Professionals' Use of a Multidisciplinary Communication Tool for Patients With Dementia in Primary Care

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In this descriptive study, the use of a professional e-communication tool, Congredi, is evaluated. Ninety-six Congredi records of patients with dementia could be divided into the subgroups low-complex care (n = 43) and high-complex care (n = 53). If Congredi is an adequate communication tool for professionals, the changing involvement of caregivers must also be reflected within the two subgroups. We hypothesized that use would be more intensive in the high-complex group in comparison with the low-complex group. Data were gathered during 42 weeks. Results showed that the mean number of care activities in the high-complex group was significantly higher than in the low-complex group (10.43 vs 5.61, $P = .001$). The number of professionals involved with the high-complex care group (3.58) was higher compared to the low-complex care group (2.51) ($P = .000$). The most frequent use was by case managers and nurses (43.4%) in the high-complex group and by several case managers (41.9%) in the low-complex group. It was concluded that professionals used Congredi adequately in the multidisciplinary care of patients with dementia because the changing involvement of caregivers and the level of care activities were reflected in the use of Congredi.

KEY WORDS: Care, Dementia, eHealth, Patient care continuity, Primary nursing

Continuity of care for patients with multiple problems in primary care is at risk because of fragmentation.[1] Often, several different professions are involved, and multidisciplinary communication to coordinate care comes under pressure because of poor accessibility of the providers in addition to travel time.[2]

Research based on the Chronic Care Model (CCM) has shown positive effects on health outcomes, health services use, and patient-reported outcomes in chronic care when collaboration and communication among providers are improved.[3–5] Recent evidence on the emergent use of eHealth has led to an expansion of the CCM to the eHealth-enhanced CCM (Figure 1).[6,7]

In recent years, electronic communication tools have become available in primary care to facilitate multidisciplinary communication among providers, but adoption is low.[8–10] Several reviews to evaluate the use of innovative tools have been performed.[7,11] However, in these studies, attention was focused on use of the tool by the target group of patients. No solid studies that deal with the use of e-communication tools by professionals in primary care have been found. Because this does not necessarily reflect whether providers use the tool in the care process, recently we reported on the use of an e-communication tool for professionals in primary care in the Netherlands.[12] A multidisciplinary digital communication tool, Congredi (Fast Guide, Oud Gastel, the Netherlands), was implemented to improve communication about care among providers. It includes an interactive multidisciplinary care plan and a secure e-mailing channel. It was selected on the basis of jointly developed functional specifications. It was expected that the use of the tool would lead to reduced costs because fewer phone calls and travel time are needed and providers can work more effectively because they can communicate at a convenient time and place. A bottom-up approach was chosen to guide further development and implementation.[13,14] It seems a promising tool because professionals use it. In our study, it was used by a large group of professionals (N = 203) and deemed usable because they performed actions as expected, such as regularly adapting care goals, communicating by a secure communication channel, or inviting relevant professionals to link.[12] However, even with this outcome, little is said about the adequacy of use. Adequate use was defined as "whether the intensity of use of the tool is reflected in the use of Congredi." Therefore, in this study, the focus was on evaluating the use of the tool in a care context that differed in complexity.

THE STUDY

Aim

The aim of this study was to evaluate whether providers used the tool adequately, by measuring whether use differed between complex and less complex care situations. The assumption

