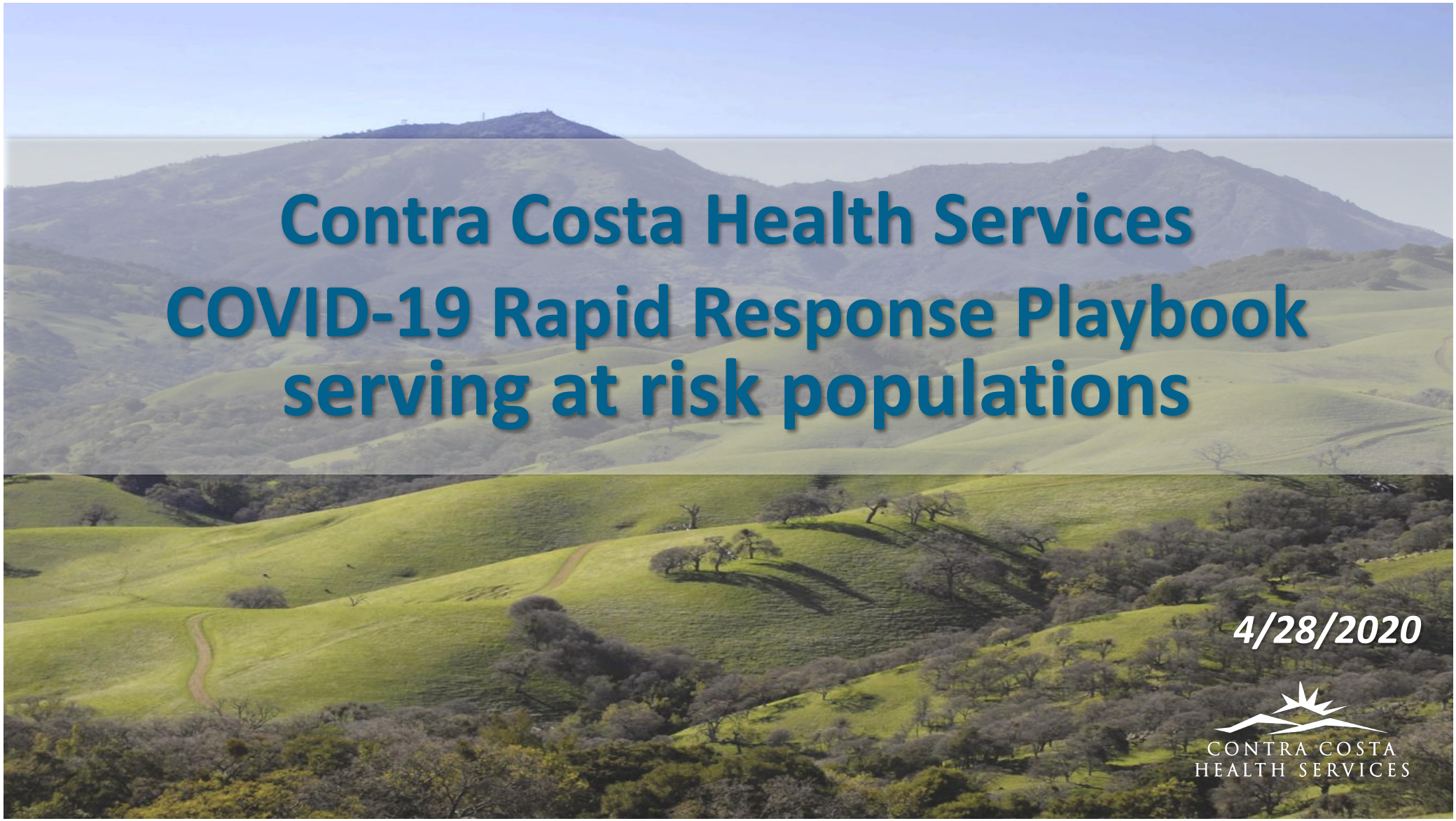


Contra Costa Health Services

COVID-19 Rapid Response Playbook serving at risk populations

4/28/2020

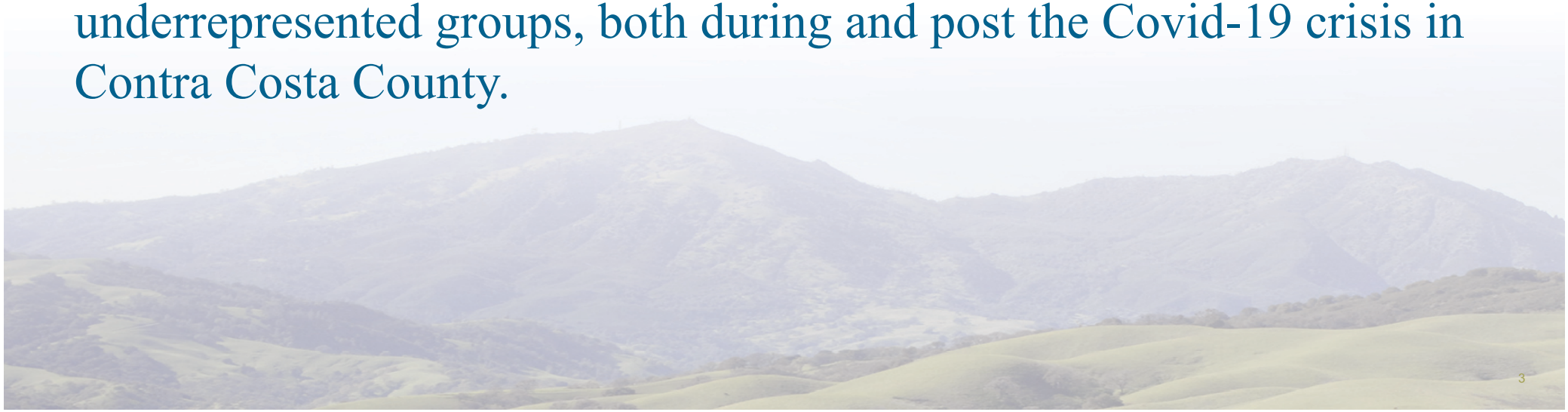
CONTRA COSTA
HEALTH SERVICES

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

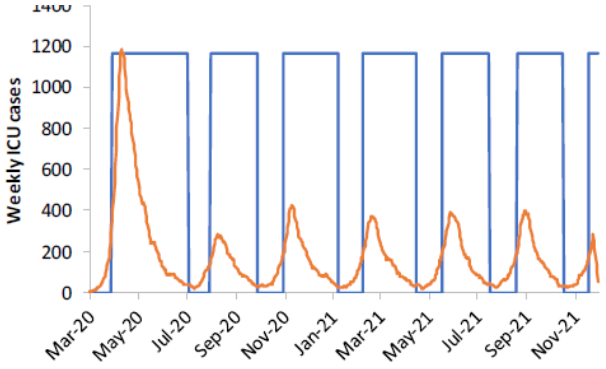


Figure 4: Illustration of adaptive triggering of suppression strategies in GB, for R_0=2.2, a policy of all four interventions considered, an "on" trigger of 100 ICU cases in a week and an "off" trigger of 50 ICU cases. The policy is in force approximate 2/3 of the time. Only social distancing and school/university closure are triggered; other policies remain in force throughout. Weekly ICU incidence is shown in orange, policy triggering in blue.

Ferguson, Neil, et al. "Report 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand." (2020).

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.

