# Promoting post-discharge telephone follow-up of patients with transurethral resection for bladder cancer: a best practice implementation project

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## ABSTRACT

**Introduction and objectives:** Telephone follow-up (TFU) is a method that can be recommended for patients with chronic disease, including patients with nonmuscle-invasive bladder cancer (NMIBC) after transurethral resection of the bladder (TURB). This project aimed to improve postdischarge TFU of patients with TURB in a tertiary care system and referral system localized to Tabriz, Iran.

**Methods:** This evidence implementation project used the JBI Evidence Implementation framework. Two audit criteria were used. A baseline audit was conducted, followed by the implementation of multiple strategies. The project was finalized with a follow-up audit to evaluate changes in practice.

**Results:** The aggregated data collated from the urology ward demonstrated that all criteria had achieved zero scores of compliance in the baseline audit round. Strategies such as patient education about TFU, educational pamphlets preparation according to the latest validated guidelines, and a mobile app for education material about bladder cancer, diagnosis, management, and follow-up were implemented. The Phase 3 follow-up showed an 88% increase in compliance with staff education about the postdischarge TFU as a component of comprehensive discharge planning and a 22% achievement of patient follow-up by telephone soon.

**Conclusions:** A clinical audit is an effective approach to promoting postdischarge TFU in bladder cancer cases following TURB. TFU for bladder cancer patients who underwent TURB is an optimal goal that is easily achieved through patient, nursing staff, and residents' education using the newest guidelines.

**Key words:** bladder cancer, clinical audit, evidence-based practice, postdischarge, telephone follow-up

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**What is already known**

- Bladder cancer (BC) is the seventh most commonly diagnosed cancer among males and the 10th in both genders worldwide.
- Patients with nonmuscle-invasive bladder cancer (NMIBC) need surveillance after treatment, given the risk of recurrence and disease progression.
- Telephone follow-up (TFU) can be recommended for patients with chronic diseases, especially NMIBC, who underwent transurethral resection of the bladder (TURB).

**What this paper adds**

- A clinical audit is an effective approach to promoting postdischarge TFU in bladder cancer cases following TURB.
- TFU for bladder cancer patients who underwent TURB is an optimal goal that is easily achieved through patient, nursing staff, and residents' education.
- Using communication systems instead of determining the time of referral can lead to rapid information about the disease's recurrence or progression, reduce the readmission rate and increase the accuracy of referral of patients to treatment units.

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## Introduction

Bladder cancer (BC) is the seventh most commonly diagnosed cancer among males and the 10th in both genders worldwide, with an age-standardized incidence rate of 9.5 for men and 2.4 for women (per 100 000 persons/year), and the age-standardized mortality rate is 3.3 for men vs. 0.86 for women.[1] Even so, its incidence and mortality rates vary across countries due to differences in risk factors, detection, diagnostic practices, and availability of treatments.[2] In approximately 75% of BC patients and a higher rate in younger patients (<40 years), the stage of the disease is limited to the mucosa (stage Ta, CIS) or submucosa (stage T1),[3] in which both have a high prevalence rate due to long-term survival in many cases and lower risk of cancer-specific mortality compared to T2–4 tumours.[1,2] Papillary tumours confined to the mucosa and invading the lamina propria are classified as stage Ta and T1, respectively, according to the Tumour, Node, and Metastasis (TNM) classification system.[4] Flat, high-grade tumours confined to the mucosa are classified as CIS (Tis). These tumours can be treated by transurethral resection of the bladder (TURB), eventually in combination with intravesical installations, and are therefore grouped under the heading of nonmuscle-invasive bladder cancer (NMIBC) for therapeutic purposes. The term 'non-muscle-invasive BC' represents a group definition, and all tumours should be characterized according to their stage, grade, and other pathological characteristics.[5] Counselling about smoking cessation, adjuvant treatment, intravesical chemotherapy, and intravesical bacillus Calmette-Guérin (BCG) immunotherapy are management methods considered for this disease.[6] Patients with NMIBC need surveillance after treatment, given the risk of recurrence and disease progression. However, the frequency and duration of follow-up for cystoscopy and imaging depend on each patient's risk. The recommendations for follow-up are mainly based on retrospective data, and there are no randomized studies to investigate the possibility of reducing the safety of cystoscopic follow-up.[7,8] The summary of evidence and guidelines existing about the follow-up on patients after TURB for NMIBC is illustrated in Appendix I, Supplemental Digital Content, http://links.lww.com/IJEBH/A130.[6]

