

# Intrapleural Thrombolytics for the Treatment of Pleural Infection Patients at Humber River Hospital



Dr. David Fishbein MD



## Lessons Learned

Ongoing engagement with multiple stakeholders and capitalizing on an HRH's existing order set electronic system to introduce intrapleural thrombolytics for treatment in patients with pleural infections resulted in improved patient outcomes.

## Description

The mortality rate for pleural infections is between 10–20%. The conventional approach to the management of pleural infections is through chest tube drainage and administration of antibiotics. This method fails in roughly 33% of patients, necessitating surgical drainage, causing a 12–15 day median duration of hospital stay. A randomized controlled trial was published in 2011 highlighting intrapleural use of tissue plasminogen activator and DNAase in pleural infections changed the pleural opacity at day 7, resulting in a reduction in referrals for surgery, length of hospital stay, and adverse events. HRH took multiple knowledge translation strategies to successfully improve patient outcomes.

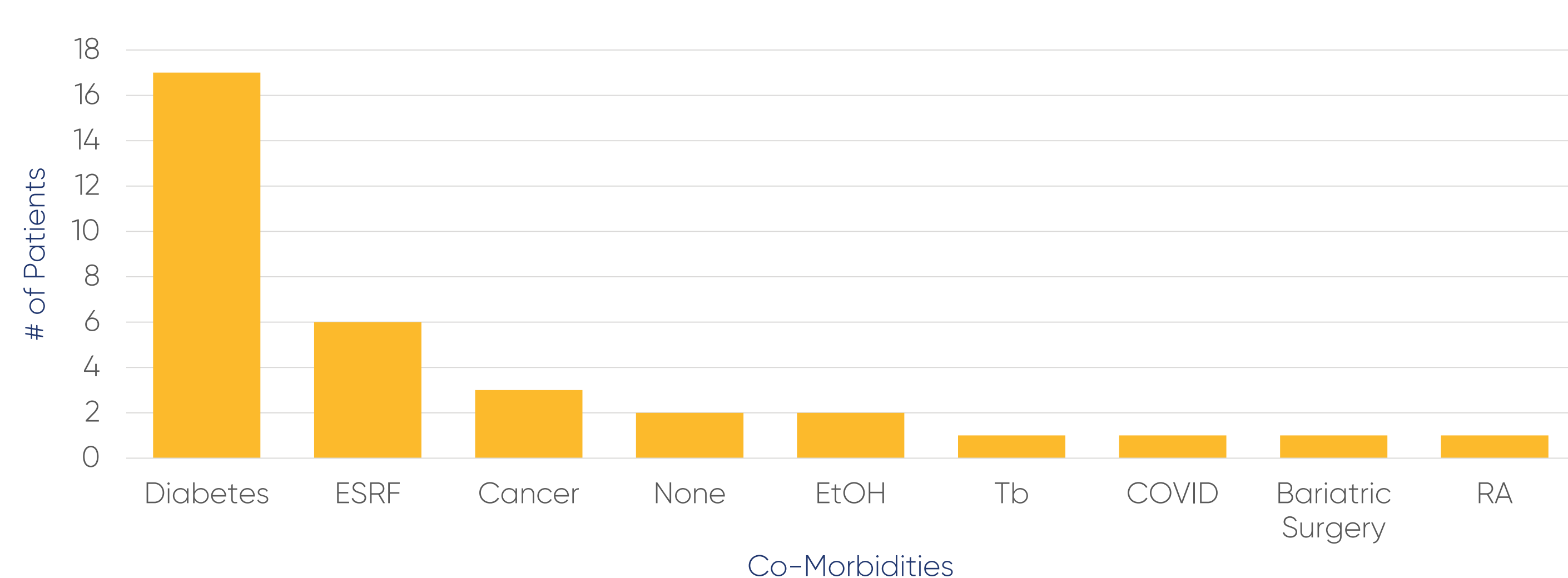
## Actions Taken

- Joint educational rounds held between Humber Respirology Division and Thoracic Surgery Division at St. Joseph's Health Centre.
- Reviewed literature in 2014.
- Obtained surgical opinion from HRH in 2018.
- Developed order sets in 2019.
- Implementation in 2020.

