



MASSACHUSETTS
Health & Hospital
ASSOCIATION

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MHA/ONL *PatientCareLink*

Nursing-Sensitive Measure Report

Statistical Appendix

September 2022

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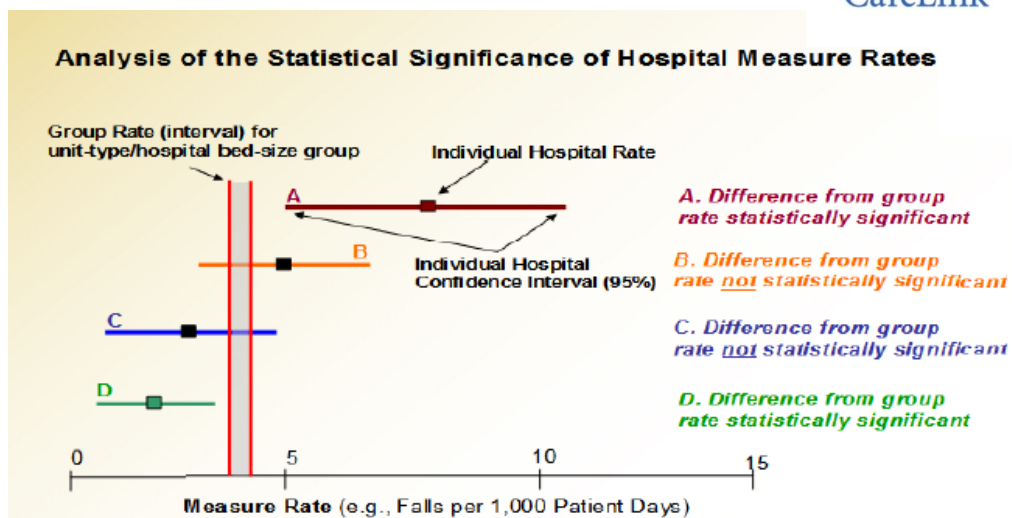
Analysis of the Statistical Significance of Hospital Measure Rates

Because the measure rates for the hospitals are for a specific period of time, and because there is variability in performance over time because of chance and other factors, there is a degree of uncertainty about the extent to which a hospital's measure rate may reflect its true underlying performance. Without taking this uncertainty into account, we cannot conclude that a hospital with a measure rate that is higher or lower than the group rate is truly performing at a worse or better rate than the group.

Statisticians use **confidence intervals** to account for this uncertainty. A confidence interval is a numeric range around the estimate represented by the hospital's measure rate, calculated to provide a specified level of confidence that the interval includes the true underlying performance of the hospital. The confidence level chosen for this analysis, 95% confidence, means that, in repeated collection and analysis of similar data, 95% of the resulting confidence intervals will include the true rate. The use and interpretation of confidence intervals in the nursing-sensitive measures is **illustrated below**. For any hospital (A, B, C, or D), the measure rate represented by the square is accompanied by a confidence interval (horizontal line). When a hospital's confidence interval does not intersect the group interval, represented by the vertical lines (hospitals A and D in the illustration), we can say that the difference between the hospital rate and the group rate is statistically significant and likely represents a true difference in performance. When the hospital's interval completely crosses the group interval (hospitals B and C in the illustration), the difference is not statistically significant. (When a hospital's interval extends only a small distance into the group interval, the difference may be statistically significant and additional calculation is required.)

The confidence level of 95% applies to the confidence interval for each individual hospital. In a group of 20 hospitals, one would expect, on average, that one confidence interval does not actually include the hospital's true rate. Hospitals' confidence intervals will vary in width because, among other factors, the measure rate is based on more or fewer observations (i.e., patient days).

Abt Associates Inc. advised MHA on the analytic approach and performed the statistical analysis.



Hospitals will be found within the section for their bed-size group. Hospitals are listed alphabetically within bed-size groups below. Not all hospitals will have data for each unit-type. The data graphs are presented in order of hospital-bed size group, low to high.

Acute Care Hospitals

Less than 100 Beds

Addison Gilbert Hospital
Athol Hospital
Baystate Franklin Medical Center
Baystate Noble Hospital
Baystate Wing Hospital
Beth Israel Deaconess Hospital - Milton
Beth Israel Deaconess Hospital - Needham
Fairview Hospital
Falmouth Hospital
Massachusetts Eye & Ear Infirmary
Nashoba Valley Medical Center
Northeast Health System - Addison Gilbert Hospital
Southcoast Health - Tobey Hospital
UMass Memorial Marlborough Hospital

100 - 199 Beds

Anna Jaques Hospital
Beth Israel Deaconess Hospital-Plymouth
Brigham and Women's Faulkner Hospital
Cambridge Health Alliance - Cambridge
Cambridge Health Alliance - Everett
Carney Hospital
Cooley Dickinson Health Care
Emerson Hospital
Melrose Wakefield Hospital
UMass Memorial Health - Harrington
UMass Memorial HealthAlliance-Clinton Hospital
Heywood Hospital
Holy Family Hospital at Haverhill
Holyoke Medical Center
Lawrence General Hospital
MetroWest Medical Center - Framingham Campus
MetroWest Medical Center - Leonard Morse Campus
Milford Regional Medical Center
Morton Hospital & Medical Center
New England Baptist Hospital
North Shore Medical Center - Union Hospital
Saint Anne's Hospital
Sturdy Memorial Hospital

200 - 299 Beds

Berkshire Medical Center
Cape Cod Hospital
Good Samaritan Medical Center
Holy Family Hospital at Methuen
Mount Auburn Hospital
Newton-Wellesley Hospital
Salem Hospital
Beverly Hospital
Norwood Hospital
Saint Vincent Hospital
Signature Healthcare Brockton Hospital
Winchester Hospital

300 - 399 Beds

Lahey Hospital & Medical Center
Lowell General Hospital
Mercy Medical Center
South Shore Hospital
Southcoast Health - Charlton Memorial Hospital
Southcoast Health - St. Luke's Hospital
St. Elizabeth's Medical Center
Tufts Medical Center

500 or More Beds

Baystate Medical Center
Beth Israel Deaconess Medical Center
Boston Medical Center
Brigham and Women's Hospital
Massachusetts General Hospital
UMass Memorial Medical Center

Hospitals will be found within the section for their hospital type. Hospitals are listed alphabetically within hospital type below. Not all hospitals will have data for each unit-type. Post Acute hospital data graphs follow the acute care hospital data graphs in this document.

Post Acute Hospitals

Rehabilitation Hospitals

Bronson Rehabilitation Center at Baystate Noble Hospital
Encompass Health Rehabilitation Hospital of Braintree
Encompass Health Rehabilitation Hospital of New England
Encompass Health Rehabilitation Hospital of Western Massachusetts
Fairlawn Rehabilitation Hospital
Southeast Rehabilitation Hospital at Southcoast Hospitals Group - Charlton Hospital
Spaulding Rehabilitation Hospital Boston
Spaulding Rehabilitation Hospital Cape Cod
The Center for Rehabilitation at Berkshire Medical Center
Weldon Rehabilitation Hospital at Mercy Medical Center

Long-Term Acute Care Hospitals

New England Sinai Hospital
Spaulding Hospital for Continuing Medical Care Cambridge
Tewksbury Hospital

Acute Care Hospitals

NSC-2 Pressure Ulcer Prevalence

September 2019

December 2019*

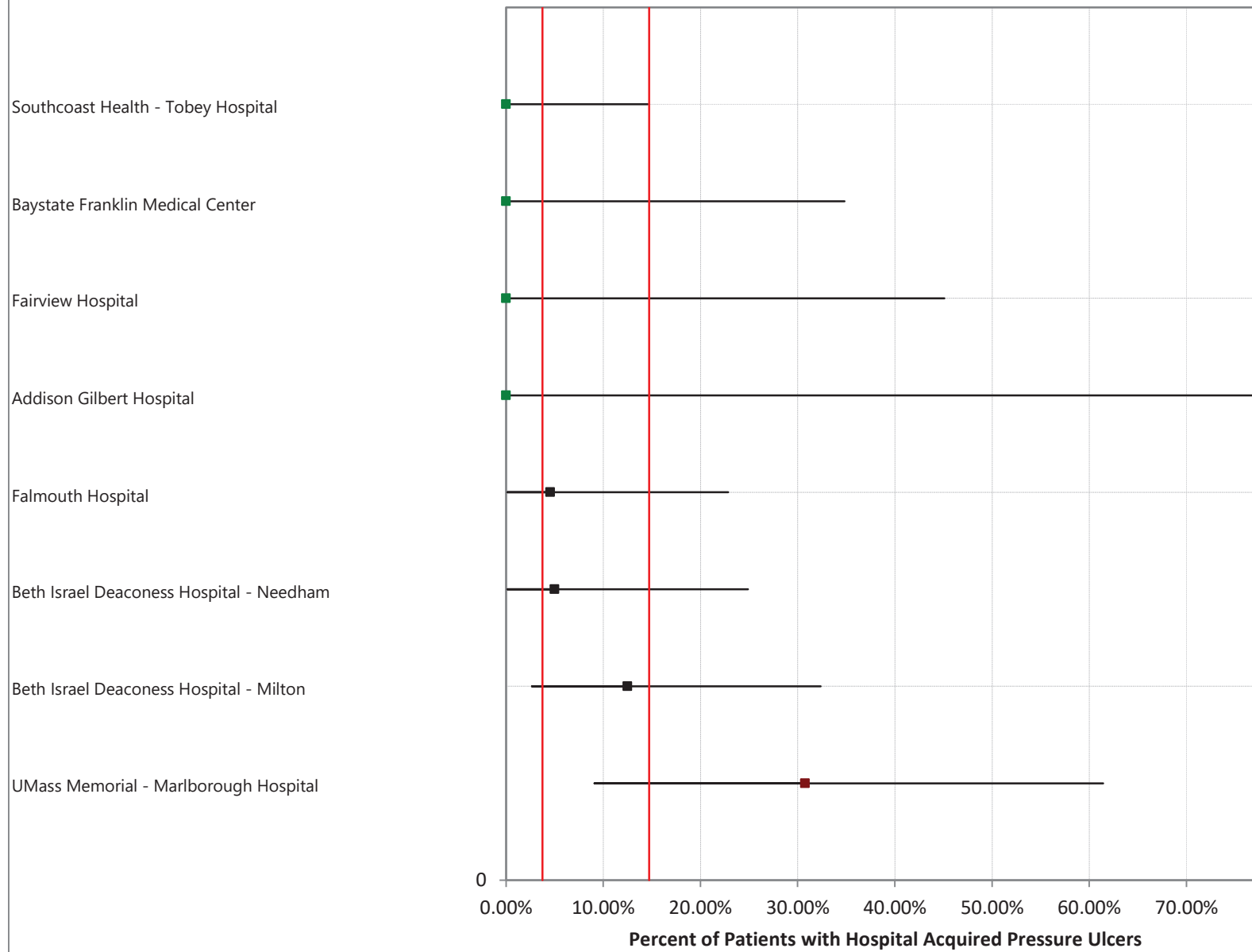
March 2022

June 2022*

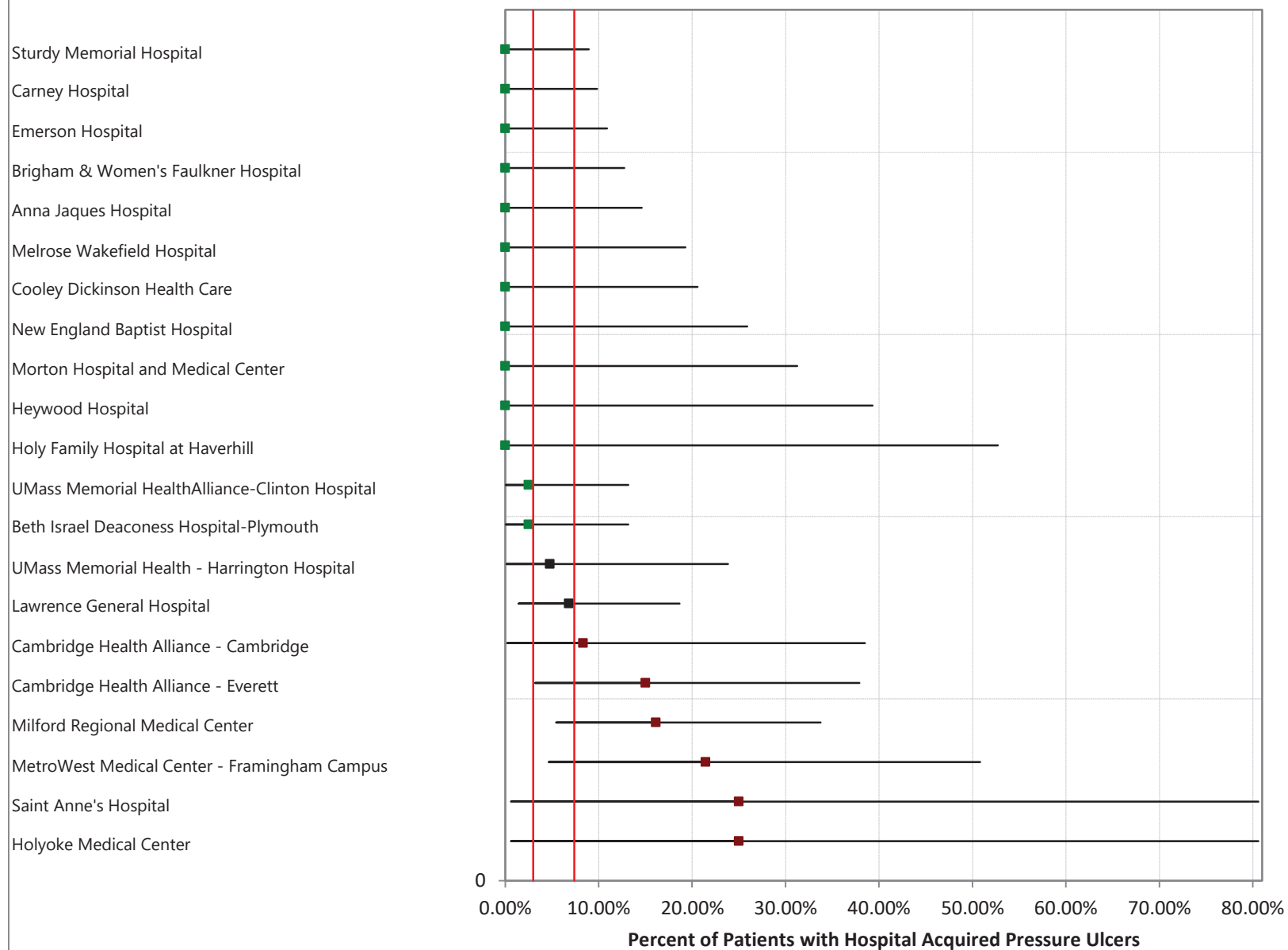
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*** Optional studies**

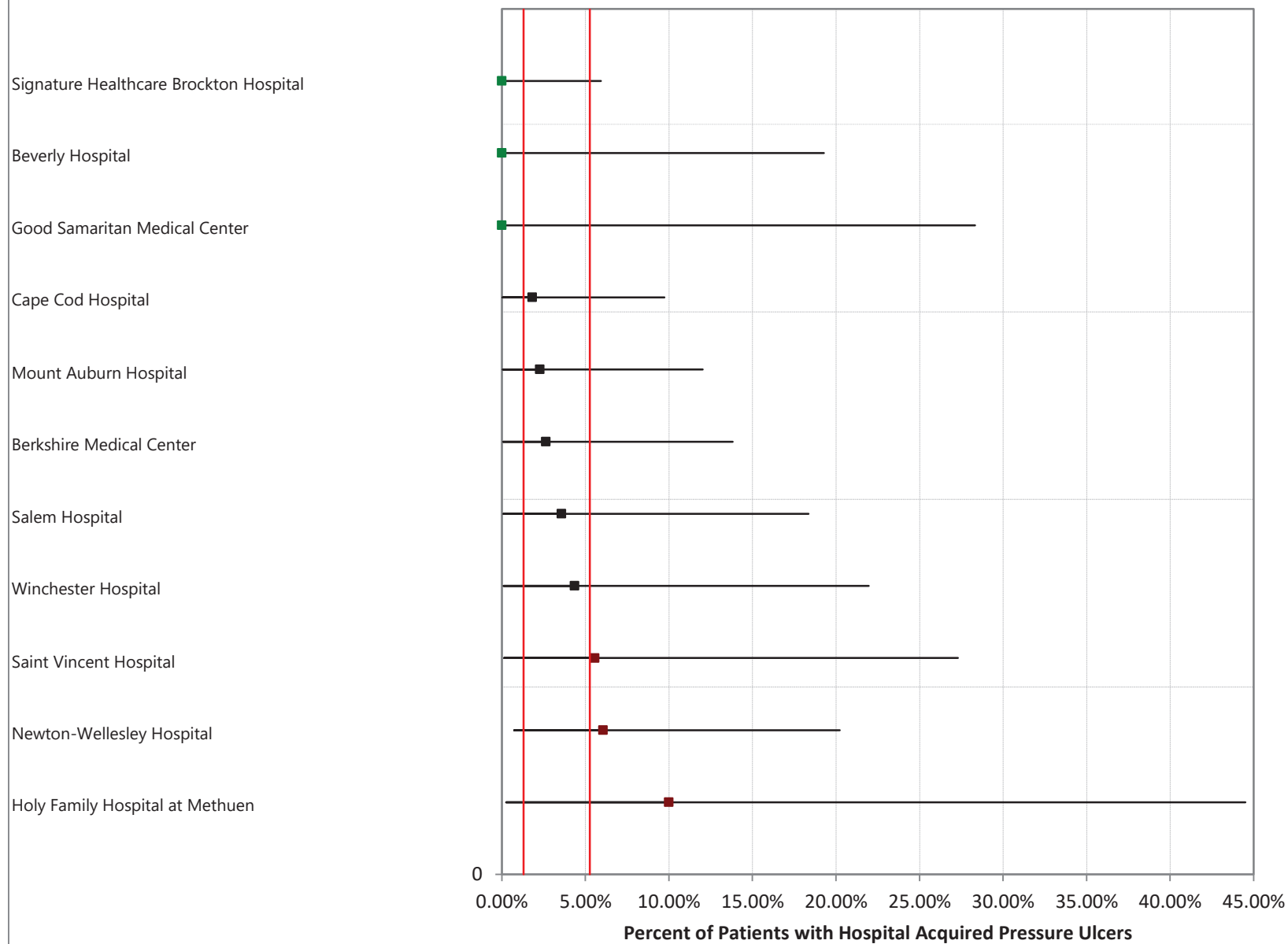
Adult Critical Care Units, Less than 100 beds



