Menu Case Study 1: Clinical Practice Guidelines

Applicant Organization: Ontario Shores Centre for Mental Health Sciences
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Menu Item: Clinical Practice Guidelines - Assessment and Treatment of Schizophrenia

Executive Summary

Ontario Shores Centre for Mental Health Sciences (Ontario Shores) is a public teaching hospital specializing in comprehensive mental health and addiction services for those with complex, serious and persistent mental illness. The facility, located in Whitby, Ontario, Canada has 15 specialized inpatient units and extensive outpatient and community services, serving a total regional population of approximately 2.8 million. The organization is staffed by approximately 1,300 employees with 326 inpatients beds (servicing over 115,000 patient days annually), and approximately 60,000 annual outpatient visits.

Ontario Shores’ mission is to provide leadership and exemplary mental health care through specialized treatment, research, education and advocacy. In order to align practices with our mission, Ontario Shores committed to the systematic implementation of clinical practice guidelines (CPGs) over a five-year period for the assessment and treatment of our patients. In April 2014, the first set of guidelines, for the assessment and treatment of Schizophrenia, was launched for all inpatient units. The primary goals were to:

- Improve patient care by offering the full spectrum of tools and treatments recommended by evidence-based guidelines;
- Increase clinician adherence to clinical practice guidelines; and
- Utilize the electronic medical record (EMR) database to track adherence to practices and provide meaningful feedback to physicians and clinical managers.

Over a twelve month follow-up period, adherence to polypharmacy, metabolic monitoring, and referral to Cognitive Behavioural Therapy for Psychosis (CBT-P) were increased by 5.8%, 51.0% and 74.8%, respectively. Through carefully designed decision support, the system is now fully compliant with the National Institute for Health and Care Excellence (NICE) CPGs for the assessment and treatment of Schizophrenia, which has led to improved patient care and both direct and indirect cost avoidances.

Background Information

Ontario Shores’ five-year strategic plan includes the systematic implementation of CPGs with the goal of ensuring that service users and families are provided with the full complement of evidence-based assessments and treatments. Ontario Shores considered CPG implementation as an opportunity to become a data driven organization, using clinical measures to drive quality improvement and enhance outcomes for service users.
Local Problem

Following implementation of an Electronic Medical Record (EMR), it was determined that there were inconsistencies in evidence-based practices in the provision of mental health care. **Senior Management decided to implement CPGs in order to consistently integrate evidence-based care and standardize workflows organization-wide**, thus allowing opportunities for evaluation and improvement. It was recognized that there was significant variability in clinical practice among clinicians and that it was very challenging to monitor clinicians’ practice patterns in the paper-based environment. Additionally, standardized templates, care pathways or decision-support had not been implemented. An integrated electronic environment was seen as an opportunity to implement the aforementioned decision support tools to reduce unnecessary variability in clinical practice. Discrete data elements could be captured to track adherence to best-practice recommendations, ensuring improved adherence to guidelines. Prior to implementation of CPG processes, adherence to guideline components varied. In March 2014 (the month prior to implementation) adherence rates were 53.1% for polypharmacy (i.e. 53.1% were prescribed monopharmacy, excluding clozapine, as per guideline); 37.3% for metabolic monitoring; and 6.5% for CBT-P referral. The organization set the goal of “pushing the needle” on adherence to CPGs by embedding decision-support into clinical processes and “shining the light” on practices via the regular dissemination of adherence data.

Design and Implementation

Since Schizophrenia represented the most common mental illness experienced by our patient population, it was determined that the first CPG to be implemented would be for the assessment and treatment of Schizophrenia on inpatient units. The CPG working group leads developed an eight-step framework (Figure 1) based on project management principles. It was first used for the implementation of CPGs for Schizophrenia and will be revised as needed and applied to the remaining guidelines, which will be subsequently implemented. The purpose of this project was to increase the adherence to best practices according to published guidelines.

**Figure 1: Framework for CPG Implementation**

1. **CPG Selection**
   - AGREE instrument used to rate 6 CPGs.
   - The National Institute for Health and Care Excellence (NICE) CPG scored highest in all domains, and was therefore selected for implementation.

2. **Develop Algorithm**
   - NICE CPGs were reviewed and distilled into a succinct clinical algorithm.
   - Work was completed by a team of clinicians to engage end-users and ensure that the new processes were feasible in their workflow.

