy by the specific team	The patient must be considered to require occupational therapy by at least one inpatient team that the patient has been seen by

### Example

Patient W arrived (clock start) at Team A at 12:00 on 2<sup>nd</sup> January. They required OT at Team A until the 13<sup>th</sup> January, but did not receive any OT. They were transferred to Team B on 13<sup>th</sup> January at 12:00. They received OT at Team B on 5 days during their stay, and no longer required OT on the 19<sup>th</sup> January.

Patient X arrived (clock start) at Team A at 12:00 on 1<sup>st</sup> January. They no longer required OT on 13<sup>th</sup> January. They received OT on 5 days during their stay.

Patient Y arrived (clock start) at Team A at 12:00 on 3<sup>rd</sup> January. They required OT at Team A until the 5<sup>th</sup> January and received 2 days of OT. They were transferred to Team B at 09:00 on 6<sup>th</sup> January. They no longer required inpatient rehabilitation from Team B on 16<sup>th</sup> January. They received OT on 8 days during their stay.

### Team-centred (Team A):

#### Patient W:

- 1) Length of stay = 12:00 2<sup>nd</sup> Jan – 00:00 13<sup>th</sup> Jan = 10.5 days
- 2) Number of days OT received = 0 days
- 3) Percentage of patient's days at Team A in which OT is received =  $\frac{0 \text{ days}}{10.5 \text{ days}} = 0.00 = \underline{0\%}$

#### Patient X:

- 1) Length of stay = 12:00 1<sup>st</sup> Jan – 00:00 13<sup>th</sup> Jan = 11.5 days
- 2) Number of days OT received = 5 days
- 3) Percentage of patient's days at Team A in which OT is received =  $\frac{5 \text{ days}}{11.5 \text{ days}} = 0.43 = \underline{43\%}$

#### Patient Y:

- 1) Length of stay = 12:00 3<sup>rd</sup> January – 00:00 5<sup>th</sup> January = 1.5 days
- 2) Number of days OT is received = 2 days
- 3) Percentage of patient's days at Team A in which OT is received =  $\frac{2 \text{ days}}{1.5 \text{ days}} = 1.33 \geq \underline{100\%}$

Note, due to the way this indicator is calculated, Patient Y's percentage has been capped at 100%

- 4) Median percentage of all patient's days in hospital in which OT is received in numerical order = 0% 43% 100%

Team A's **team-centred** median percentage of all patients' days in hospital in which OT is received is 43%

**Patient-centred (Team A):**

Patient W:

- 1) Length of stay = 12:00 2<sup>nd</sup> Jan – 00:00 13<sup>th</sup> Jan + 12:00 13<sup>th</sup> Jan – 00:00 19<sup>th</sup> Jan = 10.5 + 5.5 days = 16 days
- 2) Number of days OT received = 5 days
- 3) Percentage of patient's days in hospital in which OT is received =  $\frac{5 \text{ days}}{16 \text{ days}} = 0.31 = \underline{31\%}$

Patient X:

- 1) Length of stay = 12:00 1<sup>st</sup> Jan – 00:00 13<sup>th</sup> Jan = 11.5 days
- 2) Number of days OT received = 5 days
- 3) Percentage of patient's days in hospital in which OT is received =  $\frac{5 \text{ days}}{11.5 \text{ days}} = 0.43 = \underline{43\%}$

Patient Y:

- 1) Length of stay = 12:00 3<sup>rd</sup> Jan – 00:00 5<sup>th</sup> Jan + 09:00 6<sup>th</sup> Jan – 00:00 16<sup>th</sup> Jan = 1.5 days + 9.6 days = 11.1 days
- 2) Number of days OT is received = 2 days + 8 days = 10 days
- 3) Percentage of patient's days in hospital in which OT is received =  $\frac{10 \text{ days}}{11.1 \text{ days}} = 0.90 = \underline{90\%}$

Cohort median (patient-centred):

- 4) Median percentage of all patient's days in hospital in which OT is received in numerical order = 31% 43% 90%

The **patient-centred** median percentage of all patients' days in hospital in which OT is received is 43%

#### 5.4 Compliance (%) against the therapy target of an average of 25.7 minutes of occupational therapy across all patients (NICE QS Statement 7)

[Target = 45 minutes of occupational therapy on 5 out of 7 days a week for 80% of patients =  $45 \times (5/7) \times 0.8$ ]

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

The average number of minutes of occupational therapy per day across all patients is calculated as:

The percentage of patients reported as requiring OT (as per Key Indicator 5.1)

multiplied by

the median number of minutes per day on which OT is received (as per Key Indicator 5.2)

multiplied by

the median percentage of a patient's days in hospital on which OT is received (as per Key Indicator 5.3)

The target for the average number of minutes of occupational therapy per day across all patients is calculated as 80% multiplied by 45 minutes, multiplied by 5/7 days, which is 25.7 minutes for all teams.

Cohort percentage: The percentage of the target achieved is calculated as the average number of minutes of OT per day across all patients divided by the target number of minutes.

For team-centred	For patient-centred
All patients in the team-centred 72h cohort	All patients in the patient-centred 72h cohort

#### Example

Using calculations from the examples in Key Indicator 5.1, Key Indicator 5.2 and Key Indicator 5.3

**Team-centred** = Key Indicator 5.1 x Key Indicator 5.2 x Key Indicator 5.3

Team A =  $0.67 \times 30 \text{ minutes} \times 0.43 = 13.5 \text{ minutes}$

= 8.6 minutes

25.7 minutes

Compliance = 33.6%

Team B =  $0.67 \times 35 \text{ minutes} \times 0.87 = 20.4 \text{ minutes}$

= 20.4 minutes

25.7 minutes

Compliance = 79.4%

**Patient-centred** = Key Indicator 5.1 x Key Indicator 5.2 x Key Indicator 5.3

=  $0.67 \times 30 \text{ minutes} \times 0.43 = 8.6 \text{ minutes}$

= 8.6 minutes

25.7 minutes

Compliance = 33.6%

## 6. Physiotherapy Key Indicators

### 6.1 Percentage of patients reported as requiring physiotherapy

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

**Numerator** = the number of patients who were reported as requiring physiotherapy.

**Denominator** = all the patients in the cohort.

To calculate the numerator:

Count the number of patients who were considered to require this therapy at any point in the admission (Q 4.4 is “Yes”)

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

#### **For team-centred**

The patient must be considered to require physiotherapy by the specific team

#### **For patient-centred**

The patient must be considered to require physiotherapy by at least one inpatient team that the patient has been seen by

#### **Example**

Patient X was reported to require physiotherapy.

Patient Y was reported to require physiotherapy.

Patient Z was not reported to require physiotherapy.

Therefore the cohort percentage is 0.67 or 67% or  $\frac{2}{3}$   $\frac{(\text{Patient X and Patient Y})}{(\text{Patient X, Patient Y and Patient Z})}$

## 6.2 Median number of minutes per day on which physiotherapy is received

**Included:** all patients who are considered to require physiotherapy are included in this indicator.

**Excluded:** patients who are considered to not require physiotherapy are excluded from this indicator

The number of minutes of physiotherapy (PT) received per team is given in Q 4.6.

The number of days on which PT is received per team is given in Q 4.5.

Please note that SSNAP only records the **total** number of minutes of PT per team (Q 4.6) and the total number of days on which PT is received and does not take into account the number of therapy sessions or the length of the individual sessions. If a patient received therapy on 3 days and they received 15 minutes on the first day of therapy, 10 minutes on the second day of therapy and 25 minutes -split into two sessions of 10 and 15 minutes- on the third day of therapy then the total number of minutes entered on to SSNAP would be 50 minutes.

### For team-centred results:

Divide the number of minutes of PT each patient received at an individual team by the number of days the patient received PT at that team.

Cohort median: To find the median number of minutes per day received, all numbers for each patient need to be listed from smallest to largest. The median is then the number in the middle of this list.

### For patient-centred results:

First, calculate the total number of minutes of PT each patient received by adding together the minutes of PT the patient received at each of the inpatient teams the patient was seen by. Then, divide by the total number of days of PT the patient received across all inpatient teams.

Cohort median: To find the median number of minutes per day received, all numbers for each patient need to be listed from smallest to largest. The median is then the number in the middle of this list.

<b>For team-centred</b>	<b>For patient-centred</b>
Patients in the team-centred post-72h cohort (records attributed to all teams) who are considered to require physiotherapy by the specific team	Patients in the patient-centred post-72h cohort who are considered to require physiotherapy by at least one inpatient team that the patient has been seen by

### **Example**

#### **Team-centred:**

Patient X received 3 days of PT at Team A. On the first day of therapy they received 25 minutes, on the second day they received 45 minutes split over two sessions of 25 minutes and 20 minutes, and on the third day they received 35 minutes of therapy. The number and length of sessions are not recorded in SSNAP, so a total of 105 minutes of PT entered on to SSNAP. They also received 7 days of PT at Team B with a total of 210 minutes of PT but this is not included in the team-centred results.

Patient Y received a total of 15 days of PT with Team A. On the first five days of therapy they received 25 minutes per day and on the remaining 10 days they received 40 minutes per day split into two therapy sessions of 20 minutes. Patient Y received a total of 425 minutes of PT to be entered onto SSNAP.

