



**RCEM**

Royal College  
*of* Emergency  
Medicine

# TIME CRITICAL MEDICATIONS

**2023-26 NATIONAL QUALITY IMPROVEMENT  
PROGRAMME**

**Year 1 (2023/24) Information Pack**

Published:  
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## Quick guide to running an awesome QIP



### Form your QIP Team

RCEM recommends a multidisciplinary QI team



### Standards

[Click here](#) to find the standards.



### Questions

[Click here](#) to find the questions.



### Inclusion criteria

[Click here](#) to find the inclusion and exclusion criteria



### Sample size

Recommended sample size: Please collect data on a minimum of 6 eligible cases per week.

Please see the [data collection section](#) for more details



### Data entry portal

Log into the data entry site at:

<https://rcem.casecapture.com/pages/home#>



### Data frequency

**Recommended:** enter cases each week.

**Alternative:** If your ED will find weekly data entry difficult enter data fortnightly instead.



### Data Collection Period\*

Data should be collected on patients attending from **3 October 2023 – 3 October 2026**

\*For the interim reports data collection period, please see the [data collection section](#) for details.

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## WELCOME

This document tells you everything you need to know if your Emergency Department (ED) wishes to participate in the 2023/26 RCEM national quality improvement program (QIP) on Time Critical Medications (TCMs).

## INTRODUCTION

### Overview

Time Critical Medication is currently not a priority in Emergency Departments, it is a concept that is not widely understood and one which is not applied well in clinical practice.

In 2010, the National Patient Safety Agency (NPSA), issued an alert regarding the omission and delayed administration of medicines in hospitals, but despite trusts compiling lists and guidance and regularly auditing this there are still numerous incidents around delayed or omitted doses of TCM.

Following on from this, in 2011 The Institute for Safe Medication Practices defined TCM as: 'Time Critical scheduled medications are those where early or delayed administration of maintenance doses of greater than 30 minutes before or after the scheduled dose may cause harm or result in substantial sub-optimal therapy or pharmacological effect.'

In regards to the Emergency Department, a time-critical **scheduled** medication is essentially a medicine that the patient is already on, all doses of which will need to be prescribed and administered in the ED throughout their stay.

This has never been looked at nationally despite The Royal College of Emergency Medicine (RCEM) producing a safety alert in 2017 for people with Parkinson's, IDDM, and Epilepsy on TCM.

This National TCM QIP will follow the RCEM Safer Medicines Committee guidelines on TCM using the mnemonic MISSED.

- Movement Disorders (Parkinson's MG)
- Immunosuppressants
- Sugar – Insulin
- Steroids
- Epilepsy
- DOACs, anti-coagulants, and warfarin

The message is clear: 'A MISSED time critical medication causes harm in the Emergency Department (ED).'

As this QIP will run from Nov 2023 to 2026, we will be focussing on different TCMs each year, focussing on the patient journey from arrival to departure.

In Year 1 Nov 2023 to Nov 2024, we will be collecting data for people living with Parkinson's who take oral levodopa medication and for patients living with Diabetes Mellitus on s/c insulin.

### Why Levodopa and Insulin

#### Levodopa

Even a 30-minute delay in taking medication can lead to profound health implications for a person with Parkinson's. In 2017, The National Institute for Health and Care Excellence (NICE) recognised the importance of levodopa admission as an area for quality improvement within their Parkinson's quality standard [2].

NICE guidance says that when a person with Parkinson's is admitted to a hospital, their medication should be given at the appropriate times, which may mean people being allowed to self-medicate [3].

People with Parkinson's on levodopa-based medication can be taking medication up to every two hours. The timing of these medications alters from person to person. This is because everyone's Parkinson's symptoms are different and, therefore, need different medication management regimes. We need to apply the principle of personalised medicine in the ED [4] [5].

Missed or delayed doses of Parkinson's medication can lead to anxiety, an increase in symptoms and psychological harm. They also lead to increased morbidity, mortality, length of stay and increasing the cost of care for hospitals [6] [7] [8]. Evidence shows that missed doses of Parkinson's medication can increase the length of stay in hospital by an average of four days. People with Parkinson's are also more likely to be readmitted to hospital following an extended stay in hospital due to delayed or missed medication.

Previous Parkinson's disease (PD) Quality Improvement Projects have focussed on ward patients and have not included the ED [4]. With an increased (LoS) in the ED, it is vital that we ensure the patients with PD get their time critical medication on time. As ED waiting times increase, in April 2022, only 72 per cent of people were seen within four hours [9]; this problem is going to get worse, confounded by the fact that the prevalence and incidence of PD are set to double to 256,609 by 2065 nationally.

In 2021/22, the total cost of emergency admissions for people with Parkinson's was £267 million, making up a huge 86% of the cost of all admissions for people with Parkinson's. For a person with Parkinson's admitted as an emergency in 2021/22, their average (mean) length of stay was 10.2 days.

In 2020/21, compared to the average cost per person in England of £4,842, the average cost of a non-elective admission of a person with Parkinson's was £6,395 in 2021/22.

## Insulin

Type 1 Diabetes is common in the ED and causes an increased LoS and mortality. However, 92% of people admitted are not admitted as a result of their diabetes [10].

In 2017, 2,200 people suffered from Diabetic Ketoacidosis (DKA) in UK hospitals due to under recognition and under treatment with insulin. In total, there were 260,000 medication errors involving Insulin, which could have resulted in serious harm. As a healthcare community, we can and must do better for people with diabetes in hospitals [10].

Time Critical **scheduled** Insulin Medication management in the ED aims to prevent glycaemic emergencies such as diabetic ketoacidosis and hyperosmolar hyperglycaemic state or hypoglycaemia

All short, medium, and long-acting Insulins should be given in the ED when the patient usually takes them, which is normally 30 minutes before and after food for short and medium acting insulins.

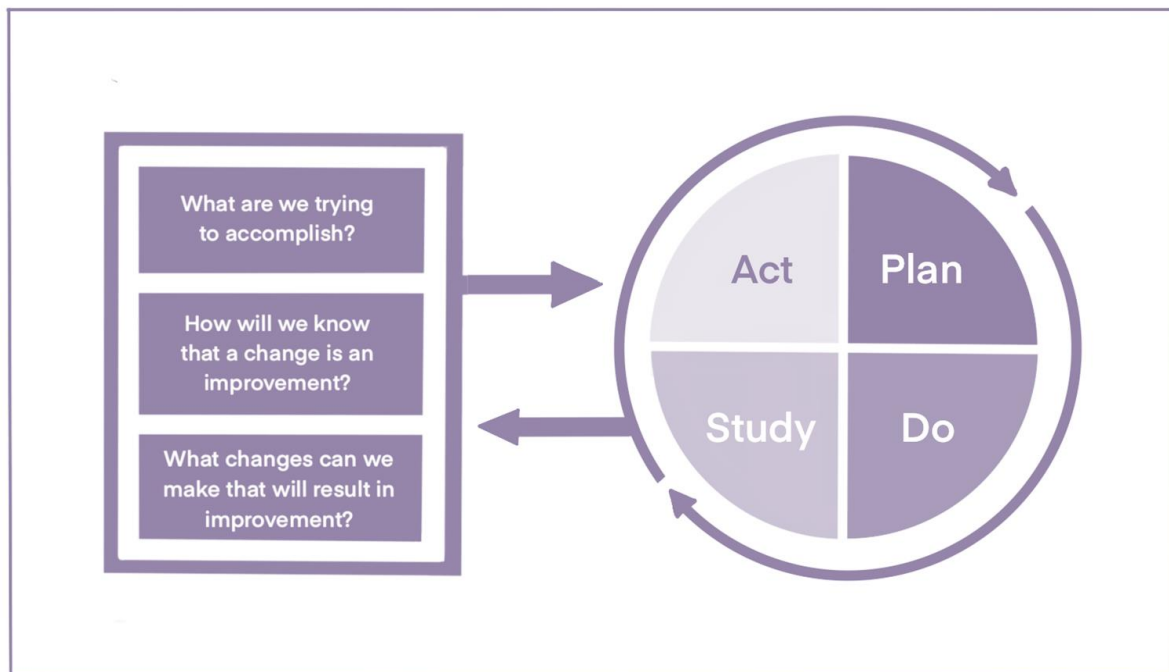
## QUALITY IMPROVEMENT INFORMATION

The purpose of this QIP is to continually quality assure and improve your service whereby the patient benefits as an outcome of the project. The RCEM system allows your team to record details of QIPs and see on your dashboard how each initiative affects your data on key outcomes and process measures.

We encourage you to use this feature in your department. If you are new to QIPs, we recommend you follow the Plan Do Study Act (PDSA) methodology. The [Institute for Healthcare Improvement](#) (IHI) provides a useful worksheet which will help you to think about the changes you want to make and how to implement them.

Further information on ED quality improvement can be found on the [RCEM website](#).

