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HENRY FORD HEALTH

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Background

- OPAT program is a complex process with multidisciplinary involvement and is error prone

- Re-admission rates have been reported to be between 15%-25%.

- Impact of COVID-19 pandemic on healthcare systems:
  - Decreased # of elective surgeries during surges
  - Limited availability of resources, including home health services and skilled nursing facilities

- This study was designed to see if COVID-19 has impacted our OPAT care, particularly with hospital re-admissions and ID clinic follow up
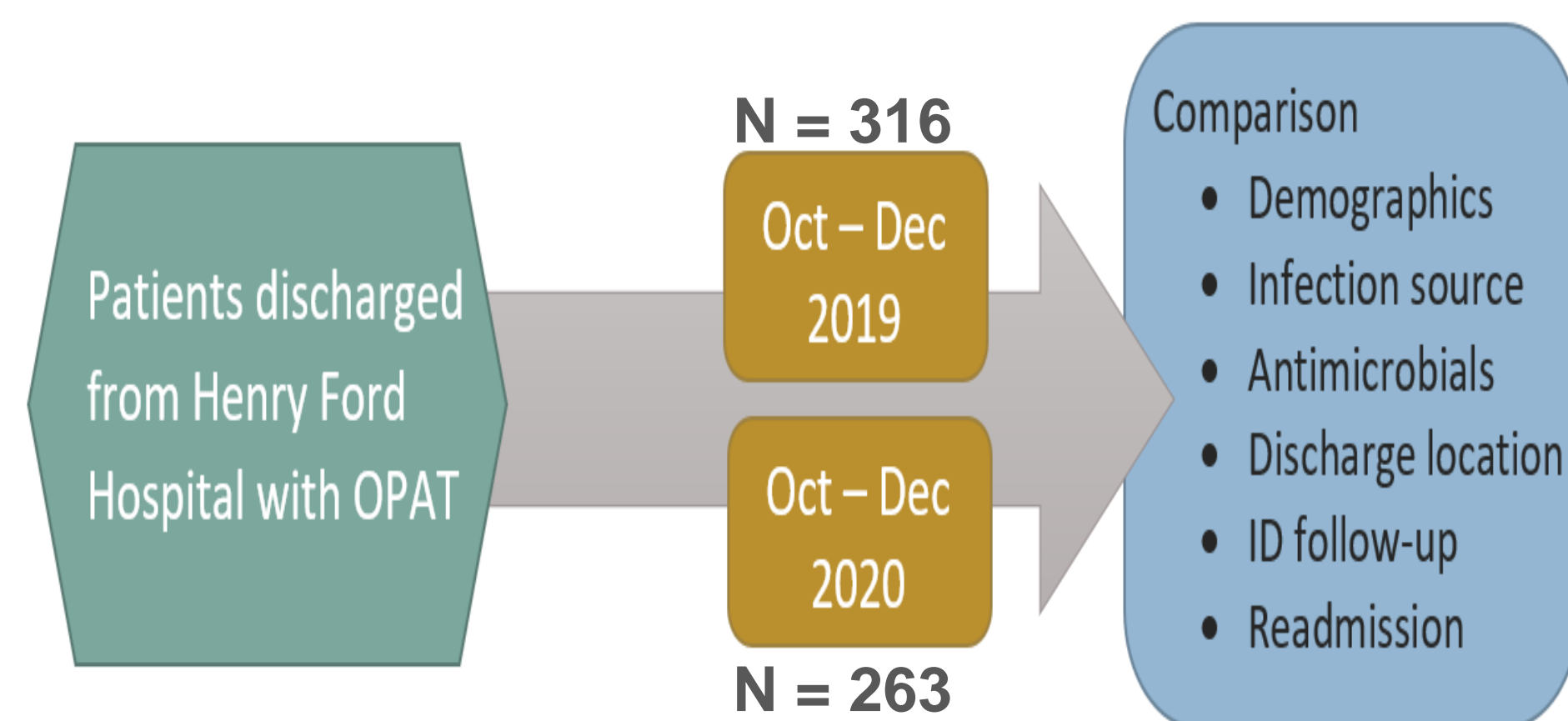
Methods

Figure 1: Study Design

Retrospective observational cohort study
- Variables between groups were compared using Chi-squared or Wilcoxon Rank Sum (Mann-Whitney U) test as appropriate for non-parametric data
- $p<0.05$ considered statistically significant.