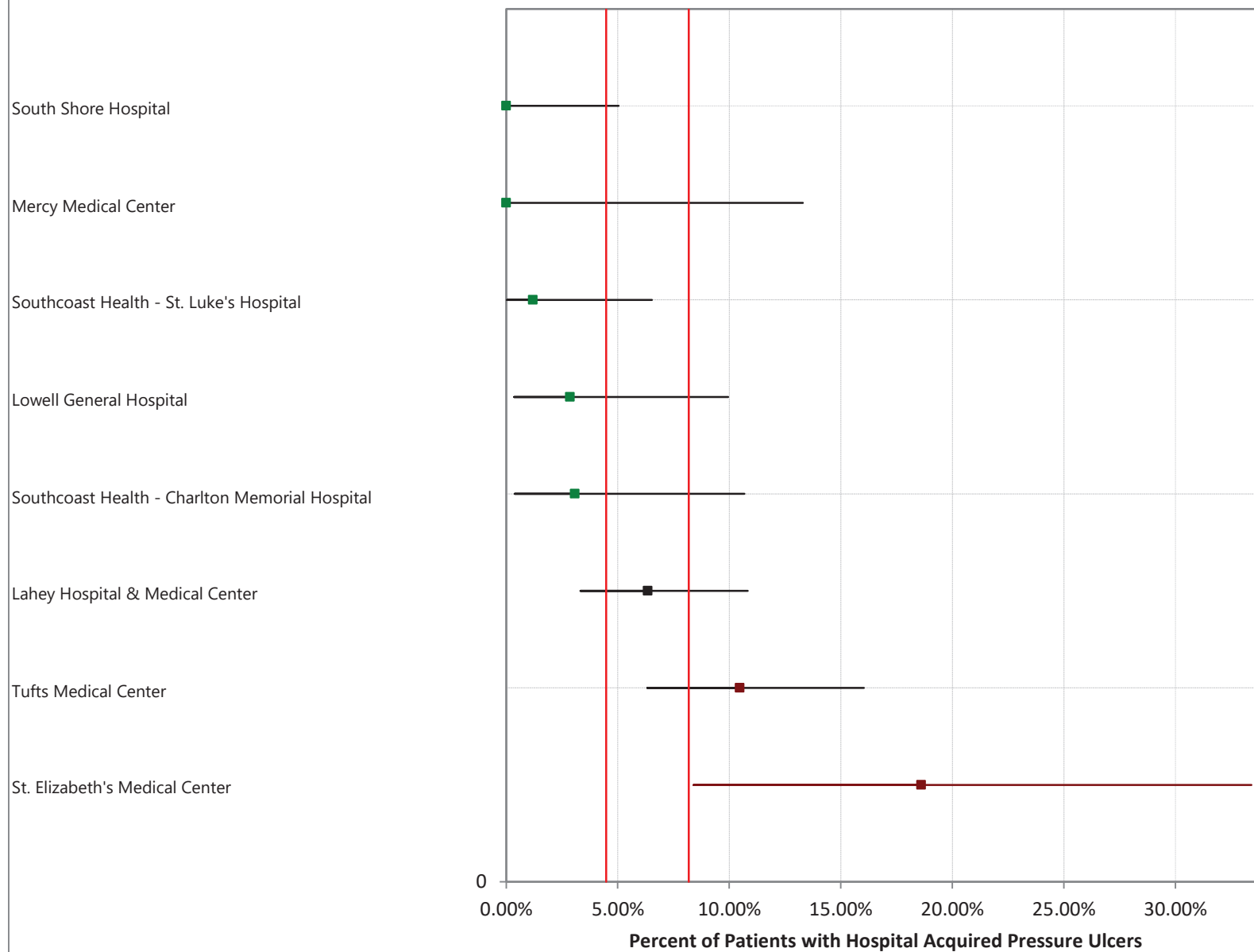
Adult Critical Care Units, 100-199 beds



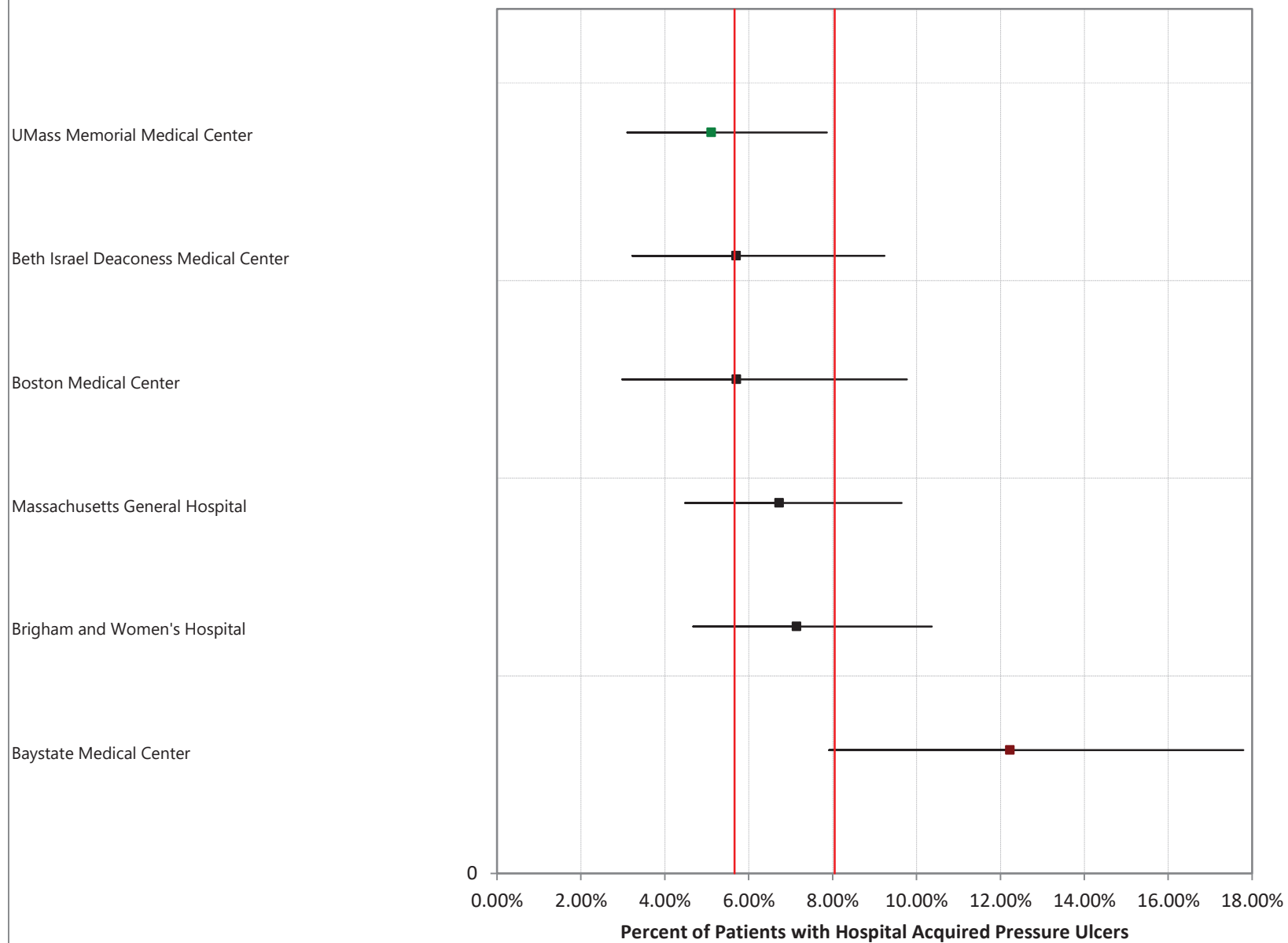
Adult Critical Care Units, 200-299 beds



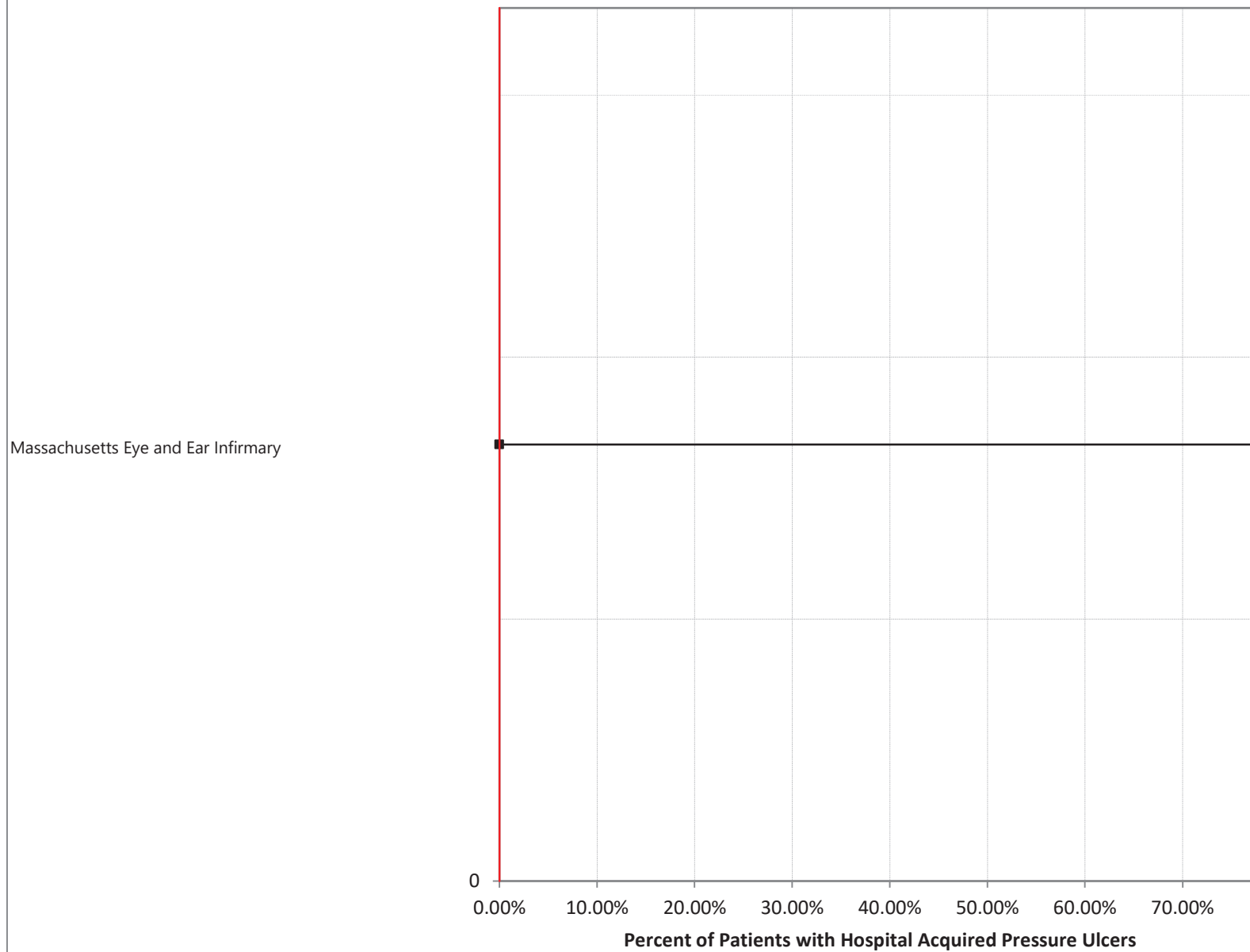
Adult Critical Care Units, 300-399 beds



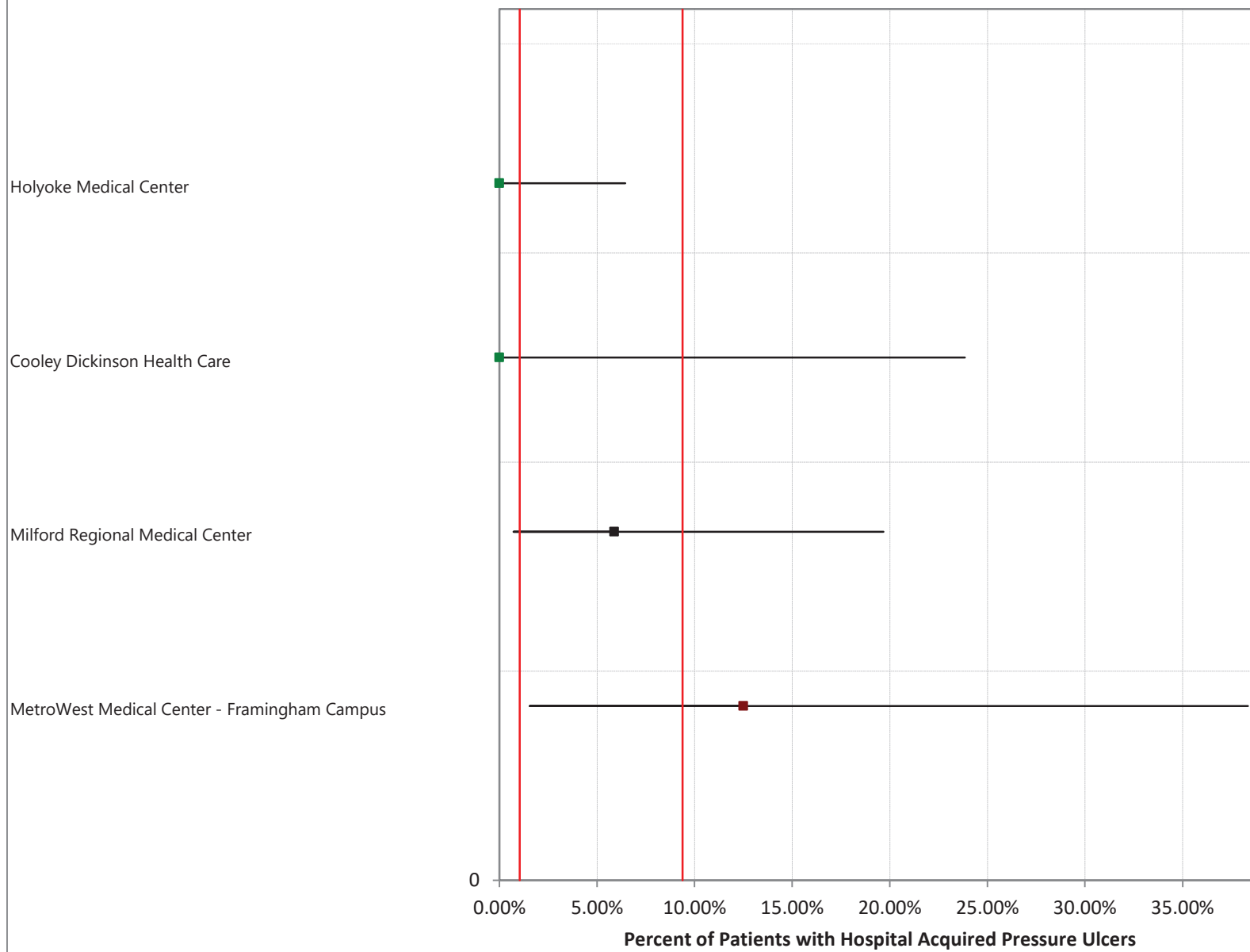
Adult Critical Care Units, More than 500 beds



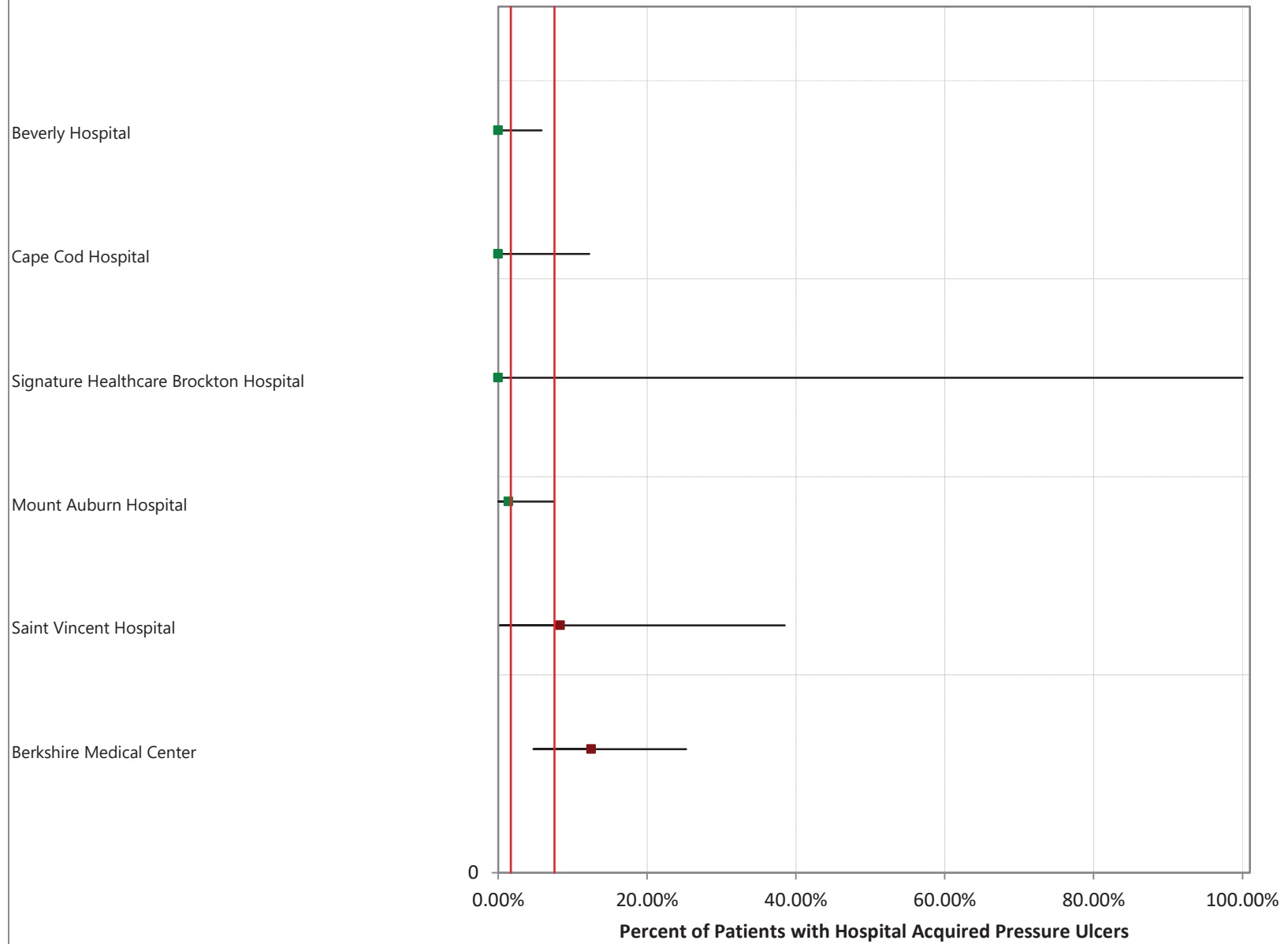
Adult Step-Down Units, Less than 100 beds



