

# Bedside palliative care and geriatric consultations

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# Bedside palliative care and geriatric consultations: adherence rate in hospitalised patients

Noor Pijls,<sup>1</sup> Hanneke Joosten ,<sup>1</sup> Maurice Theunissen,<sup>2</sup> Jannic van Leendert,<sup>1</sup> Annemie Courtens,<sup>2</sup> Fabienne Magdelijns,<sup>1</sup> Marieke van den Beuken-van Everdingen<sup>2</sup>

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<sup>1</sup>Division of General Medicine, Department of Internal Medicine, Section of Geriatric Medicine, MUMC+, Maastricht, The Netherlands

<sup>2</sup>Center of Expertise for Palliative Care, MUMC+, Maastricht, The Netherlands

## Correspondence to

Dr Hanneke Joosten, Division of General Medicine, Department of Internal Medicine, Section of Geriatric Medicine, MUMC+, Maastricht, 6229 HX, Netherlands; [hanneke.joosten@mumc.nl](mailto:hanneke.joosten@mumc.nl)

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## ABSTRACT

**Objectives** This study examined the adherence rate of recommendations of a palliative consultation team (PCT) and a geriatric consultation team (GCT). Secondary aims were to investigate which factors and/or recommendation characteristics influence adherence rates.

**Methods** This retrospective cohort study was performed in the Maastricht University Medical Center+ in the Netherlands and included hospitalised patients who received a consultation by the PCT or the GCT. Baseline data on consultations were collected for the total population and for the GCT and PCT separately. The adherence rate of the recommendations was evaluated by checking evidence of implementation. The nature of recommendations given (solicited or unsolicited) was documented per domain (somatic, psychological/cognitive, social, spiritual, functional, and existential). The association with adherence was evaluated for solicited and unsolicited recommendations separately. Exploration of potentially associated factors was performed using OpenEpi.

**Results** Overall, 507 consultations of individual patients were performed (n=131) by the GCT and (n=376) by the PCT. Most recommendations given were solicited (865/1201=72%). Over 80% of both solicited and unsolicited recommendations were implemented in the majority of domains. No potentially modifiable factors associated with the adherence of the advices were found.

**Conclusions** The overall adherence rate of the GCT and PCT consultations was high. In addition, in certain domains, many recommendations were unsolicited. However, also the majority of these recommendations were implemented.

## INTRODUCTION

The life expectancy has been increasing for a considerable period in the European Union.<sup>1</sup> The related increase of the ageing

## WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ In-hospital consultation teams face challenges that hinder their impact on patient care like, for example, non-adherence to recommendations.

## WHAT THIS STUDY ADDS

⇒ Although consultation teams might have the impression that their impact is limited having a strictly advisory role, this study shows that most recommendations are taken into account and incorporated in the patients' treatment. Despite the fact that in certain domains many recommendations were unsolicited, the majority of these recommendations were implemented.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Although adherence rate of recommendations was over 80% future research should explore understanding the reasons for non-adherence and evaluation the impact of on patient outcomes.

population is also reflected in a rising proportion of older persons admitted to the hospital.<sup>1 2</sup> These older hospitalised patients more often suffer from multimorbidity, therewith requiring specific needs in different domains (physical, functional, psychological/cognitive, social and spiritual) during different phases of their life (healthy, palliative, terminal).<sup>3 4</sup> Dedicated geriatric wards with an adapted infrastructure and multidisciplinary teams exist in many hospitals. Throughout Europe also hospital-based palliative care units provide palliative care.<sup>5</sup> However, these wards have limited capacity and this capacity will become even more insufficient in light of the ageing population. Hence, an alternative model for frail older hospitalised patients has been



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implemented in most hospitals; a geriatric consultation team (GCT) and/or palliative consultation team (PCT). On request, these teams give recommendations in the aforementioned domains based on their assessment. Several studies have shown positive effects in terms of symptoms, readmissions, mortality, functional and cognitive status, and costs after involvement of the consultation teams.<sup>6–10</sup> Others have shown mixed results or a negative result which were attributed to a lack of compliance, resource availability and sensitive measuring methods.<sup>8,11</sup> The main limitation of this care model is that consultation teams only have an advisory function compared with an executive function of the teams on geriatric and palliative wards, resulting in a potential gap between recommended and actual care in frail patients with complex needs.<sup>12</sup> However, studies particularly evaluating adherence to recommendations of consultation teams for older hospitalised patients are scarce.<sup>13–15</sup> Therefore, we aimed to evaluate the adherence rate of recommendations of a GCT and PCT. Secondary aims were to investigate which factors and/or recommendation characteristics influence adherence rates.