### The model for improvement (Institute of Healthcare Improvement)



## OBJECTIVES FOR ALL RCEM QIPS

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### **To identify current ED performance against clinical standards and previous performance**

How RCEM supports you

Expert teams of clinicians and QIP specialists have reviewed current national standards and evidence to set the top priority standards for this national QIP.

RCEM has built a bespoke platform to collect and analyse performance data against the standards for each ED.

### **Show EDs their performance in comparison with other participating departments both nationally and in their respective country in order to stimulate quality improvement**

How RCEM supports you

The QIP will be run over a 3-year period. The longer duration should allow better planning and effective iteration. This should lead to improved patient care. Participating EDs can see how they perform compared to National mean. This should enable EDs revisit changes implemented and plan further PDSA cycles.

### **To empower and encourage EDs to run quality improvement (QI) initiatives based on the data collected and track the impact of the QI initiative on their weekly performance data**

How RCEM supports you

The RCEM platform includes a dashboard with graphs showing your ED's performance as soon as data are entered to benchmark against yourself.

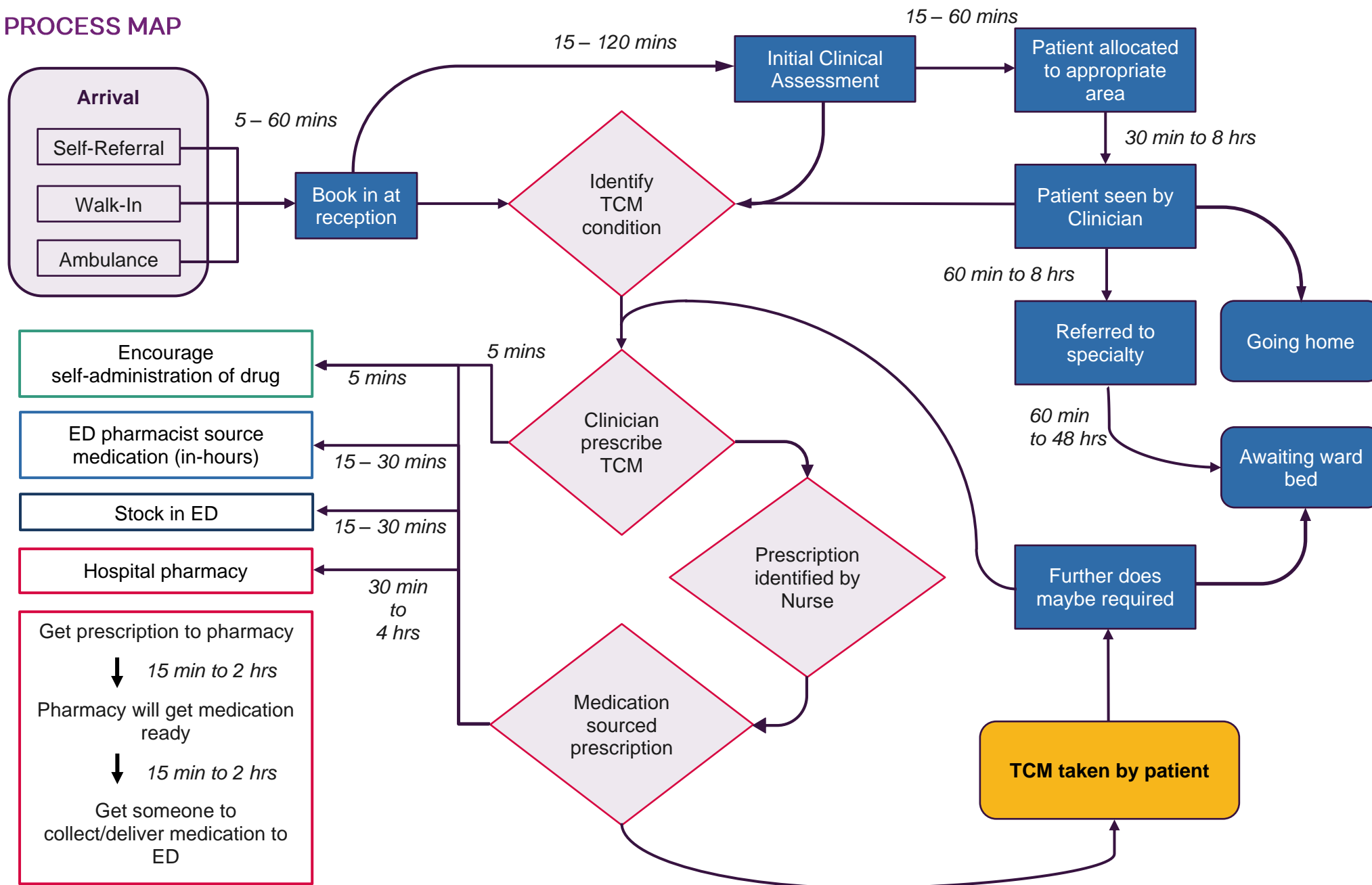
The dashboard graphs are SPC charts (where applicable) with built in automatic trend recognition, so you are able to easily spot statistically significant patterns in your data.

The portal has built in tools to support local QI initiatives, such as an online PDSA template.

Once you have completed a PDSA template with your team, this is overlaid onto your dashboard charts so you can easily see the impact of your PDSA.

RCEM has also published a QI guide to introduce a range of excellent QI methodologies to enhance QI knowledge and skills.

# PROCESS MAP





## STANDARDS

Standards	Grade	Reference
<p><b>STANDARD 1 –</b></p> <p>Patients on a TCM are identified early within the ED</p>	F	<p>Parkinson's UK – <i>Every minute counts: Time critical Parkinson's medication on time, every time</i> (P. 23) (September 2023) Available at: <a href="https://www.parkinsons.org.uk/CS4006-Get-it-on-time-policy-report-Web-Version.pdf">CS4006 Get it on time policy report Web Version.pdf</a> (<a href="https://www.parkinsons.org.uk">parkinsons.org.uk</a>)</p>
<p><b>STANDARD 2 –</b></p> <p>A patient's TCM should be administered according to their usual regime whilst they are in the ED</p>	F	<p>NICE Parkinson's Quality Standard 2018 QS164 <a href="https://www.nice.org.uk/guidance/qs164/chapter/quality-statement-4-levodopa-in-hospital-or-a-care-home#:~:text=Adults%20with%20Parkinson's%20disease%20who,their%20individually%20prescribed%20administration%20time.">https://www.nice.org.uk/guidance/qs164/chapter/quality-statement-4-levodopa-in-hospital-or-a-care-home#:~:text=Adults%20with%20Parkinson's%20disease%20who,their%20individually%20prescribed%20administration%20time.</a></p>
<p><b>STANDARD 3 -</b></p> <p>A patient and their carers should be empowered to self-administer their TCM when applicable to do so</p>	F	<p>NICE (NG 71) Parkinson's Disease in adults <a href="https://www.nice.org.uk/guidance/qs164/resources/parkinsons-disease-pdf-75545600441029#:~:text=Practitioners%20should%20support%20adults%20with,for%20adults%20with%20Parkinson's%20disease.">https://www.nice.org.uk/guidance/qs164/resources/parkinsons-disease-pdf-75545600441029#:~:text=Practitioners%20should%20support%20adults%20with,for%20adults%20with%20Parkinson's%20disease.</a></p> <p>and</p> <p>National Institute for Health and Care Excellence. Diabetes in adults. Quality Standard [QS6]. 2011 (updated 2016). <a href="https://www.nice.org.uk/guidance/qs6">https://www.nice.org.uk/guidance/qs6</a></p>

### Grading explained

- F - Fundamental** This is the top priority for your ED to get right. It needs to be met by all those who work and serve in the healthcare system. Behaviour at all levels of service provision needs to be in accordance with at least these fundamental standards. No provider should offer a service that does not comply with these fundamental standards, in relation to which there should be zero tolerance of breaches.
- D - Developmental** This is the second priority for your ED. It is a requirement over and above the fundamental standard.
- A - Aspirational** This is the third priority for your ED and is about setting longer term goals.

## EQUALITY STATEMENT

The College is committed to assessing health inequalities relating to patient ethnicity and gender to support departments to provide high quality and equitable care to all.

We will be collecting ethnicity and gender data, monitoring them for systemic inequalities and reporting at the national level.

Our last attempt demonstrated difficulties collecting comprehensive ethnicity data with many reported as 'not specified' – We are exploring the cause of this to improve future data sets to increase the accuracy of ongoing analysis of such data.