3. **Gap Analysis**
   - A team of end-users including psychiatrists, interprofessional clinicians and informatics personnel compared current-state with desired-state workflows to determine gaps in documentation and care.
   - The most notable gaps in care identified were CBT-P, art therapy and carer assessments.
Clinical Informatics was included in all planning activities from the onset of the project to ensure that technology was leveraged to enable successful CPG implementation. Current and future-state work flows were documented using process maps. Electronic clinical documentation tools for physicians, nurses and allied staff were revised in accordance with the findings of the gap analysis. Order sets and clinical panels were revised to align with the CPG. Extensive clinical decision support was embedded within the EMR system to promote CPG adherence. Rules were built within the system to automatically trigger specific interventions and orders when clinicians entered certain elements in their documentation templates. For example, if a physician enters an order for an antipsychotic, a reflex order set including glucose and lipid assessment is automatically triggered (Figure 3). This decision support was added to address the gap in screening for cardiometabolic risk factors in patients who have initiated second generation antipsychotic drug therapy as these conditions often go untreated. Electronic clinical dashboards were created and regularly pushed out to clinicians and administrators to show adherence to CPG recommendations compared to hospital averages. Online tools were developed for staff education to increase awareness of the CPG and aid in the transition.
Figure 2: High level clinical workflow for CPGs.

- Order entered by physician
- Order triggers evidence-based assessments (Figure 3)
- Documentation of assessment pulled to report
- Report feeds into clinical dashboard (Figure 4)
- Clinical dashboard sent monthly to physicians and clinical managers to support increased adherence to CPGs (Figure 5)

Figure 3: Example of evidence-based assessments triggered from Antipsychotic Pre-Initiation order.
Figure 4: Clinical Dashboard – Summary of data. Can examine statistics at the provider, unit, program or hospital level.

Figure 5: Physician Dashboard – allows physicians to quickly see overall adherence and where improvement is needed.
**Value Derived**

Since the implementation of CPGs in April 2014, adherence to evidence-based practices has increased for all three metrics tracked. Minimum values for each metric were experienced within the first two months of implementation, suggesting that feedback provided via electronic dashboards was an important contributor to increased adherence. Compared to baseline (March 2014), at 12-month follow-up (March 2015), there was a 5.8% increase in adherence to monopharmacy, a 51.0% increase in adherence to metabolic monitoring, and a 74.8% increase in adherence to CBT-P referrals. However, adherence to metabolic monitoring was the only metric that was at its highest level in March 2015. Adherence to monopharmacy peaked in November 2014 at 62.7% (22.6% increase) and adherence to CBT-P peaked in December 2014 at 13.1% (130.0% increase). Increased adherence to CPGs shows that Ontario Shores’ patients are receiving evidence-based care more often now compared to before implementation.

**Figure 6: Adherence to Clinical Practice Guidelines**

The addition of the caregiver assessment according to CPGs has provided value to the overall treatment. Clinicians assessing for and ensuring that caregivers have the appropriate skills and knowledge to provide care and access to the appropriate resources, facilitates the transition back to the community and may reduce re-admissions.

While implementation of metabolic monitoring had no direct cost-savings for Ontario Shores, it does impact long-term overall patient health, reducing the incidence of cardiovascular disease and type 2 diabetes and their complications, hence, reducing the overall economic burden on the health care system.

Health human factor played an important role in the strategies used to improve compliance and provide transparency to physician practice. During regular evaluation meetings, physicians are able to compare their practice to that of their peers and see if they are meeting expectations. Previous to this implementation, peer-to-peer evaluation was limited to that of annual one-to-one discussions. Post-
implementation the discussion of practice, standards and expectation has become a hot topic. This tool offered what Ontario Shores did not have previously – a standard and expectation for all physicians that spoke to each provider’s professional accountability related to measurable adherence and patient indicators.

Box 1: Example of how CPG implementation has improved practice and patient outcomes.

Allen is a 74yo man with a long history of schizoaffective disorder, bipolar type and mild intellectual disability. He was living in a group home for the past 17 years. Prior to admission he had a 6 month history of increasing violence in his group home, disorganized thoughts and behaviour, paranoia, auditory and visual hallucinations, poor sleep, increased grandiose and religious delusions, making "sexually inappropriate" comments, masturbating in public, and speaking more quickly. Multiple medication changes were made over the 4 months prior to admission to our hospital, but these actually increased his symptoms and behavioural problems. He was transferred to an acute care hospital on 4 occasions over a 6 month period because his behaviour had become "unmanageable" in the group home.

