



## Featured Article

## Implementing transitional care in skilled nursing facilities: Evaluation of a learning collaborative

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## ABSTRACT

Proctor's Framework for Implementation Research describes the role of implementation strategies and outcomes in the pathway from evidence-based interventions to service and client outcomes. This report describes the evaluation of a learning collaborative to implement a transitional care intervention in skilled nursing facilities (SNF). The collaborative protocol included implementation strategies to promote uptake of a transitional care intervention in SNFs. Using RE-AIM to evaluate outcomes, the main findings were intervention reach to 550 SNF patients, adoption in three of four SNFs that expressed interest in participation, and high fidelity to the implementation strategies. Fidelity to the transitional care intervention was moderate to high; SNF staff provided the five key components of the transitional care intervention for 64–93% of eligible patients. The evaluation was completed during the COVID-19 pandemic, which suggests the protocol was valued by staff and feasible to use amid serious internal and external challenges.

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## Introduction

Broad-scale implementation of transitional care in skilled nursing facilities (SNF) addresses an urgent public health need. Annually, more than 1.5 million Americans receive care in SNFs, and SNF patients who discharge to home are at high risk for health complications and re-hospitalization.<sup>1,2</sup> These outcomes can be improved with transitional care that promotes the safe and timely transfer of patients between settings and providers of care.<sup>3–5</sup> To be effective, transitional care must begin during admission to the SNF and prepare the patient and caregiver for transfer from SNF to home-based care.<sup>6,7</sup> Despite the growing evidence base for the effectiveness of transitional care interventions, less is known about how to implement them in actual practice. Strategies for overcoming this knowledge and practice gap are urgently needed in post-acute settings; in particular, to support the work of nurses, who are ideally positioned to lead teams implementing transitional care.<sup>7–9</sup>

The purpose of this project was to assess the impact of a learning collaborative on the implementation of the Connect-Home intervention in three SNFs. Earlier publications describe Connect-Home in detail.<sup>10,11</sup> Briefly, Connect-Home provides a transitional plan of care template, a toolkit, and on-site training to build existing SNF staff

capacity to engage patients and their caregivers in a four-step intervention: (1) set goals for home-based care, (2) meet to plan the patient's transition to home-based care, (3) prepare the patient and caregiver for care at home, and (4) provide telephone or in-person support to initiate the transition plan at home.<sup>10,11</sup> Connect-Home is designed to improve the management of a patient's serious illness at home by providing enhanced support for medication reconciliation, symptom management, and care coordination. Findings in prior research indicate the intervention prepares older adults and their caregivers to continue and coordinate care at home.<sup>11</sup> It was anticipated that findings in this report would support nurses and others who implement and maintain transitional care in SNFs and other health care settings.

## Conceptual model

The design and evaluation of the Connect-Home learning collaborative was guided by Proctor's Framework for Implementation Research, which describes the role of implementation strategies in the pathway from evidence-based interventions to implementation and client outcomes (Table 1).<sup>12</sup> In Proctor's framework, implementation strategies are defined as the "methods or techniques used to enhance the adoption, implementation, and sustainability of a clinical program or practice"<sup>13</sup> and implementation outcomes are defined as the effects those strategies have on adoption, implementation, and maintenance of new practices, treatments or services.<sup>14</sup> Findings in our preliminary research suggest two levels of implementation

Abbreviations: SNF, skilled nursing facility; COVID-19, Coronavirus disease; EHR, electronic health record; MOU, Memorandum of understanding

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**Table 1**  
Implementation Strategies and Outcomes, Definitions, and Program Month.