## MEASURES

### Process Measures

<b>STANDARD 1</b>  Patients on TCM are identified within the ED early	<b>1a. Time taken to identify the patient has a TCM condition</b>  <i>Time difference between when the patient was booked in to when it was identified that they have a TCM condition</i>
<b>STANDARD 2</b>  All of patients' TCM should be administered according to their usual regime whilst they are in the ED	<b>2. Timely administration of TCM</b>  <i>Time difference of TCM administration from usual schedule (in Year 1 this will be all TCMs; it will also be broken down into levodopa and insulin)</i>  <i>With further analysis looking at</i>  <i>Time from 1<sup>st</sup> identification, 1<sup>st</sup> prescription and 1<sup>st</sup> administration for all TCM.</i>
<b>STANDARD 3</b>  Patients and their carers should be empowered to self-administer their TCM when applicable to do so whilst in the ED	<b>3. Timely self-administration of TCM.</b>  <i>Time difference between self-administration time and time usually taken.</i>

### Outcome Measures

- 1) % of patients on TCM who are identified within the ED by 30mins.
- 2) % of TCM given within 30 minutes of their usual schedule (in Year 1 this will be all TCM and also separated into levodopa and insulin) and  
  
% of TCM missed doses while the patient was in the ED (in Year 1 this will be all TCM and also separated into levodopa and insulin)
- 3) % of patients or carers who were allowed to self-administer their TCM doses in the ED.

## METHODOLOGY



### Forming your QIP team

RCEM recommends forming a multidisciplinary QI team to include consultants, trainees, advanced care practitioners (ACPs), specialty and associate specialist (SAS) doctors, nursing and patient representatives, and others to suit your local set up.



### Data entry portal

You can find the link to log into the data entry site at [www.rcem.ac.uk/audits](http://www.rcem.ac.uk/audits) (registered users only).



### Inclusion criteria

Patients must meet the following criteria for inclusion:

- Patients on scheduled TCM\* which needs to be taken during their time in the ED.

(\*) Initially this will be:

- Parkinson's patients on oral Levodopa  
OR
- Type 1 and type 2 Diabetes Mellitus on SC insulin.
- ED Patients who are allowed to self-administer can be included as well
- For the next year of this QIP, a preliminary analysis will be done to define the TCMs for Year 2 in May 2024.

**Issues identifying eligible patients?** Please see

- [Appendix 4a](#), for helpful instructions to help you find eligible cases.
- [Appendix 4b](#) for General advice on Self-administration.



### Exclusion criteria

1. Patients with Adverse effects from the TCM
  - Patients who have presented with a complication or adverse event related to the critical medication. Examples are: Presented to ED with Hypoglycemia in a patient on Insulin.
  - Presented to ED with overdose of insulin or Parkinson's medication
  - Presented to ED with Allergic reaction to medications
2. Patients who are on Insulin infusions (sliding/fixed scale). Long acting insulins prescribed as part of DKA and HHS management are not included in the TCM QIP
3. Patients in ED for less than 60 mins
4. Critically unwell patients
  - Patients with persistent EWS >5 (persistent for the purpose of this QIP means patients with EWS of >5 through their entire stay in ED)
  - Patients needing other lifesaving therapy - PCI, chest drain, Intubation or
  - Patients needing Intensive care or urgent operative management.

5. Newly diagnosed: Diabetes Mellitus (Type 1 or 2) or newly diagnosed Parkinson's (less common) in the emergency department.



### Sample size

Please collect a minimum of 6 randomised cases per week that meet the eligibility criteria. (3 cases of Parkinson's patients on oral levodopa and 3 cases of Type 1 and type 2 Diabetes Mellitus patients on SC Insulin)



### Data entry frequency

**Recommended:** To maximise the benefit of the run charts and features, RCEM recommends entering a minimum of 6 cases each week (following the sample size stated above). This will allow you to see your ED's performance on key measures changing week by week. PDSA cycles should be regularly conducted to assess the impact of changes on the week-to-week performance.

**Alternative:** If your ED will find weekly data entry too difficult to manage, you may enter data fortnightly instead. The system will ask you for each patient's arrival date and automatically split your data into weekly arrivals, so you can get the benefit of seeing weekly variation if you spread the cases across the fortnightly. If you decide to enter data fortnightly, we recommend that you enter at least 12 cases fortnightly (6 cases from week 1 and 6 from week 2, following the sample size from the section above). You can then consider fortnightly cycles of PDSA with specific interventions and evaluate their impact by reviewing the trend over that time period.



### Data collection period

Data should be collected on patients between **03 Nov 2023 – 03 Oct 2026**

Specific QIP Year reporting period-

Year 1 Interim report period: 03 Oct 2023 – 03 Oct 2024

Year 2 Interim report period: 03 Oct 2024 – 03 Oct 2025

Year 3 Final report period: 03 Oct 2025 – 03 Oct 2026

The project length has been increased to allow time to understand your local service offering and establish areas of need. These can then be targeted with PDSA interventions and change monitored over enough time to embed real change. Nationally we are aiming to improve sharing of best practices to facilitate idea development.



### Data submission period

Data can be submitted [online](#) between **06 Nov 2023 – 03 Oct 2026**.

Data submission period per QIP year:

Year 1 Interim report period: 06 Nov 2023 – 03 Oct 2024

Year 2 Interim report period: 03 Oct 2024 – 03 Oct 2025

Year 3 Final report period: 03 Oct 2025 – 03 Oct 2026

It is recommended to enter data as close to the date of patient attendance as possible, and to review progress regularly. This will help your QI team spot the impact of intervention more promptly for refinement or disposal, depending on the changes observed.

## DATA TO BE COLLECTED

### Organisational data

(please complete this section three times per ED- at the start of the QIP; middle, and end of Year one)

<b>Q1</b>	Is there a policy for the ambulance service to identify patients on TCM at handover to ED?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Q2</b>	Do you have a visual aid of TCM at reception/waiting room to empower patients	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Q3</b>	Does your ED have a system in place to identify patients on TCM on your systems	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Q4</b>	Does your ED have a policy for allowing patients to self-administer their own scheduled medication	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Q5</b>	Do you have systems in place to ensure an accurate TCM Drug history/regime is reviewed and is accurate	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Q6</b>	Does your ED use electronic prescribing	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Q7</b>	Do you have a specific TCM stock in the ED? If yes, please select the options available in stock-	<ul style="list-style-type: none"> <li>• Levodopa</li> <li>• Insulin</li> <li>• Anti-Convulsant</li> <li>• DOAC's</li> <li>• Desmopressin</li> <li>• Steroids</li> <li>• Immunosuppressants</li> <li>• No stock</li> </ul>
<b>Q8</b>	Do you have specific TCM stock in the ED available 24 hrs	<ul style="list-style-type: none"> <li>• Levodopa</li> <li>• Insulin</li> <li>• Anti-Convulsant</li> <li>• DOACs</li> <li>• Desmopressin</li> <li>• Steroids</li> <li>• Immunosuppressants</li> <li>• No 24-hr available stock</li> </ul>

<b>Q9</b>	Do you have a member of the pharmacist team who is responsible for ordering and stocking the TCM in the ED	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Q10</b>	Do you have a Standard Operating Procedure for TCM that you use in your ED which has been ratified and is in date	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Q11</b>	Do you have TCM education in the ED for all staff	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Q12</b>	Is there TCM Mandatory training in your NHS Trust	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>

### Clinical data

<b>Q1</b>	Reference (do not use patient identifiable data e.g. NHS or hospital number.)	[free text]
<b>Q2</b>	Date and time of arrival	<ul style="list-style-type: none"> <li>• dd/mm/yyyy</li> <li>• HH:MM</li> </ul>
<b>Q3</b>	Date and Time when the patient left the ED	<ul style="list-style-type: none"> <li>• dd/mm/yyyy</li> <li>• HH:MM</li> <li>• Discharged or Admitted</li> </ul>
<b>Q4</b>	Time first seen by named clinician	<ul style="list-style-type: none"> <li>• dd/mm/yyyy</li> <li>• HH:MM</li> <li>• Not Recorded</li> </ul>
<b>Q4 (a)</b>	Time of referral (if made)	<ul style="list-style-type: none"> <li>• dd/mm/yyyy</li> <li>• HH:MM</li> <li>• No referral made</li> </ul>
<b>Q5</b>	Patient Age	[free text]
<b>Q6</b>	Patient ethnicity	See Appendix 1 for ECDS category details
<b>Q6 (a)</b>	Is there documented evidence of a significant language barrier (e.g. needs translator, family member providing history, deaf)	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Not recorded</li> </ul>
<b>Q7</b>	How did the patient arrive	<ul style="list-style-type: none"> <li>• Ambulance</li> <li>• Walk in</li> <li>• Not recorded</li> </ul>

<b>Q8</b>	<p>Which TCM is the patient on for which condition?</p> <p><i>This may be from the ambulance service, in the form of a TCM digital flag, a TCM visual sticker, TCM written on the front of the notes or TCM written in the notes</i></p>	<ul style="list-style-type: none"> <li>• Levodopa for Parkinson's</li> <li>• Insulin for Type 1 and Type 2 Diabetics</li> <li>• Anti-Convulsant for Epilepsy</li> <li>• DOACs, Warfarin, Anti-coagulant for previous stroke/DVT/PE</li> <li>• Desmopressin for DI</li> <li>• Steroids for Adrenal Insufficiency</li> <li>• Immunosuppressants for previous transplant</li> </ul>
<b>Q8a</b>	<p>What Time was it identified that the patient was on a TCM</p>	<ul style="list-style-type: none"> <li>• dd/mm/yyyy</li> <li>• HH:MM</li> <li>• Not recorded</li> </ul>
<b>Q8b</b>	<p>Which staff group first recorded evidence of identification?</p>	<ul style="list-style-type: none"> <li>• Reception</li> <li>• Triage Nurse</li> <li>• Paramedics</li> <li>• Named Clinician</li> <li>• In-patient team</li> <li>• Pharmacist</li> <li>• Nurse (non-triage)</li> <li>• AHP</li> <li>• Other (Specify)</li> <li>• Not recorded</li> </ul>
<b>Q9</b>	<p>Any evidence of issue with capacity?</p>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Not recorded</li> </ul>

## Clinical data – TCM Schedule and Administration in ED

Please complete the table below with details of doses that should have been administered in the ED, with the 1st dose being the first scheduled dose required while in the ED. This is the most important step if this QiP is going to be successful and provide quality improvement. See [Appendix 4c](#) for guidance on how to identify what a patient's TCM regime is and when they usually take them.