According to the JBI evidence summary results,[9] which were obtained from the JBI PACES, postdischarge telephone follow-up (TFU) can be recommended for patients with chronic disease alongside other postdischarge strategies as a part of one comprehensive discharge plan (Grade A). In addition, TFU may reduce 30-day re-hospitalization, and it is therefore recommended that postdischarge TFU occurs soon after discharge (e.g., within weeks, rather than months, after discharge) (Grade B).

Previous studies demonstrated the role of TFU in improving many outcomes for specific patients. A systematic review of 26 randomized controlled trials (RCTs) showed that a telephone support intervention was significantly associated with less hospitalization than standard postdischarge care among patients with coronary artery disease during cardiac rehabilitation[10] (Level 1). A systematic review of 30 RCTs involving 10 193 patients with heart failure showed that, compared to routine postdischarge care, structured TFUs reduced the risk of death and readmission to the hospital[11] (Level 1). A systematic review of 43 studies, including RCT, cohort, and uncontrolled before and after studies, showed that TFU after discharge and other interventions effectively reduce 30-day readmission, although TFU alone had no effect[12] (Level 1). A systematic review of 10 studies reported that postdischarge TFU combined with predischarge support helped reduce readmission rates and so, caused better outcomes for the patients. Although the reported results were positive, the method used in the evaluated studies was poor in quality, thus requiring further research[13] (Level 1). A retrospective cohort study evaluated the effect of a TFU within 48 h of discharge among indigenous people with chronic diseases. Reported outcomes were unplanned hospital admissions, unplanned referrals to the emergency department, and mortality within 28 days of discharge. Postdischarge TFU was associated with both a reduction in emergency department visits and at least one adverse event 28 days after discharge. The authors suggested that providing TFU after discharge to natives with a chronic illness may be appropriate.[14] (Level 3).

Due to the importance of TFU in patients with NMIBC after TURB, we intended to use the clinical audit model approved by the Australian JBI to evaluate and upgrade the use of credible evidence on these patients. For this purpose, we selected one of the largest referral centres for cancer patients in East Azerbaijan province, the north-west of Iran (Imam Reza Hospital), and while building a team, including three urologists, and a selected nurse in the urology department, we conducted two rounds of clinical audit. Seventy-five patients diagnosed with NMIBC underwent TURB in this teaching referral centre from April 2021 to December 2021. However, considering the results of the pathological assessment, only 45 patients had NMIBC, the rest had MIBC, and the five cases had no desire to participate in our study; therefore, 40 patients were eligible, and were evaluated in each audit cycle. It should be noted that all

patients were routinely trained using simple instructions by trained nurses about the date of referral.

This project utilized the JBI Practical Application of Evidence System (PACES) and the Getting Research into Practice (GRiP) framework to conduct two rounds of clinical audits.

## Objective(s)

The project aimed to improve the postdischarge TFU of patients with TURB in a tertiary care system and referral system localized to Tabriz, Iran. In this regard, the patient training and the process of referring cancer patients were examined and evaluated.

The specific objectives were:

i) To determine current compliance with best practice recommendations for promoting postdischarge TFU of patients with TURB for NMIBC.
ii) To identify barriers and facilitators to improving compliance and develop strategies to address areas of noncompliance.
iii) To evaluate changes in compliance with the evidence-based practice recommendations following the implementation of strategies to address identified barriers and enhance identified facilitators in promoting postdischarge TFU of patients with TURB for NMIBC.

## Methods

This evidence implementation project used the JBI Evidence Implementation framework. The JBI Implementation approach is grounded in the audit and feedback process along with a structured approach to the identification and management of barriers and enablers to compliance with recommended clinical practices.

### Preplanning

(Phase 1) identification of practice areas for change.

Two members of the team, who were aware of the problems of the urology department, identified some important issues in the ward, the solution of which would improve the quality of the department's services, and among them, they chose the current problem to carry out the current project to change.

(Phase 2) engaging change agents.