Implementation Strategies and Outcomes	Operational Definitions	Month
Implementation support strategies (collaborative level)		
Develop formal implementation blueprint <sup>22</sup>	Leaders in the national non-profit organization, the project team, and SNF administrators establish the learning collaborative, a 3-phase implementation schedule, and team member roles.	1
Obtain formal commitments <sup>22</sup>	Leaders in the national non-profit, the project team, and SNF executive board members implement a Memorandum of Understanding, defining roles, deliverables, and the timeline.	1–2
Facilitation <sup>22</sup>	The project team engages with SNF staff members to promote Connect-Home implementation and solve problems as they arise through monthly phone calls and engaged work in SNFs.	1–12
Conduct educational meetings <sup>22</sup>	Leaders in the national non-profit and the project team convene two off-site meetings to train SNF teams on how to integrate Connect-Home into routine practice. The project team provides on-site training in each SNF: 4 h of training on how to deliver Connect-Home and 2-hours on quality monitoring.	3,5,9
Internal implementation strategies (SNF-level)		
Organize clinical implementation teams <sup>22</sup>	SNF administrators designate a site champion and implementation team members, who will meet monthly to support Connect-Home implementation in the SNF.	2
Conduct cyclical small tests of change <sup>22</sup>	SNF site champions and implementation teams review performance data, identify to barriers, and make plans for fully implementing Connect-Home during monthly facilitation calls (30 min/month).	2–12
Conduct local needs assessment <sup>22</sup>	SNF implementation teams use a standardized instrument to describe usual discharge planning and quality monitoring in the SNF. SNF teams used findings to identify barriers and facilitators to implementing Connect-Home	3
Change record systems <sup>22</sup>	SNF teams use the Connect-Home Discharge Summary prototype as a model to revise or replace the existing Discharge Summary Form in their EHR system. <sup>23</sup>	3–4
Develop and organize quality monitoring systems <sup>22</sup>	SNF teams and the project team share this strategy. SNF staff use a standardized instrument to audit the health records of SNF patients and the project uses aggregated and de-identified data to prepare a report and provide feedback to staff in the SNFs. project team.	5,7,9,12
Implementation Outcomes (RE-AIM framework <sup>21</sup> )		
Reach <sup>21</sup>	(1) The number of individuals SNF staff that participate in implementation support strategies (i.e., Collaborative activities); (2) the number of patients that receive the Connect-Home intervention	5,7,9,12
Adoption <sup>21</sup>	The number and proportion of invited SNFs that agreed to participate in the collaborative and initiated Connect-Home implementation	3
Implementation <sup>21</sup>	(1) The extent to which SNF teams used internal implementation strategies as planned; (2) the acceptability of collaborative activities to SNF staff; (3) the extent to which the Connect-Home protocol was implemented as intended	5,7,9,12
Maintenance <sup>21</sup>	Planning to sustain transitional care services and QI procedures after the end of the project period	12

strategies are needed to promote uptake of transitional care in SNFs.<sup>11,15</sup> On one level, an entity external to the SNF provides implementation support strategies, such as creating a learning collaborative to support SNFs as they adopt and implement transitional care interventions. This finding is confirmed by hospital-based studies indicating the need for implementation support strategies, such as providing a blueprint and schedule to implement transitional care,<sup>16,17</sup> training on quality improvement,<sup>18,19</sup> and providing facilitation (i.e., coaching).<sup>17,18</sup> On another level, our preliminary findings suggest the need for internal implementation strategies that SNFs can use to promote uptake and integration of a transitional care intervention.<sup>11</sup> For example, SNF staff may need to create an implementation team or change the record systems.<sup>15</sup> Thus, the Connect-Home Collaborative included two levels of implementation strategies: (1) implementation support strategies that the project team provided to build SNF capacity for high quality transitional care and (2) internal implementation strategies that SNF staff used to integrate transitional care into routine clinical practice.<sup>15,20</sup> We hypothesized that these implementation strategies would contribute to robust implementation outcomes, which we conceptualized according to four of five elements of the RE-AIM framework: reach, adoption, implementation and maintenance (Table 1).<sup>21</sup>

## Methods and materials

### Design

A prospective design and the RE-AIM framework were used to evaluate implementation of the Connect-Home Collaborative from July 1, 2019 to June 30, 2020.<sup>14</sup> All program activities were reviewed by the University of North Carolina at Chapel Hill, which determined

that the project fell within the scope of a quality improvement project and was therefore exempted from review. Consistent with guidelines for quality improvement projects, the project team had no access to patient-level data.