Patient Z received a total of 8 days of PT at Team A. On all 8 days they received 30 minutes per day. Patient Z received total of 240 minutes of PT to be entered onto SSNAP.

Team A

Patient X:

Number of minutes per day =  $\frac{105 \text{ minutes}}{3 \text{ days}}$  = 35 minutes per day received

Patient Y:

Number of minutes per day =  $\frac{425 \text{ minutes}}{15 \text{ days}}$  = 28.3 minutes per day received

Patient Z:

Number of minutes per day =  $\frac{240 \text{ minutes}}{8 \text{ days}}$  = 30 minutes per day received

The median number of minutes per day on which PT is received in numerical order=  
28.3 minutes 30 minutes 35 minutes

Team A's **team-centred** median number of minutes per day on which PT is received 30 minutes.

**Patient-centred:**

Patient X received 3 days of PT at Team A. On the first day of therapy they received 25 minutes, on the second day they received 45 minutes split over two sessions of 25 minutes and 20 minutes, and on the third day they received 35 minutes of therapy. They also received 7 days of PT at Team B. On all seven days of therapy with Team B Patient X received 30 minutes of therapy with a total of 210 minutes of PT at Team B. For Patient-Centred results the number of days on which therapy was received is added for all the teams so for Patient X this is 10 days of PT. The numbers of minutes at the all teams are also added up so for Patient X that is 315 minutes of PT.

Number of minutes per day =  $\frac{315 \text{ minutes}}{10 \text{ days}}$  = 31.5 minutes per day received

Patient Y received a total of 15 days of PT with Team A. On the first five days of therapy they received 25 minutes per day and on the remaining 10 days they received 40 minutes per day split into two therapy sessions of 20 minutes. They did not receive any PT at any other team. Patient Y received a total of 425 minutes of PT to be entered onto SSNAP.

Number of minutes per day =  $\frac{425 \text{ minutes}}{15 \text{ days}}$  = 28.3 minutes per day received

Patient Z received a total of 8 days of PT at Team A. On all 8 days they received 30 minutes per day. They did not receive any PT at any other team. Patient Z received total of 240 minutes of PT to be entered onto SSNAP.

Number of minutes per day =  $\frac{240 \text{ minutes}}{8 \text{ days}}$  = 30 minutes per day received

The median number of minutes per day on which PT is received in numerical order=  
28.3 minutes 30 minutes 31.5 minutes

The **patient-centred** median number of minutes per day on which PT is received 30 minutes.

### 6.3 Median percentage of a patient's days as an inpatient on which physiotherapy is received

**Included:** all patients who are considered to require physiotherapy are included in this indicator.

**Excluded:** patients who are considered to not require physiotherapy are excluded from this indicator

To calculate the length of stay at an inpatient team a patient was considered to require PT at:

**The team centred length of stay at a team, if the patient was considered to require PT and the team was the first team the patient was seen by:**

For newly arrived patients, the difference between the date the patient was considered to no longer require Physiotherapy (Q 4.4.1b) with a time component of 00:00 and date and time of arrival (Q 1.13).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date the patient was considered to no longer require Physiotherapy (Q 4.4.1b) with a time component of 00:00 and date and the date and time of symptom onset (Q 1.11).

**The team centred length of stay at a team, if the patient was considered to require PT and the team was NOT the first team the patient was seen by:**

The difference between the date the patient was considered to no longer require Physiotherapy (Q 4.4.1b) with a time component of 00:00 and date and time of arrival at this hospital (Q 4.1).

Please note that the date of assessment for therapy is **not** used when calculating the length of stay. Question 4.4.1b was added to the data set on the 1<sup>st</sup> April 2014. A different end date is used for patients with a clock start before this date.

The shortest length of stay in a given team where a patient is deemed to require PT is set at 24 hours, therefore any shorter lengths of stay are rounded up to reflect this.

**Team-centred:** The length of stay applicable for PT at that team (if the patient was considered to require PT) is the patient's length of stay applicable for PT.

**Patient-centred:** The length of stay applicable for PT at each team where the patient is considered to require PT are summed together to give the patient's total inpatient length of stay which is applicable for PT.

2) Then, calculate the number of days on which the patient received PT:

For **team-centred:** the number of days of PT the patient received (Q 4.5) at the specific team.

For **patient-centred:** the number of days of PT the patient received (Q 4.5) at each inpatient team the patient was deemed to required PT at are summed together to give the total number of days on which PT was received.

3) Then, calculate the percentage of a patient's days in hospital on which physiotherapy is received:

Divide the total number of days on which PT was received, by the patient's length of stay which is applicable for PT.

Due to the way length of stay is calculated, some patients' percentages may be over 100%. This is capped then capped at 100%.

Cohort median:

4) Lastly to find the median percentage, all percentages for each patient need to be listed in numerical order. The median is then the number in the middle of this list.

<b>For team-centred</b>	<b>For patient-centred</b>
The patient must be considered to require physiotherapy by the specific team	The patient must be considered to require physiotherapy by at least one inpatient team that the patient has been seen by

### Example

Patient W arrived (clock start) at Team A at 12:00 on 2<sup>nd</sup> January. They required PT at Team A until the 13<sup>th</sup> January, but did not receive any PT. They were transferred to Team B on 13<sup>th</sup> January at 12:00. They received PT at Team B on 5 days during their stay, and no longer required PT on the 19<sup>th</sup> January.

Patient X arrived (clock start) at Team A at 12:00 on 1<sup>st</sup> January. They no longer required PT on 13<sup>th</sup> January. They received PT on 5 days during their stay.

Patient Y arrived (clock start) at Team A at 12:00 on 3<sup>rd</sup> January. They required PT at Team A until the 5<sup>th</sup> January and received 2 days of PT. They were transferred to Team B at 09:00 on 6<sup>th</sup> January. They no longer required inpatient rehabilitation from Team B on 16<sup>th</sup> January. They received PT on 8 days during their stay.

### Team-centred (Team A):

#### Patient W:

- 1) Length of stay = 12:00 2<sup>nd</sup> Jan – 00:00 13<sup>th</sup> Jan = 10.5 days
- 2) Number of days PT received = 0 days
- 3) Percentage of patient's days at Team A in which PT is received =  $\frac{0 \text{ days}}{10.5 \text{ days}} = 0.00 = \underline{0\%}$

#### Patient X:

- 1) Length of stay = 12:00 1<sup>st</sup> Jan – 00:00 13<sup>th</sup> Jan = 11.5 days
- 2) Number of days PT received = 5 days
- 3) Percentage of patient's days at Team A in which PT is received =  $\frac{5 \text{ days}}{11.5 \text{ days}} = 0.43 = \underline{43\%}$

#### Patient Y:

- 1) Length of stay = 12:00 3<sup>rd</sup> January – 00:00 5<sup>th</sup> January = 1.5 days
- 2) Number of days PT is received = 2 days
- 3) Percentage of patient's days at Team A in which PT is received =  $\frac{2 \text{ days}}{1.5 \text{ days}} = 1.33 > \underline{100\%}$

Note, due to the way this indicator is calculated, Patient Y's percentage has been capped at 100%

- 4) Median percentage of all patient's days in hospital in which PT is received in numerical order = 0% 43% 100%

Team A's **team-centred** median percentage of all patients' days in hospital in which PT is received is 43%

**Patient-centred (Team A):**

Patient W:

- 1) Length of stay = 12:00 2<sup>nd</sup> Jan – 00:00 13<sup>th</sup> Jan + 12:00 13<sup>th</sup> Jan – 00:00 19<sup>th</sup> Jan = 10.5 + 5.5 days = 16 days
- 2) Number of days PT received = 5 days
- 3) Percentage of patient's days in hospital in which PT is received =  $\frac{5 \text{ days}}{16 \text{ days}} = 0.31 = \underline{31\%}$

Patient X:

- 1) Length of stay = 12:00 1<sup>st</sup> Jan – 00:00 13<sup>th</sup> Jan = 11.5 days
- 2) Number of days PT received = 5 days
- 3) Percentage of patient's days in hospital in which PT is received =  $\frac{5 \text{ days}}{11.5 \text{ days}} = 0.43 = \underline{43\%}$

Patient Y:

- 1) Length of stay = 12:00 3<sup>rd</sup> Jan – 00:00 5<sup>th</sup> Jan + 09:00 6<sup>th</sup> Jan – 00:00 16<sup>th</sup> Jan = 1.5 days + 9.6 days = 11.1 days
- 2) Number of days PT is received = 2 days + 8 days = 10 days
- 3) Percentage of patient's days in hospital in which PT is received =  $\frac{10 \text{ days}}{11.1 \text{ days}} = 0.90 = \underline{90\%}$

Cohort median (patient-centred):

- 4) Median percentage of all patient's days in hospital in which PT is received in numerical order = 31% 43% 90%

The **patient-centred** median percentage of all patients' days in hospital in which PT is received is 43%

**6.4 Compliance (%) against the therapy target of an average of 27.3 minutes of physiotherapy across all patients (NICE QS Statement 7)**

**[Target = 45 minutes of physiotherapy on 5 out of 7 days a week for 85% of patients =  $45 \times (5/7) \times 0.85$ ]**

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

The average number of minutes of physiotherapy per day across all patients is calculated as:

The percentage of patients reported as requiring PT (**as per Key Indicator 6.1**)  
 multiplied by  
 the median number of minutes per day on which PT is received (**as per Key Indicator 6.2**)  
 multiplied by  
 the median percentage of a patient's days in hospital on which PT is received (**as per Key Indicator 6.3**)

The target for the average number of minutes of physiotherapy per day across all patients is calculated as 85% multiplied by 45 minutes, multiplied by 5/7 days, which is 27.3 minutes for all teams.

