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Understanding implementation of comprehensive geriatric care programs: a multiple perspective approach is preferred

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SUMMARY

Background The Prevention and Reactivation Care Program (PReCaP) provides a novel approach targeting hospital-related functional decline among elderly patients. Despite the high expectations, the PReCaP was not effective in preventing functional decline (ADL and iADL) among older patients. Although elderly PReCaP patients demonstrated slightly better cognitive functioning (Mini Mental State Examination; 0.4 [95% confidence interval (CI) 0.2–0.6]), lower depression (Geriatric Depression Scale 15; –0.9 [95% –1.1 to –0.6]), and higher perceived health (Short-form 20; 5.6 [95% CI 2.8–8.4]) 1 year after admission than control patients, the clinical relevance was limited. Therefore, this study aims to identify factors impacting on the effectiveness of the implementation of the PReCaP and geriatric care ‘as usual’.

Methods We conducted semi-structured interviews with 34 professionals working with elderly patients in three hospitals, selected for their comparable patient case mix and different levels of geriatric care. Five non-participatory observations were undertaken during multidisciplinary meetings. Patient files ($n = 42$), hospital protocols, and care plans were screened for elements of geriatric care. Clinical process data were analysed for PReCaP components.

Results The establishment of a geriatric unit and employment of geriatricians demonstrates commitment to geriatric care in hospital A. Although admission processes are comparable, early identification of frail elderly patients only takes place in hospital A. Furthermore, nursing care in the hospital A geriatric unit excels with regard to maximizing patient independency, an important predictor for hospital-related functional decline. Transfer nurses play a key role in arranging post-discharge geriatric follow-up care. Geriatric consultations are performed by geriatricians, geriatric nurses, and PReCaP case managers in hospital A. Yet hospital B consultative psychiatric nurses provide similar consultation services. The combination of standardized procedures, formalized communication channels, and advanced computerization contributes significantly to geriatric care in hospital B. Nevertheless, a small size hospital (hospital C) provides informal opportunities for information sharing and decision making, which are essential in geriatric care, given its multidisciplinary nature.

Conclusions Geriatric care for patients with multimorbidity requires a multidisciplinary approach in a geriatric unit. Geriatric care, which integrates medical and reactivation treatment, by means of early screening of risk factors for functional decline, promotion of physical

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activity, and adequate discharge planning, potentially reduces the incidence of functional decline in elderly patients. Yet low treatment fidelity played a major role in the ineffective implementation of the PReCaP. Treatment fidelity issues are caused by various factors, including the complexity of projects, limited attention for implementation, and inadequate interdisciplinary communication. © 2016 The Authors The International Journal of Health Planning and Management Published by John Wiley & Sons Ltd.

KEY WORDS: geriatric care; early screening; geriatric unit; geriatric consultation service

BACKGROUND

Comprehensive multidisciplinary integrated care approaches are needed to avoid functional loss among older patients (Hirsch *et al.*, 1990; Asplund *et al.*, 2000; Counsell *et al.*, 2000; Inouye *et al.*, 2000; Ellis and Langhorne, 2005; Inouye *et al.*, 2006; de Morton *et al.*, 2007; Beswick *et al.*, 2008; Van Craen *et al.*, 2010; Ellis *et al.*, 2011; Kosse *et al.*, 2013). Ample evidence demonstrates that hospital admission is considered a health risk for older patients (Creditor, 1993; Sager *et al.*, 1996). Thirty-five percent of 70-year old patients admitted to acute care will be discharged at a significantly reduced level of functional ability, and most will never recover to their previous level of independence (McVey *et al.*, 1989; Sager *et al.*, 1996; Covinsky *et al.*, 2003). For patients of 90 years and older, this percentage increases to 63% (Covinsky *et al.*, 2003). The Comprehensive Geriatric Assessment (CGA) comprising of a screening for risks for adverse outcomes, a diagnostic assessment on the presence of geriatric conditions and multidisciplinary tailored interventions, has demonstrated positive outcomes. These include the reduction in cognitive and functional decline in patients at risk, and retaining quality of life and independence in activities of daily living (ADL) (Hirsch *et al.*, 1990; Inouye *et al.*, 2000; Inouye *et al.*, 2006). Multidisciplinary interventions, including physical rehabilitation programs, are associated with a reduction in functional decline (Counsell *et al.*, 2000; de Morton *et al.*, 2007; Kosse *et al.*, 2013), reduced length of hospital stay at the same costs compared to 'regular care' (Asplund *et al.*, 2000; Counsell *et al.*, 2000; de Morton *et al.*, 2007; Beswick *et al.*, 2008), lower (re)admissions to hospital and nursing homes (Ellis and Langhorne, 2005; Van Craen *et al.*, 2010; Ellis *et al.*, 2011; Kosse *et al.*, 2013), reductions in fall incidence (Gillespie *et al.*, 2003; Beswick *et al.*, 2008) and higher perceived health and life satisfaction among patients (Naylor *et al.*, 1999; Caplan *et al.*, 2004; Baztan *et al.*, 2009).

The Prevention and Reactivation Care Program (PReCaP) has been developed to help prevent functional decline among older hospitalized patients. Therefore, the PReCaP offers a bundle of interventions aimed at the physical, social and psychological domains of functional decline, including, for example, identification of patient at risk within 48 h after admission, assessment of risk factors for functional decline, consultation with patient and relatives to discuss vulnerability and risk factors, biweekly multidisciplinary meeting (MDM) and provision of support and treatment to informal caregiver (de Vos *et al.*, 2012). The program combines existing treatment methods and innovative care paths for reactivation into a comprehensive care package that fits the individual needs of elderly patients and their informal

caregivers. In contrast to the traditional care model, in which the reactivation treatment is provided as a separate element, the PReCaP integrates the treatment of the medical condition and the reactivation of the elderly patient. A more elaborate description of the PReCaP as well as the rationale behind the different elements of the program is described in an earlier publication (de Vos *et al.*, 2012).

Although previous research reported the added value of such comprehensive integrated and multidisciplinary care approaches for frail older patients, they also proved to be very complex system solutions leading to critical differences between such programs in terms of their design, implementation and performance (Kodner and Kyriacou, 2000). These differences are expected to be closely linked to the relative degree of success achieved by such programs. Despite the high expectations, the PReCaP was not effective in preventing functional decline (ADL and iADL) among older patients (Asmus-Szepesi, 2015; Asmus-Szepesi *et al.*, 2015). Although elderly PReCaP patients demonstrated slightly better cognitive functioning (Mini-Mental State Examination; 0.4 [95% confidence interval (CI) 0.2–0.6]), lower depression (Geriatric Depression Scale 15; –0.9 [95% –1.1 to –0.6]) and higher perceived health (Short-Form 20; 5.6 [95% CI 2.8–8.4]) one year after admission than control patients, the clinical relevance was limited. Moreover, one-year health care costs were higher for PReCaP patients, both for the within-hospital analysis (+€7000) and the between-hospital analysis (+€2500) (Asmus-Szepesi, 2015; Asmus-Szepesi *et al.*, 2015).