### Setting and sample

The setting was a national, non-profit organization in the U.S. and its member SNFs. The inclusion criteria for SNFs were: (1) verbal commitment to improving the quality of discharge planning, (2) admission of at least 20 SNF patients per month, and (3) prior implementation of an electronic health record (EHR) system. Before the start of the learning collaborative, a program manager in the national non-profit together with a member of the university-based project team screened potential SNFs and invited four to participate in the program; SNFs were in New York, Ohio, Pennsylvania, and Wisconsin. SNF leadership were then asked to identify a site champion to lead the work at the SNF as well as two or three staff to participate in off-site meetings to launch the learning collaborative. All SNF staff who were involved in discharge planning were invited to attend onsite training, including nurses, social workers, and others in clinical and non-clinical roles. In the participating SNFs, Connect-Home transitional care replaced usual discharge planning; thus, all short stay patients with a discharge to home or assisted living received Connect-Home.

### Collaborative protocol

The collaborative protocol was designed to implement and sustain Connect-Home transitional care into practice in SNFs. The protocol included implementation support (collaborative-level) and internal

implementation (SNF-level) strategies (Table 1).<sup>15</sup> Implementation strategies were named following terminology recommended by the Expert Recommendations for Implementing Change (ERIC) taxonomy.<sup>22</sup> The national non-profit managed the project and enacted the implementation support strategies, in collaboration with a university-based project team. Implementation support strategies included: (1) develop a formal implementation blueprint, (2) obtain formal commitments, (3) provide facilitation (i.e., coaching), and (4) conduct educational meetings.<sup>22</sup> Staff within the SNFs enacted the internal implementation strategies. Internal strategies included: (1) organize clinical implementation teams, (2) conduct local needs assessment, (3) change record systems, (4) conduct cyclical small tests of change, and (5) develop and organize quality monitoring systems.<sup>22</sup> The timing and operational definitions of the implementation support and internal implementation strategies are described in Table 1. Further detail on the strategies is available in a prior publication.<sup>15</sup>

### Measures and data collection

As described below, the RE-AIM framework was used to evaluate the direct impact of the collaborative protocol on implementation outcomes, rather than the impact of the transitional care intervention on patient or caregiver outcomes.<sup>21</sup> The evaluation included a set of four implementation outcomes: reach, adoption, implementation, and maintenance.<sup>21</sup>

#### Reach

Reach is defined as a measure of the number of individuals (employees or patients) that participate in an intervention or service.<sup>21</sup> Reach was assessed in two ways. First, reach to staff was assessed as the number of SNF discharge planning staff who participated in one on-site training and two off-site learning collaborative meetings. Data sources were attendance logs. Second, reach to patients was assessed as the number of older adults (patients) who received the Connect-Home transitional care intervention in project months 6 to 12. Data were collected in each SNF by SNF staff who were trained to audit EHR records and identify the number of patients who received the intervention.

#### Adoption

Adoption is defined as the proportion of settings that initiate the intervention or service.<sup>21</sup> Adoption was assessed as the number and proportion of invited SNFs that agreed to participate in the collaborative and initiated Connect-Home implementation.

#### Implementation

Implementation is defined as the degree to which a program is delivered as intended.<sup>21</sup> Implementation was assessed in two ways. First, implementation fidelity was assessed as the extent to which SNF teams used internal implementation strategies as planned: (1) modified the EHR discharge planning template, (2) used Connect-Home tools to monitor and report fidelity to the Connect-Home protocol, and (3) convened implementation team meetings and participated in cyclical small tests of change to promote uptake of the intervention.<sup>15</sup> Also, the acceptability of collaborative activities was assessed using qualitative interviews with each SNF site champion. Data were collected using a semi-structured interview guide in 30-minute interviews that were recorded and transcribed.

Second, intervention fidelity was assessed as the extent to which the Connect-Home protocol was implemented as intended. SNF staff collected intervention fidelity data from the EHR patient record on five elements of the Connect-Home intervention: caregiver attendance at care plan meetings, completeness of discharge summaries, follow-up appointments scheduled with community-based clinicians, information faxed/transferred to community clinicians, and follow-up call completed within 72 h of discharge.<sup>11</sup> As described in

earlier publications, data were collected using a standardized chart audit instrument.<sup>23</sup>

#### Maintenance

Maintenance is defined as the extent to which a healthcare service or intervention is integrated into the routine care practices of the organization.<sup>21</sup> Maintenance was assessed as planning to sustain transitional care services and QI procedures after the end of the project period. A modified version of the Program Sustainment Assessment Tool was used to guide teams of SNF staff in sustainment goal setting and planning.<sup>24</sup> Two members of each SNF implementation team completed the survey and reported findings in the second national learning collaborative meeting, where plans were developed to sustain the intervention protocol in the SNF. Subsequently, in monthly facilitation calls, project team members and site-based implementation teams discussed plans and set priorities to maintain the intervention. Data from project logs were used to assess outcomes.

