Contra Costa Health Services
COVID-19 Rapid Response Playbook
serving at risk populations
Problem Statement

Flattening the curve for Covid-19 has major implications on demand for social needs. Each intervention (closing schools, non-essential employees, reduction in hours) will put additional strain on the already fragile social safety net and disproportionately impact vulnerable communities and historically marginalized populations.
Our Purpose

Enable better coordination to develop equitable, effective, and responsive solutions that elevate community assets (or strengths) while also meeting the expansive yet evolving needs of the community, particularly those from historically underinvested and underrepresented groups, both during and post the Covid-19 crisis in Contra Costa County.
Our Goals

**Community Outreach:** Screen and address social needs for individuals and families in Contra Costa County, beginning with our most vulnerable populations living independently.

**Access to Health, Safety & Well-Being:** Reimagine how we support resource navigation through a changing landscape while maximizing provision of services around community-prioritized social need domains during and beyond Covid-19.

**Building Blocks for Changing Systems:**

- Build a county wide coalition.
- Design innovative interventions to influence practices, processes, and policies that uplift community voices to secure a more equitable future for all.
**Long-term initiative**

- We need to be prepared for extended periods of outbreak control and management
  - Some models predict current wave cases will peak in June
- As social and economic restrictions are lifted, community disease burden will increase
  - If we can protect the most vulnerable, we can prevent disease and reduce pressure on health delivery system

Scope of Rapid Response Playbook

Connect with & support high-risk community members.

Facilitate communication across networks, & track patient engagement.

Identify gaps & match to available services and excess capacity.

Source: NYC Rapid Response Playbook
Tactics

IDENTIFICATION OF MOST VULNERABLE
- Using risk stratification, identify those at greatest risk of mortality from COVID-19
- Support inbound calls from at-risk community members with immediate needs

NEED ASSESSMENT AND PATIENT ENGAGEMENT
- Engage patients using scalable technology
- Assess their needs and educate them on the situation and protective and preventive measures.

CONNECT PATIENTS WITH SERVICES
- Based on their digital engagement, connect patients with the various clinical and social services they require.
- Refer into existing providers and solutions.

MONITOR EFFECTIVENESS AND PRODUCTIVITY
- Leverage closed-loop communications to verify that the clinical and social services support is delivered and fulfilled, and that the patients feel supported and safe in their homes and do not require additional hospital-based interaction.

Source: NYC Rapid Response Playbook
Contra Costa County Rapid Response Cycle

**IDENTIFICATION OF MOST VULNERABLE**

- Data & Analytics identify vulnerable populations (CVI)
- Outreach Campaigns

**NEED ASSESSMENT AND PATIENT ENGAGEMENT**

- Community Partners Patient Outreach & Screening
- CCHS Telephonic Patient Outreach & Screening
- Email, SMS, Patient Portal Screening Outreach

**CONNECT PATIENTS WITH SERVICES**

- Centralized Resource Directory
  - Curated and updated by community partners
- Service Delivery
  - Identify gaps in services and capacity
- Inbound Call Centers

**MONITOR EFFECTIVENESS AND PRODUCTIVITY**

- Monitor & Feedback
- Community Partners
- CCHS
- 211
Rapid Response Cycle

 Exists today in limited forms

IDENTIFICATION OF MOST VULNERABLE

Data & Analytics identify vulnerable populations (CVI)

NEED ASSESSMENT AND PATIENT ENGAGEMENT

Email, SMS, Patient Portal Screening Outreach

Community Partners Patient Outreach & Screening

CCHS Telephonic Patient Outreach & Screening

Outreach Campaigns

Highest risk patients (5%) & active program enrollment

CONNECT PATIENTS WITH SERVICES

Centralized Resource Directory

- Curated and updated by community partners

Inbound Call Centers

Service Delivery

- Identify gaps in services and capacity

MONITOR EFFECTIVENESS AND PRODUCTIVITY

Monitor & Feedback

 Exists today in limited forms

Opportunity to establish now

Data & Feedback

CCHS

Community Partners
COVID-19 Vulnerability Index
COVID Vulnerability Index (CVI)

- Risk Model to identify the most vulnerable individuals in our served population
  - Patients at highest risk for death
  - Most resource intensive patients

- Reviewed existing literature available regarding COVID Risk
Age is the biggest factor predicting risk of death and resource utilization.

