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An emergency department transitional care team prevents unnecessary hospitalization of older adults: a mixed methods study

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Abstract

Introduction Older adults with acute functional decline may visit emergency departments (EDs) for medical support despite a lack of strict medical urgency. The introduction of transitional care teams (TCT) at the ED has shown promise in reducing avoidable admittances. However, the optimal composition and implementation of TCTs are still poorly defined. We evaluated the effect of TCTs consisting of an elderly care physician (ECP) and transfer nurse versus a transfer nurse only on reducing hospital admissions, as well as the experience of patients and caregivers regarding quality of care.

Methods We assessed older adults (≥ 65 years) at the ED with acute functional decline but no medical indication for admission. Data were collected on type and post-ED care, and re-visits were evaluated over a 30-day follow-up period. Semi-structured interviews with stakeholders were based on the Consolidated-Framework-for-Implementation-Research, while patient and caregiver experiences were collected through open-ended interviews.

Results Among older adults ($N=821$) evaluated by the TCT, ECP and transfer nurse prevented unnecessary hospitalization at the same rate (81.2%) versus a transfer nurse alone (79.5%). ED re-visits were 15.6% (ECP and transfer nurse) versus 13.5%. The interviews highlighted the added value of an ECP, which consisted of better staff awareness, knowledge transfer and networking with external organizations. The TCT intervention in general was broadly supported, but adaptability was regarded as an important prerequisite.

Conclusion Regardless of composition, a TCT can prevent unnecessary hospitalization of older adults without increasing ED re-visiting rates, while the addition of an ECP has a favourable impact on patient and professional experiences.

Key points

1) Establishing a transitional care team at the emergency department (ED) reduced unnecessary hospital admissions among community-dwelling older adults.

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- 2) The composition of the transitional care team did not affect the number of avoidable hospital admissions and ED re-visits, with similar results for a transfer nurse alone versus a transfer nurse supported by an elderly care specialist (ECP).
- 3) Having an ECP in the transitional care team positively impacted the quality of care experienced by patients, caregivers and professionals.
- 4) Patients and family members very much appreciated that the ECP and transfer nurse took a holistic approach, had more time and were available to help, support or organize aftercare.

Keywords Emergency care, Older adults, Transitional care, Admission avoidance, Mixed methods

Introduction

In 2020, two million adults visited emergency departments (ED) in the Netherlands. Almost 40% were aged 65 years or older and this proportion is rising due to demographic change [1–3]. Older adults often have cognitive disorders and multimorbidity, and may experience adverse events just by being present at an ED [2, 4–6]. This group is also more complex and time-consuming to deal with, contributing to an overburdening of the ED [2, 4]. As a result of this pressure, older adults requiring only basic care may be admitted to hospital [7]. In addition to an avoidable burden on healthcare, research suggests that around 40% of older persons presenting at an ED have subsequent negative outcomes [8]. Additional problems include admission for social reasons, which is sometimes due to strain on caregivers at home [2, 9, 10], and the fact that older adults are admitted to the hospital more often and for longer periods compared to younger patients [2, 4, 7, 11].

Care for older adults in the Netherlands differs from that in other countries, as a single medical speciality—the elderly care physician (ECP) – provides care for older adults in nursing homes. In addition to their role in nursing homes, these specialists act as consultants for the GP, determining medical indications for acute or long-term care in their facilities. ECPs are skilled in assessing older adults with multimorbidity, including cognitive disorders, and determining the most appropriate type of care setting. Nonetheless, a majority of older people live independently and are registered with a GP, who treats any medical condition they may have. GPs can call on ECPs as consultants, as the GP is often overwhelmed by daily time constraints, waiting lists and diverse indications when a patient requires immediate care, either at home or in a nursing home.

The most effective interventions to prevent unnecessary hospital admissions due to acute deterioration of older adults include a multidisciplinary service and an integrated collaboration between hospital and community care [7, 12]. We therefore developed a transitional care programme to provide ED physicians with an alternative to the current default of admitting older adults with complex problems. With the aim of reducing (potentially avoidable) hospital admissions, this

programme involved supporting regular ED staff with the addition of a transfer nurse and an elderly care physician, with more time and experience of assessing older adults [13]. We then evaluated whether this approach was successful in avoiding or redirecting unnecessary hospital admittance, and how the programme was perceived by patients and caregivers.

