Second Keynote Talk

May 14th, 2021
10:15 AM to 10:30 AM (Pacific Time)
Session 3: Clinical Care

May 14th, 2021
10:30 AM to 11:30 AM (Pacific Time)
Ambulatory Care of Patients with COVID-19

Maja K Artandi, MD, FACP
Clinical Associate Professor of Medicine
Stanford University
<table>
<thead>
<tr>
<th>Health Equity Goals</th>
<th>CROWN Clinic Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve clinical outcomes for all patients with COVID-19</td>
<td>• Provide comprehensive, compassionate, timely medical care for all COVID-19 patients through both virtual and in-person visits throughout their acute illness</td>
</tr>
<tr>
<td></td>
<td>• Detect episodes of “silent hypoxia” by offering home pulse oximetry to moderate- and high-risk patients and advise higher acuity care when appropriate</td>
</tr>
<tr>
<td></td>
<td>• Adapt rapidly to the best available evidence by following and continually updating centralized protocols</td>
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<td></td>
<td>• Provide culturally appropriate care</td>
</tr>
<tr>
<td>Facilitate creation of generalizable knowledge regarding COVID-19</td>
<td>• Provide a safe site for clinical trial enrollment</td>
</tr>
<tr>
<td></td>
<td>• Support patients through completion of COVID-19 clinical trials</td>
</tr>
<tr>
<td>Improve clinical, staff and non-COVID-19 patient safety</td>
<td>• Prevent clinic-related disease transmission</td>
</tr>
<tr>
<td></td>
<td>• Allow physicians and staff to volunteer (rather than mandate) to care for patients with COVID-19</td>
</tr>
<tr>
<td></td>
<td>• Shepherd personal protective equipment (PPE) supplies towards highest need areas when resources are limited</td>
</tr>
<tr>
<td>Reduce health-related inequities</td>
<td>• Improve access to care for all patients diagnosed with COVID-19 within our health system</td>
</tr>
<tr>
<td></td>
<td>• Culturally appropriate follow-up in the patient’s preferred language, regardless of location or insurance status</td>
</tr>
<tr>
<td>Reduce inappropriate care utilization</td>
<td>• Reduce costs associated with inappropriate utilization of health services, such as emergency department and in-person visits for non-acute COVID-19 related care</td>
</tr>
</tbody>
</table>
# Stanford CROWN Clinic risk stratification

<table>
<thead>
<tr>
<th>Age</th>
<th>Age &gt;60 years old</th>
<th>+1</th>
</tr>
</thead>
</table>
| Pre-existing conditions | - Immunocompromised  
- Moderate to severe asthma  
- Chronic lung disease  
- Cirrhosis  
- Diabetes  
- Severe obesity (BMI >40)  
- Cardiovascular disease (including hypertension)  
- Chronic kidney disease  
- Pregnancy (not clearly associated with poor outcome, but close follow-up recommended) | +1 (for each) |
| Clinical Symptoms | **Risk Factors for Serious Disease**  
- Immunocompromised  
- Moderate to severe asthma  
- Chronic lung disease  
- Cirrhosis  
- Diabetes  
- Severe obesity (BMI >40)  
- Cardiovascular disease (including hypertension)  
- Chronic kidney disease  
- Pregnancy (not clearly associated with poor outcome, but close follow-up recommended) | **Reassuring Clinical Features**  
- Appears well and stable  
- Dyspnea that is mild, intermittent or resolving  
- Fevers intermittent  
- Pulse <100  
- Respiratory rate <20  
- Resting SpO2 ≥97% and ambulatory* SpO2 ≥95%  
- Clear lung exam  
**Worrisome Clinical Features**  
- Appears moderately ill  
- Symptoms (slowly) worsening  
- Dyspnea on exertion that does not interfere with ADLs  
- Chest pain that is mild, intermittent or resolving  
- Persistent fever > 5 days (Consider secondary infection)  
- Pulse 100-120  
- Respiratory rate 20-24  
- Ambulatory SpO2 ≤95%  
- Abnormal lung exam | **Risk score interpretation**  
0 = Low risk  
1,2 = Moderate risk  
≥ 3 = High risk |
## Frequency of clinical follow up for COVID19+ patients

