Psychogenomic Quality Improvement Initiative at a Community Mental Health Center

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Introduction

- Patients with chronic mental illness are often unstable in the community, dependent, have poor appointment attendance, and cost the system a significant amount of money[1,2,3,4]
- Treatment resistance and adverse medication effects are common challenges for patients with severe mental illness[5,6]
- Pharmacogenomic clinical decision support systems (PGx-CDSSs) may be useful in psychiatric medication selection[7,8]

Purpose

To improve clinical outcomes in patients with persistent mental illness

Objective 1	Decrease mental health symptoms
Objective 2	Increase stability in the community
Objective 3	Reduce the cost of care
Objective 4	Increase independence in taking medications while maintaining adherence
Objective 5	Increase psychiatric clinic visit attendance

Methods

Project was deemed not human subjects research by the IRB

Setting: Eyerly Ball community mental health center

Population: 52 patients with chronic mental illnesses[9]

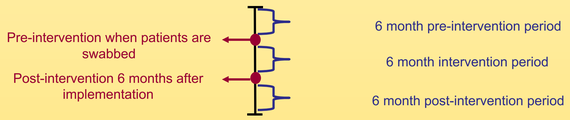
PGx-CDSS selected: GeneSight Psychotropic PGx-CDSS

- Most published evidence[10]
  - Remission of depressive symptoms[7]
  - Promote cost savings in amount spent on medications[8]
  - Reduce polypharmacy[8]
- No cost to patients with Medicaid[11]

Process to improve patient outcomes

- Havelock's Theory of Planned Change used to implement quality improvement project[11]
- PGx-CDSS ordered and utilized for patients
- Nurse practitioner considered PGx-CDSS results when modifying medication regimens

Collected data in a retrospective chart review



Comparing Measurements Collected at Baseline to After the Intervention

•1. Mental health symptoms: scores on Cross Cutting Symptom Measure (CCSM) from DSM-5

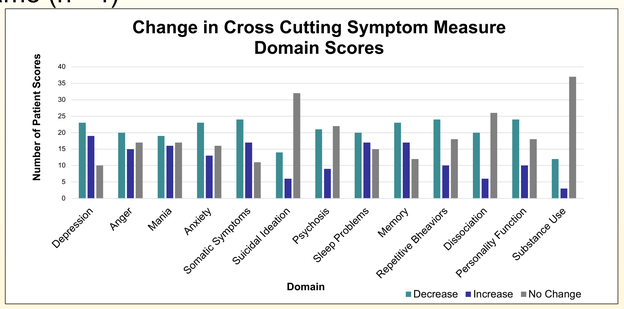
Comparing Pre- and Post- Intervention Periods

•2. Stability in the community: # of days of incarcerations and # of days of psychiatric hospitalizations
•3. Cost: money spent on incarcerations and psychiatric hospitalizations
•4. Medication adherence: % of neuropsychiatric medications taken as prescribed
•4. Level of independence with taking medications: # of days in each category—independent, partially independent, dependent—based on method of administration
•5. Clinic visit attendance: % of psychiatric appointments attended as scheduled

Outcomes

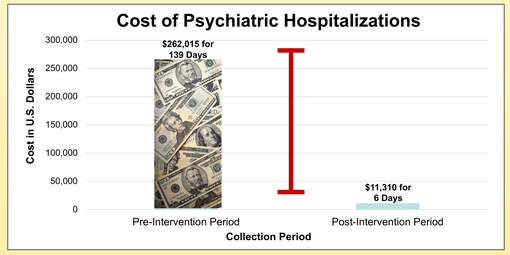
Objective 1

- Average change in total scores of CCSM was significant from 26.6 ± 14.0 (4-62) to 22.6 ± 14.3 (0-76) (p = 0.0457), but domain scores were not
- Trends in change for each domain tended to mostly reduce in symptom severity (n = 9), while the others remained the same (n= 4)



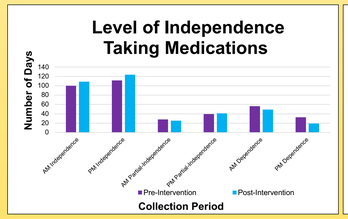
Objectives 2 and 3

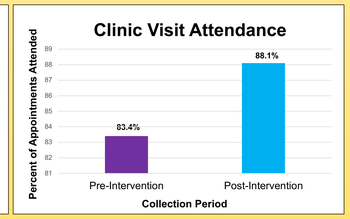
- Average change days of psychiatric hospitalizations was significant from 2.7 ± 9.2 (0-38) to 0.1 ± 0.8 (0-6) (p = 0.0505)
- Reduced total cost from $262,015 for five patients hospitalized for 139 days pre-intervention period versus $11,310 for one patient hospitalized for 6 days post-intervention period
- Not enough incarcerations to comment on



Objective 4 & 5

- Number of days of independence increased, partial-independence remained essentially the same, and dependence decreased, while adherence was high (> 99%)
- Average change in clinic visit attendance was significant from 83.4% ± 16.7 (40.0%-100.0%) to 88.1% ± 17.8 (37.5%-100.0%) (p = 0.0565) with fewer scheduled visits





Evaluation

Objective 1	Mental health symptoms were decreased
Objective 2	Patients were more stable in the community
Objective 3	Money saved on psychiatric hospitalizations
Objective 4	Independence in taking medications improved while adherence remained high
Objective 5	Psychiatric clinic visit attendance increased

Limitations

- Small sample size
- Short-term outcomes

Conclusions

- PGx-CDSS in psychiatry appears to offer a more objective approach to psychiatric medication selection and improve overall mental health and the stability in the community
- There is potential for PGx-CDSS to have significant cost savings and reduced utilization of healthcare resources
- Results of can be used to guide future studies

Dissemination:

- International Society of Nurses in Genetics poster (2016)
- International Society of Nurses in Genetics podium presentation (2017)
- Journal manuscripts in progress

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Acknowledgements

The author would like to acknowledge Dr. Virginia Conley, Dr. Sandra Daack-Hirsch, Dr. Teresa Judge-Ellis, and Dr. Lisa Shah for their contributions to this project. Family and friends have also been supportive and instrumental. There are no conflicts of interest.