## METHODS

### Design

A retrospective cohort study.

### Study setting, population and procedures

The study was performed in a university medical centre in the Netherlands (Maastricht University Medical Center+). The hospital provides secondary and tertiary care. In the hospital, both the department of palliative care as well as the department of geriatric medicine have a consultation team (PCT and GCT, respectively). Both teams have a holistic approach and evaluate multiple domains (eg, somatic, psychological/cognitive, social and spiritual domains), but provide consultation service for a different population in the hospital, partly based on age and underlying problems. The PCT exists of several nurses specialised in palliative care who are being supervised by an internist with special interest and specifically educated in palliative care. The GCT exists of several nurses and physician assistants specialised in geriatric care who are being supervised by an internist-elderly care.

All hospitalised patients who received a consultation by the PCT between March 2019 and March 2020 were included. In addition, a random sample of hospitalised patients consulted by the GCT was included. To avoid seasonal variation GCT consultation data were collected of all GCT consultations in the first month of each season in 2019. Of these patients, the electronic health records were explored; for GCT the System Applications and Products, for the PCT the Palliative consult, Registration, Administration Dossier, the medical system of the hospital and the national database of palliative care consult. The data

entry was performed by a master student in medicine and a nurse practitioner and was double-checked by a medical specialist.

### Measures

Baseline data, sex, age, diagnosis, indication for hospitalisation and comorbidity (registration of the three main comorbidities per patient according to the following general categories: heart diseases, neurological diseases, diabetes mellitus, heart failure, kidney failure, cancer, dementia/delirium, chronic obstructive pulmonary disease, other) were collected. Concerning the consultations the following information was collected: the discipline and function of the healthcare professional requesting the consultation, how the advice was communicated (written in the electronic patient file, by telephone, face to face or combined) and the indication for consultation. To assess the adherence rate of the recommendations, the consultation question(s), the recommendation(s) given by the GCT or PCT, and whether these recommendations were implemented, were evaluated. The initial consultation question was divided into one of the six main domains: (1) somatic issues, (2) psychological/cognitive issues, (3) social issues, (4) spiritual issues, (5) functional and (6) end-of-life decisions (mainly concerning euthanasia), or into multiple domains if there were multiple initial consultation questions in the initial consultation request. These categories were further subdivided into categories based on the nature of the consultation question (eg, pain, dyspnoea, delirium, medication). Recommendations provided by the GCT and PCT were considered as 'implemented' if there was evidence of implementation (eg, a laboratory requisition, (de)prescription of a drug, documentation of discussing the advice, a referral letter or documentation of reassurance). Recommendations were considered as not implemented if there was no evidence of a possible reason why the primary responsible clinician or the nursing team did not follow the advice(s), noted in the chart. 'Not sure' was selected if there was no documentation at all about the follow-up of the consultation.

To differentiate between additional recommendations that were given, for example, advices in other domains than the consultation question, and recommendations in respond to the consultation question it was documented whether or not the recommendations given were solicited or unsolicited.

### Statistical analyses

Descriptive analyses were performed using numbers and proportions (%) for categorical or discrete data. For continuous data, the median and IQR were used. Results on baseline data, consultation questions, types of recommendations (domains and whether solicited/unsolicited) and the proportion of implemented recommendations will be presented for the

total population and for the GCT and PCT separately, where applicable. The Mann-Whitney test and Fisher's exact test were used for subgroup analyses. Significance level was set at a *p* value of 0.05.

Concerning the subgroup analysis: the association with adherence was evaluated for solicited and unsolicited recommendations separately. Due to partially low numbers, no statistical testing for comparison between geriatric versus palliative care cases was performed and several categories were clustered. These clustered categories were (1) function of consultation applicant: physician (medical specialist or resident) versus non-physician (nurse specialist, physician assistant, nurse, other); (2) way of reporting: without personal communication (written in electronic patient file) versus with personal communication (face to face, telephone, via nurse, whether or not in combination with written information); (3) number of recommendations given, by median split: one or two versus more than two recommendations. No analyses were performed for end-of life recommendations because of limited data.

