Linda Violas, BSN, RN
Executive Director, ACO, MemorialCare Medical Group

Linda Violas, BSN, RN, serves as the Executive Director of the ACO for MemorialCare of Orange County and Los Angeles County. During the COVID19 pandemic, she has lead a special outreach project to high risk patients utilizing MemorialCare's extensive data warehouse. Ms. Violas has a deep background in data analysis and reporting related to utilization, patient care and quality management. Prior to her tenure at MemorialCare, she served as Director of Clinical Effectiveness for St. Joseph Health. She received her nursing education from the University of Iowa.
COVID-19 Risk of Mortality Algorithm
Transforming Reactive Medicine into Proactive Medicine
August 10th, 2020

Linda Violas, BSN, RN – Executive Director ACO
Manjit “Mike” Randhawa, MD, MPH
Gagandeep Gill, DrPH, MPH

MemorialCare Medical Foundation

Nick Westman
Caitlin Kelly – Analytics Director
Health Catalyst
Outline

MemorialCare

COVID-19 Risk of Mortality Algorithm

The Challenge

Our Playbook

What We Accomplished
MemorialCare: Who We Are

Network Facts

• 4 award-winning hospitals
• 30 health centers
• 260 primary care physicians
• 28 ambulatory imaging centers
• 8 surgical centers
• 12 urgent care centers
• 13 community-based dialysis sites
• 7 home-based dialysis programs
• 1.7M patients each year
• 14,000+ employees & physicians
Why risk stratify individuals with higher risk of mortality with COVID-19?

- Enables organization to understand the impact COVID-19 outbreak could impose on their population
- Enables organization to have data-driven strategy to identify the right patient population for engagement to prevent & mitigate COVID-19 outbreak
COVID-19 Risk of Mortality Algorithm

Data Parameters

Data Source: Administrative Claims, Encounter Data & EHR Data
Timeframe: Variable based on different markers
Population: HMO & ACO membership
The methodology is constructed based off the recommendations from the following national & international organizations:

1. World Health Organization (WHO)
2. Center for Disease Control and Prevention (CDC)
3. United Kingdom’s National Health Service (NHS)
Extremely High Risk of Mortality for COVID-19 (EHR-COVID-19)

People with complex health problems that put them at even higher risk of severe illness from coronavirus. This group includes people who:

1. Have had an **organ transplant** and take medication to suppress their immune system.
2. Have **cancer** and are currently having active **chemotherapy or radiotherapy treatment**.
3. Have blood or bone marrow cancer (like **leukemia, lymphoma and myeloma**) and are at any stage of treatment.
4. Have severe respiratory/lung conditions like **cystic fibrosis** or severe asthma that requires admission to hospital or treatment with corticosteroids.
5. Have severe diseases of the body systems, like severe kidney disease that is managed with regular **dialysis**.
COVID-19 Risk of Mortality Algorithm
Methodology

High Risk for Mortality for COVID-19

1. Over-70s, regardless of any medical conditions (HR-COVID-19-70+)
2. Under-70s who have an underlying health conditions. This group includes people who have: (HR-COVID-19-Under70wCC)
   i. Long-term respiratory or lung disease, like asthma or chronic obstructive pulmonary disease (COPD).
   ii. Long-term heart disease, like heart failure.
   iii. Long-term kidney disease (Chronic Kidney Disease).
   iv. Long-term liver disease, like hepatitis (Hepatitis B and C).
   v. Diabetes.
      i. Long-term neurological conditions like Parkinson's disease, motor neuron disease, multiple sclerosis (MS), cerebral palsy, or a learning disability.
      ii. Problems with their spleen like sickle cell anemia or have had their spleen removed.
      iii. A weakened immune system, either as a result of a medical condition like HIV or AIDS, or as a result of medications like corticosteroids or chemotherapy.
      iv. A body mass index (BMI) of 40 or above (being severely obese).
3. Pregnant women (HR-COVID-19-PW)
## COVID19: Defining our ACO Population

<table>
<thead>
<tr>
<th>ACO Population</th>
<th># of Patients</th>
<th>% of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID- RISK Tier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extremely High Risk</td>
<td>348</td>
<td>1%</td>
</tr>
<tr>
<td>EHR-COVID-19</td>
<td>348</td>
<td>1%</td>
</tr>
<tr>
<td>High Risk</td>
<td>7,201</td>
<td>11%</td>
</tr>
<tr>
<td>COVID-19-Under70wCC</td>
<td>6,413</td>
<td>10%</td>
</tr>
<tr>
<td>HR-COVID-19-70+</td>
<td>502</td>
<td>1%</td>
</tr>
<tr>
<td>HR-COVID-19-PW</td>
<td>286</td>
<td>0%</td>
</tr>
<tr>
<td>Low Risk</td>
<td>54,496</td>
<td>88%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>62,045</td>
<td>100%</td>
</tr>
</tbody>
</table>
Our Challenge

1. On top of the daily work, MemorialCare developed an algorithm identifying 2,700 patients at extremely high risk of mortality from COVID-19

2. We had a work team (nurses, coordinators) with a diverse background who were available to make outreach calls but needed training, tools & a strategy to tackle this assignment.