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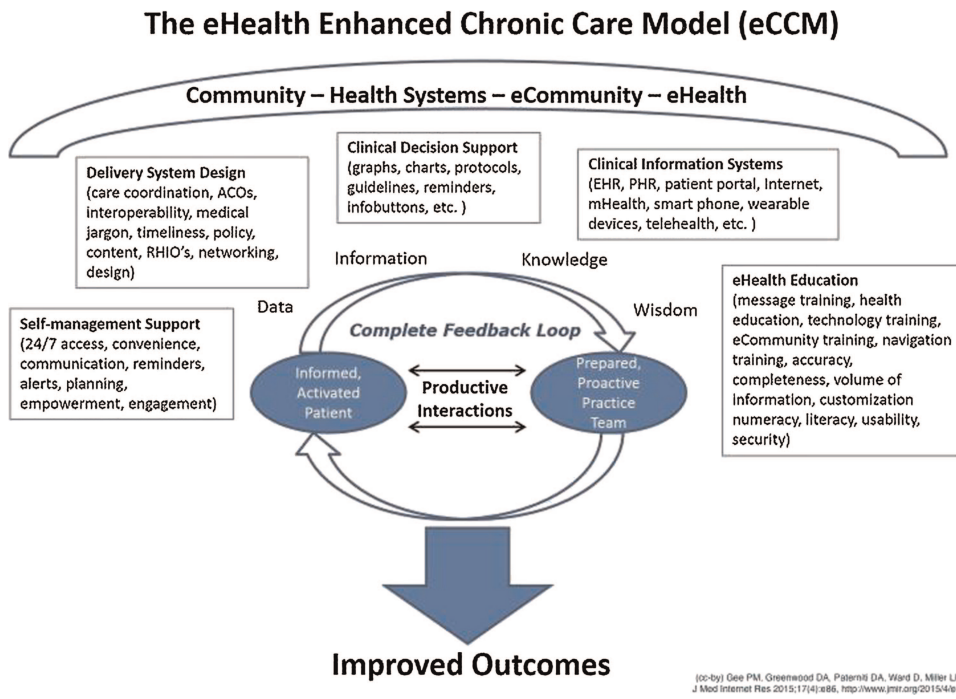

FIGURE 1. The eHealth-enhanced chronic care model.[6] Reprinted with permission.

was that, if providers involved in the care of a specific patient group used Congredi adequately, changing levels of involvement among providers would be reflected in the use of Congredi. This led to the following expectations:

1. During less complex care, fewer providers are involved in Congredi patient records; during complex care, more providers are involved.
2. During less complex care, the level of care activity per patient is lower than during complex care.

To compare usage in the two subgroups, the following research questions were addressed:

1. How many and which providers are linked to the Congredi system for the less complex and complex groups?
2. How many and which actions are performed within the Congredi system in the less complex and complex groups?
3. Is there a difference in the number of actions per patient between the less complex and complex groups?
4. Is there a difference in the number of providers per patient between the less complex and complex groups?

Design

An observational, comparative study was performed across two subgroups of patients, one with less complex care needs and one with complex care needs. Data were gathered from the Congredi system over 42 weeks between March and December 2014. The research was submitted to the medical ethical committee; it was considered that no further review was necessary.

The Tool

Congredi is a communication tool for providers, and it was originally developed for primary care by a general practitioner. It consists of an option to share data in a care plan and asynchronous communication options using secure email. The included multidisciplinary care plan was based on the social, functional, mental, physical, and communication problem inventory domain model.[15] Providers received a practical instruction training session lasting 4 hours and demonstrating use of the Congredi tool. The patient had to give permission to begin a record and to invite providers to link. After patient permission was obtained, a provider opened a Congredi record for the patient and filled in a care plan. Other providers who were involved with the patient and had access to Congredi could be invited by link so that they could view the care plan and use it interactively. Provider actions were recorded in the system. The following are three main categories of actions: care actions (problem assessment, defining care goals, observing patients' health status, and adapting care goals), e-mailing, and inviting other providers to link. All providers had the ability to update the care plan and initiate actions; they received alerts when there were e-mails in their inboxes.