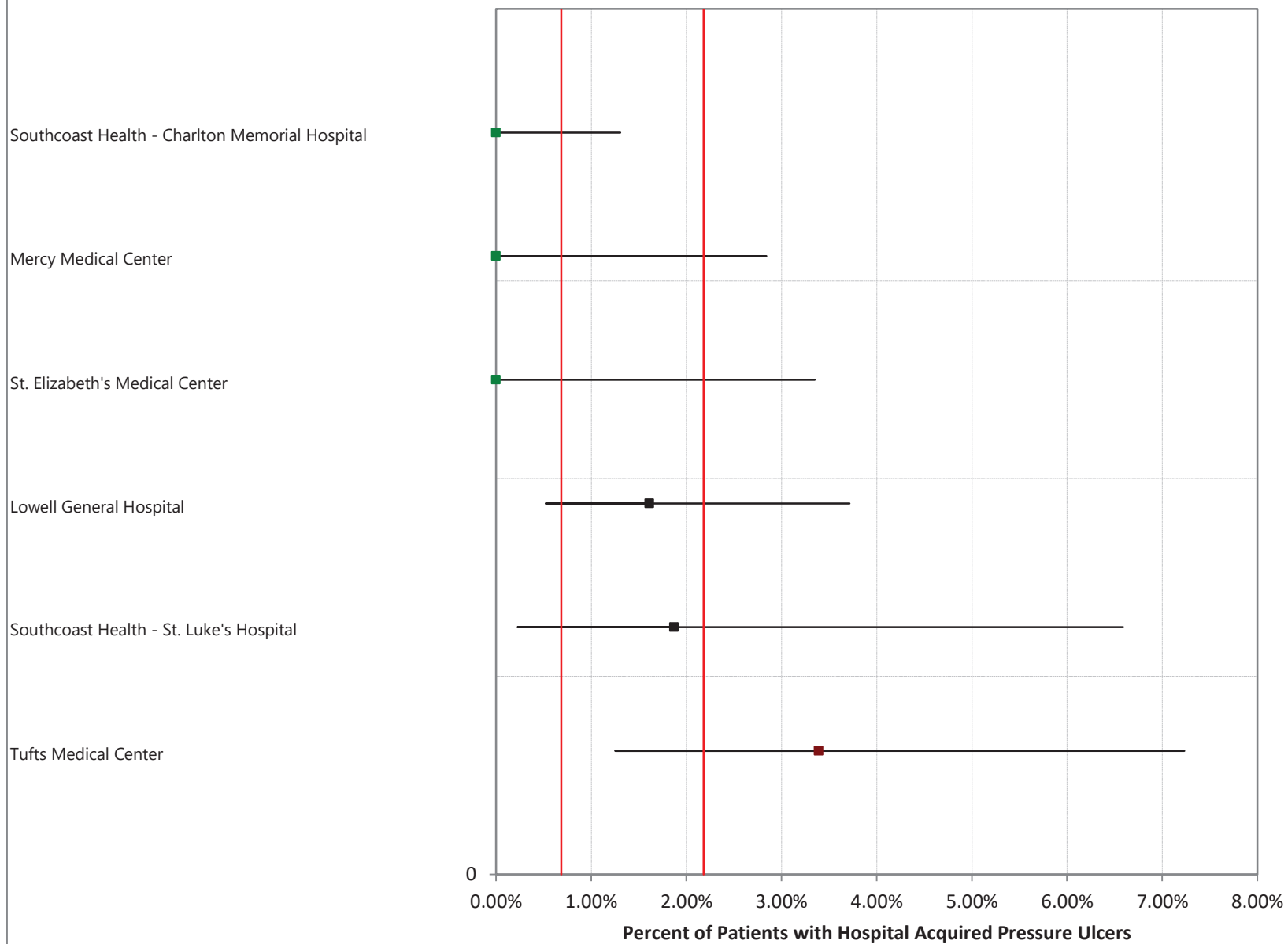
Adult Step-Down Units, 100-199 beds



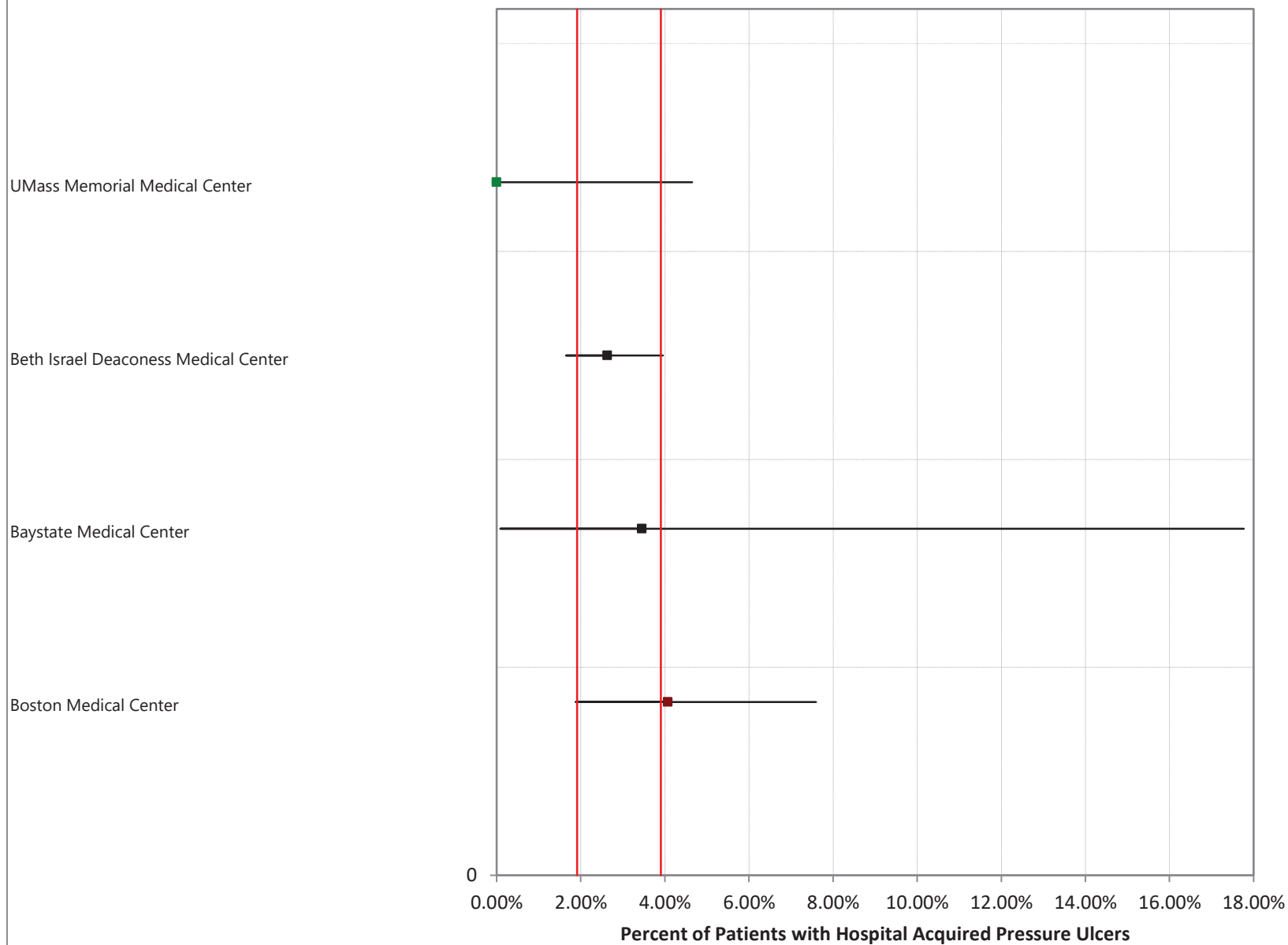
Adult Step-Down Units, 200-299 beds



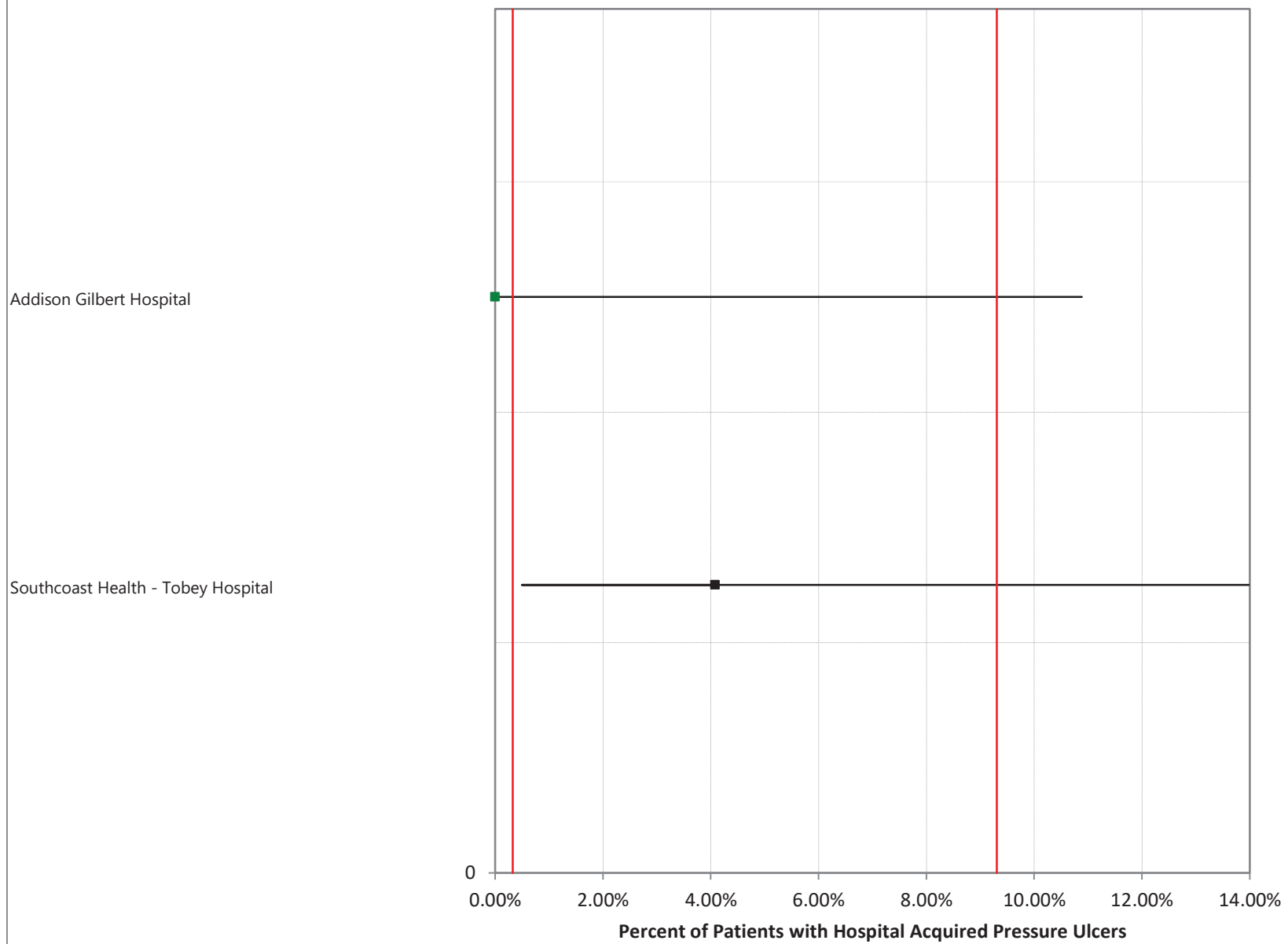
Adult Step-Down Units, 300-399 beds



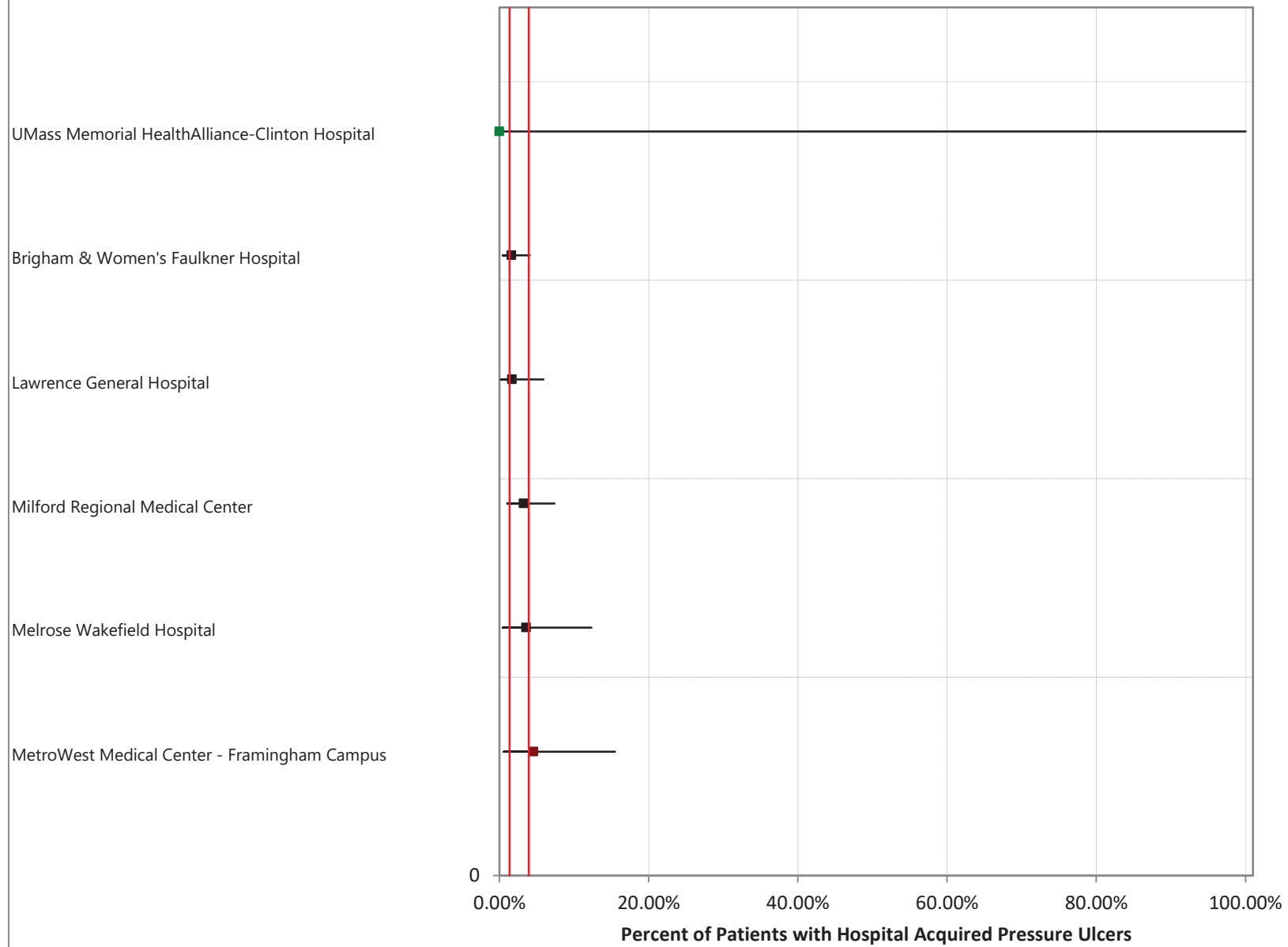
Adult Step-Down Units, More than 500 beds