Data management and analyses were performed using SPSS Statistics V.25, IBM. Exploration of potentially associated factors, with correction for empty cells (adding one number to every cell), was performed using OpenEpi (Dean AG, Sullivan KM, Soe MM. OpenEpi: Open Source Epidemiologic Statistics for Public Health, Version. [www.OpenEpi.com](http://www.OpenEpi.com), updated on 6 April 2013, accessed on 11 August 2022).

## RESULTS

### Study population and patient characteristics

The overall study involves 507 consultations of individual patients of which 131 consultations were performed by the GCT and 376 consultations by the PCT. Patient

characteristics are shown in [table 1](#). Overall 257 of the cases were female (50.7%). Median age was 78 years (IQR 67–85). The geriatric cases were significantly older ( $p<0.001$ ) and in the geriatric population were significantly more males ( $p=0.008$ ), compared with the palliative population. As shown in [table 1](#), the most prevalent (co)morbidities were heart diseases (35.7%), neurological diseases (19.9%), diabetes mellitus (15%) and cancer (14.6%). Furthermore, the median number of categories of comorbidities in the geriatric cases was 2 (IQR 1–3) compared with 1 (IQR 0–2) in the palliative care cases. In both groups, a heart disease was the most prevalent comorbidity, followed by a neurological disease in geriatric cases compared with cancer in the palliative care cases.

### Consultations

#### All cases

A total of 507 consultations were analysed. [Table 2](#) gives an overview of the total number of consultation questions in the study population. Predominantly it concerned single consultation questions ( $n=479$ , 94.5%) and first consultations ( $n=424$ , 83.6%). Most often the consultation question consisted of problems in the cognitive/psychological domain, followed by problems in the somatic domain. Residents were by far the most frequently requester of the consultation (89.7%) and in particular of the general surgery (48.9%), pulmonology (42.8%) and cardiology (38.7%) departments. Most recommendations were communicated through a report in the electronic patient file (81.3%).

#### Geriatric versus palliative care cases

[Table 2](#) also shows the differences in characteristics of the consultations that were requested for the geriatric cases

**Table 1** Baseline characteristics of the overall study population and the subgroups of geriatric and palliative care cases

	Overall cases	Geriatric cases	Palliative care cases
No (%)	507 (100)	131 (25.8)	376 (74.2)
Gender (%)			
Male	250 (49.3)	78 (59.5)	172 (45.7)
Female	257 (50.7)	53 (40.5)	204 (54.3)
Age (years), median (IQR)	78 (67–85)	82 (77–87)	75 (65–84)
Comorbidity category, n (%) <sup>*</sup>			
Heart diseases	181 (35.7)	72 (55.0)	109 (29.0)
Neurological disease	101 (19.9)	48 (36.6)	53 (14.1)
Diabetes mellitus	76 (15.0)	31 (23.7)	45 (12.0)
Heart failure	46 (9.1)	20 (15.3)	26 (6.9)
Kidney failure	53 (10.5)	20 (15.3)	33 (8.8)
Cancer	74 (14.6)	16 (12.2)	58 (15.4)
Dementia/delirium	17 (3.4)	14 (10.7)	3 (0.8)
COPD	67 (13.2)	14 (10.7)	53 (14.1)
Other	21 (4.1)	23 (17.6)	1 (0.3)
No of comorbidities, median (IQR) <sup>*</sup>	1 (0–2)	2 (1–3)	1 (0–2)

<sup>\*</sup>Registration limited to the three main categories per patient.  
COPD, chronic obstructive pulmonary disease.

**Table 2** Characteristics of the consultation questions of the overall study population and both subgroups of geriatric and palliative care cases