Methods

Participants and setting

A mixed methods study was performed in patients presenting at our ED, using routine medical care data and semi-structured interviews with (medical) professionals, patients and/or caregivers. The ED is located at a large urban teaching hospital that receives around 45,000 adult patients annually. In the Netherlands, a universal, obligatory healthcare insurance covers all medical care, while expenditures for home care and nursing homes are covered under a Long-Term Care Act. At our ED, patients are assessed by either an ED physician or a medical specialist (or their respective residents). For the current study, all consecutive patients, who were assessed by the transitional care team (TCT) from January to December 2019, were included. The decision to allocate a patient for consultation by the TCT was made by the attending physician. Eligible patients for the TCT were those patients of 65 years and older, living at home before ED presentation, with an acute functional decline that would require hospitalization to provide the additional care needed, but without a medical reason for hospital admission. There were no other in- or exclusion criteria for TCT consultation.

Transitional care team

The TCT was available for consultation on Monday to Friday, from 13:00 h till 21:00 h (due to staff shortages not in the weekend). In this period, the TCT was always represented by a transfer nurse (TN). On Fridays however, the TCT also included an ECP. The TN's were part of a team of experienced, hospital-based transitional care nurses, who's daily work it is to make arrangements for the discharge of patients from hospital wards, including transfer to nursing homes or arranging homecare. For patients allocated to the TCT at the ED, the TN

assessed the individual care needs, followed by arranging the appropriate care, varying from no additional care, care by a home care nurse, or transfer to a nursing home. The ECPs were recruited from a large nursing home organisation in our region, and experienced in performing geriatric assessments. The role of the ECP included a physical examination and a short geriatric assessment (GA) of domains most pertinent to the current ED visit, to support the TN's assessment. Furthermore, the ECP used information available from primary care or a structured frailty assessment at the ED (Acute Presenting Older Patient [APOP score]) [14, 15]. In those cases in which the ECP consulted the EHR for this information, and concluded there was a case needing transitional care, they started their assessment immediately, without waiting for the attending physician to allocate the patient to the TCT [16].

Data collection

The patients assessed by the TCT were manually registered by TN's in a data file unconnected to the electronic health record (EHR). Healthcare professionals and stakeholders, among which ED management, were recruited by mail to participate in semi-structured interviews. Patients and/or informal caregivers who were assessed by the ECP and transfer nurse were approached by the researchers for consent for an interview.

For the qualitative evaluation, 6 researchers (RP, DR, JtB, SL, SvH, MH) held face-to-face or online semi-structured interviews in pairs from May to December 2022. Stakeholders who initiated the program in 2019 and current users were interviewed. Three project initiators were regarded as key informants and suggested candidates for the interviewee list. In a 'snowballing' approach, the interviewees proposed by the three initiators were asked to provide further names and so on, until no new names were mentioned and saturation was reached. A cardiologist, neurologist and an ED nurse declined participation. The interview guide was developed by the researchers for this study, based on the Consolidated Framework for Implementation Research (CFIR) (See Appendix Interview guide). This framework is a practical tool for systematic assessment of new services that have been implemented. The different domains of this framework evaluate the experiences of the stakeholders and identify opportunities for improvement. The five domains of the CFIR are (1) Intervention characteristics, (2) Outer setting, (3) Inner setting, (4) Characteristics of individuals and (5) Process of implementation [17, 18]. From each domain, pre-selected constructs, regarded as most relevant for this study, were used for coding. Interviews with patients and/or caregivers were by phone and followed an open interview approach, as no framework was used. Interviewers reached out to patients and/or

informal caregivers only after a two-week recovery time following the ED visit. Quantitative routine care data were retrieved retrospectively from the hospital Data-warehouse and the department of transfer nurses, which registered the patients assessed by the TCT. Data were pseudonymized before further analysis.

Data analysis

For the quantitative analysis, descriptive statistics of routine care data were used to describe patient characteristics. T-tests or Mann-Whitney-U tests were used to determine differences in patient characteristics, ED revisits within 30 days (as a proxy for the quality of the TCT service), and aftercare between groups. Statistical analyses were performed with R version 4.2.2. For the qualitative analysis, all interviews were recorded, transcribed and coded with Atlas.ti Version 22 22.2.5.0. Healthcare professional and stakeholder interviews were coded with pre-set CFIR constructs. A second coder (MH) also coded 10% of the interviews. Coding discrepancies were discussed until consensus was reached. Thematic analysis to evaluate the quality of the TCT service was conducted using the CIFR framework [17]. Patient and/or informal caregiver interviews were coded inductively.