Research is needed to more clearly elucidate why and how the implementation of integrated models for frail elderly work. Meaningful clues can be discerned from existing data on the implementation of comprehensive solutions for frail older patients (Kodner and Kyriacou, 2000). Insight into these aspects may help to understand the underlying components explaining the (lack of) effectiveness of such programs better (Craig *et al.*, 2008; Hartgerink, 2013; Hartgerink *et al.*, 2013). Therefore, this study aims to identify factors impacting on the effectiveness of the implementation of the PReCaP (in hospital A) and geriatric care ‘as usual’ (in hospital B and C) by means of in depth analysis of interview data, observation data, patient files, hospital protocols, care plans and flow charts. It is expected that detailed insight into the implementation of geriatric care (with or without PReCaP) will contribute to understanding the (lack of) effectiveness found in the PReCaP.

METHODS

Design

The study compared the level of implementation of geriatric care in three hospitals: hospital A (delivering the PReCaP) and hospitals B and C (delivering geriatric care without use of an explicit program), including the factors impacting on the level of implementation (de Vos *et al.*, 2012). A mixed methods design, in which the data collection involved qualitative interview data, observation data, patient file data and hospital documents, enabled us to gain a comparable description of the actual geriatric care processes, as previously demonstrated by Allen *et al.* (2010).

The study was approved by the Medical Ethics Committee of the Erasmus Medical Centre, Rotterdam.

Sample/recruitment

Thirty-four explorative semi-structured interviews were conducted with a wide range of professionals working with elderly patients in the three hospitals in 2010 and 2012. The interviewees were selected because of their involvement with elderly patients to ensure a broad perspective on the actual geriatric care process and structures (Table 1). Written informed consent was obtained from the interviewees to take part in the study and for publication of the results. The interviewee's anonymity and confidentiality were ensured in the information letter.

Intervention description

The PReCaP is a comprehensive multidisciplinary approach in geriatric care developed to help prevent functional decline among older hospitalized patients (K. J. Asmus-Szepesi *et al.*, 2011; de Vos *et al.*, 2012). The PReCaP comprises five distinctive elements: (i) early identification of patients at risk of functional decline using the Identification Seniors At Risk-Hospitalized Patients questionnaire (ISAR-HP) (Inouye *et al.*, 1998; Sands, 2003; Hoogerduijn *et al.*, 2010); (ii) intensive follow-up treatment for a selected patient group for a maximum period of three months at the Prevention and Reactivation Centre; (iii) availability of multidisciplinary geriatric expertise during hospitalization, admission at the Prevention and Reactivation Centre and in the home environment; (iv) provision of support and consultation of relevant professionals for informal caregivers; and (v) intensive follow-up, for a maximum period of six months, throughout the entire

Table 1. Interviewed staff

Hospital	2010	2012
A	Geriatric nurse	Geriatric nurse
	Transfer nurse	Internist
	Teamleader internal medicine	Teamleader geriatrics
	Teamleader cardiology	Teamleader cardiology
	Teamleader emergency department	Transfer nurse
B	Manager emergency department	Consultative psychiatric nurse
	Manager patient logistics	Head nurse internal medicine
	Manager cardiology, neurology, neurosurgery	Internist
	Intensive care nurse	Manager cardiology
	Intake nurse	Manager emergency department
	Social worker	Transfer nurse
	Project manager	
C	Transfer nurse	
	Nursing manager	Nursing manager
	Head nurse orthopaedic unit	Internist
	Neurologist	Quality officer cardiology
	Psychiatric nurse	Psychiatric nurse
	Transfer nurse	Transfer nurse

chain of care (from hospital to home) by a case manager with geriatric expertise (de Vos *et al.*, 2012).

MEASURES

Purposive sampling was used ensuring the inclusion of all disciplines involved in geriatric care. Thirty-four explorative semi-structured interviews were conducted with the staff in the three hospitals between 2010 and 2012 to obtain their perspectives on the implementation of geriatric care in their organization (Table 1). Following the literature search, interview topics focused on task division, management, coordination, standardization and the targeted patient outcomes, such as physical and psychosocial functioning and informal care giver support (Table 2) (van Wijngaarden *et al.*, 2004; van Wijngaarden *et al.*, 2006). Data collection was stopped when 'new' data did not necessarily add anything to the overall framework, demonstrating that saturation was achieved.

In hospital A (intervention hospital), we conducted five non-participatory observations during MDMs. During the MDM observations, notes were taken regarding the structures (e.g. frequency and duration of the meetings, venue, number and specialty of the team members) and processes (e.g. number and type of discussed patients, medical treatment, nursing interventions). Taking notes ensured that only visible behaviors—without interpretations—were described. A colleague researcher (JDHvW) checked the observation notes and provided feedback to ensure data objectivity and reliability.

In the three hospitals, 42 digital and written patient files were collected. Inclusion of patient files was limited to patients, included in the PReCaP study, aged 65–95 years, who were hospitalized for more than five days at the geriatric, internal medicine or cardiology unit in the period 2011–2012 (Asmus-Szepesi *et al.*, 2015).

Hospital protocols, care plan, and flow charts were collected in digital and written format to be analyzed for structures and processes supporting geriatric care.

Data analysis

The audio-recorded interview data were transcribed verbatim and thematically analyzed to enable the identification and reporting of patterns or themes within the collected data (Braun and Clarke, 2006). Next, a member check was carried out with eight interviewees to ensure that the results reflected the facts accurately. The member check involved testing the data, the analytic categories, the interpretations and the conclusions with the interviewees. This strategy of revealing research materials to the interviewees ensured that their viewpoints were translated correctly into the data, which ultimately decreases the chances of misrepresentation (Lincoln and Guba, 1985; Krefting, 1991).

Analysis of observation data involved the identification of the structures and processes that shape geriatric care, including the frequency and content of the MDMs, the number and specialty of the team members, the discussed patients and interventions.

Table 2. Theoretical framework

Operational, tactical, strategic, intra-organizational, inter-organizational level					
Task division		Management		Coordination	
Specialization	Task enlargement	Hierarchic	Lateral	I on I	Group
				Informal	Formal
				Monodisciplinary	Multidisciplinary
Coordination care <ul style="list-style-type: none"> ● Physical functioning ADL, nutrition, mobility, continence, falls, decubitus, polypharmacy ● Psycho-social functioning ● Cognition, emotional, social, dementia, depression, delirium ● Informal care giver support ● Social-emotional, practical ● Logistics ● Patient ● Informal care giver ● Professional ● Information 					

Table 2. Continued

Operational, tactical, strategic, intra-organizational, inter-organizational level					
	Standardization			Opinions (culture)	Interests
	Procedures	Facilities	Training		
Coordination care					
<ul style="list-style-type: none"> ● Physical functioning ADL, nutrition, mobility, continence, falls, decubitus, polypharmacy ● Psycho-social functioning Cognition, emotional, social, dementia, depression, delirium ● Informal care giver support 					
Social-emotional, practical					
Logistics					
Patient					
<ul style="list-style-type: none"> ● Informal care giver ● Professional ● Information 					

The collected patient files were analyzed for elements of geriatric care, including (early) identification and screening, care plan development, discussion of care plan with the patient (and relatives), execution of the care plan, availability of multidisciplinary geriatric expertise, treatment, discussion of patient in MDMs, adjustment of the care plan and discharge.