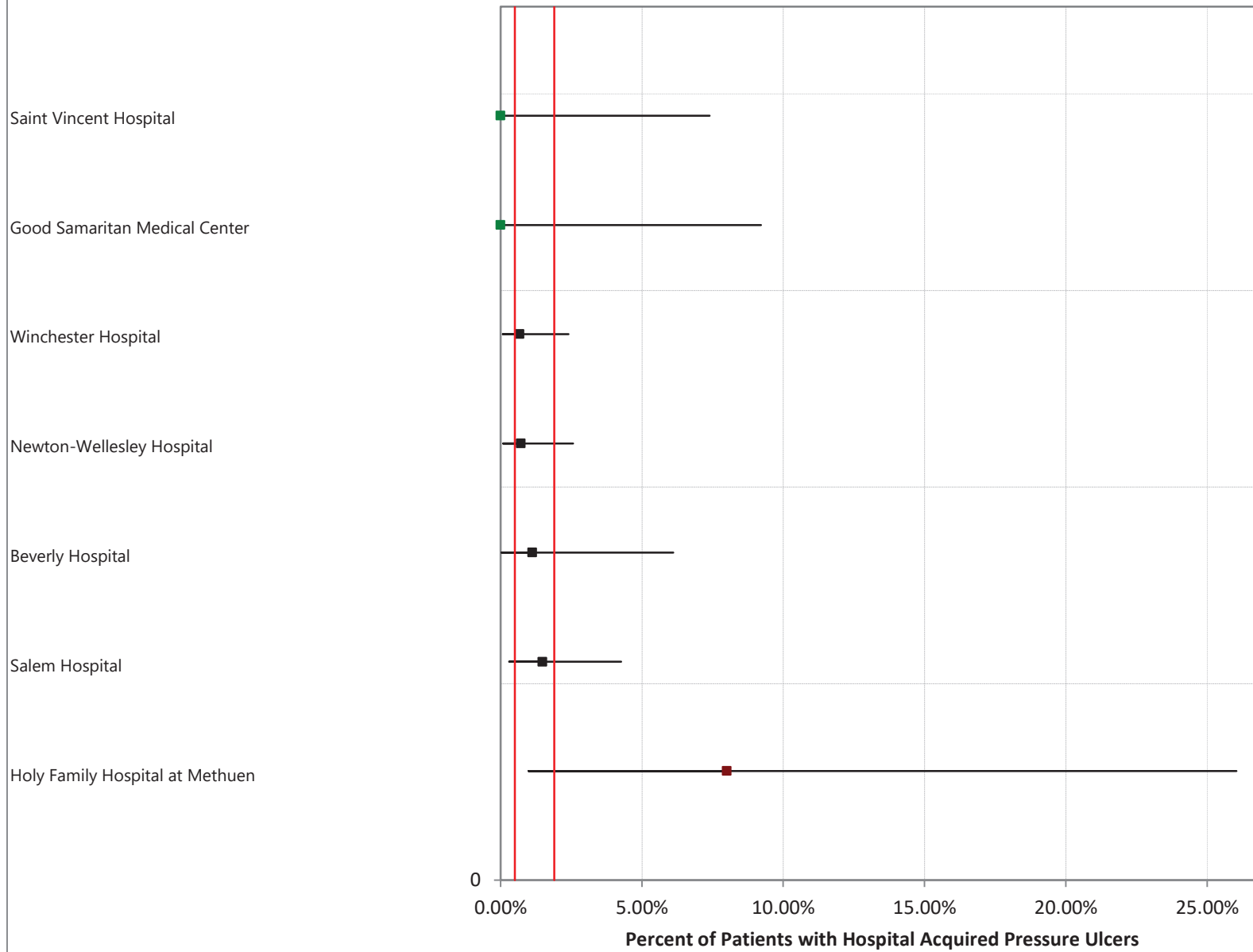
Adult Medical Units, Less than 100 beds



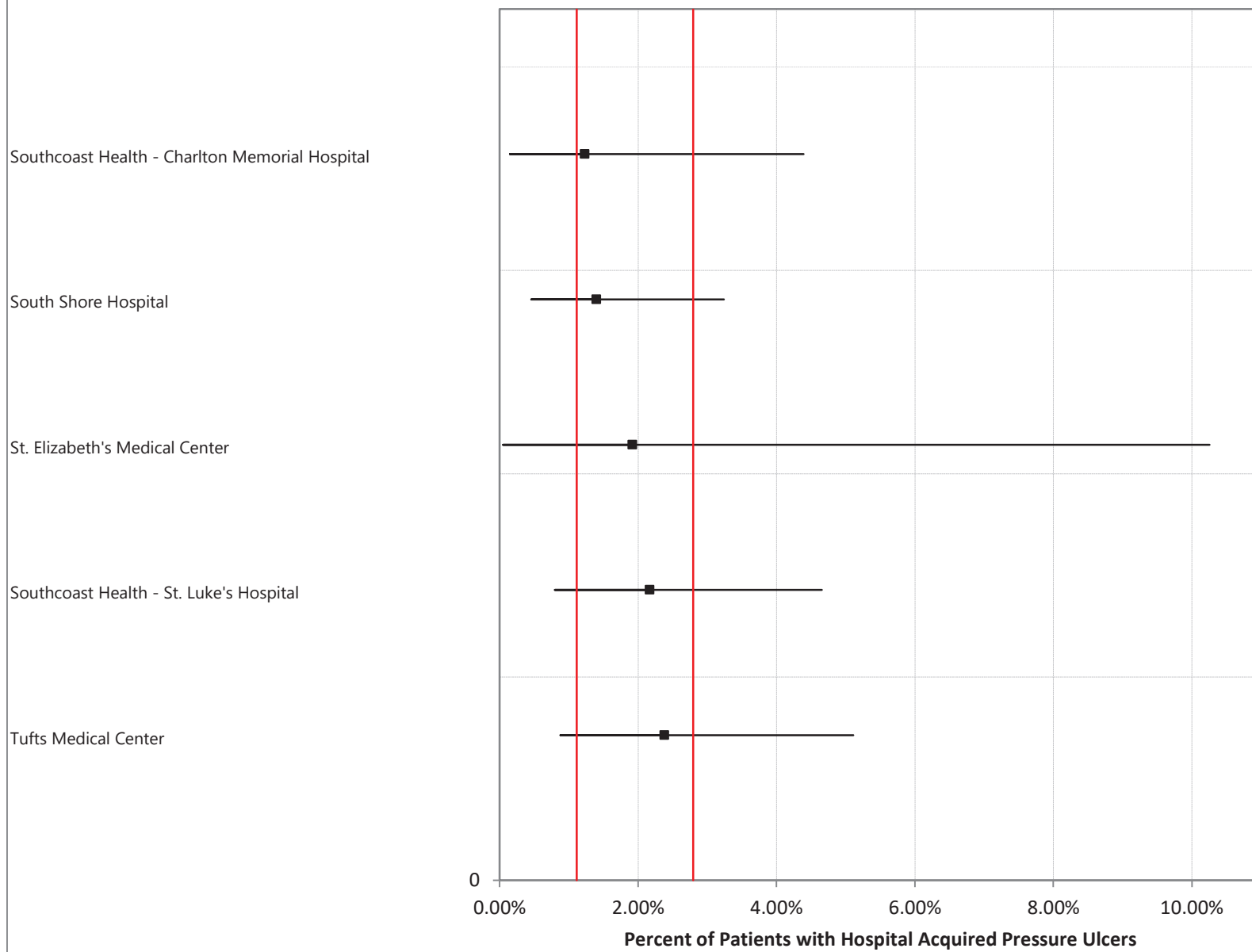
Adult Medical Units, 100-199 beds



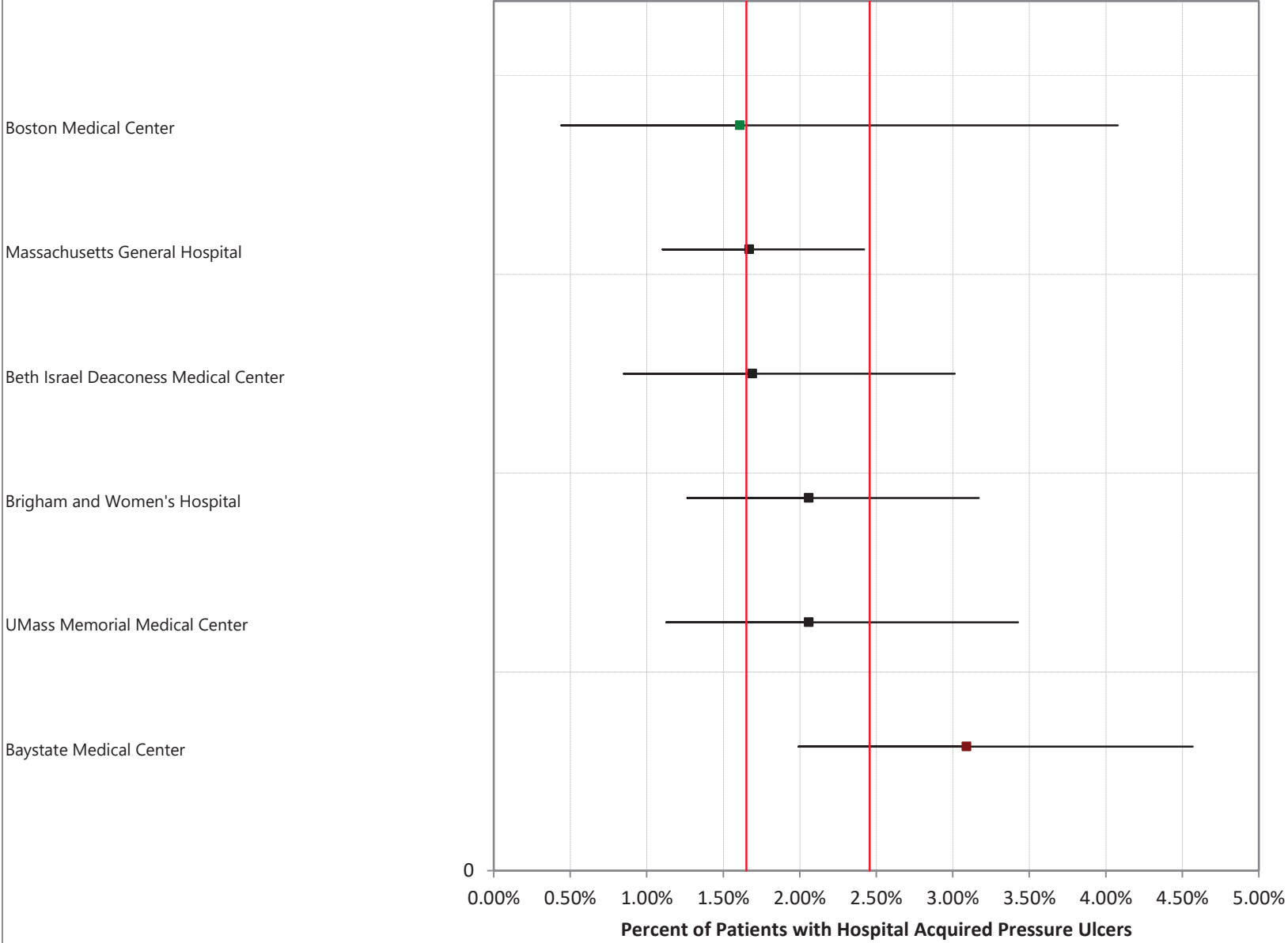
Adult Medical Units, 200-299 beds



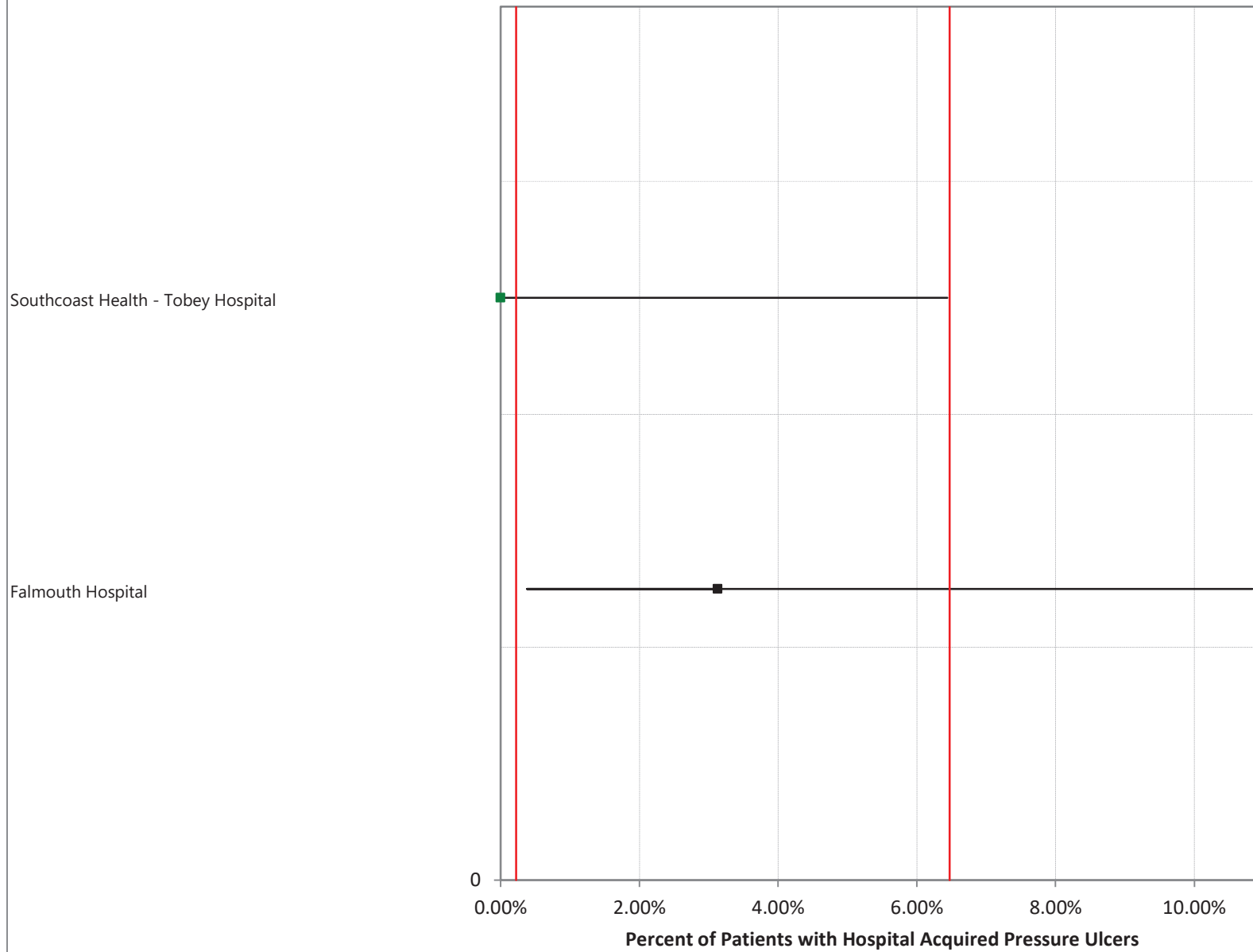
Adult Medical Units, 300-399 beds



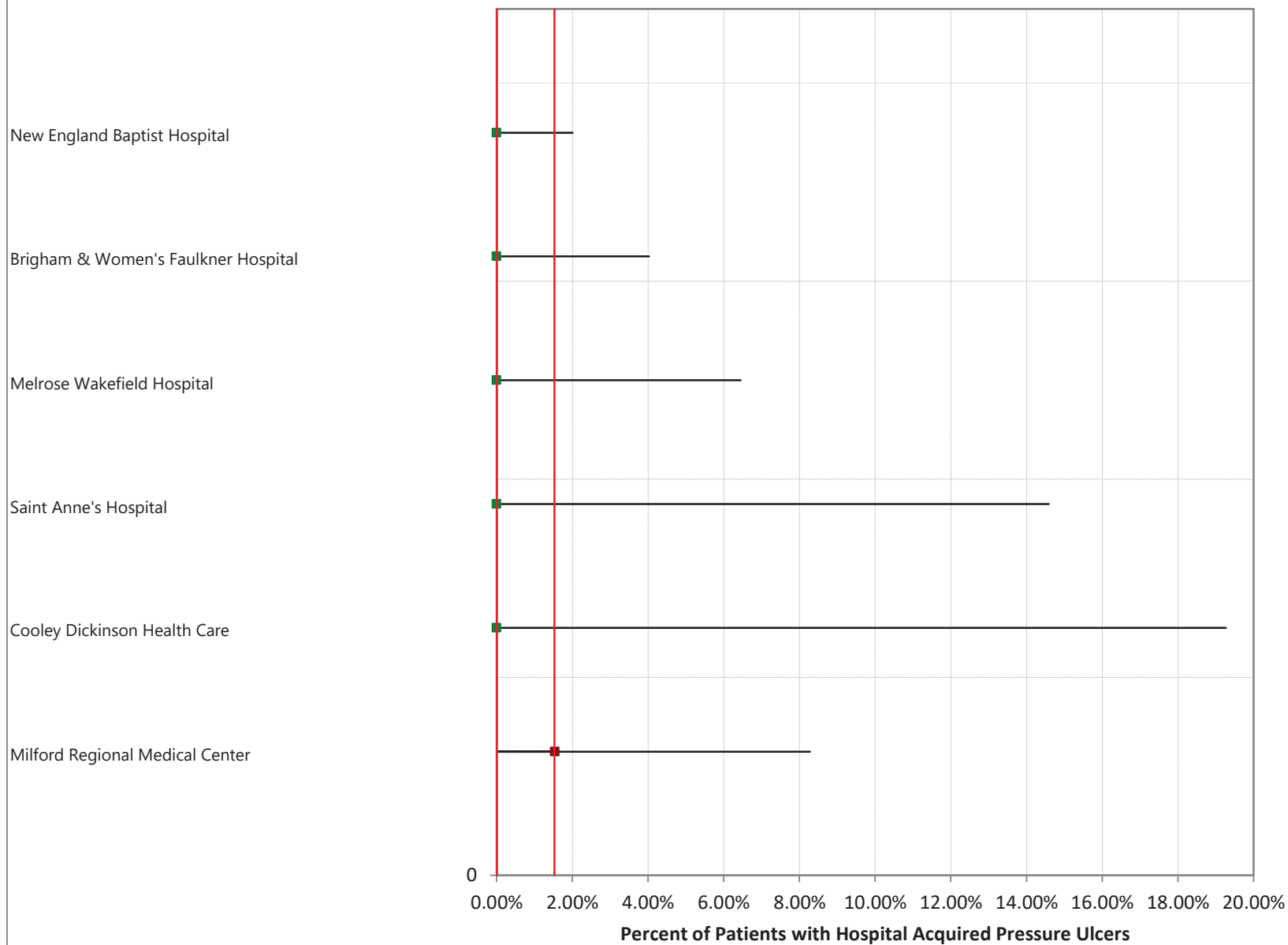
Adult Medical Units, More than 500 beds



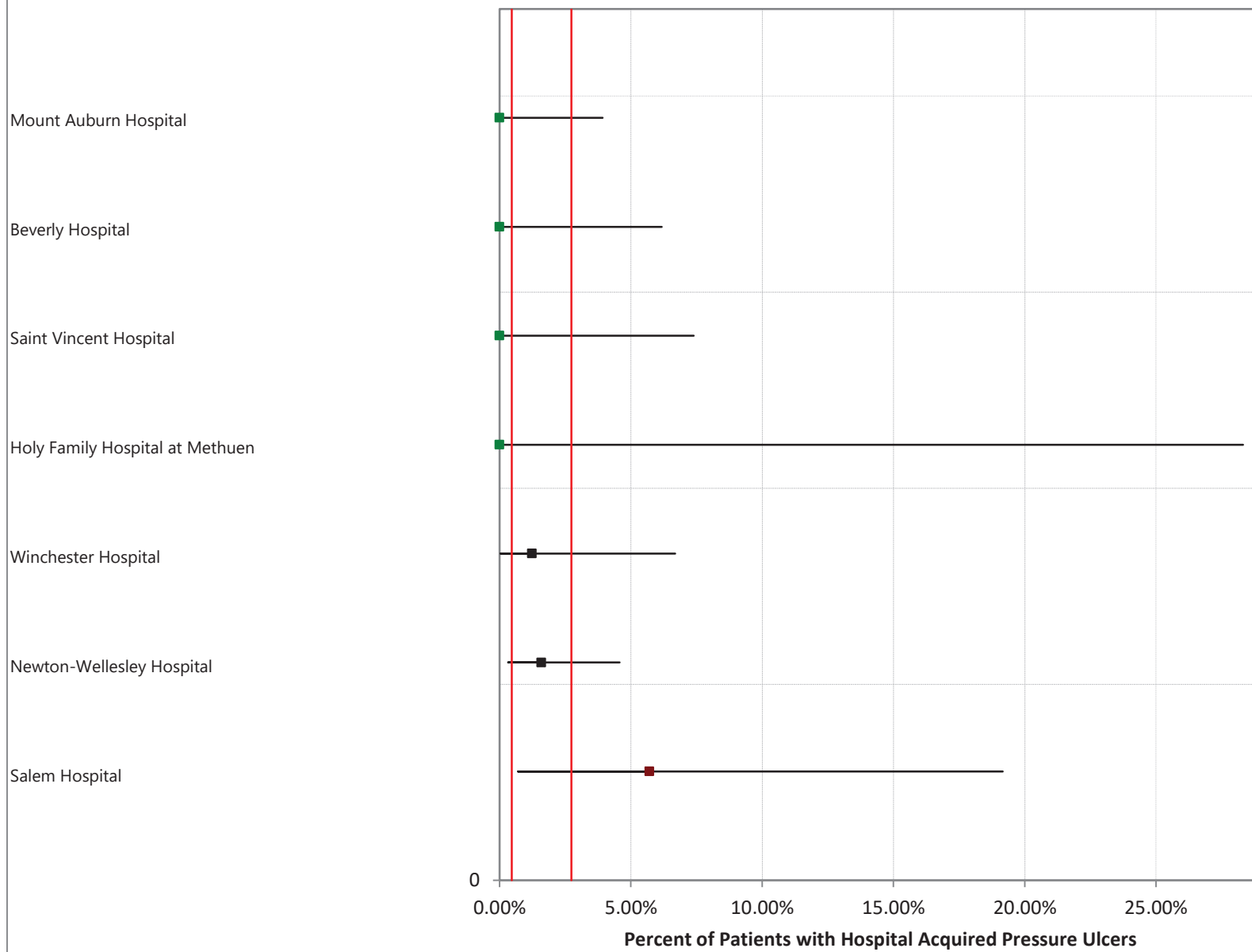
Adult Surgical Units, Less than 100 beds