Ethical approval

The protocol, with reference number N21.093, was assessed by the accredited regional Medical Research Ethical Committee of Leiden, Delft, and Den Haag (METC LDD, <https://www.metc-ldd.nl/>), who waived the need for ethics approval according to the Dutch 'Medical Research Involving Human Subjects Act' (<https://english.ccmo.nl/investigators/legal-framework-for-medical-scientific-research/laws/medical-research-involving-human-subjects-act-wmo#:~:text=Medical%20scientific%20research%20involving%20human,behaviour%20are%20imposed%20on%20them>). Subsequently, the protocol was submitted to the local ethics committee of the Haga Teaching Hospital, the Hague, who approved the protocol (local reference number T21-077). All interviewees gave written informed consent before their participation.

Results

Data were collected between January 2019 and December 2021 and covered 821 older adults aged ≥ 65 years (Table 1). No significant differences in health outcomes were found between those assessed by the TN transfer compared to those assessed by the ECP and TN (Table 2). Based on the registered diagnose codes, used by the hospital's administration for the financial claim to the health insurers, we analyzed the reasons for ED presentation (table Appendix 1). These included a broad range of common clinical presentations, including pneumonia,

Table 1 Descriptive characteristics. TN: transfer nurse, ECP: elderly care physician

	TN (n = 571)	TN + ECP (n = 250)	Overall (N = 821)
Year(n(%))			
2019	69 (12.1)	69 (27.6)	138 (16.8)
2020	271 (47.5)	91 (36.4)	362 (44.1)
2021	231 (40.5)	90 (36.0)	321 (39.1)
Sex (Female, n (%))	384 (67.3)	176 (70.4)	560 (68.2)
Age (years, mean (SD))	83.7 (7.6)	83.0 (8.1)	83.5 (7.7)
Medical specialty determined at ED (n (%))			
Cardiology	20 (3.5)	13 (5.2)	33 (4.0)
Gastroenterology	4 (0.7)	6 (2.4)	10 (1.2)
Internal medicine	141 (24.7)	68 (27.2)	209 (25.4)
Neurology	59 (10.3)	24 (9.6)	83 (10.1)
Orthopaedics	37 (6.5)	7 (2.8)	44 (5.4)
Pulmonology	25 (4.4)	10 (4.0)	35 (4.3)
Rheumatology	4 (0.7)	3 (1.2)	7 (0.9)
ED physician	271 (47.5)	117 (46.8)	388 (47.3)
Urology	8 (1.4)	2 (0.8)	10 (1.2)
Missing data	2 (0.4)	0 (0)	2 (0.2)
Moment of the day (n (%))			
Day shift (13:00–16:00)	209 (36.6)	94 (37.6)	303 (36.9)
Evening shift (16:00–21:00)	337 (59.0)	144 (57.6)	481 (58.6)
Missing data	25 (4.4)	12 (4.8)	37 (4.5)
Number of diagnoses (median [IQR])	2.00 [0,30]	2.00 [0,16]	2.00 [0,30]
Number of medications used (median [IQR])	2.00 [0, 25]	2.00 [0, 21]	2.00 [0, 25]

Table 2 Hospital admittances avoided, length of stay and aftercare arranged. TN: transfer nurse, ECP: elderly care physician

	TN (n = 571)	TN + ECP (n = 250)	Overall (N = 821)
Hospital admittance avoided (n (%))	454 (79.5)	203 (81.2)	657 (80.0)
ED Re-visits (n (%)) < 30 days	77 (13.5)	39 (15.6)	116 (14)
Length of stay without medical indication (days, N = 118)			
Median [IQR]	2.00 [1.0,16.0]	1.00 [1.0,12.0]	2.00 [1.0, 16.0]
Missing patients (n (%))	9 (1.6)	3 (1.2)	12 (1.5)
Aftercare (n (%))			
No additional care arranged	63 (11.0)	29 (11.6)	92 (11.2)
Discharge to home with additional care	174 (30.5)	74 (29.6)	248 (30.2)
Admittance to nursing home	305 (53.4)	133 (53.2)	438 (53.3)
Missing data	29 (5.1)	14 (5.6)	43 (5.2)

urinary tract infection, fractures and diarrhea, representative of the spectrum of cases at our ED.

