ORIGINAL RESEARCH

Preoperative Diabetes Management for Patients Undergoing Elective Surgeries at a Veterans Affairs Medical Center

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Background: Preoperative hyperglycemia or hypoglycemia can result in surgical delays, cancellations, and/or postoperative complications, which can lead to increased costs and worsened patient outcomes. This retrospective study conducted at Veteran Health Indiana (VHI) assessed the level of preoperative glycemic control in patients undergoing major elective surgical procedures to determine what, if any, standardization exists for perioperative diabetes mellitus (DM) management and its impact on patient outcomes.

Methods: A retrospective chart review of 394 elective surgeries involving patients with DM from January 1, 2018, to December 31, 2021, at VHI was conducted. The primary end point was the incidence of patients with preoperative blood glucose > 180 mg/dL or < 70 mg/dL who had surgical procedures delayed or canceled due to hyperglycemia or hypoglycemia. Postoperative complications were examined for safety outcomes.

Results: A randomized sample of 131 surgeries was reviewed and included. The mean preoperative blood glucose level was 146 mg/dL; no surgical procedures delayed or canceled due to hyperglycemia or hypoglycemia. All communication for preoperative DM medication management came from surgical service letters. This identified 122 cases (93.1%). Only 30 patients (24.6%) received instructions specifically tailored to their regimen. The most frequently observed postoperative complication was acute kidney injury (8.4%).

Conclusions: Based on this randomized sample, the current VHI practice of providing a presurgery clinic visit and perioperative DM medication instructions is effective for preventing delays or cancellations in elective surgeries.

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More than 38 million people in the United States (12%) have diabetes mellitus (DM), though 1 in 5 are unaware they have DM.[1] The prevalence among veterans is even more substantial, impacting nearly 25% of those who received care from the US Department of Veterans Affairs (VA).[2] DM can lead to increased health care costs in addition to various complications (eg, cardiovascular, renal), especially if left uncontrolled.[1,3] A similar impact is found in the perioperative period (defined as at or around the time of an operation), as multiple studies have found that uncontrolled preoperative DM can result in worsened surgical outcomes, including longer hospital stays, more infectious complications, and higher perioperative mortality.[4-6]

In contrast, adequate glycemic control assessed with blood glucose levels has been shown to decrease the incidence of postoperative infections.[7] Optimizing glycemic control during hospital stays, especially postsurgery, has become the standard of care, with most health systems establishing specific protocols. In current literature, most studies examining DM management in the perioperative period are focused on postoperative care, with little attention to the preoperative period.[4,6,7]

One study found that patients with poor presurgery glycemic control assessed by hemoglobin A_{1c} (HbA_{1c}) levels were more likely to remain hyperglycemic during and after surgery.[8] Blood glucose levels > 200 mg/dL can lead to an increased risk of infection and impaired wound healing, meaning a well-controlled HbA_{1c} before a procedure serves as a potential factor for success.[9] The 2025 American Diabetes Association (ADA) Standards of Care (SOC) recommendation is to target HbA_{1c} < 8% whenever possible, and some health systems require lower levels (eg, < 7% or 7.5%).[10] With that goal in mind and knowing that preoperative hyperglycemia has been shown to be a contributing factor in the delay or cancellation of surgical cases, an argument can be made that attention to preoperative DM management also should be a focus for health care systems performing surgeries.[8,9,11]

Attention to glucose control during preoperative care offers an opportunity to screen for DM in patients who may not have been screened otherwise and to standardize perioperative DM management. Since DM disproportionately impacts veterans, this is a pertinent issue to the VA. Veterans can be more susceptible to complications if DM is left uncontrolled prior to surgery. To determine readiness for surgery and control of comorbid conditions such as DM before a

planned surgery, facilities often perform a preoperative clinic assessment, often in a multidisciplinary clinic.

At Veteran Health Indiana (VHI), a presurgery clinic visit involving the primary surgery service (physician, nurse practitioner, and/or a physician assistant) is conducted 1 to 2 months prior to the planned procedure to determine whether a patient is ready for surgery. During this visit, patients receive a packet with instructions for various tasks and medications, such as applying topical antibiotic prophylaxis on the anticipated surgical site. This is documented in the form of a note in the VHI Computerized Patient Record System (CPRS). The medication instructions are provided according to the preferences of the surgical team. These may be templated notes that contain general directions on the timing and dosing of specific medications, in addition to instructions for holding or reducing doses when appropriate. The instructions can be tailored by the team conducting the preoperative visit (eg, "Take 20 units of insulin glargine the day before surgery" vs "Take half of your long-acting insulin the night before surgery"). Specific to DM, VHI has a nurse-driven day of surgery glucose assessment where point-of-care blood glucose is collected during preoperative holding for most patients.

