Use of Electronic Tools in Norwegian FACT Youth Teams: A User Perspective

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***Abstract*— Flexible Assertive Community Treatment (FACT) youth teams deliver integrated services to youths aged 12-25 with mental health issues. There has been reported challenges with use of e-health solutions for FACT teams targeting an adult population. The objective of this study was to examine challenges with e-health solutions for FACT youth teams, with a special focus on the electronic whiteboards they use. We did semi-structured interviews in 3 Norwegian FACT youth teams. We identified challenges with the electronic whiteboards, electronic health records and team calendar solutions. There is a need for improved e-health solutions for FACT youth teams in Norway.**

Keywords- FACT; FACT youth; mental health; electronic whiteboard; electronic health records; e-health.

I. INTRODUCTION

Flexible Assertive Community Treatment (FACT) is a model for delivering integrated services to persons with long-term mental illness [1]. The model was developed in the Netherlands in the early 2000s and is a variant of Assertive Community Treatment (ACT). While ACT is designed to provide continuously intensive health services to all their patients, FACT is targeted at patients that require intensive services in some periods, but less intensive in others [2]. FACT teams work with a shared caseload on patients when they require intensive services, and individual case management when the patients are stable [1]. This makes FACT better suited to areas with lower patient populations, that do not have a high number of patients that requires continuously intensive health services.

Most FACT teams target adult patients, but some teams target youths. The Netherlands have had FACT youth teams since 2005, and there are around 60 FACT youth in the Netherlands today [3].

Traditional health services in Norway have had problems reaching youths with complex issues. Cooperation between levels of health care is affected by unclear responsibilities, and there is a lack of integration of services [3]. The goal of FACT youth teams is to meet these challenges, by providing integrated services for their patient population [3]. The target group for Norwegian FACT youth teams are youths aged 12-25 years old. FACT youth teams are multidisciplinary and should consist of a team leader, team coordinator, child and youth psychologist, child and youth psychiatrist, family therapist, user specialist, and a work/education specialist. In 2021, there were 3 FACT youth teams in Norway, and around 70 FACT teams targeting adults.

In Norway, specialist mental health services are the responsibility of the government. The services are delivered by hospitals or community mental health centers, that are owned by one of the four Regional Health Authorities. Primary care and local services are delivered by the 356 municipalities. Most FACT teams in Norway are organized as a cooperation between specialist care and one or more municipalities [4].

Standardized patient pathways were introduced for all mental health services in Norway in 2019 [5]. The goals of the standardized patient pathways were to reduce variance in treatment, ensure user participation, and improve coordination between various health services. Thus, all patients in Norwegian FACT teams should be in a standardized patient pathway.

FACT teams have daily meetings, where they discuss status and plan further follow-up of patients that require intensive treatment [1]. The teams use an electronic whiteboard to display an overview of these patients. This makes the electronic whiteboard one of the most important tools for the FACT teams. Patients who receive case management are discussed less frequently by the team, usually once a week.

Electronic health records (EHRs) are an important tool for health care workers to get relevant information about their patients and document treatment the patient get. Specialist health care in three of the four Norwegian health care regions use the EHR system DIPS AS, while the fourth are using DocuLive provided by Siemens AS. There are several different EHR systems in primary care.

There have been reported challenges with information and communication (ICT) solutions for FACT teams targeting adults in Norway. This includes issues with electronic whiteboards, EHRs and calendars [4][6]. The goal of this study was to examine FACT youth teams perspectives on electronic whiteboards and other ICT solutions in

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Norwegian FACT youth teams. These results can be used to inform how an electronic whiteboard solution for FACT youth teams should be designed.

The rest of this paper is organized as follows. Section II describes the methods used. Section III shows the results. Section IV presents the discussion. Section V describes the conclusions, including future work.

II. METHODS

Three Norwegian FACT youth teams were included in the study. The teams chosen were the 3 FACT youth teams operating in Norway at the time of the study. Team 2 and 3 was organized as a cooperation between primary care and specialist care. Team 1 was established by a municipality, and was therefore mainly based in primary care, but they had a psychologist employed by specialist care. All 3 teams were situated in urban areas. Table 1 shows the characteristics of the teams included.