There were 487 (59%) patients with multimorbidity, defined as having at least 2 chronic conditions, and 319 (39%) patients with polypharmacy, defined as using at least 5 different medications.

Assessment by the TCT prevented the unnecessary hospital admission of 657 (80%) patients attending the ED (Table 2), whereas 118 patients (14.3%) were hospitalized, mainly due to a lack of capacity in nursing homes or a lack of safe homecare options at the time. Most of those admitted spent only two days (median 2.0, [1.0–4.0]) in hospital and were transferred with care arranged by the TCT. Of the 657 patients who were not hospitalized, more than half (438; 53.3%) were transferred to a nursing home, while 92 patients (11.2%) did not require (additional) care and were sent home.

Re-visits

Of 821 patients, 116 (14%) revisited the ED within 30 days, with no differences between patients assessed by the transfer nurse versus ECP and transfer nurse or in patient characteristics. ED re-visits within 72 h, which might suggest an incorrect discharge, was low (3.5%). Further evaluation regarding the second ED visit found that 82 (71%) had a different care need. Among the 116 revisiting patients, 61 (53%) were hospitalized, 20 patients (17%) sent home (with or without homecare), 27 (23%) were sent to the same nursing home selected during the first visit, and 8 patients (7%) were newly referred to a nursing home.

Healthcare professionals and stakeholder perspectives

Eleven healthcare professionals and stakeholders were interviewed (see appendix for interviewees). Of the 36 possible constructs from the CFIR, we analyzed the most commonly used constructs as suggested by Damschroder et al. [18, 19]. Quotes from the interviews, illustrating the constructs, can be found in Table 3. We used an explanatory design for elaborating on the quantitative data using the qualitative data, together with an embedding approach [20–22].

Characteristics of individuals' domain

Knowledge and beliefs about the intervention

Stakeholders were all in agreement concerning the goal 'right care in the right place.' They also all agreed that when a patient attends the ED, it is appropriate that the ED should arrange aftercare or redirect patients to a nursing home rather than first admitting them to hospital. The additional expertise of an ECP was much appreciated at the ED. Nevertheless, the opinions of stakeholders differed concerning the added value of an ECP over a transfer nurse alone. That added value was clearly evident to the management level, but ECPs self still felt the need to prove their value to the work floor. From the interviews it appeared that stakeholders valued the ECP for reasons beyond the original intervention, such as help with developing care plans for already hospitalized, complex patients. (Quotes 1.1&1.2&1.3)

Table 3 Quotes from (medical) stakeholders according to the domains and constructs of the Consolidated Framework for Implementation Research