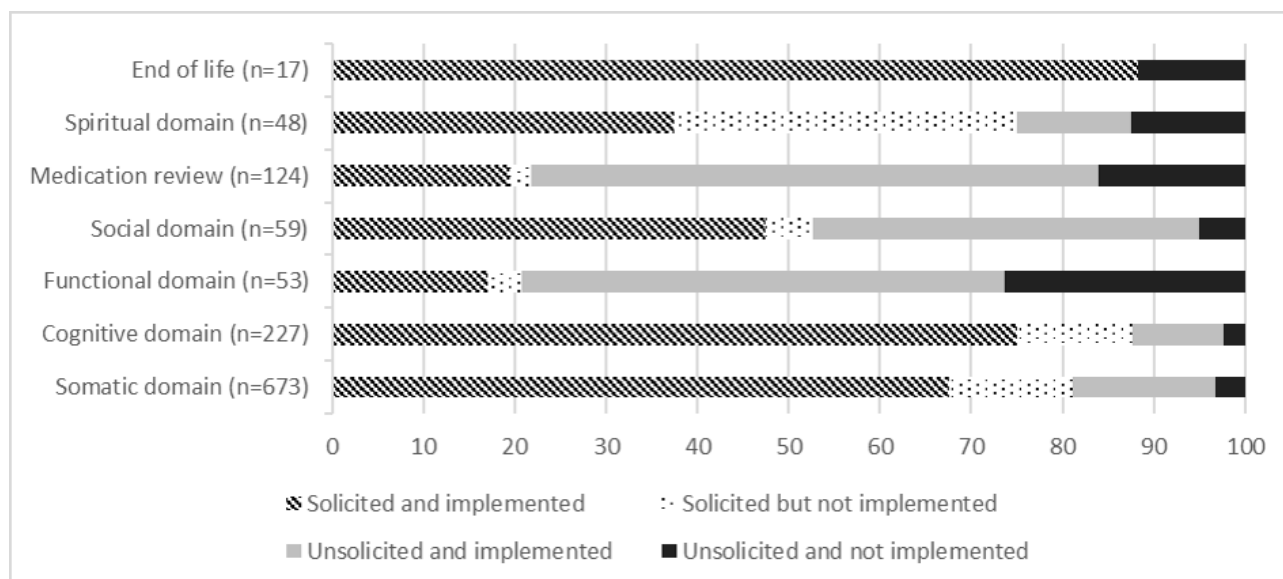
	Overall cases (n)	Geriatric cases (n)	Palliative cases (n)
	507	131	376
No of questions, n (%)			
Single	479 (94.5)	124 (94.7)	355 (94.4)
Multiple*	28 (5.5)	7 (5.4)	21 (5.6)
Consultation question*, n (%)			
Somatic	110 (19.9)	7 (4.5)	103 (26.0)
Cognitive/psychological	122 (22.0)	118 (75.6)	4 (1.0)
Functional	26 (4.7)	17 (10.9)	9 (2.3)
Social	7 (1.3)	7 (4.5)	0 (0)
Decision-making	25 (4.5)	3 (1.9)	22 (5.5)
General evaluation	263 (47.6)	4 (2.6)	259 (65.2)
Consultation no, n (%)			
First consultation	424 (83.6)	129 (98.5)	295 (78.5)
Follow-up consultation*	83 (16.4)	2 (1.5)	81 (21.5)
Specialism consultation applicant, n (%)			
Cardiology	65 (12.8)	43 (32.8)	22 (5.9)
General surgery	105 (20.7)	42 (32.1)	63 (16.8)
Internal medicine	65 (12.8)	13 (9.9)	52 (13.9)
Urology	12 (2.3)	8 (6.1)	4 (1.1)
Pulmonology	148 (29.2)	7 (5.3)	141 (37.5)
Neurology	67 (13.2)	7 (5.3)	60 (16.0)
Orthopaedic	10 (1.9)	5 (3.8)	5 (1.3)
Ear, nose, throat	5 (0.9)	1 (0.8)	4 (1.1)
Other	30 (5.9)	5 (3.8)	25 (6.6)
Function consultation applicant, n (%)			
Resident	454 (89.7)	114 (87.7)	340 (90.4)
Nurse specialist/physician assistant	16 (3.2)	15 (11.5)	1 (0.3)
Medical specialist	13 (2.6)	1 (0.8)	12 (3.2)
Nurse	19 (3.8)	0 (0)	19 (5.1)
Other	4 (0.8)	0 (0)	4 (1.1)
No of recommendations given*, n (%)			
Somatic (physical)	673 (56.0)	91 (18.5)	582 (82.1)
Cognitive/psychologic	227 (18.9)	197 (40.0)	30 (4.2)
Functional	53 (4.4)	53 (10.8)	0 (0)
Social	59 (4.9)	21 (4.3)	38 (5.4)
Medication review	124 (10.3)	124 (25.5)	0 (0)
Spiritual	48 (3.5)	6 (1.2)	42 (5.9)
End-of-life decision advices	17 (1.4)	0 (0)	17 (2.4)
Reporting of recommendations, n (%)			
Written in electronic patient file	412 (81.3)	94 (71.8)	318 (84.6)
Written in electronic patient file and by telephone to physician	39 (7.7)	29 (22.1)	10 (2.7)
Electronic patient file and bedside to the nurse	3 (0.6)	1 (0.8)	2 (0.5)
Electronic patient file and face to face to physician	10 (2.0)	7 (5.3)	3 (0.8)
By telephone	40 (7.9)	0 (0)	40 (10.6)
Face to face	3 (0.6)	0 (0)	3 (0.8)

