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Reducing delay from referral to admission at a U.S. first episode psychosis service. A Quality-Improvement initiative

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Abstract

The period between psychosis onset and entry into care (duration of untreated psychosis-DUP) is one of great vulnerability. Longer DUP predicts poorer outcomes, and access delay can limit the effectiveness of Coordinated Specialty Care (CSC) services. This report details one component of a broader early detection campaign, a quality- improvement intervention that focused on reducing the delay between confirmation of eligibility and admission to care within a benchmark of 7 days.

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Median delay significantly fell (13.5 to 3 days) and the proportion of admissions that met the benchmark improved (33% to 71%) over 4 years. This intervention provides a sustainable model to reduce wait times at extant CSCs.

The period between psychosis onset and treatment (duration of untreated psychosis, DUP) carries heightened risk for aggression, suicide, involuntary hospitalization, and inappropriate criminalization(1). Longer DUP also predicts poorer engagement, reduced response to treatment, and increased healthcare costs(2). A key component of DUP is the time elapsed between referral and admission to a clinical service. Between 2015-19, the program for Specialized Treatment Early in Psychosis (STEP) implemented a multi-component campaign titled *Mindmap* (3) to reduce community DUP across a 10-town catchment. This report details one component of this campaign, titled rapid access to STEP (RAS), that used quality-improvement (QI) methodology to specifically target the delays to its clinical service.

Structure, Process and Context of Early Intervention Service

The STEP Program has delivered a model of specialty team based comprehensive care (Coordinated Specialty Care or CSC)(4), since 2006. In 2014, after completing a pragmatic randomized trial that established the effectiveness of its CSC(5), STEP re-organized around a population health framework(6). Anyone 16-35 years old, within 3 years of psychosis onset and residing in a surrounding 10-town catchment (total population ~400,000) was invited to access the clinic. STEP's early intervention service was organized into two teams, overseen by the program director(VHS). An early detection(ED) team, led by an outreach and assessment coordinator(PM), curated the referral to admission process, and then handed over care to the CSC team (led successively by JP and SI). In 2015, STEP launched an early detection campaign (Mindmap) to proactively recruit such individuals into care within an overall aim to reduce community DUP (5). Mindmap included three interleaved components to comprehensively target sources of delay across regional pathways to care: public education (using social and mass media), outreach & detailing of referral sources (by dedicated staff), and RAS (by the clinical service).

Referrals were accepted from affected individuals and their families, and from a wide range of stakeholders both within (e.g. hospitals, primary care, outpatient behavioral health clinics) and outside (e.g. college staff, community non-profits) the healthcare sector. A brief structured questionnaire was used to establish eligibility.

Design and Implementation of RAS within a Quality-Improvement (QI) framework

We followed a two-phase model for QI (7)(available online). A weekly meeting hosted by the program director that included ED and CSC leadership allowed coordination of these efforts, and served as the locus of QI activities for RAS. In the first QI phase, we set an aim (reduce delay from referral to admission), established a measure (delay to admission, DTA), and identified a repertoire of change tactics.

The time from referral to admission at STEP (DTA) was chosen as the target measure for this QI initiative. DTA was defined as the interval in days between confirmation of eligibility and consent to enter care at the FES. We did not use the date of first inquiry, as the large majority of calls were for unrelated diagnoses or services(8), and in the subset for whom a potential patient could be identified, eligibility determination was typically completed within 24 hours, leaving little room for further improvement. A target standard for QI was set to a DTA $\leqq$ 7 days. This reflected a pragmatic tradeoff between the wish to engage patients as rapidly as possible, and pragmatic realities or workflow constraints. Prior experience (5) with inpatient referrals indicated that although eligibility and enrollment procedures to STEP could be completed soon after admission to a hospital unit, a few intervening days were often necessary for inpatient teams to sufficiently stabilize patients' symptoms and enable meaningful voluntary participation in aftercare planning. For outpatient referrals, some time had to be allowed for arranging travel to the clinic when eligibility could not be completed remotely.

Historical referral data (5) informed anticipatory tactics for key sources of delay. The team reviewed processes for receiving referrals, eligibility determination, baseline assessment, and consent for care. This elicited multiple suggestions for improvement which were tied to several hypothesized sources of DTA. These (non-mutually exclusive) categories helped organize the selection of improvement efforts in preparation for the second phase:

- *Patient related:* e.g., lack of insight, severe disorganization or cognitive impairment, medication related sedation, and legal involvement.

- *Family related:* e.g., ambivalence about the value of psychiatric treatment, reluctance to accept the diagnosis, pressure from the patient to decline care.

- *Referrer related:* e.g., limited awareness of STEP or how to optimally connect with STEP from a hospital based or community setting.

- *Service related:* e.g., eligibility determination procedures, unavailability to rapidly consent a reluctant patient.

The second phase involved recurrent Plan-Do-Study-Act cycles (figure available online) that implemented shifting combinations of the tactics envisioned above, but also newly generated in response to expected and emergent sources of delay. Consistent with QI methodology (9), DTA was reviewed at the weekly meeting and served to adjudicate progress towards the goal ($\leqq$7 days). For example, detailed discussions of outliers (unusually long and short DTAs) helped reveal novel or inadequately addressed sources of delay or successes that could be further leveraged in subsequent PDSA cycles. Process changes that emerged as stably successful and feasible to sustain became incorporated into the standard operating procedures of the early intervention team.

One example of a successful PDSA cycle (available online) targeted longstanding delays in handoffs between inpatient psychiatric units and STEP. When referrals were made close to the day of planned discharge, it was often difficult to confirm eligibility and patients were sometimes significantly delayed or even lost to follow-up at STEP. With a focus on reducing delays to STEP from specific inpatient units (Plan), the tactic implemented was

for the outreach coordinator to periodically visit the units that made the most referrals (Do). After several weeks of implementation, this approach reduced DTAs in several cases by both incentivizing early referrals calls from inpatient staff and reducing no-shows at the first outpatient follow-up visit at STEP (Study). Weekly visits by the outreach coordinator to these and other acute units subsequently became part of the standard operating procedures for the service (Act).