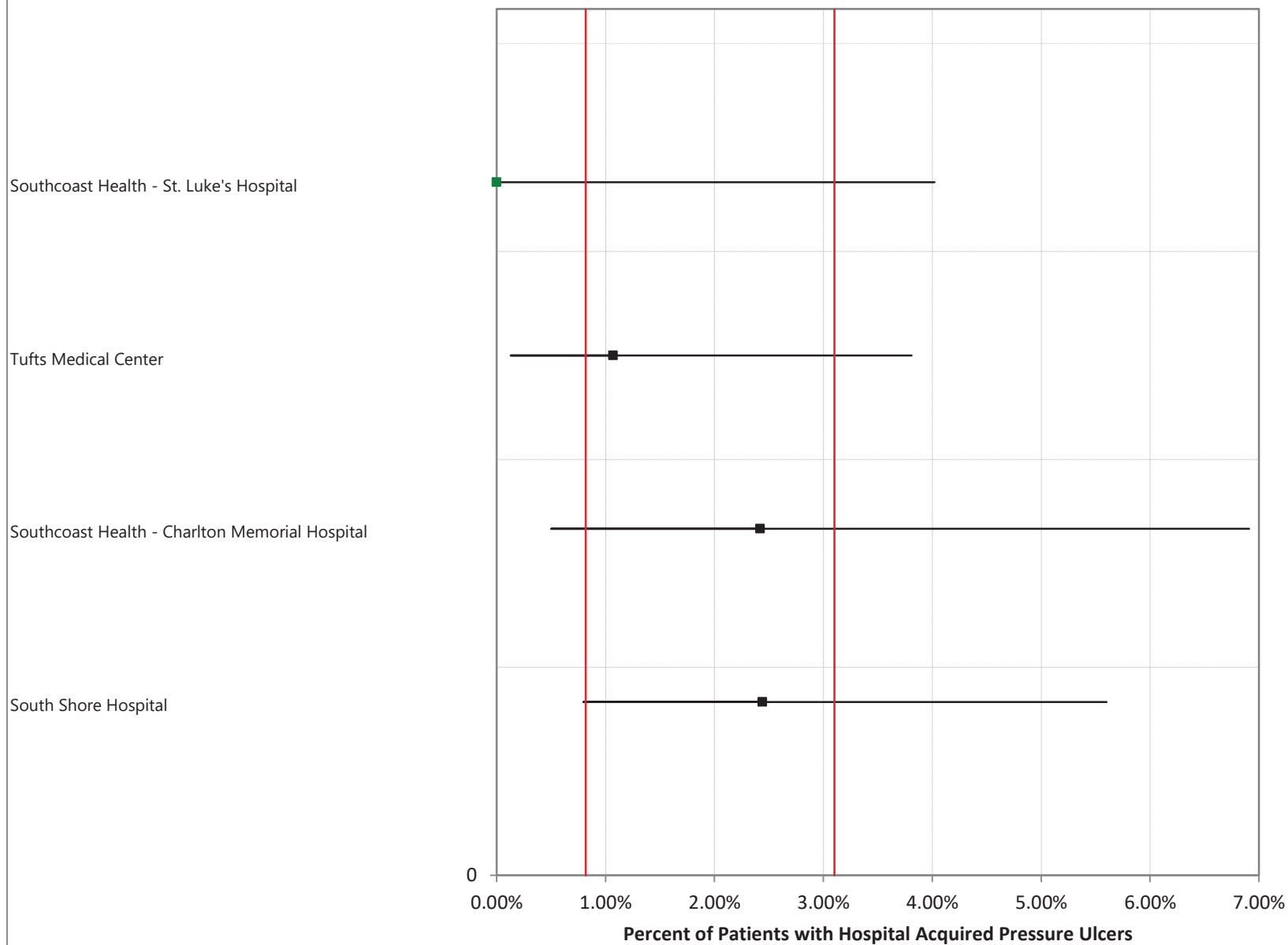
Adult Surgical Units, 100-199 beds



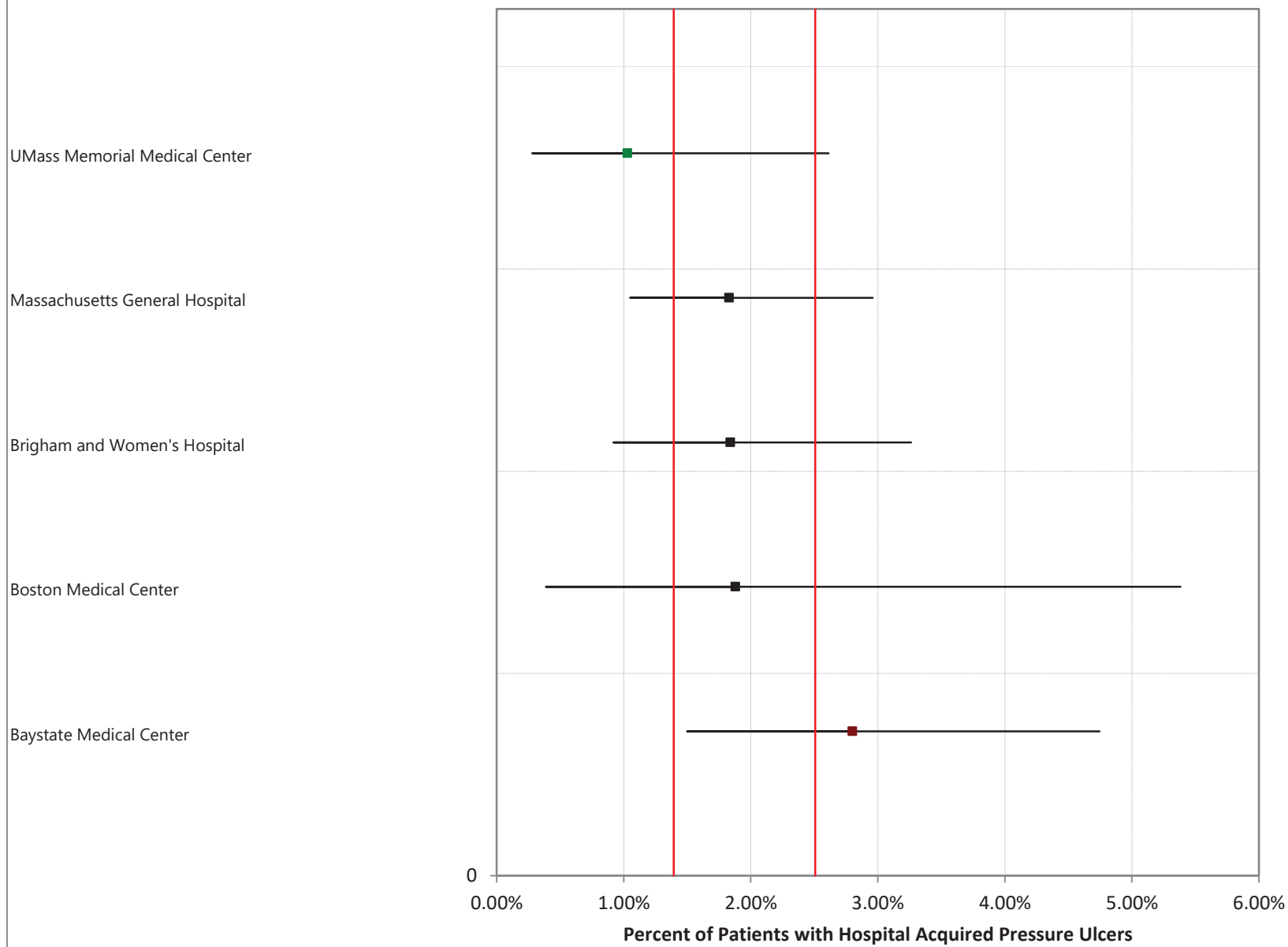
Adult Surgical Units, 200-299 beds



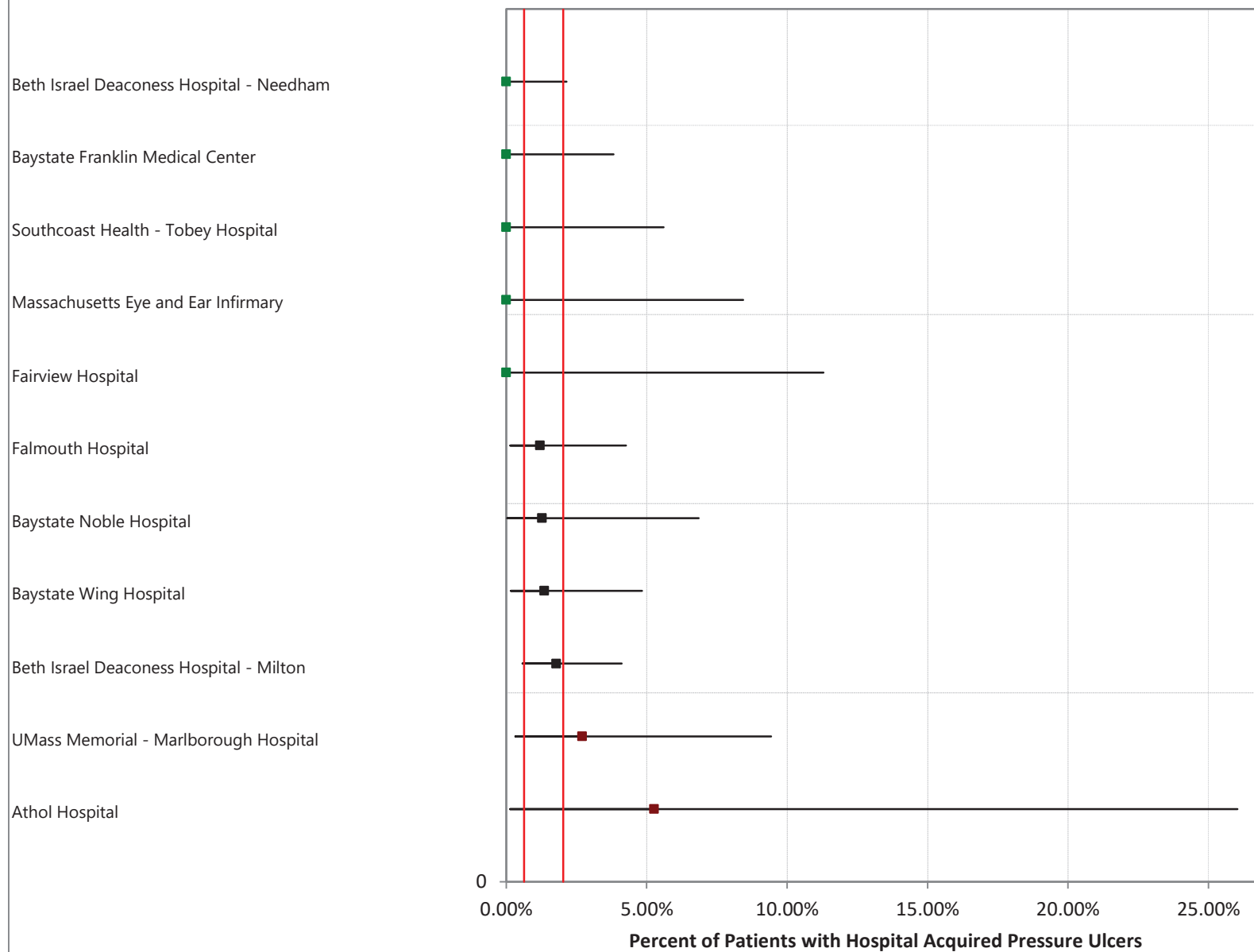
Adult Surgical Units, 300-399 beds



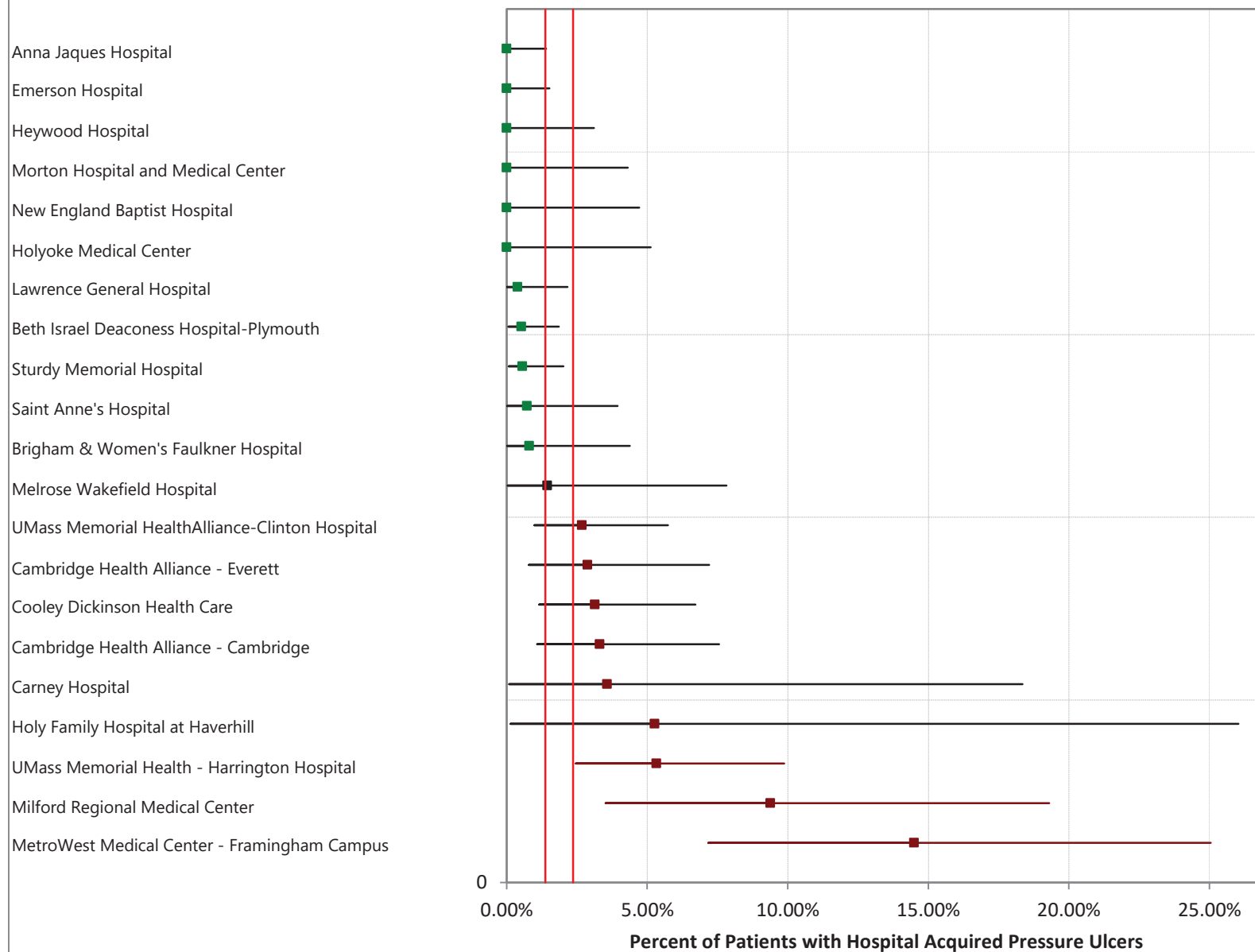
Adult Surgical Units, More than 500 beds



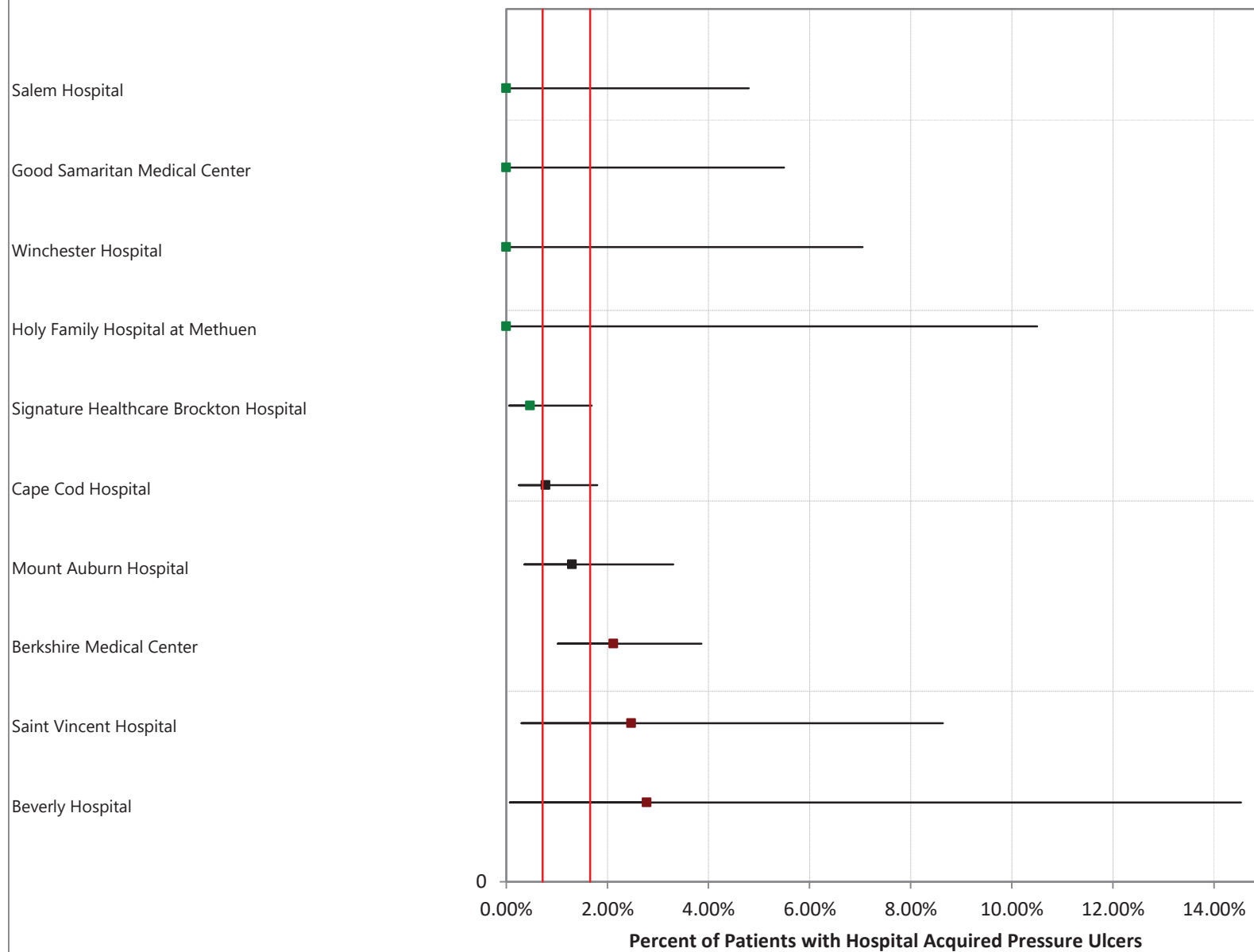
Adult Medical-Surgical Units, Less than 100 beds