Cohort percentage: The percentage of the target achieved is calculated as the average number of minutes of PT per day across all patients divided by the target number of minutes.

<b>For team-centred</b>	<b>For patient-centred</b>
All patients in the team-centred 72h cohort	All patients in the patient-centred 72h cohort

**Example**

Using calculations from the examples in Key Indicator 6.1, Key Indicator 6.2 and Key Indicator 6.3

**Team-centred** = Key Indicator 6.1 x Key Indicator 6.2 x Key Indicator 6.3

Team A =  $0.67 \times 30 \text{ minutes} \times 0.43 = 13.5 \text{ minutes}$   
 = 8.6 minutes  
 27.3 minutes

Compliance = 31.5%

Team B =  $0.67 \times 35 \text{ minutes} \times 0.87 = 20.4 \text{ minutes}$   
 = 20.4 minutes  
 27.3 minutes

Compliance = 74.7%

**Patient-centred** = Key Indicator 6.1 x Key Indicator 6.2 x Key Indicator 6.3

=  $0.67 \times 30 \text{ minutes} \times 0.43 = 8.6 \text{ minutes}$   
 = 8.6 minutes  
 27.3 minutes

Compliance = 31.5%

## 7. Speech and Language Therapy Key Indicators

### 7.1 Percentage of patients reported as requiring speech and language therapy

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

**Numerator** = the number of patients who were reported as requiring speech and language therapy.

**Denominator** = all the patients in the cohort.

To calculate the numerator:

Count the number of patients who were considered to require this therapy at any point in the admission (Q 4.4 is “Yes”)

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

#### **For team-centred**

The patient must be considered to require speech and language therapy by the specific team

#### **For patient-centred**

The patient must be considered to require speech and language therapy by at least one inpatient team that the patient has been seen by

#### **Example**

Patient X was reported to require speech and language therapy.

Patient Y was reported to require speech and language therapy.

Patient Z was not reported to require speech and language therapy.

Therefore the cohort percentage is 0.67 or 67% or  $\frac{2}{3}$   $\frac{(\text{Patient X and Patient Y})}{(\text{Patient X, Patient Y and Patient Z})}$

## 7.2 Median number of minutes per day on which speech and language therapy is received

**Included:** all patients who are considered to require speech and language therapy are included in this indicator.

**Excluded:** patients who are considered to not require speech and language therapy are excluded from this indicator

The number of minutes of speech and language therapy (SALT) received per team is given in Q 4.6. The number of days on which SALT is received per team is given in Q 4.5.

Please note that SSNAP only records the **total** number of minutes of SALT per team (Q 4.6) and the total number of days on which SALT is received and does not take into account the number of therapy sessions or the length of the individual sessions. If a patient received therapy on 3 days and they received 15 minutes on the first day of therapy, 10 minutes on the second day of therapy and 25 minutes -split into two sessions of 10 and 15 minutes- on the third day of therapy then the total number of minutes entered on to SSNAP would be 50 minutes.

### For team-centred results:

Divide the number of minutes of SALT each patient received at an individual team by the number of days the patient received SALT at that team.

Cohort median: To find the median number of minutes per day received, all numbers for each patient need to be listed from smallest to largest. The median is then the number in the middle of this list.

### For patient-centred results:

First, calculate the total number of minutes of SALT each patient received by adding together the minutes of SALT the patient received at each of the inpatient teams the patient was seen by. Then, divide by the total number of days of SALT the patient received across all inpatient teams.

Cohort median: To find the median number of minutes per day received, all numbers for each patient need to be listed from smallest to largest. The median is then the number in the middle of this list.

#### **For team-centred**

Patients in the team-centred post-72h cohort (records attributed to all teams) who are considered to require speech and language therapy by the specific team

#### **For patient-centred**

Patients in the patient-centred post-72h cohort who are considered to require speech and language therapy by at least one inpatient team that the patient has been seen by

### **Example**

#### **Team-centred:**

Patient X received 3 days of SALT at Team A. On the first day of therapy they received 25 minutes, on the second day they received 45 minutes split over two sessions of 25 minutes and 20 minutes, and on the third day they received 35 minutes of therapy. The number and length of sessions are not recorded in SSNAP, so a total of 105 minutes of SALT entered on to SSNAP. They also received 7 days of SALT at Team B with a total of 210 minutes of SALT but this is not included in the team-centred results.

Patient Y received a total of 15 days of SALT with Team A. On the first five days of therapy they received 25 minutes per day and on the remaining 10 days they received 40 minutes per day split

into two therapy sessions of 20 minutes. Patient Y received a total of 425 minutes of SALT to be entered onto SSNAP.

Patient Z received a total of 8 days of SALT at Team A. On all 8 days they received 30 minutes per day. Patient Z received total of 240 minutes of SALT to be entered onto SSNAP.

Team A

Patient X:

$$\text{Number of minutes per day} = \frac{105 \text{ minutes}}{3 \text{ days}} = \underline{35 \text{ minutes per day received}}$$

Patient Y:

$$\text{Number of minutes per day} = \frac{425 \text{ minutes}}{15 \text{ days}} = \underline{28.3 \text{ minutes per day received}}$$

Patient Z:

$$\text{Number of minutes per day} = \frac{240 \text{ minutes}}{8 \text{ days}} = \underline{30 \text{ minutes per day received}}$$

The median number of minutes per day on which SALT is received in numerical order= 28.3 minutes 30 minutes 35 minutes

Team A's **team-centred** median number of minutes per day on which SALT is received 30 minutes.

**Patient-centred:**

Patient X received 3 days of SALT at Team A. On the first day of therapy they received 25 minutes, on the second day they received 45 minutes split over two sessions of 25 minutes and 20 minutes, and on the third day they received 35 minutes of therapy. They also received 7 days of SALT at Team B. On all seven days of therapy with Team B Patient X received 30 minutes of therapy with a total of 210 minutes of SALT at Team B. For Patient-Centred results the number of days on which therapy was received is added for all the teams so for Patient X this is 10 days of SALT. The numbers of minutes at the all teams are also added up so for Patient X that is 315 minutes of SALT.

$$\text{Number of minutes per day} = \frac{315 \text{ minutes}}{10 \text{ days}} = \underline{31.5 \text{ minutes per day received}}$$

Patient Y received a total of 15 days of SALT with Team A. On the first five days of therapy they received 25 minutes per day and on the remaining 10 days they received 40 minutes per day split into two therapy sessions of 20 minutes. They did not receive any SALT at any other team. Patient Y received a total of 425 minutes of SALT to be entered onto SSNAP.

$$\text{Number of minutes per day} = \frac{425 \text{ minutes}}{15 \text{ days}} = \underline{28.3 \text{ minutes per day received}}$$

Patient Z received a total of 8 days of SALT at Team A. On all 8 days they received 30 minutes per day. They did not receive any SALT at any other team. Patient Z received total of 240 minutes of SALT to be entered onto SSNAP.

$$\text{Number of minutes per day} = \frac{240 \text{ minutes}}{8 \text{ days}} = \underline{30 \text{ minutes per day received}}$$

The median number of minutes per day on which SALT is received in numerical order= 28.3 minutes 30 minutes 31.5 minutes

The **patient-centred** median number of minutes per day on which SALT is received 30 minutes.

### 7.3 Median percentage of a patient's days as an inpatient on which speech and language therapy is received

**Included:** all patients who are considered to require speech and language therapy are included in this indicator.

**Excluded:** patients who are considered to not require speech and language therapy are excluded from this indicator

To calculate the length of stay at an inpatient team a patient was considered to require SALT at:

**The team centred length of stay at a team, if the patient was considered to require SALT and the team was the first team the patient was seen by:**

For newly arrived patients, the difference between the date the patient was considered to no longer require Speech and language therapy (Q 4.4.1b) with a time component of 00:00 and date and time of arrival (Q 1.13).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date the patient was considered to no longer require Speech and language therapy (Q 4.4.1b) with a time component of 00:00 and date and the date and time of symptom onset (Q 1.11).

**The team centred length of stay at a team, if the patient was considered to require SALT and the team was NOT the first team the patient was seen by:**

The difference between the date the patient was considered to no longer require Speech and language therapy (Q 4.4.1b) with a time component of 00:00 and date and time of arrival at this hospital (Q 4.1).

Please note that the date of assessment for therapy is **not** used when calculating the length of stay. Question 4.4.1b was added to the data set on the 1<sup>st</sup> April 2014. A different end date is used for patients with a clock start before this date.

The shortest length of stay in a given team where a patient is deemed to require SALT is set at 24 hours, therefore any shorter lengths of stay are rounded up to reflect this.

