

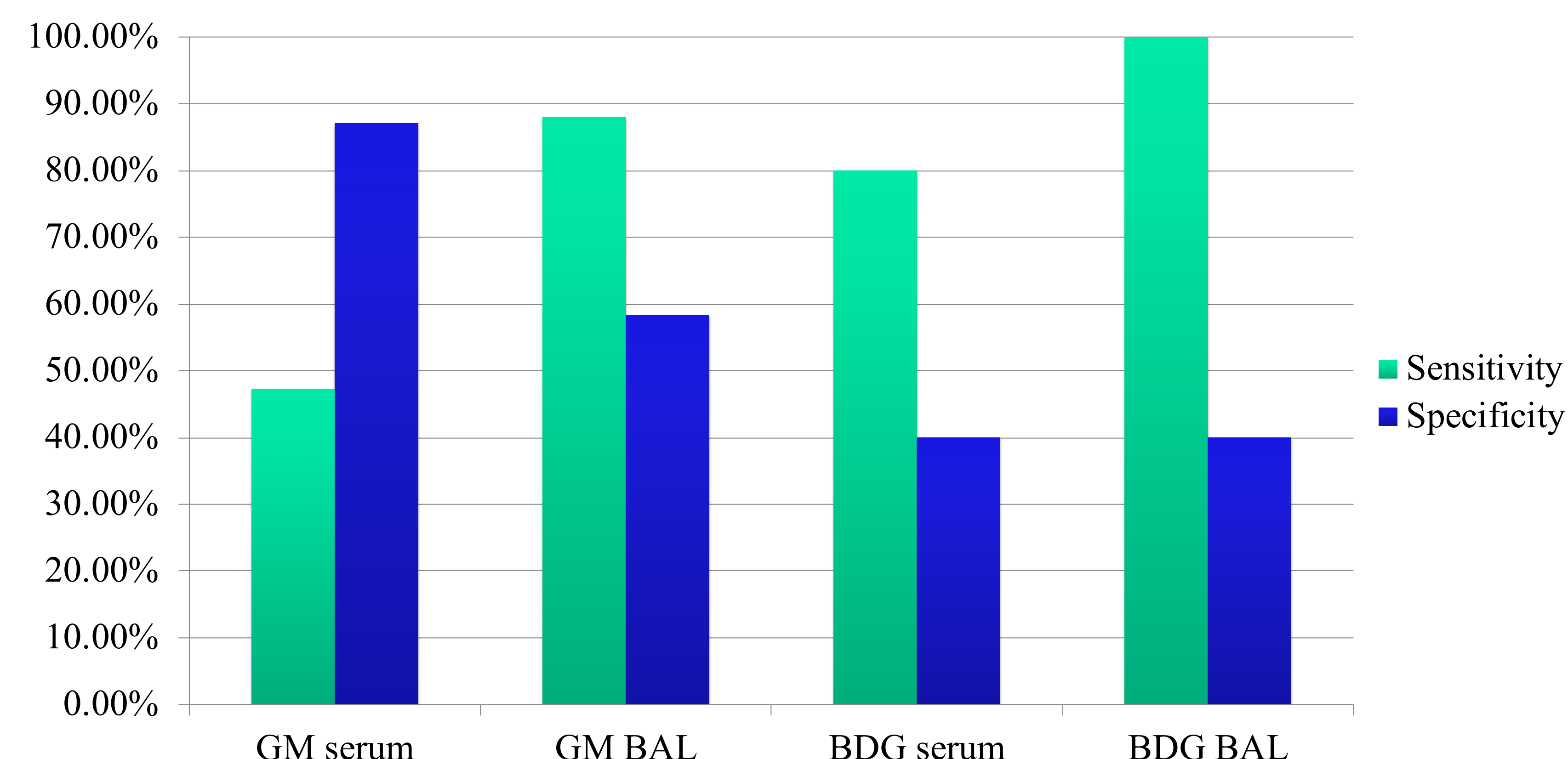
INTRODUCTION/BACKGROUND/OBJECTIVES

- The gold standard test for the diagnosis of Invasive Aspergillosis (IA), an opportunistic mycotic infection, is a lung biopsy in order to get a sample for culture and histopathology. Since these patients are immunocompromised and acutely ill, less invasive diagnostic tests are favored.
- These tests have much lower sensitivities and specificities from the virtually 100% accuracy of the biopsy. Each one of the assays – galactomannan (GM) serum, GM bronchoalveolar lavage (BAL), beta-D-glucan (BDG) serum and BDG BAL – have different sensitivities and specificities that are extremely variable by study. There have been documented clinical factors that separately influence these values.
- Objectives - evaluate ultimate diagnoses of patients who have been tested for IA at the University of Michigan and examine differences between our cohort and the current literature values.

METHODS

- Retrospective chart review was conducted of Michigan Medicine patients who had at least 1 GM or BDG assay completed between June 2013 and March 2016.
- The tests were categorized as true positives, true negatives, false positives, or false negatives based on the result of the test & patient's clinical characteristics compared to the ETORC/MSG guidelines.
- Other clinical correlates previously documented to increase false positives were also examined - use of Zosyn and solid organ transplant recipients.

