

Tele-ID Consult Services at Academic Medical Centers: Experience and Outcomes During the SARS-CoV-2 Pandemic

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BACKGROUND

- Inpatient tele-ID consults are effective at community hospitals.
- Tele-ID is not utilized at academic medical centers (AMCs) because of the availability of ID physicians in urban settings.
- During the COVID-19 pandemic, tele-ID was implemented at AMCs to minimize exposure and conserve personal protective equipment.

QUESTIONS ADDRESSED

- What are the outcomes for patients seen via tele-ID at AMCs?
- Is there a difference in outcomes for patients seen via tele-ID compared to in-person ID care at AMCs?
- Can a tele-ID service make complex diagnoses compared to an in-person service?

METHODS

- Longitudinal, matched, case-control study
- Study Sites:
 - 3 tertiary AMCs in Pittsburgh, PA
 - Over 1300 beds
- Cases: Tele-ID consults
 - March 1, 2020 – May 31, 2020
 - Evaluated via video, electronic consults, inpatient phone calls
- Controls: In-person consults
 - March 1, 2019 – November 30, 2019
 - Evaluated via in-person only prior to the pandemic
 - Matched by demographics and ID diagnosis
- Both groups evaluated by existing general ID or transplant ID physicians in UPMC ID Division
- COVID-19 diagnosis excluded

CHARACTERISTICS OF THE TELE-ID CASES (3/1/20 – 5/31/20)

| | General ID | Transplant ID |
|--|--------------|---------------|
| Number of consults | 125 | 81 |
| Initial consult location – Floor (#) | 111 | 61 |
| Average age (years; range) | 57.8 (20-92) | 56.8 (24-85) |
| Female (%) | 52 (42%) | 39 (48%) |
| Caucasian (%) | 92 (74%) | 64 (79%) |
| Average Charlson Comorbidity Index (range) | 3.2 (0-13) | 4.4 (0-11) |
| Heart transplant (#) | | 9 |
| Lung transplant (#) | | 9 |
| Kidney transplant (#) | | 18 |
| Stem cell transplant (#) | | 4 |
| CAR-T (#) | | 2 |
| Liver transplant (#) | | 12 |
| Multiple transplants (#) | | 7 |
| Pre-transplant evaluation including LVAD (#) | | 18 |

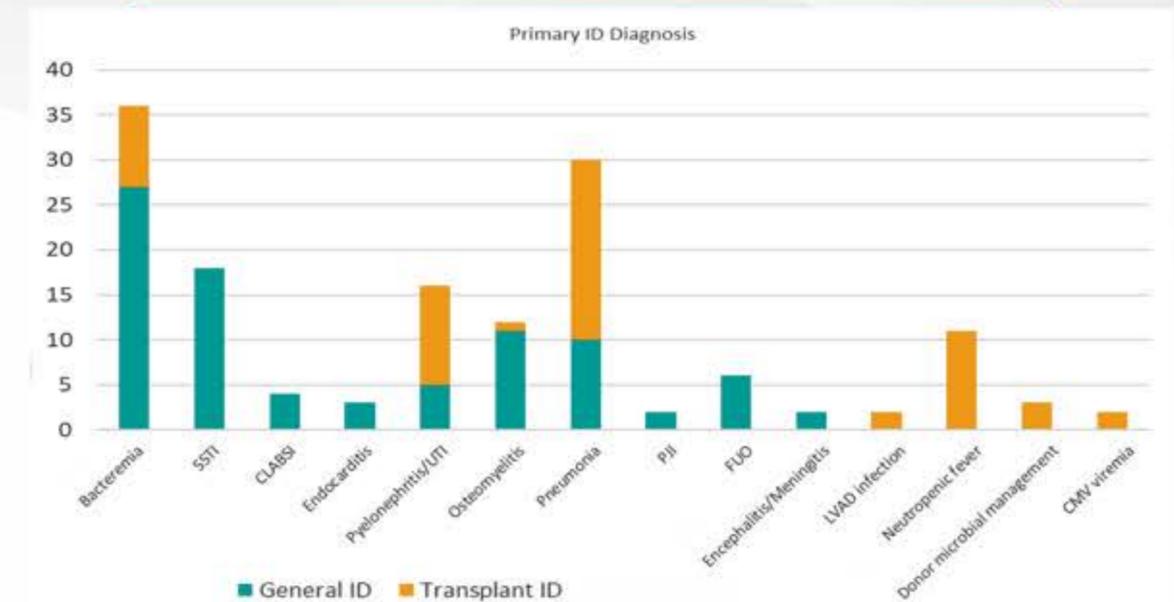
PRIMARY OUTCOMES OF THE TELE-ID CASES (3/1/20 – 5/31/20)

| | General ID | Transplant ID |
|--|-------------------|-----------------|
| Average Hospital LOS post-ID consult (days; range) | 6.26 (-0.11-39.9) | 6.5 (0.08-33.8) |
| Average ICU LOS (days; range) | 12 (0-27) | 7.6 (0-33) |
| In-hospital mortality (%) | 5 (4%) | 3 (3.7%) |
| 30-day mortality (%) | 3 (2.4%) | 5 (6.2%) |
| 30-day readmission for 1 ^o ID infection (%) | 7 (5%) | 10 (12%) |

PRIMARY OUTCOMES OF MATCHED IN-PERSON CONTROLS TO TELE-ID CASES

| | Controls | Cases | Standardized Differences | 95% CI | P-value |
|-----------------------|----------|-------|--------------------------|----------------|--------------|
| Number | 633 | 65 | | | |
| In-hospital mortality | 7.7% | 4.0% | 0.156 | -12.8 to 1.9% | 0.143 |
| 30-day mortality | 9.8% | 4.9% | 0.187 | -15.6 to 0.9% | 0.080 |
| 60-day mortality | 12.9% | 8.6% | 0.139 | -15.2 to 2.4% | 0.155 |
| 30-day readmission | 17.3% | 5.1% | 0.394 | -25.0 to -4.9% | 0.004 |
| ICU admission | 53.8% | 46.6% | 0.145 | -16.7 to 10.6% | 0.665 |
| ICU LOS (hours) | 269.2 | 118.1 | 0.545 | -365.5 to 81.7 | 0.002 |

BROAD RANGE OF ID DIAGNOSIS VIA TELEMEDICINE



CONCLUSIONS

- General ID and Transplant ID services were able to evaluate a large proportion of patients with varied ID diagnosis using telemedicine at the onset of the pandemic.
- Amongst the cases, hospital LOS, 30-day mortality and 30-day readmissions were low.
- Compared to matched in-person controls, tele-ID demonstrated significantly lower 30-day readmission and shorter ICU LOS.

Tele-ID is an effective alternative to in-person ID care at academic medical centers