**Team-centred:** The length of stay applicable for SALT at that team (if the patient was considered to require SALT) is the patient's length of stay applicable for SALT.

**Patient-centred:** The length of stay applicable for SALT at each team where the patient is considered to require SALT are summed together to give the patient's total inpatient length of stay which is applicable for SALT.

2) Then, calculate the number of days on which the patient received SALT:

For **team-centred:** the number of days of SALT the patient received (Q 4.5) at the specific team.

For **patient-centred:** the number of days of SALT the patient received (Q 4.5) at each inpatient team the patient was deemed to required SALT at are summed together to give the total number of days on which SALT was received.

3) Then, calculate the percentage of a patient’s days in hospital on which speech and language therapy is received:  
 Divide the total number of days on which SALT was received, by the patient’s length of stay which is applicable for SALT.  
 Due to the way length of stay is calculated, some patients’ percentages may be over 100%. This is capped then capped at 100%.

Cohort median:

4) Lastly to find the median percentage, all percentages for each patient need to be listed in numerical order. The median is then the number in the middle of this list.

<b>For team-centred</b>	<b>For patient-centred</b>
The patient must be considered to require speech and language therapy by the specific team	The patient must be considered to require speech and language therapy by at least one inpatient team that the patient has been seen by

**Example**

Patient W arrived (clock start) at Team A at 12:00 on 2<sup>nd</sup> January. They required SALT at Team A until the 13<sup>th</sup> January, but did not receive any SALT. They were transferred to Team B on 13<sup>th</sup> January at 12:00. They received SALT at Team B on 5 days during their stay, and no longer required SALT on the 19<sup>th</sup> January.

Patient X arrived (clock start) at Team A at 12:00 on 1<sup>st</sup> January. They no longer required SALT on 13<sup>th</sup> January. They received SALT on 5 days during their stay.

Patient Y arrived (clock start) at Team A at 12:00 on 3<sup>rd</sup> January. They required SALT at Team A until the 5<sup>th</sup> January and received 2 days of SALT. They were transferred to Team B at 09:00 on 6<sup>th</sup> January. They no longer required inpatient rehabilitation from Team B on 16<sup>th</sup> January. They received SALT on 8 days during their stay.

**Team-centred (Team A):**

Patient W:

- 1) Length of stay = 12:00 2<sup>nd</sup> Jan – 00:00 13<sup>th</sup> Jan = 10.5 days
- 2) Number of days SALT received = 0 days
- 3) Percentage of patient’s days at Team A in which SALT is received =  $\frac{0 \text{ days}}{10.5 \text{ days}} = 0.00 = \underline{0\%}$

Patient X:

- 1) Length of stay = 12:00 1<sup>st</sup> Jan – 00:00 13<sup>th</sup> Jan = 11.5 days
- 2) Number of days SALT received = 5 days
- 3) Percentage of patient’s days at Team A in which SALT is received =  $\frac{5 \text{ days}}{11.5 \text{ days}} = 0.43 = \underline{43\%}$

Patient Y:

- 1) Length of stay = 12:00 3<sup>rd</sup> January – 00:00 5<sup>th</sup> January = 1.5 days
- 2) Number of days SALT is received = 2 days
- 3) Percentage of patient’s days at Team A in which SALT is received =  $\frac{2 \text{ days}}{1.5 \text{ days}} = 1.33 > \underline{100\%}$

Note, due to the way this indicator is calculated, Patient Y’s percentage has been capped at 100%

- 4) Median percentage of all patient's days in hospital in which SALT is received in numerical order  
 =  
 0% 43% 100%

Team A's **team-centred** median percentage of all patients' days in hospital in which SALT is received is 43%

**Patient-centred (Team A):**

Patient W:

- 1) Length of stay = 12:00 2<sup>nd</sup> Jan – 00:00 13<sup>th</sup> Jan + 12:00 13<sup>th</sup> Jan – 00:00 19<sup>th</sup> Jan = 10.5 + 5.5 days  
 = 16 days
- 2) Number of days SALT received = 5 days
- 3) Percentage of patient's days in hospital in which SALT is received =  $\frac{5 \text{ days}}{16 \text{ days}} = 0.31 = \underline{31\%}$

Patient X:

- 1) Length of stay = 12:00 1<sup>st</sup> Jan – 00:00 13<sup>th</sup> Jan = 11.5 days
- 2) Number of days SALT received = 5 days
- 3) Percentage of patient's days in hospital in which SALT is received =  $\frac{5 \text{ days}}{11.5 \text{ days}} = 0.43 = \underline{43\%}$

Patient Y:

- 1) Length of stay = 12:00 3<sup>rd</sup> Jan – 00:00 5<sup>th</sup> Jan + 09:00 6<sup>th</sup> Jan – 00:00 16<sup>th</sup> Jan = 1.5 days + 9.6 days  
 = 11.1 days
- 2) Number of days SALT is received = 2 days + 8 days = 10 days
- 3) Percentage of patient's days in hospital in which SALT is received =  $\frac{10 \text{ days}}{11.1 \text{ days}} = 0.90 = \underline{90\%}$

Cohort median (patient-centred):

- 4) Median percentage of all patient's days in hospital in which SALT is received in numerical order  
 =  
 31% 43% 90%

The **patient-centred** median percentage of all patients' days in hospital in which SALT is received is 43%

## 7.4 Compliance (%) against the therapy target of an average of 16.1 minutes of speech and language therapy across all patients (NICE QS Statement 7)

[Target = 45 minutes of speech and language therapy on 5 out of 7 days a week for 50% of patients =  $45 \times (5/7) \times 0.5$ ]

**Included:** all patients are included in this indicator.

**Excluded:** no patients are excluded from this indicator

The average number of minutes of speech and language therapy per day across all patients is calculated as:

The percentage of patients reported as requiring SALT (**as per Key Indicator 7.1**)

multiplied by

the median number of minutes per day on which SALT is received (**as per Key Indicator 7.2**)

multiplied by

the median percentage of a patient's days in hospital on which SALT is received (**as per Key Indicator 7.3**)

The target for the average number of minutes of speech and language therapy per day across all patients is calculated as 50% multiplied by 45 minutes, multiplied by 5/7 days, which is 16.1 minutes for all teams.

Cohort percentage: The percentage of the target achieved is calculated as the average number of minutes of SALT per day across all patients divided by the target number of minutes.

For team-centred	For patient-centred
All patients in the team-centred 72h cohort	All patients in the patient-centred 72h cohort

### Example

Using calculations from the examples in Key Indicator 7.1, Key Indicator 7.2 and Key Indicator 7.3

**Team-centred** = Key Indicator 7.1 x Key Indicator 7.2 x Key Indicator 7.3

Team A =  $0.67 \times 30 \text{ minutes} \times 0.43 = 13.5 \text{ minutes}$

= 8.6 minutes

16.1 minutes

Compliance = 53.4%

Team B =  $0.67 \times 35 \text{ minutes} \times 0.87 = 20.4 \text{ minutes}$

= 20.4 minutes

16.1 minutes

Compliance = 126.7%

**Patient-centred** = Key Indicator 7.1 x Key Indicator 7.2 x Key Indicator 7.3

=  $0.67 \times 30 \text{ minutes} \times 0.43 = 8.6 \text{ minutes}$

= 8.6 minutes

16.1 minutes

Compliance = 53.4%

## 8. Multi-Disciplinary Team (MDT) working Key Indicators

### 8.1 Percentage of applicable patients who were assessed by an occupational therapist within 72h of clock start

**Included:** all patients are included in this indicator, except those who are either medically unwell, refused to be screened or had no relevant deficit.

**Excluded:** patients who are medically unwell, refused to be assessed or had no relevant deficit (ie patients where Q 3.5.1 is answered 'Patient refused', 'Patient medically unwell' or 'Patient had no relevant deficit') are excluded from this indicator

**Numerator** = the number of patients who were assessed by an occupational therapist within 72h of clock start.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but not assessed are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the date and time first assessed by an occupational therapist (Q 3.5) and date and time of arrival (Q 1.13) must be greater than 0 minutes and less than or equal to 4320 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time first assessed by an occupational therapist (Q 3.5) and the date and time of symptom onset (Q 1.11) must be greater than 0 minutes and less than or equal to 4320 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

#### For team-centred

All patients in the team-centred 72h cohort except those who are medically unwell, refused to be assessed or had no relevant deficit

#### For patient-centred

All patients in the patient-centred 72h cohort except those who are medically unwell, refused to be assessed or had no relevant deficit

#### Example

Patient W arrived (clock start) at hospital at 10:00 on Monday. They were medically unwell until 10:00 on Friday. Patient W is excluded from the indicator because they were medically unwell until the time of assessment.

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were assessed by an OT at 16:30 on Wednesday. Patient X has achieved the indicator because Tuesday 15:00 – Wednesday 16:30 = 1530 minutes.

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were assessed by an OT on Wednesday 12:15. Patient Y has not achieved the indicator because Saturday 12:15 – Wednesday 12:15 = 5760 minutes.

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. They were not assessed due to Organisational Reasons, so are applicable but not assessed, and therefore have not achieved the indicator.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{\text{(Patient X)}}{\text{(Patient X, Patient Y and Patient Z)}}$

## 8.2 Median time between clock start and being assessed by an occupational therapist (hours:mins)

**Included:** all patients who were seen by an occupational therapist within 72h of clock start are included in this indicator.