Domain	Construct	Quote	Reference	
Characteristics of individuals domain	Knowledge and Beliefs about the intervention.	"I asked [an ED doctor], do you like the idea?" "No, I don't actually. I don't see the benefit of it. I can't see what this is going to solve" said the ED doctor. Now it is the complete opposite." ECP	1.1	
		"I think it's a really useful project that has been very well received and has performed well beyond expectations." Manager Quality and Safety	1.2	
		"And it's also really good that we've gotten a better understanding of each other's work. That's really going well." Geriatrician	1.3	
Inner setting	Implementation climate	"...officially, the specialist is still ultimately responsible. He has to have the courage to trust me when I say that [the patient] can go home rather than to a [nursing home]. But generally, if I say that I think re-referring the patient [to primary care] is appropriate, I notice that my opinion is often accepted." ECP	2.1	
		"...it was a very bottom-up intervention. It really all started with a few enthusiastic people who wanted to do it and so they did. In terms of management, we talked to the various stakeholders and everyone we spoke to was enthusiastic and wanted to participate." Manager ED	2.2	
		"We see quite a lot of older adults coming into the ED when it's in fact a [social] care problem. That was the reason to start this at the ED, in the hope that we could transfer these patients from the ED to care facilities and arrange additional homecare." ED physician	2.3	
		"At a certain point we didn't dare ask people 'can you make it home?', because if they said 'No', then we had to do something; so we now try to avoid that." Transfer nurse	2.4	
		Culture	"...it might also be helpful if the medical specialists would come and ask for an opinion more often, for example; so that you notice that [your work] is actually appreciated." ECP	2.5
			"...we want to get doctors to think about their own approach to treating patients. They've been doing it [this way] for like 5, 10 or even 20 years. What we try to do, together with them, is to get them to think about whether this really is best for the patient. And what we see is that they develop fresh ideas and new ways of treating patients." Hospital healthcare buyer	2.6
Intervention characteristics	Adaptability	"...then the project expanded and we got more elderly care specialists... and they were here for maybe one Friday, followed by someone else and then someone else the week after. They weren't all familiar faces anymore." Manager Quality and Safety	3.1	
		"Our doctors can also log into the system and see when someone comes in with a [high APOP] score. And we have actually now agreed that we are going to intervene even if uninvited." Manager nursing home	3.2	
	Costs	"Because we don't admit patients, we don't receive funding for those patients. But we have to pay the elderly care specialist, so it might even make it a bit more expensive for our hospital. [...] But even if you were to admit every one of those patients for only one day, that would cost more than the project." Manager ED	3.3	
	Relative advantage	"The main advantage is that, for example, our ECP has seen someone in the ED, so then we can easily refer them to an acute care bed. You can briefly consult each other and, basically, you can then just take over seamlessly from each other." ECP	3.4	
Outer setting	Cosmopolitanism	"The problem again is that care, well, hospital care here in town is divided over two major hospitals, but then nursing home care; I don't know, there are maybe seven or eight different companies, and if you also take home care or even district nursing into account, there are maybe a 100 or so companies here in town. It's really difficult to negotiate with everybody." Geriatrician	4.1	
	External policy & Incentives	"You can't do that (change) within a day, you need to build up trust and invest in a relationship by getting to know each other. It can take months to be able to put your interests on the table and be honest about them." Manager Quality and Safety	4.2	
Process of implementation	Executing	"It varies a lot from doctor to doctor whether [the team] is used or not. I also think it very much comes down to experience and familiarity. Knowing [the person] you call and perhaps having had a couple of good experiences. Then you'll call a third time, but if it's not in your system, you don't." ECP	5.1	
	External change agent and intervention source.	"And if insurers are reluctant to reach new agreements, don't keep to their agreements, and sometimes do things their own way, well, then nothing will change. It's because we need certainty and we need to reassure doctors that this is the right approach. That we'll still get paid and, we don't have to decrease our hospital because the insurers don't take their role." Hospital healthcare buyer	5.2	
	Reflecting and Evaluating	"... they didn't know how to easily get together anymore, and the teaching also became a little less structured and receded to the background." Manager ED	5.3	

Table 3 (continued)

Domain	Construct	Quote	Reference
		<i>"It's a very meaningful project that has been really well received and has performed well beyond expectations. I hope that we can continue it, and that regional agreements are going to change, because beds are scarce."</i> Transfer nurse	5.4

Inner setting domain

Implementation climate

Since the need for change was felt by all stakeholders, the intervention was well received. However, the introduction of the TCT was also perceived as impacting the autonomy of the ED physicians. Especially, barriers were identified related to the new role of the ECP, requiring to trust another "out-of-hospital specialist" at "your" ED who makes decisions about "your" patient. Stakeholders also felt that the impact of the TCT largely depended on the quality of collaboration between ECPs, residents and ED physicians, and varies between medical specialties, with large differences in number of patients allocated to the TCT (Table 1) (Quotes 2.1&2.2).

Hospitalization without a clear medical indication was regarded as inappropriate care, with potential iatrogenic or hospital-based complications, and misuse of limited resources. Hospital-based professionals highlighted the insufficient availability of nursing home beds in the region, whereas nursing home managers explained that only patients fulfilling certain reimbursement criteria are eligible for these facilities. As the TCT is familiar with these criteria, patients who were hospitalized without medical reason, still could be discharged within 1 to 2 days (Table 2). (Quotes 2.3&2.4)

Culture

Differences in organizational culture between hospitals and nursing homes may also play a role. Whereas the hospital staff seemed resistant to change and innovation, the nursing home professionals showed more motivation for change. Some stakeholders mentioned differences in communication within the respective organizations. This was also reflected in the hierarchical culture, with residents rather asking for supervision by a medical specialist than by an ECP. Similarly, a transfer nurse could show resistance to accepting instructions from an ECP, who is only part of the TCT on Fridays. (Quotes 2.5&2.6).

