Are some COVID-19 readmissions preventable? A case series from two New York City hospitals

Justin J. Choi, MD,1,2 Jigar H. Contractor, MD,2 Amy L. Shaw, MD,2 Youmna Abdelghany, MD,2 Jesse Frye, MD,2 Madelyn Renzetti, MD,2 Emily Smith, MD,2 Leland R. Soiefer, MD,2 Shuting Lu, BS,2 Justin R. Kington, MD PhD,1,2 Jamuna K. Krishnan, MD MBA,2 William J. Levine, MD,2 Monika M. Safford, MD,2 Martin F. Shapiro, MD PhD2

1 CTSC KL2 Scholar, Weill Cornell Medicine, New York, NY 2 Department of Medicine, Weill Cornell Medicine, New York, NY

Introduction
Hospital readmissions are common, costly, and potentially harmful, and some are considered preventable.

Identifying factors contributing to readmissions in COVID-19—a novel disease with unique challenges—would provide valuable insights and could inform clinical care and policy.

Objective: To determine the main factors contributing to COVID-19 readmissions and their potential preventability at two NYC hospitals.

Methods
We performed detailed case reviews of all readmissions within 30 days among patients hospitalized from March 3 to April 27, 2020 at NYP/Weill Cornell Medicine and Lower Manhattan Hospital.

We used the Hospital Medicine Reengineering Network (HOMERuN) framework to determine the main factors contributing to readmissions and their potential preventability.[1]

We instructed case reviewers to compare to an ideal health system under normal circumstances pre-COVID-19 and assess system flaws and gaps in care that could have been avoided within reason.

Two physicians reviewed each case independently. Disagreements were resolved by consensus among 3 co-authors.

Results
▪ Of 1008 discharged patients, 53 (5%) were readmitted to the same two hospitals within 30 days.

▪ Among 53 readmissions, we found 38 (72%) non-preventable readmissions and 15 (28%) potentially-preventable readmissions.

Table: Main factors contributing readmissions in COVID-19

<table>
<thead>
<tr>
<th>Main factor contributing to readmission</th>
<th>Overall (N=53)</th>
<th>Potentially-preventable (N=15)</th>
<th>Non-preventable (N=38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease progression of COVID-19</td>
<td>31 (58%)</td>
<td>0 (0%)</td>
<td>31 (62%)</td>
</tr>
<tr>
<td>Premature discharge</td>
<td>9 (17%)</td>
<td>9 (60%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Issue with disposition</td>
<td>8 (15%)</td>
<td>5 (33%)</td>
<td>3 (8%)</td>
</tr>
<tr>
<td>Onset of new disease after discharge</td>
<td>3 (6%)</td>
<td>0 (0%)</td>
<td>3 (8%)</td>
</tr>
<tr>
<td>Inappropriate readmission</td>
<td>2 (4%)</td>
<td>1 (7%)</td>
<td>1 (3%)</td>
</tr>
</tbody>
</table>

Non-preventable readmissions:
▪ Disease progression of COVID-19 contributed to the majority (82%) of non-preventable readmissions in patients with stable oxygenation at discharge.

▪ Oxygenation was judged to be stable if patient afebrile and O2 saturation was >90–94% on ambient air or with low supplemental O2 for 24–72 hours.

Potentially-preventable readmissions:
▪ In 6 of 9 cases of premature discharge, oxygenation was unstable (e.g. borderline oxygenation, nocturnal desaturations, desaturation with exertion).

▪ 5 cases involved discharge disposition issues (see Box).


Funding: This study was supported by the National Institutes of Health/National Center for Advancing Translational Sciences grant # UL1TR00047.

Conclusions
▪ Most COVID-19 readmissions were not preventable, in large part due to the natural progression of the disease.

▪ Remaining in-hospital when vital signs and oxygenation were stable might not have been feasible when hospitals were at capacity at the peak of the outbreak in NYC.

▪ Some readmissions were potentially-preventable, mostly due to unstable oxygenation or disposition issues.

▪ Physicians should be aware—and perhaps expect—that some patients discharged early in their course of illness may need to return.

▪ Physicians and social workers should anticipate disposition issues, including problems accessing home care services and family support due to the pandemic.

Limitations: The study was conducted early in the epidemic in one health system. Some patients may have been re admitted elsewhere.

Case examples of disposition issues included:
▪ A home care worker was unavailable due to personal illness with COVID-19.
▪ A private aide was unwilling to visit the patient during the lockdown.
▪ A family caregiver of a patient was also recovering from COVID-19 and was unable to care for the patient who had advanced dementia.