**Excluded:** patients who were not seen by an occupational therapist within 72 hours of clock start are excluded from this indicator

For patients newly arriving at hospital, the time between clock start and being assessed by an occupational therapist is the difference between the date and time of arrival (Q 1.13) and the date and time of assessment by occupational therapist (Q 3.5).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the time between clock start and being assessed by an occupational therapist is the difference between the date and time of symptom onset (Q 1.11) and the date and time of assessment by occupational therapist (Q 3.5).

Cohort median: To find the median time, all the times between clock start and assessment by occupational therapist need to be listed from smallest to largest. The median is then the number in the middle of this list.

### For team-centred

All patients in the team-centred 72h cohort who were seen by an occupational therapist within 72h of clock start

### For patient-centred

All patients in the patient-centred 72h cohort who were seen by an occupational therapist within 72h of clock start

### Example

Patient A arrived (clock start) at hospital at 12:57 on Tuesday. They were assessed by an OT at 15:18 that same day. Patient A's time from clock start to being assessed by an OT was 2:21.

Patient B arrived (clock start) at hospital at 09:15 on Friday. They were assessed by an OT at 19:16 that same day. Patient B's time from clock start to being assessed by an OT was 10:01.

Patient C arrived (clock start) at hospital at 13:08 on Sunday. They were not assessed by an OT so are excluded.

Patient D arrived (clock start) at hospital at 22:00 on Friday. They were assessed by an OT at 09:38 the following Monday. Patient D's time from clock start to being assessed an OT was 59:38.

Patient E arrived (clock start) at hospital at 03:15 on Monday. They were assessed by an OT at 11:47 on Tuesday. Patient E's time from clock start to being assessed by an OT was 20:32.

Patient F arrived (clock start) at hospital at 23:33 on Wednesday. They were assessed by an OT at 11:03 on Saturday. Patient F's time from clock start to being assessed by an OT was 60:00.

Listing in numerical order: 2:21 10:01 20:32 59:38 60:00

The cohort median is 20 hours 32 minutes.

### 8.3 Percentage of applicable patients who were assessed by a physiotherapist within 72h of clock start

**Included:** all patients are included in this indicator, except those who are either medically unwell, refused to be screened or had no relevant deficit.

**Excluded:** patients who are medically unwell, refused to be assessed or had no relevant deficit (ie patients where Q 3.6.1 is answered 'Patient refused', 'Patient medically unwell' or 'Patient had no relevant deficit') are excluded from this indicator

**Numerator** = the number of patients who were assessed by a physiotherapist within 72h of clock start.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but not assessed are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the date and time first assessed by a physiotherapist (Q 3.6) and date and time of arrival (Q 1.13) must be greater than 0 minutes and less than or equal to 4320 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time first assessed by a physiotherapist (Q 3.6) and the date and time of symptom onset (Q 1.11) must be greater than 0 minutes and less than or equal to 4320 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

For team-centred	For patient-centred
All patients in the team-centred 72h cohort except those who are medically unwell, refused to be assessed or had no relevant deficit	All patients in the patient-centred 72h cohort except those who are medically unwell, refused to be assessed or had no relevant deficit

#### Example

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were assessed by a PT at 16:30 on Wednesday. Patient X has achieved the indicator because Tuesday 15:00 – Wednesday 16:30 = 1530 minutes.

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were assessed by a PT on Wednesday 12:15. Patient Y has not achieved the indicator because Saturday 12:15 – Wednesday 12:15 = 5760 minutes.

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. They were not assessed due to Organisational Reasons, so are applicable but not assessed, and therefore have not achieved the indicator.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{\text{(Patient X)}}{\text{(Patient X, Patient Y and Patient Z)}}$

## 8.4 Median time between clock start and being assessed by a physiotherapist (hours:mins)

**Included:** all patients who were seen by a physiotherapist within 72h of clock start are included in this indicator.

**Excluded:** patients who were not seen by a physiotherapist within 72 hours of clock start are excluded from this indicator

For patients newly arriving at hospital, the time between clock start and being assessed by a physiotherapist is the difference between the date and time of arrival (Q 1.13) and the date and time of assessment by occupational therapist (Q 3.6).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the time between clock start and being assessed by a physiotherapist is the difference between the date and time of symptom onset (Q 1.11) and the date and time of assessment by occupational therapist (Q 3.6).

Cohort median: To find the median time, all the times between clock start and assessment by physiotherapist need to be listed from smallest to largest. The median is then the number in the middle of this list.

### For team-centred

All patients in the team-centred 72h cohort who were seen by a physiotherapist within 72h of clock start

### For patient-centred

All patients in the patient-centred 72h cohort who were seen by a physiotherapist within 72h of clock start

### Example

Patient A arrived (clock start) at hospital at 12:57 on Tuesday. They were assessed by a PT at 15:18 that same day. Patient A's time from clock start to being assessed by a PT was 2:21.

Patient B arrived (clock start) at hospital at 09:15 on Friday. They were assessed by a PT at 19:16 that same day. Patient B's time from clock start to being assessed by a PT was 10:01.

Patient C arrived (clock start) at hospital at 13:08 on Sunday. They were not assessed by a PT so are excluded.

Patient D arrived (clock start) at hospital at 22:00 on Friday. They were assessed by a PT at 09:38 the following Monday. Patient D's time from clock start to being assessed a PT was 59:38.

Patient E arrived (clock start) at hospital at 03:15 on Monday. They were assessed by a PT at 11:47 on Tuesday. Patient E's time from clock start to being assessed by a PT was 20:32.

Patient F arrived (clock start) at hospital at 23:33 on Wednesday. They were assessed by a PT at 11:03 on Saturday. Patient F's time from clock start to being assessed by a PT was 60:00.

Listing in numerical order: 2:21 10:01 20:32 59:38 60:00

The cohort median is 20 hours 32 minutes.

## 8.5 Percentage of applicable patients who were assessed by a speech and language therapist within 72h of clock start

**Included:** all patients are included in this indicator, except those who are either medically unwell, refused to be screened or had no relevant deficit.

**Excluded:** patients who are medically unwell, refused to be assessed or had no relevant deficit (ie patients where Q 3.7.1 is answered 'Patient refused', 'Patient medically unwell' or 'Patient had no relevant deficit') are excluded from this indicator

**Numerator** = the number of patients who were assessed by a speech and language therapist within 72h of clock start.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but not assessed are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the date and time first assessed by a speech and language therapist (Q 3.7) and date and time of arrival (Q 1.13) must be greater than 0 minutes and less than or equal to 4320 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time first assessed by a speech and language therapist (Q 3.7) and the date and time of symptom onset (Q 1.11) must be greater than 0 minutes and less than or equal to 4320 minutes.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

### For team-centred

All patients in the team-centred 72h cohort except those who are medically unwell, refused to be assessed or had no relevant deficit

### For patient-centred

All patients in the patient-centred 72h cohort except those who are medically unwell, refused to be assessed or had no relevant deficit

### Example

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were assessed by a SALT at 16:30 on Wednesday. Patient X has achieved the indicator because Tuesday 15:00 – Wednesday 16:30 = 1530 minutes.

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were assessed by a SALT on Wednesday 12:15. Patient Y has not achieved the indicator because Saturday 12:15 – Wednesday 12:15 = 5760 minutes.

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. They were not assessed due to Organisational Reasons, so are applicable but not assessed, and therefore have not achieved the indicator.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{\text{(Patient X)}}{\text{(Patient X, Patient Y and Patient Z)}}$

## 8.6 Median time between clock start and being assessed by a speech and language therapist (hours:mins)

**Included:** all patients who were seen by a speech and language therapist within 72h of clock start are included in this indicator.

**Excluded:** patients who were not seen by a speech and language therapist within 72 hours of clock start are excluded from this indicator

For patients newly arriving at hospital, the time between clock start and being assessed by a speech and language therapist is the difference between the date and time of arrival (Q 1.13) and the date and time of assessment by occupational therapist (Q 3.7).

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the time between clock start and being assessed by a speech and language therapist is the difference between the date and time of symptom onset (Q 1.11) and the date and time of assessment by occupational therapist (Q 3.7).

Cohort median: To find the median time, all the times between clock start and assessment by speech and language therapist need to be listed from smallest to largest. The median is then the number in the middle of this list.

### For team-centred

All patients in the team-centred 72h cohort who were seen by a speech and language therapist within 72h of clock start

### For patient-centred

All patients in the patient-centred 72h cohort who were seen by a speech and language therapist within 72h of clock start

### Example

Patient A arrived (clock start) at hospital at 12:57 on Tuesday. They were assessed by a SALT at 15:18 that same day. Patient A's time from clock start to being assessed by a SALT was 2:21.

Patient B arrived (clock start) at hospital at 09:15 on Friday. They were assessed by a SALT at 19:16 that same day. Patient B's time from clock start to being assessed by a SALT was 10:01.

Patient C arrived (clock start) at hospital at 13:08 on Sunday. They were not assessed by a SALT so are excluded.