Building on a Computer supported cooperative work framework [7][8], we conducted semi-structured interviews with the teams. The interviews were conducted during the fall of 2021 by one researcher. We invited all members of the teams to participate in the interviews, but for various practical reasons not all team members were present during the interviews. The number of participants in each interview was from 1 to 3, for a total of 7 participants. We used an interview guide and presented predefined use cases as a starting point for open-ended discussions about use of the electronic whiteboard and other ICT solutions.

The interview guide focused on how an ideal electronic whiteboard would look, if the electronic whiteboards should be integrated with the EHR or other systems, and if it would be useful to be able to extract statistics from the electronic whiteboard. See Fig. 1 for the list of interview questions. The use cases showed different scenarios where the electronic whiteboard or other ICT solutions were involved. The use cases discussed during the interviews were referral of patients to FACT youth teams, use of the whiteboard during the daily meetings, updating of the whiteboard after meeting a patient, transfer of patient from intensive follow-up to case management, end of treatment of patient from FACT youth team and use of the team calendars. See Fig.2 for the use cases discussed. The interview guide and use cases were developed based on experiences from a previous study of ICT solutions for FACT teams for adult patients [9].

TABLE I. CHARACTERISTICS OF THE TEAMS

Characteristics of the teams			
Team	***Coverage area***	***Team organization***	***Number of interviewees***
1	One municipality	Mainly primary care	3
2	One city district	Primary and specialist care	3
3	One city district	Primary and specialist care	1

- How do you use the electronic whiteboard today?
- Do you want to use the electronic whiteboard for other purposes?
- Is there any kind of integration between the electronic whiteboard and EHR solutions? If no, is this something you want?
- What team members should have access to the electronic whiteboard?
- Do you have a need to extract reports and statistics from the electronic whiteboard? If yes, what kind of reports and statistics?
- What calendar solutions do the teams use? Is there a need for better calendar solutions?

Figure 1. Interview guide questions

The interviews were recorded and transcribed. In addition to this, the researcher took some notes during the interviews, and wrote a memo after each interview. This memo contained ideas and thoughts from the interview. One of the researchers read the transcripts and memos several times. Based on this we developed preliminary themes of data for the data analysis.

III. RESULTS

The themes of data identified in the preliminary analysis of the data matched the main ICT solutions used by the teams; electronic whiteboards, calendars and EHR.

The electronic whiteboards used by the teams were standalone solutions made in Microsoft Excel. The electronic whiteboards did not have any integration to the EHR or other systems. All 3 teams reported that they would like the electronic whiteboard either integrated to the EHR or as a part of the EHR. Team 2 said that because of the lack of integration, the electronic whiteboard is mainly a tool for coordination, and they still must do all the documentation in the EHR. Team 3 said that it was important to have the same diagnoses in the EHR and electronic whiteboard, since the teams often work with tentative diagnoses.

Team 1 reported that they wanted the whiteboard to be more oriented towards the users' family and network, since this is an important part of how FACT youth teams work.

The interviewer asked the teams if it would be useful for them to extract statistics about their users from the whiteboard solution. Team 1 said that they had no large need of this, because they had a good overview of their patients due to a small number of patients. Team 2 wanted to be able to extract statistics. The reason for this was that they wanted to justify what they did and the results they were getting. Ideally, they wanted to use the statistics to estimate how many inpatient days they prevented for their patients. Team 3 also said that they wanted to be able to extract statistics. They wanted information about the number of patients, number of patients on compulsory treatment, number of

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- Referral of patients to FACT youth teams
- Use of the whiteboard during the daily meetings
- Updating of the whiteboard after meeting a patient
- Transfer of patient from intensive follow-up to case management
- End of treatment of patient from FACT youth team
- Use of the team calendars

Figure 2. Use cases discussed

patients with specific diagnoses and number of patients who get follow-up from child welfare services.

The teams also pointed out that they wanted the electronic whiteboard to highlight deadlines related to standardized patient pathways and treatment plans. Team 2 wanted deadlines related to treatment plans updated automatically in the electronic whiteboard. Team 3 said that they are in favor of the implementation of standardized patient pathways in Norway, but it can be a lot of work to keep track of where the patients are in the pathways.