Document analysis concerned the in-depth screening of hospital protocols, care plans and flow charts (digital and written versions) for elements of geriatric care, as mentioned above.

RESULTS

Table 3 summarizes the findings in each hospital. Hospital A is a 450-bed regional hospital, which employs 131 medical specialists and 1782 staff members. The hospital has a geriatric unit with 22 beds for patients of 70 years and older (including four beds for patients suffering from delirium since 2012), direct access to hospital replacement care (post-acute care) and provisions for follow-up in primary care through the PReCaP. Hospital B is a 613-bed top clinical teaching hospital (150 medical specialists; 2300 staff members) with onsite hospital replacement care, but without a clinical geriatric unit or provisions for follow-up in primary care. Hospital C is a 288-bed regional hospital (70 medical specialists; 1000 staff members). This hospital is smaller than average, but not unique in its size. Hospital C does not have a geriatric unit, hospital replacement care or provisions for follow-up in primary care. Both hospital B and C have collaborative agreements with a number of local nursing homes, care homes and a psychiatric hospital for post-discharge follow-up care for elderly patients.

GERIATRIC CARE PROCESS

Admission

Patient admission processes are comparable in the three hospitals studied. Nurses conduct the intake interview in accordance with Gordon's Health Patterns and the Patient Safety Programme (Gordon, 1994; Carpenito, 2005; de Blok *et al.*, 2013; Heim, 2013). The screening data serve as a guide for establishing a comprehensive nursing database and development of the personalized care plan. Some differences however stand out. In hospital A, the PReCaP research nurse identifies the elderly patients in the participating units (i.e. geriatric, internal medicine and cardiology unit) by checking the hospital admission list, and assesses the risk factors for functional decline by means of the Identification of Seniors At Risk-Hospitalized Patients questionnaire (ISAR-HP). In line with the PReCaP protocol the identified frail elderly patients are introduced and discussed in the cross-departmental geriatric MDMs, which ensures the timely start of reactivation treatment (one of the distinctive elements of the PReCaP). Yet, only half of the studied patients received a proper care plan because of time constraints. Hospital B also identifies elderly patients, even

Table 3. Processes and structures shaping geriatric care in three Dutch hospitals

	Hospital A 450 beds Regional hospital Clinical geriatric unit	Hospital B 613 beds Top clinical hospital	Hospital C 288 beds Regional hospital
Geriatric care process			
Admission	<p>Intake interview, including screening frail elderly patient (delirium, fall risk, nutrition, physical limitations)</p> <p>Identification frail elderly patient (ISAR-HP^a within 48 h after admission)</p>	<p>2–4 weeks prior to admission: Intake interview, including screening frail elderly (delirium, fall risk, nutrition, physical limitations)</p> <ul style="list-style-type: none"> • DOS^b (patients > 70 year) • Decubitus score • Pain score <p>No specific instrument to identify frail elderly patient</p>	<p>Intake interview, including screening frail elderly (delirium, fall risk, nutrition, physical limitations)</p> <p>No specific instrument to identify frail elderly patient</p>
Nursing care	<p>Nurse has a coordinating role in execution care plan and GAS^c care plan</p> <p>Case manager discusses frailty, risk factors and treatment with patient and relatives</p>	<p>If increased risk of falling:</p> <ul style="list-style-type: none"> • Care plan risk of falling • Hand out folder to relatives <p>If DOS^b > 4:</p> <ul style="list-style-type: none"> • Care plan delirium • T.i.d. DOS^b score • Consultation consultative psychiatric nurse <p>If SNAQ^d > 2:</p> <ul style="list-style-type: none"> • Automatic consultation dietician 	<p>If delirium:</p> <ul style="list-style-type: none"> • Fluid balance and food intake chart
Medical treatment	Treatment in line with patient centered and integrated treatment		

(Continues)

Table 3. continued

	Hospital A 450 beds Regional hospital Clinical geriatric unit	Hospital B 613 beds Top clinical hospital	Hospital C 288 beds Regional hospital
Discharge	<p>plan, targeting the medical diagnosis and the determinants of functioning (GAS^c care plan)</p> <p>Multi-disciplinary consultations</p> <p>Discussion of treatment with patient en relatives</p>	<p>Treatment in line with treatment plan targeting the medical diagnosis</p> <p>Structure of head clinician and consultant</p> <p>Treatment coherence determined by patient</p>	<p>Treatment in line with treatment plan targeting the medical diagnosis</p> <p>Structure of head clinician and consultant</p> <p>Functional problems: physiotherapy consultation</p> <p>Increased decubitus risk: dermatologist consultation, physiotherapy consultation, dietician consultation, Theracare™ bed</p> <p>Transfer nurse is consulted if patient has home care or lives in an institution</p> <p>Treatment coherence determined by patient</p> <p>Discharge interview with medical specialist (and quality officer cardiology in cardiology unit)</p>
	<p>Patient is leading in choice of post-discharge follow-up care</p> <p>Case manager (through PReCaP^b)</p> <p>Medical handover via email to general practitioner</p> <p>Nursing handover via email to home care or care home</p>	<p>Patient is leading in choice of post-discharge follow-up care</p> <p>Medical handover via email to general practitioner</p> <p>Nursing handover email to home care or care home</p> <p>Multidisciplinary outpatient memory clinic</p>	<p>Medical handover via email to general practitioner</p> <p>Nursing handover via email to home care or care home</p>

(Continues)

Table 3. continued

	Hospital A 450 beds Regional hospital Clinical geriatric unit	Hospital B 613 beds Top clinical hospital	Hospital C 288 beds Regional hospital
	Multidisciplinary outpatient memory clinic		Standardised (para)medical handover (e.g. stroke rehabilitation) Five days after discharge: Follow-up cardiology patients by quality officer cardiology Three and six months after discharge: Follow-up stroke patients by stroke nurses through collaborative agreements with home care Multidisciplinary outpatient memory clinic <ul style="list-style-type: none"> ● Regional collaborative with two local health care organizations ● Neurologist (September 2012 onwards), psychiatrist, geriatrician, case manager dementia, social nurse, and (if required) internist, radiologist, cardiologist
Organizational structure	Transfer nurse	Transfer nurse	Transfer nurse
Task division	<ul style="list-style-type: none"> ● Participates in MDM^c 	<ul style="list-style-type: none"> ● Participates in MDM^c 	<ul style="list-style-type: none"> ● Participates in MDM^c ● Daily rounds in hospital units