Patient D arrived (clock start) at hospital at 22:00 on Friday. They were assessed by a SALT at 09:38 the following Monday. Patient D's time from clock start to being assessed a SALT was 59:38.

Patient E arrived (clock start) at hospital at 03:15 on Monday. They were assessed by a SALT at 11:47 on Tuesday. Patient E's time from clock start to being assessed by a SALT was 20:32.

Patient F arrived (clock start) at hospital at 23:33 on Wednesday. They were assessed by a SALT at 11:03 on Saturday. Patient F's time from clock start to being assessed by a SALT was 60:00.

Listing in numerical order: 2:21 10:01 20:32 59:38 60:00

The cohort median is 20 hours 32 minutes.

## 8.7 Percentage of patients who have rehabilitation goals agreed within 5 days of clock start

**Included:** all patients are included unless:

- the patient refused,
- the patient is medically unwell for entire admission
- the patient is considered to have no rehabilitation potential for all teams the patient is seen by within the first 5 days of clock start AND it has been decided either in the first 72 hours or by discharge that the patient is for palliative care.

**Excluded:** patients who refused or are medically unwell for the entire admission are excluded. Patients considered to have no rehabilitation potential for all teams the patient is seen by within the first 5 days of clock start and where it has been decided either in the first 72 hours or by discharge that the patient is for palliative care are also excluded from this indicator.

**Numerator** = the number of patients who have rehabilitation goals agreed within 5 days of clock start.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but did not have rehabilitation goals are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the first date rehabilitation goals agreed (Q 6.10) and the date of arrival (Q 1.13) must be greater than or equal to 0 days and less than or equal to 5 days.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between first date rehabilitation goals agreed (Q 6.10) and the date of symptom onset (Q 1.11) must be greater than or equal to 0 days and less than or equal to 5 days.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

**For team-centred**

N/A

**For patient-centred**

All patients eligible in the patient-centred 72h cohort

### Example

Patient W onset in hospital on the 4<sup>th</sup> January. The patient was for palliative care within 72h and the reason no goals were set was because the patient was deemed to have no rehabilitation potential. Patient W was therefore excluded from this indicator.

Patient X arrived (clock start) at hospital on 1<sup>st</sup> January. They had rehabilitation goals agreed on by 4<sup>th</sup> January. Patient X has achieved the indicator because 1<sup>st</sup> January – 4<sup>th</sup> January = 3 days.

Patient Y arrived (clock start) at hospital on 2<sup>nd</sup> January. They had rehabilitation goals agreed on by 10<sup>th</sup> January. Patient Y has not achieved the indicator because 2<sup>nd</sup> January – 10<sup>th</sup> January = 8 days.

Patient Z arrived (clock start) at hospital on 3<sup>rd</sup> January. They did not have rehabilitation goals set because of organisational reasons.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{(\text{Patient X})}{(\text{Patient X, Patient Y and Patient Z})}$

**8.8 Percentage of applicable patients who are assessed by a nurse within 24h AND at least one therapist within 24h AND all the relevant therapists within 72h AND have rehabilitation goals agreed within 5 days (NICE QS Statement 5)**

This Key Indicator can be broken down into four components

- 1) assessment by a nurse within 24h
- 2) at least one therapist within 24h
- 3) all the relevant therapists within 72h
- 4) have rehabilitation goals agreed within 5 days

Patients **included if eligible for all four components:**

- 1) as in **Key Indicator 4.3**
- 2) all patients are included except those who are either medically unwell, refused to be assessed or had no relevant deficit
- 3) all patients are included except those who are either medically unwell, refused to be assessed or had no relevant deficit
- 4) as in **Key Indicator 8.7**

Patients must be eligible for all four parts to be deemed eligible for this Key Indicator.

**Excluded:**

- 1) no patients are excluded
- 2) patients who either refused, are medically unwell, or had no relevant deficit for all three therapies
- 3) patients who either refused, are medically unwell, or had no relevant deficit for all three therapies
- 4) patients who refused or are medically unwell for the entire admission are excluded. Patients considered to have no rehabilitation potential for all teams the patient is seen by within the first 5 days of clock start and where it has been decided either in the first 72 hours or by discharge that the patient is for palliative care are also excluded.

**Numerator** = the number of patients who achieve all 4 components of the indicator.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable for all four components but did not achieve all four components are included in the denominator.

To calculate whether a patient is included in the numerator:

**Part 1)**

For newly arrived patients, the difference between the date and time first assessed by nurse trained in stroke management (Q 3.2) and the date of arrival (Q 1.13) must be greater than 0 minutes and less than or equal to 1440 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between date and time first assessed by nurse trained in stroke management (Q 3.2) and the date of symptom onset (Q 1.11) must be greater than 0 minutes and less than or equal to 1440 minutes.

**AND**

**Part 2)**

For newly arrived patients, the difference between the date and time first assessed by at least one of: an occupational therapist, a physiotherapist, communication assessed by speech and language therapist (Q 3.5, 3.6, 3.7), and the date of arrival (Q 1.13) must be greater than 0 minutes and less than or equal to 1440 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date and time first assessed by at least one of: an occupational therapist, a physiotherapist, communication assessed by speech and language therapist (Q 3.5, 3.6, 3.7), and the date of symptom onset (Q 1.11) must be greater than 0 minutes and less than or equal to 1440 minutes.

**AND****Part 3)**

For newly arrived patients, the difference between the date and time between receiving all required therapies (Q 3.5, 3.6, 3.7) and the date of arrival (Q 1.13) must be greater than 0 minutes and less than or equal to 4320 minutes.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), difference between the date and time between receiving all required therapies (Q 3.5, 3.6, 3.7) and the date of symptom onset (Q 1.11) must be greater than 0 minutes and less than or equal to 4320 minutes.

**AND****Part 4)**

For newly arrived patients, the difference between the first date rehabilitation goals agreed (Q 6.10) and the date of arrival (Q 1.13) must be greater than or equal to 0 days and less than or equal to 5 days.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between first date rehabilitation goals agreed (Q 6.10) and the date of symptom onset (Q 1.11) must be greater or equal to 0 days and less than or equal to 5 days.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

<b>For team-centred</b> N/A	<b>For patient-centred</b> All patients eligible in the patient-centred 72h cohort
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**Example****Part 1)**

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were assessed by a stroke nurse at 10:00 the following day. Patient X has achieved Part 1 of the indicator because 10:00 Wednesday – 15:00 Tuesday = 1140 minutes (19 hours).

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were assessed by a stroke nurse at 11:15 the following Monday. Patient Y has not achieved Part 1 of the indicator because 11:15 Monday – 12:15 Saturday = 2820 minutes (47 hours).

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. They were not assessed by a stroke nurse so has not achieved Part 1 of the indicator.

Therefore only Patient X has achieved Part 1.

### Part 2)

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were assessed by a physiotherapist at 10:00 on Wednesday. Patient X has achieved Part 2 of the indicator because Tuesday 15:00 – Wednesday 16:30 = 1140 minutes (19 hours).

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were assessed by a physiotherapist, occupational therapist and speech and language therapist on Monday at 12:15. Patient Y has not achieved Part 2 of the indicator because Saturday 12:15 – Monday 12:15 = 2280 minutes (48 hours) and therefore they were not assessed by any therapist within 24 hours.

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. Patient Z was applicable for an assessment but not assessed by an occupational therapist or a speech and language therapist. They were applicable for physiotherapy assessment but not assessed by a physiotherapist so have not achieved Part 2 of the indicator.

Therefore only Patient X has achieved Part 2.

### Part 3)

Patient X arrived (clock start) at hospital at 15:00 on Tuesday. They were assessed by a physiotherapist, occupational therapist and speech and language therapist at 10:00 on Wednesday. Patient X has achieved Part 3 of the indicator because Tuesday 15:00 – Wednesday 16:30 = 1140 minutes (19 hours).

Patient Y arrived (clock start) at hospital at 12:15 on Saturday. They were assessed by a physiotherapist, occupational therapist and speech and language therapist on Monday at 12:15. Patient Y has achieved Part 3 of the indicator because Saturday 12:15 – Monday 12:15 = 2880 minutes (48 hours).

Patient Z arrived (clock start) at hospital at 20:08 on Thursday. They were applicable but not assessed by a physiotherapist, occupational therapist or speech and language therapist so have not achieved Part 3 of the indicator.

Therefore Patient X and Patient Y have achieved Part 3.

### Part 4)

Patient X arrived (clock start) at hospital on 1<sup>st</sup> January. They had rehabilitation goals agreed on by 4<sup>th</sup> January. Patient X has achieved Part 4 of the indicator because 1<sup>st</sup> January – 4<sup>th</sup> January = 3 days.

Patient Y arrived (clock start) at hospital on 2<sup>nd</sup> January. They did not have rehabilitation goals set because the patient refused. Patient Y therefore is excluded from the indicator.

Patient Z arrived (clock start) at hospital on 3<sup>rd</sup> January. They had rehabilitation goals agreed on by 5<sup>th</sup> January. Patient Z has achieved Part 4 of the indicator as 2<sup>nd</sup> January – 5<sup>th</sup> January = 3 days.

Therefore Patient X and Patient Z have achieved Part 4, and Patient Y is excluded.

The only patient to achieve all four components is Patient X.

