Challenges of Trustable AI and Added-Value on Health
B. Séroussi et al. (Eds.)

doi:10.3233/SHTI220449

Use of e-Health in Norwegian FACT Teams: A User Perspective

Erlend BØNES [a, b,1], Conceição GRANJA [a, b] and Terje SOLVOLL [a, b]
[a] *University Hospital of North Norway, Norwegian Centre for e-health Research, Tromsø, Norway*
[b] *Nord University, Faculty of Nursing and Health Sciences, Bodø, Norway*

Abstract. Flexible assertive community treatment (FACT) is a model for delivering long-term, integrated and comprehensive treatment and follow-up for patients with severe mental illness. The objective of this study was to examine ICT challenges of Norwegian FACT teams. Doing observations in 3 teams and interviews with 5 teams we examined use of ICT systems, identifying challenges with the use of the electronic whiteboards, electronic health records, and team calendars. Better ICT systems and infrastructure are needed to support Norwegian FACT teams.

Keywords. Mental health, FACT, electronic health records, electronic whiteboards, eHealth, video consultations

1. Introduction

Flexible assertive community treatment (FACT) is a model for delivering long-term, integrated and comprehensive treatment and follow-up for patients with severe mental illness [1]. This model has been implemented in the Netherlands, Norway, Sweden, England and Denmark [2]. FACT teams are multidisciplinary and should consist of a psychiatrist, a psychologist, case managers, an employment specialist, an addiction specialist and a peer support worker [3]. Norwegian FACT teams often include members employed in both primary care and specialist care. They include a team leader, and team coordinator. The team coordinator is responsible for the overall administrative work in the teams.

Patients at risk of relapse or readmission receive intensive follow-up from FACT teams, while patients who are in more stable condition receive case management. The patients who receive intensive follow-up are discussed in daily meetings, where the team discuss the status of the patient, and plan further treatment. During these meetings, an electronic whiteboard is used to keep track of patients. Access to relevant patient information from electronic health records (EHRs) is essential for health care workers. In Norway, specialist health care in three of the four health care regions use the EHR system, DIPS AS, while the fourth are using DocuLive provided by Siemens AS. Within primary care there are several different EHR systems in use.

In 2020, there were approximately 70 FACT teams in Norway [2]. However, an evaluation of Norwegian FACT teams [4], shows that there are some issues for the teams

[1] Corresponding Author, Erlend Bønes, Norwegian Centre for e-Health Research, University Hospital of North Norway, PO Box 35, Tromsø, Norway; E-mail: erlend.bones@ehealthresearch.no.

using information and communication technology (ICT) solutions. This paper reports on the challenges of Norwegian FACT teams using ICT solutions.

2. Methods

Five Norwegian FACT teams were included in the project. The teams were selected based on purposeful selection; a strategy intended to get relevant information related to the research goals [5]. To ensure representativeness of the teams, we selected two urban teams and three rural teams with representative number of patients. The selected teams were in different geographical areas of Norway.

Using a Computer-Supported Cooperative Work (CSCW) framework, one of the authors did observations and semi-structured interviews in 3 of the teams, following an ethnographic approach. This is a well-established approach for the application of the CSCW framework in the health care field [6-8]. Due to the restrictions related to the covid-19 pandemic, we were not able to do observations in two of the teams. In these two teams we only did semi-structured interviews using Skype for business. The observations and interviews were completed between August 2020 and January 2021.

During the physical observations, one of the authors followed the teams for 3 to 5 workdays each. The author participated in the daily whiteboard meetings and other team meetings and observed use of the ICT solutions. He observed meetings with one patient in each team. The patients participating were selected by the teams. Only one patient consented for each team. The author had informal conversations with the team members. During the observations, the author wrote memos of what he observed and added his own ideas about use of ICT tools. The semi-structured interviews were done with the team leaders and team coordinators in the five selected teams. Initial topics for the interview was based on previous knowledge of the ICT implementation of FACT teams in Norway [9]. This included Electronic whiteboards, EHR systems, Video conferencing systems, and Mobile devices. During the interview with Team 1, one additional topic was identified and included in the later interviews. Notes were taken during the interview and expanded on immediately after the interviews. Data from the observations and interviews were analyzed in several stages during and after the data collection. This process identified preliminary themes of data, used to categorize the data.

