Reducing the Inpatient Length of Stay of Oncology Patients in Low Socioeconomic Communities

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Coaches: Steve Power & Grace Campbell

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Institutional Overview

- Academic Medical Center in Milwaukee, WI
- System also includes 4 community hospitals & 2 outpatient onc clinics
- 607 total inpatient beds
- Over 3,300 oncology inpatient discharges this fiscal year
- Over 5,300 cancer registry patients
- 3 inpatient units dedicated to oncology
- 24 Hour Clinic

ASCO Quality Training Program

Froedtert & Medical College of Wisconsin
Demographics

- Race/Ethnicity (FY18)
  - White: 81.7%
  - Black: 13.1%
  - Hispanic: 2.3%
  - Other: 2.8%

- Minorities
  - Racial: 18%
  - Rural: 22.8%

- Payer Types
  - Medicare: 49.2%
  - Medicaid: 6.9%
  - Uninsured: 2.9%
In Q1 2018 – Q4 2019, Milwaukee County patients of low socioeconomic status (SES) with solid tumor malignancies (with medical admissions) had an average length of stay of 7.2 days. Patients in the high SES group had an average length of stay of 5.6 days.
Socioeconomic Status (SES)

- Map of Milwaukee County
  - Each zip code is identified by SES

- SES defined by
  - Income
  - % with Bachelor’s degrees

http://www.healthcompassmilwaukee.org/content/sites/mhcp/les_totsals.pdf
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Measure:</td>
<td>Inpatient hospital length of stay (LOS) in days, LOS index</td>
</tr>
<tr>
<td>Patient population:</td>
<td>Oncology, solid tumors, medical patients, inpatient adults, Q1 2018-Q4 2019, Milwaukee County residents</td>
</tr>
<tr>
<td>Calculation methodology:</td>
<td>LOS index: A risk adjusted calculation of duration of hospital stay&lt;br&gt;• Observed / expected&lt;br&gt;• 1 = LOS is optimal, &lt;1= better than expected, &gt;1= worse than expected</td>
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<tr>
<td>Data source:</td>
<td>Vizient, Epic</td>
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<tr>
<td>Data collection frequency:</td>
<td>Quarterly</td>
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Data Analysis

Data Notes

• The original dataset has 1848 records.
• Demographics are summarized

Analysis Methods

• Over dispersed Poisson regression was used to analyze the length of stay (LOS) index. Specifically, the observed LOS was used as the outcome in the Poisson regression model with SES (or race) as the main predictor, and the logarithm of the expected LOS as an offset.
• This approach provides a multiplicative model for the LOS index.
• Analyses were performed using SAS 9.4 (SAS Institute, Cary, NC)
Process Measure
Diagnostic Data summary

• Consulted with inpatient oncology unit for factors contributing to length of stay
• Multidisciplinary team consisted of:
  • RNs
  • PT/OT
  • SW/CM
  • MDs

• Key Factors identified by team
  • Transportation
  • Insurance
  • Lack of PCP
  • Needing home support services

• It was agreed that all of these factors could be addressed by outpatient SW
Outcome Measure

Baseline data

LOS and SES

Data from the Vizient Clinical Data Base/Resource Manager, used by permission of Vizient, Inc. All rights reserved.
By May 2021, to reduce the LOS of patients at Froedtert Hospital with solid tumors and low SES by 10% from baseline.
Process Map: Admission to Discharge

Flow of Patients from Admission to Discharge

- SWs/CM –Identify SARs/LTACs
- Homecare setup
- Transportation, etc.

- H & P
- Develop plan of care

- Start DC Planning

- Care on Inpatient Unit

- Patient medically ready and has appropriate DC disposition?
  - YES
  - NO

- Admission

- Discharge
Social Determinants of Health

SW and CM staff in all hospital settings will assess for Social Determinants of Health (SDoH) for their patients to determine resource and support needs. This work supports efforts to reduce unnecessary hospital admissions and improve the overall health of the community.

Social Determinants of Health can be found in:
1) Storyboard: admitted patients.
2) Professional Exchange Report: ED patients, admitted patients, and ambulatory settings.
3) SnapShot: Ambulatory Settings.