On admission to Ontario Shores he exhibited significant threatening and aggressive behavior, had prominent manic and psychotic symptoms, and exhibited recurrent sexually inappropriate behavior despite being prescribed 3 different antipsychotics, a mood stabilizer and an antidepressant. Adherence to the CPGs supported reducing his polypharmacy and trialing clozapine. He is currently taking just 1 antipsychotic (clozapine) and 1 mood stabilizer (lithium) and his mental status and quality of life are better than they have been in decades! The issues that led to his admission have all dissipated and he can be re-integrated into the community. As well, the reduction in polypharmacy has reduced the risk of adverse events developing. Adherence to the metabolic monitoring protocols has ensured that he has not developed significant weight gain, hypertension, hypercholesterolemia and diabetes.

Lessons Learned

Strong engagement with physicians and interprofessional clinicians was important to success, with high levels of transparency and justification of processes required to support physician buy-in. Physician behaviour was not the only factor affecting adherence, as the interprofessional team and service user choices also had considerable effect. Involvement of Clinical Informatics to develop structured templates, order sets, clinical panels, decision-support and clinical dashboards was essential to promote adherence and to provide relevant feedback for improvement. However, we learned that attention must be paid to non-information technology components as well. For example, measurement of waist circumference for metabolic monitoring was the measure with the lowest adherence rate, most commonly preventing 5/5 adherence for metabolic monitoring. The identification of this gap was enabled as a result of the data available from the EMR and efforts are currently underway to ensure nursing staff are properly trained and confident to perform the measure and to ensure that proper equipment is readily available on all units.

Feedback from physicians and psychologists has indicated that many service users were too ill or disorganized at the time of admission to benefit from a CBT-P group and as a result the physician often de-selected the recommended order that was triggered at admission. Over the course of the admission, as service users’ mental status improved, service users were often recruited into CBT-P groups in absence of an order. As well, some service users who were not referred to the CBT-P groups because of lack of suitability completed individual CBT-P but, again, in the absence of an order. Therefore, the
actual number of individuals attending CBT-P has likely been underestimated. Adherence to this
guideline and data quality may be improved by developing automated reflexive orders at later points in
the admission process, implementing standardized screening tools to measure suitability for CBT-P, and
improving the documentation processes for referral to individual CBT-P ensuring that the optimal
number of service users are offered this treatment and that all service users receiving this treatment are
captured in the data.

Clinical dashboards were useful for disseminating adherence results to clinicians, but it was challenging
to get them to sign in to view results. Staff training sessions, would be useful to show clinicians how to
access, interpret and act on the data provided as feedback. Additionally, it was noted that some
important point of care staff did not have access to the dashboard due to the limited number of
software licenses. Upon reflection, dashboard access to Patient Care Facilitators (PCF), who assign tasks
to the point of care staff on shift, would be helpful as the PCF could then assign, for example, a nurse to
complete metabolic monitoring for a patient to adhere to guidelines.

We have determined that 100% CPG adherence is neither feasible nor optimal, as the clinical
presentations treated at Ontario Shores are complicated and all pieces are not necessarily clinically
indicated for all service users. However, to ensure that practice according to CPGs was considered, it is
important to add fields for reasons why the recommended orders were not completed. The presence of
the reflex order should at least prompt the physician to consider best practices and use their clinical
judgment to determine whether or not the treatment is appropriate for individual patients.

Determination of optimal adherence levels is a work in progress with use of long-term data from the
EMR. Further evaluation of data, especially with reasons for non-adherence will help set this value.

Financial Considerations

Human Resources
Clinical Informatics Analyst; Medical Director, Clinical Informatics; Director, Professional
Practice; Clinical Nurse Specialist; Decision Support Analyst 103,000
Consultant (Report Writing) 17,000

Software License and Implementation Fee
*this cost was part of the overall implementation of EMR 555,000

Training
Education (Allied, Nursing, Physicians) 8,215

Supplies 12,000

Total Clinical Practice Guideline Cost 695,215

Cost Savings
Twelve-month reduction in Antipsychotic costs due to reduction in polypharmacy 12,240

Total Clinical Practice Guideline Cost Savings 12,240