Participants

We first selected Congredi patient records with multiple healthcare providers and then investigated whether it was

Table 1. Characteristics of Low- and High-Complex Patients in Congredi

Variables	Categories	Low Complex (N = 43), n (%)	High Complex (N = 53), n (%)	Total Patient Records (N = 96), n (%)
Age, y	<70	1 (2.3)	3 (5.8)	4 (4.2)
	71-80	11 (25.6)	15 (28.8)	26 (27.1)
	81-90	23 (53.5)	30 (57.7)	53 (55.2)
	>90	8 (18.6)	4 (7.7)	12 (12.5)
	Missing		1	1
Sex	Male	16 (37.2)	18 (38.3)	34 (35.4)
	Female	27 (62.7)	29 (61.7)	56 (58.3)
	Missing		6	6

possible to distinguish subgroups according to care levels (ie, complex and less complex care). We chose records for patients with dementia. In the Netherlands, the case manager dementia (C) has a central role in the care for people with dementia. C is assigned to patients from the time that dementia is confirmed or suspected.[16] Case managers are primarily specially trained nurses whose goal is to guide the patient and informal carers in dealing with the disease and to coordinate care around the patient.[17] In this way, the case manager functions as a "safety net" around the patient and can communicate with or refer to other providers within primary care, such as the general practitioner and nurse.[18,19] At the beginning, the network of involved professionals consists of a case manager, a general practitioner, and, incidentally, a paramedic, such as a physiotherapist.

When physical needs increase and more care is required than can be provided by C, C is responsible for connecting with other providers, primarily a nurse (N).[16] The presence of a nurse in the care record can therefore be construed as an indication of a more complex care situation. Thus, on the basis of the presence of a nurse, we could distinguish between less complex and complex care situations: the presence of a nurse in Congredi records indicates a complex care situation; the absence of a nurse indicates a less complex situation.[16]

Data Collection

Data were retrieved from the Congredi system during 42 weeks in 2014. Providers could initiate Congredi records during the whole period.

The following variables were measured:

Characteristics of patients in Congredi

- Demographic data (age, sex)
- Diagnosis (dementia)

Providers linked to Congredi records

- Number and type of providers per record
- Combinations of providers in records
- Type of activities (care activities, e-mail messages, and inviting colleagues to link)
- Frequency of activities per record

Data Analysis

The unit of analysis was the Congredi record. Analysis of variance was performed using IBM SPSS Statistics version 20 (IBM, Armonk, NY).

RESULTS

Ninety-six patients with more than one professional involved were selected (n = 96), as shown in Table 1. Within this group of patients with dementia, 43 were in the less complex group and 53 were in the complex group. Most patients were older than 80 years (68.7%), and females were prevalent (58.3%).

Table 2 shows the mean number of professionals active in patient records of patients with dementia (3.10). There was a significant difference in the number of professionals involved between less complex and complex patients (2.51 vs 3.58, $P = .000$). Nurses were present only in the complex group. The mean number of case managers dementia (C) was lower in the complex group (1.65 vs 1.19, $P = .000$). The mean number of general practitioners (G) and paramedical caregivers (P) was slightly but not significantly higher in the complex group.

In Table 3, the different combinations of providers linked to less complex and complex patient records were shown. In the less complex group, in 41.9% of the records, there was only a combination of case managers dementia. A general practitioner was linked to 46.5% of the records (CG and CGP); and paramedical caregivers, in 13.9% (CGP and CP). In patients with complex care, the combination of CN occurred most frequently (43.4%). A combination with a general practitioner (CNG and CNGP) was found in 52.8% of the records, and in 20.8%, there was a combination with a paramedical caregiver (CNGP and CNP).

Table 2. The Number of Professionals Involved in Congredi

Professionals	Low Complex (n = 43) Mean (SD)	High Complex (n = 53) Mean (SD)	Total (N = 96) Mean (SD)	*P*
C	1.65 (0.53)	1.19 (0.40)	1.40 (0.51)	.000
N	0.00 (0.00)	1.36 (0.62)	0.75 (0.82)	.000
G	0.72 (0.91)	0.77 (0.89)	0.75 (0.89)	.776
P	0.14 (0.35)	0.28 (0.57)	0.22 (0.49)	.151
Total	2.51 (0.70)	3.58 (1.67)	3.10 (1.43)	.000

Abbreviations: C, case manager dementia; G, general practitioner; N, nurse; P, paramedical caregiver.