<table>
<thead>
<tr>
<th>Day of illness</th>
<th>Low risk</th>
<th>Moderate risk</th>
<th>High risk</th>
<th>Hospital D/c</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Intake phone call by provider</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>-</td>
<td>Phone call (RN)</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>Phone call (RN)</td>
<td>-</td>
<td>Video visit (MD/APP)</td>
</tr>
<tr>
<td>4</td>
<td>-</td>
<td>-</td>
<td>Video visit (MD/APP)</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Phone call (MA)</td>
<td>-</td>
<td>-</td>
<td>Phone call (RN)</td>
</tr>
<tr>
<td>6</td>
<td>-</td>
<td>Phone call (RN)</td>
<td>Phone call (RN)</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Phone call (RN)</td>
</tr>
<tr>
<td>8</td>
<td>-</td>
<td>Video visit (MD/APP)</td>
<td>Video visit (MD/APP)</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Phone call (MA)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>-</td>
<td>Phone call (RN)</td>
<td>Video visit (MD/APP)</td>
<td>Discharge Phone call (RN)</td>
</tr>
<tr>
<td>11</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>-</td>
<td>Phone call (RN)</td>
<td>Phone call (RN)</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>D/C my Health</td>
<td>D/C my Health</td>
<td>Discharge Phone call (RN)</td>
<td>-</td>
</tr>
</tbody>
</table>
### CROWN Clinic Demographics

Total Number of patients followed 4/10/2020-3/26/2021 → 1316

<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>732</td>
</tr>
<tr>
<td>Male</td>
<td>585</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;60</td>
<td>288</td>
</tr>
<tr>
<td>&lt;60</td>
<td>1029</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preferred Language</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>767</td>
</tr>
<tr>
<td>Non English</td>
<td>535</td>
</tr>
</tbody>
</table>
Lessons learned from the ICU surge in New York City

Lina Miyakawa, MD
Assistant Professor, Icahn School of Medicine at Mount Sinai
Department of Medicine, Division of Pulmonary & Critical Care
Associate ICU Director, Mount Sinai Beth Israel
Director, Division QI, Pulmonary & Critical Care Medicine at MSBI
Recap our 1st Surge

Before COVID-19

ICU Beds
- MICU: 16 Beds
- CCU: 8 Beds
- Surgery: 8 Beds
- Total: 24 Beds

Stepdown Beds
- 8 Beds

Total: 32 Beds

After COVID-19

ICU Beds
- COVID: 54 Beds
- Non COVID: 18 Beds
- Total: 72 Beds

Stepdown Beds
- SDU: 22 Beds
- LTAC: 12 Beds
- Total: 34 Beds

Total: 106 Beds
Clinical Treatment

Be flexible
Steroids/Tocilizumab (for ICU patients)
‘Delayed’ intubation
Adequate monitoring

Ever changing treatment algorithms

Baby monitors
Cohorted rooms
Resources

Disseminate information efficiently

Triage: anticipate decompensation

Created intermediate care units
Anticipating decompensation

Included patients

- Total hospitalized COVID pneumonia patients (675)
- Excluded: Low flow oxygen requirement (405)
- Acute hypoxic respiratory failure due to COVID pneumonia (270)
- Excluded: Initially intubated (56)
- Initially placed on Non-invasive high flow oxygen device (214)

- Intubated AHREF (54)
- Non-intubated AHREF (160)

Box plots of repeat lab values on HOD 3-7

- Creatinine (mg/dl)
- Ferritin (ng/ml)
- pH
- CRP (mg/l)
- IL-6 (pg/ml)

Submitted to JIC
System approach

Surge planning / Load balancing

Support the most hard hit areas

Admitted Patients
Availability
Bed
Bed
Bed
Patient
Patient
Patient

Admitted Patients
Availability
Patient
Patient
Patient
Patient

Admitted Patients
Availability
Bed
Surgery
Bed
Bed
Bed
Patient
Patient
Patient

Admitted Patients
Availability
Patient
Patient
Elective surgery
Elective surgery
Bed

Patient
Bed
Bed
System approach: load balancing

On behalf of the Clinical Command Center, I am sending the 6:00pm update:

<table>
<thead>
<tr>
<th>Sites</th>
<th>COVID Census</th>
<th>ICU COVID Census</th>
<th>Approx ICU Occupancy</th>
<th>Approx M/S Occupancy</th>
<th>Projected DC Today</th>
<th>Completed DC Today</th>
<th>Accepting Transfers</th>
<th>CCC Load-Balancing Watch List</th>
<th>Readied Surge Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>127</td>
<td>31</td>
<td>90%</td>
<td>81%</td>
<td>28</td>
<td>113</td>
<td>Life Rescue &amp; Specialty/Level 1 Only</td>
<td>Yes - High COVID Census; Limited capacity</td>
<td>KCC9, KCC35, KCC4N Sleep Lab, 11W Doubles CICU &amp; KCC5N ready for COVID</td>
</tr>
<tr>
<td>#2</td>
<td>78</td>
<td>14</td>
<td>98%</td>
<td>66%</td>
<td>20</td>
<td>33</td>
<td>Yes; M/S COVID &amp; Non COVID</td>
<td>RETU, Clark 5, 4W, 8W, Clark 9</td>
<td></td>
</tr>
<tr>
<td>#3</td>
<td>43</td>
<td>6</td>
<td>88%</td>
<td>70%</td>
<td>53</td>
<td>52</td>
<td>--</td>
<td>Yes- Limited capacity</td>
<td>RETU, 14A, 8G</td>
</tr>
<tr>
<td>#4</td>
<td>54</td>
<td>17</td>
<td>82%</td>
<td>52%</td>
<td>10</td>
<td>27</td>
<td>Yes: ICU and M/S COVID</td>
<td>RETU, 10 Silver, 10D</td>
<td></td>
</tr>
<tr>
<td>#5</td>
<td>61</td>
<td>9</td>
<td>100%</td>
<td>80%</td>
<td>21</td>
<td>8</td>
<td>--</td>
<td>Yes - High COVID Census; High Occupancy</td>
<td>2E, 2W, 3E</td>
</tr>
<tr>
<td>#6</td>
<td>86</td>
<td>6</td>
<td>88%</td>
<td>93%</td>
<td>27</td>
<td>52</td>
<td>--</td>
<td>Yes - High COVID Census; High Occupancy</td>
<td>F1, F2/TCU, F3 AND F4 ASU &amp; PACU (as needed)</td>
</tr>
<tr>
<td>#7</td>
<td>40</td>
<td>3</td>
<td>63%</td>
<td>90%</td>
<td>17</td>
<td>19</td>
<td>--</td>
<td>Yes - High COVID Census; Limited ICU/tele capacity</td>
<td>--</td>
</tr>
</tbody>
</table>

Total: 489 86 (18%) 89% 78% 176 304 --
### System approach: load balancing

<table>
<thead>
<tr>
<th>Sending:</th>
<th>Currently Pending</th>
<th>Completed Since 5:30p Yesterday</th>
<th>Completed this Week</th>
<th>Receiving:</th>
<th>Currently Pending</th>
<th>Completed Since 5:30p Yesterday</th>
<th>Accepted This Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital 1</td>
<td>0</td>
<td>2 - Total</td>
<td>3 - Total</td>
<td>Hospital 1</td>
<td>0</td>
<td>2 - Total</td>
<td>2 - Total</td>
</tr>
<tr>
<td>ED</td>
<td>0</td>
<td>2 - Hospital 2</td>
<td></td>
<td>ICU/CC</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP</td>
<td>0</td>
<td>1 - Hospital 1</td>
<td></td>
<td>Med/Sur</td>
<td>2</td>
<td>1 - Hospital 2</td>
<td>1 - Hospital 6</td>
</tr>
<tr>
<td>Hospital 2</td>
<td>0</td>
<td>0 - Total</td>
<td>0 Transferred</td>
<td>Hospital 2</td>
<td>3</td>
<td>9 - Total</td>
<td>10 - Total</td>
</tr>
<tr>
<td>ED</td>
<td>0</td>
<td></td>
<td></td>
<td>ICU/CC</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP</td>
<td>0</td>
<td></td>
<td></td>
<td>Med/Sur</td>
<td>3 - MSW</td>
<td>9</td>
<td>3 - Hospital 1</td>
</tr>
<tr>
<td>Hospital 3</td>
<td>3</td>
<td>1 - Total</td>
<td>6 - Total</td>
<td>Hospital 3</td>
<td>0</td>
<td>0 - Total</td>
<td>0 Accepted</td>
</tr>
<tr>
<td>ED</td>
<td>2 - Hospital 2</td>
<td>1</td>
<td>2 - Hospital 2</td>
<td>ICU/CC</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP</td>
<td>0</td>
<td>1 - Hospital 1</td>
<td>2 - Hospital 2</td>
<td>Med/Sur</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital 4</td>
<td>1</td>
<td>0 - Total</td>
<td>0 Transferred</td>
<td>Hospital 4</td>
<td>0</td>
<td>0 - Total</td>
<td>5 - Total</td>
</tr>
<tr>
<td>ED</td>
<td>0</td>
<td></td>
<td></td>
<td>ICU/CC</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP</td>
<td>1 - ICU pending acceptance</td>
<td>0</td>
<td></td>
<td>Med/Sur</td>
<td>0</td>
<td>1 - Hospital 3</td>
<td>1 - Hospital 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 - Medicine, 1 - Other</td>
<td></td>
</tr>
</tbody>
</table>
## Conclusion

