

Pharmacy technicians performing ACB calculations Standard Operating Procedure

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If the review date has passed please contact the Author for advice.

Powys Teaching Health Board is the operational name of Powys Teaching Local
Health Board

Bwrdd Iechyd Addysgu Powys yw enw gweithredol Bwrdd Iechyd Lleol Addysgu
Powys

Version Control:

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Engagement & Consultation

Key Individuals/Groups Involved in Developing this Document

Role / Designation
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Circulated to the following for Consultation

Date	Role / Designation

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1. Introduction

Anticholinergic medicines are prescribed for a wide range of conditions, including Parkinson's disease, overactive bladder, chronic obstructive pulmonary disease, nausea and vomiting, depression and psychosis. Some medicines are used specifically for their anticholinergic effects, whilst others have anticholinergic activity not related to their primary mode of action.

There is increasing evidence of the harm caused by medicines that have anticholinergic effects¹. Combining medicines with anticholinergic activity has cumulative harmful effects when taken by a patient; this cumulative effect is known as an anticholinergic burden (ACB). This potential for harm increases with frailty and age. Furthermore, anticholinergic medicine use is closely related to serious negative outcomes on older adults' health status, with increased risk of falls and higher mortality rates. Despite these risks, anticholinergic medicines are often prescribed long term for patients, without regular review.

The majority of PTHB inpatients are over 65 years old, receiving care in a rehabilitation / general ward or a ready to go home unit. Intervention by the pharmacy team provides opportunity to reduce a patient's ACB score, leading to a reduction in harm, improved patient outcomes and supports safer prescribing practices.

2. Objective

The purpose of this SOP is to provide a framework to upskill and support medicine management pharmacy technicians to effectively carry out a calculation of an inpatients ACB score. This calculation will support the pharmacist in their clinical review and alignment to the polypharmacy & deprescribing policy (draft).

This will lead to improved patient safety, as ACB medicines are highlighted, reviewed and deprescribed, as clinically appropriate.

3. Definitions

- **ACB** – Anticholinergic burden
- **AEC** - Anticholinergic Effect on Cognition
- **ePMA** – electronic prescribing and medicines administration
- **MTED** - Medicines Transcribing and E-Discharge
- **PTHB** – Powys Teaching Health Board
- **WCP** – Welsh Clinical Portal

4. Role / Responsibilities

¹ <https://www.prescqipp.info/umbraco/surface/authorisedmediasurface/index?url=%2fmedia%2f1017%2fb140-anticholinergics-drugs-21.pdf>

	<p>4.1 Head of Department</p> <p>The Head of Department must ensure that each pharmacy professional working at ward level receives the appropriate training to undertake the requirements of this procedure. Any new member of pharmacy staff undertaking work at ward level receives appropriate induction around this procedure.</p>
	<p>4.2 Medicines Management Pharmacy Technician</p> <p>A pharmacy technician who has received accredited medicine management training will perform a calculation of a patients ACB score on admission and refer the patient to the pharmacist for review of the results generated.</p>
	<p>4.3 Pharmacist</p> <p>The pharmacist can also perform a calculation of a patients ACB score on admission, in the absence of a medicine management pharmacy technician. The pharmacist will review and act upon any referrals made by the medicine management pharmacy technician.</p>
	<p>4.4 Trainee Pharmacist</p> <p>A trainee pharmacist may carry out the same roles as a pharmacist; this must be completed under the supervision of the pharmacist.</p>
	<p>4.5 Pre-Registration Pharmacy Technician</p> <p>A pre-registration pharmacy technician may carry out the same roles as a medicine management pharmacy technician; this must be completed under the supervision of a medicine management pharmacy technician or pharmacist.</p>
<p>5. ACB calculation</p>	
	<p>5.1 ACB calculator tool</p> <p>No preference for a single ACB calculator tool has been identified nationally. Following research and discussion within the pharmacy team and with the head of service, this SOP recommends the use of 'Medichec' available at https://medichec.com/</p> <p>Medichec is a web-based tool that analyses medication that may have anticholinergic effects, assigning each medicine an ACB score, and defines the extent of the effect and the cumulative implications of multiple drugs.</p> <p>Note – This SOP refers to the anticholinergic burden (ACB) of medicines, however, Medichec uses the terminology anticholinergic effect on cognition (AEC). These terminologies are interchangeable. Pharmacy staff using Medichec should ensure they are familiar with this issue.</p> <p>Pharmacy staff should use Medichec to perform the ACB calculation. Medichec is a multifunctional tool, which also highlights the risk each medicine poses to;</p>

- QTc prolongation
- Hyponatraemia
- Bleeding risk
- Dizziness
- Drowsiness
- Constipation

A patient's ACB score should be calculated as part of their medicine reconciliation, performed by pharmacists or medicine management pharmacy technicians (and students within these roles) on admission to a PTHB ward.

If a patient is transferred from one PTHB ward to another, as an internal transfer, and there is no evidence that an ACB calculation has been performed, this should occur on arrival to the ward to which the patient is transferred to.

An inpatient's ACB score may be reviewed when medicines are started or stopped, but it is not expected that recalculation occurs at every medication change.