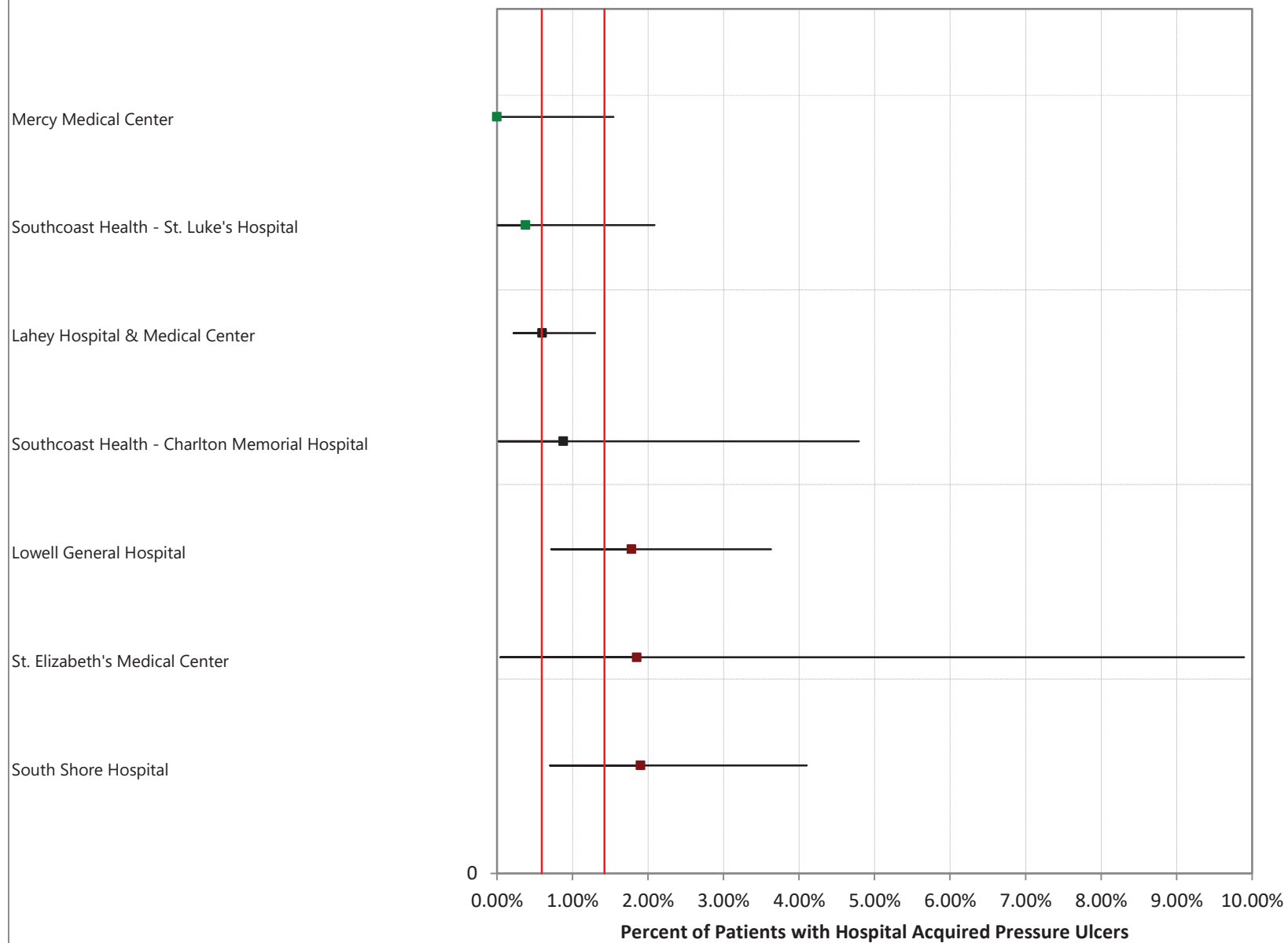
Adult Medical-Surgical Units, 100-199 beds



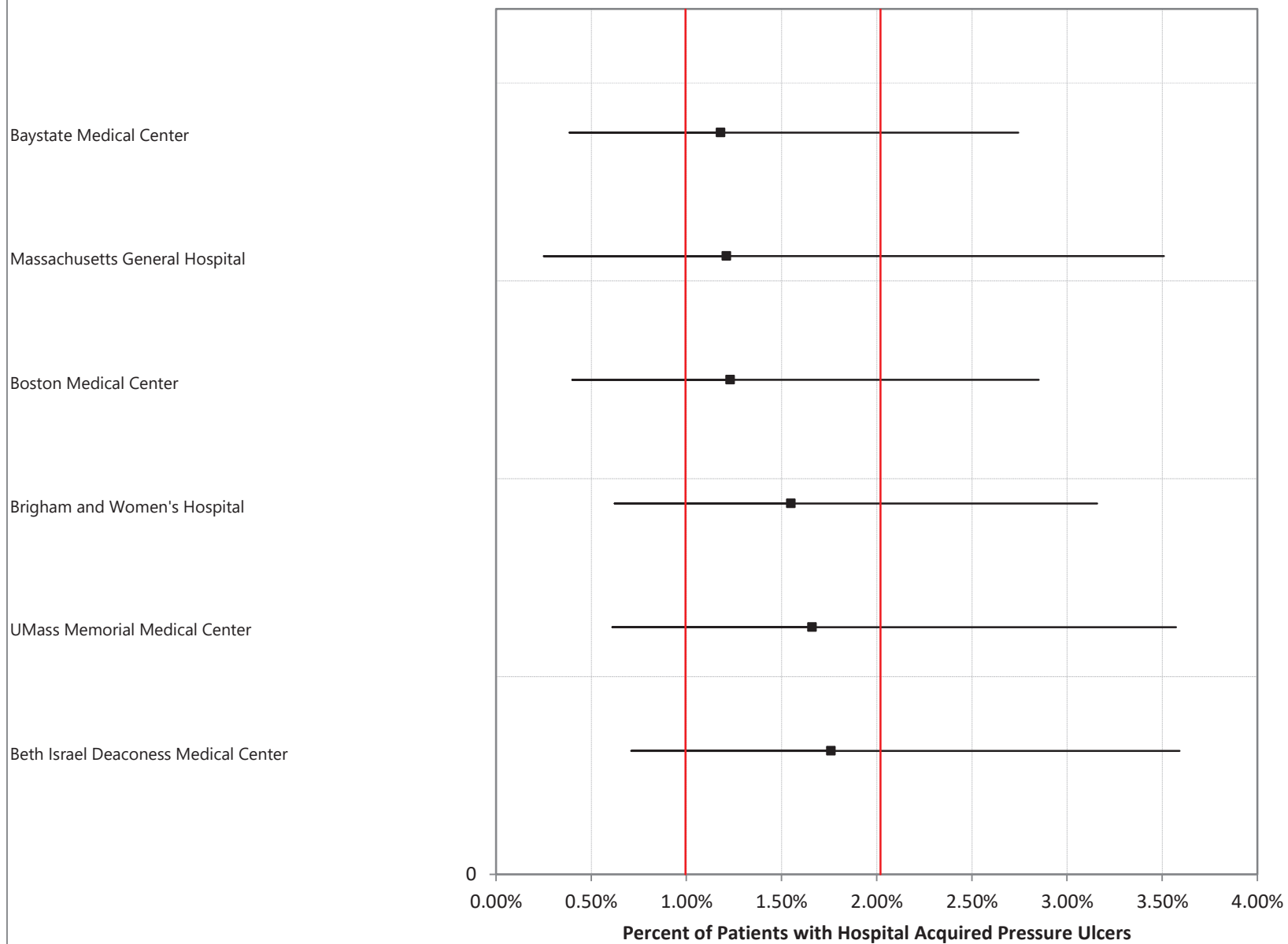
Adult Medical-Surgical Units, 200-299 beds



Adult Medical-Surgical Units, 300-399 beds



Adult Medical-Surgical Units, More than 500 beds

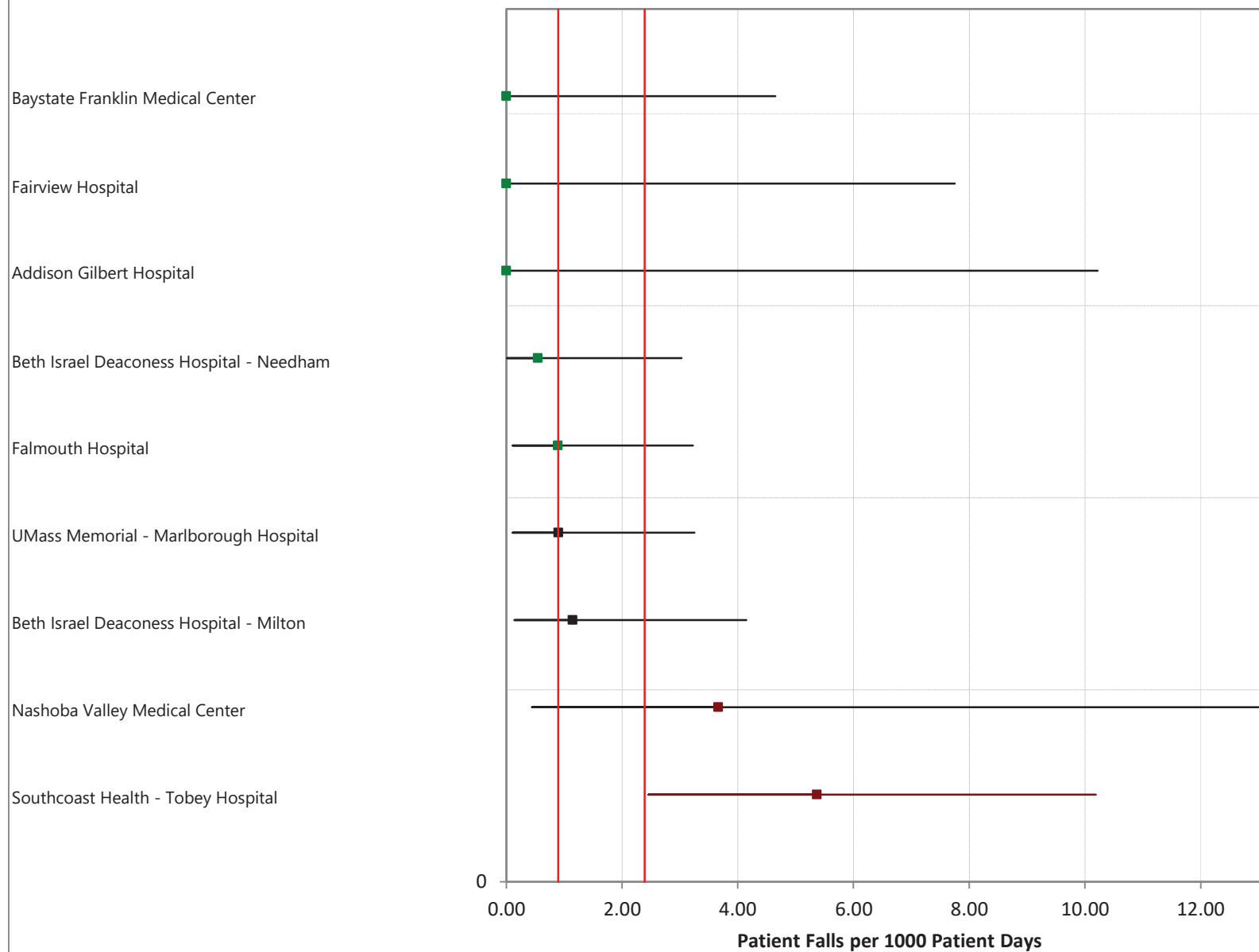


NSC-3 Patient Falls

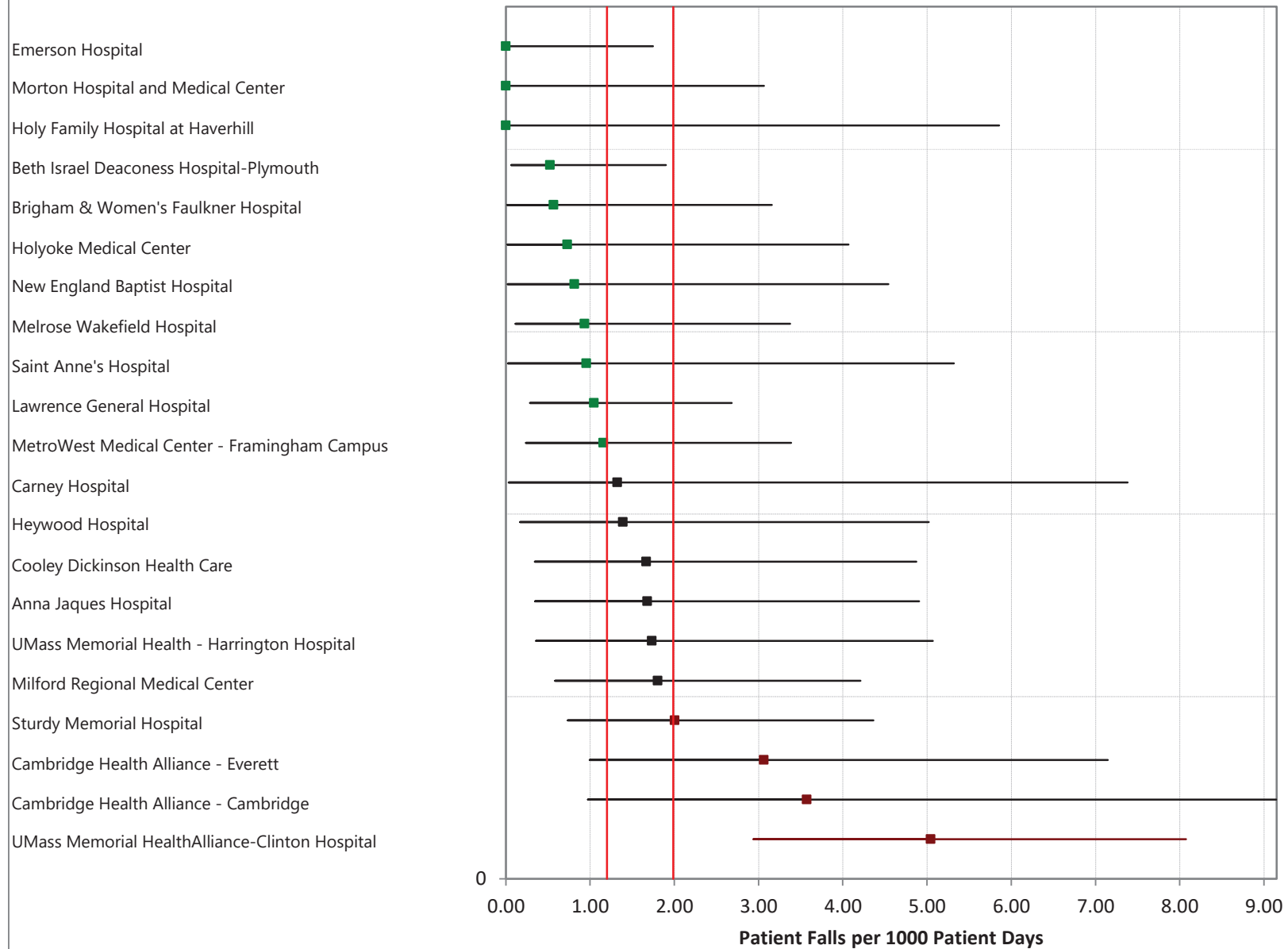
July-December 2019 *and* January-June 2022

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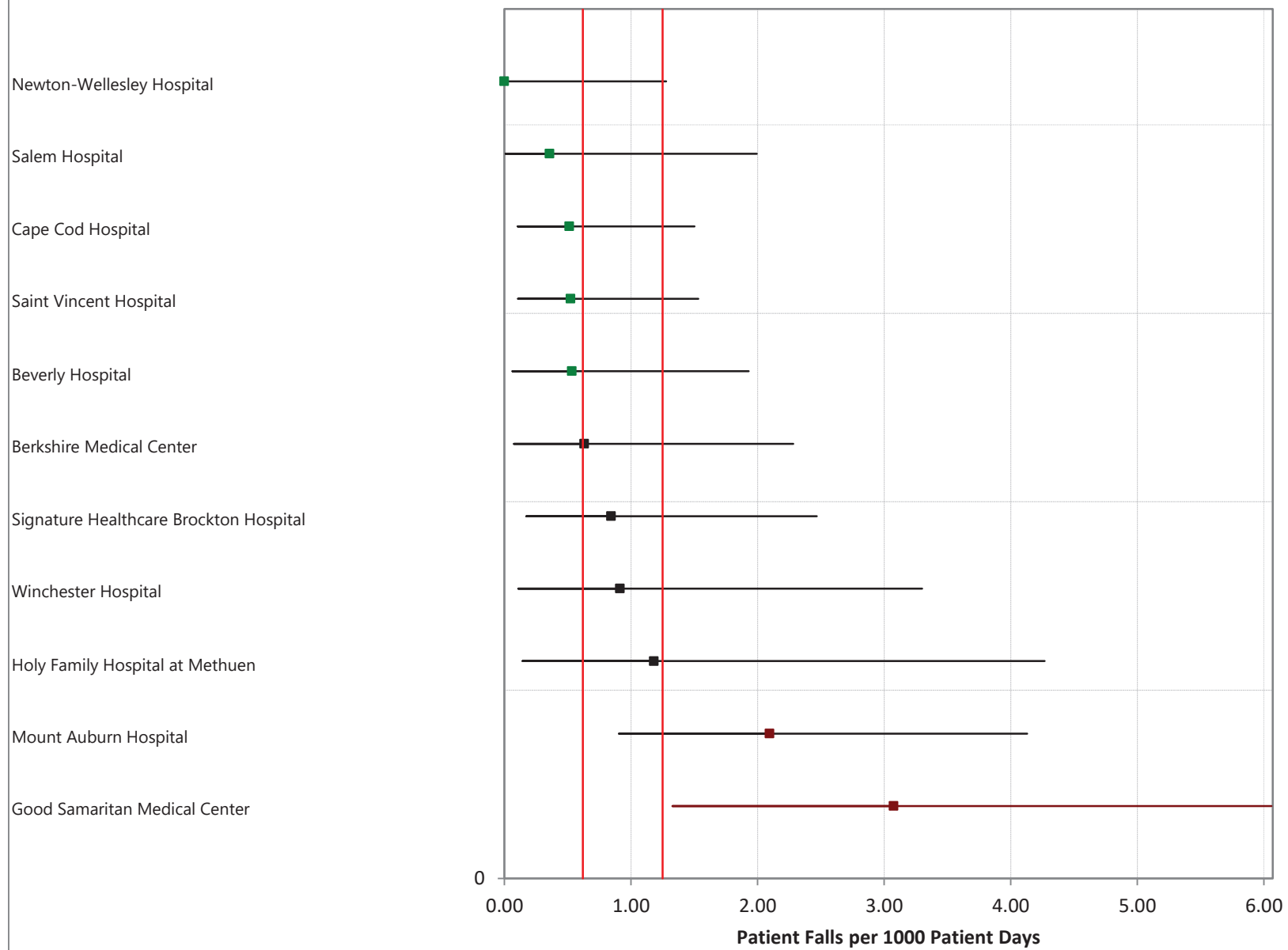
Adult Critical Care Units, Less than 100 beds