Click on the purple Social Determinants of Health text to navigate to the assessment questions.
Test of Change PDSA Plan–Preliminary Results

Financial Resource Strain
- Food Insecurity
- Transportation Needs
- Physical Activity
- Stress
- Social Connections
- Intimate Partner Violence
- Depression
- Housing Stability
- Tobacco Use
- Alcohol Use
SDoH Screening
Demographics
Financial Resource Strain
Food Insecurity
Transportation Needs
Substance abuse
Lifestyle
Relationships
Housing Stability
<table>
<thead>
<tr>
<th>Date</th>
<th>PDSA Description</th>
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</thead>
<tbody>
<tr>
<td>4/28/2020</td>
<td>Screening for Social Determinants of Health (SDoH) for all inpatients at the time of admission</td>
</tr>
<tr>
<td>May-Nov/2020</td>
<td>Evaluate the efficacy of SDoH screening project in patients with low SES</td>
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<tr>
<td>May-Nov/2020</td>
<td>• Identify the barriers for discharge (transportation, accepting facility)</td>
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<tr>
<td></td>
<td>• Home health services (wound check, IV antibiotics)</td>
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<td></td>
<td>• Medication management</td>
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<td></td>
<td>• Palliative/Hospice management</td>
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Outcome Measures

**Primary Outcome**
- Inpatient LOS for solid tumor oncology patients from low SES communities in the city of Milwaukee effectiveness in LOS

**Secondary Outcomes**
- Readmission rates
- Transportation
- Home health services
- Medication management
Inpatient LOS (2018, 2019, [March-June 2020])

Inpatient LOS March-June 2020 (Oncology, BMT, IM)

LOS in Days

LOS -Pre and Post SDoH Screening

LOS in days for Inpatient Oncology

February 2020
March 2020
April 2020
May 2020
June 2020
**Priority / Pay-off Matrix**

**Countermeasures**

- **High Impact, Easy:**
  - Assess SES - Evaluate the needs for discharge

- **High Impact, Difficult:**
  - Multi-D Admission assessment
  - Outpatient and inpatient social workers’ involvement

- **Low Impact, Easy:**
  - Locating an accepting facility and transportation earlier
  - Nurse and provider awareness

- **Low Impact, Difficult:**
  - Involvement of caregivers/volunteers

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**Ease of Implementation**

- **High:**
  - Assess SES - Evaluate the needs for discharge
  - Multi-D Admission assessment
  - Outpatient and inpatient social workers’ involvement

- **Low:**
  - Locating an accepting facility and transportation earlier
  - Nurse and provider awareness
  - Involvement of caregivers/volunteers
### Next steps-Sustainability Plan

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<tr>
<th>Next Steps</th>
<th>Owner</th>
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<tbody>
<tr>
<td>Ongoing quarterly evaluation of LOS for patients with low SES</td>
<td>• ASCO-QTP – MCW team</td>
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<td>Continued discussion with inpatient teams and the hospital administration</td>
<td>ASCO-QTP-MCW team</td>
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<tr>
<td>Ongoing education</td>
<td>Inpatient teams</td>
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<tr>
<td>Inpatient and Outpatient SDoH questionnaires- build a software to connect to EPIC to generate referrals (home health, transportation etc.)</td>
<td>FMLH administration</td>
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Next Steps

Presentations
Oral abstract – research retreat, MCW/FMLH
ASCO-Quality Care Symposium

Publication
Journal of Oncology Practice
Conclusions

• Implementation of SDH screening to assess SES
• Better collaboration with inpatient management, pharmacy, nutrition, social worker, case management and nursing.
• Possibility of reducing the LOS by ≤ 10% by May 2021
• Potential novel technologies
  - inbuilt EPIC software
  - generate automated referrals in preparation for discharge
  - if effective, plan on implementing the same on outpatient side
# Team members

<table>
<thead>
<tr>
<th>Team Member</th>
<th>Role</th>
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<tbody>
<tr>
<td>Sailaja Kamaraju</td>
<td>Oncologist Leader</td>
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<tr>
<td>Tamiah Wright</td>
<td>Clinical Nurse Specialist Co-leader</td>
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<td>Kathleen Jensik</td>
<td>Program Manager Team Member</td>
</tr>
<tr>
<td>John Charlson</td>
<td>Oncologist Team Member</td>
</tr>
<tr>
<td>Kevin Richardson</td>
<td>Data Coordinator</td>
</tr>
<tr>
<td>Colleen McCracken</td>
<td>Nurse Educator</td>
</tr>
<tr>
<td>Julia Olsen</td>
<td>Clinical Nurse Leader</td>
</tr>
<tr>
<td>Lisa Lamontagne</td>
<td>Social Worker</td>
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<tr>
<td>Jackie Grams</td>
<td>Social Worker</td>
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<tr>
<td>Aniko Szabo</td>
<td>Statistician</td>
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<tr>
<td>Donggwan Lee</td>
<td>Statistician</td>
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<tr>
<td>Parameswaran Hari</td>
<td>Division Chief Sponsor</td>
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<tr>
<td>Steve Power</td>
<td>ASCO Coach</td>
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<tr>
<td>Grace Campbell</td>
<td>ASCO Coach</td>
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Thank you

• Valarie Ehrlich, PA-C, MPAS (Inpatient APP Manager, Hematology-Oncology, BMT)
• Jenni Cadman, MSN, RN (Director of Nursing, Case Management and Social Work)
• Janelle Skarda, BS (Manager, Analytics Service)
Reference List