Intervention characteristics domain

Adaptability

All stakeholders agreed that the TCT service needs to be adaptable. In the preparation phase, multiple changes were made, among which extending the availability of the transfer nurses till 21:00 h every evening on weekdays. They also received more training in screening older adults. Furthermore, the APOP score was introduced to assess frailty, and it became clear that the ECP needed

a proactive attitude to improve their visibility at the ED, such as actively approaching specialists. To account for the frequent rotation of residents, familiarization with the TCT was added to their introduction program. (Quotes 3.1&3.2)

Costs

Almost all stakeholders felt that the health insurer was responsible for funding the TCT intervention, as they benefit from the cost savings due to a reduction in hospital admissions. The health insurer on the contrary, stated that after an initial period of additional funding, the TCT should be integrated into the annual hospital budget. All professionals involved feared that the lack of a structural payment model for the TCT would finally result in its termination. (Quote 3.3)

Relative advantage

The potential benefits of the TCT for patients at the ED were clear to all stakeholders. However, there were different opinions regarding the value of adding an ECP to the TCT. Some stakeholders felt the TCT service by the transfer nurse was already well-functioning. In contrast, others considered the presence of an ECP to have a certain immeasurable value, based on mutual familiarity with nursing home and home care staff, nurturing collaboration. (Quote 3.4)

Outer setting domain

Cosmopolitanism

All stakeholders agreed that initiating the TCT approach would have been impossible without informal personal networks. Nonetheless, it took the organizations months to formalize agreements on implementation, even with the involvement of only one nursing home organisation. Establishing similar collaborations with numerous potential regional partners would be even more difficult. (Quote 4.1) Stakeholders also mentioned the need for more regional coordination of elderly care, for optimal use of available nursing home beds and resources. The collaboration between the hospital and nursing home was mutually appreciated, although tensions related to competing interests were mentioned by both organizations.

External policy & incentives

Several stakeholders had strong opinions about government policies and health insurers role regarding the funding of healthcare in the Netherlands. Interviewees

feel a disconnect between decision makers at the government level and the healthcare professionals working in daily practice. Trust between healthcare insurers and providers was mentioned as an important precondition for transformation of services such as a TCT. (Quote 4.2)

Process of implementation domain

Executing

Opinions differed regarding how to perform patient assessments, discharge procedures and the execution of other TCT tasks. ECPs explained their broader role compared to the transfer nurses, such as by making assessment appointments following discharge, and drafting a more elaborate handover to nursing homes. It was also mentioned that transfer nurses lack experience in assessing older adults and ‘just arrange aftercare.’ Different experiences were reported concerning the work attitude and motivation of rotating ECPs, with some being more proactive than others. Healthcare professionals mentioned the importance of training residents and attending physicians about the opportunities offered by the TCT,

as a hallmark of effective implementation. Unfamiliarity with the TCT among specialists and residents can lead to missing opportunities to use this service. (Quote 5.1)

External change agent and intervention source

An important factor in successful implementation in this study was having a ‘key champion,’ an ECP as one of the main initiators. One area of dissenting opinion was the perception of the commitment of different stakeholders to their respective roles in facilitating implementation. Whereas the insurer mentioned that they contributed data, information and management skills, these claims were vigorously disputed by healthcare professionals. Some even stated that the stakeholders with the most influence did not always fully shoulder responsibility. (Quote 5.2)

Reflecting and evaluating

Reflecting and evaluating revealed multiple themes, mostly resulting from interim planned evaluations by the healthcare professionals and managers involved. The point was made that these evaluations mainly focused on the number of patients, the ECP’s consultation role and other potential improvements (such as implementing the APOP score), rather than the overall impact of the TCT. Some stakeholders concluded that, once the TCT had been implemented, and transfer nurses and ED staff were trained, the ECP no longer provided added value. (Quote 5.3) Overall, all stakeholders agreed that the TCT was a success that resulted in better care delivery for older adults at the ED. (Quote 5.4)

Patient and caregiver perspectives

We interviewed four patients and seven caregivers. The interviews were coded inductively and emergent themes included the role and added value of an ECP, suggestions for improvements, communication, and opinions on outcomes. Quotes can be found in Table 4.

Presence of an ECP

All patients/caregivers had positive opinions concerning the presence of an ECP at the ED and felt that it had added value. For some caregivers, trust in the aftercare process increased. Concerning the ECP’s role, numerous issues were raised by the interviewees, including the attention paid, the time invested, greater expertise concerning the problems of older adults, polypharmacy, the right type of aftercare and problems in other domains. They all agreed on the added value of a physician who is an expert on taking into account the needs of older adults, resulting in building trust.