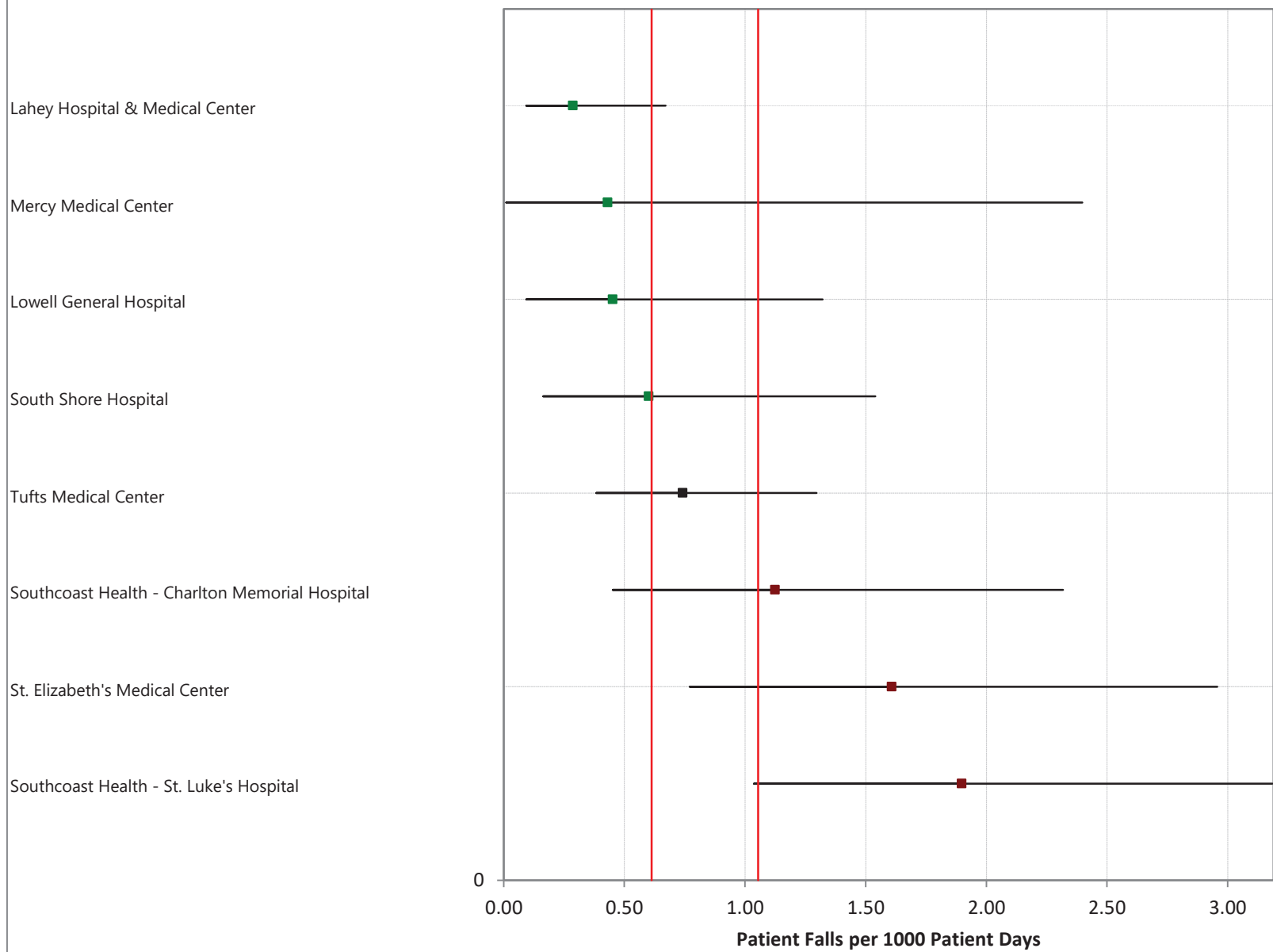
Adult Critical Care Units, 100-199 beds



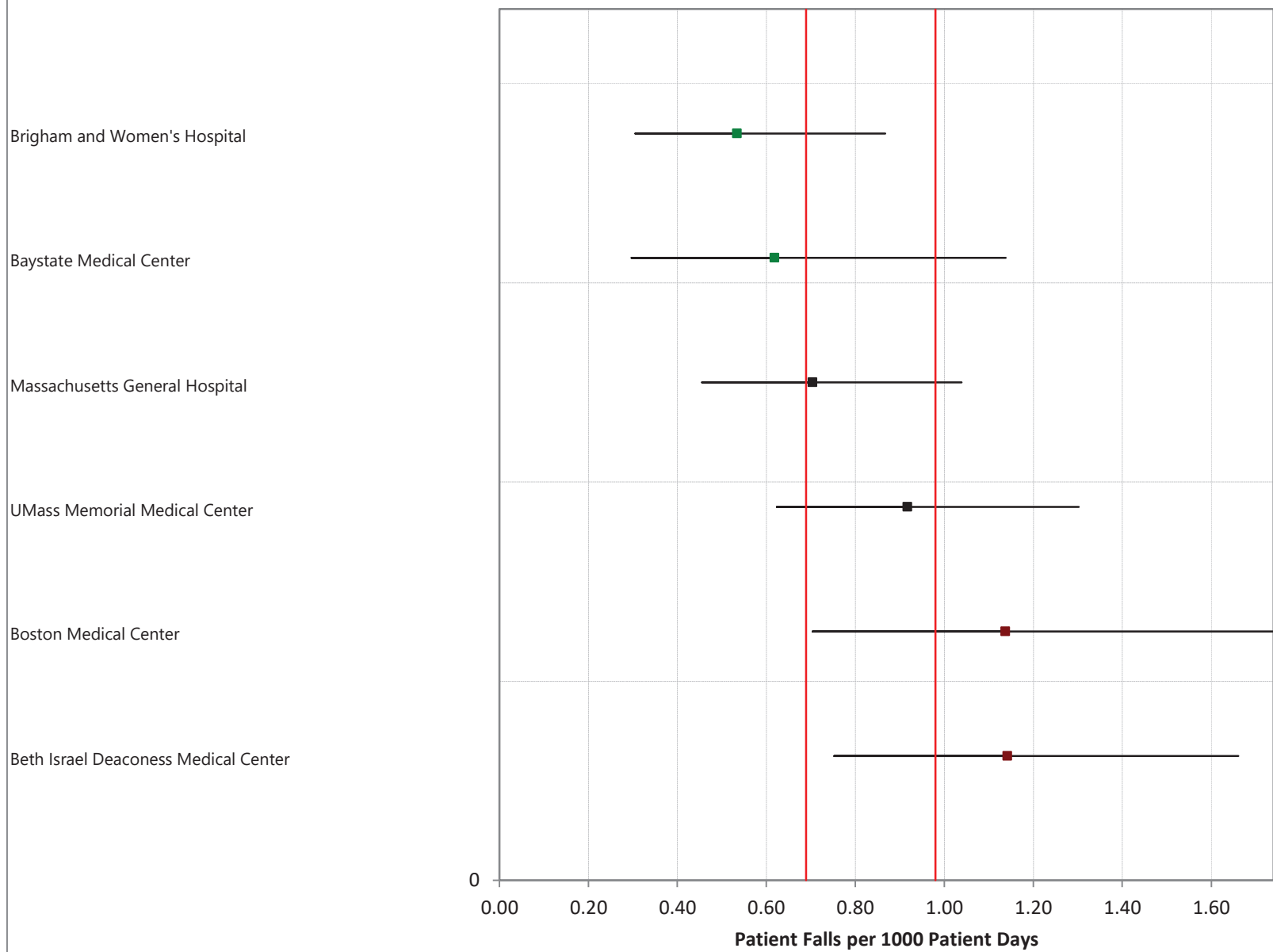
Adult Critical Care Units, 200-299 beds



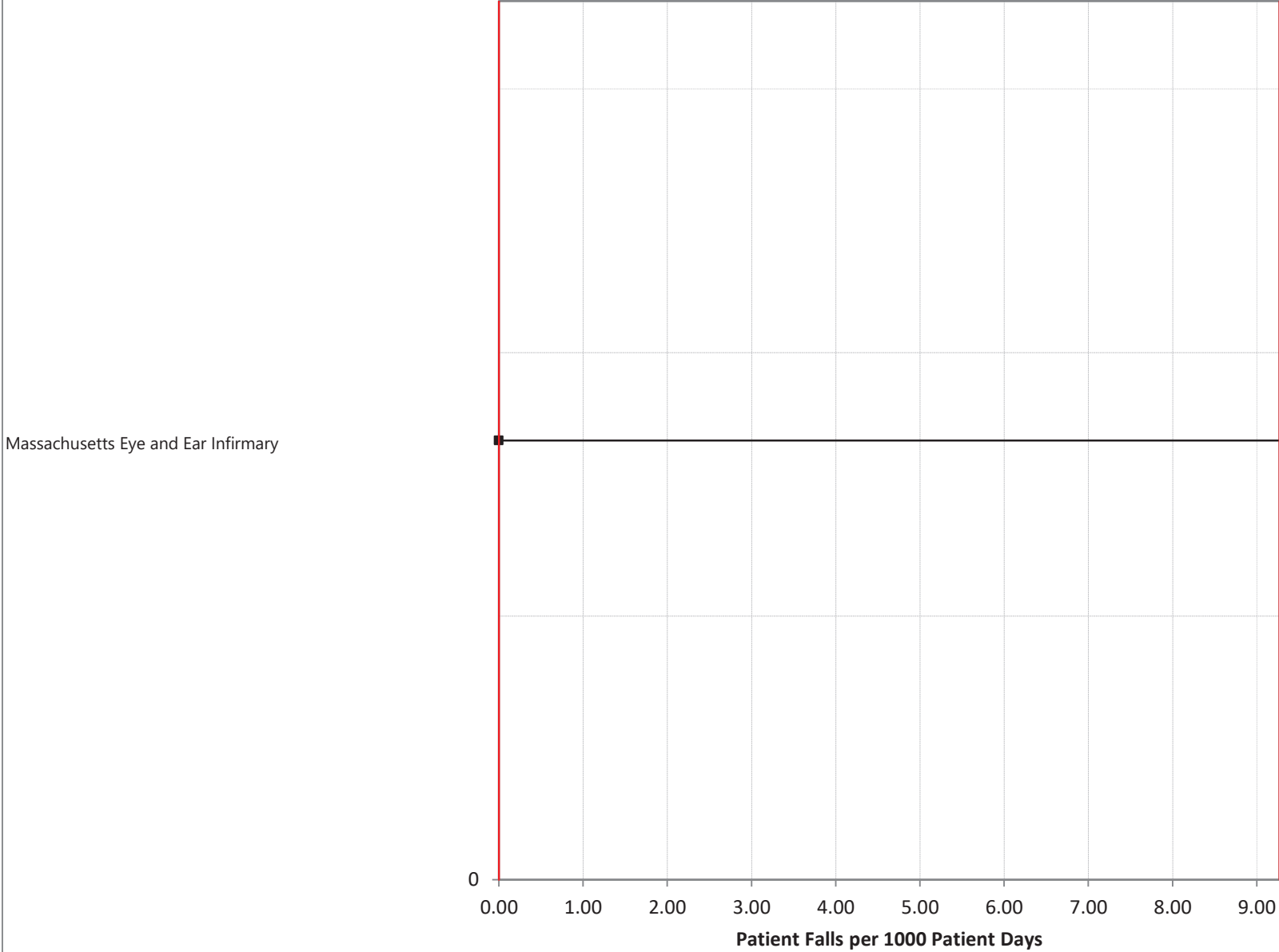
Adult Critical Care Units, 300-399 beds



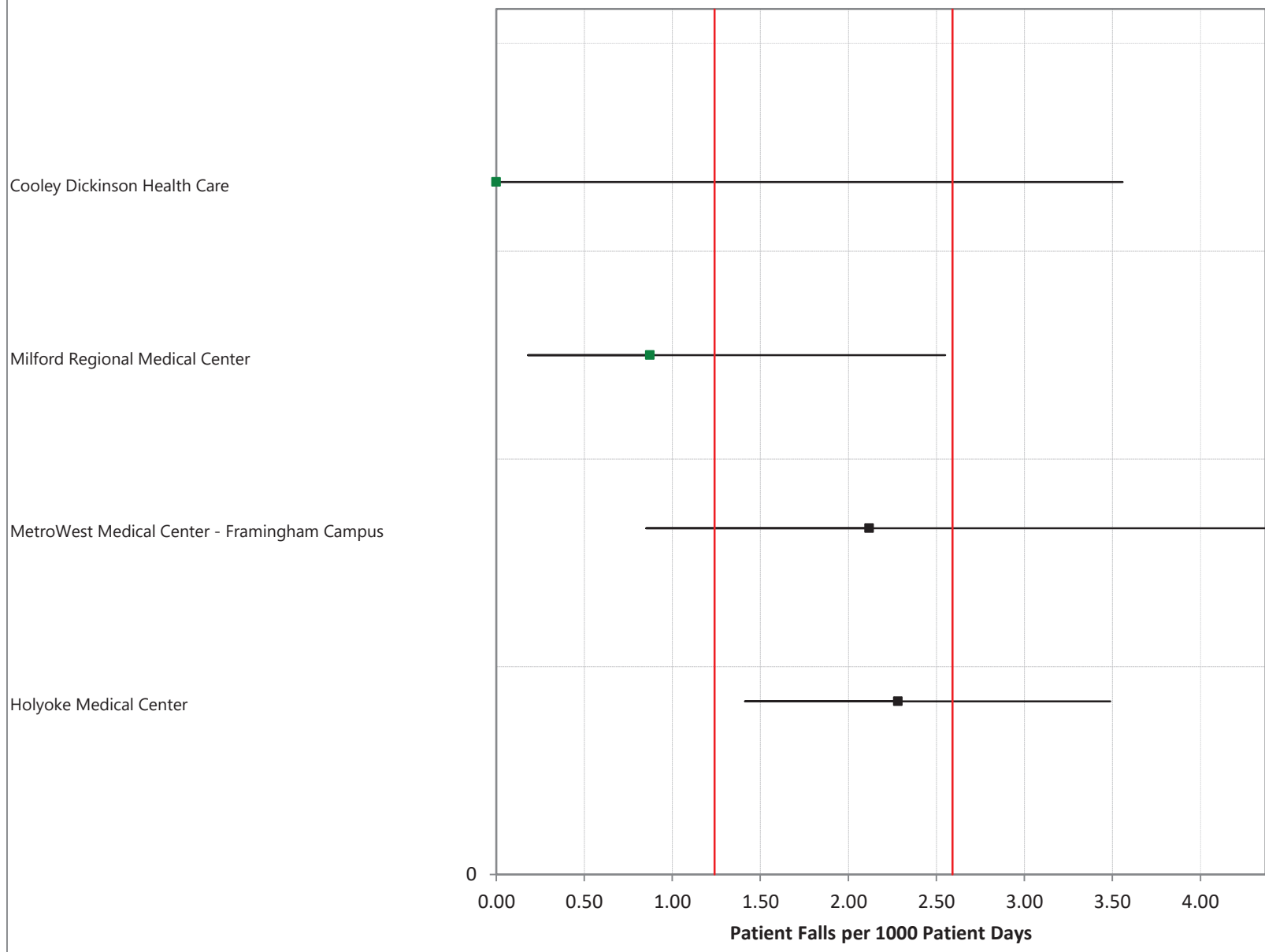
Adult Critical Care Units, More than 500 beds



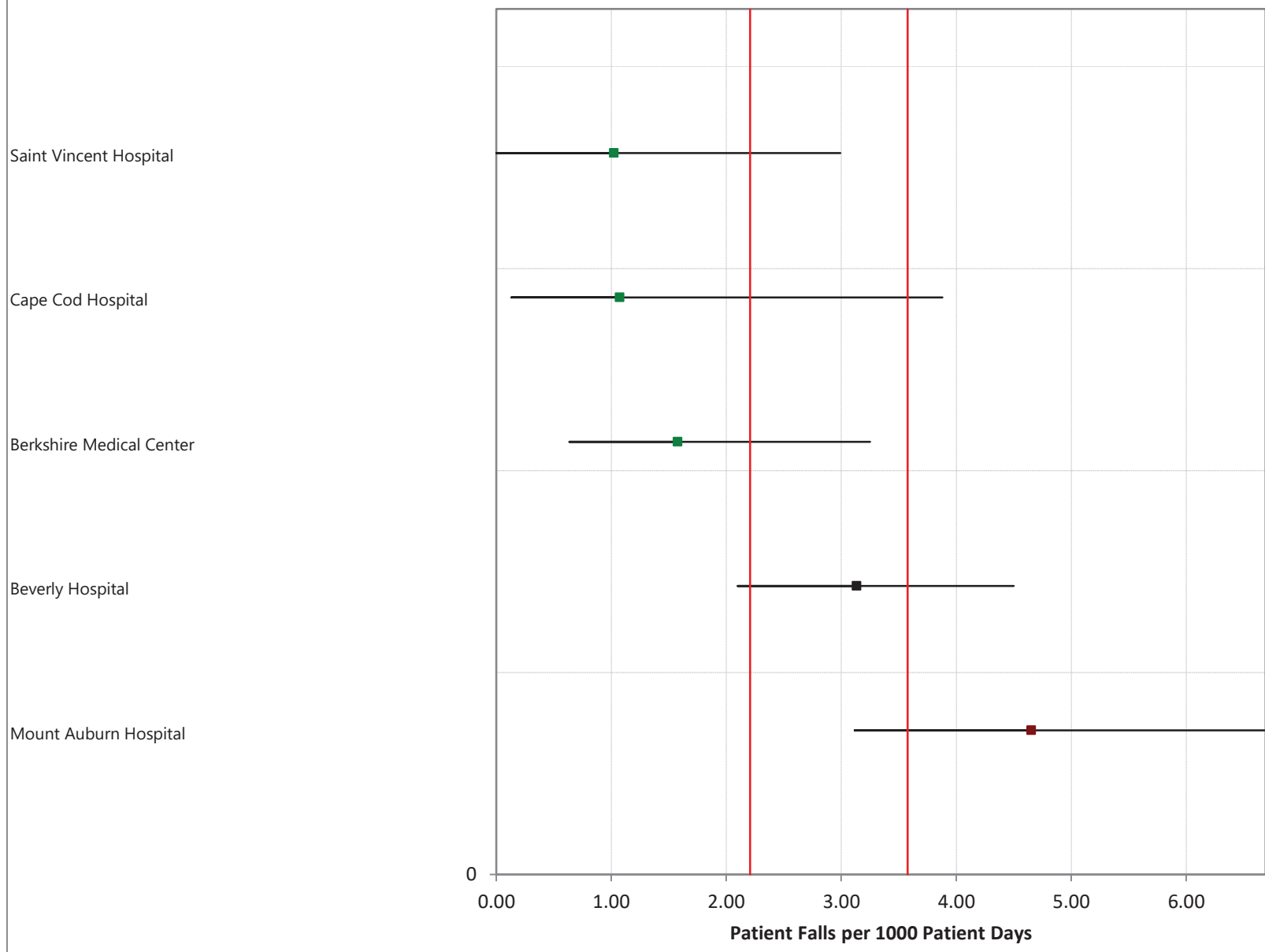
Adult Step-Down Units, Less than 100 beds