Primary Outcomes
1. 30 day re-admission rates between the two cohorts
2. ID clinic follow up between the two cohorts

Secondary Outcomes

Identify differences in the two cohorts for
1. Hospital Length of Stay (LoS)
2. Discharge location (home versus facility)
3. Infection source and antimicrobial therapy

Results

Table 1: Characteristics of OPAT Patients Pre and during COVID-19 Periods

Characteristics	Total (n=579)	Pre-COVID-19 (n=316)	COVID-19 (n=263)	p-value
Age, median (IQR) years	60 (49-70)	61 (51-70)	59 (47-70)	0.188
Male n (%)	333 (57.5)	194 (61.4)	139 (52.9)	0.038
Self-identified Race (%)				
White	103 (17.8)	62 (19.6)	41 (15.6)	0.207
Black	243 (42.0)	125 (39.6)	118 (44.9)	0.197
Medical Team, n (%)				
Medicine	408 (70.5)	218 (69.0)	190 (72.2)	0.392
Surgery	171 (29.5)	98 (31.0)	73 (27.8)	
ICU Required	112 (19.3)	66 (20.9)	46 (17.5)	0.303
Discharge Location				
Home	370 (63.9)	182 (57.6)	188 (71.5)	**0.001**
IPR	21 (3.6)	13 (4.1)	8 (3.0)	0.492
Long Term Care	18 (3.1)	14 (4.4)	4 (1.5)	0.054
SNF	167 (28.8)	105 (33.2)	62 (23.6)	**0.011**
Length of stay, median (IQR) days	9 (7 – 15)	10 (7 – 14.3)	9 (6 – 15)	0.270

Table 2: Outcomes – ID follow up and hospital utilization

	Total (n=579)	Pre-COVID-19 (n=316)	COVID-19 (n=263)	p-value
ID clinic visit within 4 weeks, n (%)	260 (44.9)	136 (43.0)	124 (47.1)	0.322
Days to Hospital Utilization, median (IQR)	11 (5-19)	11 (5 – 18.5)	10 (4 – 18.5)	0.675
30 day Hospital Utilization, n (%)	189 (32.6)	107 (33.9)	82 (31.2)	0.49

Table 3: Hospital Utilization - Readmissions and Emergency Room Visits

	Total (n=189)	Pre COVID-19 (n=107)	COVID-19 (n=82)	p-value
Any Emergency Room Visit, n	75 (13.0)	36 (11.4)	39 (14.8)	0.220
Any 30-Day Readmission, n	114 (19.7)	71 (22.5)	43 (16.3)	0.065
OPAT-Related ER Visit, n	18 (3.1)	10 (3.2)	8 (3)	0.932
OPAT-Related re-admission, n	30 (5.2)	17 (5.4)	13 (4.9)	0.813

Reasons for OPAT related re-admissions: line malfunction, adverse drug reaction, laboratory abnormalities, lack of source control or worsening infection