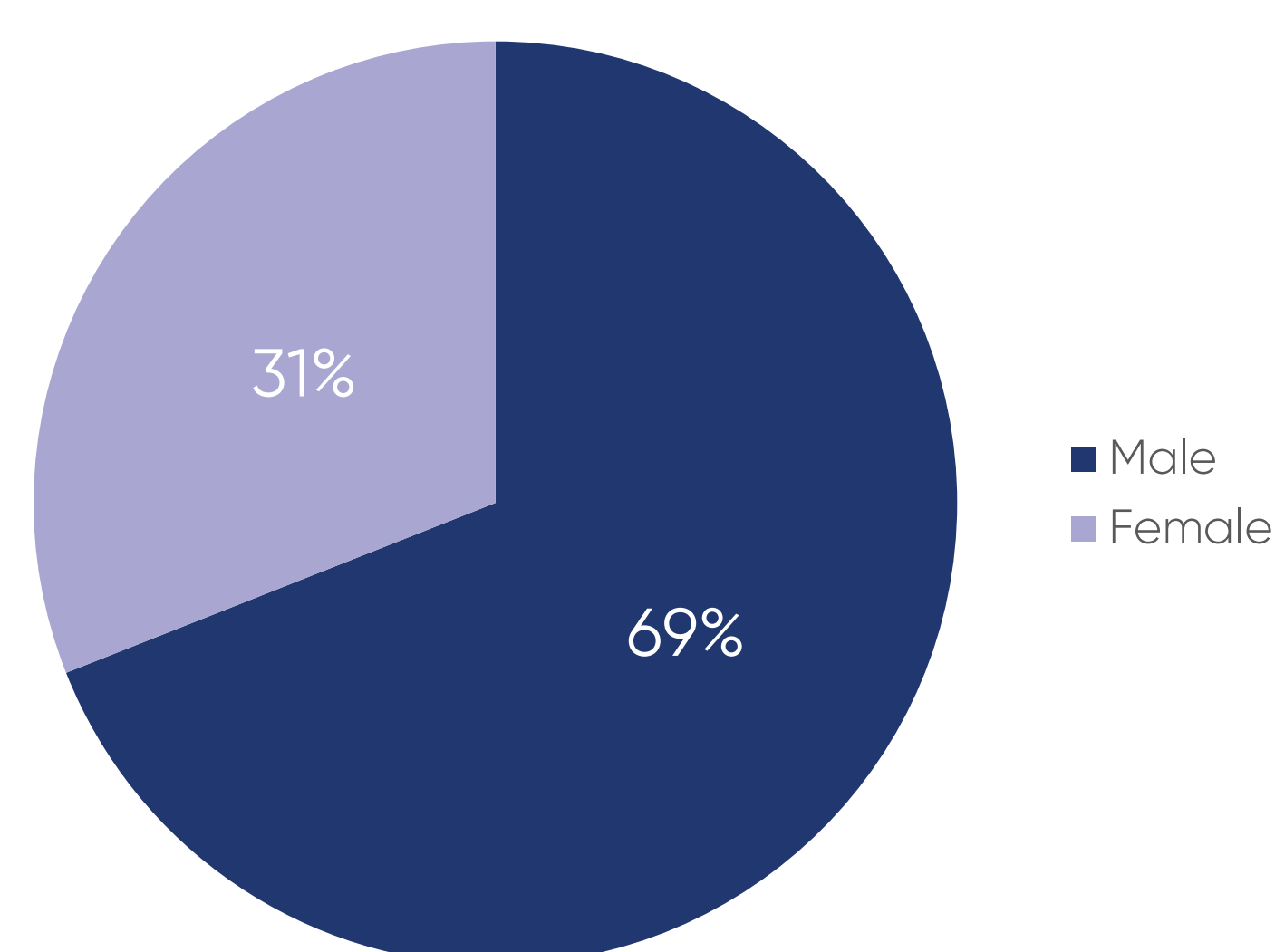
## Summary of Results

A retrospective review was conducted between April 1, 2021–March 31, 2022. Thirty-five patients meeting inclusion criteria had chart reviews conducted. Only 8.6% of patients required surgery, reducing surgical interventions by 24.4%. 5 deaths occurred, although all were for unrelated reasons, 4 were transferred for alternative care, and 26 were discharged home. Future steps include continually monitoring quality metrics and its correlation with multiple variables to tailor treatments to HRH's patient population.