#### Data analysis

The goal of the analysis was to describe reach, adoption, implementation, and maintenance over one-year. For data from chart audits, SNF staff provided the project team aggregate findings. Descriptive statistics were used to describe the number of SNF staff and patients that were reached over the program year and the number and proportion of invited SNFs that agreed to participate in the collaborative. Descriptive statistics also were used to describe (1) the frequency that selected implementation support and internal implementation strategies were completed as intended. Descriptive statistics were also used to describe the extent that the transitional care intervention was delivered as intended. Qualitative content analysis was used to analyze data from semi-structured interviews with site champions. Two coders classified data in the transcripts to identify broad themes in the transcripts and a summarizing narrative report was written.<sup>25</sup> Finally, descriptive statistics were used to describe the extent that plans were developed to maintain QI procedures and transitional care after the program year.

### Results

Findings include implementation outcomes of the Connect-Home Collaborative during the period from July 1, 2019 to June 30, 2020. In the study sites, efforts to mitigate COVID-19 risk began in the middle of March 2020 but did not have an impact on procedures to evaluate the collaborative.

#### Reach

Across SNFs, 38 staff members participated in the on-site training (range=10 to 16 staff per SNF); 42% of staff worked in leadership roles and 53% were non-administrative nurses, social workers, or rehabilitation therapists. At least two staff members from each SNF participated in two off-site collaborative meetings led by the national non-profit. The first was convened in Washington, D.C. Owing to COVID-19, the second collaborative meeting was convened remotely via Zoom. Finally, during the six months following implementation (project months 6 to 12), the Connect-Home intervention reached 550 SNF patients (100%) who were admitted for short stays and discharged to home. Of note, 185 of the 550 patients (34%), who received the intervention, were admitted to the SNF after the onset of COVID-19. Health records of 139 of 550 patients (25%) were reviewed to gain further information on these patients; of these, 65% were female, 84% were White, 16% were Black, the average age was 78 years, and average SNF length of stay was 21 days.

## Adoption

Three of four SNFs adopted the Connect-Home intervention. Site leaders in all four of the invited SNFs agreed to participate in the QI collaborative. However, in month three, administrators in the parent organization of one SNF decided to implement a new EHR system. Concurrent implementation of a new EHR and Connect-Home was not feasible, and this SNF withdrew from the collaborative before Connect-Home implementation. The remaining three SNFs completed all collaborative activities.

## Implementation

Implementation fidelity was consistent across SNFs, and all implementation support strategies, such as facilitation and educational meetings, were completed as planned (Table 1). SNF staff also used all internal implementation strategies as planned, as described in the following. First, all SNFs revised the template for the discharge summary form in their EHR system. Across sites, these EHR modifications included re-organizing of the discharge summary form, removing material that was not directed to patients or caregivers, and adding material in areas such as symptom management and indicators of worsening health. Second, at four-time points, staff in all three SNFs used a standardized instrument to monitor quality of Connect-Home implementation. Third, project staff convened meetings with members of implementation teams (in monthly facilitation calls) and participated in cyclical small tests of change to promote uptake of the intervention. The number of staff attending meetings ranged from two to eight staff.

Fidelity to the Connect-Home intervention protocol was consistent across SNFs. As described in Fig. 1, fidelity to the intervention protocol improved in four of five areas. Most notably, the rate at which follow-up physician appointments were scheduled increased from 30% to 74%. Substantial improvements were also observed in the rate staff completed discharge summaries, transmitted health records to next providers of care, and completed post-discharge follow-up calls. The rate of caregiver participation in care plan meeting was stable at approximately 75%. Owing to COVID-19, risk mitigation was begun in the SNFs in March 2020; thus, it was necessary to modify the Connect-Home intervention from March to June 2020. First, because caregivers were not allowed to enter nursing homes, care plan meetings were convened using a conference call. Second, caregiver training was completed by telephone and with remote

applications such as FaceTime and Zoom. Finally, comprehensive discharge teaching was completed by telephone or outside of the nursing home in common or parking areas.