(Continues)

Table 3. continued

Hospital A 450 beds Regional hospital Clinical geriatric unit	Hospital B 613 beds Top clinical hospital	Hospital C 288 beds Regional hospital
<ul style="list-style-type: none"> ● Arranges post-discharge follow-up care (in consultation with patient en relatives) 	<ul style="list-style-type: none"> ● Advises medical specialist and nurse on post-discharge follow-up care ● Arranges post-discharge follow-up care 	<ul style="list-style-type: none"> ● Arranges post-discharge follow-up care
<p>Geriatric nurse</p> <ul style="list-style-type: none"> ● Advises nurses regarding nursing care of frail elderly patients ● Monitors follow-up interventions ● Participates in MDM^e ● Facilitates lectures on treatment and care of geriatric patients 	<p>Consultative psychiatric nurse</p> <ul style="list-style-type: none"> ● Treats psycho-geriatric patients ● Advises on post-discharge follow-up care ● Charts patient situation ● Collaboratively operates outpatient memory clinic (with neurologist) 	<p>Consultative psychiatric nurse</p> <ul style="list-style-type: none"> ● Screens patients in advance of psychiatrist's consultation ● Scores MMSEⁱ ● Telephone follow-up of patients ● Provides lectures for resident medical officers and nurses
<p>Geriatrician</p> <ul style="list-style-type: none"> ● Treats patients in geriatric unit ● Treats patients in other units if medication is required 	<ul style="list-style-type: none"> ● Participates in MDM^e ● Refers relatives to social work ● Provides lectures for resident medical officers and nurses 	<p>Nurse</p> <ul style="list-style-type: none"> ● Screens patients ● Coordinates execution of care plan
<p>Team leader</p>	<p>Nurse manager</p> <ul style="list-style-type: none"> ● Coordinates application of ToC^h 	<p>Psychiatrist</p> <ul style="list-style-type: none"> ● Interdisciplinary consultations ● 24/7 on call

(Continues)

Table 3. continued

Hospital A 450 beds Regional hospital Clinical geriatric unit	Hospital B 613 beds Top clinical hospital	Hospital C 288 beds Regional hospital
<ul style="list-style-type: none"> ● Stimulating, coaching, coordinating role in screening and follow-up interventions 	<p>Nurse</p> <ul style="list-style-type: none"> ● Coordinates execution of care plan ● Consults dietician, social work, transfer nurse 	<p>Geriatrician (Since September 2012)</p> <ul style="list-style-type: none"> ● Interdisciplinary consultations
<p>Nurse</p> <ul style="list-style-type: none"> ● Performs intake interview ● Coordinates execution of care plan ● Arranges contact with relatives ● Feeds back geriatric knowledge during meetings 	<p>Geriatrician detached from hospital A (Since early 2012)</p> <ul style="list-style-type: none"> ● To treat geriatric inpatients ● To operationalize 'frail elderly patient' policy 	<ul style="list-style-type: none"> ● Developed protocol frail elderly ● Developed protocol delirium <p>Social worker</p> <ul style="list-style-type: none"> ● Participates in MDM^c oncology
<p>Medical specialist</p> <ul style="list-style-type: none"> ● Coordinating role regarding EDD^f <p>PReCa^l case manager (with geriatric expertise)</p>	<p>Specialized nurses</p> <ul style="list-style-type: none"> ● Wound-Incontinence-Stoma care 	<p>Wound consultant</p> <ul style="list-style-type: none"> ● Provides lectures for nurses ● Supervises nurses ● Performs consultations ● Outpatient clinic in collaboration with dermatologist and surgeon

(Continues)

Table 3. continued

Hospital A 450 beds Regional hospital Clinical geriatric unit	Hospital B 613 beds Top clinical hospital	Hospital C 288 beds Regional hospital
<ul style="list-style-type: none"> ● Coordinates the multidisciplinary care process ● Supports and motivates the patient in treatment adherence ● Monitors the patient's risk factors for functional decline throughout the reactivation period (until six months after day of admission) 	<p>Central intake unit</p> <ul style="list-style-type: none"> ● Screening of scheduled admissions (including elderly patients) 2–4 weeks prior to admission date <p>Pharmacy</p> <ul style="list-style-type: none"> ● Charts medication use within 24 h after admission ● Monitors medication use/interactions^g ● Alerts medical specialist in case of interactions ● Prints medications list at discharge 	<p>Quality officer cardiology</p> <ul style="list-style-type: none"> ● Supervises nursing staff ● Attends doctor's rounds ● Checks implementation of orders ● Handles transfer and discharge of patients <p>Pharmacy</p> <ul style="list-style-type: none"> ● Telephone follow-up of patients ● Charts medication use within 24 h after admission^g ● Faxes medication list to care home or home care at discharge

(Continues)

Table 3. continued

	Hospital A 450 beds Regional hospital Clinical geriatric unit	Hospital B 613 beds Top clinical hospital	Hospital C 288 beds Regional hospital
Coordination	Structural and ad hoc meetings <ul style="list-style-type: none"> • Daily patient round • MDM^e (geriatric unit, internal medicine unit, oncology unit) • PReCap¹ MDM^e (bi-weekly) • Geriatric unit: six-weekly meeting with quality unit Verbal/written coordination <ul style="list-style-type: none"> • Appointments/consultations Continuous coordination between medical specialist, nurse, physiotherapist, occupational therapist, dietician, geriatric nurse and transfer nurse	Structural and ad hoc meetings <ul style="list-style-type: none"> • Weekly nursing manager meeting (agenda points i.a. 'wrong bed patients') • MDM^e (internal medicine unit, surgery unit, lung surgery unit, respiratory unit) • Regular meetings in internal medicine unit to discuss improvement of care processes Medical specialist responsible for treatment and interdisciplinary consultations Discussion and collaboration focused on medical condition	Structural meetings <ul style="list-style-type: none"> • Nursing managers (agenda points i.a. monthly decubitus scores, monthly VAS^j) • MDM^e (internal medicine unit, neurology unit, cardiology unit) Medical specialist responsible for treatment and interdisciplinary consultations Discussion and collaboration focused on medical condition Collaborative agreement with local nursing homes and psychiatric hospital

(Continues)