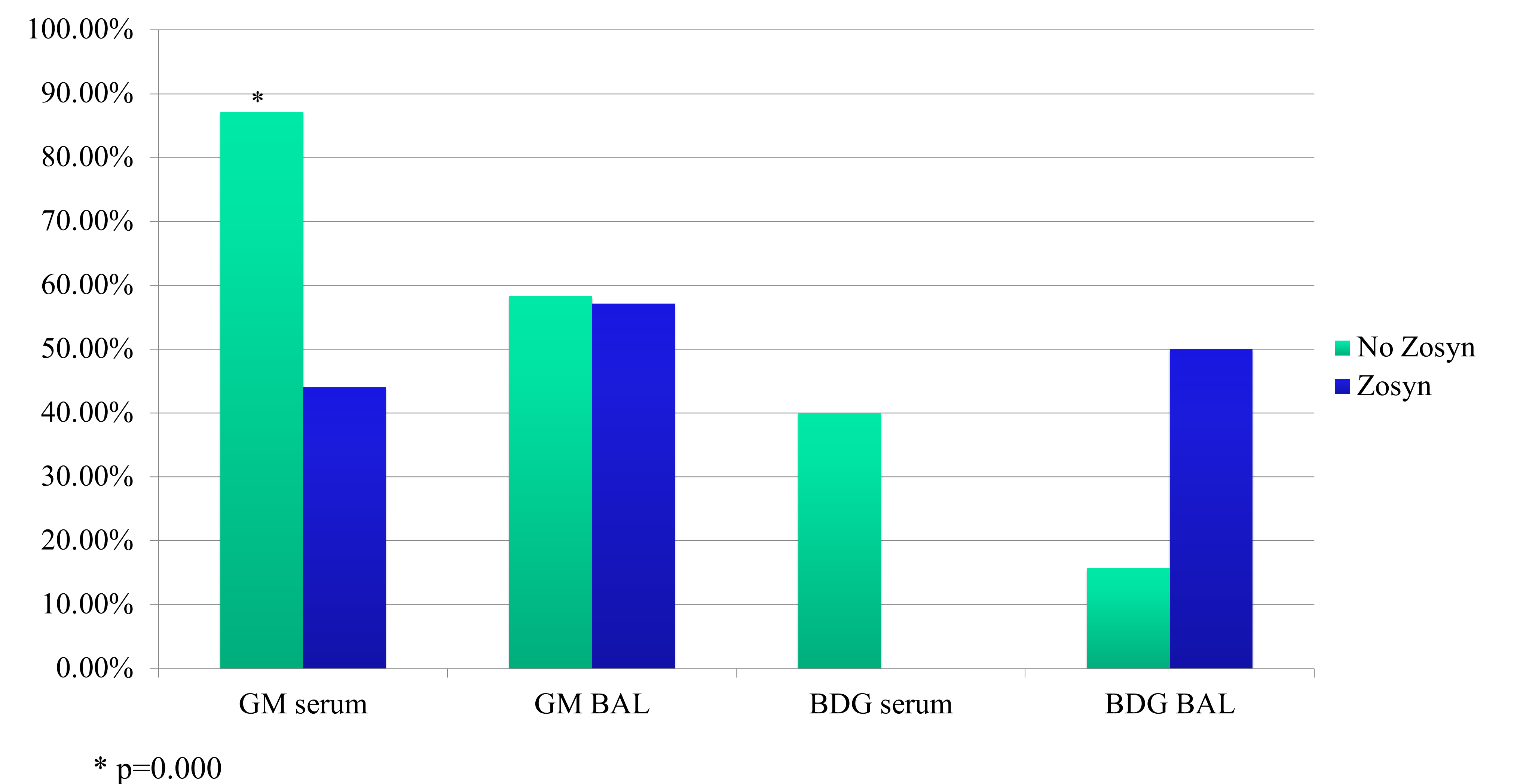
Figure 1: Sensitivity and Specificity by Test Type



RESULTS

- A total of 367 assay results were reviewed, consisting of 125 GM serum, 160 GM BAL, 75 BDG serum, and 7 BDG BAL assays. There were 231 males and 136 females. The average age was 55.5 years with a range of 1.5 to 90 years.
- GM serum had a sensitivity of 47.3% and a specificity of 87.1%. GM BAL had a sensitivity of 88% and a specificity of 58.3%. BDG serum had a sensitivity of 80% and a specificity of 40%. BDG BAL had a sensitivity of 100% and a specificity of 16.7% [Figure 1].
- In patients taking Zosyn [Figure 2], the specificity of their GM serum assay decreased to 44% (p=0.000), but the GM BAL assay only decreased to 57.1% (p=0.966). BDG serum and BAL assays only had 2 patients each on Zosyn, so further study is required to analyze the effect Zosyn has on their specificities.
- Patients with solid organ transplants actually had fewer false positives than non-transplant patients (p<0.016) and lung transplants specifically also had fewer false positives (p=0.02).

Figure 2: Effect of Zosyn Use on Specificity



CONCLUSIONS/LESSONS LEARNED/FUTURE DIRECTIONS

The fact that these findings vary significantly than previously published data highlights the variability in the non-invasive diagnostic tests and stresses the importance of using clinical judgement in addition to test results in the management of a potential IA patient.