Negative opinions regarding the ECP’s role mainly concerned the timing of the consultation during the ED stay. One patient mentioned she was too ill to understand the

Table 4 Quotes from patients and caregivers

Theme	Quote	Reference
Elderly care physician presence	“...it’s that, that she spoke to him very respectfully, looking at us too, of course. But she did try her best to include him.” Caregiver	A
	“The ordinary doctors in the emergency room are maybe more attuned to 50-year-olds on average, so if a 90-year-old comes in they can’t assess the situation quite so readily; they are too optimistic that the patient can return home. They don’t have an overview of the whole person. I don’t wish to disparage the people working in the ED, but they are very ‘problem – cause – solve – end.’ Caregiver	B
	“So yes, you know that bit of expertise is maybe just a little different in terms of medication, and perhaps also in approach.” Caregiver	C
Outcome satisfaction	“I feel that we are at the mercy of the system. A system that is mainly called ‘waiting lists.’ Caregiver	D
	“But afterwards I think to myself, ‘Yes, they’re right, because otherwise my kids will have to keep an eye on me all day long. And I don’t want that either.’ Patient	E
Communication	“...we were very grateful for that as well. She made no bones about it, but she had all this time for us and talked with so much respect.” Caregiver	F
Improvement	“[My father] didn’t get a bite to eat. And that, well really, I just thought that was not okay.” Caregiver	G

role of the ECP, and that there was an information overload. Most of the negative comments were related to external factors, and not to the actual assessment by the ECP. External factors mentioned were the waiting time at the ED, transportation to a nursing home and the lack of medication upon arrival at the nursing home. (Quotes A&B&C)

Outcome satisfaction

Most of the patients and caregivers were satisfied with the arranged aftercare and felt their needs were met, although some struggled with the idea of not being able to return to their home. All interviewees stated that they felt involved in the decision making, but some also perceived a lack of control over the choice for a specific nursing home. The ECPs were also praised for their combined focus on both the patient and caregivers, and confidence was expressed in their assessment of the care needs and how these should be addressed. (Quotes D&E)

Communication

All but one of the caregivers mentioned clear communication, which prepared them for potential circumstances in the home situation, and they felt involved in a shared decision making process. (Quote F) One caregiver however, reported experiencing some confusion concerning whether the location of aftercare was at home, or in a nursing home facility.

Improvement

Some suggestions for improvement were made, both by patients and caregivers. One patient mentioned preferring to have a conversation at a hospital ward, and not in the hectic ED setting. Another appeal was for more focus on the caregiver and the home situation. One person felt that an ECP was needed every day and not just on Fridays. Another caregiver was upset because the patient was not allowed to eat or drink for a long period at the ED. (Quote G)

Discussion

In this study we assessed the effect of adding a transitional care team, consisting of a transfer nurse with or without the support of an elderly care physician (ECP), to the staff of an emergency department, with the goal of reducing unnecessary hospitalization of older adults, presenting with an acute functional decline but no medical reason for admission. Compared with the previous default of hospitalization of these patients, we found that hospital admissions could be avoided or redirected independently of the TCT composition. Although not demonstrable quantitatively, qualitatively we found that having an ECP present had added value, which was mainly expressed in the quality of care experienced

by patients and caregivers. Adding an ECP to the team improved the experienced patient-centred care and regional collaboration, and both patients and/or caregivers appreciated the support and time invested to organize aftercare that met their specific needs.

Strengths and limitations

This study had several strengths, including assessment by the TCT of a large number of patients and a 30-day follow-up period for repeat ED visits. Another strength was our mixed-method approach. Had the results been analysed only quantitatively or qualitatively, we would have gotten a one-sided picture and drawn different conclusions.

Our study had several limitations, the first being its observational nature, which inevitable introduces the risk of bias. However, no differences were found between patients assessed by the ECP and transfer nurse versus transfer nurse alone. A second limitation is that we used data from the EHR at the time of the ED visit, resulting in insufficient information on previous medical history and current medication use, as this is not always correctly recorded in the EHR. Finally, as the study took place in a single centre no comparisons could be made with another ED in another setting.