Table 3. continued

	Hospital A 450 beds Regional hospital Clinical geriatric unit	Hospital B 613 beds Top clinical hospital	Hospital C 288 beds Regional hospital
Standardization	<p>Computer program for quality systems</p> <ul style="list-style-type: none"> ● Protocols (e.g. delirium, fall risk, nutrition, physical limitations) ● Care plans <p>POINT^g</p> <p>Care pathways</p> <ul style="list-style-type: none"> ● Stroke service ● Cardiology ● COPD^m 	<p>Collaborative agreement with local nursing homes for 3D^k patients</p> <p>Computer program for quality systems</p> <ul style="list-style-type: none"> ● Protocols ● Care plans (e.g. 3D^k) <p>Electronic Health Record, including medical specialty specific additions</p> <p>Within 24 h after admission medication charted by means of Digital Prescription System</p> <p>POINT^g ToC^h</p> <p>Care pathways</p>	<p>Computer program for quality systems</p> <ul style="list-style-type: none"> ● Protocols (e.g. delirium, fall risk, nutrition, physical limitations) <p>Electronic Health Record being developed</p> <p>Within 24 h after admission medication charted by means of Digital Prescription System</p> <p>Care pathways</p> <ul style="list-style-type: none"> ● Hip and knee surgery (including pre-clinical screening) ● Stroke ● Hip fracture

(Continues)

Table 3. continued

Hospital A 450 beds Regional hospital Clinical geriatric unit	Hospital B 613 beds Top clinical hospital	Hospital C 288 beds Regional hospital
Professional Training Seven 2-h multi-disciplinary lectures on geriatric care for nursing staff annually	<ul style="list-style-type: none"> ● Stroke ● Psycho-geriatric (3D^b) <p>Presentations about delirium to student nurses</p> <p>Refresher's courses for nurses and physicians</p>	<ul style="list-style-type: none"> ● COPD^m ● Palliative care ● Colorectal tumor <p>Mandatory clinical lessons regarding delirium (including the DOS^b scoring) for nursing staff and resident medical officers</p>
Clinical lessons (e.g. fall prevention, dementia, delirium and physical limitations)	Clinical lessons based on case studies	

^aIdentification Seniors At Risk-Hospitalized Patients questionnaire.

^bDelirium Observation Screening.

^cGoal Attainment Scaling.

^dShort Nutritional Assessment Questionnaire.

^eMulti-Disciplinary Meeting.

^fEstimated Date of Discharge.

^gDigital patient transfer system [POINT].

^hTheory of Constraints.

ⁱMini-Mental State Examination.

^jVisual Analogue Score (Pain score).

^kDementia, Depression, Delirium.

^lPrevention and Reactivation Care Program.

^mChronic Obstructive Pulmonary Disease.

at an earlier stage by conducting the intake interview and screening 2–4 weeks prior to the admission date. The pre-admission intake creates a considerable time window, which is used to improve the patient's condition prior to hospital admission if required (e.g. treatment of detected malnutrition). Hospital C lacks such an approach.

Nursing care

The three studied hospitals utilize similar standardised care plans. In case of specific care needs, explicit care plans and protocols (e.g. delirium protocol) are added to the standardised care plan either in written or digital form. Care plans are leading in the nursing care process, and they are reviewed and modified daily in accordance with the patient's condition and progress. Despite using similar preventive and rehabilitative care plans and protocols, the care process in the geriatric unit in hospital A has some specific care points. Nursing staff in the geriatric unit spend considerable time encouraging capable patients to perform each ADL independently without assistance, and if needed under supervision. In addition, the geriatric patients are encouraged to dress in their street clothing instead of hospital gowns. In order to maximize patient independency and to discuss options for safe mobilization, the nurses in the geriatric unit collaborate closely with the physiotherapist and occupational therapist. Patient independency is also strongly emphasized in the cardiology unit in hospital B by means of 'caring with hands on the back'.

One of the PReCaP components also included support to and treatment of informal caregivers by a social worker or psychologist. In contrast to hospital A, hospital B and C do not offer specific care for relatives or informal care givers. Nursing staff incidentally advises elderly care givers, but support is not structural.

Medical treatment

The PReCaP integrates treatment of the medical condition and reactivation of the elderly patient. Therefore, in hospital A, the medical treatment of elderly patients is guided by the patient centered and integrated Goal Attainment Scaling (GAS) care plan, targeting both the medical diagnosis and the determinants of functioning in six domains (i.e. somatic, cognition, personality, emotional and rational experiences, social environment, and life history and/or trauma) (Bakker *et al.*, 2011). Following the MDM, the geriatrician (often concurrently with the case manager and/or the geriatric nurse) discusses the medical and post-discharge reactivation treatment with the patient and relatives. In hospital B and C, the treatment plan is developed by the medical specialist, and thus merely targets the medical condition of the elderly patient. Consequently, if reactivation treatment is provided by, for example the physiotherapist and/or the consultative psychiatric nurse, it is offered as a separate treatment ignoring the importance of an integrated approach.

Discharge

As soon as the estimated date of discharge is determined (or the patient has home care or resides in a nursing home), the transfer nurse is consulted by the medical specialist in all three hospitals. Next, the transfer nurse examines the patient file

and discusses options for the post-discharge follow-up care trajectory with the patient and relatives. Based on the results hereof, the transfer nurse files an application for the post-discharge follow-up care at the selected care provider. If the patient is accepted by the particular care provider, the transfer nurse coordinates the transfer with the patient, the relatives and the nursing staff. In hospitals A and B, the patient is leading in the choice of the post-discharge follow-up care (e.g. home care, care home, nursing home). Our previous research, however, demonstrated that only half of the randomized patients to the Prevention and Reactivation Centre (47%) was actually admitted in this follow-up facility (Asmus-Szepesi *et al.*, 2015).

ORGANIZATIONAL STRUCTURES

Task division

Geriatric expertise. Since 2009 geriatric care forms an important cornerstone of the hospital A policy (Figure 1). This policy is operationalized by means of the employment of three geriatricians and three geriatric nurses, who are involved in the care process of elderly patients hospital wide. The geriatric nurses speak with patients to assess his/her condition and advise them accordingly. In addition to their advisory role, the geriatric nurses are permanent members of the MDMs in the internal medicine unit and the geriatric unit, and provide lectures on treatment and care of geriatric patients in hospital A.

Consultative psychiatric nurse. Neither hospital B nor hospital C employs geriatricians or geriatric nurses at the start of the data collection in 2010. However, the consultative psychiatric nurses in these hospitals intend to play a similarly important role in the geriatric care process. Because of their low-key approach (daily informal contact with the nursing staff), they are involved in the treatment and care of geriatric patients from an early stage through to discharge. Although it takes little clinical skill to recognize the hyperactive form of delirium in the agitated patient, the hypoactive

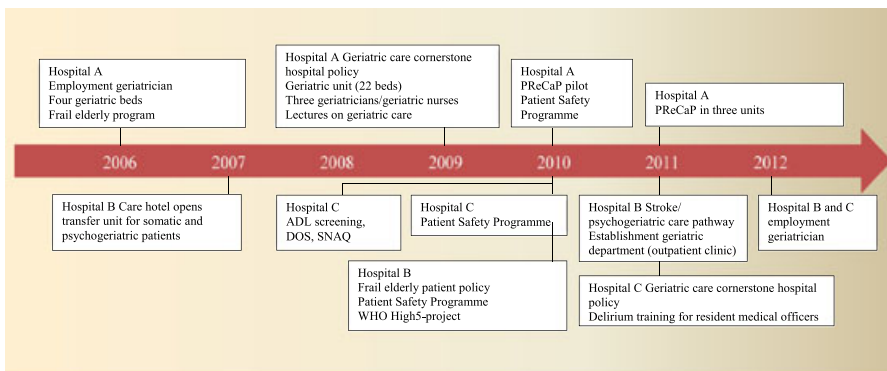


Figure 1. Timeline development clinical geriatric care in three hospitals. [Colour figure can be viewed at wileyonlinelibrary.com]

form is equally dangerous, and at least as common, but much less likely to be recognized. Thus, the consultative psychiatric nurse is merely involved in the reactive treatment of all patients with psycho-geriatric problems, including depressions and psychoses, and not so much in the pro-active treatment.