<table>
<thead>
<tr>
<th>Age group (yrs) (no. of cases)</th>
<th>Hospitalization</th>
<th>ICU admission</th>
<th>Case-fatality</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–19 (123)</td>
<td>1.6–2.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20–44 (705)</td>
<td>14.3–20.8</td>
<td>2.0–4.2</td>
<td>0.1–0.2</td>
</tr>
<tr>
<td>45–54 (429)</td>
<td>21.2–28.3</td>
<td>5.4–10.4</td>
<td>0.5–0.8</td>
</tr>
<tr>
<td>55–64 (429)</td>
<td>20.5–30.1</td>
<td>4.7–11.2</td>
<td>1.4–2.6</td>
</tr>
<tr>
<td>65–74 (409)</td>
<td>28.6–43.5</td>
<td>8.1–18.8</td>
<td>2.7–4.9</td>
</tr>
<tr>
<td>75–84 (210)</td>
<td>30.5–58.7</td>
<td>10.5–31.0</td>
<td>4.3–10.5</td>
</tr>
<tr>
<td>≥85 (144)</td>
<td>31.3–70.3</td>
<td>6.3–29.0</td>
<td>10.4–27.3</td>
</tr>
<tr>
<td>Total (2,449)</td>
<td>20.7–31.4</td>
<td>4.9–11.5</td>
<td>1.8–3.4</td>
</tr>
</tbody>
</table>

SOURCE: Severe Outcomes Among Patients with COVID-19, CDC
Co-morbidities (cardiovascular, diabetes, pulmonary) also clearly important risk factors

<table>
<thead>
<tr>
<th>Demographics and clinical characteristics</th>
<th>Total (n=191)</th>
<th>Non-survivor (n=54)</th>
<th>Survivor (n=137)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comorbidity</td>
<td>91 (48%)</td>
<td>36 (67%)</td>
<td>55 (40%)</td>
<td>0.0010</td>
</tr>
<tr>
<td>Hypertension</td>
<td>58 (30%)</td>
<td>26 (48%)</td>
<td>32 (23%)</td>
<td>0.0008</td>
</tr>
<tr>
<td>Diabetes</td>
<td>36 (19%)</td>
<td>17 (31%)</td>
<td>19 (14%)</td>
<td>0.0051</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>15 (8%)</td>
<td>13 (24%)</td>
<td>2 (1%)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Chronic obstructive lung disease</td>
<td>6 (3%)</td>
<td>4 (7%)</td>
<td>2 (1%)</td>
<td>0.047</td>
</tr>
<tr>
<td>Carcinoma</td>
<td>2 (1%)</td>
<td>0</td>
<td>2 (1%)</td>
<td>0.37</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td>2 (1%)</td>
<td>2 (4%)</td>
<td>0</td>
<td>0.024</td>
</tr>
<tr>
<td>Other</td>
<td>22 (12%)</td>
<td>11 (20%)</td>
<td>11 (8%)</td>
<td>0.016</td>
</tr>
</tbody>
</table>

CCHS Development of CVI

- Internally developed predictive risk algorithm with machine learning
  - Predicts probability of having an inpatient stay due to influenza/pneumonia/other lung disease

- Currently applied to patients in CCHS Data Warehouse
  - Data available in warehouse includes health services, public health, health plan, claims, behavioral health, detention, social services, and housing data
  - Potential for expansion to wider population if additional data becomes available

- v1.0 developed in partnership and with input from other public health AI leaders - will evolve over time
Identifying highest risk population

- Combine CVI with information on Social Determinants of Health (SDoH)
  - Who has reported not having social support?
  - Who needs help communicating with their doctor?
  - Who needs help acquiring prescriptions or groceries?

- SDoH information gathered from Contra Costa Health Plan Member Outreach (ELIZA) responses and CommunityConnect social needs screenings

- Identified 7,000 patients in top 5% of risk
  - Prioritizing telephonic outreach and screening to this population

These are the people that need help most

Medically Vulnerable

Socially Vulnerable