The project team members who are considered as the main agents of change, consisted of a group of two urologists (head of department, and head of evidence-based research centre), one resident (chief resident), head nurse of the ward, a nurse who accesses the contact number of patients, and the project's chief researcher. The selection of the project team was based on their role in the management of the patients. On the other hand, these process owners had the necessary authority to make changes in the practice. In addition, the project team was the same for baseline and follow-up audits.

(Phase 3) assessment of context and readiness to change.

First, the list of all NMIBC patients who underwent TURB was extracted after ethical approval and permission from Imam Reza Hospital's head. Then, the patients hospitalized in this centre from the beginning of the year were listed.

### Baseline assessment and implementation planning

(Phase 4) review of practice (i.e. baseline audit) against evidence-based audit criteria, including sampling methods and sample sizes.

The researcher asked the head nurse of the urology department for TFU for each of the TURB cases. For better reassurance, the researcher made a telephone call to 40 subjects who underwent TURB and asked each if any TFU was done from the hospital to inform them about their refer date. Then, the selected nurse of the urology department and the resident were responsible for preparing the training package for patients. The main researcher of this project played the role of coordinator in the team, and she was responsible for providing training materials that could be installed at the nursing station. The main researcher also wrote the research proposal of the project to receive the code of ethics. She also entered the information into the PACES system and analysed the data.

The centre's managers managed the change in the process of patient TFU in the ward.

Evidence-informed audit criteria used in the project were derived from the best available evidence summary.[9] The method used to measure compliance is presented in Table 1.

(Phase 5) implementation of changes to practice – including situational analysis using GRiP.

After conducting the baseline clinical audit and identifying the gap between evidence, a multidisciplinary team of the urology department documented barriers, strategies, and resources required, according to the GRiP tool, in a focus group discussion (FGD) session in October 2021. The FGD consisted of the head of the urology department, the head of the evidence-based research centre, and the head nurse of the ward. The FGD session was coordinated by the main researcher and with the consent of the managers of the centre. The study's main researcher summarized the participants'

**Table 1. Audit criteria, audit guide, sample, and the method employed to measure compliance with promoting postdischarge telephone follow-up of patients with transurethral resection for bladder cancer**

| Audit criterion | Audit guide | Sample | Method used to measure percentage compliance with best practice |
|---|---|---|---|
| Postdischarge telephone follow-up is included as a component of comprehensive discharge planning. | "Yes" if nurses or residents' education has been conducted.<br>"No" if nurses or residents' education has not been conducted.<br>"N/A" if we were not sure that nurses or residents' education has not been conducted. | Baseline:<br>2 Nurses<br>1 Resident<br>2 Urologists<br>Follow-up:<br>2 Nurses<br>1 Residents<br>2 Urologists | Trainer *Report*<br>Educational *Pamphlets*<br>Discharge checklist |
| The patient is followed up by telephone soon (e.g., within weeks, rather than months) after discharge. | "Yes" if nurses or residents' education has been conducted.<br>"No" if nurses or residents' education has not been conducted.<br>"N/A" if we were not sure that nurses or residents' education has not been conducted. | Baseline:<br>2 Nurses<br>1 Resident<br>2 Urologists<br>Follow-up:<br>2 Nurses<br>1 Residents<br>2 Urologists | Trainer *Report*<br>Educational *Pamphlets* |

opinions in the FGD session and finally entered them in the GRiP table. The GRiP table provided the group with a clearly outlined plan to implement the targeted strategies for Phase 6.

### Impact evaluation and sustainability

(Phase 6) re-assessment of practice using a follow-up audit.

After implementing interventional strategies developed in the previous phase, a follow-up audit was conducted in January and early February 2022 using the same evidence-based audit criteria as in the baseline audit.

At this stage of the project, follow-up data of the two audit criteria were entered into the JBI PACES program and compared with the baseline data to determine any changes in compliance rates.

(Phase 7) consideration of the sustainability of practice changes.

The audit team has decided to assess the sustainability of the practice change, every 6 months, using the same criteria.

### Analysis

JBI-PACES, which includes automated reporting of compliance percentage changes, was used for data analysis. Quantitative methods were used to draw inferences from the data and for understanding variations within the data, including the effects of time as a variable. Results data on changes in compliance were measured using descriptive statistics embedded in JBI-PACES in form of percentage changes from baseline.

