COVID-19 in Rural Areas – Addressing Social Determinants of Health in a Pandemic

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Caravan Health Founder & Executive Chair
Today’s Presentation

• Webinar recording & slides will be posted to caravanhealth.com/covid-19
• Please type questions in the Q&A chat box
About Caravan Health

Helping Providers Navigate the Challenges of Value-Based Payments

Practice Transformation  |  Data and Analytics  |  Network Development  |  Performance Improvement

170 employees  
>250 health systems  
585,000 attributed Medicare lives

12 Collaborative Accountable Care Organizations ranging from

5,000 to 165,000 attributed lives

CMS Contractor

>26,000 clinicians

Map of the United States showing dots representing attributed lives.
COVID-19 in Rural Areas
Rural Areas at Less Risk of Coronavirus Currently

Health professionals say the reduced person-to-person contact in rural areas will help buffer them from the virus. But everyone should still prepare.
COVID-19 Cases Rise to 21 in Minnesota, Spread to Rural Area

By Staff — On Mar 16, 2020

The number of cases of the new coronavirus in Minnesota has risen to 21, and now includes a rural county, state health officials announced. Read more.
Rural Italy Has Not Been Spared Coronavirus

Date: 27 February 2020
Source: Own work basata su File:Italy_map-blank.svg
Author: Facquis
15 DAYS TO SLOW THE SPREAD

Listen to and follow the directions of your STATE AND LOCAL AUTHORITIES.

IF YOU FEEL SICK, stay home. Do not go to work. Contact your medical provider.

IF YOUR CHILDREN ARE SICK, keep them at home. Do not send them to school. Contact your medical provider.

IF SOMEONE IN YOUR HOUSEHOLD HAS TESTED POSITIVE for the coronavirus, keep the entire household at home. Do not go to work. Do not go to school. Contact your medical provider.

IF YOU ARE AN OLDER PERSON, stay home and away from other people.

IF YOU ARE A PERSON WITH A SERIOUS UNDERLYING HEALTH CONDITION that can put you at increased risk (for example, a condition that impairs your lung or heart function or weakens your immune system), stay home and away from other people.
DO YOUR PART TO SLOW THE SPREAD OF THE CORONAVIRUS

Even if you are young, or otherwise healthy, you are at risk and your activities can increase the risk for others. It is critical that you do your part to slow the spread of the coronavirus.

Work or engage in schooling **FROM HOME** whenever possible.

**IF YOU WORK IN A CRITICAL INFRASTRUCTURE INDUSTRY**, as defined by the Department of Homeland Security, such as healthcare services and pharmaceutical and food supply, you have a special responsibility to maintain your normal work schedule. You and your employers should follow CDC guidance to protect your health at work.

**AVOID SOCIAL GATHERINGS** in groups of more than 10 people.

Avoid eating or drinking at bars, restaurants, and food courts — **USE DRIVE-THRU, PICKUP, OR DELIVERY OPTIONS.**

**AVOID DISCRETIONARY TRAVEL**, shopping trips, and social visits.

**DO NOT VISIT** nursing homes or retirement or long-term care facilities unless to provide critical assistance.

**PRACTICE GOOD HYGIENE:**

- Wash your hands, especially after touching any frequently used item or surface.
- Avoid touching your face.
- Sneeze or cough into a tissue, or the inside of your elbow.
- Disinfect frequently used items and surfaces as much as possible.

**CORONAVIRUS.GOV**

School operations can accelerate the spread of the coronavirus. Governors of states with evidence of community transmission should close schools in affected and surrounding areas. Governors should close schools in communities that are near areas of community transmission, even if those areas are in neighboring states. In addition, state and local officials should close schools where coronavirus has been identified in the population associated with the school. States and localities that close schools need to address childcare needs of critical responders, as well as the nutritional needs of children.
Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand


On behalf of the Imperial College COVID-19 Response Team

WHO Collaborating Centre for Infectious Disease Modelling
MRC Centre for Global Infectious Disease Analysis
Abdul Latif Jameel Institute for Disease and Emergency Analytics
Imperial College London
Table 2: Summary of NPI interventions considered.