There is limited research assessing the level of preoperative glycemic control and the incidence of complications in a veteran population. The objective of this study was to gain a baseline understanding of what, if any, standardization exists for preoperative instructions for DM medications and to assess the level of preoperative glycemic control and postoperative complications in patients with DM undergoing major elective surgical procedures.

METHODS

This retrospective, single-center chart review was conducted at VHI. The Indiana University and VHI institutional review boards determined that this quality improvement project was exempt from review.

The primary outcome was the number of patients with surgical procedures delayed or canceled due to hyperglycemia or hypoglycemia. Hyperglycemia was defined as blood glucose > 180 mg/dL and hypoglycemia was defined as < 70 mg/dL, slight variations from the current ADA SOC preoperative specific recommendation of a blood glucose reading of

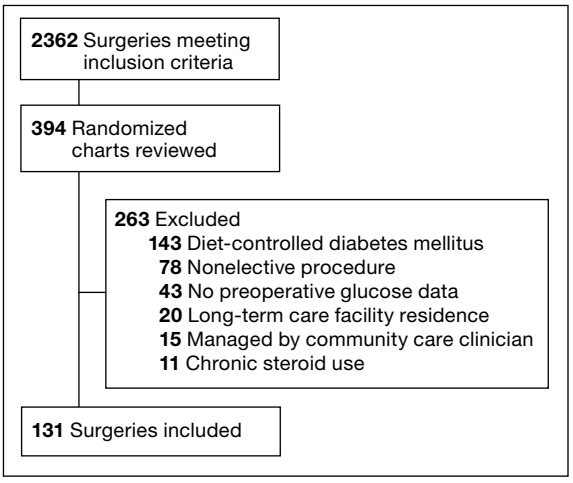

FIGURE. Patient Selection

100 to 180 mg/dL within 4 hours of surgery.[10] The standard outpatient hypoglycemia definition of blood glucose < 70 mg/dL was chosen because the current goal (< 100 mg/dL) was not the standard in previous ADA SOCs that were in place during the study period. Specifically, the 2018 ADA SOC did not provide preoperative recommendations and the 2019-2021 ADA SOC recommended 80 to 180 mg/dL.[10,12-18] For patients who had multiple preoperative blood glucose measurements, the first recorded glucose on the day of the procedure was used.

The secondary outcomes of this study were focused on the preoperative process/care at VHI and postoperative glycemic control. The preoperative process included examining whether medication instructions were given and their quality. Additionally, the number of interventions for hyperglycemia and hypoglycemia were required immediately prior to surgery and the average preoperative HbA_{1c} (measured within 3 months prior to surgery) were collected and analyzed. For postoperative glycemic control, average blood glucose measurements and number of hypoglycemic (< 70 mg/dL) and hyperglycemic (> 180 mg/dL) events were measured in addition to the frequency of changes made at discharge to patients' DM medication regimens.

The safety outcome of this study assessed commonly observed postoperative complications and was examined up to 30 days postsurgery. These included acute kidney injury (defined using Kidney Disease: Improving Global Outcomes 2012, the standard during the study period), nonfatal myocardial infarction, nonfatal stroke, and surgical site infections,

TABLE 1. Baseline Characteristics (N = 131)

Criteria	Results
Age, mean (SD), y	68 (8)
Sex, No. (%)	
Male	129 (98.5)
Female	2 (1.5)
Race, No. (%)	
White	100 (76.3)
African American	25 (19.1)
Unknown	5 (3.8)
Other	1 (0.8)
Comorbidities, No. (%)	
Type 2 diabetes mellitus	131 (100)
Coronary artery disease	45 (34.4)
Autonomic neuropathy	29 (22.1)
Chronic kidney disease	29 (22.1)
Osteomyelitis	2 (1.5)
Surgery specialty, No. (%)	
Orthopedics	42 (32.1)
Peripheral vascular	28 (21.4)
Thoracic	17 (13.0)
Neurosurgery	16 (12.2)
Ear, nose, throat	11 (8.4)
Other	9 (6.9)
General	8 (6.1)
Length of surgery, mean (SD), h	4.6 (2.6)
Hospital length of stay, mean (SD) [range], d	4 (4) [1-30]

which were identified from the discharge summary written by the primary surgery service.[19] All-cause mortality also was collected.