\*Follow-up consultation is defined as an additional consultation following a first consultation.

and the palliative care cases separately. In both groups, the majority of consultations regarded a single consultation question (94.7% and 94.4%). In the geriatric cases the consultation question was most often related to the cognitive domain in 118 cases (75.6%). In the palliative care

cases it concerned most often somatic questions in 103 cases (26.0%) or other questions in 65.2% (n=259). Most consultations for the geriatric team were requested by either the cardiology (32.8%) or general surgery (32.1%). For the PCT the most frequently requesting specialisms





**Figure 1** Overview of adherence of solicited and unsolicited recommendations in percentages per domain.

were pulmonology (37.5%), general surgery (16.8%) and neurology (16%). Overall, consultations were mainly initiated by a resident (87.7% vs 90.4%, respectively).

### Advices and adherence

#### All cases

The number of recommendations per consultation ranged from 0 to 19 with a median (IQR) of 2 (1–4) recommendations per consultation in the overall study population. All recommendations were classified per domain. **Figure 1** summarises the overall number of recommendations and the adherence rate of solicited and unsolicited recommendations in the different domains. In the overall study population, the majority of recommendations were related to the somatic domain (n=673) followed by cognitive/psychological recommendations (n=227). The adherence rates in the individual domains are shown in detail in online supplemental figures 1A–G.

Overall, most recommendations given were solicited recommendations (865/1201=72%). Remarkably, recommendations concerning medication review and the functional domain were mainly unsolicited (97 unsolicited vs 27 solicited for medication recommendations and 42 vs 11 for functional recommendations). In most domains, over 80% of both solicited and unsolicited recommendations were implemented. However, in the functional domain, unsolicited recommendations were implemented in just 66%. In the spiritual domain only 50% of both solicited and unsolicited recommendations were implemented and in the end of life domain none of the unsolicited recommendations (n=2) were implemented.

#### Geriatric versus palliative care cases

The number of recommendations per consultation varied between the two subpopulations of the study as

shown in **figure 2**. The PCT gave a median of 2 recommendations (IQR 1–3) and the GCT gave a median of 5 recommendations (IQR 3–8).

