

## Problem Definition

- Immunosuppressed patients with pulmonary infiltrates frequently require bronchoscopy to assist in the diagnostic workup
- Early bronchoscopy is often associated with significant changes in management and improved mortality in this patient population
- The timing of bronchoscopy and specific testing of samples is not standardized
- Standardized order sets have been adopted in our bronchoscopy suite, but we have not yet determined if these lead to effective diagnostic utility
- Bronchoscopy performed outside of our suite remains unstandardized, and our standardized order set could be implemented hospital-wide should it prove effective

## Aims For Improvement

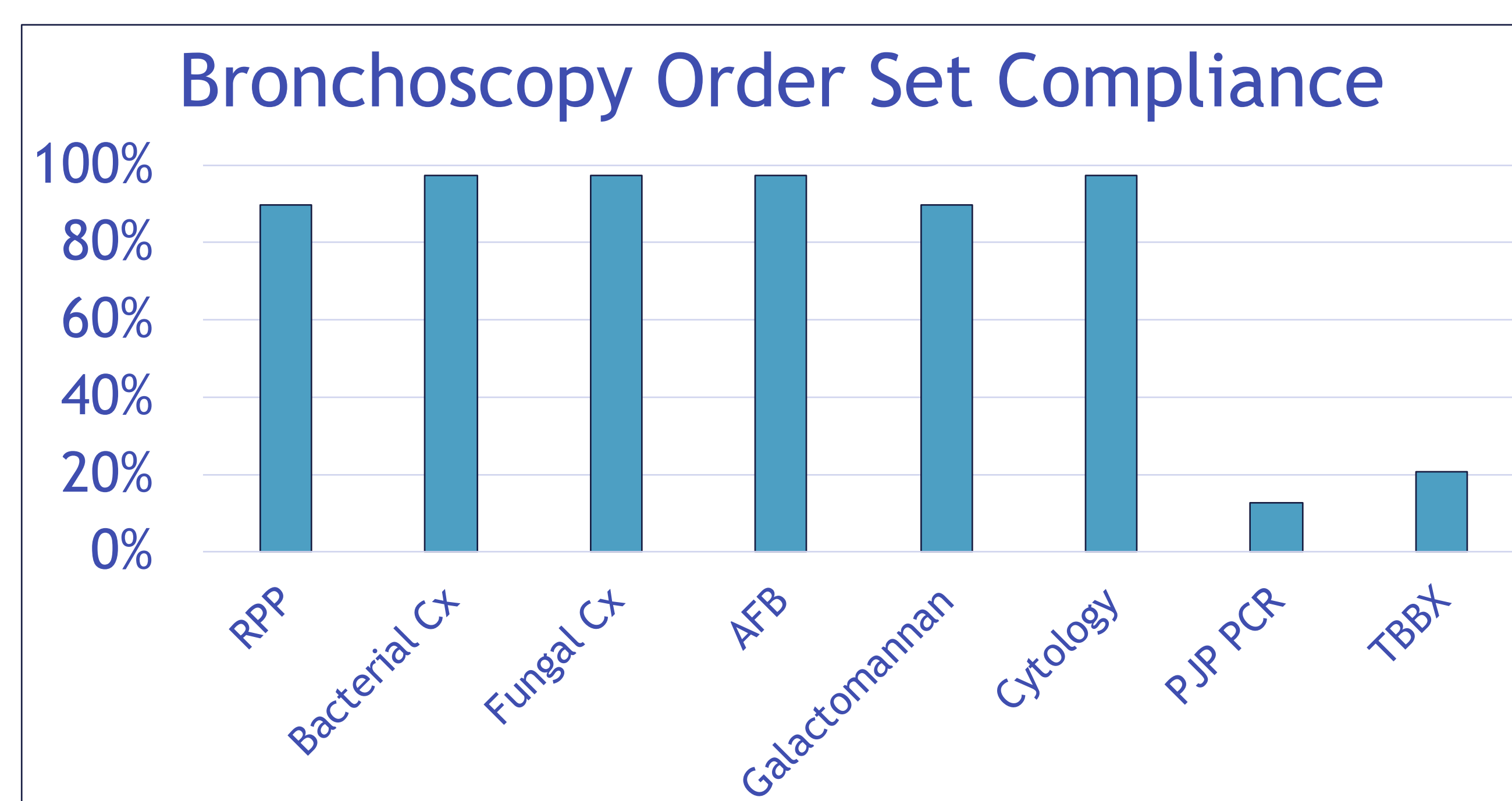
- Determine the consistency in which the order set was followed
- Determine the length of time from finding pulmonary infiltrate to consultation
- Determine the length of time from consultation to bronchoscopy
- Determine whether a follow up note was written by pulmonary
- Determine whether management is affected based on obtained results

## Intervention

- Nurses in the bronchoscopy suite were provided a list of testing to be ordered on all bronchoscopy specimens including:
  - Bacterial, fungal, and acid-fast bacilli cultures
  - Respiratory pathogen panel
  - Galactomannan
  - *Pneumocystis jiroveci* PCR
  - Cytology
  - +/- Transbronchial biopsy (TBBX)

## Measurement and Results

- Retrospective review of immunosuppressed patients with infiltrates in whom bronchoscopy was performed in the bronchoscopy suite from January 2019 to August 2019



- Change in management in 71.7% of cases
- Follow-up note written in 66.7% of patients
- Average time to consult from infiltrates was 2.1 days
- Average time from consult to bronchoscopy was 1.9 days

## Next Steps and Lessons Learned

- Our order set is not followed with 100% consistency
  - In particular, PJP PCR is lacking
    - This is likely due to the difficulty of ordering it through EPIC
- It takes on average 4 days from the finding of radiographic infiltrates until bronchoscopy is performed
- We were surprised to find how often bronchoscopy changes treatment strategy in these patients
  - Larger effect than seen in published clinical trials
- Next aims:
  - Creating an EPIC order set for use hospital-wide
  - Determine if the time to bronchoscopy can be streamlined and shortened
  - Determine if pulmonary follow-up notes are needed
  - Examine patient centered outcomes

## References

1. Choo R, Anantham D. Role of bronchoalveolar lavage in the management of immunocompromised patients with pulmonary infiltrates. *Ann Transl Med.* 2019;7(3):49. doi:10.21037/atm.2019.01.21
2. Jain P, Sandur S, Meli Y, Arroliga AC, Stoller JK, Mehta AC. Role of flexible bronchoscopy in immunocompromised patients with lung infiltrates. *Chest.* 2004;125(2):712-722. doi:10.1378/chest.125.2.712

### Problem Definition

Please include a description of the problem, supporting literature reviews, baseline performance data, and/or previous pilot data here. You should also consider including a cause analysis in this area.

### Proposed Intervention

Describe your improvement strategy here. What are you planning to do? How will it work?

### Implementation Plan

Lay out a timeline for how you will implement your plan over the course of the year, and describe your implementation team. Who are you planning to work with (remember interprofessional involvement)? How will funds be used? Plans incorporating “rapid cycle improvement” will be favored.

### Aims For Improvement

Please use the SMART format for presenting your aims. WHAT is going to get better, by HOW MUCH, and by WHEN? See this link for a reference <http://www.ihl.org/resources/Pages/HowtoImprove/ScienceofImprovementSettingAims.aspx>

### Measurement Strategy

Identify what you will measure over the course of your improvement project. Consider structure, process, outcome, and perhaps balancing measures. See this video for more information: <https://youtu.be/uow7mzrFif4>