Patients were included if they were admitted for major elective surgeries and had a diagnosis of either type 1 or type 2 DM on their problem list, determined by *International Classification of Diseases, Tenth Revision* codes. Major elective surgery was defined as a procedure that would likely result in a hospital admission of > 24 hours. Of note, patients may have been included in this study more than once if they had > 1 procedure at least 30 days apart and met inclusion criteria within the time frame. Patients were excluded if they were taking no DM medications or chronic steroids (at any dose), residing in a long-term care facility, being managed by a non-VA clinician prior to surgery, or missing a preoperative blood glucose measurement.

All data were collected from the CPRS. A list of surgical cases involving patients with DM who were scheduled to undergo major elective surgeries from January 1, 2018, to December 31, 2021, at VHI was generated. The list was randomized to a smaller number (N = 394) for data collection due to the time and resource constraints for a pharmacy residency project. All data were deidentified and stored in a secured VA server to protect patient confidentiality. Descriptive statistics were used for all results.

RESULTS

Initially, 2362 surgeries were identified. A randomized sample of 394 charts were reviewed and 131 cases met inclusion criteria. Each case involved a unique patient (Figure). The most common reasons for exclusion were 143 patients with diet-controlled DM and 78 nonelective surgeries. The mean (SD) age of patients was 68 (8) years, and the most were male (98.5%) and White (76.3%) (Table 1). At baseline, 45 of 131 patients (34.4%) had coronary artery disease and 29 (22.1%) each had autonomic neuropathy and chronic kidney disease. Most surgeries were conducted by orthopedic (32.1%) and peripheral vascular (21.4%) specialties. The mean (SD) length of surgery was 4.6 (2.6) hours and of hospital length of stay was 4 (4) days. No patients stayed longer than the 30-day safety outcome follow-up period. All patients had type 2 DM and took a mean 2 DM medications. The 63 patients taking insulin had a mean (SD) total daily dose of 99 (77) U (Table 2). A preoperative HbA_{1c} was collected in 116 patients within 3 months of surgery, with a mean HbA_{1c} of 7.0% (range, 5.3-10.7).

No patients had surgeries delayed or canceled because of uncontrolled DM on the day of surgery. The mean preoperative blood glucose level was 146 mg/dL (range, 73-365) (Table 3). No patients had a preoperative blood glucose level of < 70 mg/dL and 19 (14.5%) had a blood glucose level > 180 mg/dL. Among patients with hyperglycemia immediately prior to surgery, 6 (31.6%) had documentation of insulin being provided.

For this sample of patients, the preoperative clinic visit was conducted a mean 22 days prior to the planned surgery date. Among the 131 included patients, 122 (93.1%) had documentation of receiving instructions for DM medications. Among patients who had documented receipt of instructions, only 30 (24.6%) had instructions specifically tailored to their regimen rather than a generic templated form. The mean (SD) preoperative blood glucose was similar for those who received specific perioperative DM instructions at 146 (50) mg/dL when compared with those who did not at 147 (45) mg/dL. The mean (SD) preoperative blood glucose reading for those

who had no documentation of receipt of perioperative instructions was 126 (54) mg/dL compared with 147 (46) mg/dL for those who did.

The mean number of postoperative blood glucose events per day was negligible for hypoglycemia and more frequent for hyperglycemia with a mean of 2 events per day. The mean postoperative blood glucose range was 121 to 247 mg/dL with most readings < 180 mg/dL. Upon discharge, most patients continued their home DM regimen with 5 patients (3.8%) having changes made to their regimen upon discharge.

Very few postoperative complications were identified from chart review. The most frequently observed postoperative complications were acute kidney injury, surgical site infections, and nonfatal stroke. There were no documented nonfatal myocardial infarctions. Two patients (1.5%) died within 30 days of the surgery; neither death was deemed to have been related to poor perioperative glycemic control.