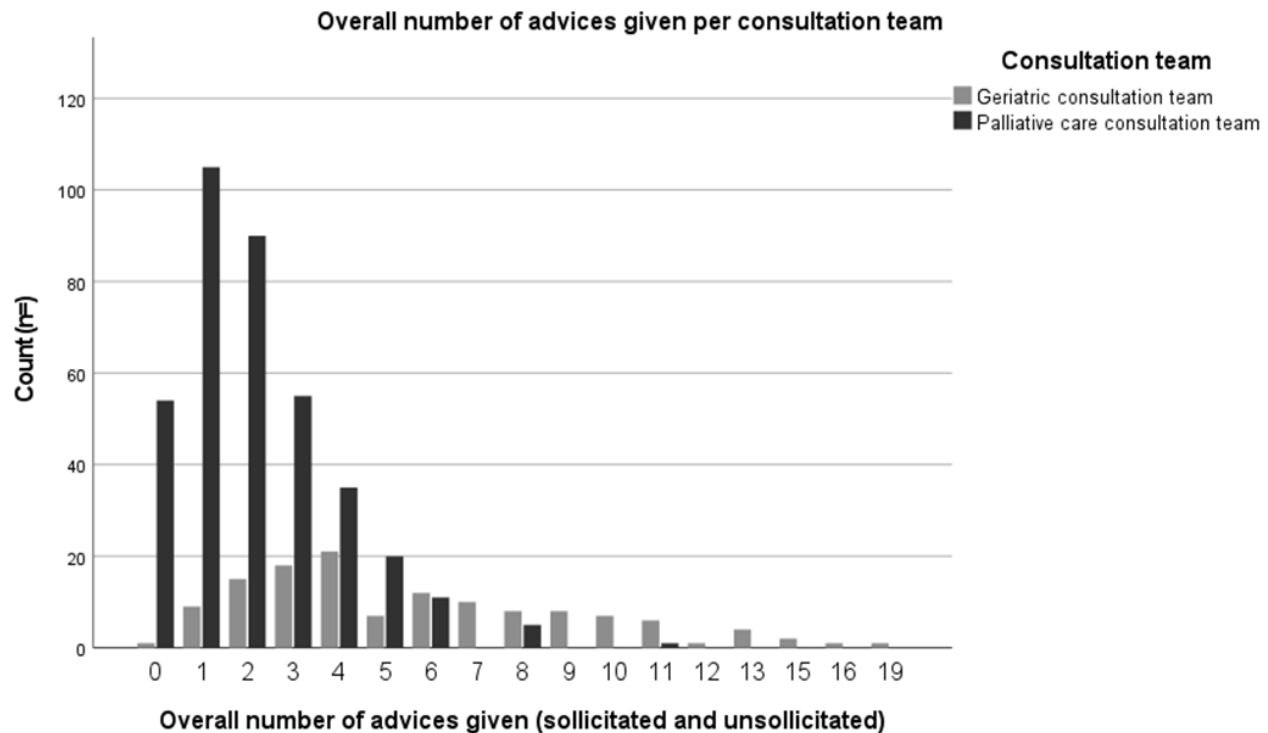
### Factors associated with adherence rates

Potential factors associated with the adherence of the recommendations were explored. These potential factors included the function of the consultation applicant (1), the way of reporting the recommendations (2) and the number of recommendations (3).

Concerning the function of the consultation applicant, we found a significantly higher proportion of implemented cognitive/psychologic solicited recommendations for physicians (163 (86.7%)) compared with non-physicians (3 (37.5%)), but the number of non-physician applicants was very low (n=8) as compared with the number of physician applicants (n=188). There were no significant differences with regard to somatic, functional, social, medication review or spiritual recommendations, neither solicited nor unsolicited. For neither the way of reporting the advices nor the number of recommendations, any significant differences were found, whether solicited or unsolicited.

### DISCUSSION

The current study examined the adherence rate of recommendations of a hospital-based GCT and a PCT and factors influencing adherence rates of these recommendations in hospitalised older patients. For both the GCT as the PCT consultations predominantly regarded single consultation questions of which the majority was answered with multiple recommendations, of which the median number of recommendations was highest in the GCT (5 vs 2, respectively). Over 72% of the advices were solicited. We identified



**Figure 2** Overview of amount of recommendations given by the palliative care consultation team versus the geriatric consultation team.

that recommendations about the functional domain and medication-related recommendations were more often unsolicited than solicited. Despite the fact that often multiple recommendations were given the overall adherence rate was remarkably high with over 80% in most domains for both solicited and unsolicited recommendations. However, the adherence rate did vary among different domains. We could not identify an association between adherence rate and factors that can be acted on like the way of communication or the number of recommendations. To our knowledge, this is the first study evaluating adherence rate in each relevant domain of holistic consultations (like in palliative and geriatric care) individually and comparing adherence rate of solicited and unsolicited recommendations all these domains.

Consultations are a substantial part of daily clinical practice in hospitals. In clinical practice, the consultation role is challenging, because of the demanding workload and the broad variety in consultation questions among different domains.<sup>16</sup> Adequate adherence to the recommendations is another challenge and a crucial factor for successful a consultation service.<sup>9 12</sup> A remarkable finding in our study was the relatively high adherence rate of the recommendations, even of the unsolicited recommendations. This is in contrast to the concerns about low compliance, which is often perceived by consultation teams. The gap between recommended and actual care is mentioned in the literature as a main barrier hindering the

