Project Title: Reducing preventable emergency room or hospital admissions for oncology patients within 30-days of receiving outpatient chemotherapy

Presenter’s: Nico Cacho Buan-Lagazo, MSN, RN, OCN, BMTCN Ngoctran Tran, Pharm D, Debbie Burgess, BSN, MHA, RN, CSSGB

Institution: UCDH Comprehensive Cancer Center

Date: December 10, 2021
Institutional Overview

- UCDH is a 625-bed multispecialty academic medical center located in Sacramento, California.
- NCI-designated comprehensive cancer center serving 6 million people in California’s Central Valley and inland Northern California.
- Cancer Care Network includes affiliates in Yuba City, Merced, Ridgecrest and South Lake Tahoe.
- Provide care for more than 10,000 unique adult and children each year, and offer more than 400 adult and pediatric clinical trials.
## Team Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nico Cacho Buan-Lagazo, MSN, RN, OCN, BMTCN</td>
<td>QTP Team Member</td>
<td>Stem Cell Transplant Program quality specialist</td>
</tr>
<tr>
<td>Ngoctran Tran, Pharm D</td>
<td>QTP Team Member</td>
<td>Outpatient oncology specialty pharmacist</td>
</tr>
<tr>
<td>Debbie Burgess, BSN, MHA, RN, CSSGB</td>
<td>QTP Team Leader</td>
<td>Cancer Center quality specialist</td>
</tr>
<tr>
<td>Devika Das, MD, MSHQS</td>
<td>Coach</td>
<td>ASCO</td>
</tr>
<tr>
<td>Aaron Steele, Pharm D</td>
<td>UCDH team member</td>
<td>Oncology specialty pharmacist</td>
</tr>
<tr>
<td>Devon Trower, BSN, RN, OCN</td>
<td>UCDH team member</td>
<td>Nurse Manager, Adult Infusion Room</td>
</tr>
<tr>
<td>Melissa Soderlund, MS, RN</td>
<td>UCDH team sponsor</td>
<td>Interim Clinical Director UCDH Cancer Center Nurse Manager, Adult Clinic</td>
</tr>
</tbody>
</table>
During July 2020 to June 2021 14.25% of UCDH Comprehensive Cancer Center patients receiving outpatient chemotherapy had a preventable admission* within 30-days of administration contributing to poor patient outcome, possible treatment delays/dose reduction and increase the cost to provide care. The rate for GYN oncology patients was 20.86%.

*preventable diagnosis defined by CMS core measure OP-35
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure:</td>
<td>OP-35 reduce preventable ED/Hospital admission for oncology patients undergoing outpatient chemotherapy</td>
</tr>
<tr>
<td>Patient population:</td>
<td>Adult patients receiving chemotherapy at UCDH Cancer Center who have ED/hospital admit within 30-days of administration for a possibly preventable diagnosis, excludes patients with leukemia</td>
</tr>
<tr>
<td>Calculation methodology:</td>
<td>Numerator = Number of ED/Hospital admissions with preventable diagnosis Denominator = Number of unique patients receiving outpatient chemotherapy</td>
</tr>
<tr>
<td>Data source:</td>
<td>UC Health Data Base and UCDH EPIC/BEACON data</td>
</tr>
<tr>
<td>Data collection frequency:</td>
<td>UCHHealth monthly rolling 12-month cycle / UCDH ad hoc reporting</td>
</tr>
<tr>
<td>Data quality/limitations:</td>
<td>Local source for real-time reporting for preventable admission diagnosis</td>
</tr>
</tbody>
</table>
 Baseline Data

FY 2021 Overall rate 14.25% for all cancer types - 1937 unique patients
276 ED/Hospital admits - 73 ED (3.76%) / 203 Hospital (10.48%)

<table>
<thead>
<tr>
<th>Preventable Diagnosis</th>
<th>ED</th>
<th>Inpatient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain UCD</td>
<td>2.22%</td>
<td>1.08%</td>
</tr>
<tr>
<td>Fever UCD</td>
<td>0.41%</td>
<td>0.21%</td>
</tr>
<tr>
<td>Anemia UCD</td>
<td>0.41%</td>
<td>1.96%</td>
</tr>
<tr>
<td>Dehydration UCD</td>
<td>0.31%</td>
<td>1.08%</td>
</tr>
<tr>
<td>Nausea UCD</td>
<td>0.21%</td>
<td>0.52%</td>
</tr>
<tr>
<td>Pneumonia UCD</td>
<td>0.10%</td>
<td>0.21%</td>
</tr>
<tr>
<td>Diarrhea UCD</td>
<td>0.10%</td>
<td>0.77%</td>
</tr>
<tr>
<td>Sepsis UCD</td>
<td></td>
<td>4.39%</td>
</tr>
<tr>
<td>Neutropenia UCD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emesis UCD</td>
<td>0.05%</td>
<td></td>
</tr>
</tbody>
</table>