TABLE 2. Diabetes- and Safety-Related Secondary End Points (N = 131)

Criteria	Results
HbA_{1c} ≤ 3 mo preoperative, mean (SD) [range], %[a]	7.0 (1.0) [5.3-10.7]
No. diabetes medications at baseline, mean (SD)	2 (1)
Total daily dose of insulin, mean (SD) [range], U[b]	
Baseline	99 (77) [5-340]
Discharge	90 (71) [5-340]
Preoperative glucose interventions needed, mean (%)	6 (4.6)
Postoperative glucose events/d, mean (SD)	
< 70 mg/dL	0.02 (0.1)
> 180 mg/dL	1.9 (1.7)
Postoperative glucose range, mean (SD), mg/dL	121 (39)-247 (39)
Preoperative medication instructions provided, No. (%)	
No	9 (6.9)
Yes	122 (93.1)
Specific to patient's regimen	30 (24.6)
Nonspecific to patient's regimen	92 (75.4)
Days before operation instructions received, mean (SD) [range]	22 (14) [1-70]
Safety outcomes, No. (%)	
Acute kidney injury	11 (8.4)
Surgical site infection	3 (2.3)
Death (all-cause)	2 (1.5)
Stroke (nonfatal)	1 (0.8)
Myocardial infarction (nonfatal)	0 (0)

Abbreviation: HbA_{1c}, hemoglobin A_{1c}.
[a]n = 116.
[b]n = 63.

DISCUSSION

To our knowledge, this retrospective chart review was the first study to assess preoperative DM management and postoperative complications in a veteran population. VHI is a large, tertiary, level 1a, academic medical center that serves approximately 62,000 veterans annually and performs about 5000 to 6000 surgeries annually, a total that is increasing following the COVID-19 pandemic.[20] This study found that the current process of a presurgery clinic visit and day of surgery glucose assessment has prevented surgical delays or cancellations.

Most patients included in this study were well controlled at baseline in accordance with the 2025 ADA SOC HbA_{1c} recommendation of a preoperative HbA_{1c} of < 8%, which may have contributed to no surgical delays or cancellations.[10] However, not all patients had HbA_{1c} collected within 3 months of surgery or even had one collected at all. Despite the ADA SOC providing no explicit recommendation for universal HbA_{1c} screening prior to elective procedures, its importance cannot be understated given the body of evidence demonstrating poor outcomes with uncontrolled preoperative DM.[8,10] The glycemic control at baseline may have contributed to the very few postsurgical complications observed in this study.

Although the current process at VHI prevented surgical delays and cancellations in this sample, there are still identified areas for improvement. One area is the instructions the patients received. Patients with DM are often prescribed ≥ 1 medication or a combination of insulins, noninsulin injectables, and oral DM medications, and this study population was no different. Because these medications may influence the anesthesia and perioperative periods, the ADA has specific guidance for altering administration schedules in the days leading up to surgery.[10]

Inappropriate administration of DM medications could lead to perioperative hypoglycemia or hyperglycemia, possibly causing surgical delays, case cancellations, and/or postoperative complications.[21] Although these data reveal the specificity and documented receipt that the preoperative DM instructions did not impact the first recorded preoperative blood glucose, future studies should examine patient confidence in how to properly administer their DM medications prior to surgery. It is vital that patients receive clear instructions in accordance with the ADA SOC on whether to continue, hold, or adjust the dose of their medications to prevent fluctuations in blood glucose levels in the perioperative

TABLE 3. Primary End Point (N = 131)

Criteria	Results
Surgeries delayed or canceled due to hyperglycemia or hypoglycemia, No. (%)	0 (0)
Preoperative glucose, mean (SD) [range], mg/dL	146 (47) [73-365]
Measured preoperative blood glucoses, No. (%)	
> 180 mg/dL	19 (14.5)
< 70 mg/dL	0 (0)

period, ensure safety with anesthesia, and prevent postoperative complications such as acute kidney injury. Of note, compliance with guideline recommendations for medication instructions was not examined because the data collection time frame expanded over multiple years and the recommendations have evolved each year as new data emerge.

