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# The Effects of Integrated Care on Hospital Utilization Patterns of the Seriously Mentally Ill

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## Presenters

**Marie Mormile-Mehler**, MSW, Vice President of Planning and Performance Improvement at Community Mental Health Affiliates (CMHA), has chaired the PBHCI *Options to Health* (O2H) interagency management team since project inception. As VP at CMHA for the past five years, she has been responsible for grants/program planning, quality assurance, accreditation, information services and technology and external relations.

**Fran Cersuolo**, LPN, has served as the project coordinator for the O2H program since its inception. Her many years of work experience within their hospital partner system in medical/surgical, crisis management, and psychiatry and case/utilization management helped to make the project a success.

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**Christopher Steele**, MS, is a 4th year MD/MPH student at the University of Connecticut and is currently applying to internal medicine residency programs. He completed this study for his MPH Internship program.

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## Background

- National trend data show increasing utilization of emergency department (ED) services for non-urgent care
- Increased use of the ED has been in part attributed to difficulties in accessing PCP care
- Increased ED utilization has led to over-crowding, longer wait times, reduced provider productivity, staff burnout, ambulance diversion, diminished quality of care, and higher health care costs

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## Background

- Persons with behavioral health problems are more likely to be frequent users of ED services
- Persons with SMI have higher rates of comorbid health problems, are less likely to access and receive quality care, and more likely to die prematurely
- Little research is available examining the effect of integrative primary and behavioral health care on hospital utilization



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## Study Questions

- Did hospital utilization patterns of SMI patients participating in the Options to Health (O2H) program change following enrollment in O2H?
- Did hospital utilization patterns vary by patient characteristics?
- How did changes in use of hospital services, including O2H, affect hospital costs?

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## Study Design

**Design**: Retrospective longitudinal study linking hospital use data up to 1 year before and after O2H enrollment with CMHA intake data

**Setting**: The Hospital of Central Connecticut (THOCC) and Community Mental Health Affiliates (CMHA) in New Britain, CT

**Study Population**: All CMHA SMI clients without a PCP and agreeing to participate in the O2H program (n=343)

- Service data abstracted from THOCC records and then merged with diagnostic and NOMS data from CMHA

**Study Period**:
April 2010 - January 2014

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## Study Data

**THOCC Utilization Data:**

- **Hospital services**
  - Emergency Medicine
  - Inpatient Psychiatry
  - Inpatient Medicine
  - O2H Primary Care Visit
- **Dates of service**
- **Length of stay**
- **Diagnosis**: (ICD-9 Codes)
- **Medicaid and Medicare cost data:** Average costs & reimbursements per visit/day

**NOMS/CMHA Data:**

- **Age**
- **Gender**
- **Race/ethnicity**
- **Psychiatric diagnosis**
- **Self-reported health status**
- **Physical health indicators**
- **Client status**
  - Residential vs Outpatient
- **Insurance**

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# Demographic Profile of O2H Clients

**Age**

| | |
|---|---|
| Mean | 43.4 yrs. |

**Sex**

| | |
|---|---|
| Male | 55% |
| Female | 43% |

**Race/Ethnicity**

| | |
|---|---|
| Black | 17% |
| Hispanic | 34% |
| White | 62% |
| **Residential Client** | 19% |

**Psychiatric Diagnosis**

| | |
|---|---|
| Bipolar Disorder | 25% |
| Generalized Anxiety | 19% |
| Major Depression | 27% |
| PTSD | 19% |
| Schizophrenia | 31% |

**Other**

| | |
|---|---|
| Smoker | 62% |
| Medicaid insurance | 97% |
| Medicare insurance | 33%* |

*96% of these clients had combined Medicare and Medicaid Insurance.

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# Number of Hospital Visits Before and After Patient Enrollment in O2H

| Type of Hospital Visit | Year Before O2H Enrollment | Year After O2H Enrollment | Statistical Significance (p-value) |
|---|---|---|---|
| Emergency Department | 821 | 645 | 0.01 |
| Inpatient Medicine | 23 | 32 | 0.20 |
| Inpatient Psychiatric | 47 | 40 | 0.49 |

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## Subgroup Analysis

- Statistically significant decreases in ED visits were found for:
  - Males
  - Smokers
  - Patients with Generalized Anxiety Disorder
  - Patients with Major Depressive Disorder
  - Clients not living in residential homes
  - Black/African Americans (trend, p=0.07)
- No statistically significant changes were found in the number of inpatient medicine or psychiatric admissions or length of inpatient stay for any subgroup.





## Hospital Utilization Before and After O2H Enrollment: Residential vs Outpatients

| Client Status | Emergency Department Visits | | Inpatient Medicine Length of Stay | | Inpatient Psychiatric Length of Stay | |
|---|---|---|---|---|---|---|
| | Before | After | Before | After | Before | After |
| Residential | 133 | 134 | 8 | 21 | 236 | 299 |
| Outpatient | 688 | 511* | 68 | 82 | 441 | 159** |

*p=0.002 **p=0.06

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# Hospital Use by Self-Reported Health

- Patients who reported their health as poor (20%):
  - Were less likely to visit the O2H clinic compared to those who reported better health at intake
  - Had no change in number of ED visits
  - Were the only group who had an increase in inpatient medicine admissions

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# Preliminary Hospital Cost Estimates for Medicaid Patients (n=331)

| Type of Visit | # Visits or Days Before O2H Enrollment | # Visits or Days After O2H Enrollment | Change in Utilization | Profit Margin per Visit/Day | Total Net Profit/Loss |
|---|---|---|---|---|---|
| O2H Clinic | 0 | 1281 | 1281 | -$135.34 | -$173,370.54 |
| Emergency Department | 813 | 625 | -188 | -$47.07 | $8,849.16 |
| Inpatient Medicine | 76 days | 102 days | 26 days | -$844.85 | -$21,966.10 |
| Inpatient Psychiatric | 672 days | 449 days | -223 days | $329.59 | -$73,498.57 |

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## Limitations

- Lacks a complete comparison group
- Small sample sizes for some subgroups (e.g., Blacks) limit the ability to see a significant change
- Unable to determine if patients were utilizing other area hospitals or urgent care services either before or after enrolling in O2H



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## Summary and Discussion

- Clients who enrolled in the O2H integrated care program experienced a statistically significant decrease in ED utilization
- Certain subgroups of clients were more likely to decrease their ED use, including: men, smokers, those with anxiety and depressive disorders, and those who are not residential clients
- Those in poor health were more likely to have inpatient admissions for medical conditions

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## Summary and Discussion

- Medicaid and Medicare are the primary payers for hospital care for SMI patients
- Due to these payment mechanisms for community-based hospital care, changes in utilization by the SMI population may not be associated with cost savings to the hospitals
- Further research needs to be done to determine the independent effects of integrated primary and behavioral health care on hospital utilization and the cost impacts

## Questions?