A key opportunity to reassess the inpatient's ACB score occurs when the paper medication chart is rewritten. At this point, pharmacy staff should aim to recalculate the ACB score.

5.2 Using Medichec

A step-by-step guide for using Medichec is included in the appendix.

When loading the Medichec webpage for the first time, pharmacy staff should familiarise themselves with each drop-down menu, which explains the evaluation of each medication, and the colour coded icons associated with that evaluation. An explanation of these is also found in the appendix of this SOP.

When entering medicines into the search bar, Medichec will auto populate medicines as the user types, for example prednisolone can be found by typing 'pred'. Users should ensure they select the correct medicine.

All regularly prescribed medicines should be added to Medichec, as well as any regularly used when required medicines. Anticipatory end of life medicines should not be added to the Medichec calculation.

Medichec will display all medicine risks, as listed in 5.1, unless users filter to display individual preferences. A display of the total ACB score can be found further down the screen, under 'scores & interpretation'.

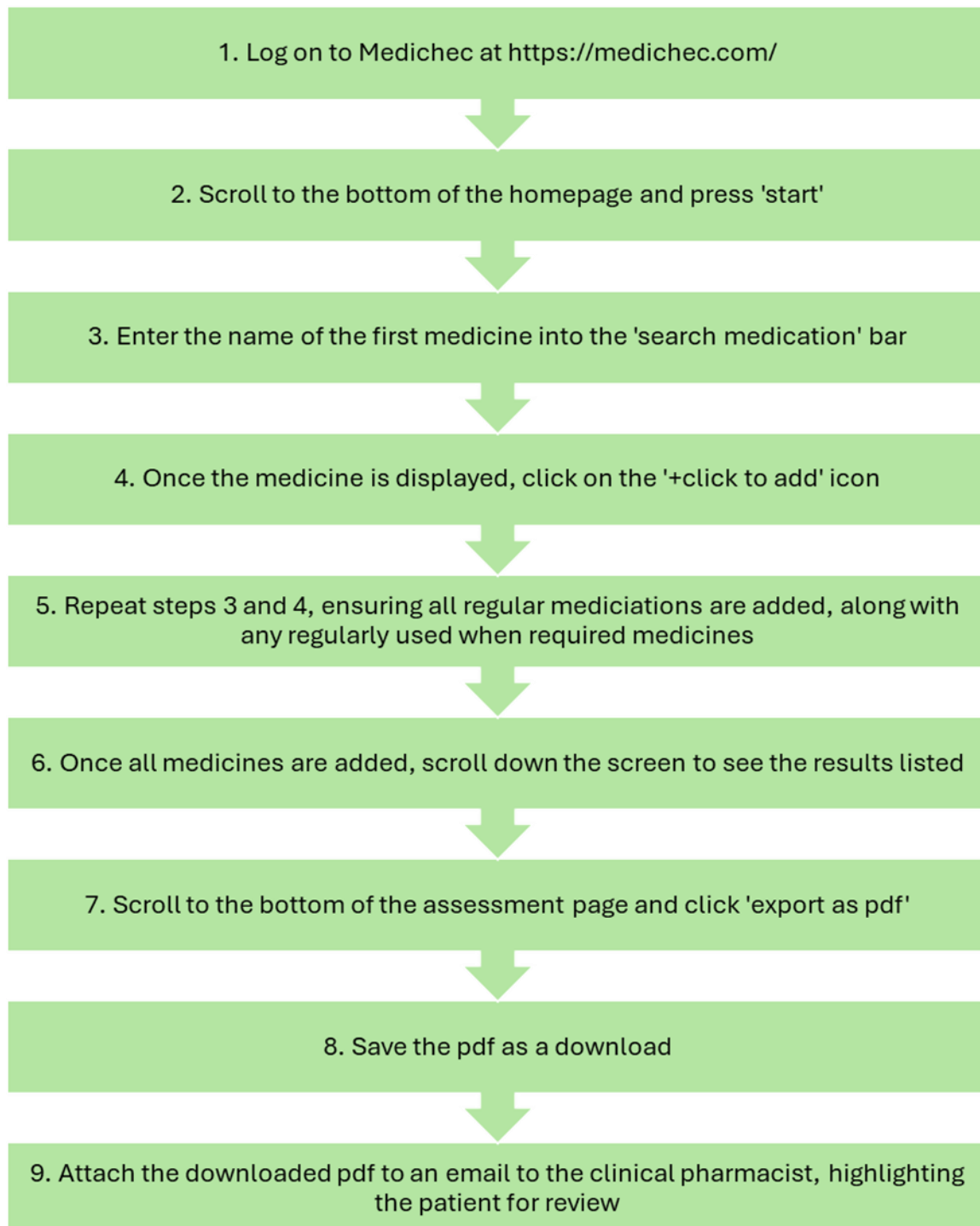
Each assessment using Medichec can be downloaded and exported as a pdf. This pdf will be required by the medicine management pharmacy technician to make a referral to the clinical pharmacist.

To begin a new assessment for a different patient, users must ensure they click 'Clear Session' to reset all fields and start with a blank form.