Preoperative DM Management

The first key takeaway from this study is to ensure patients are ready for surgery with a formal assessment (typically in the form of a clinic visit) prior to the surgery. One private sector health system published their approach to this by administering an automatic preoperative HbA_{1c} screening for those with a DM diagnosis and all patients with a random plasma glucose ≥ 200 mg/dL.[22] Additionally, if the patient's HbA_{1c} level was not at goal prior to surgery (≥ 8% for those with known DM and ≥ 6.5% with no known DM), patients were referred to endocrinology for further management. Increasing attention to the preoperative visit and extending HbA_{1c} testing to all patients regardless of DM status also provides an opportunity to identify individuals living with undiagnosed DM.[1]

Even though there was no difference in the mean preoperative blood glucose level based on receipt or specificity of preoperative DM instructions, a second takeaway from this study is the importance of ensuring patients receive clear instructions on their DM medication schedule in the perioperative period. A practical first step may be updating the templates used by the primary surgery teams and providing education to the clinicians in the clinic on how to personalize the visits. Because the current preoperative DM process at VHI is managed by the primary surgical team in a clinic visit, there is an opportunity to shift this responsibility to other health care professionals, such as pharmacists—a change shown to reduce unintended omission of home medications following surgery during hospitalization and reduce costs.[23,24]

Limitations

This study relied on data included in the patient chart. These data include medication interventions made immediately prior to surgery, which can sometimes be inaccurately charted or difficult to find as they are not documented in the typical medication administration record. Also, the safety outcomes were collected from a discharge summary written by different clinicians, which may lead to information bias. Special attention was taken to ensure these data points were collected as accurately as possible, but it is possible some data may be inaccurate from unintentional human error. Additionally, the safety outcome was limited to a 30-day follow-up, but encompassed the entire length of postoperative stay for all included patients. Finally, given this study was retrospective with no comparison group and the intent was to improve processes at VHI, only hypotheses and potential interventions can be generated from this study. Future prospective studies with larger sample sizes and comparator groups are needed to draw further conclusions.

CONCLUSIONS

This study found that the current presurgery process at VHI appears to be successful in preventing surgical delays or cancellations due to hyperglycemia or hypoglycemia. Optimizing DM management can improve surgical outcomes by decreasing rates of postoperative complications, and this study added additional evidence in support of that in a unique population: veterans. Insight on the awareness of preoperative blood glucose management should be gleaned from this study, and based on this sample and site, the preadmission screening process and instructions provided to patients can serve as 2 starting points for optimizing elective surgery.

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Ethics and consent

This study was reviewed by Veteran Health Indiana Research & Development Committee and Veteran Health Indiana Pharmacy Research Advisory Workgroup and due to quality improvement focus, was determined to be exempt from institutional review board oversight.