Pareto Preventable Admit Diagnosis

- Sepsis: 85
- Pain: 64
- Anemia: 46
- Dehydration: 27
- Neutropenia: 15
- Fever: 12
- Pneumonia: 12
- Nausea: 8
- Diarrhea: 6
- Emesis: 1
Baseline Data

FY 2021 GYN Oncology

- Cancer specific rate 20.86%
- 139 unique patients
- 23 PA admits -15 hospital / 8 ED

<table>
<thead>
<tr>
<th>Cancer Service Line</th>
<th>Rate Name</th>
<th>UCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gyn Onc Cancer</td>
<td>ED</td>
<td>4.32%</td>
</tr>
<tr>
<td></td>
<td>Inpatient</td>
<td>18.55%</td>
</tr>
</tbody>
</table>

GYN Oncology - Percentage of PA ED/Hospital Admits

20.86%
Diagnostic Data – GYN Onc Cancer

Possibly Preventable ED/Hospital Admits
GYN Onc Cancer Nov 2020 - June 2021

12-Month Rolling Observation

# of PA admit

EDAdmit
HospitalAdmit
EDAvg
HospAvg
Aim Statement

Reduce the incidence of ED and/or hospital admission for GYN Oncology patients treated at the UCDH Cancer Center 2% to 18.9% by December 2021 attributed to one or more of 9 preventable diagnosis that occur within 30-days of administration of outpatient chemotherapy.

Baseline: 20.86% for GYN Onc patients receiving OP chemotherapy
Majority of causes are process/resource related problems
Cause & Effect Diagram - Barriers/Gaps

**Patient**
- Not aware of alternative Cancer Center or Express Care option
- Knowledge deficient or understanding of how to prevent harmful side-effects
- Not attending chemo/biotherapy education class
- Not picking up or taking prescribed medications prior/after receiving infusion
- Insurance authorization delays

**Process**
- Not meeting chemo parameters
- Insurance authorization for medications when needed

**Environment**
- Access to alternative care location
- Appointment needed after normal business hours

**Staff**
- Patient education practices
- Chemo treatment plan not documented or given to patient
- MDs not promoting alternative options

**Resources**
- No outpatient appointment (ie. hydration, blood, other, office visit)
- Lack of community services closer to home
- Lack of alternative urgent care location
- Not using CC urgent or Express Care
Majority of causes are process/resource related problems
Average ~35 new chemo starts/week
Averaged ~20-25 scheduled & Averaged ~16-17 attendees/month
Process Solutions

Interventions

• Access
  ▪ Promote CC Urgent Care
  ▪ Socialize ED express care video visit

• Education
  ▪ Change format chemo/biotherapy class
  ▪ Update education materials

• Pilot navigation program for GYN Onc

• Review of emetogenic drugs

GYN Pilot - 30 patients

• Emetogenic med review

• Patient Education

• Post chemo admin calls

• Review of lab parameters

• Real-time communication with MDs, nurses, pharmacist

• Universal scheduling (clinic/chemo appts)
<table>
<thead>
<tr>
<th>High Impact</th>
<th>Easy</th>
<th>Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collaboration with ED Express Care</strong>&lt;br&gt;<strong>Expand CC Same-day Urgent Care Access</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Review emetogenic drug protocols embedded in BEACON/ update as needed based on guidelines</strong>&lt;br&gt;<strong>Pilot GYN navigation process</strong>&lt;br&gt;<strong>Data collection/reporting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Conversion from live to video class</strong>&lt;br&gt;<strong>Update education materials</strong></td>
<td></td>
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</tbody>
</table>

**Ease of Implementation**

- High
- Medium
- Low
# PDSA Plan (Test of Change)

<table>
<thead>
<tr>
<th>Date of PDSA Cycle</th>
<th>Description of Intervention</th>
<th>Results</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>July-Dec 2021 GYN Onc pilot</td>
<td>- Included GYN Onc pts starting new treatment plan combining education, pharmacy navigation and care team communication</td>
<td>Total of 30 pts -6 pts PA admit -3 ED/3 Hospital</td>
<td>- Onc PharmD navigation - Review Emetogenic drugs - Post chemo phone call - Weekly team meeting</td>
</tr>
<tr>
<td>Sept-Dec 2021 Developed video education series</td>
<td>- 4 chemo/bio therapy video classes posted on UCDH website &amp; YouTube - Distributed via MYChart to patients - Chemo/Bio resource binder with treatment plan distributed prior to starting therapy</td>
<td>Posted to CC Website Sept 2021. Patient Eval added October 2021</td>
<td>- Update class material - Identify presenters - Record sessions - Post/upload website - Track usage/views - Survey for feedback</td>
</tr>
<tr>
<td>May-Dec 2021 Socialized ED Express Care appointment to providers/patients</td>
<td>- Availability for oncology patients to contact Express Care service for video appointment for routine/urgent needs - Labs, tests, prescriptions, arrange OP services ie. blood, hydration, pain mgt</td>
<td>CC program adoption Apr-Jun 2021</td>
<td>- EPIC slicer dicer report - Provide info to MDs - Educate patients</td>
</tr>
</tbody>
</table>
Materials Developed