The percentage applicable patients who are assessed by a nurse within 24h AND at least one therapist within 24h AND all the relevant therapists within 72h AND have rehabilitation goals agreed within 5 days =  $0.50$  or  $50\%$  or  $\frac{1}{2}$   $\frac{(\text{Patient X})}{(\text{Patient X and Patient Z})}$

## 9. Standards by discharge Key Indicators

### 9.1 Percentage of applicable patients screened for nutrition and seen by a dietitian by discharge

**Included:** all patients who were identified as high risk of malnutrition following nutritional screening or not screened are included, except those who are for palliative care at any point.

**Excluded:** patients who were identified to not be high risk of malnutrition following nutritional screening and patients where it is decided they are for palliative care at any point (either within 72h or by discharge) are excluded from this indicator

**Numerator** = the number of patients who were seen by a dietitian by discharge.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but did not see a dietitian are included in the denominator.

To calculate the numerator:

Count the number of patients for whom a date is given for when they saw a dietitian (Q 6.6.1).

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

#### For team-centred

All patients in the team-centred post-72h cohort (records attributed to 7 day team) who were identified as high risk of malnutrition following nutritional screening or not screened, except those for palliative care

#### For patient-centred

All patients in the patient-centred post-72h cohort who were identified as high risk of malnutrition following nutritional screening or not screened, except those for palliative care

#### Example

Patient W was not screened, and was not for palliative care. Patient W therefore has not achieved the indicator.

Patient X was screened and identified as being at high risk of malnutrition, and seen by a dietitian on the 03/02/2015. Patient X achieved the indicator.

Patient Y was screened and identified as being at high risk of malnutrition, but was not seen by a dietitian during their inpatient stay. Patient Y was not for palliative care, therefore Patient Y has not achieved the indicator.

Patient Z was not identified as at high risk of malnutrition following nutritional screening. Patient Z is therefore excluded.

Therefore the cohort percentage is 0.33 or 33% or  $\frac{1}{3}$   $\frac{\text{(Patient X)}}{\text{(Patient W, Patient X, and Patient Y)}}$

## 9.2 Percentage of applicable patients who have a continence plan drawn up within 3 weeks of clock start (NICE QS Statement 8)

**Included:** all patients are included, except those who are either continent or refused a continence plan.

**Excluded:** patients who are continent or refused a continence plan are excluded from this indicator

**Numerator** = the number of patients who have a continence plan drawn up within 3 weeks of clock start.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but did not have a continence plan drawn up are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the date urinary continence plan drawn up (Q 6.5) and date of arrival (Q 1.13) must be greater than or equal to 0 weeks and less than or equal to 3 weeks.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the date urinary continence plan drawn up (Q 6.5) and the date of symptom onset (Q 1.11) must be greater or equal to 0 weeks and less than or equal to 3 weeks.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

### For team-centred

All patients in the team-centred post-72h cohort (records attributed to 7 day team) who were not continent or did not refuse a continence plan

### For patient-centred

All patients in the patient-centred post-72h cohort who were not continent or did not refuse a continence plan

### Example

Patient X arrived (clock start) at hospital on 1<sup>st</sup> January. They had a continence plan drawn up by 14<sup>th</sup> January. Patient X has achieved the indicator because 1<sup>st</sup> January – 14<sup>th</sup> January = 2 weeks.

Patient Y arrived (clock start) at hospital on 2<sup>nd</sup> January. They had a continence plan drawn up by 10<sup>th</sup> January. Patient Y has achieved the indicator because 2<sup>nd</sup> January – 10<sup>th</sup> January = 8 days.

Patient Z arrived (clock start) at hospital on 3<sup>rd</sup> January. They did not have a continence plan drawn up for organisational reasons, and therefore did not achieve this indicator.

Therefore the cohort percentage is 0.67 or 67% or  $\frac{2}{3}$   $\frac{(\text{Patient X and Patient Y})}{(\text{Patient X, Patient Y and Patient Z})}$

### 9.3 Percentage of applicable patients who have mood and cognition screening by discharge (NICE QS Statement 9)

**Included:** all patients are included, except those who either refused or were medically unwell for entire admission and those who are discharged from inpatient care within 7 days of clock start without receiving both mood and cognition screens.

**Excluded:** patients who refused either or both screens, patients who were medically unwell for entire admission, and patients who were discharged from inpatient care within 7 days of clock start without receiving both screens are excluded from this indicator

**Numerator** = the number of patients who have mood and cognition screening by discharge.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but did not have mood and cognition screening by discharge are included in the denominator.

To calculate whether a patient is included in the numerator:

For newly arrived patients, the difference between the dates patient screened for mood using a validated tool/date patient screened for cognition using a simple standardised measure (Q 6.7/Q 6.8) and date of arrival (Q 1.13) both must be greater than or equal to 0 weeks and less than or equal to 6 weeks.

For patients already in hospital at the time of their stroke (Q 1.10 is 'Yes'), the difference between the dates patient screened for mood using a validated tool/date patient screened for cognition using a simple standardised measure (Q 6.7/Q 6.8) and the date of symptom onset (Q 1.11) both must be greater or equal to 0 weeks and less than or equal to 6 weeks.

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

#### For team-centred

All patients in the team-centred post-72h cohort (records attributed to discharging team) who were applicable for both mood and cognition screening, except where the patient does not receive both screenings AND the patient's length of stay in inpatient care is less than 7 days

#### For patient-centred

All patients in the patient-centred post-72h cohort who were applicable for both mood and cognition screening, except where the patient does not receive both screenings AND the patient's length of stay in inpatient care is less than 7 days

#### Example

Patient W onset in hospital (clock start) on the 1<sup>st</sup> February, and was discharged to a care home on the 4<sup>th</sup> February. They did not have mood and cognition screening for organisational reasons. Patient W is excluded from this indicator because their length of stay in hospital is less than 7 days and they did not receive both screens.

Patient X arrived (clock start) at hospital on 1<sup>st</sup> January. They had a mood and cognition screening on 14<sup>th</sup> January. Patient X has achieved the indicator because 1<sup>st</sup> January – 14<sup>th</sup> January = 2 weeks.

Patient Y arrived (clock start) at hospital on 2<sup>nd</sup> January. They had mood and cognition screening on 30<sup>th</sup> January. Patient Y has achieved the indicator because 2<sup>nd</sup> January – 30<sup>th</sup> January = 4 weeks.

Patient Z arrived (clock start) at hospital on 3<sup>rd</sup> January and was discharged home on the 3<sup>rd</sup> February. They did not have mood and cognition screening for organisational reasons. Patient Z therefore did not achieve this indicator.

Therefore the cohort percentage is 0.67 or 67% or  $\frac{2}{3}$   $\frac{(\text{Patient X and Patient Y})}{(\text{Patient X, Patient Y and Patient Z})}$

## 10. Discharge processes Key Indicators

### 10.1 Percentage of applicable patients receiving a joint health and social care plan on discharge (CCG OIS C3.7)

**Included:** all patients who are discharged alive from inpatient care are included, except where 'Not applicable' has been chosen for documented evidence of joint care planning between health and social care for post discharge management.

**Excluded:** patients who died in inpatient care or 'Not applicable' has been chosen for documented evidence of joint care planning between health and social care for post discharge management are excluded from this indicator

**Numerator** = the number of patients who received a joint health and social care plan on discharge.

**Denominator** = all the applicable patients in the cohort. Patients who are applicable but did not receive a joint health care and social plan are included in the denominator.

To calculate the numerator:

Count the number of patients for whom there is documented evidence of joint care planning between health and social care for post discharge management (Q 7.11 is 'Yes').

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

#### For team-centred

All patients in the team-centred post-72h cohort who were discharged alive from inpatient care

#### For patient-centred

All patients in the patient-centred post-72h cohort who were discharged alive from inpatient care

#### Example

Patient V died in inpatient care and is therefore excluded from this indicator.

Patient X received a joint health care and social plan, and therefore achieved this indicator.

Patient Y did not receive a joint health care and social plan (Q7.11="No") and therefore did not achieve this indicator.

Patient Z was not applicable for a joint health care and social plan (Q7.11="Not applicable") and therefore was excluded from this indicator.

Therefore the cohort percentage is 0.50 or 50% or  $\frac{1}{2} \frac{(\text{Patient X})}{(\text{Patient X and Patient Y})}$

## 10.2 Percentage of patients supported by a stroke skilled Early Supported Discharge team

**Included:** all patients who are discharged alive from inpatient care are included in this indicator.

**Excluded:** patients who died in inpatient care or who were transferred to another inpatient team are excluded from this indicator

**Numerator** = the number of patients who were supported by a stroke skilled ESD team.

**Denominator** = all the discharged alive patients in the cohort. Patients who did not have the support of a stroke skilled ESD team are included in the denominator.

To calculate the numerator:

Count the number of patients who were discharged with a stroke/neurology specific Early Supported Discharge multidisciplinary team (Q 7.7 is "Yes, stroke/neurology specific").

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

### For team-centred

All patients in the team-centred post-72h cohort who were discharged alive from inpatient care

### For patient-centred

All patients in the patient-centred post-72h cohort who were discharged alive from inpatient care

### Example

Patient V died in inpatient care and is excluded from this indicator.