potential of consultative care models.<sup>17</sup> Previous studies identified that a poor follow-up rate of recommendations does limit the effectiveness of consultation teams.<sup>6 17 18</sup> Reported adherence rates ranged widely from relatively poor (50%–55.5%) to high compliance for recommendation (88%–89%).<sup>6 9 13–15 17</sup> The variation in adherence rates could be explained by differences in study population, setting and type of team interventions. Several studies mention factors that positively impact adherence, which include limiting the number of recommendations, early consultation after hospital admission, systematic follow-up, feedback and support of nursing and medical staff.<sup>9 14 17 18</sup> We found that adherence rate differed per addressed domain. Allen et al found that highest adherence rates occurred in recommendations addressing discharge planning and instability and falls.<sup>15</sup> Two other studies also found that adherence rate varied among domains with recommendations in the social and functional domains being adhered best to and for medication recommendations and somatic recommendations worst.<sup>6 17</sup> Remarkably, we found that only half of the solicited and unsolicited recommendations concerning the spiritual domain were implemented. Previous research has shown various physician's barriers to address spiritual needs among their patients like feeling uncomfortable to discuss spiritual issues and existential topics with their patients or concerned about the additional time needed or disrespecting patients

ethical boundaries.<sup>19 20</sup> This might partly explain our finding that recommendations in the spiritual domain have a lower adherence rate. Another contributing factor might be that many patients associate spiritual support exclusively with church, which, in the Netherlands, is often a barrier for patients to agree with a conversation with a spiritual caregiver. Therefore, it remains important to identify opportunities how to better address patient spiritual and religious needs.

We could not identify new factors influencing adherence rate.

### Strengths and limitations

This study has several limitations. First, the retrospective design does not allow to study any cause-and-effect relationship regarding the factors that have impact on adherence rate. Furthermore, a qualitative study would have been a more appropriate method to identify factors related to adherence rates of recommendations given by consultation teams. Second, in this population of older hospitalised patients multimorbidity was prevalent and detailed data collection specifying each specific disease would have been disproportionate in view of our research focus. Therefore, comorbidities were collected in main categories and scored the three major categories in each patient. The Charleston Comorbidity Index or any other comorbidity index could therefore not be calculated. Third, the current data mainly concerned first consultations. A relatively low percentage of geriatric follow-up consultations, defined as an additional consultation following a first consultation, was included which could be explained by the fact that we choose data collecting of the first month of each season to avoid seasonal variation. If data of four consecutive months of GCT consultation would have been chosen, probably more follow-up consultations would have been included. On the other hand, it is unlikely that this influenced the data as generally most recommendations are given at the first consultation. Fourth, this study is a single-centre study performed in the Netherlands and this can affect the generalisability. Finally, the consultation question for the palliative cases were not specified in 65% because it was a general evaluation or conversation about patient wishes and preferences.

The strengths of this study include the detailed information on consultation adherence including data about the (un)solicited character in geriatric and palliative care. It shows that the majority of recommendations is implemented, even though a significant part of the recommendations was unsolicited. This study is unique in giving insight in the implementation of recommendations over seven important domains (somatic, cognitive, functional, social, medication review, spiritual and end of life).

### CONCLUSION AND IMPLICATIONS

In conclusion, the overall adherence rate of the GCT and PCT consultations was over 80% and highest for recommendations concerning somatic, cognitive, social, end-of-life domain, and medication review. Although in certain domains many recommendations were unsolicited, also the majority of these recommendations were implemented. One of the challenges of consultation teams is to get recommendations translated into actual care interventions. Although consultation teams might experience that their impact is limited having a strictly advisory role, this study shows that recommendations are seriously taken into account and incorporated in the patients' treatment. We found no potentially modifiable factors associated with the adherence of the advices. Further studies are needed to understand the reasons for non-adherence, identifying populations at risk for non-adherence and evaluation the impact of on patient outcomes.

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**Patient consent for publication** Not applicable.

**Ethics approval** The study was conducted in accordance with principles of the Declaration of Helsinki. The Medical Ethics Committee METC azM/UM confirmed that the Medical Research Involving Human Subjects Act (WMO) did not apply to this study (METC 2019-1293). Hospitalised patients automatically agree to the use of their medical data for this type of research, that is, the evaluation of quality of care. Published results cannot lead to identification of individuals. Patients who explicitly objected the use of their medical data for research were excluded.

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## ORCID iD

Hanneke Joosten <http://orcid.org/0009-0009-8963-4889>

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