- Series of 4 video chemo classes
  - Preparing for your appointment
  - What to expect during treatment
  - Feeling your best during treatment
  - Tips for survivorship
- Disseminated via EPIC MyChart
- Posted to UCDH Website & YouTube
- Revised class materials
- Revising cancer resource binder
Change Data — Participation in Education

Attended Chemo-bio X-bar Chart

Chemo/Immunotherapy Class
YouTube Views 2021

Preparing for Your Appointment
What to Expect During Treatment
Feeling Your Best During Treatment
Tips for Survivorship
**Urgent Care NP visit option**

<table>
<thead>
<tr>
<th>Visit Urgent Care</th>
<th>2020</th>
<th>2021</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MYC VIDEO VISIT</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>OFFICE VISIT</td>
<td>215</td>
<td>246</td>
<td>482</td>
</tr>
<tr>
<td>TELEPHONE VISIT</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Grand Total</td>
<td>226</td>
<td>384</td>
<td>631</td>
</tr>
</tbody>
</table>

*Total includes volume for same-day chemo appointments (41) and 5+ pain management (80) for 2021*
Change Data

ED Express Care Video Visits

Express Care Encounters for Patients on Cancer Registry
Between 12/1/2020 and 12/1/2021 by week

<table>
<thead>
<tr>
<th>Month</th>
<th>Number of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 2020</td>
<td>38</td>
</tr>
<tr>
<td>Jan 2021</td>
<td>30</td>
</tr>
<tr>
<td>Feb 2021</td>
<td>26</td>
</tr>
<tr>
<td>Mar 2021</td>
<td>33</td>
</tr>
<tr>
<td>Apr 2021</td>
<td>37</td>
</tr>
<tr>
<td>May 2021</td>
<td>32</td>
</tr>
<tr>
<td>Jun 2021</td>
<td>33</td>
</tr>
<tr>
<td>Jul 2021</td>
<td>63</td>
</tr>
<tr>
<td>Aug 2021</td>
<td>128</td>
</tr>
<tr>
<td>Sep 2021</td>
<td>89</td>
</tr>
<tr>
<td>Oct 2021</td>
<td>56</td>
</tr>
<tr>
<td>Nov 2021</td>
<td>68</td>
</tr>
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</table>
Change Data

GYN Onc: Preventable ED/Hospital Admits During OP Chemotherapy

GYN Onc Possibly Avoidable Admits During OP Chemotherapy

(data based on rolling 12-month calendar year)

Initiated project and interventions
Change Data

GYN Onc ED Admits

GYN Onc Hospital Admits
Conclusions

• Process interventions contributed to a 3.95% decrease in preventable ED/hospital admits for GYN oncology patients, and ~1% decrease for all cancer types.

• GYN navigation project providing positive preliminary results to reduce avoidable ED/hospital admits

• Providing alternative urgent treatment/consult options may improve results to lower possibly preventable admissions across all cancer types

• Empowering patient using JIT education to control and manage symptoms that could lead a possibly avoidable ED/Hospital admits is helpful
Next Steps/Plan for Sustainability

- Work on real-time dashboard reporting and share results
  - Partner with UCD Population Health for improved reporting OMH metrics
- Continue to monitor process improvements
- Link results to an outcome measure
- Expand focus to other cancer diagnosis
- Patient education e-survey on website
Change Data – UCDH Overall outcomes

Preventable ED/Hospital Admits During OP Chemotherapy

- Overall # Admitted
- Preventable ED/Hospital Admits During OP Chemotherapy
- ED Admit
- Hospital Admit
- AvgED
- AvgHospital

Chemo Possibly Preventable Admits

- UCD%
- AVG%

Post Project Pareto Oct 2021

- Sepsis: 76
- Pain: 58
- Anemia: 40
- Dehy...: 21
- Fever: 15
- Neut...: 15
- Pneu...: 12
- Nausea: 11
- Diarr...: 4
- Emesis: 3

(data based on rolling 12-month calendar year)

Initiated project and interventions