Table 3. Combinations of Professionals in Congredi

Combinations of Professionals in Congredi	Frequency, n (%)
Low complex (n = 43)	
CC	18 (41.9)
CG	19 (44.2)
CGP	1 (2.3)
CP	5 (11.6)
High complex (n = 53)	
CN	23 (43.4)
CNG	19 (35.8)
CNGP	9 (17.0)
CNP	2 (3.8)
Total	96

Abbreviations: C, case manager dementia; G, general practitioner; N, nurse; P, paramedical caregiver.

Table 4 shows for which activities Congredi was used within the two groups. In the complex group, there was almost twice as much care activity (10.43 vs 5.61, $P = .001$). In addition, frequency of e-mailing (1.28 vs 0.25, $P = .040$) and the number of providers invited to link (2.20 vs 1.27, $P = .000$) were also significantly higher.

DISCUSSION

The results of this study indicate that the providers adequately used the innovative electronic communication tool Congredi in their care for patients with dementia. The results were identified by comparing use for the less complex and complex groups of patients with dementia care.

A first indication for adequate use is that providers were technically able to use the tool. In this light, it was deemed a positive result that the providers used all elements of Congredi. Second, the results seem to indicate that Congredi was adequately used as a communication tool for providers involved in the care of patients with dementia, because use seemed to be adapted to each patient's situation. Use of Congredi for the complex group was more intense compared to that for the less complex group. A third indication of adequate use is that, in the less complex group, nearly half of the patients had two case managers linked to their record. This does not signal higher complexity because, apparently, no other professionals were needed; however, it could mean that the case manager needed backup from a colleague in case of absence or for collegial consultation. This could suggest that, for continuity of care, case managers find it advisable to have a colleague case manager linked to the patient record.[19] In the complex patient group, a second case manager was less necessary because there was always a nurse present beside the case manager to support the continuity of care. In approximately one-third of the cases, two nurses were involved.

Some findings concerning the pattern of provider involvement are interesting, for instance, the involvement of the general practitioner. In the Netherlands, the general practitioner has the role of gatekeeper of the care, and every patient has a general practitioner. To carry out this role, it is necessary that the general practitioners monitor the current status of the patient. One would therefore expect every patient with dementia to have his/her general practitioner linked to the Congredi patient record. However, the number of general practitioners involved was comparable in both groups at approximately 50%, indicating that half of the patients did not have a general practitioner linked to their Congredi record. This fact is not surprising, because a patient generally does not have an increasing number of general practitioners when the situation deteriorates. However, the fact that a general practitioner was linked in only half of the Congredi records requires an explanation. Congredi is an innovation, and it could be that the level of implementation had not reached all general practitioners, and that they were not active in opening Congredi accounts so that they could be linked to patient records. On the other hand, one would expect the case manager and nurses to ensure that a general practitioner was linked to the patient record, because the general practitioner is necessary for many aspects of decision-making concerning patient care. It seems advisable not only to specifically instruct case managers to invite the general practitioner to link, but also to convince the general practitioner of the importance of taking initiative to become connected. For general practitioners, Congredi is an additional system, and it is a known barrier that they do not participate actively in additional eHealth systems if their own administrative system cannot interface with the additional

Table 4. Actions in Congredi

Actions in Congredi	Low Complex (n = 43) Mean (SD)	High Complex (n = 53) Mean (SD)	Total Mean (SD)	P
Care activities				
Problem inventory	1.05 (0.68)	1.30 (0.82)	1.19 (0.77)	.102
Care action	0.93 (0.79)	1.83 (1.91)	1.42 (1.57)	.004
Care action adaption	0.95 (0.89)	1.81 (1.85)	1.42 (1.57)	.006
Observations	2.68 (1.64)	5.49 (4.80)	4.22 (3.96)	.000
Total care activities	5.61 (3.17)	10.43 (8.54)	8.25 (7.06)	.001
E-mails sent	0.25 (0.62)	1.28 (3.24)	0.81 (2.48)	.040
Invite involved professionals to link	1.27 (0.82)	2.26 (1.60)	1.81 (1.39)	.000

records.[20] This barrier should be overcome by policy changes at the supplier and payer level.