Patient's regular TCM drug schedule				Medication in ED			
Dose	Drug	Time usually taken	Identified by	Patient instructed to self-administer their own TCM'?	Time Prescribed (to be given)	Time Given	Alternative given
1st	Drop down list	<ul style="list-style-type: none"> <li>• dd/mm/yyyy HH:MM</li> <li>• not identified</li> </ul>	<ul style="list-style-type: none"> <li>-Not identified</li> <li>-ED paper notes</li> <li>-ED electronic notes</li> <li>-Recent outpatient letter</li> <li>-Recent inpatient discharge letter</li> <li>-Patient confirmation (phoned patient)</li> <li>-Unknown</li> <li>-Other</li> </ul>	<ul style="list-style-type: none"> <li>• Yes [Q4b Self-administration date and time] <ul style="list-style-type: none"> <li>○ Date</li> <li>○ Time</li> </ul> </li> <li>• No</li> </ul>	<ul style="list-style-type: none"> <li>• dd/mm/yyyy HH:MM</li> <li>• Not prescribed (No reason)</li> <li>• Not indicated</li> <li>• Omitted (Medical Decision) [Q5b – Recorded reason] <ul style="list-style-type: none"> <li>○ NBM</li> <li>○ Patient refused</li> <li>○ Dose unable to be clarified</li> <li>○ Other</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• dd/mm/yyyy HH:MM</li> <li>• Missed (Not given)</li> <li>• Omitted (Medical Decision) [Q6b – Recorded reason] <ul style="list-style-type: none"> <li>○ NBM</li> <li>○ Patient refused</li> <li>○ Dose unable to be clarified</li> <li>○ Other</li> </ul> </li> </ul>	dd/mm/yyyy HH:MM <ul style="list-style-type: none"> <li>• Transdermal</li> <li>• SC</li> <li>• IV</li> <li>• Other</li> <li>• N/A</li> <li>• Not recorded</li> </ul>
2nd	Drop down list	<ul style="list-style-type: none"> <li>• dd/mm/yyyy HH:MM</li> <li>• not identified</li> </ul>	<ul style="list-style-type: none"> <li>-Not identified</li> <li>-ED paper notes</li> <li>-ED electronic notes</li> <li>-Recent outpatient letter</li> <li>-Recent inpatient discharge letter</li> <li>-Patient confirmation (phoned patient)</li> <li>-Unknown</li> <li>-Other</li> </ul>	<ul style="list-style-type: none"> <li>• Yes [Q4b Self-administration date and time] <ul style="list-style-type: none"> <li>○ Date</li> <li>○ Time</li> </ul> </li> <li>• No</li> </ul>	<ul style="list-style-type: none"> <li>• dd/mm/yyyy HH:MM</li> <li>• Not prescribed (No reason)</li> <li>• Not indicated</li> <li>• Omitted (Medical Decision) [Q5b – Recorded reason] <ul style="list-style-type: none"> <li>○ NBM</li> <li>○ Patient refused</li> <li>○ Dose unable to be clarified</li> <li>○ Other</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• dd/mm/yyyy HH:MM</li> <li>• Missed (Not given)</li> <li>• Omitted (Medical Decision) [Q6b – Recorded reason] <ul style="list-style-type: none"> <li>○ NBM</li> <li>○ Patient refused</li> <li>○ Dose unable to be clarified</li> <li>○ Other</li> </ul> </li> </ul>	dd/mm/yyyy HH:MM <ul style="list-style-type: none"> <li>• Transdermal</li> <li>• SC</li> <li>• IV</li> <li>• Other</li> <li>• N/A</li> <li>• Not recorded</li> </ul>
...							
8th	Drop down list	<ul style="list-style-type: none"> <li>• dd/mm/yyyy HH:MM</li> <li>• not identified</li> </ul>	<ul style="list-style-type: none"> <li>-Not identified</li> <li>-ED paper notes</li> <li>-ED electronic notes</li> <li>-Recent outpatient letter</li> <li>-Recent inpatient discharge letter</li> <li>-Patient confirmation (phoned patient)</li> <li>-Unknown</li> <li>-Other</li> </ul>	<ul style="list-style-type: none"> <li>• Yes [Q4b Self-administration date and time] <ul style="list-style-type: none"> <li>○ Date</li> <li>○ Time</li> </ul> </li> <li>No</li> </ul>	<ul style="list-style-type: none"> <li>• dd/mm/yyyy HH:MM</li> <li>• Not prescribed (No reason)</li> <li>• Not indicated</li> <li>• Omitted (Medical Decision) [Q5b – Recorded reason] <ul style="list-style-type: none"> <li>○ NBM</li> <li>○ Patient refused</li> <li>○ Dose unable to be clarified</li> <li>○ Other</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• dd/mm/yyyy HH:MM</li> <li>• Missed (Not given)</li> <li>• Omitted (Medical Decision) [Q6b – Recorded reason] <ul style="list-style-type: none"> <li>○ NBM</li> <li>○ Patient refused</li> <li>○ Dose unable to be clarified</li> <li>○ Other</li> </ul> </li> </ul>	dd/mm/yyyy HH:MM <ul style="list-style-type: none"> <li>• Transdermal</li> <li>• SC</li> <li>• IV</li> <li>• Other</li> <li>• N/A</li> <li>Not recorded</li> </ul>



## DATA SOURCES

ED patient records, including nursing notes (paper, electronic or both).

Flow of data searches to identify QIP cases

For information about using the Emergency Care Data Set (ECDS) or your ED's electronic patient record to identify relevant cases and to extract data from your system, please see **Appendix 1**.

Using the codes list in **Appendix 1**, first identify all patients attending your ED between the relevant dates, then by age at time of attendance, then through the other relevant criteria.

If your ED is reliably using the Emergency Care Data Set (ECDS), then your IT department or information team should be able to a) pull off a list of eligible cases for you, and b) extract some or all of the data you need to enter. Please see **Appendix 1** for the list of codes they will need to identify eligible cases or extract the data.

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## Appendix 1: ECDS Codes to support case identification.

The codes below can be used to help initially identify potential cases. This is not an exhaustive list; other search terms can be used, but all potential patients should then be reviewed to check they meet the definitions & selection criteria before inclusion in the QIP.

The ECDS codes below relate to CDS V6-2-2 Type 011 - Emergency Care Data Set (ECDS) Enhanced Technical Output Specification v3.0.

QIP question	ECDS data item name	ECDS national code	National code definition
Date and time of arrival or triage – whichever is earlier	EMERGENCY CARE ARRIVAL DATE	an10 CCYY-MM-DD	Date
	EMERGENCY CARE ARRIVAL TIME	an8 HH:MM:SS	Time
Ethnic group	ETHNIC CATEGORY	A	White British
		B	White Irish
		C	Any other White background
		D	White and Black Caribbean
		E	White and Black African
		F	White and Asian
		G	Any other mixed background
		H	Indian
		J	Pakistani
		K	Bangladeshi
		L	Any other Asian background
		M	Caribbean
		N	African
		P	Any other Black background
		R	Chinese
		S	Any other ethnic group
Z	Not stated e.g. unwilling to state		
	99	Not known e.g. unconscious	
Gender	PERSON STATED GENDER CODE	1	Male
		2	Female
		9	Indeterminate (unable to be classified as either male or female)
		X	Not Known (PERSON STATED GENDER CODE not recorded)

## Appendix 2: Definitions

Section	Standard	Term	Definition
Clinical Standards	1	Patients on a TCM are identified early within the ED	<p>Identification of a patient with a TCM can include</p> <ul style="list-style-type: none"> <li>• An electronic alert put on the ED IT system</li> <li>• A TCM sticker put on the ED notes e.g (a yellow Get it on Time sticker for Parkinson's)</li> <li>• Documentation in the ED assessment/triage that the patient has a TCM condition</li> </ul>
Clinical Standards	2	A patient's TCM should be administered according to their usual regime whilst they are in the ED	<p>Identification of a patient's usual TCM regime can include</p> <ul style="list-style-type: none"> <li>• Documentation in the ED assessment or triage form</li> <li>• Documentation in the ED paper or electronic notes</li> </ul> <p>This should include the name, dose, route and frequency</p> <p>See Appendix 4a for guidance on how to identify what a patient's TCM regime is</p> <p>All of the patients' daily TCM regime should be prescribed in the ED (so the risk of them not being given is reduced)</p> <p>All TCM should be given within 30 minutes of when a patient usually takes them</p>

### Appendix 3: Analysis plan (Organisational data)

This section explains how the RCEM team will analyse your organisational data. You may wish to conduct analysis locally. 'Analysis plan' defines how the RCEM team will analyse your data in relation to the organisational standards.