<table>
<thead>
<tr>
<th>Label</th>
<th>Policy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI</td>
<td>Case isolation in the home</td>
<td>Symptomatic cases stay at home for 7 days, reducing non-household contacts by 75% for this period. Household contacts remain unchanged. Assume 70% of household comply with the policy.</td>
</tr>
<tr>
<td>HQ</td>
<td>Voluntary home quarantine</td>
<td>Following identification of a symptomatic case in the household, all household members remain at home for 14 days. Household contact rates double during this quarantine period, contacts in the community reduce by 75%. Assume 50% of household comply with the policy.</td>
</tr>
<tr>
<td>SDO</td>
<td>Social distancing of those over 70 years of age</td>
<td>Reduce contacts by 50% in workplaces, increase household contacts by 25% and reduce other contacts by 75%. Assume 75% compliance with policy.</td>
</tr>
<tr>
<td>SD</td>
<td>Social distancing of entire population</td>
<td>All households reduce contact outside household, school or workplace by 75%. School contact rates unchanged, workplace contact rates reduced by 25%. Household contact rates assumed to increase by 25%.</td>
</tr>
<tr>
<td>PC</td>
<td>Closure of schools and universities</td>
<td>Closure of all schools, 25% of universities remain open. Household contact rates for student families increase by 50% during closure. Contacts in the community increase by 25% during closure.</td>
</tr>
</tbody>
</table>
Do-Nothing Scenario
Figure 2: Mitigation strategy scenarios for GB showing critical care (ICU) bed requirements. The black line shows the unmitigated epidemic. The green line shows a mitigation strategy incorporating closure of schools and universities; orange line shows case isolation; yellow line shows case isolation and household quarantine; and the blue line shows case isolation, home quarantine and social distancing of those aged over 70. The blue shading shows the 3-month period in which these interventions are assumed to remain in place.
Social Distancing Will Likely Result in Infection Cycles

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.
Table 1: Current estimates of the severity of cases. The IFR estimates from Verity et al.\textsuperscript{12} have been adjusted to account for a non-uniform attack rate giving an overall IFR of 0.9\% (95\% credible interval 0.4-0.14). Hospitalisation estimates from Verity et al.\textsuperscript{12} were also adjusted in this way and scaled to match expected rates in the oldest age-group (80+ years) in a GB/US context. These estimates will be updated as more data accrue.

<table>
<thead>
<tr>
<th>Age-group (years)</th>
<th>% symptomatic cases requiring hospitalisation</th>
<th>% hospitalised cases requiring critical care</th>
<th>Infection Fatality Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 9</td>
<td>0.1%</td>
<td>5.0%</td>
<td>0.002%</td>
</tr>
<tr>
<td>10 to 19</td>
<td>0.3%</td>
<td>5.0%</td>
<td>0.006%</td>
</tr>
<tr>
<td>20 to 29</td>
<td>1.2%</td>
<td>5.0%</td>
<td>0.03%</td>
</tr>
<tr>
<td>30 to 39</td>
<td>3.2%</td>
<td>5.0%</td>
<td>0.08%</td>
</tr>
<tr>
<td>40 to 49</td>
<td>4.9%</td>
<td>6.3%</td>
<td>0.15%</td>
</tr>
<tr>
<td>50 to 59</td>
<td>10.2%</td>
<td>12.2%</td>
<td>0.60%</td>
</tr>
<tr>
<td>60 to 69</td>
<td>16.6%</td>
<td>27.4%</td>
<td>2.2%</td>
</tr>
<tr>
<td>70 to 79</td>
<td>24.3%</td>
<td>43.2%</td>
<td>5.1%</td>
</tr>
<tr>
<td>80+</td>
<td>27.3%</td>
<td>70.9%</td>
<td>9.3%</td>
</tr>
</tbody>
</table>
How Much ICU Capacity Do You Need?

- If 10,000 patients are in your service area
- And 50% of patients are affected = 5,000
- And 15% of your patients are Medicare = 750
- And 20% of Medicare need hospitalization = 150
- And half of them need vents and ICU for 10 days = 75 patients = 750 patient ICU/Ventilator days
  - Over 60 days without intervention = 12.5 per day
  - Over 120 days with intervention = 6.25 per day
- With vents, half will survive.
- Without vents, almost none will survive. This is Italy.
Can I Transfer My Patients?

Federal law adds the following requirements for the transferring and receiving hospitals that accept Medicare patients:

• The transferring hospital must provide the Medicare patient with medical treatment that minimizes risk to the patient’s health.