	<p>5.3 Interpreting ACB scores</p> <p>A medicine will have an individual ACB score ranging from 0-3:</p> <p>0 = no anticholinergic activity 1 = low anticholinergic activity 2 = moderate anticholinergic activity 3 = high anticholinergic activity</p> <p>Consideration should be given to:</p> <ul style="list-style-type: none"> • Reviewing any individual medicine with a score of 2 or more • Medication review for a patient with a cumulative ACB score of 3 or more <p>The medicine management pharmacy technician can make a referral to the pharmacist for a review of ACB medications.</p>
	<p>5.4 Recording ACB scores</p> <p>Each medicine with an ACB score should have that score documented on the paper medication chart, under 'special instructions / additional information', for example <i>prednisolone ACB = 1</i>.</p> <p>The total ACB score should be documented on the front of the paper medication chart, along with the date it was calculated, for example <i>ACB score = 4 (20/7/25)</i>.</p> <p>If any when required medicines have been used regularly and been included in the ACB score, it should be recorded as the total score of the regular medication plus the when required score, along with the date it was calculated, for example <i>ACB score = 4 (+1 prn) (20.7.25)</i>.</p> <p>If a patient has an ACB score of 0, it is beneficial to write 'zero' rather than 0 to avoid confusion.</p>
	<p>5.5 Referral criteria</p> <p>As Medichec provides other clinical information alongside the ACB score, it has been discussed and agreed with the head of service to provide the clinical pharmacist with the downloaded pdf review for all patients. This will be achieved by emailing the clinical pharmacist the downloaded pdf file from Medichec.</p> <p>Medicine management pharmacy technicians can highlight the ACB score to the clinical pharmacist in the email referral, ensuring the need for ACB review is communicated.</p>
	<p>5.5 Pharmacist review</p> <p>The clinical pharmacist will review the pdf received, and perform a medication review if clinically appropriate, as documented in the polypharmacy & deprescribing policy (draft).</p>

	<p>The clinical pharmacist may instruct the medicine management pharmacy technician to assist them in this review, for example by asking them to complete the PresQuipp impact tool.</p>
	<p>5.6 ePMA</p> <p>ePMA is due to launch across PTHB inpatient wards imminently. Consideration was given to launching this SOP alongside ePMA, however, to ensure patient safety and equitable care provision across PTHB it was agreed with the head of service to launch the process with paper medication charts in use and ensure that future consideration is given to how this SOP will be actioned with ePMA in place.</p> <p>By launching this SOP prior to ePMA, it allows for medicine management pharmacy technicians to be upskilled and offers opportunity for familiarisation with the SOP.</p>
<p>6. Monitoring Compliance / Audit</p> <p>Pharmacy staff record current interventions made using the PTHB x-pirt intervention tool. This tool will be expanded to include the recording of ACB calculations performed and referrals made. The medicine management pharmacy technician or pharmacist performing the ACB calculation will be expected to use x-pirt to record their work.</p> <p>An audit of ACB calculations will be conducted by the document author, approximately 3 months after launch, to gather data for comparison for project completion as part of the BTEC Level 4 Diploma in Clinical Pharmacy Services and Therapeutics.</p> <p>Audit of ACB calculations will occur ad-hoc on-site. X-pirt will be reviewed to ensure ACB calculations are being recorded. This will be reported to the head of community services.</p>	
<p>7. Review and Change Control</p> <p>This document will be reviewed every three years or earlier should audit results or changes to legislation / practice within PTHB indicate otherwise.</p>	
<p>8. References / Bibliography</p> <p>PrescQuipp bulletin 253 – Anticholinergic burden NICE medicine guidance – prescribing in the elderly PTHB polypharmacy & deprescribing policy (draft)</p>	


Appendix A: Medichec step by step user guide



Appendix B: Medichec categorisation for AEC scoring





























AEC ∨

Medichec analyses medication that may have anticholinergic effects, defines the extent of the effect and the cumulative implications of multiple drugs. Medications with a high central anticholinergic burden can increase the risk of cognitive impairment in older people and research evidence indicates associations with an increased risk of developing dementia. The Anticholinergic Effect on Cognition (AEC) scale aims specifically to identify drugs with anticholinergic action within the brain, thus those potentially increasing risk of cognitive impairment. It helps clinicians to identify which drugs have an anticholinergic effect on cognition and defines the extent of this effect.







- ? Limited data - unable to score
- 0 Safe to use
- 1 Caution required
- 2 Review and withdraw or switch if appropriate / possible
- 3 Review and withdraw or switch if appropriate / possible

Appendix C: Medichec results, showing all assessments

AEC	QTc Prolongation	Hyponatraemia	Bleeding risk	Dizziness	Drowsiness	Constipation	Drug	AEC Score
							PREDNISOLONE	1
							OMEPRAZOLE	0
							ATORVASTATIN	0
							PROCHLORPERAZINE	2

Appendix D: Medichec results, filtered to show AEC only

AEC	Drug	AEC Score
	PREDNISOLONE	1
	OMEPRAZOLE	0
	ATORVASTATIN	0
	PROCHLORPERAZINE	2

Appendix E: Medichecc scores & interpretation, showing cumulative AEC score