### Ethics

The project was registered as a quality improvement activity within the participating hospital, and therefore did not require ethical approval. However, we took steps to ensure confidentiality, anonymity, and the right to withdraw, how this was communicated to participants, and how it was operationalized during the project included obtaining signed informed consent from the participants. Also, the research team preferred to submit the code of ethics (IR.TBZMED.REC.1400.979) after presenting the plan to the research council of the Imam Reza Hospital. In addition, this project became the urology resident's thesis and received a grant from the Vice Chancellor of Tabriz University of Medical Sciences (Grant No. 68647).

## Results

### Phase 1: Baseline audit

The results for each of the two criteria as aggregated baseline data using the JBI PACES software (JBI, Adelaide, Australia) demonstrated that all of the criteria had achieved zero scores of compliance in this audit round, and although, as the routine, patients were informed about the time of referral to follow-up during discharge, no TFU was performed as a part of the routine follow-up program.

### Phase 2: Strategies for Getting Research into Practice

The results of the GRiP process are depicted in Table 2. From the multidisciplinary FGD, including the head of the urology department, urology residents, and head

**Table 2. Getting Research into Practice matrix**

| Barriers | Strategies | Resources | Outcomes |
|---|---|---|---|
| Routine and traditional patient education without using the latest evidence-based follow-up protocols | Patients were educated by trained nurses or residents familiar with the latest evidence-based protocols | Preparation of educational pamphlets about bladder cancer and TURB, and the follow-up duration based on the latest validated guidelines and its installation in the nursing station | All TURB patients received the educational pamphlet |
| Nurses or residents do not have enough information about TUR discharge planning | Nurses or residents were educated with the latest EAU guideline | Preparation of educational pamphlet | All nurses or residents were educated with the latest EAU guideline |
| Lack of follow-up checklist after discharge | Nurses or residents were educated with the latest EAU guideline | Preparation of educational pamphlets for the time patients refer to the hospital | Preparation of follow-up checklist |
| Telephone follow-up planning for discharge increases the workload of nurses or residents | Since the employment of new staff to make a phone call for all patients who underwent TURB due to NMIBC needing additional funding sources, the urgent need for a mobile app design and installation is required | Designing a mobile app with educational content and the ability to send a reminder to refer the patients to the centre based on the initial date of TURB according to the latest EAU guideline | Designing a mobile app can reduce the workload of nurses and residents |
| Lack of motivation for nurses or residents to make phone calls | The urgent need for a mobile app design and install | Designing a mobile app with educational content and sending a reminder to refer the patients to the centre based on the initial date of TURB according to the latest EAU guideline | Designing a mobile app to facilitate the TFU of nurses by increasing their motivation |
| Cost of new personnel employment for TFU | Since the employment of new staff to make a phone call for all patients who underwent TURB due to NMIBC needing additional funding sources, the urgent need for a mobile app design and installation is required | Designing a mobile app with educational content and the ability to send a reminder for referring the patients to the centre based on the initial date of TURB according to the latest EAU guideline | Designing a mobile app can reduce the costs and need for new personnel employment |
| Lack of TFU mechanism for patients | The urgent need for a mobile app design and install | Designing a mobile app with educational content and sending a reminder to refer the patients to the centre based on the initial date of TURB according to the latest EAU guideline | All TURB patients will be asked for a smartphone number to install the application |

NMIBC, nonmuscle-invasive bladder cancer; TFU, telephone follow-up; TUR, transurethral resection; TURB, transurethral resection of the bladder.

nurse of the urology department, the main barriers to evidence implementation have been identified, and targeted strategies to combat these barriers have been recommended. To promote patient education about TFU, the trained nurse of the ward used educational pamphlets prepared according to the latest guidelines which the urology resident validated. For this purpose, pamphlets were installed in the nursing station. In addition to it, the main researcher, urology resident, and a Health Information Management Ph.D. candidate developed a mobile app for educating material about bladder cancer, diagnosis, management, and follow-up. The application was installed on the patient's smartphone or via the link of application installation. All resources developed in this phase are presented in Appendix II, Supplemental Digital Content, http://links.lww.com/IJEBH/A130 section. Barriers and strategies are described in the following.

Barrier 1. Routine and traditional patient education without using the latest evidence-based follow-up protocols.