In order to adequately assess the patient's needs, the consultative psychiatric nurse discusses the psycho-geriatric condition with the elderly patient and relatives or informal care givers. In order to be adequately informed and optimize the treatment of the psycho-geriatric patients, the consultative psychiatric nurse both in hospital B and C is a permanent member of the MDMs in various clinical units. During the MDMs, the consultative psychiatric nurse also provides advice regarding post-discharge follow-up care from a psycho-geriatric perspective. In hospital C, the consultative psychiatric nurse provides telephone post-discharge follow-up care with a three-fold aim: (i) to assess the mental condition of the patient after discharge; (ii) to verify the medication adherence; and (iii) to query the patient's experience with the clinical psycho-geriatric care.

Transfer nurse. All three hospitals employ transfer nurses, who play a comparable key role in the determination and coordination of post-discharge follow-up care of elderly patients.

Management

Geriatric care forms an important cornerstone of the hospital policy in the three settings. Yet, true commitment to geriatric care is reflected in the way top management of the three hospitals has translated its policy into goals, objectives and strategies with regard to the geriatric care process. Hospital A was the first hospital that employed a geriatrician and had four geriatric beds in 2006. Since 2009, the hospital has expanded its geriatric structure with a geriatric unit (22 beds), and the employment of three geriatricians and three geriatric nurses. Top-down coordination and support regarding geriatric care, in particular the screening of elderly patients, are considered important by the team leaders in hospital A. In order to ensure that screening and follow-up interventions are carried out appropriately, the teamleader monitors the activities closely, but also motivates the nurses to initiate specific tasks themselves.

Since 2010 hospital B has a specific policy regarding the 'frail elderly patient', which has been operationalized in the development and implementation of dedicated care plans for elderly patients. For example, the psycho-geriatric care plan incorporates early screening (if possible in the Emergency Department), medication review within 24 h after admission, and Delirium Observation Screening (DOS). The geriatric department is established in 2011, which facilitates an outpatient clinic for day cases, and has agreements with chain partners regarding patient transfer. Since early 2012, a geriatrician from hospital A is detached part-time in hospital B to treat geriatric inpatients and to further operationalize the 'frail elderly patient' policy. Noteworthy is that the translation of the hospital B 'frail elderly patient' policy into strategy has also resulted in the employment of three liftboys to support elderly patients.

Translation of the hospital C geriatric care policy into strategies, goals, and objectives has—among others—resulted in the monthly monitoring of health outcomes specifically related to elderly patients, including decubitus, falls and delirium. In addition, a large number of care pathways regarding the elderly patient have been developed and implemented (i.a. stroke, hip fracture), and collaborative agreements with local nursing homes have been reached. Despite the aforementioned projects, the nursing manager indicates that hospital C top management takes an expectant position with regard to its policy development. Moreover, the consultative psychiatric nurse indicates that geriatric care is not part of the hospital's culture.

Coordination

Coordination with regard to the geriatric care process in the three hospitals demonstrates similarities and differences; the latter most likely related to the different hospital sizes and categories. Of the three settings, hospital B is the largest hospital, which offers top clinical care and facilitates teaching, training and scientific research. Structures and processes are more formalized than in hospital C, which is a smaller hospital with a regional function. Because of its size, coordination and communication lines in hospital C are shorter and often more informal compared to those in hospital B.

Formal multidisciplinary coordination of medical and nursing care in the three hospitals takes place by means of MDMs in several units (e.g. internal medicine, oncology), during which a selection of patients are discussed in depth. The meetings, however, do not specifically target the geriatric patient population, but are medical specialty specific. During the MDMs, each patient's condition and progress are discussed, and the individual care plan is developed or modified accordingly. The internal medicine unit in hospital B for example holds weekly MDMs, and is attended by the internist, resident medical officer, physiotherapist, dietician, social worker, nursing staff and transfer nurse. In case of geriatric patients, the transfer nurse advises the medical specialist about the options for post-discharge follow-up care based on the available information. Of the three hospitals, only hospital A facilitates a cross-departmental geriatric MDM for geriatric, internal medicine and cardiology patients, as part of the PReCaP. During this bi-weekly geriatric MDM, the frail elderly patients are discussed by the geriatrician, the geriatric nurse, the case manager, the social worker and the transfer nurse. In addition, a GAS care plan is designed and reviewed according to the patient's individual needs. Before the MDM, a case manager is assigned to the elderly patient for the entire chain of care, that is, hospital care, hospital replacement care and primary care until six months after hospital admission. Following the MDM, the case manager discusses the frailty, the associated risk factors and the proposed treatment with the patient and relatives. Furthermore, the case manager coordinates the multidisciplinary care process, supports and motivates the patient in treatment adherence and monitors the patient's risk factors for functional decline. Yet, it should be noted that the case manager's involvement was limited during the clinical period, because of varying factors, such as the opposition by the hospital management towards the PReCaP implementation and the rapid patient flow in the hospital phase.

In addition to the MDMs, individual communication about geriatric patients occurs in hospital A. For example, the geriatric nurse usually reports specific findings in the patient file. However, in case of important or urgent issues, the geriatric nurse discusses the findings directly with the medical specialist and/or coordinating nurse to ensure prompt and appropriate implementation of the required interventions.

Despite the large size of the hospital, individual and informal meetings also occur in hospital B. For example, the nursing staff in the cardiology unit directly consults the dietician and the social worker if indicated, and collaborates closely with the physiotherapist regarding the reactivation of the (elderly) patients. In addition, the consultative psychiatric nurse has individual and informal meetings with the nursing staff to discuss issues about psycho-geriatric patients. Given that the consultative psychiatric nurse aims to complete the psycho-geriatric path in two to three working days, close interdisciplinary collaboration and clear agreements are vital.

Standardization

Electronic health record. Computerization in Dutch hospitals is rapidly progressing. Of the three hospitals, hospital B is at the forefront in terms of the computerization of its hospital information system. This hospital utilizes the electronic health record hospital wide since 2011. In contrast, hospital C is still gradually implementing the computerization of its hospital information system, and hospital A still uses written patient files at the time of data collection. The key benefit of the electronic health record is the provision of one basic file with specific additions per specialism, which enables modification according to the patient's specific care requirements.