In the final month of the collaborative, site champions in all three SNFs described the acceptability of the protocol; they reported that participating in the collaborative helped teams improve communication, quality monitoring, and transitional care. Site champions in two SNFs stated that new EHR templates for discharge planning improved communication with patients and families for discharge. A champion explained:

Our team has had really positive feedback from the patients and the families. . . Our discharge summary form, after making all the changes. . . has made it easier for our families to really understand what they are expecting when they leave here.

One site champion reported that participating in the collaborative improved communication with other post-acute care providers; the champion stated:

We have seen that our home health team feels that they're better equipped and knowledgeable about what happened with a patient at our facility and transitioning home.

Second, site champions reported that quality monitoring was an important strategy to implement transitional care. A site champion explained:

. . . being part of the QI [implementation] team – it's allowed for us to take a look at how we handle discharges and making sure that our staff understands it as well, and things that do come up, utilizing the [Connect-Home] literature that they provided to us.

Finally, site champions reported that participating in the collaborative improved capacity for providing transitional care. One site champion stated:

Our discharge summary form, after making all the changes. . . has made it easier for our families to really understand what they are expecting when they leave here.

## Maintenance

New discharge planning templates were embedded in EHR systems, and staff in all SNFs reported plans to use them after the project year. In the second national QI meeting, all site champions completed

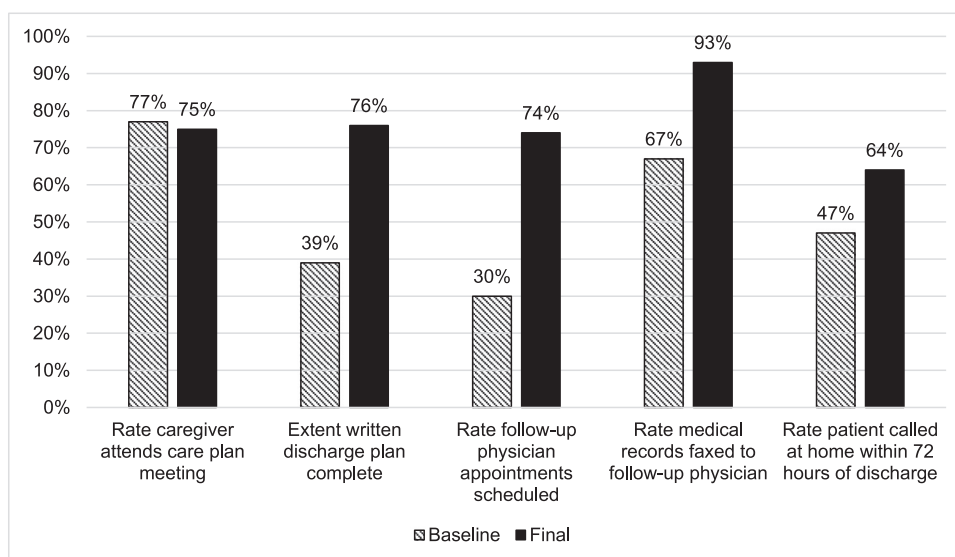


Fig. 1. Fidelity to the Transitional Care Intervention Protocol.



the Program Sustainment Assessment Tool<sup>24</sup> and used findings to write a sustainment plan. Plans included (1) engaging SNF administrators, (2) continuing team meetings to monitor the quality of transitional care, and (3) train new staff to provide transitional care. Site champions were concerned about barriers to sustainment, such as the ongoing COVID-19 crisis and making time for quality monitoring. All three site champions had specific personal goals for sustaining the project; for example, one champion stated, “It’s hard to believe where we are now. It’s time to get this more integrated, across other parts of the campus.”

## Discussion

Over the project year, staff in three SNFs participated in a learning collaborative to implement the Connect-Home transitional care intervention. The Collaborative was led by the national non-profit which supported implementation of Connect-Home in three SNF organizations in three states simultaneously. Findings of this program evaluation indicate that the project achieved high fidelity to the collaborative protocol, reached 38 SNF staff and 550 patients, and achieved moderate to high fidelity to the core components of the transitional care intervention. Of note, staff in the SNFs achieved these outcomes during the COVID-19 pandemic. These findings suggest the feasibility and acceptability of the collaborative protocol in real-world conditions and its potential for use in larger-scale implementation research and quality improvement programs.<sup>15</sup> The Collaborative model also facilitated shared learnings across the 3 SNFs as the COVID-19 pandemic occurred during the last quarter of the project and team members were able to share the impact of COVID-19 on their post-acute care patients and fidelity to the Connect-Home model.