The teams also reported some issues with the use of calendars. One issue is that they have several different calendars they use, this includes calendar in EHR for specialist care and Outlook calendars for specialist and primary care. The calendars available to each team member was based on their employment. Team 1 said that they absolutely have a need for a common calendar, that would make it easier to coordinate a shared caseload. They would also like to have the calendar functionality connected to the whiteboard. Team 2 reported that the calendar in the EHR for specialist care is hard to use on mobile devices. Team 3 said there is a simple overview of plans for the current week for patient on their whiteboard. This overview be seen as a calendar for the patient. Some adult FACT teams have reported that calendars are useful for safety purposes [9]. The FACT youth teams reported that this was not relevant for them at this time. Team 1 said that this is not relevant for their current patients. Team 3 said that their patients receive voluntary treatment, and that the team do not intrude on the patients, so this is not an issue for them.

One dilemma that several teams brought was how information regarding family members should be written in the EHR. Health issues of the other family members might be related to the youths' issues. However, since it is only the youth that is the teams' patients, health information about other people should not be written in their EHRs.

IV. DISCUSSION

An important issue reported by all three teams is a lack of integration between the electronic whiteboards and the EHR systems. An ideal solution would allow information from the EHR systems to be directly included in the electronic whiteboard. This could include patient IDs, diagnoses, and other relevant information. Data from the whiteboard should also be transferred to the EHR. In a study of FACT teams for adults [9], it was shown that also adult teams wish integration between the electronic whiteboards and EHR.

One team wished that the electronic whiteboard should be more focused on the patients' family and network, to reflect the way the teams work. Some whiteboard solutions already contain basic text fields for information about family and network. However, this solution might be improved upon. How the electronic whiteboards can be better adapted to working with the patients' family and network could be a topic for further research.

Two of the teams stated that they wanted to be able to extract statistical information from the whiteboards about number of patients and diagnoses. The statistics could be used for various administrative purposes, including being better able to justify the work the teams do for their funders. A solution that shows basic statistics about patients and diagnoses should be straightforward to implement in an electronic whiteboard solution. One team also wished to be able estimate how many inpatient days they save. Investigating if a whiteboard solution can assist in this beyond providing basic information could be a topic for further research.

One issue related to use of the EHR is the dilemma about what should be written in the EHR about family members of the patient. The health issues of family members might be relevant to the issues of the youths. However, it is only the youth that is a patient for the FACT youth teams. It is unlikely that this challenge can be solved directly by an ICT solution, but it is an issue with the use of the EHR we think it is important to highlight.

The teams reported that they use several different calendars, but at the same time also have some issues finding information about the availability of other team members. These results are similar to results from FACT teams targeting adults [9]. A common calendar for the whole team could be a useful solution. However, this requires that the new calendar becomes the preferred solution and not just another calendar that adds to the confusion. Since the electronic whiteboard is the daily tool of the teams, it would be natural to connect the calendar to the whiteboard.

The teams also said that they wished that the electronic whiteboard displayed deadlines for standardized patient pathways and treatment plans. This would make it easier to for the teams to keep track of the different deadlines. This shows that the teams have many different deadlines to administer, and they wish that the whiteboard help them keep track of these.

Many of the issues we found about FACT youth teams are the same as issues found in FACT teams for adults [9]. This includes challenges with the electronic whiteboard and calendars. One apparent difference between teams for youths and adults is a higher emphasis on family and network for youth teams. Electronic whiteboards for FACT teams for adults can also display information about family and network, and involving family members is often important for these teams. However, the emphasis on this is higher in FACT youth teams, and FACT youth teams have some unique issues, like the dilemma regarding family members and the EHR as described above. Despite these differences, we believe that an improved electronic whiteboard could be

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designed to serve both FACT youth teams and FACT teams for adults.

A. Study limitations

There were only 3 FACT youth teams included in this study. These were all 3 FACT youth teams that was operating in Norway at the time of the study. Because of this, these results should be seen in conjunction with results for FACT teams targeting adults, while being aware of any differences between the types of teams.

V. CONCLUSION

This study shows that FACT youth teams have several issues with their current electronic whiteboards and other ICT solutions. Many of these issues are the same as issues found in FACT teams targeting adults [9]. Better ICT solutions are needed for both types of teams.

In the future we will analyze these results together with results regarding electronic tools for FACT teams targeting adults. Together, they will form the basis of a detailed description of requirements for e-health solutions for FACT teams. Any differences for requirements for teams targeting youths and adults will be highlighted.

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