Another interesting pattern was the low, although increasing, involvement of paramedical caregivers. We did not find the low number unexpected, because we did not focus on the paramedical caregivers when creating the sample. The fact that their numbers increased for patients in complex care situations is promising.

The pattern of involvement of case managers shows that their number decreased in the complex group, but they remained present. This can be explained by the fact that coordinating tasks might be handed over to nurses if they have more regular contact with the patient system.

Concerning the number of activities in relation to adequate use, there were some interesting findings. In the care plans, activities that were relevant in multidisciplinary care were noted. The level of care activity varied between the two patient groups; there was twice as much activity for patients in the complex group. This is as expected and might indicate adequate use of the tool. On reflection, the question arises whether this is an average level of activity in multidisciplinary care; can this be perceived as a high or low level of activity? It was not clear in the literature what the usual level of multidisciplinary communication in primary care is for patients with dementia.[21–23] It is therefore difficult to compare these results with "usual care" in electronic multidisciplinary communication.

The pattern of activities found in Congredi may also reflect adequate use of the tool by providers because all activities increased when the care situation became more complex. This distribution of the care activities reflects what professionals are trained to do: perform care methodically, which usually includes assessing problems, initiating actions, observing effects, and adapting their actions. In multidisciplinary care, Congredi is an advantage because providers will be able to communicate easily with each other during increased activity.[24]

Interestingly, besides the expected activities, there were some new activities taking place in Congredi. These activities deserve special attention because they increased significantly. The reason could be that in Congredi, unlike in a paper file, providers receive an alert when there is new information in a patient record, and this may trigger additional activity.

First, there is an increase in the activity "observations," which involves sharing notes on patients' care among providers. In the primary care setting, this is important because often the providers do not share a patient administration system or even a workplace. If this communication had taken place during a "live" meeting, it would have taken a lot of time. To share observations, providers are dependent on visits or telephone calls, which require travel and being available at the same time. Secure e-mailing is also an option, but this may occur without viewing the care plan and is therefore inconvenient because the receiving party must find the information in their own record system. This is in contrast to Congredi, in which the care plan and notes are both accessible.

Second, there is an increase in the activity "invite involved professionals to link." This action enlarges the safety network around the patient. This is a necessary element when more professionals are involved in the care of the patient and more action takes place. When professionals are linked, fragmentation of care can be prevented.[25,26] In addition, there is a slight increase in secure e-mailing, although the absolute volume remains small. We expected a higher increase, but this may be lower because the need to use e-mail is less due to the shared information in the care plan.

At some point, it would be interesting to also invite patients to join the collaboration. When professionals use an e-communication tool adequately, the results become transparent in the e-care plan. Then, it would be possible to create adequate interaction between patients and professionals.[27] This has been shown to be effective by Gee et al[6] in the eHealth-enhanced CCM.[7] Further research could be performed to examine whether health outcomes and health behavior improve.[28]

CONCLUSION

This study indicates that healthcare providers involved in the multidisciplinary care of patients with dementia use the innovative e-communication tool Congredi adequately in the care process. The changing involvement of professional caregivers and the level of care activities during differing complexity of the care were reflected in the use of Congredi. Therefore, it is plausible that providers used the tool adequately. Further research can focus on whether the use of an e-communication tool, resulting in increased communication, leads to a better quality of care and patient outcomes.

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