

# INCIDENCE AND ECONOMIC BURDEN OF HOSPITAL READMISSIONS AMONG PATIENTS UNDERGOING MAJOR PANCREATIC RESECTION

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## STUDY OBJECTIVES

- Hospital readmissions after pancreatic resection have been identified as an area of clinical and economic concern.
- Most prior studies have focused only on 30-day readmissions and are based on data prior to 2015.
- This study uses more contemporary data to describe the incidence, indications, and economic burden of 30, 60, and 90-day all-cause readmissions among patients undergoing distal pancreatectomy (DP), pancreaticoduodenectomy (PD), or total pancreatectomy (TP).

## METHODS

**Study Design:** Retrospective, cross-sectional analysis

**Data Source:** Hospital administrative data from Premier Healthcare Database

**Study population:** Patients were aged ≥18 years undergoing pancreatic resection between October 2015 and March 2019 (first=index admission).

**Outcomes:** The primary study outcomes were 30, 60, and 90-day all-cause readmission. The admission type (elective vs. non-elective), primary diagnosis, primary procedure, length of stay (LOS), and total hospital costs of readmissions during these time periods was also collected.

**Statistical Analysis:** All analyses were descriptive in nature.

## RESULTS

### Patient Characteristics at 30 days

- A total of 3,775 patients underwent DP, 5,510 underwent PD, and 254 underwent TP.

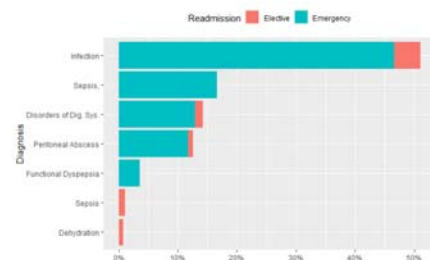
**Table 1: Diagnoses for Readmissions by Admission Type**

|                   | DP              | PD              | Total           | Overall         |
|-------------------|-----------------|-----------------|-----------------|-----------------|
|                   | (n=3775)        | (n=5510)        | (n=254)         | (n=9539)        |
| Age               |                 |                 |                 |                 |
| Mean (SD)         | 59.9 (14.9)     | 65.2 (11.4)     | 62.6 (14.5)     | 63.0 (13.2)     |
| Median [Min, Max] | 62 [18.0, 89.0] | 66 [19.0, 89.0] | 65 [19.0, 89.0] | 65 [18.0, 89.0] |
| Female            | 2017 (53.4%)    | 2638 (47.9%)    | 137 (53.9%)     | 4792 (50.2%)    |
| Race              |                 |                 |                 |                 |
| White             | 2798 (74.1%)    | 4074 (73.9%)    | 206 (81.1%)     | 7078 (74.2%)    |
| Black             | 415 (11.0%)     | 541 (9.8%)      | 16 (6.3%)       | 972 (10.2%)     |
| Other             | 481 (12.7%)     | 779 (14.1%)     | 26 (10.2%)      | 1286 (13.5%)    |
| Unknown           | 81 (2.1%)       | 116 (2.1%)      | 6 (2.4%)        | 203 (2.1%)      |
| Elixhauser Score  |                 |                 |                 |                 |
| 0                 | 396 (10.5%)     | 150 (2.7%)      | 13 (5.1%)       | 559 (5.9%)      |
| 1-2               | 1529 (40.5%)    | 1954 (35.5%)    | 92 (36.2%)      | 3575 (37.5%)    |
| 3-4               | 1254 (33.2%)    | 2224 (40.4%)    | 104 (40.9%)     | 3582 (37.6%)    |
| 5 +               | 596 (15.8%)     | 1182 (21.5%)    | 45 (17.7%)      | 1823 (19.1%)    |
| Elective          | 3054 (80.9%)    | 4594 (83.4%)    | 213 (83.9%)     | 7861 (82.4%)    |

### Reasons for Readmission

- The most common primary diagnoses for readmissions in all three time periods were related to infection/sepsis/peritoneal abscess (35.3%-38.0%).
- In congruence, the most common primary procedures were for drainage (36.0%-39.0%).
- The proportion of readmissions that were non-elective was consistent across time periods, ranging from 91.1%-91.4%.

**Figure 1: Diagnoses for Readmissions by Admission Type**

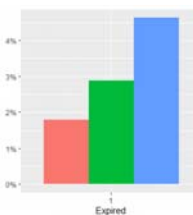


## RESULTS

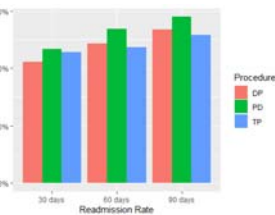
### Mortality

- Overall, 255 patients (2.5%) died during the index admission.
- Among those surviving, the readmission rate at 30, 60, and 90 days was 22.4%, 25.8%, and 28.0%.

**Figure 2: Proportion of Expired at Index**



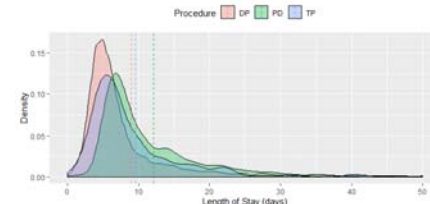
**Figure 3: Readmission Rate for Survived at Index**



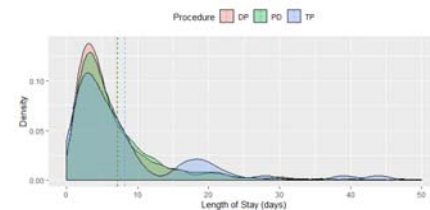
### Length of Stay

- The mean (standard deviation, median) LOS of the index admission was 10.8 (10.5, 8.0) days
- In comparison, these values were 7.2 (8.4, 5.0) days per readmission over the 90-day follow-up and very similar in magnitude at 30 and 60 days.

**Figure 4: Distribution of Length of Stay - Index**



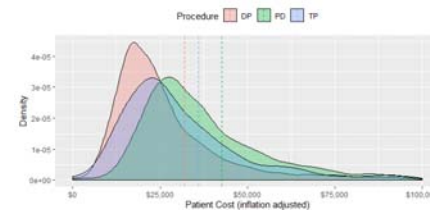
**Figure 5: Distribution of Length of Stay - 90 days**



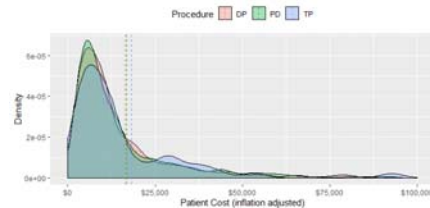
### Costs of Readmission

- The mean (standard deviation, median) cost of the index admission was \$38,299 (\$37,904, \$29,162).
- In comparison, these values were \$16,719 (\$27,389, \$9,407) per readmission over the 90-day follow-up and very similar in magnitude at 30 and 60 days.

**Figure 5: Distribution of Patient Costs - Index**



**Figure 5: Distribution of Patient Costs - 90 days**



## CONCLUSION

All-cause readmissions are common after major pancreatic resection and continue to accrue beyond the 30-day post-discharge timepoint. Such readmissions tend to be non-elective and are associated with a significant economic burden.