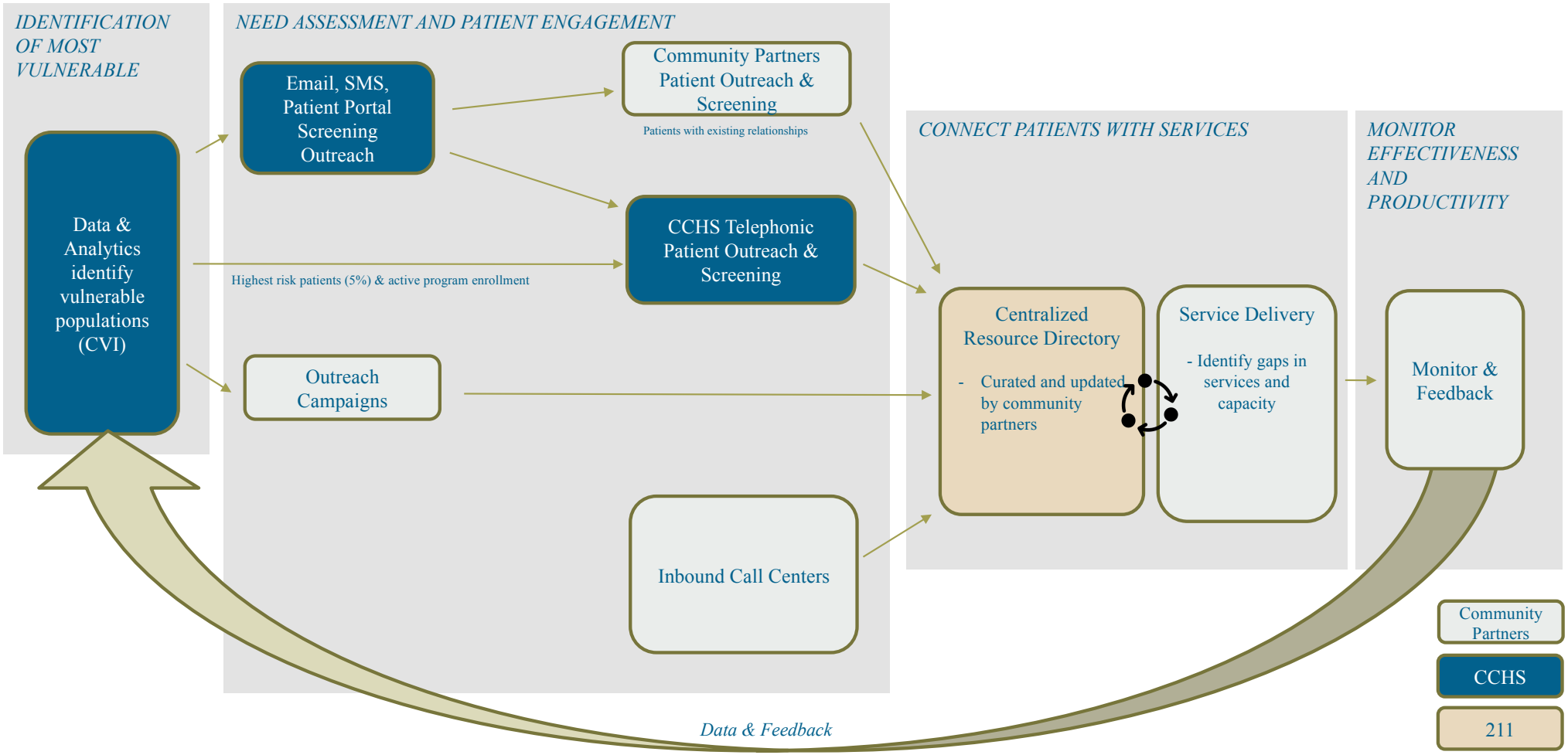
Source: NYC Rapid Response Playbook

Tactics

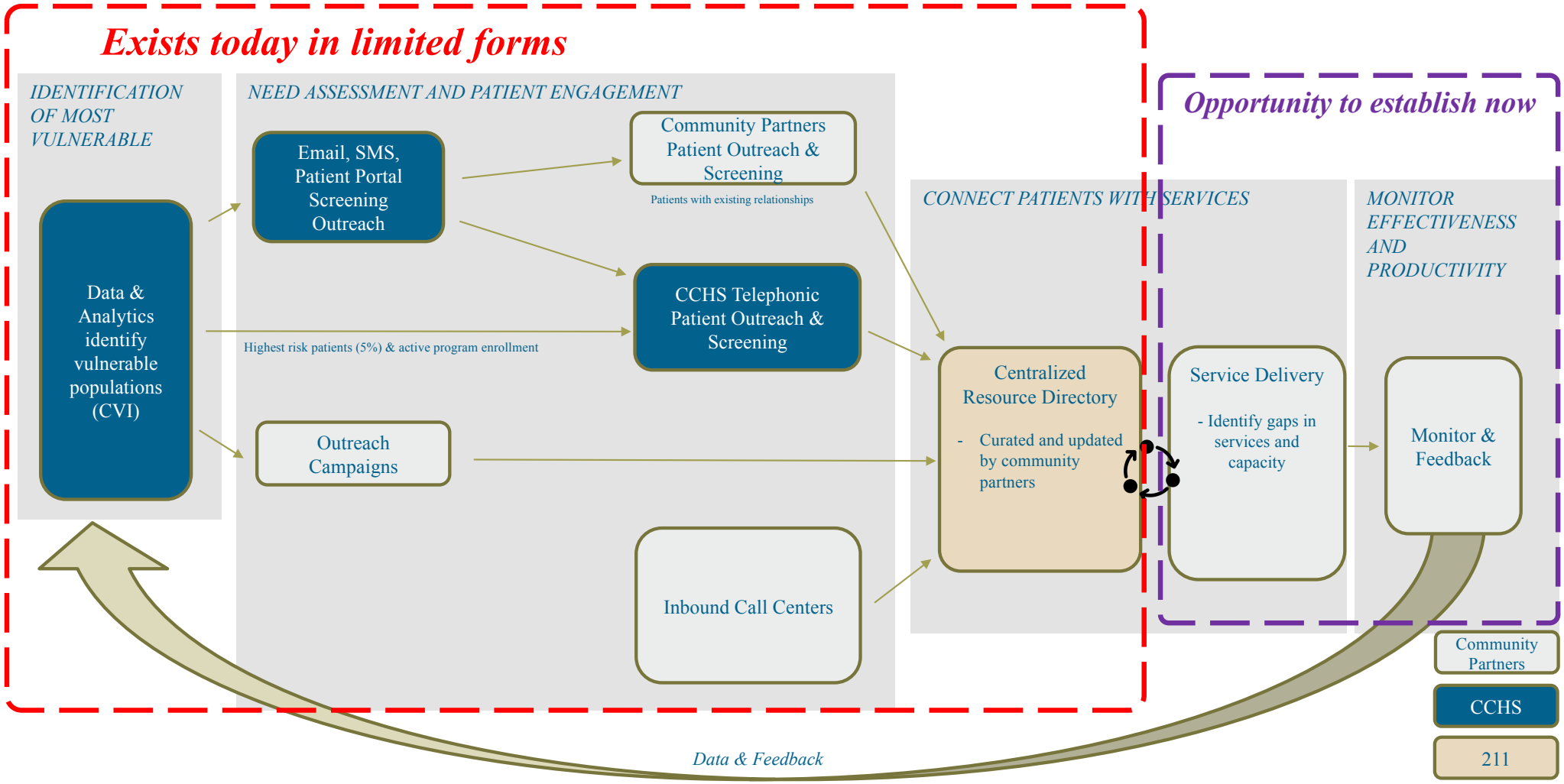
IDENTIFICATION OF MOST VULNERABLE	• Using risk stratification, identify those at greatest risk of mortality from COVID-19 • Support inbound calls from at-risk community members with immediate needs
NEED ASSESSMENT AND PATIENT ENGAGEMENT	• Engage patients using scalable technology • Assess their needs 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.