The electronic health record incorporates targeted screening lists for patients of 70 years and older (e.g. risk of falls, Short Nutritional Assessment Questionnaire (SNAQ) score, delirium score, decubitus) and the programmed follow-up interventions. For example, a SNAQ score of more than 2 triggers an automatic consultation request for the dietician; reported physical limitations trigger the mandatory use of a personal care plan and a consultation request for the physiotherapist.

The main advantages of the electronic health record are the efficiency and the reduction in the amount of paper documents. If patients are transferred to another unit within hospital B, there is no need for a paper handover, because the follow-up unit continues with the existing electronic health record. At discharge, the electronic health record displays a message instructing the medical and nursing staff to prepare a handover to the general practitioner and/or the home care organization or the nursing home.

Protocol and care plan. The three studied hospitals utilize comparable protocols and standardised care plans to enable standardization of the (geriatric) care process. The particular documents are stored and available for the involved staff in a computer program for quality systems, and include protocols and care plans regarding geriatric care, for example, fall prevention, nutrition, delirium and physical limitations. The protocols are detailed and clear, and assist the nursing staff adequately in caring for patients with delirium.

Following the intake interview, the nursing staff adds the required protocols and care plans to the patient's file, either electronically (in hospital B) or manually (in hospital A and C). Written patient files, protocols and care plans evidently have their limitations. Hard copy geriatric care plans have to be printed and inserted into the patient file separately, a task which is easily overlooked because of time constraints. In order to ensure the use and application of geriatric care plans, the cardiology unit in hospital A adds the geriatric care plans standardly in the patient files, irrespective of the patient's age. In case of a geriatric patient, on the day of admission the responsible nurse completes the geriatric care plan with the patient, and highlights the required activities to address the particular screening results. According to the team leader of the cardiology unit, this has resulted in improved compliance with the personalized care plans.

Concerns were expressed by the team leader cardiology stating that standardised care may cause the nurses to solely rely on the standardised care plans and protocols. Yet, in order to adequately interpret the results and carry out the appropriate intervention, nurses need to utilize their acquired knowledge and skills and not merely utilize the standardised care plans and protocols as tools. The cardiology unit in hospital A has addressed this issue by employing three specialized nurses (trained in specific care areas (e.g. decubitus ulcers)), who monitor and enhance the adequacy of the follow-up interventions.

Goal Attainment Scaling. Of the three studied hospitals, only hospital A utilizes the GAS plan parallel to the medical treatment, as part of the PReCaP. The GAS plan is used to evaluate complex interventions in frail elderly patients by means of facilitating the individualization of patients' goals according to their needs. During the cross-departmental geriatric MDM (and within 48 h after admission), the patient's functional state, varying from totally functional dependent to independent, is scored for the six domains of functional decline: somatic, cognition, personality, emotional and rational experiences, social environment, and life history and/or trauma. Simultaneously, a goal GAS-score of 1 or 2 points higher is determined for each domain of functional decline. In this way, the GAS assists in formulating individual goals, developing a personalized treatment plan, monitoring both the patient's and informal caregiver's progress and adjusting the interventions in a timely manner as necessary.

Patient safety program. Since 2010, all three hospitals have gradually implemented the Patient Safety Programme, a five-year (2008–2012) national program, which was developed to improve and consolidate patient safety in Dutch hospitals. Hospital C is also involved in the Siren Action, which entails that a safety related topic is brought under the attention of the hospital staff during the wail of the siren (In the Netherlands 1st Monday of the month at 12 noon). The action is targeted at recognizing and acknowledging unsafe situations, developing a blame-free safety culture, in which staff can point out unsafe situations to colleagues, and motivating one another to learn from (near) mistakes. Hence, the Siren action has a two-fold aim: (i) to stimulate the safety culture and (ii) to improve safety in health care. In practice, the Siren action implies that, following a brief introduction of the safety topic, the staff is interviewed regarding safety related issues, for example, 'how many patients wear

identification wrist bands?', or 'what are the reasons for not wearing the identification wrist bands?' or 'What are the suggestions for improvement?' The hospital results are fed back to the units (posters) and the management team, which is responsible for the implementation of improvement programs. Regional comparison of the results is carried out within the Patient Safety Programme network.

Theory of Constraints. In hospital B, the practical application of the Theory of Constraints (TOC) by means of a web application contributes to the optimization of the patient flow in hospital B. In view of the TOC, interventions always target the earliest possible discharge date, which is determined on the day after admission. The team leader has a monitoring role with regard to the application of the TOC, which entails the daily evaluation of the patients' progress and the causes for 'delay' by checking the web application. With respect to the geriatric patient population, the TOC application is not without problems. Ideally, the physician determines the estimated date of discharge and instructs the nursing staff to consult the transfer nurse to coordinate the discharge process. Yet, the bottlenecks are threefold: (i) the physician may hesitate about the discharge date; (ii) the nurse may omit to send a consult request to the transfer nurse; and (iii) there are no vacancies in the follow-up facility. A smooth running process would obviously prevent the 'wrong bed' problem (i.e. excessive length of hospital stay), which is a major risk factor for functional decline in elderly patients.

Although discharge planning aims to reduce the length of hospital stay, the process is merely motivated by the efficient utilization of the available beds rather than the elderly patient centered philosophy. As a result, the explicit focus on the elderly patient's needs is often overlooked and measures (e.g. detailed nursing hand-over, medical handover, pharmacy prescriptions) to facilitate the discharge to home appropriately are lacking.

Digital transfer file. Hospitals A and B are connected to the digital transfer file POINT. This web application supports the patient transfer process from the hospital to post discharge care providers and vice versa. By using POINT written forms, phone calls and faxes are superfluous, and unnecessary delays can be avoided. Furthermore, each user can check the stage of the patient transfer file, who is working on the file, and which progress information is added to the file. Although hospital C does not work with POINT at the time of data collection, the hospital was preparing a business case to connect to POINT. Consequently, the coordination of patient transfers from hospital C to the post discharge care providers is conducted by phone, fax and written documents, which evidently has its limitations in terms of efficiency.

Polypharmacy monitoring. The three hospitals use the electronic prescription system, which facilitates the medication review and prescription process, and the identification of potential harmful drug interactions. If the patient requires additional medication during hospital admission, the medical specialist prescribes the medication electronically. Next, the pharmacy evaluates and checks the medication before suspending it to the patient. Before the patient is discharged, a pharmacy staff member delivers the prescribed medication at the patient's bedside. After discharge, the

patient's medication list remains in the system, which facilitates easy access in case of readmission. Both hospital B (as part of the WHO High5-project) and hospital C have implemented a program aimed at reviewing the patients' medication within 24 h after admission. Hospital C has employed additional pharmacy assistants, who visit the patient and map out the medication use within 24 h after admission.