Patients in the urology ward were traditionally educated without adhering to the best available evidence-based protocol. The strategy for this barrier included educating patients based on evidence-based protocols by trained nurses or residents.

Barrier 2. Nurses or residents do not have enough information about TUR discharge planning.

There was a lack of awareness about TUR discharge planning among nurses and residents in the ward. The strategy for solving this barrier was educating nurses and residents on the latest EAU guidelines.

Barrier 3. Lack of follow-up checklist after discharge.

There were no follow-up checklists available after discharging patients in the ward. For this barrier, we attempted to educate nurses and residents with the latest EAU guidelines about using follow-up checklists.

Barrier 4. Telephone follow-up planning for discharge increases the workload of nurses or residents.

Barrier 5. Lack of motivation for nurses or residents to make phone calls.

The strategy for solving this barrier was designing and installing a mobile app.

Barrier 6. Cost of new personnel employment for TFU.

Barrier 7. Lack of TFU mechanism for patients.

Due to the high workload of nurses and residents in this ward and their low motivation, using telephone follow-up after discharge was not adhered to by nurses and residents. Also, the cost of employing new staff for conducting follow-up telephone calls was high and not cost-effective. As a reasonable strategy for these four barriers, we attempted to design a mobile app with educational content and the ability to send a reminder to refer the patients to the centre based on the initial date of TURB according to the latest EAU guideline.

### Phase 3: Follow-up audit(s)

The Phase 3 follow-up audit occurred in January and early February 2022 and included 40 patients. The results for each of the two criteria are shown in Fig. 1 as aggregated follow-up data derived from PACES software. The comparator graph shows changes in compliance between the Phase 1 and Phase 2 audits.

Results demonstrated the following:

i) 88% increase in compliance with staff education about the postdischarge TFU is included as a component of comprehensive discharge planning from 0% to 88%.
ii) 22% achievement of patient follow-up by telephone soon (within weeks, rather than months) after discharge.

## Discussion

Our project showed improvements for each criterion in the follow-up clinical audit that were all clinically and statistically significant. Most criteria improved by 88% and 22% after implementing effective interventional strategies.

Previous studies demonstrated the role of TFU in improving many outcomes for specific patients.[10–14] This evidence summary was selected based on a structured search of evidence-based healthcare texts and databases.

Telephone follow-up is a positive intervention that can be done by various hospital staff to exchange information, provide posttreatment care counselling, manage symptoms, help diagnose complications early, and reassure and facilitate hospital-to-home transfers.[15] TFU can also be supported as a cost-effective measure to improve patient health outcomes, increase patient satisfaction, and reduce unplanned readmission.[5] Two high-quality quantitative studies evaluated postoperative problems and reported a positive outcome for this measurement. There was a significant reduction in the reported problems of patients who received TFU contact after discharge compared with those who did not.[16]

Previous studies have shown that regular care in patients with malignancy is associated with a reduction in hospitalization time and an increase in the number of hospital beds, and better service to other patients;[17,18] however, these factors have led to an increasing need for follow-up.

Evidence has shown that one of the most cost-effective solutions is to do follow-up on patients using communication facilities, phone calls, or text messages, which allow a larger population of patients to be contacted and provides secure access to follow-up on the patients. The main advantage of this method is the availability of contacting patients with different conditions.[19]

Using communication systems instead of determining the time of referral can lead to rapid information about the disease's recurrence or progression, reduce the readmission rate and increase the accuracy of referral of patients to treatment units.[20] Since specialized medical centres are located in urban centres, and these tertiary referral centres are the core of other medical centres referring, therefore, a large number of patients are not able to refer or do not even have accurate knowledge about referral for follow-up after treatment, and this leads to recurrence of the disease.[21]

### Limitations and barriers

In the present study, all patients undergoing TURB had regular hospital or specialist clinic visits. However, there was either no TFU or no TFU setup to conduct follow-up at the ward. The research team established a telephone setup to follow-up these patients. Even so, the lack of staff to follow-up these patients by telephone was one of the obstacles to the plan. In addition, overwork or the lack of motivation in nurses and urology residents, as well as not having enough information existing for nurses or residents about TUR discharge planning to make phone calls to follow the TURB cases were other barriers to the current implementation report. For this