• The receiving hospital must have adequate space and staff to attend to the patient.

• The receiving hospital must have agreed to accept the transfer.

• The transfer is done with qualified medical staff and transportation equipment, including the use of necessary and appropriate life support measures.

• The transferring hospital must send all the Medicare patient’s medical records related to the emergency condition with the patient.
## Elective Surgery Guidelines

<table>
<thead>
<tr>
<th>Tiers</th>
<th>Action</th>
<th>Definition</th>
<th>Locations</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1a</td>
<td>Postpone surgery/procedure</td>
<td>Low acuity surgery/healthy patient - outpatient surgery - Not life threatening illness</td>
<td>HOPD*</td>
<td>- Carpal tunnel release</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ASC**</td>
<td>- EGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hospital with low/no COVID-19 census</td>
<td>- Colonoscopy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Cataracts</td>
</tr>
<tr>
<td>Tier 1b</td>
<td>Postpone surgery/procedure</td>
<td>Low acuity surgery/unhealthy patient</td>
<td>HOPD</td>
<td>- Endoscopies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ASC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hospital with low/no COVID-19 census</td>
<td></td>
</tr>
<tr>
<td>Tier 2a</td>
<td>Consider postponing surgery/procedure</td>
<td>Intermediate acuity surgery/healthy patient - Not life threatening but potential for future morbidity and mortality. Requires in-hospital stay</td>
<td>HOPD</td>
<td>- Low risk cancer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ASC</td>
<td>- Non urgent spine &amp; Ortho: Including hip, knee replacement and elective spine surgery</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hospital with low/no COVID-19 census</td>
<td>- Stable ureteral colic</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Elective angioplasty</td>
</tr>
<tr>
<td>Tier 2b</td>
<td>Postpone surgery/procedure if possible</td>
<td>Intermediate acuity surgery/unhealthy patient</td>
<td>HOPD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ASC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hospital with low/no COVID-19 census</td>
<td></td>
</tr>
</tbody>
</table>
## Elective Surgery Guidelines

| Tier 3a | Do not postpone | High acuity surgery/healthy patient | Hospital | - Most cancers  
- Neurosurgery  
- Highly symptomatic patients |
|---|---|---|---|---|
| Tier 3b | Do not postpone | High acuity surgery/unhealthy patient | Hospital | - Transplants  
- Trauma  
- Cardiac w/ symptoms  
- Limb threatening vascular surgery |
### POLLS: How Important Are Each of the Following?

<table>
<thead>
<tr>
<th>Importance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough doctors and nurses</td>
<td>Lack workforce trained in isolation and prevention of community spread.</td>
</tr>
<tr>
<td>Lack of/insufficient ICU space</td>
<td>Lack of/insufficient ventilators</td>
</tr>
<tr>
<td>Lack of/insufficient isolation rooms</td>
<td>Limited EMS</td>
</tr>
<tr>
<td>Little/no meal delivery service</td>
<td>Limited pharmaceutical supplies</td>
</tr>
<tr>
<td>Lack of local pharmacies</td>
<td>Lack of caregivers</td>
</tr>
<tr>
<td>Lack of local groceries</td>
<td>Limited local groceries</td>
</tr>
<tr>
<td>Lack of caregivers</td>
<td>Lack of public transportation</td>
</tr>
<tr>
<td>Little/insufficient ventilator equipment and experience</td>
<td>Not sure urban hospitals will take patients if they are also experiencing shortages</td>
</tr>
<tr>
<td>Inability of rural population to work from home</td>
<td>Inability of rural population to work from home</td>
</tr>
</tbody>
</table>
POLLS: How many do you have of the following?

How many ICU beds do you have?

How many mechanical ventilators do you have?
Best Practices

Follow
Follow state, local and national guidelines for healthcare providers

Encourage
Encourage social distancing and self-quarantine (including families)

Assist
Assist seniors to stay home

Engage
Engage with community organizations and foundations to create food pantries

Deliver
Deliver food and medicine to seniors and the sick

Provide
Provide health advice over the phone
What are your best practices?
COVID-19 Upcoming Events

• March 20 - Primary Care Strategies to Support Alternative Care Delivery Methods

• Stay up-to-date at caravanhealth.com/covid-19

• Questions? Email info@caravanhealth.com
Thank You