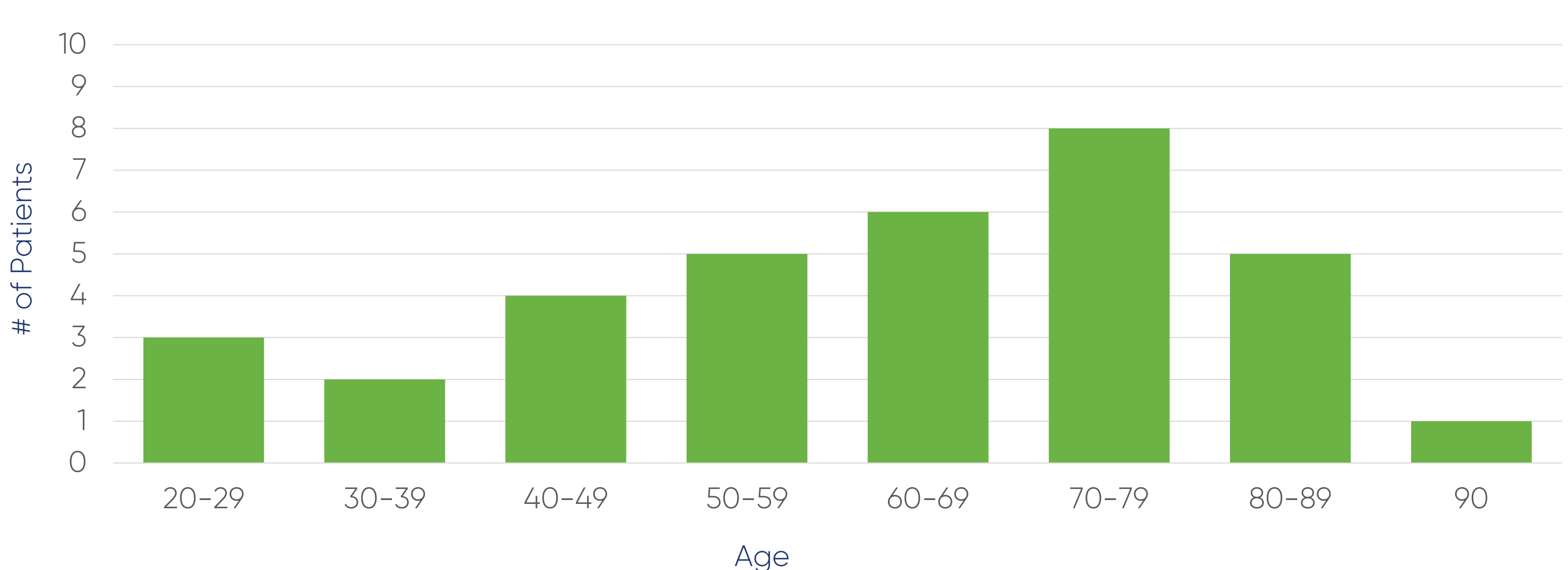
### Co-morbidities



### Gender

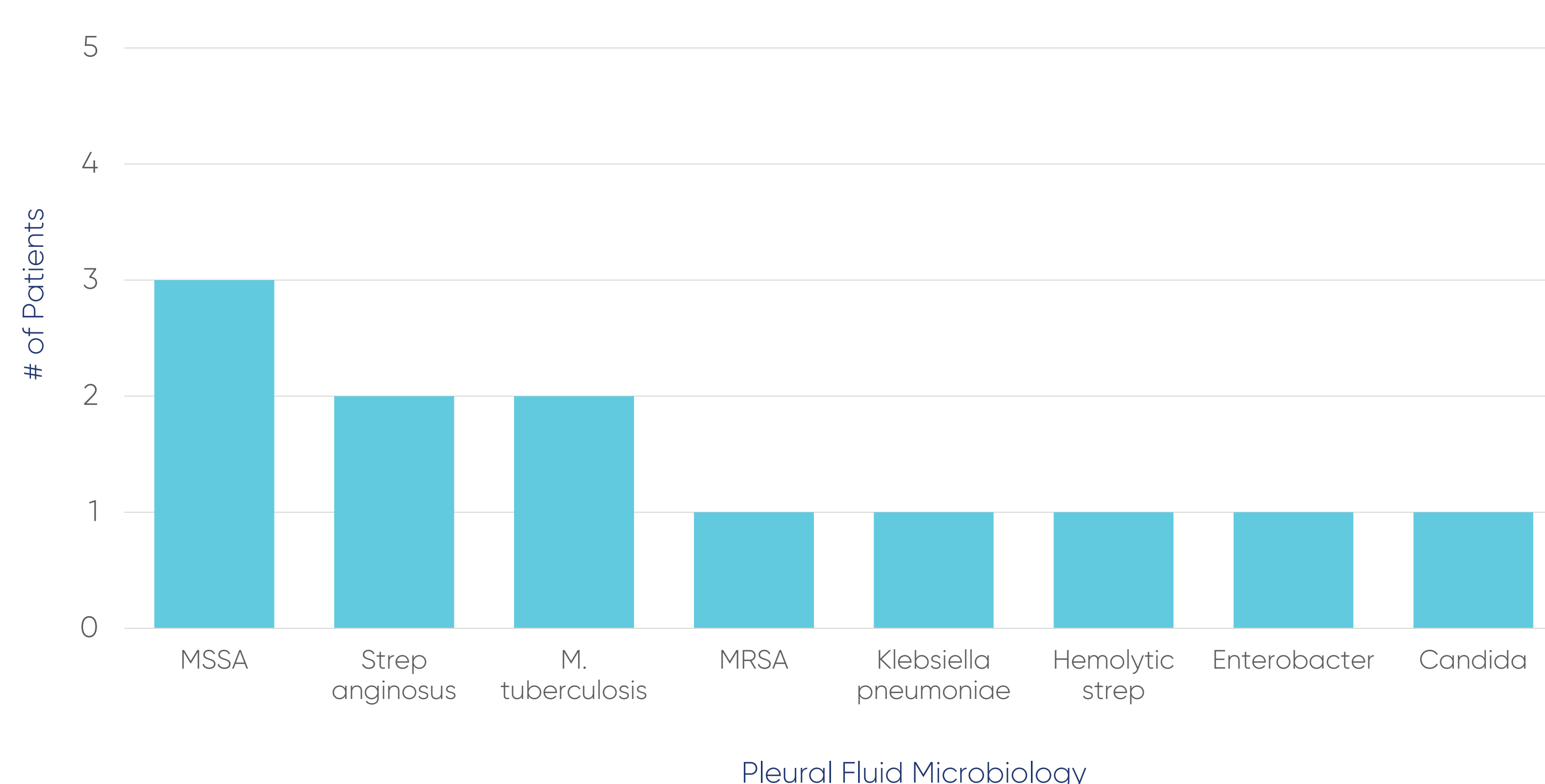


### Age Distribution



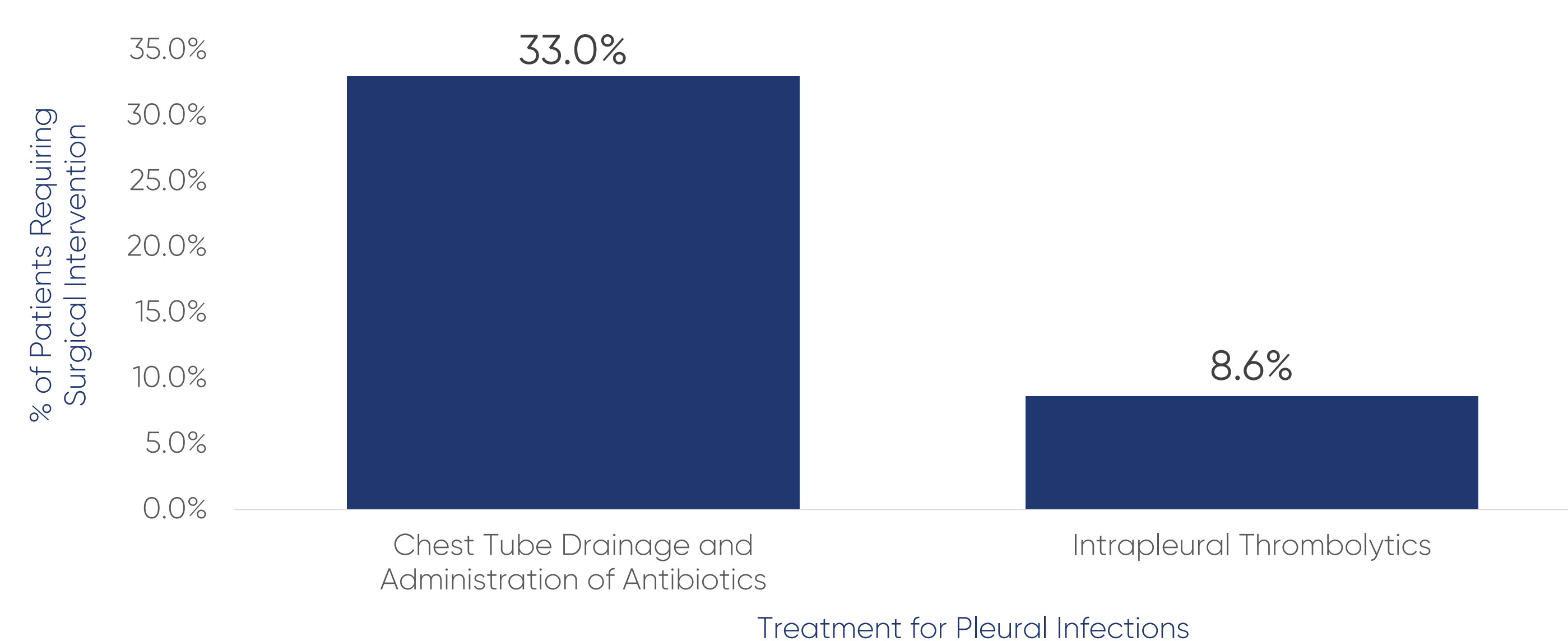
**Figure 1.** Patient demographics of the 35 patients including comorbidities, age, and gender.

### Pleural Fluid Microbiology



**Figure 2.** Microbiology of the pleural fluid in pleural infection patients.

### Treatment Methods for Pleural Infections



**Figure 3.** Historically chest tube drainage and administration of antibiotics required 33% of patients with pleural infections to undergo surgical intervention. In our review, with the use of intrapleural thrombolytics, only 8.6% of patients required surgery, leading to a reduction of 24.4%.