Patient W was transferred to another inpatient team on SSNAP so is excluded from the indicator.

Patient X was discharged with the support of a stroke/neurology specific ESD team, and therefore achieved this indicator.

Patient Y was discharged with the support of a stroke/neurology specific ESD team, and therefore achieved this indicator.

Patient Z was discharged alive with the support of a non-specialist ESD team, and therefore did not achieve this indicator.

Therefore the cohort percentage is 0.67 or 67% or  $\frac{2}{3}$   $\frac{(\text{Patient X and Patient Y})}{(\text{Patient X, Patient Y and Patient Z})}$

### 10.3 Percentage of patients in atrial fibrillation on discharge who are discharged on anticoagulants or with a plan to start anticoagulation

**Included:** all patients who are discharged alive from inpatient care and where there is documented evidence that the patient is in atrial fibrillation on discharge are included, except where there is a ‘No but’ reason as to why the patient who was in atrial fibrillation on discharge was not discharged with a plan to start on anticoagulation within the next month.

**Excluded:** patients who died in inpatient care, patients where there was no evidence the patient was in atrial fibrillation on discharge, and patients in atrial fibrillation who had a ‘no but’ reason as to why the patient was not discharged with a plan to start on anticoagulation within the next month are excluded from this indicator

**Numerator** = the number of patients who were discharged on anticoagulants or with a plan to start anticoagulation within the next month.

**Denominator** = all the patients in the cohort where there is documented evidence that the patient is in atrial fibrillation. Patients who were discharged not on anticoagulants or with a plan to start on anticoagulation but with documented evidence of being in atrial fibrillation are included in the denominator.

To calculate the numerator:

Count the number of patients who were discharged on anticoagulants (not anti-platelet agent) or with a plan to start on anticoagulants within the next month (Q 7.10.1 is ‘Yes’).

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

For team-centred	For patient-centred
All patients in the team-centred post-72h cohort who were discharged alive from inpatient care by this team with documented evidence of being in atrial fibrillation	All patients in the patient-centred post-72h cohort who were discharged alive from inpatient care with documented evidence of being in atrial fibrillation

#### Example

Patient W was not discharged alive so is excluded from this indicator.

Patient X had documented evidence of being in atrial fibrillation on discharge, and was discharged on anticoagulants (or with a plan to start within the next month). Patient X therefore achieved this indicator.

Patient Y had documented evidence of being in atrial fibrillation on discharge, but was not discharged on anticoagulants (Q7.10.1=“No”). Patient Y therefore did not achieve this indicator.

Patient X had documented evidence of being in atrial fibrillation on discharge, but was not discharged on anticoagulants for a “no but” reason (Q7.10.1=“No but”). Patient Z was therefore excluded from this indicator.

Therefore the cohort percentage is 0.50 or 50% or  $\frac{1}{2} \frac{(\text{Patient X})}{(\text{Patient X and Patient Y})}$

## 10.4 Percentage of patients who are discharged alive who are given a named person to contact after discharge (Proxy for NICE QS Statement 11)

**Included:** all patients who are discharged alive from inpatient care are included in this indicator.

**Excluded:** patients who died in inpatient care or who were transferred to another inpatient team are excluded from this indicator

**Numerator** = the number of patients who are given a named person to contact after discharge.

**Denominator** = all the patients discharged alive in the cohort. Patients who are not given a named person to contact after discharge are included in the denominator.

To calculate the numerator:

Count the number of patients who were discharged with a named person to contact after discharge (Q 7.12 is 'Yes').

Cohort percentage:  $100 * \frac{\text{numerator}}{\text{denominator}}$

### For team-centred

All patients in the team-centred post-72h cohort who were discharged alive from inpatient care

### For patient-centred

All patients in the patient-centred post-72h cohort who were discharged alive from inpatient care

### Example

Patient W died in inpatient care and is therefore excluded from this indicator.

Patient X was discharged with a named contact, and therefore achieved this indicator.

Patient Y was discharged with a named contact, and therefore achieved this indicator.

Patient Z was discharged alive but not with a named contact, and therefore did not achieve this indicator.

Therefore the cohort percentage is 0.67 or 67% or  $\frac{2}{3}$   $\frac{(\text{Patient X and Patient Y})}{(\text{Patient X, Patient Y and Patient Z})}$

## Audit Compliance

We have categorised the audit compliance score into five bands as follows:

**Band 1: 90.0-100.0**

**Band 2: 80.0-89.9**

**Band 3: 70.0-79.9**

**Band 4: 50.0-69.9**

**Band 5: 0.0-49.9**

The overall Audit Compliance score is based on **SIX** categories.

Where a team does not have the relevant results for a particular category, e.g. if the team has not thrombolysed any patients, the "NIHSS 24h after thrombolysis is known" result is irrelevant and therefore does not contribute to the audit compliance score. The score is therefore based on the remaining categories, with the weighting adjusted accordingly.

### Categories

**1) NIHSS at arrival: 30% of score (team-centred 72h cohort)**

Percentage of patients where NIHSS at arrival is fully complete

**2) NIHSS 24h: 20% of score (team-centred 72h cohort)**

Percentage of patients where NIHSS 24h after thrombolysis is known

**3) Transfers: 10% of score (team-centred 72h cohort and team-centred post-72h all teams cohort)**

Percentage of records which are ready to transfer and have been transferred to next team (team-centred 72h cohort)

"Median number of days from patient transferred to next team to when the record is transferred on the webtool (team-centred post-72h all teams cohort)

- A score of 100 is obtained if the median time is less than 7 days
- A score of 75 is obtained if the median time is between 7 and less than 14 days
- A score of 50 is obtained if the median time is between 14 and <21 days
- A score of 25 is obtained if the median time is between 21 and <28 days
- A score of 0 is obtained if the median time is 28 days or longer"

Percentage of patients who have been transferred to an ESD or CRT out of those who have been recorded as discharged with ESD or CRT in Q7.7 or Q7.8 (team-centred post-72h all teams cohort)

**4) Data Entry: 10% of score (team-centred 72h cohort and team-centred post-72h inpatient discharge cohort)**

"Median number of days from when patient is admitted/onset to when the record is started (team-centred 72h cohort)

- A score of 100 is obtained if the median time is less than 7 days
- A score of 75 is obtained if the median time is between 7 and less than 14 days
- A score of 50 is obtained if the median time is between 14 and <21 days
- A score of 25 is obtained if the median time is between 21 and <28 days
- A score of 0 is obtained if the median time is 28 days or longer"

"Median number of days from when the patient is discharged from the team's care to when the record is locked to discharge (not transferred) (team-centred post-72h inpatient discharge cohort)

- A score of 100 is obtained if the median time is less than 7 days
- A score of 75 is obtained if the median time is between 7 and less than 14 days
- A score of 50 is obtained if the median time is between 14 and <21 days
- A score of 25 is obtained if the median time is between 21 and <28 days

- A score of 0 is obtained if the median time is 28 days or longer"

All applicable scores in this section are added together and divided by the total number of applicable components to calculate the data entry score.

**5) 72h measures: 15% of score (team-centred 72h cohort)**

Percentage of patients whose ethnicity is known

Percentage of patients where reason for no swallow screen within 4h is known

Percentage of patients where reason for no swallow screen within 72h is known

Percentage of patients where reason for no OT assessment within 72 is known

Percentage of patients where reason for no PT assessment within 72 is known

Percentage of patients where reason for no SALT communication assessment within 72 is known

Percentage of patients where reason for no formal swallow assessment within 72 is known

**6) Post-72h measures: 15% of score (team-centred post-72h cohorts)**

Percentage of patients where reason for no rehabilitation goals is known (all teams cohort)

Percentage of patients where development of urinary tract infection is known (7 day cohort)

Percentage of patients where receipt of antibiotics for pneumonia is known (7 day cohort)

Percentage of patients where reason for no urinary continence plan is known (7 day cohort)

Percentage of patients where reason for no OT assessment by discharge is known (inpatient discharge cohort)

Percentage of patients where reason for no PT assessment by discharge is known (inpatient discharge cohort)

Percentage of patients where reason for no SALT communication assessment by discharge is known (inpatient discharge cohort)

Percentage of patients where reason for no SALT swallow assessment by discharge is known (inpatient discharge cohort)

Percentage of patients where reason for no mood screening by discharge is known (inpatient discharge cohort)

Percentage of patients where reason for no cognition screening is known (inpatient discharge cohort)

Percentage of patients where discharge home and living alone is known (inpatient discharge cohort)

Percentage of patients where number of social service visits is known (inpatient discharge cohort)

All applicable percentages in this section are added together and divided by the total number of applicable components to calculate the post-72h measures score.

**Case Ascertainment**

Currently, we have only used HES figures for routinely admitting teams. For teams who are typically transferred patients from other hospitals, we have used a different method for calculating case ascertainment. The case ascertainment percentage for these teams is the percentage of records that a team discharges from their care (either by transferring to another team or by discharging from inpatient care) in this quarter compared to the number of records the team receives into their care (either by starting a record or by being transferred a record from another team). Please note, the patients who are discharged do not have to be the same patients as those who arrived within a quarter – patients may have lengths of stay that span the quarterly deadlines.