Objectives
To design, implement and evaluate a virtual inpatient telehealth elective for post-clerkship medical students.

Background
During the pandemic, medical student clinical education at Yale School of Medicine was temporarily suspended, impacting ongoing clinical skill development and preventing them from learning about the clinical care of COVID-19 patients and contributing to inpatient medicine teams.

Methods
Curriculum Design

Followed Kern’s1 for curricular design - additional materials available here.

Needs Assessment:
- Form and informal conversations with residents and medical students to explore how students might contribute virtually.

Feedback and Evaluation:
- Pilot: Debrief after pilot to determine what structures and content are needed to enhance the virtual rotation.
- Elective-Quantitative
  - Anonymously, deidentified pre- and post-survey for medical students using a 7-point Likert scale to assess students’ attitudes regarding the elective, comfort with medical student tasks, and knowledge of COVID-19 and ICU care.

Elective-Qualitative
- Focus group with students after first elective cycle.
- Optional daily activity log
- Official elective feedback surveys

Implementation:
- Pilot a 4-day TeleHealth Elective with post-clerkship students, followed by 3 cycles of the 2-week Internal Medicine TeleHealth Elective with 14 students in each cycle.
- Students paired with resident-intern teams.
- Each cycle of the elective had a dedicated student coordinator who scheduled students, sent out links for educational conferences, and managed administrative tasks.

Educational Strategies:
1. Supervised clinical experiences (writing progress notes, attending rounds, complete patient tasks)
2. Team integration and feedback, experience virtually communicating with patients
3. Palliative care workshop training, experience communicating with families and patients
4. Direct virtual involvement in patient care, educational conferences, literature reviews and presentations

Results

Figure 1: Pre and Post-Survey Category Clusters and Results

<table>
<thead>
<tr>
<th>Survey Category Clusters</th>
<th>Pre-and Post-Survey Questions</th>
<th>Ambivalence and Disagreement</th>
<th>Mean Pre-Survey (n=18) and Post-Survey (n=18) Likert Scale Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes regarding remote elective</td>
<td>Q1: Remote medical students can be integrated into an inpatient team.</td>
<td>Q2: Remote medical students can be helpful to the inpatient team.</td>
<td>Q3: Remote integration into inpatient teams is a valuable educational opportunity for students.</td>
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<td>Comfort with medical student tasks</td>
<td>Q4: I am comfortable in my ability to remotely write progress notes for COVID patients.</td>
<td>Q5: I am comfortable in my ability to discuss end-of-life issues with families of patients with COVID.</td>
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<tr>
<td>Knowledge of COVID-19 and ICU care</td>
<td>Q6: I understand COVID19 treatment algorithms</td>
<td>Q7: I know the typical clinical course of COVID</td>
<td>Q8: I know how to formulate an organ-based assessment and plan</td>
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</tbody>
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Figure 2: Qualitative Analysis of Focus Group Themes (n=14)

“Tension between learning, helping and burdening the team”

“I think negotiating my role was one of the greatest challenges with the several residents I worked with. I think it got better successively”

“I ended up being on 3 different teams, so 3 different intern, and I think that made it harder to kind of establish the trust that then leads to having an intern give you more tasks”

“Building Trust”

“I had an experience where the initial team wasn’t open to having med student involvement and so we decided to swap me out to a different team where I could have more of an impact; in doing so I switched from MICU to generalist. As you might imagine on generalist they were a lot more comfortable with a med student updating families so I think there may be an acuity difference there.”

“I think some of the most rewarding parts of the elective were updating families when things were going well when we weren’t sure if they would, but also updating families when things were not going well and just having these critical conversations.”

“The other thing that motivated me was the fact that I knew palliative care was a part of this and just getting that experience and talking to family members about things during such a difficult time was quite valuable as well.”

“I also had some really nice educational sessions with my team in the afternoons just talking about patients, and one of the attendings actually facetimed me in and he taught about vents and drew pictures, so that was really great.”

“Negotiating the medical student role”

“I think for me it was walking the line between being enthusiastic and offering to help but not being so aggressive that they had to fill my time with either tasks or learning.”

“Positive learning experiences”

“Rewarding Patient/Family Interactions”

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Future research should explore the interactions of remote students with the in-person team; for example: whether the student was helpful to the team, whether the team was able to get a sense for who the student is, etc. This information will be important in assessing student evaluations that arise from virtual rotations.

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This study was approved by the Yale University IRB.

References