Standard	Relevant questions
1	Q1 and Q3
2	Q5, Q6, Q7, Q8, Q9, Q10, Q11 and Q12
3	Q2 and Q4

## Appendix 4a: Finding eligible cases

### Guidance around how to identify patients

1. Collate a list of search terms that will identify the patients on your local IT system - both in the ED and inpatient data.
2. As Parkinson's and Diabetes may not be coded in the ED data set, they will be listed as co-morbidities in the Trust speciality discharge letter, which is another way to identify cases if you are finding it difficult to input 6 a week.
3. On an electronic system add an alert.
4. On an electronic system add TCM as a task to be completed, turns from red to green when all the TCM has been prescribed. Search TCM under the task every week or fortnight to identify all the patients who are on TCM.
5. Send out an internal communication to all ED receptionists asking them to keep a record of all patients with Parkinson's and Diabetic on insulin who book in.
6. Add a Time Critical Medication sticker to the front of the notes and collate them when the patient leaves the ED so they do not get filed in the normal way.

## Appendix 4b: Self-administration of TCM, general advice for ED's

It will be up to individual EDs to decide on self-administration of TCMs.

Some general guidance is that to be allowed to self-medicate, the patient (or where appropriate their carer/family member) must:

- be able to describe their current medication regime accurately (including how and when they normally take their medications)
- have access to any supports or prompts required as part of their normal medication routine (for example medication reminder charts, dosette box, alarm system, etc)
- be assessed as having capacity to self-medicate
- be assessed as being able to self-medicate
- have access to their prescribed medications (either patient own drugs, or supplied by ED)

If a carer/family member is supporting self-medication, then an agreement must be in place to ensure they are available to undertake this for all medication doses/times, or an agreement is in place for ED staff to undertake this in their absence.

Within the dose information section of the data collection form, there is a question to complete to indicate the patient was self-administering, please ensure this is completed.

## Appendix 4c: Guidance on how to identify what a patient's TCM regime is and when they usually take them

**Taking steps to identify this is key to the success of this QIP**, we would encourage you to think about how you will take steps to achieve this in your ED.

The quickest change would be to ensure the recording of an accurate drug history of the patient's TCM regime is obtained from the patient, relative, and carer and the time and date are documented in the electronic ED record or ED notes including name, dose, route and frequency.

If this information is not referenced during the patient's attendance it is paramount that the person filling in the data attempts to identify this. The question of when the patient normally takes their next dose after they have arrived in the ED can be sought retrospectively by the person filling in the RCEM case capture entry. This can be achieved by either

- Documentation in the ED notes or electronic record (this is to be encouraged for all EDs)
- Phone the patient or carer
- ED discharge letter to Primary Care
- Care home documentation
- MAR sheets (Medication Administration Records)
- Community health services e.g., if District Nurses administer a TCM (e.g. insulin), ring the nursing team (usually a 24-hour access line)
- In-patient prescription charts or electronic prescribing
- A recent admission record (generally within 6 months)
- A recent inpatient discharge record (generally within 6 months)
- Clinic letters from secondary and tertiary care centres

The Topic Team found that phoning the patient or carer was the most efficient way of finding this out during the pilot if it was not identified or documented in the ED.

On occasions, Parkinson's patients will have doses omitted as a result of a medical decision, i.e. NBM, patient refused, dose unknown, other. These patients should not be excluded, and if an alternative is given, i.e. a transdermal patch, this should be recorded as well.

On occasions, a diabetic patient who is hyperglycaemic (but not requiring IV insulin) will be prescribed a short acting insulin if their normal insulin dose is not known. These patients should not be excluded, and if an alternative is given, such as a SC dose of Actrapid, this should be recorded as well.

## Appendix 4e: An example case 1

FR is an 83 year old male who arrives at the Emergency Department at 22.50 on 8<sup>th</sup> Nov 2023 by ambulance.

He is admitted to the ward at 14.15 on 9<sup>th</sup> Nov 2023 having been seen by the ED clinician at 03.35 and being put on the bed list at 05.30

He was first identified as having Parkinson's by the ED reception team, who put an electronic alert on the ED IT system at 23.22 on 8<sup>th</sup> Nov 2023

He was then assessed by the ED Nurse, who noted the Parkinson's alert. She asked about the name, dose and timing of his normal TCM regime and documented these in the notes in order that they would need to be given in the ED.

He takes

Madopar 62.5mg O QDS at 07.00, 11.00 and 15.00 and 19.00

He then went and asked an ED clinician to prescribe all of his Parkinson's TCM for 24 hrs

The ED clinician prescribed all 4 doses noting that the next one was at 07.00.

The day ED Nurse was handed over that the patient was prescribed Madopar 62.5mg O QDS and she was able to administer the 07.00 dose at 07.24 and the 11.00 dose at 11.35. She was able to handover to the medical team that his next dose was at 15.00

There was no discussion about self-administration in this case, but in hindsight, the ED team reflected that he would have been a good candidate

## Appendix 4e: An example case 2

GL is a 58 year old female, who arrives at the Emergency Department at 14.12 on 10<sup>th</sup> Nov 2023 by ambulance at 16.00

She is admitted to the ward at 03.00 on 10<sup>th</sup> Nov 2023 having been seen by the ED clinician at 19.12 and being put on the bed list at 21.25

She was first identified as having Parkinson's by the ED clinician who saw her at 19.12.

There is no documentation in the ED notes about Parkinson's medication.

On review you cannot find any documentation of a recent outpatient letter or recent discharge summary, but you can see on the e-Meds system that the medical team has prescribed Sinemet 125mg O TDS at 08.00, 14.00 and 20.00 when she was an inpatient.

While she was in the ED, she should have had Sinemet 125mg O prescribed to be given at 20.00.

You fill in that the first dose was due at 20.00 and this was identified by e-Meds, it was Not Prescribed and that it is a Missed Dose.

There was no discussion about self-administration in this case, but in hindsight, the ED team reflected again that she would have been a good candidate.



## Appendix 5: Time Critical Medications List

### List of Oral Parkinson's medications containing Levodopa

- Co-Beneldopa (Madopar)
- Co-Careldopa (Sinemet)
- Stavelo (Stanek)

### List of Subcutaneous (SC) Insulins

#### **Rapid Acting Insulin / Short Acting Insulins**

- Novorapid (Insulin Aspart)
- Humalog (Insulin Lispro)
- Apidra (Insulin Glulisine)
- Fiasp (Insulin Aspart)
- Actrapid
- Humulin S (Human soluble insulin)
- Insuman Rapid (Human soluble insulin)

#### **Long Acting Insulin / Intermediate acting Insulins**

- Levemir (Insulin Detemir)
- Abasaglar (Insulin Glargine)
- Lantus (Insulin Glargine)
- Toujeo (Insulin Glargine)
- Tresiba (Insulin Degludec)
- Insuman Basal
- Insulatard (Isophane insulin)
- Humulin I (Isophane insulin)

#### **Pre-mixed Bisphasic Insulin**

- Novomix 30 (Biphasic insulin Aspart)
- Humalog Mix 25 (Biphasic insulin Lispro)
- Humalog Mix 50 (Biphasic insulin Lispro)
- Humulin M3 (Soluble and Isophane insulin)
- Insuman Comb 15 (Soluble and Isophane insulin)
- Insuman Comb 25 (Soluble and Isophane insulin)
- Insuman Comb 50 (Soluble and Isophane insulin)

### Oral Anti-Coagulants to prevent Thrombosis

- Warfarin
- Rivaroxaban (brand names include Xarelto)
- Dabigatran (brand names include Pradaxa)
- Apixaban (brand names include Eliquis)
- Edoxaban (brand names include Lixiana)

## Oral Steroids to prevent an Addisonian Crisis

- Hydrocortisone
- Prednisolone
- Dexamethasone
- Fludrocortisone

## Oral Immunosuppressants to prevent transplant rejection

- Azathioprine
- Mycophenolate Mofetil
- Calcineurin inhibitors (Ciclosporin or Tacrolimus)
- Corticosteroids
- Sirolimus

## Medication to prevent Diabetes Insipidus

- Desmopressin Oral or Intramuscular (IM) or Intranasal (IN) or Sublingual (SL)

## Oral medication to prevent epileptic seizures

### Category 1

- Carbamazepine
- Phenobarbital
- Phenytoin
- Primidone

### Category 2

- Clobazam
- Clonazepam
- Eslicarbazepine acetate
- Lamotrigine
- Oxycarbazepine
- Perampanel
- Rufinamide
- Topiramate
- Zonisamide

### Category 3

- Brivaracetam
- Ethosuxinide
- Gabapentin
- Lacosamide
- Levetiracetam
- Pregabalin
- Tiagabine
- Vigabatrin

## Appendix 6: Clinical standards – Analysis plan (Dashboard charts)

This section explains how the RCEM team will analyse your data. You may wish to conduct analysis locally. 'Analysis sample' shows which records will be included or excluded. 'Analysis plan' defines how the RCEM team will present the data graphically, and which records will meet or fail the standards.