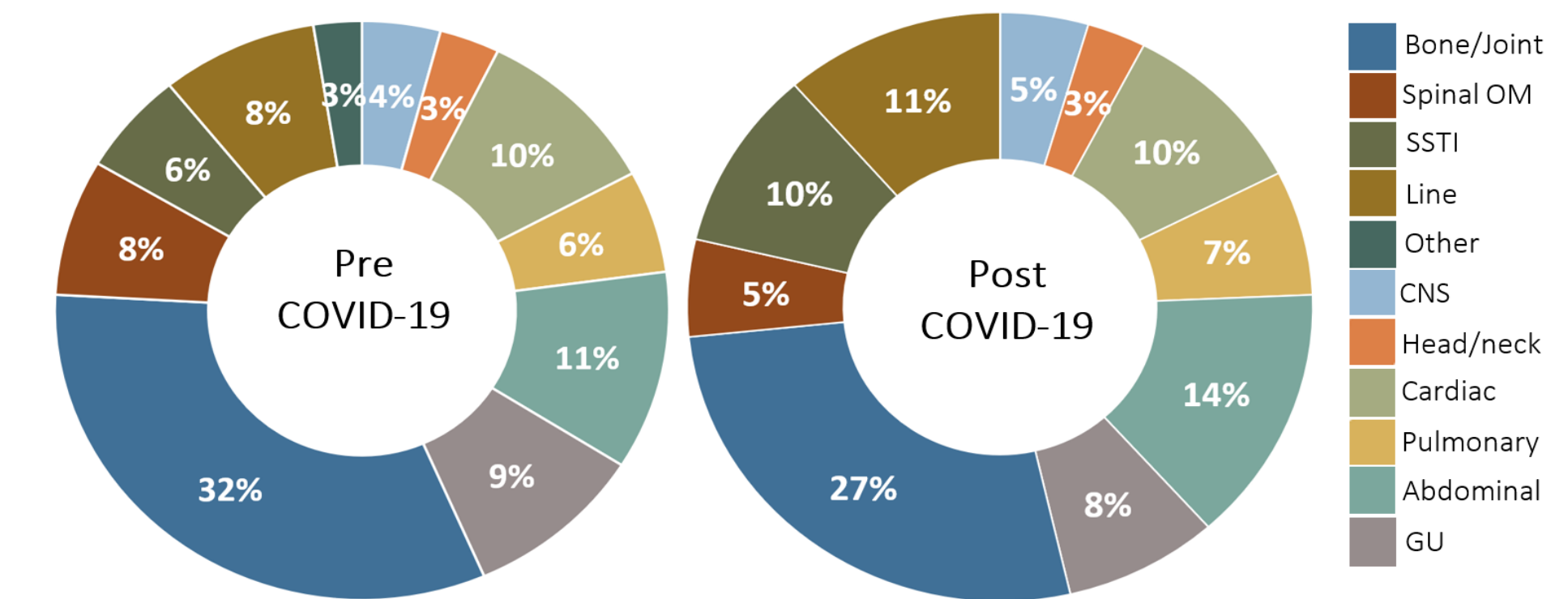Most common reasons for Non-OPAT related visits: CHF, Bleeding, COPD exacerbation, CVA and liver cirrhosis

Figure 2: Infection Sources among OPAT patients

Table 4: Impact of COVID-19 on OPAT Antimicrobial Prescribing

Antimicrobial Class	Total (n=579)	Pre-COVID-19 (n=316)	COVID-19 (n=263)	p-value
Antifungals	24 (4.1)	12 (3.8)	12 (4.6)	0.646
Antivirals	4 (0.7)	3 (0.9)	1 (0.4)	0.410
Aminoglycoside	5 (0.9)	3 (0.9)	2 (0.8)	0.807
BL-BLI combination	24 (4.1)	9 (2.8)	15 (5.7)	0.086
Carbapenem	124 (21.4)	69 (21.8)	55 (20.9)	0.788
Cephalosporin	251 (43.4)	128 (40.5)	123 (46.8)	0.130
Daptomycin	151 (26.1)	92 (29.1)	59 (22.4)	0.068
Extended Spectrum B-Lactam	21 (3.6)	14 (4.4)	7 (2.7)	0.257
Penicillin	44 (7.6)	27 (8.5)	17 (6.5)	0.347
Quinolone	1 (0.2)	0 (0.0)	1 (0.4)	0.454
Tetracyclines	6 (1.0)	1 (0.3)	5 (1.9)	0.097
Vancomycin	56 (9.7)	23 (7.3)	33 (12.5)	**0.033**

Conclusion

- 30-day readmission or ID follow up visit after discharge, did not differ in the pre-COVID-19 and COVID-19 cohorts.

- There was a statistically significant increase in OPAT patients being discharged to home during the pandemic

- **Overall post-discharge ID clinic follow was only 44%**
  - ID follow up post discharge for OPAT patients is associated with decreased hospital re-admission rates.

- **Quality improvement initiatives**
  - Modification of Infectious Diseases OPAT documentation, to include scheduled ID clinic appointment within 2 weeks of discharge