Multiple analogous PDSA cycles were implemented over the course of four years, and a few more examples are summarized below.

Accelerating eligibility determination.

We discovered that the majority of referrals with ambiguous information about eligibility originated in outpatient services. This was in part ignorance about STEP's eligibility criteria (age 16-35, schizophrenia spectrum diagnosis, DUP< three years, residence in the catching area(3, 8)), or a wish for a second opinion on a challenging case. This created a backlog of partially processed and time-consuming referrals for the outreach coordinator. In order to hasten overall eligibility determination (Plan), separate procedures (Do) were implemented for referrals from outpatient providers, wherein clarifications about eligibility were made rapidly by phone, and potentially eligible patients were invited for an in-person assessment if the referrer could not provide this information. If deemed eligible, admission to STEP occurred on the same day. In contrast, for inpatient referrals wherein eligibility could usually be determined with phone communication with clinical staff, the first visit (often on the unit) was planned to complete admission to STEP. This change did reduce the amount of staff time spent on outpatient referrals and reduced DTAs for those determined to be eligible, without increasing the number of those lost to recruitment (Study). This split procedure was thus retained (Act).

Reducing patient ambivalence to first outpatient visit at CSC.

In a few outlier cases, the ED staff speculated that the longer than usual DTA might have been avoided with more flexible offers to meet patients outside the building housing the CSC. Some of these patients had revealed that they found it intimidating to first enter our facility (with a large sign identifying it as a 'mental health center' and security guards in the lobby) although this concern quickly abated over subsequent visits. In order to reduce this ambivalence (Plan), several tactics were deployed (Do) including repeated phone conversations to explicitly invite and address specific fears (e.g. about being involuntarily admitted to a psychiatric unit at the visit), offers to meet at a nearby cafe where the outreach coordinator could more fully assess their concerns and offer to accompany the patient into the building at a future appointment. While the use of such strategies was rare and used mostly for outpatient referrals (whom the outreach staff had not already met on a hospital or emergency room unit), it elicited valuable information about patients' concerns that beyond reducing DTA also informed the CSC clinician's subsequent efforts to retain the patient in care (Study). Hence the practice was continued on an ad hoc basis e.g., when there were repeated no shows for eligibility or CSC appointments (Act).

Reducing 'phone tag'

Several individuals were found to not respond to voicemail or provided a number with a potentially non-private voicemail. In order to reduce this delay in connecting with a potentially eligible patient while preserving their privacy (Plan), the tactic of querying for and recording an inclusive list of all mobile numbers for contacts agreed to by the patient at first contact, then allowed for texting with these contacts to confirm appointment times (Do). Concerns about breaching patient privacy were mitigated by using limited, standard language that did not identify the clinic but just the time of the appointment. This dramatically reduced DTA due to missed intake appointments (Study) and became more routine practice for scheduling CSC visits (Act).

Results and Lessons learned

RAS was implemented over a 4-year period and was able to apply formal QI to refine intake procedures at STEP's CSC and exceed the quality standard for delay to admission. The baseline median DTA of 13.5 days for the previous year fell to 3 days (Mann-Whitney test, $U= 2744.5$, $Z= 4.385$, $p<0.001$) (Run chart available online). Also, while only 8 of 24 (33%) admissions initially met the seven day standard, this proportion rose significantly to 104 out of 147 (71%, Chi-Square test, $p=0.000$). Ongoing review of refractory delay where this standard was not met revealed themes that will serve as targets for future cycles of improvement. In each case, close liaison with the referral source and patient was attempted to facilitate eventual engagement into care.

This report describes a replicable and sustainable strategy for CSCs to impact DUP. Specifically, RAS targeted sources of delay that are proximal to clinical workflows, and do not require the additional resourcing necessary to influence more distal or community based segments of the pathway to care. Also, the QI methodology is accessible to those without formal research experience and available via an online curriculum(7) designed for workplace-based learning.

We were unable to find other studies that used formal QI to reduce wait times at CSCs, but a similar service confirmed delay from referral to admission as an important contributor to overall DUP(10). Our demonstration of a way to reduce DTA offers a tool for such CSCs to target an important segment of this delay.

Several limitations can better contextualize these results. RAS was one of three branches of a comprehensive early detection campaign. We thus cannot exclude the possible confounding effects of the public education and detailing efforts that may have been delivered to patients who were more likely to rapidly engage with our CSC. Also, the methodology of QI with the use of combinations of interventions across several PDSA cycles reduces our confidence in attributing effects to specific maneuvers. However, the comparison with the historical STEP data and the fact that no other 'co-interventions' were implemented, besides those related to the campaign, reduce the likelihood that confounders influenced the improvements obtained by this QI.

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In summary, this study tested and successfully implemented a quality improvement process to reduce unnecessary delay to specialized treatment for first-episode psychosis patients by using a sustainable model which can be integrated with regular clinical meetings.

Acknowledgements

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Highlights

- The time from eligibility confirmation to admission (delay to admission, DTA) was defined as an important component of overall DUP at a CSC.

- QI methodology was used to develop and implement a series of improvement cycles targeting intake processes at the CSC, with a DTA benchmark of $\leqq 7$ days.

- The QI intervention was sustained over 4 years when the proportion of admissions meeting the benchmark rose from 33% to 71% and median DTA fell from 13.5 to 3 days.

- This use of accessible QI methods offers a feasible way for CSCs to reduce an important component of DUP.