3. Results

Table 1 shows the characteristics of the different teams and data collection methods.

Table 1. characteristics of the teams and methods of data collection

Team	Urban/rural	Coverage area	Team employment	Methods used
1	Rural	4 municipalities	Specialist and secondary care.	Observations and interviews
2	Urban	One city district	Specialist and secondary care.	Observations and interviews
3	Urban	One municipality, including one town	Specialist and secondary care.	Observations and interviews

4	Rural	2 municipalities	Specialist and secondary care.	Video interviews
5	Rural	2 municipalities	Specialist care only.	Video interviews

During the observations, the author observed use of the electronic whiteboards, EHR systems, calendar systems and video conferencing solutions. In the interviews, the team leaders and team coordinators were asked to describe the use of different types of ICT solutions in daily practice, based on the identified topics. During the interview with Team 1, team calendars was identified as as an additional type of ICT solution relevant for FACT teams. This topic was added in the interviews with the remaining teams. These questions were used as a starting point to discuss strengths and weaknesses of the ICT solutions. The interviewer asked about the biggest challenges related to use of ICT, and how ICT could be used to make the teams work easier. Additionally, the interviewees were asked to describe further functional needs currently not available in the current ICT solutions, and how they communicate with their patients. The themes of data used in the pre-analysis of the data were same as the ICT solutions: Electronic whiteboards, EHR systems, Video conferencing systems, Team calendar and Mobile devices.

3.1. Electronic whiteboards

The teams that were a part of the study used different electronic whiteboard solutions; they were all based on Microsoft Excel. Teams found the electronic whiteboards hard to use. One informant said that "you do not recognise the FACT model" when looking at the board. They wanted the whiteboard to represent the model in a better way, for instance by showing more information about standardized patient pathways. Team 1 and 3 reported that when a patient is not in need of intensive follow-up, and is moved to case management, some information stored about the patient will be lost. All teams described the whiteboard solutions in use as stand-alone systems without any integration to the EHRs or other ICT solutions used by the teams. At the same time, all teams reported a need for the electronic whiteboard to be integrated to the EHRs.

3.2. Electronic health records

Team 5 only had employees in specialist care and consequently only documented in DIPS. The other four teams had employees from specialist and primary care. Team 2 only documented in DIPS. The remaining three teams documented in both DIPS and EHR systems for primary care. Team 1 documented in more than one EHR system for primary care since it covered four municipalities. To give FACT team members who work primary care access, they often had so called zero percent positions or simplified employment in specialist care to be given organisational access to DIPS. In addition to this, in most teams they use a virtual private network (VPN) solution like Citrix to get technical access. The teams that use Citrix to get access to DIPS, found this an annoyance, especially if they were using a mobile device. Team 2 were worried that only documenting in DIPS would lead to their work being hidden from the municipalities, and as a worst case that this may lead to a halt in funding. The rural teams with long travel distances often postpone documenting a patient meeting in the EHR to the next day. Teams 1 pointed out cultural differences between team members in primary care and specialist care, with members from specialist care more used to extensive documentation in the EHR.

3.3. Video consultations

Teams 1, 3 and 4 used video consultations to some of their patients. The technical solutions used depended on what was recommended for clinical use in their regions, Whereby in the North region and Pexip in the South East region. The teams that used video conference emphasised that it is not suitable for all patients. Also, Team 3 told us that not all patients have access to their own equipment. In most cases, the use of video conference was planned, but Team 1 described a situation where video conference was used in an acute situation, to establish a video consultation between a team member who was with a patient to the team psychiatrist who was in another municipality. Team 2 did not use video consultations and said that their patients do not wish to use it due to mental health issues and a lack of equipment. Team 5 also did not use video consultations, and said they doubted it is suited for their patient group, and that many patients lack phones or Internet access.

3.4. Team calendar

Team members use many different calendars, including the calendar in DIPS, and various versions on Microsoft Outlook depending on their employment. Team 2 used physical calendar books, and said they are completely dependent on them. Team 5 had DIPS on a laptop PC, where they could see the calendars, but since they need an internet connection for access, it is not always available when traveling. Some teams reported a need to have an overview of where the team members are. One reason for this was to be able to coordinate the team better. Another reason was that it improves safety because it gives an overview of when team members visit unstable patients. One team said that they already had a good overview of when and team members visit unstable patients, so they did not see a need for a such a system.