Preventing avoidable hospital admissions

In 2014, new guidelines appeared that changed the organization of ED care for older adults [23]. Since then, there have been numerous initiatives, for example the assignment of specialists to the ED to coordinate care, specially-trained nurse liaisons, combinations of senior doctors, therapists, and supported discharges [24–27]. A systematic review concluded that a blend of geriatrician and nurse skills produces the best result for the patient, as in our TCT [24]. However, contrary to most other studies, we did not first admit patients and then arranged aftercare, but arranged it directly from the ED. Two other studies have taken a somewhat similar approach and both found reduced inpatient admission from the ED. However, those studies both worked with advanced practice nurses or specialized care transition nurses [12, 28].

The results of the current study, showing no quantitative difference in reducing hospital admissions between TN only versus TN+ECP, could be explained by the eligibility criteria for allocation of patients to the TCT. In all the included cases, the attending physician had already concluded that there was no medical reason for hospital admission. Therefore, the most important role of the TCT was arranging the appropriate care after ED disposition, for which the addition of an ECP had no measurable impact. In a setting of a TCT evaluating unselected elderly patients at the ED, these results could have been different.

Care coordination of specific older adult's needs

We found that a ready-to-go aftercare plan prepared for a hospitalized patient by the ECP and/or transfer nurse resulted in a shorter LOS (by 6–7 days) compared with regular older patients [4, 29]. This was similar in studies with a transitional care nurse and they found even shorter time periods spent in the ED itself [12, 13, 25, 30], which also reduces risk of iatrogenic harm.

The majority of our patients were admitted to a nursing home, thanks to the effort and time invested by the transfer nurse and/or ECP. With an average of 30 min per patient, the time required by a transitional care or discharge nurse to arrange aftercare, is simply unavailable to any attending ED physician or resident [26, 31]. Another study that introduced an extensive interdisciplinary geriatric staff at an urban ED, found that 58% of referrals were to other services such as case management and homecare services [32], which in our case was 30% for homecare services.

ED re-visits

Another important study finding was a 30-day ED re-visit rate of 14%, which is low compared with an average of 22% reported by others [33]. This finding is in contrast with earlier studies with discharge programs who reported an increase in ED re-visits [34–36]. In one study, with three implementation sites, only a single site showed an increased ED revisit rate at 72 h, while the other sites had than expected rates [12, 28]. Two other studies of an ED-based discharge intervention reported comparable re-visiting rates of 14.6% and 12.9%, respectively, although the latter had a follow-up period of 14 days [31, 37]. A systematic review of both European and non-European studies on the impact of ED discharge programs, found no impact on ED re-visits at 30 days [38]. Another systematic review looked at adverse events following ED discharge interventions, showing no overall disadvantages compared to standard of care [24]. Furthermore, others have previously found no increased risk of mortality or “same medical reason” re-visit within 28 days [12, 38, 39]. When we examined the reason for ED re-visits we found that 71% were due to care needs unrelated to the first ED visit.

Experiences of care

Of major importance was our qualitative finding that there was a unanimous perception of quality improvement by the addition of an ECP to the TCT. The need for high-value multidisciplinary care when caring for older adults was highlighted, addressing their needs and with accurate discharge planning. These findings are supported by other qualitative studies [40, 41]. Insights provided by our patients and caregivers included the importance of being involved in aftercare decisions, as

well as the approach taken when communicating with patients and caregivers. Similar positive experiences have been reported in other ED studies [6, 42]. Negative experiences reported by interviewees did not concern the transfer nurse or ECP, but mainly related to external factors, such as ED crowding resulting in long waiting times [6, 33, 43]. Another survey confirmed our experience of elderly patients feeling vulnerable and hoping to receive holistic care, such as delivered by an ECP [44].

Conclusion

To conclude, in this mixed methods study we found that a transitional care team for older adults is effective in preventing unnecessary hospital admittance from the ED, regardless of TCT composition. However, the presence of an ECP contributed to positive professional and patient experiences. Our study supports the notion that a multidisciplinary ED team, including a transitional care team, focused on older adults, adds considerably to the quality of healthcare.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12877-024-05260-2>.

Supplementary Material 1

Supplementary Material 2

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Author contributions

RP analyzed and interpreted the patient data. RP, RV and MvA drafted the main manuscript. MN, IK, KR, GL and CvN all contributed during the writing process with feedback. All authors read and approved the final manuscript.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical approval

The protocol, with reference number N21.093, was assessed by the Medical Ethical Committee of Leiden, Delft, and Den Haag, and the Dutch ‘Medical Research Involving Human Subjects Act’ did not apply. The hospital ethical committee also declared that the act did not apply (local reference number T21-077). All interviewees gave written informed consent.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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