3. Time was of the essence to get our message out consistently

4. The pandemic was a completely new experience for all of us who were in need of education & reassurance coping with uncertainty in our own lives.
**Our Playbook**

**Workforce Needs:**
- “Cold” calling requires scripting & dialog coaching
- “How are you keeping yourself safe?”
- Job aides
- Weekly system updates to stay current with resources
- Electronic Health Record enhancements:
  - Embedded interview questions, smart phrases, data needs, communication to PCPs

**Member Needs:**
- Educational material & websites about COVID-19
- Network resources (Navigation Center, Virtual Visits, Testing sites & criteria)
## COVID19: Finding Opportunity within the Pandemic

<table>
<thead>
<tr>
<th>Risk of Mortality for COVID-19 Tier</th>
<th># of Patients</th>
<th>% of Patients</th>
<th># of Patients Engaged as of 7/27/2020</th>
<th>% of Patients Engaged as of 7/27/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely High Risk (EHR-COVID-19)</td>
<td>348</td>
<td>5%</td>
<td>112</td>
<td>32%</td>
</tr>
<tr>
<td>High Risk</td>
<td>7,201</td>
<td>95%</td>
<td>573</td>
<td>8%</td>
</tr>
<tr>
<td>HR-COVID-19-70+</td>
<td>502</td>
<td>7%</td>
<td>42</td>
<td>7%</td>
</tr>
<tr>
<td>HR-COVID-19-Under70wCC</td>
<td>6,413</td>
<td>89%</td>
<td>507</td>
<td>89%</td>
</tr>
<tr>
<td>HR-COVID-19-PW</td>
<td>286</td>
<td>4%</td>
<td>24</td>
<td>4%</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td><strong>7,549</strong></td>
<td><strong>100%</strong></td>
<td><strong>685</strong></td>
<td><strong>5%</strong></td>
</tr>
</tbody>
</table>
COVID19: Finding Opportunity within the Pandemic

<table>
<thead>
<tr>
<th>COVID- RISK Tier</th>
<th># of Patients</th>
<th>% of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely High Risk</td>
<td>2,384</td>
<td>2%</td>
</tr>
<tr>
<td>EHR-COVID-19</td>
<td>2,384</td>
<td>2%</td>
</tr>
<tr>
<td>High Risk</td>
<td>38,822</td>
<td>29%</td>
</tr>
<tr>
<td>HR-COVID-19-70+</td>
<td>24,254</td>
<td>18%</td>
</tr>
<tr>
<td>HR-COVID-19-Under70wCC</td>
<td>14,019</td>
<td>10%</td>
</tr>
<tr>
<td>HR-COVID-19-PW</td>
<td>549</td>
<td>0%</td>
</tr>
<tr>
<td>Low Risk</td>
<td>93,657</td>
<td>69%</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>134,863</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
## COVID19: Finding Opportunity within the Pandemic

<table>
<thead>
<tr>
<th>Risk of Mortality for COVID-19 Tier</th>
<th># of Patients</th>
<th>% of Patients</th>
<th># of Patients Engaged as of 7/27/2020</th>
<th>% of Patients Engaged as of 7/27/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely High Risk (EHR-COVID-19)</td>
<td>2,384</td>
<td>6%</td>
<td>695</td>
<td>29%</td>
</tr>
<tr>
<td>High Risk</td>
<td>38,822</td>
<td>94%</td>
<td>4,786</td>
<td>12%</td>
</tr>
<tr>
<td>HR-COVID-19-70+</td>
<td>24,254</td>
<td>63%</td>
<td>3,815</td>
<td>80%</td>
</tr>
<tr>
<td>HR-COVID-19-Under70wCC</td>
<td>14,019</td>
<td>36%</td>
<td>970</td>
<td>20%</td>
</tr>
<tr>
<td>HR-COVID-19-PW</td>
<td>549</td>
<td>1%</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>41,206</td>
<td>100%</td>
<td>5,481</td>
<td>13%</td>
</tr>
</tbody>
</table>
MemorialCare Hero Story….making a difference one patient at a time

Patient’s background
62 year old female with diagnoses of multiple myeloma with ongoing issues with anemia and leukopenia. Patient lives alone and socially isolated with state government stay at home order. Nurse Care Manager Mary Ann provided an outreach call and the tears started flowing regarding how lonely the patient was.

Team’s Collaborative Approach
MemorialCare has an embedded behavioral health model in the PCP office at our larger practice settings. Mary Ann made a referral to Valerie, LCSW who reached out to the patient by phone to triage her level of need and provide ongoing support.

Outcome(s)
Valerie continued to check in with the patient on a weekly basis by phone. Valerie made a referral to the behavioral health services at the health plan and the patient is emotionally stable receiving talk therapy.
Questions

This Photo by Unknown Author is licensed under CC BY-SA