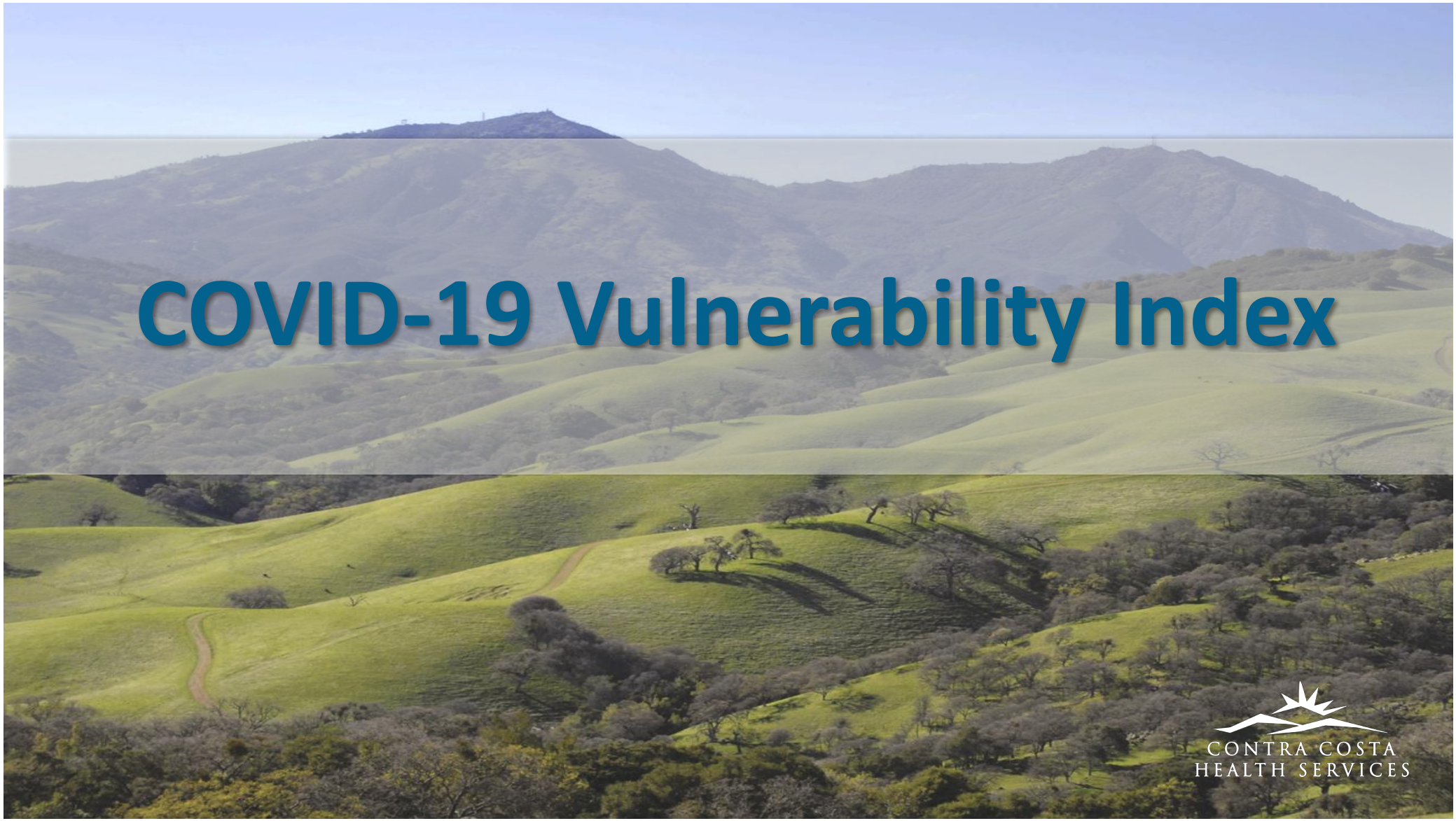
Source: NYC Rapid Response Playbook

Contra Costa County Rapid Response Cycle



Rapid Response Cycle




COVID-19 Vulnerability Index
CONTRA COSTA
HEALTH SERVICES

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

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

SOURCE: Severe Outcomes Among Patients with COVID-19, CDC

Co-morbidities (cardiovascular, diabetes, pulmonary) also clearly important risk factors

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

Zhou, Fei, et al. "Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study." The Lancet (2020).

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