

# Reducing anti-cholinergic burden in older patients

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## Background/aims

Anticholinergic burden (ACB) is referred to the cumulative effect of taking one or more medications with anticholinergic activity.<sup>1</sup> Increased ACB is associated with increased cognitive impairment and mortality in the older population, particularly patients with an ACB score of three or more.<sup>2</sup> Adverse effects associated with anticholinergic use in older adults include memory impairment, confusion and hallucinations.

The aims of this QIP were:

- > to reduce ACB of geriatric patients
- > to encourage routine review of polypharmacy in older inpatients
- > to improve patients' prospective long-term cognition on discharge.

## Methods

Two cycles of quality improvement project, in which the ACB score of Wandle 2 ward patients was calculated on arrival to the ward, and then recalculated on discharge. ACB was calculated using [www.acbcalc.com](http://www.acbcalc.com).

Cycle 1 was comprised of two parts. Baseline (4 November 2020–22 November 2021): in this first part, ACB scores were calculated for Wandle 2 ward patients across the time period in order to assess the percentage who had their ACB reduced on discharge without any intervention. The second part involved intervention 1 (23 November 2020–9 December 2021): promotion of QIP to whole ward team, highlighting drive of intervention to review ACB and reduce prior to discharge.

Cycle 2 was done 4 months later involving intervention 2 (22 March 2021–7 April 2021): an educational poster on ACB (prompting drug chart review to help calculate and reduce ACB score) was placed in Wandle 2 ward multidisciplinary team office. The ward pharmacist was also involved to calculate and input the ACB score of patients in their electronic patient record, to flag scores to doctors and encourage medication review.

## Results

Baseline (42 patients): 6/42 (14%) had their ACB reduced. Of the high scorers/high-risk patients with ACB score of  $\geq 3$ , 3/8 (37.5%) had their scores reduced. Cycle 1 (45 patients): 8/45 (17%) had their ACB reduced, and of the high scorers 37.5% had their scores reduced. There was only a marginal difference in results (17% vs 14%) despite increasing the team's awareness of ACB (Table 1).

**Table 1. Comparison of baseline, cycle 1 and cycle 2 results**

	Baseline	Cycle 1	Cycle 2
Total patients, n	42	45	47
Patients with ACB reduced on discharge, n	6	8	9
Patients with ACB reduced (from all patients included in cycle)*, %	14.28	17.77	19.15
Patients with ACB reduced of patients with ACB score $\geq 1$ on admission, %	35.29	32	29
Patients with ACB increased on discharge, n	6	3	5
Patients with ACB increased (from all patients included in cycle), %	14.28	4.84	10.64
Patients with admission score of $\geq 3$ , n	8	8	15
Patients that had ACB score $\geq 3$ reduced on discharge, n	3	3	7
Patients with high-risk ACB reduced on discharge, %	37.50	37.50	46.67

Cycle 2 (47 patients): 9 of 47 (19%) had their ACB reduced, and of the high scorers 46.67% had scores reduced. There was a negligible improvement of overall number of patient reduced scores between interventions (19% vs 17%) but there was an improvement of reduction of high scorers ACB (46.67% vs 37.5%; Table 1).

The most common medication stopped (reducing ACB) across both cycles was promethazine (n=6). The most common medications started (adding to ACB) across both cycles were morphine (n=6) and codeine (n=4).

## Conclusion

In both cycles, patients with higher scoring ACB were more likely to have medications stopped as an inpatient. These patients are at greatest risk of their medications negatively impacting cognition, and overall mortality, therefore it is right they are prioritised. However, the frequency of ACB reduction in patients scoring lower scores (1–2) only showed marginal improvement between cycles.

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There is an increased risk of future accumulation of anticholinergic effect if redundant medications contributing to ACB are not stopped when the opportunity arises. There is still a lot of scope to improve stopping of medications that contribute to ACB while an inpatient. ■

## References

- 1 Rochon A. Uptodate.com. 2021. *Drug prescribing for older adults*. [www.uptodate.com/contents/drug-prescribing-for-older-adults](http://www.uptodate.com/contents/drug-prescribing-for-older-adults) [Accessed 7 May 2021].
- 2 *ACB calculator*. [www.acbcalc.com](http://www.acbcalc.com) [Accessed 7 May 2021].