<table>
<thead>
<tr>
<th></th>
<th>First surge</th>
<th>Second surge</th>
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</thead>
<tbody>
<tr>
<td>Clinical treatment options</td>
<td>Minimal</td>
<td>Several</td>
</tr>
<tr>
<td>Anticipating decompensation</td>
<td>Judgment based</td>
<td>Protocol based</td>
</tr>
<tr>
<td>Physician teams</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>System load balancing</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Elective surgery</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Be flexible
Adapt
Collaborate
Covid 19 in India
Challenges, Opportunities and Lessons

Dr Sushma Bhatnagar
Chairperson of COVID Services, NCI, AIIMS
Prof and Head of Department,
Onco-Anaesthesia and Palliative Medicine
Dr BRAIRCH, and National Cancer Institute,
AIIMS, New Delhi
Challenges: Magnitude of the crisis

- Population - **1.38 billion**
- 1st wave (17th Sept 2020):
  - 97,894 cases, 1290 deaths
- 2nd wave (6th May 2021):
  - 412,618 cases, 3982 deaths
- Doctor vs Patient ratio:
  - 1.34 doctors for 1000 citizens
- Only **1.6%** of GDP goes to Medical Expenditure
- 29.1 million people fully vaccinated (just **2.1%** of entire population)
Opportunities

- **Simple** treatment guidelines
- **Practical** patient management
- Improve patient communication
- Improve dissemination of public knowledge
- Get every Indian vaccinated
- We are seeing great community participation
- Necessary **infrastructure** to help patients create
- No shortage of PPE & Medicines
COVID cases at AIIMS NCI

1st Wave
• 21st March – 31st Jan
• Total number of cases – 6372
• Total Mortality – 152
• Mortality % - 2.3%

2nd Wave
• 9th April – present
• Total number of cases – 1783
• Mortality – 237
• Percentage mortality – 13.3%
Learnings

• Improve vaccination program by increasing supply & distribution

• Improve poor infrastructure of public and primary health care centers.

• Reduce further SARS-CoV-2 transmission while the vaccine is rolled out.

• Give accurate updates to public at regular intervals

• Forecast and track emerging and more transmissible SARS-CoV-2 variants by improving genome sequencing
Learnings

• **Continuous education** of public to increase the necessity of masking & social distancing

• **Completely stop** religious and political mass gatherings

• Teach **voluntary quarantine and regular testing**

• **Take care** of exhausted **health care workers**

• **Improve oxygen supply** and hospital beds

• Teach and control media
Post COVID challenges that ahead...

• Post COVID Syndrome amongst health care workers and patients.
• Prolonged grief of lost loved ones.
• Social and mental stigma amongst survivors.
• Revival and reinforcement of health care infrastructures.
• Increased mortality of patients suffering with non communicable disease.
• Rehabilitation of patients with crippling post COVID fibrosis
• How NOT to forget this pandemic and learn from it in future.

Whether Palliative care will be an answer of all
Salute to our true HEROES (Our residents and staff)
Can MOOCs train healthcare workers in LMICs during a pandemic?

Matthew Strehlow, MD
Why ventilators, once the need of the hour, are now a last resort among doctors treating Covid

Hospitals have been witnessing a high mortality rate among its Covid-19 patients on ventilators, forcing doctors to rethink its use.

ROHINI SWAMY and SIMRIN SIRUR  18 July, 2020 11:17 am IST
Nurses and general physicians provide most care in LMICs
In person training is very time intensive
100,000 enrollees
Most are healthcare workers from LMICs
Partnerships in South America, Uganda, and Pakistan
One year of pandemic learning response on OpenWHO.org

- Total OpenWHO enrolments
- Total COVID-19 enrolments
- Certificates awarded

January 2020: 1 1 1
February 2020: 4 10 6
March 2020: 17
April 2020: 26 9 20
May 2020: 85 12 60
June 2020: 102 12 33
July 2020: 115 13 38
August 2020: 123 17 39
September 2020: 133 18 41
October 2020: 197 19 42
November 2020: 140 19 42
December 2020: 148

COVID-19 Topics, Total COVID-19 courses, Languages
Technology
Limitations
Challenges and Next Steps

Challenges
- Lower usage in LICs
- Language barriers
- Completion rates

Next Steps
- Analyze LIC usage
- AI for translation
- Gamification
Thank you