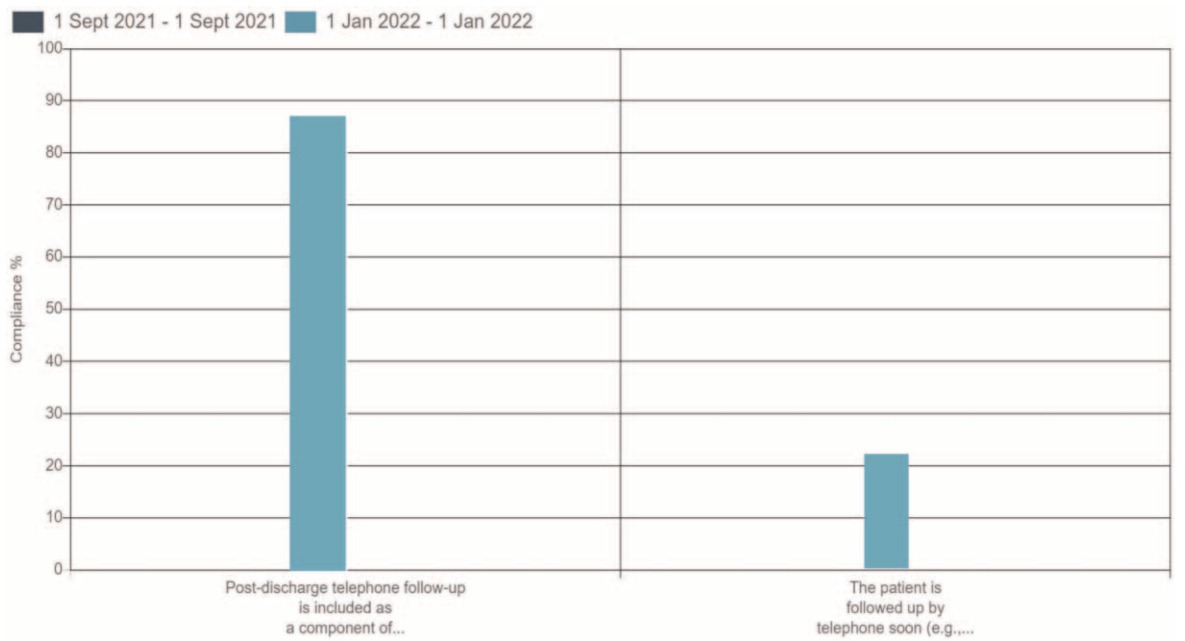


**Figure 1.** Compliance with best practice for audit criteria in follow-up audit compared to baseline audit (%).

purpose, pamphlets were installed in the nursing station. Also required educational pamphlets were designed and a mobile application was run to educate patients about how to refer, as well as postoperative complications and patient follow-up times schedules. This application was installed on the patient's smartphone or via the link of application installation. All resources developed in this phase are presented in Appendix II, Supplemental Digital Content, http://links.lww.com/IJEBH/A130.

In addition to the educational content, the program included a reminder for patients' next visits. Although mobile phone reminders are very useful for patient follow-up, the biggest obstacle here was the lack of a smartphone or the inability of adults to read the contents of the program and set the appropriate time, as a result of which a number of patients were denied access to this service. Conclusively, the illiteracy of patients was the main obstacle. For this purpose, the research team obtained the telephone numbers of the patient's relatives, who had a very close relationship with the patients and in many cases were the main caregivers of these patients at home, and sent the present program to their mobile phones. This application was installed on their mobile phones so that all patients, both literate and illiterate, and with any facilities, whether they have or do not have a smartphone, can benefit from TFU services.

## Conclusion

We used a clinical audit cycle in the current evidence implementation project to improve the postdischarge TFU of patients with TURB. The results of this implementation project showed improvements for each criterion in the follow-up clinical audit. TFU for bladder cancer patients who underwent TURB is an optimal goal that is easily achieved through educating patients, nursing staff, and residents using the newest guidelines. These strategies need to be sustained for best practices to be followed in the future. Further follow-up audits will be required to monitor the process change. Last but not least, it's easy to conclude that the lives of people with unfortunate circumstances can be changed by a simple phone call.

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## Conflicts of interest

There is no conflict of interest in this project.

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