References

1. Centers for Disease Control and Prevention. Diabetes basics. May 15, 2024. Accessed September 24, 2025. https://www.cdc.gov/diabetes/about/index.html
2. Liu Y, Sayam S, Shao X, et al. Prevalence of and trends in diabetes among veterans, United States, 2005-2014. *Prev Chronic Dis*. 2017;14:E135. doi:10.5888/pcd14.170230
3. Farmaki P, Damaskos C, Garmpis N, et al. Complications of the Type 2 Diabetes Mellitus. *Curr Cardiol Rev*. 2020;16(4):249-251. doi:10.2174/1573403X1604201229115531
4. Frisch A, Chandra P, Smiley D, et al. Prevalence and clinical outcome of hyperglycemia in the perioperative period in noncardiac surgery. *Diabetes Care*. 2010;33:1783-1788. doi:10.2337/dc10-0304
5. Noordzij PG, Boersma E, Schreiner F, et al. Increased preoperative glucose levels are associated with perioperative mortality in patients undergoing noncardiac, nonvascular surgery. *Eur J Endocrinol*. 2007;156:137-142. doi:10.1530/eje.1.02321
6. Pomposelli JJ, Baxter JK 3rd, Babineau TJ, et al. Early postoperative glucose control predicts nosocomial infection rate in diabetic patients. *JPEN J Parenter Enteral Nutr*. 1998;22:77-81. doi:10.1177/01486071980220027
7. Umpierrez GE, Smiley D, Jacobs S, et al. Randomized study of basal-bolus insulin therapy in the inpatient management of patients with type 2 diabetes undergoing general surgery (RABBIT 2 surgery). *Diabetes Care*. 2011;34:256-261. doi:10.2337/dc10-1407
8. Pasquel FJ, Gomez-Huelgas R, Anzola I, et al. Predictive value of admission hemoglobin A1c on inpatient glycemic control and response to insulin therapy in medicine and surgery patients with type 2 diabetes. *Diabetes Care*. 2015;38:e202-e203. doi:10.2337/dc15-1835
9. Alexiewicz JM, Kumar D, Smogorzewski M, et al. Polymorphonuclear leukocytes in non-insulin-dependent diabetes mellitus: abnormalities in metabolism and function. *Ann Intern Med*. 1995;123:919-924. doi:10.7326/0003-4819-123-12-199512150-00004
10. American Diabetes Association Professional Practice Committee. 16. Diabetes care in the hospital: Standards of Medical Care in Diabetes—2025. *Diabetes Care*. 2025;48(1 suppl 1):S321-S334. doi:10.2337/dc25-S016
11. Kumar R, Gandhi R. Reasons for cancellation of operation on the day of intended surgery in a multidisciplinary 500 bedded hospital. *J Anaesthesiol Clin Pharmacol*. 2012;28:66-69. doi:10.4103/0970-9185.92442
12. American Diabetes Association. 14. Diabetes care in the hospital: Standards of Medical Care in Diabetes—2018. *Diabetes Care*. 2018;41(1 suppl 1):S144-S151. doi:10.2337/dc18-S014
13. American Diabetes Association. 15. Diabetes care in the hospital: Standards of Medical Care in Diabetes—2019. *Diabetes Care*. 2019;42(suppl 1):S173-S181. doi:10.2337/dc19-S015
14. American Diabetes Association. 15. Diabetes care in the hospital: Standards of Medical Care in Diabetes—2020. *Diabetes Care*. 2020;43(suppl 1):S193-S202. doi:10.2337/dc20-S015
15. American Diabetes Association. 15. Diabetes care in the hospital: Standards of Medical Care in Diabetes—2021. *Diabetes Care*. 2021;44(suppl 1):S211-S220. doi:10.2337/dc21-S015
16. American Diabetes Association Professional Practice Committee. 16. Diabetes care in the hospital: Standards of Medical Care in Diabetes—2022. *Diabetes Care*. 2022;45(suppl 1):S244-S253. doi:10.2337/dc22-S016
17. ElSayed NA, Aleppo G, Aroda VR, et al. 16. Diabetes care in the hospital: Standards of Care in Diabetes—2023. *Diabetes Care*. 2023;46(suppl 1):S267-S278. doi:10.2337/dc23-S016
18. American Diabetes Association Professional Practice Committee. 16. Diabetes care in the hospital: Standards of Care in Diabetes—2024. *Diabetes Care*. 2024;47(suppl 1):S295-S306. doi:10.2337/dc24-S016
19. Kidney Disease: Improving Global Outcomes (KDIGO) Acute Kidney Injury Work Group. KDIGO Clinical Practice Guideline for Acute Kidney Injury. *Kidney Int Suppl*. 2012;2:1-138. Accessed September 24, 2025. https://www.kisupplements.org/issue/S2157-1716(12)X7200-9
20. US Department of Veterans Affairs. VA Indiana Healthcare: about us. Accessed September 24, 2025. https://www.va.gov/indiana-health-care/about-us/
21. Koh WX, Phelan R, Hopman WM, et al. Cancellation of elective surgery: rates, reasons and effect on patient satisfaction. *Can J Surg*. 2021;64:E155-E161. doi:10.1503/cjs.008119
22. Pai S-L, Haehn DA, Pitruzzello NE, et al. Reducing infection rates with enhanced preoperative diabetes mellitus diagnosis and optimization processes. *South Med J*. 2023;116:215-219. doi:10.14423/SMJ.0000000000001507
23. Forrester TG, Sullivan S, Snoswell CL, et al. Integrating a pharmacist into the perioperative setting. *Aust Health Rev*. 2020;44:563-568. doi:10.1071/AH19126
24. Hale AR, Coombes ID, Stokes J, et al. Perioperative medication management: expanding the role of the preadmission clinic pharmacist in a single centre, randomised controlled trial of collaborative prescribing. *BMJ Open*. 2013;3:e003027. doi:10.1136/bmjopen-2013-003027