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
<b>1</b>	<p>Time usually taken [TCM Dose table]</p> <p>Time Given [TCM Dose table]</p>	<p><b>Include:</b></p> <p>All doses where the Time usually taken, and Time Given data was provided at least once.</p> <p><b>Exclude:</b></p> <p>All doses where "Time usually taken" time is not recorded OR 'not identified'; doses where "Time Prescribed (to be given)" is 'Not indicated'; doses where "Time Given" is 'Omitted (Medical Decision)'; doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> SPC Chart (weekly performance).</p> <p><b>Title:</b> % of TCM given within 30 minutes of usual schedule</p> <p><b>Calculation:</b></p> <p>Time Given<sub>dose 1, 2, 3...</sub> - Time usually taken<sub>dose 1, 2, 3...</sub></p> <p>Note that this calculation is not done per individual record, instead, it uses all doses recorded. As a result of this, the <b>sample size is not the number of records, it is the number of doses from all records.</b></p> <p><b>Standard Met:</b></p> <p>Time difference of the individual recorded dose is <math>\pm 30</math> minutes.</p> <p><b>Standard not met if:</b></p> <p>Time difference of the individual recorded dose is <math>&gt; 30</math> minutes.</p> <p>E.g., if there are <b>X</b> patient records for a given week and, the total recorded doses on the <b>X</b> records is <b>B</b>, standard % compliance is measured by doses with a time difference <math>\pm 30</math> minutes over <b>B</b> and NOT <b>X</b> (how many doses in <b>B</b> have been administered <math>\pm 30</math> minutes from the time usually taken).</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
1	<p>Q8</p> <p>Time usually taken (TCM Dose table)</p> <p>Time Given (TCM Dose table)</p>	<p><b>Include:</b></p> <p>All records where Q8 = Insulin for Type 1 and Type 2 Diabetics AND the dose Time usually taken and Time Given data was provided at least once.</p> <p><b>Exclude:</b></p> <p>All doses where "Time usually taken" time is not recorded OR 'Not identified'; doses where "Time Given" is 'Omitted (medical decision)'; doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> SPC Chart (weekly performance)</p> <p><b>Title:</b> % of Insulin given within 30 minutes of usual schedule</p> <p><b>Calculation:</b></p> <p>Time Given <math>\frac{\text{Insulin dose 1, 2, 3...} - \text{Time usually taken}}{\text{Insulin dose 1, 2, 3...}}</math></p> <p>Note that this calculation is not done per individual record, instead, it uses all Insulin doses recorded. As a result of this, the <b>sample size is not the number of records, it is the number of Insulin doses from all records.</b></p> <p><b>Standard Met:</b></p> <p>Time difference of the individual Insulin dose recorded dose is <math>\pm 30</math> minutes.</p> <p><b>Standard not met if:</b></p> <p>Time difference of the individual Insulin recorded dose is <math>&gt; 30</math> minutes.</p> <p>E.g., if there are X patient records for a given week and, the total recorded Insulin doses on the X records is B, the system should plot the % Insulin doses with a time difference <math>\pm 30</math> minutes over B and NOT X.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
<p style="text-align: center; font-size: 2em; font-weight: bold;">1</p>	<p>Q8</p> <p>Time usually taken (TCM Dose table)</p> <p>Time Given (TCM Dose table)</p>	<p><b>Include:</b></p> <p>All records where Q8 = Levodopa AND the dose Time usually taken and Time Given data was provided at least once.</p> <p><b>Exclude:</b></p> <p>All doses where "Time usually taken" time is not recorded OR 'not identified'; doses where "Time prescribed" is 'Not indicated'; doses where "Time Given" is 'Omitted (medical decision)'; dose where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> SPC Chart (weekly performance)</p> <p><b>Title:</b> % of Levodopa given within 30 minutes of usual schedule</p> <p><b>Calculation:</b></p> <p>Time Given <small>Levodopa dose 1, 2, 3...</small> - Time usually taken <small>Levodopa dose 1, 2, 3...</small></p> <p>Note that this calculation is not done per individual record, instead, it uses all Levodopa doses recorded. As a result of this, the <b>sample size is not the number of records, it is the number of Levodopa doses from all records.</b></p> <p><b>Standard Met:</b></p> <p>Time difference of the individual Levodopa dose recorded dose is <math>\pm 30</math> minutes.</p> <p><b>Standard not met if:</b></p> <p>Time difference of the individual Levodopa recorded dose is <math>&gt; 30</math> minutes.</p> <p>E.g., if there are X patient records for a given week and, the total recorded Levodopa doses on the X records is B, the system should plot the % Levodopa doses with a time difference <math>\pm 30</math> minutes over B and NOT X.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
1	<p>Time usually taken (TCM Dose table)</p> <p>Time Given (TCM Dose table)</p>	<p><b>Include:</b></p> <p>All doses where the Time usually taken, and Time Given data was provided at least once.</p> <p><b>Exclude:</b></p> <p>All doses where "Time usually taken" time is not recorded OR 'not identified'; doses where "Time prescribed" is 'Not indicated'; doses where "Time Given" is 'not recorded' or 'not Indicated'; doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> Scatter Plot (weekly performance), Y-Axis in minutes</p> <p><b>Title:</b> Time difference of all doses of TCMs administration from usual schedule</p> <p><b>Calculation:</b></p> <p style="text-align: center;">Time Given<sub>dose 1, 2, 3...</sub> - Time usually taken<sub>dose 1, 2, 3...</sub></p> <p>Note that this calculation is not done per individual record, instead, it uses all doses recorded. As a result of this, the <b>sample size is not the number of records, it is the number of doses from all records.</b></p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
<p style="text-align: center; font-size: 2em; font-weight: bold;">1</p>	<p>Q8</p> <p>Time usually taken (TCM Dose table)</p> <p>Time Given (TCM Dose table)</p>	<p><b>Include:</b></p> <p>All records where Q8 = Insulin for Type 1 and Type 2 Diabetics AND the dose Time usually taken and Time Given data was provided at least once.</p> <p><b>Exclude:</b></p> <p>All doses where "Time usually taken" time is not recorded OR 'not identified'; doses where "Time prescribed" is 'Not indicated'; doses where "Time Given" is 'not recorded' or 'not Indicated'; doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> Scatter Plot (fortnightly performance), Y-Axis in minutes</p> <p><b>Title:</b> Time difference of all doses of Insulin administration from usual schedule</p> <p><b>Calculation:</b></p> <p style="text-align: center;">Time Given<sub>Insulin dose 1, 2, 3...</sub> - Time usually taken<sub>Insulin dose 1, 2, 3...</sub></p> <p>Note that this calculation is not done per individual record, instead, it uses all Insulin doses recorded. As a result of this, the <b>sample size is not the number of records, it is the number of Insulin doses from all records.</b></p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
1	<p>Q8</p> <p>Time usually taken (TCM Dose table)</p> <p>Time Given (TCM Dose table)</p>	<p><b>Include:</b></p> <p>All records where Q8 = Levodopa AND the dose Time usually taken and Time Given data was provided at least once.</p> <p><b>Exclude:</b></p> <p>All doses where "Time usually taken" time is not recorded OR 'not identified'; doses where "Time prescribed" is 'Not indicated'; doses where "Time Given" is 'not recorded' or 'not Indicated'; doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> Scatter Plot (fortnightly performance), Y-Axis in minutes</p> <p><b>Title:</b> Time difference of all doses of Levodopa administration from usual schedule</p> <p><b>Calculation:</b></p> <p>Time Given<sub>Levodopa dose 1, 2, 3...</sub> - Time usually taken<sub>Levodopa dose 1, 2, 3...</sub></p> <p>Note that this calculation is not done per individual record, instead, it uses all Levodopa doses recorded. As a result of this, the <b>sample size is not the number of records, it is the number of Levodopa doses from all records.</b></p>



Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
2	<p>Time usually taken (TCM Dose table)</p> <p>Time Given (TCM Dose table)</p>	<p><b>Include:</b> All doses (1<sup>st</sup> to 3<sup>rd</sup>) where the Time usually taken and Time Given data was provided for the relevant dose being analysed.</p> <p>Records where the 3<sup>rd</sup> and/or 2<sup>nd</sup> dose were not given are also included but are only used to plot the line of the dose provided.</p> <p><b>Exclude</b> All doses where "Time usually taken" time is not recorded OR 'not identified'; Doses where "Time Given" is 'Omitted (medical decision)'; doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> Stacked Line Chart (fortnightly performance per individual dose), Y-Axis in minutes.</p> <p><b>Title:</b> Average time difference of TCM administration from usual schedule by dose</p> <p><b>Calculation:</b> Average time difference of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> doses of TCMs administration from usual schedule.</p> <p>Average time difference [Time Given (1<sup>st</sup> dose) – Time usually taken (1<sup>st</sup> dose)]  Average time difference [Time Given (2<sup>nd</sup> dose) – Time usually taken (2<sup>nd</sup> dose)]  Average time difference [Time Given (3<sup>rd</sup> dose) – Time usually taken (3<sup>rd</sup> dose)]</p> <p><b>NOTE:</b> For records with two dose tables (has two TCM conditions, e.g., Parkinson's and Diabetes), and the same relevant dose was recorded in both tables, both doses are used for the operation above.</p> <p>E.g.,</p> $\frac{\text{SUM (Time Given}_{1^{\text{st}} \text{ dose drug A, } 1^{\text{st}} \text{ dose drug B} - \text{Time usually taken}_{1^{\text{st}} \text{ dose drug A, } 1^{\text{st}} \text{ dose drug B})}}{2}$

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
<p style="font-size: 2em; font-weight: bold; text-align: center;">1, 2</p>	<p>Q2 Q8(a) Time Prescribed (TCM Dose table) Time Given (TCM Dose table)</p>	<p><b>Include:</b> All records where a <u>date and time were provided</u> on: Q2 AND Q8 (a) AND/OR 1<sup>st</sup> dose Time Prescribed (to be given) AND 1<sup>st</sup> dose Time Given. <b>Exclude</b> Records where no time and date were provided on Q8 (a) OR Q8a = 'not recorded'; Doses where Time Prescribed (to be given) = 'Not indicated' OR 'Omitted (medical decision)'; doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> Stacked Line Chart (fortnightly performance), Y-Axis in minutes. <b>Title:</b> Time from 1<sup>st</sup> identification, 1<sup>st</sup> prescription and time to 1<sup>st</sup> administration (from arrival) <b>Calculation:</b> Average [Q8(a) time – Q2 time] Average [Time Prescribed (1<sup>st</sup> Dose) time – Q2 time] Average [Time Given (1<sup>st</sup> Dose) time – Q2 time]  <b>NOTE:</b> For records with two dose tables, and the first dose was recorded in both tables, both doses are used for the operation above. E.g.,  SUM (Time Prescribed<sub>1st dose drug A (time), 1st dose drug B (time)</sub> – Q2 time) / 2 SUM (Time Given<sub>1st dose drug A (time), 1st dose drug B (time)</sub> – Q2 time) / 2</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
2	Time Given (TCM Dose table)	<p><b>Include:</b></p> <p>All recorded doses where:  Time Prescribed (to be given) IS NOT 'Not indicated' OR 'Omitted (medical decision)'  Time Given IS NOT 'Omitted (medical decision)'</p> <p><b>Exclude</b></p> <p>doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> SPC Chart (weekly performance).  <b>Title:</b> % of missed TCMs  <b>Calculation:</b></p> <p>% of doses where 'Missed' is selected for Time Given from all doses *</p> <p><i>Note that this calculation is not done per individual record, instead, it uses all doses recorded. As a result of this, the <u>sample size is not the number of records, it is the number of doses from all records.</u></i></p> <p>E.g., If there are <b>X</b> patient records for a given week and, the total recorded doses on the <b>X</b> records is <b>B</b>, standard compliance % is measured by missed doses over <b>B</b> and NOT <b>X</b>. (How many doses in <b>B</b> were not recorded as 'missed').</p> <p>(*) For records where there are two dose tables, doses from both tables are used for the analysis</p> <p><b>Standard Met:</b></p> <p>Any record where no dose was missed.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
<p style="text-align: center; font-size: 2em; font-weight: bold;">2</p>	<p>Drug (TCM Dose table) Time Given (TCM Dose table)</p>	<p><b>Include:</b> All recorded doses where: Recorded Drug is Insulin for Type 1 and Type 2 Diabetics Time Prescribed (to be given) IS NOT 'Not indicated' OR 'Omitted (medical decision)'. Time Given IS NOT 'Omitted (medical decision)'</p> <p><b>Exclude</b> Doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> SPC Chart (fortnightly performance) <b>Title:</b> % of missed Insulin doses <b>Calculation:</b>  % of Insulin doses where 'Missed' is selected for Time Given from all Insulin doses</p> <p><i>Note that this calculation is not done per individual record, instead, it uses all Insulin doses recorded. As a result of this, the <u>sample size is not the number of records, it is the number of Insulin doses from all records.</u></i></p> <p>E.g., If there are <b>X</b> patient records for a given week and, the total recorded Insulin doses on the <b>X</b> records is <b>B</b>, standard compliance % is measured by missed Insulin doses over <b>B</b> and NOT <b>X</b>. (How many Insulin doses in <b>B</b> were not recorded as 'missed').</p> <p><b>Standard Met:</b>  Any record where no Insulin dose was missed.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
2	<p>Drug (TCM Dose table)</p> <p>Time Given (TCM Dose table)</p>	<p><b>Include:</b></p> <p>All recorded doses where: Recorded Drug is Levodopa Time Prescribed (to be given) IS NOT 'Not indicated' OR 'Omitted (medical decision)'.</p> <p>Time Given IS NOT 'Omitted (medical decision)'</p> <p><b>Exclude</b></p> <p>Doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> SPC Chart (fortnightly performance)</p> <p><b>Title:</b> % of missed Levodopa doses</p> <p><b>Calculation:</b></p> <p>% of Levodopa doses where 'Missed' is selected for Time Given from all Levodopa doses</p> <p><i>Note that this calculation is not done per individual record, instead, it uses all Levodopa doses recorded. As a result of this, the <u>sample size is not the number of records, it is the number of Levodopa doses from all records.</u></i></p> <p>E.g., If there are <b>X</b> patient records for a given week and, the total recorded Levodopa doses on the <b>X</b> records is <b>B</b>, standard compliance % is measured by missed Levodopa doses over <b>B</b> and NOT <b>X</b>. (How many Levodopa doses in <b>B</b> were not recorded as 'missed').</p> <p><b>Standard Met:</b></p> <p>Any record where no Levodopa dose was missed.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
1	Q2  Q8 (a)	<p><b>Include:</b> All records where a date and time were provided on Q2 AND Q8 (a)</p> <p><b>Exclude:</b> Records where no time and date were provided on Q8 (a) OR Q8a = 'not recorded'</p>	<p><b>Chart Type:</b> SPC Chart (fortnightly performance), Y-Axis in minutes</p> <p><b>Title:</b> How long from arrival is it taking to first identify a patient on TCMs?</p> <p><b>Calculation:</b></p> <p style="text-align: center;">Average [Q8(a)<sub>time</sub> - Q2<sub>time</sub>]</p>
Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
1	Q8 (b)	<p><b>Include:</b> All records where an answer was provided to Q8 (b)</p>	<p><b>Chart Type:</b> Pie Chart set to always display the last 4 months of data available.</p> <p><b>Title:</b> Who first identified the patient as requiring TCMs?</p> <p><b>Calculation:</b></p> <p style="text-align: center;">Breakdown (%) of answers provided on Q8 (b)</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
<p style="text-align: center; font-size: 2em; font-weight: bold;">1</p>	<p>Q2</p> <p>Q8 (a)</p> <p>Q8 (b)</p>	<p><b>Include:</b></p> <p>All records where:</p> <p>Q2 date and time provided</p> <p>AND</p> <p>Q8 (a) date and time provided</p> <p><b>Exclude:</b></p> <p>Records where no time and date were provided on Q8 (a) OR Q8a = 'not recorded'</p>	<p><b>Chart Type:</b> Forest plot, Interquartile range bar chart.</p> <p><b>Title:</b> Average time to patient identification based on staff group</p> <p><b>Calculation:</b></p> <p>Interquartile ranges for Time difference <math>[Q8(a)_{time} - Q2_{time}]</math> per Q8 (b) answer.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
1	Q2 Q6 (a) Q8 (a) Q9	<p><b>Include:</b></p> <p>All records where time and date were provided for Q2 AND time and date were provided for Q8 (a) AND Q6 (a) OR Q9 IS NOT 'Not recorded'</p> <p><b>Exclude:</b></p> <p>Records where no time and date were provided on Q8 (a) OR Q8a = 'not recorded'</p>	<p><b>Chart Type:</b> Bar Chart displaying aggregate data in 3-month blocks (quarters, 13 weeks)</p> <p><b>Title:</b> Average time to patient identification (Patients with capacity / those without capacity / those with English language barrier)</p> <p><b>Calculation:</b></p> <p>Average time difference [Q8(a)<sub>time</sub> - Q2<sub>time</sub>] for records where Q9 (a) = No</p> <p>Average time difference [Q8(a)<sub>time</sub> - Q2<sub>time</sub>] for records where Q9 (a) = Yes</p> <p>Average time difference [Q8(a)<sub>time</sub> - Q2<sub>time</sub>] for records where Q6 (a) = Yes</p> <p>For records where either Q6 (a) or Q9 is 'Not recorded'; the record is used only for the calculation where the answer is not 'Not recorded'</p> <p>E.g., For a record where Q9 = Yes AND Q6 (a) = Not recorded, the record is used for the second calculation listed above, but it is not used for the third calculation listed above.</p>



Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
1	<p>Q6 (a)</p> <p>Q9 (a)</p> <p>Time usually taken (TCM Dose table)</p> <p>Time Given (TCM Dose table)</p>	<p><b>Include:</b></p> <p>All doses where time and date were provided for Time Given (1<sup>st</sup> Dose)</p> <p>AND</p> <p>Q6 (a) OR Q9 IS NOT 'Not recorded'</p> <p><b>Exclude</b></p> <p>All records where "Time usually taken" time is not recorded OR 'not identified'; doses where "Time given" = 'Omitted (medical decision)'; doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> Bar Chart displaying aggregate data in 3-month blocks (quarters, 13 weeks).</p> <p><b>Title:</b> Average time to first dose administration (Patients with capacity / those without capacity / those with English language barrier)</p> <p><b>Calculation:</b></p> <p>Average time difference [Time Given (1<sup>st</sup> Dose)<sub>time</sub> - Time usually taken (1<sup>st</sup> Dose)<sub>time</sub>] for records where Q9 (a) = No</p> <p>Average time difference [Time Given (1<sup>st</sup> Dose)<sub>time</sub> - Time usually taken (1<sup>st</sup> Dose)<sub>time</sub>] for records where Q9 (a) = Yes</p> <p>Average time difference [Time Given (1<sup>st</sup> Dose)<sub>time</sub> - Time usually taken (1<sup>st</sup> Dose)<sub>time</sub>] for records where Q6 (a) = Yes</p> <p><b>NOTE:</b> For records with two dose tables, and the first dose was recorded in both tables, both doses are used for the operation above.</p> <p>E.g.,</p> <p><math display="block">\frac{\text{SUM (Time Prescribed}_{1^{\text{st}} \text{ dose drug A (time), 1^{\text{st}} \text{ dose drug B (time)} - \text{Time usually taken (1}^{\text{st}} \text{ Dose)}_{1^{\text{st}} \text{ dose drug A (time), 1^{\text{st}} \text{ dose drug B (time)}}}{2} \text{ for records where Q9 (a) = No}</math></p> <p>For records where either Q6 (a) or Q9 is 'Not recorded'; the record is used only for the calculation where the answer is not 'Not recorded' E.g., For a record where Q9 = Yes AND Q6 (a) = Not recorded, the record is used for the second calculation listed above but it is not used for the third calculation listed above.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
1	Identified by (TCM Dose table)	<p><b>Include:</b> All doses</p>	<p><b>Chart Type:</b> Stacked Bar Chart  <b>Title:</b> TCM identification  <b>Calculation:</b></p> <p>% of 'Not identified' answers  % of other answer options (100% stacked bar chart)</p> <p>Note that this calculation is not done per individual record, instead, it uses all doses recorded*. As a result of this, the <b>sample size is not the number of records, it is the number of doses from all records.</b></p> <p>E.g., If there are <b>X</b> patient records for a given week and, the total recorded doses on the <b>X</b> records is <b>B</b>, the system should plot the % missed doses over <b>B</b> and NOT <b>X</b>.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
3	Patient instructed to self-administer their own TCM? (TCM Dose table)	<p><b>Include:</b> All doses</p>	<p><b>Chart Type:</b> TCM Self-Administration  <b>Title:</b> Pie Chart  <b>Calculation:</b></p> <p>% of Yes and No answers</p> <p>Note that this calculation is not done per individual record, instead, it uses all doses recorded*. As a result of this, the <b>sample size is not the number of records, it is the number of doses from all records.</b></p> <p>E.g., If there are <b>X</b> patient records for a given week and, the total recorded doses on the <b>X</b> records is <b>B</b>, the system should plot the % missed doses over <b>B</b> and NOT <b>X</b>.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
<p style="text-align: center; font-size: 2em; font-weight: bold;">3</p>	<p>Patient instructed to self-administer their own TCM'? (TCM Dose table)</p> <p>Q4b Time and date self-administered (TCM Dose table)</p>	<p><b>Include:</b></p> <p>All doses where Patient instructed to self-administer their own TCM' = Yes</p> <p>AND</p> <p>Q4b [TCM Dose table] time and date provided.</p> <p>AND</p> <p>Dose "Time usually taken" time and date provided.</p> <p><b>Exclude</b></p> <p>All records where "Time usually taken" time is not recorded OR 'not identified'; records where Patient was instructed to self-administer their own TCM = No;</p> <p>Records where Q4b Time and date self-administered (TCM Dose table) time and date were not provided</p>	<p><b>Chart Type:</b> TCM Self-Administration time from time usually taken</p> <p><b>Title:</b> SPC Chart</p> <p><b>Calculation:</b></p> <p style="padding-left: 40px;">Patient self-administered own TCM (time and time)<sub>dose 1, 2, 3...</sub> - Time usually taken<sub>dose 1, 2, 3...</sub></p> <p>Note that this calculation is not done per individual record, instead, it uses all doses recorded*. As a result of this, the <b>sample size is not the number of records, it is the number of doses from all records.</b></p> <p><b>Standard Met:</b></p> <p>If Q4b Time and date self-administered +/- 30min from time usually taken.</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
2	<p>Time Prescribed (to be given) [TCM Dose table]</p> <p>Time Prescribed (to be given) Q5b [TCM Dose table]</p>	<p><b>Include:</b> All recorded doses where Q5b = Omitted (medical decision)</p> <p><b>Exclude</b> all recorded doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> TCM Prescription omitted by medical decision – recorded reasons</p> <p><b>Title:</b> Pie Chart</p> <p><b>Calculation:</b> % of answers provided on Q5b</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
2	<p>Time Given (TCM Dose table)</p> <p>Time Given Q6b (TCM Dose table)</p>	<p><b>Include:</b> All recorded doses where Q6b = Omitted (medical decision)</p> <p><b>Exclude</b> All recorded doses where Patient instructed to self-administer their own TCM = Yes</p>	<p><b>Chart Type:</b> TCM administration omitted by medical decision – recorded reasons</p> <p><b>Title:</b> Pie Chart</p> <p><b>Calculation:</b> % of answers provided on Q6b</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
2	Alternative given (TCM Dose table)	<p><b>Include:</b> All recorded doses* (* ) See excluded doses below</p> <p><b>Exclude</b> all recorded doses where; Patient instructed to self-administer their own TCM = Yes; Alternative given = N/A OR Not recorded</p>	<p><b>Chart Type:</b> Alternative TCM given</p> <p><b>Title:</b> Pie Chart</p> <p><b>Calculation:</b> % breakdown of Alternative given answers</p>

Standard	Relevant questions	Analysis sample	Analysis plan – Conditions for the standard to be met where applicable
<p style="text-align: center; font-size: 2em; font-weight: bold;">2</p>	<p>Time usually taken (TCM Dose table)</p> <p>Alternative given (TCM Dose table)</p>	<p><b>Include:</b></p> <p>All recorded doses where the time and date were provided for 'Alternative given' and time and date were provided for 'time usually taken'</p> <p><b>Exclude</b></p> <p>All records where "Time usually taken" time is not recorded OR 'not identified'; Patient instructed to self-administer their own TCM = Yes; Alternative given = N/A OR Not recorded.</p>	<p><b>Chart Type:</b> Alternative TCM given</p> <p><b>Title:</b> Pie Chart</p> <p><b>Calculation:</b></p> <p style="text-align: center;">Time usually taken<sub>dose 1, 2, 3...</sub> - Alternative given (time and date)<sub>dose 1, 2, 3...</sub></p> <p>Note that this calculation is not done per individual record, instead, it uses all doses recorded. As a result of this, the <b>sample size is not the number of records, it is the number of doses from all records.</b></p>