Professional training. All three hospitals provide an array of education and training opportunities for its staff. In hospital A, a multi-disciplinary team consisting of the geriatrician, the neurologist, the physiotherapist, the occupational therapist, the dietician and the pharmacist delivers seven two-hour lectures on geriatric care to the nursing staff annually. In addition, the geriatric nurses and the physiotherapist provide clinical lessons on geriatric-specific topics in all hospital units. Topics include falls, dementia, delirium and physical limitations, but also issues such as the timely consultation of the physiotherapist and the use of anti-slip socks are being discussed. Similar clinical lessons are provided in hospital B and C by the consultative psychiatric nurses, who also deliver presentations about delirium to student nurses and 'delirium' refresher's courses to nursing staff and resident medical officers.

DISCUSSION

This study set out to identify factors impacting on the effectiveness of the implementation of the PReCaP (in hospital A) and geriatric care 'as usual' (in hospital B and C) in order to enhance our understanding of the unanticipated outcomes. Although implementation of the PReCaP in hospital A was expected to lead to the prevention of functional decline among older patients, the outcomes were not better compared to those in hospital B and C (de Vos *et al.*, 2013; Asmus-Szepesi, 2015; Asmus-Szepesi *et al.*, 2015). Although the individual elements of the PReCaP are promising according to the available evidence, we found that geriatric care 'as usual' address similar issues with similar outcomes.

While hospital B and C, for example, did not implement MDMs (which hospital A—the intervention site—did) professionals in charge of care delivery in hospitals B and C did seek information from other professionals through interdisciplinary consults, which may have had the same effects on prevention of functional decline. Furthermore, professionals in all hospitals worked according to treatment plans. While the treatment plans in hospital A were patient-orientated and diverse disciplines were integrated, hospitals B and C worked with separate treatment plans for each discipline (Hartgerink *et al.*, 2014). Because professionals working in hospitals B and C had to actively seek information from others, one could question whether their treatment plans were maybe just as integrated as the treatment plans of hospital A, again resulting in establishing the same amount of functional decline among older patients. And while hospital A implemented a screening instrument for vulnerability of older patients hospitals B and C performed a basic screening for general health problems and took proactive measures when problems were suspected (Hartgerink

et al., 2014). Thus, although different screening devices were used, they may have led to similar outcomes in terms of effectiveness.

Several contextual factors impacted on the effectiveness of the implementation of the PReCaP. The combination of standardised procedures, formalized communication channels and advanced computerization of the hospital information system contributes significantly to well-functioning geriatric care processes in hospital B. On the other hand, working in a small size hospital, such as hospital C, creates informal opportunities for information sharing and decision making, which are essential in geriatric care, given its multidisciplinary nature. Research indeed showed that working with fewer professionals creates fewer boundaries for information sharing and decision making, which may passively affect outcomes (Cosby and Croskerry, 2004).

A closer look at the performance of the intervention showed that low treatment fidelity (<50%) played a major role in the ineffective implementation of the PReCaP (de Vos *et al.*, 2013). The results of three other projects within the Dutch National Care for the Elderly Program, in the clinical setting as well as in primary care, demonstrate that multidisciplinary 'evidence based' interventions for frail elderly are executed with limited fidelity and few minor positive effects (Fabbriotti *et al.*, 2013; Asmus-Szepesi *et al.*, 2015; Buurman *et al.*, 2016). Treatment fidelity issues are caused by various factors, such as the complexity of the projects (Metzelthin *et al.*, 2013), limited attention for implementation, lack of geriatric knowledge and inadequate interdisciplinary communication of patient information (de Vos *et al.*, 2013; Hartgerink, 2013). Moreover, hospital directors as well as managers have increasingly less expertise in the field of geriatric care and treatment, resulting in lack of control in this area.

These factors add up to an inadequate base for sustainable quality of geriatric care, regardless of the amount of love, warmth and energy care professionals put into their work. Fortunately, there is plenty of the latter, yet it masks the fundamental inadequacies, which we would not accept in, for example children's health care. Irrespective of the type of program, the optimal implementation of any program requires adequate professionals with dedicated knowledge, skills and attitude.

Complex problems, such as preventing functional decline among frail older patients, demand complex systems solutions for which a variety of solutions may be appropriate (Kodner and Kyriacou, 2000). It is therefore important to identify and address implementation factors involved with geriatric care models, in order to achieve the anticipated outcomes (Grol and Wensing, 2006). Different solutions may lead to the same outcome for hospitalized older patients and what works in one setting may not be effectively replicated in another (Craig *et al.*, 2008). Our results do suggest that the implementation of effective geriatric care encompasses a bundle of multidisciplinary and integrated interventions, which need to take into account the complexity of the patient group, the context-specific issues and the dynamic features of a rapidly developing clinical specialty (e.g. education, positioning of new functions), which we saw in each of all three hospitals.

A specialized geriatric care unit in hospitals is supportive to deliver such care. Various studies have emphasized the importance of utilizing specialized geriatric units, often in combination with multidisciplinary follow-up treatment, including

case management after hospital discharge and reactivation treatment (Saltvedt *et al.*, 2002; Van Craen *et al.*, 2010). However, implementing a comprehensive integrated care program, such as the PReCaP, on top of a specialized geriatric care unit already available in hospitals may not lead to additional gains in terms of prevention of functional decline among frail older patients. Hospitals at the beginning of geriatric care are expected to benefit more from such a program.

The utilized study design and data collection methods presented a number of limitations. First, purposive sampling is a type of non-probability sampling and, hence, may have been subject to bias and error, because of the fact that the larger group (study population) has not been identified and interviewed. Consequently, the results have limited external validity but may, nevertheless, provide important clues for further studies based on random samples (Banerjee and Chaudhury, 2010).

Second, the first round of the interviews was held relatively early in the process of the PReCaP implementation (2010–2012), which may have influenced the discourse and the observed clinical practices. Professional support was barely created, and consequently the involved staff in hospital A did not feel ownership towards the PReCaP implementation (de Vos *et al.*, 2013).

Furthermore, organizational factors had an immediate effect on the intended PReCaP implementation. Despite earlier agreements, hospital A management allowed the PReCaP implementation in three units only (geriatric, internal medicine and cardiology unit) instead of hospital wide. It should also be noted that organizational issues rose in hospital C during the evaluation. Following the publication of high mortality rates in the cardiology unit of hospital C, the Dutch Health Care Inspectorate concluded that quality of care in hospital C was below the required level between 2010 and November 2012. In particular, patient files, information handover, interdisciplinary communication and palliative care of cardiac failure patients were inadequate. As a result, hospital C filed for bankruptcy in June 2013 and, subsequently, merged with three regional hospitals. The above issues have potentially affected the evaluation of the study sites (Craig *et al.*, 2008).

We conclude that even scientifically sound programs, such as the PReCaP benefit from adequate implementation in order to achieve optimal fidelity and the anticipated outcomes at patient level. Adequate implementation requires proactive engagement and activities at multiple levels of the organization and from different perspectives.

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