Findings of this program evaluation align with growing evidence in nursing home research, indicating the important role of implementation strategies and measures of implementation outcomes for translating evidence-based interventions into practice.<sup>26–28</sup> For example, in INTERACT II,<sup>29,30</sup> and the AHRQ Safety Program for Long-Term Care: Healthcare-Associated Infections/Catheter-Associated UTI, study team members used multiple implementation strategies to support the work of clinical staff who effectively implemented evidence-based interventions in nursing homes. Moreover, this project addresses a central limitation to most efforts to implement improvements in nursing homes through its focus on two levels of implementation strategies.<sup>31–33</sup> The national non-profit and project team used implementation support strategies (e.g., training, shared learning) to build SNF staff capacity to use internal strategies (e.g., quality monitoring) to integrate Connect-Home into practice. In many reports of implementation in nursing homes, authors report on the implementation support strategies they used but not on the internal strategies that staff used to integrate the improvement in practice.<sup>34,35</sup> This information is essential to understanding how and why implementation support strategies did or did not lead to improvements and to building the evidence base for how to implement improvements in SNFs.<sup>36</sup> Greater attention to internal strategies also is needed to determine whether staff have mastered the strategies they will need to sustain the improvement after the project ends (e.g., monitor quality, conduct cyclical small tests of change).<sup>36</sup>

Findings indicate that the implementation support strategies were enacted as intended and that educational meetings and facilitation had broad reach to and were appreciated by nursing home staff. The findings on internal implementation strategies indicate that most were executed as intended. In all three SNFs, a member of the project team convened and facilitated monthly meetings of the implementation team. In two of the three SNFs, the majority of team members attended monthly meetings to review quality monitoring data and plan small cycle tests of change. In the third SNF, at least

one team member attended monthly. These monthly meetings provided an opportunity to provide hands-on, ongoing coaching as teams developed their skills. Further study is needed to determine whether teams were able to sustain these meetings after the project ended.

While these descriptive findings suggest the potential of the Connect-Home Collaborative, limitations in this evaluation deserve comment. First, this evaluation was completed as part of a quality improvement program in three SNFs; thus, the descriptive findings only provide evidence of the impact of the collaborative in the settings where it was implemented. Further testing would be required to create generalizable evidence of the effectiveness of the collaborative protocol. Second, because the duration of the collaborative was one year, the extent that program gains could be sustained is not known; however, findings in an earlier program to sustain transitional care services suggest the model is sustainable with booster training and other supports.<sup>15</sup> Finally, the program evaluation did not include a description of effectiveness, such as change in caregiver burden or the rate of re-hospitalization after return to home-based care. Therefore, the findings do not provide evidence indicating improvement in the lives of older adults and their caregivers.

The findings and limitations in this report also suggest next steps in research, most importantly, conducting an embedded, pragmatic clinical trial of the Connect-Home Collaborative to test the impact of the collaborative on implementation and effectiveness outcomes. An additional focus of future research will be to add community-based providers to collaborative meetings, such as home care nurses and therapists, clinicians in caregiver support organizations, and community-based palliative care clinicians. These findings also suggest lessons for improving the Connect-Home Collaborative protocol. First, because facilitation was time-consuming, larger scale-up will likely require training a project team to facilitate SNF-level implementation activities in the future.<sup>37</sup> Second, owing to short funding cycles and the need to sustain transitional care, it may be helpful to test new strategies to improve capacity for maintenance, such as developing corporate infrastructure to support on-site SNF sustainment activities.

## Conclusion

This report describes the evaluation of the Connect-Home Collaborative. Findings indicated the learning collaborative was fully implemented in three SNFs, located over a large geographical area, during the COVID-19 pandemic. Findings suggest strategies for implementing transitional care in SNFs and provide descriptive evidence for a future, pragmatic trial in a larger sample of SNFs.

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## Declaration of Competing Interest

None

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