3.5. Mobile devices

Some of the teams have laptop PCs that they can bring when they are visiting patients. Team 1 reported that it was something that they wanted but did not have yet. Team 3 bring the laptop with them sometimes when visiting patients, but usually not, because they usually do not have network access when visiting patients. They said that Internet-connected PC could be useful for helping the patients with practical things like online banking and social services web sites.

4. Discussion

Our study has uncovered various issues with ICT solutions for Norwegian FACT teams. FACT teams do not think current whiteboard solutions fully meet their needs. The main issue with the electronic whiteboards is that there is no integration towards the existing EHR systems. If such an integration was in place, it could allow relevant data to be transferred automatically. This could include documentation of patient treatment, patient ID's and healthcare worker ID's. Whiteboards should also include information about standardized patient pathways. For many Norwegian FACT teams there are several different EHR systems that contain relevant information about their patients. There is a

need for systems where FACT team members have easy access to relevant information from EHR systems. The same data does not need to be stored in several different systems but should be able to be displayed in the relevant systems. Since FACT team members are highly mobile, patient data should be available from a mobile device, like phones, laptop computers or tablets. While Norwegian laws allow sharing of relevant data, the e-health infrastructure that is in place does not support such sharing [9]. This means that EHR data is usually easily accessible for healthcare workers in the institution that is responsible for the data, but harder to access for other healthcare workers. To circumvent this, healthcare workers who need access to data from an institution they do not work in, have sometimes been hired in so called zero percent positions in the institution, as a workaround. Some FACT teams use video consultations when treating patients. Video conference is not suited for all patients in FACT teams, or in all situations. Some patients also lack the access to equipment needed, but it is a useful tool in some situations. Currently, there are several different calendar solutions FACT teams needs to use. Calendar information should be displayed in one easy to access system. This would make coordination within the team easier and provide additional safety for team members. Having access to a mobile device like a laptop or PC is helpful in many situations when visiting patients, both for accessing the EHR, and practical help like online banking and social services. However, this requires Internet connection for the device, which may be a challenge when travelling.

5. Conclusion

FACT teams have been successfully implemented in Norway, despite that FACT team members see issues and challenges with their ICT solutions. Common requirements from the FACT teams are integration of electronic whiteboards and EHR systems, easy access to relevant EHR information and better calendar solutions. This paper only reports on a preliminary analysis of the data. The data reported in this paper needs to be analysed in-depth to inform the definition of the requirements for the use of e-health in FACT teams.

References

[1] van Veldhuizen JR. FACT: a Dutch version of ACT, Community Ment Health J 43 (2007), 421-433.
[2] Trane K, Aasbrenn K, Rønningen M, et al. Flexible assertive community treatment teams can change complex and fragmented service systems: experiences of service providers, International journal of mental health systems 15 (2021), 38.
[3] van Veldhuizen JR, FACT - Visjon, modell og organisering av FACT-modellen, in, Nasjonal kompetansetjeneste for samtidig rusmisbruk og psykisk lidelse, Brumunddal 2013.
[4] Landheim A, Odden S. Evaluering av FACT-team i Norge – Sluttrapport in, Nasjonal kompetansetjeneste for samtidig rusmisbruk og psykisk lidelse (NKROP), Hamar, 2020.
[5] Maxwell J. Qualitative Research Design: An Interactive Approach, Sage, Los Angeles, 2013.
[6] Blomberg J, Karasti H. Reflections on 25 Years of Ethnography in CSCW, Computer Supported Cooperative Work (CSCW) 22 (2013), 373-423.
[7] Pratt W, Reddy MC, McDonald DW, et al. Incorporating ideas from computer-supported cooperative work, Journal of Biomedical Informatics 37 (2004), 128-137.
[8] Fitzpatrick G, Ellingsen G. A review of 25 years of CSCW research in healthcare: contributions, challenges and future agendas, Computer Supported Cooperative Work (CSCW) 22 (2013), 609-665.
[9] Bønes E, Granja C, Solvoll T. Implementation of the Flexible Assertive Community Treatment (FACT) Model in Norway: eHealth Assessment Study, Journal of medical Internet research 24 (2022), e32220.