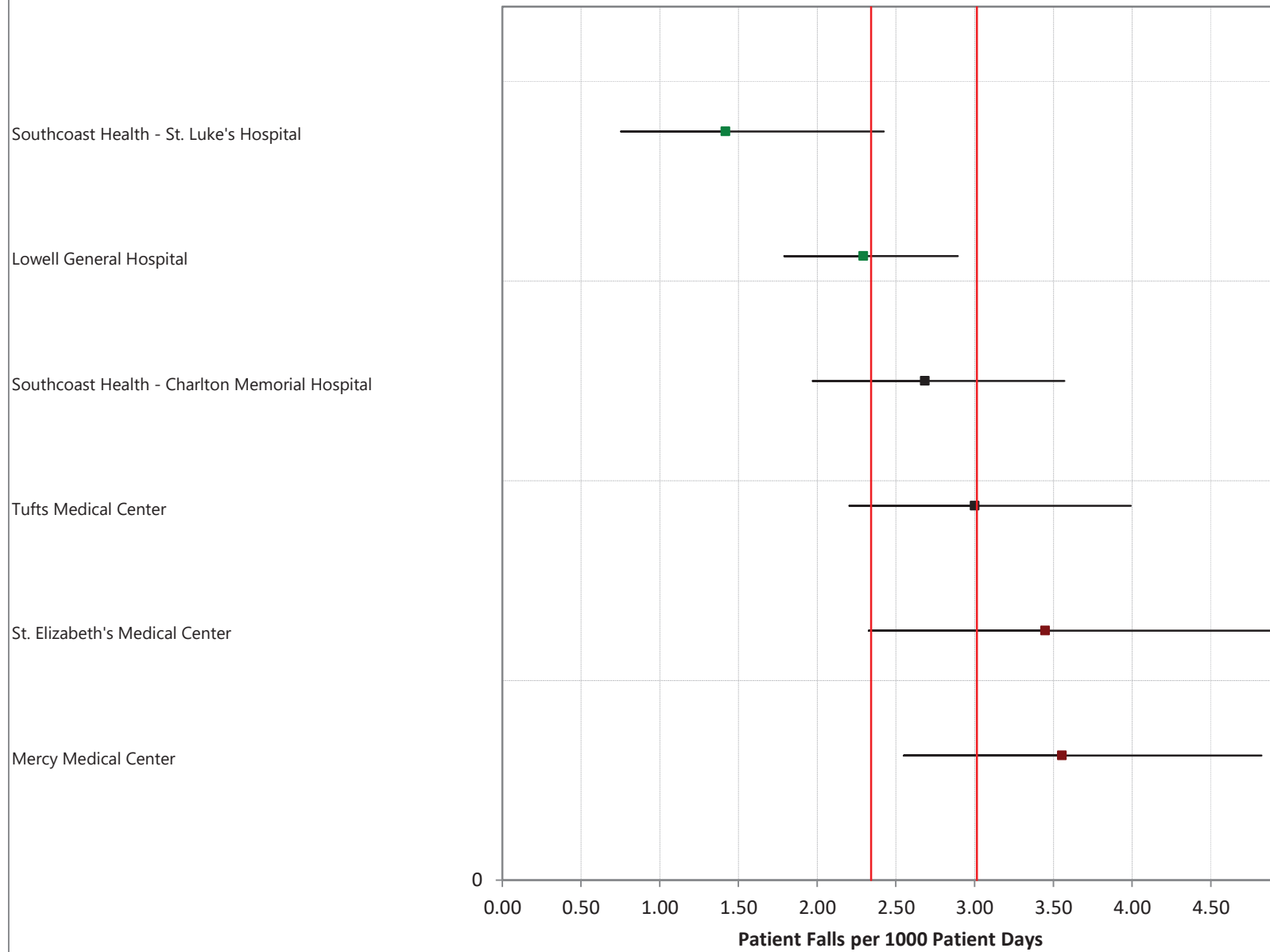
Adult Step-Down Units, 100-199 beds



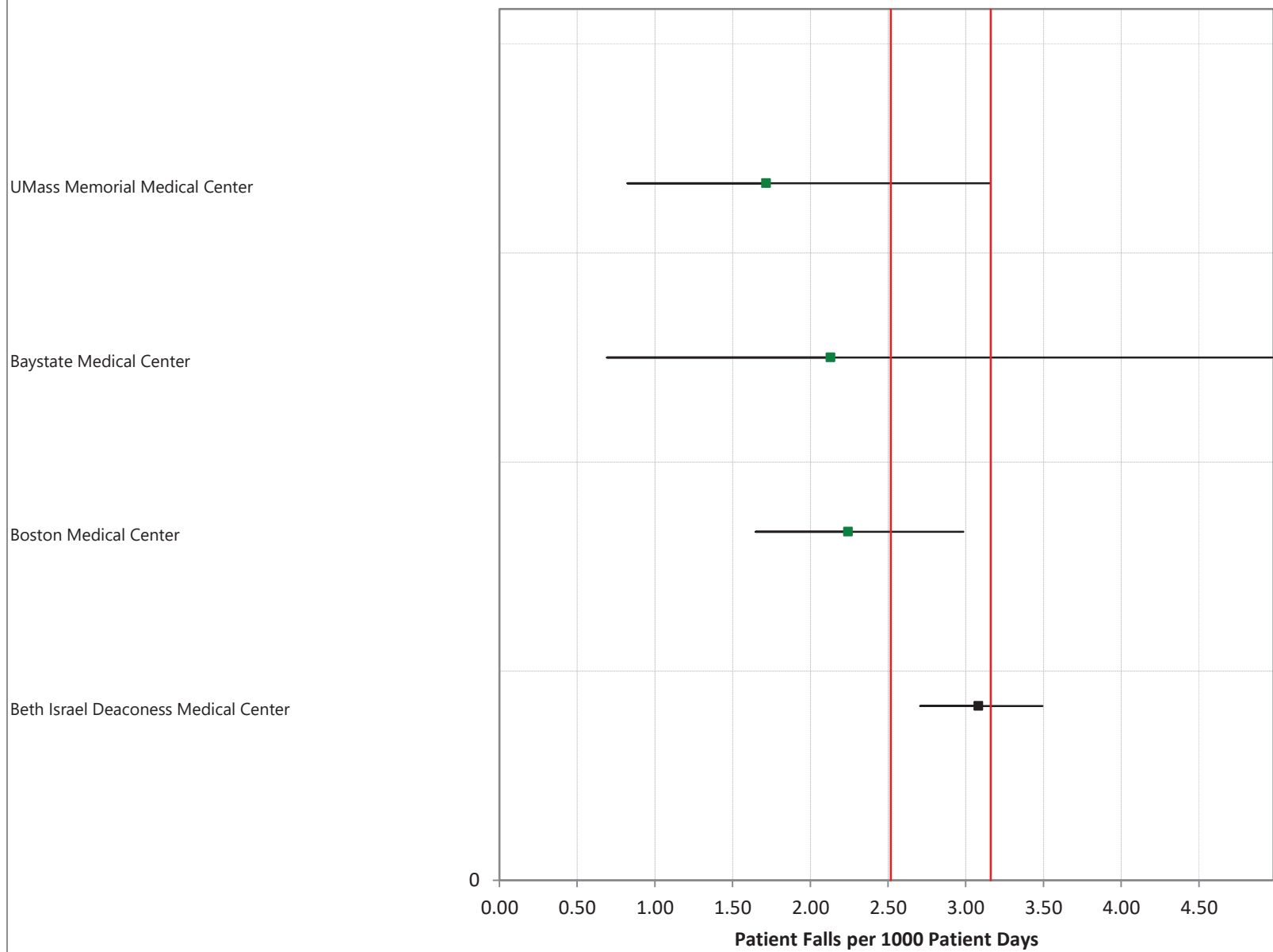
Adult Step-Down Units, 200-299 beds



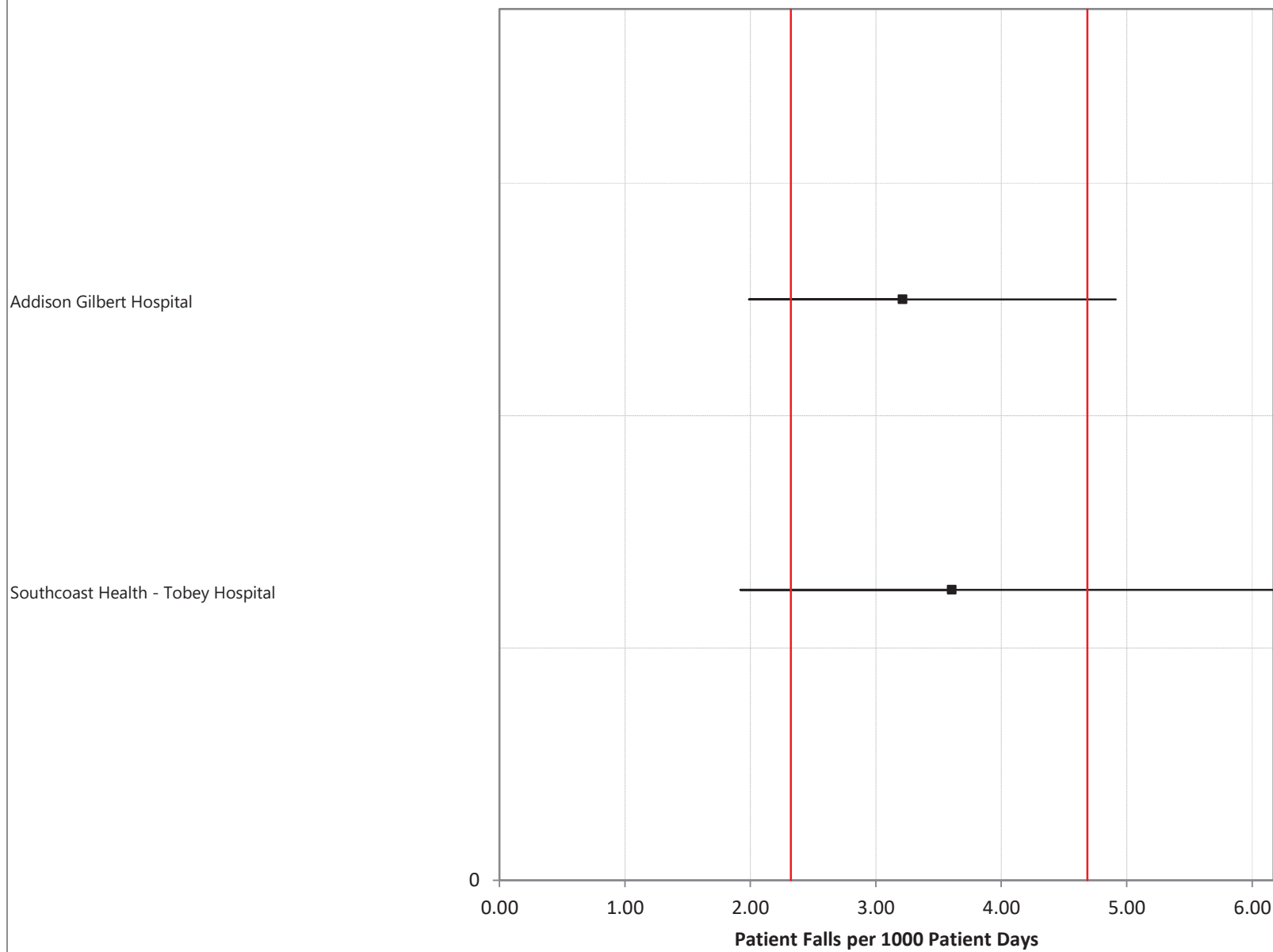
Adult Step-Down Units, 300-399 beds



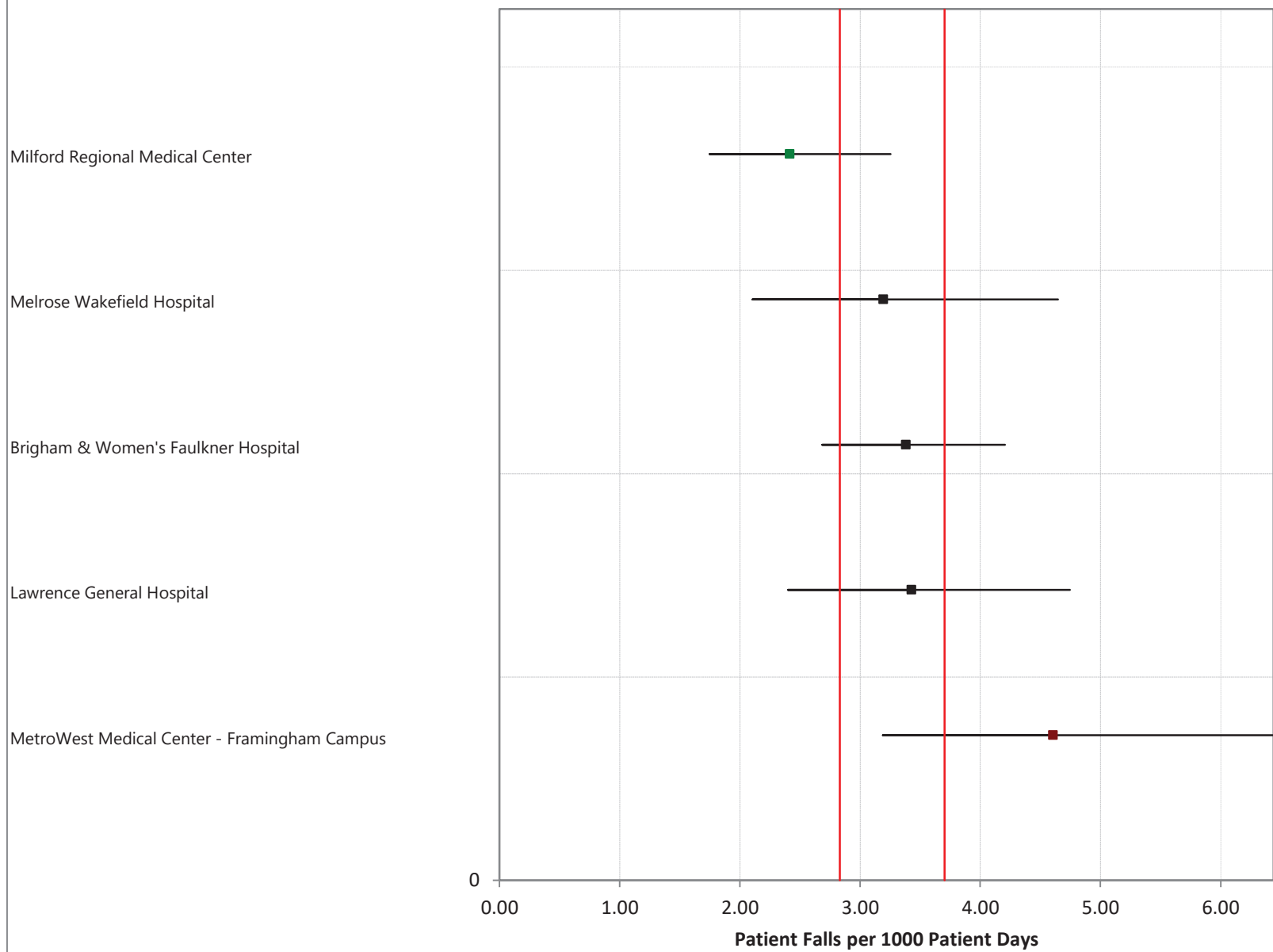
Adult Step-Down Units, More than 500 beds



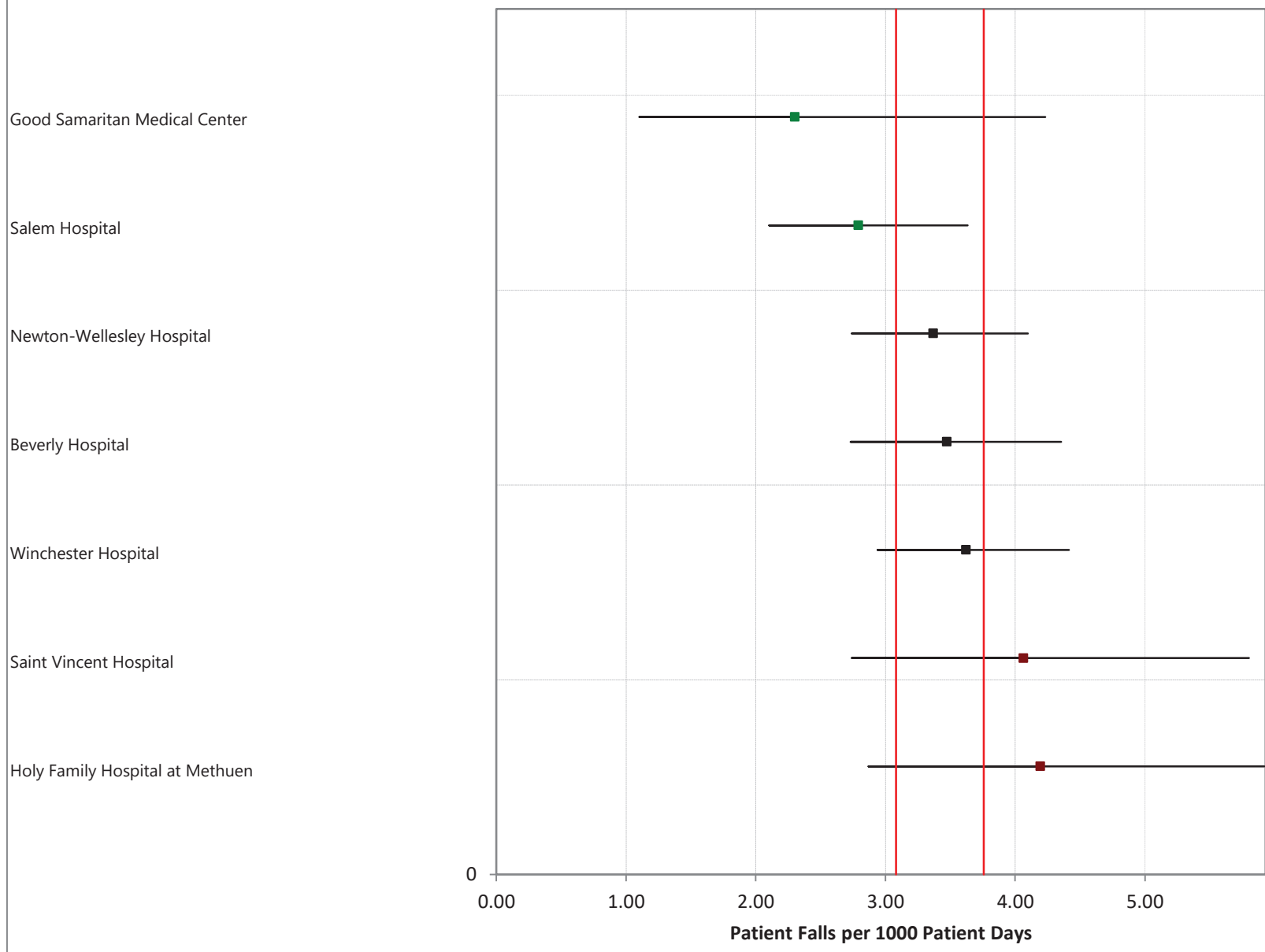
Adult Medical Units, Less than 100 beds



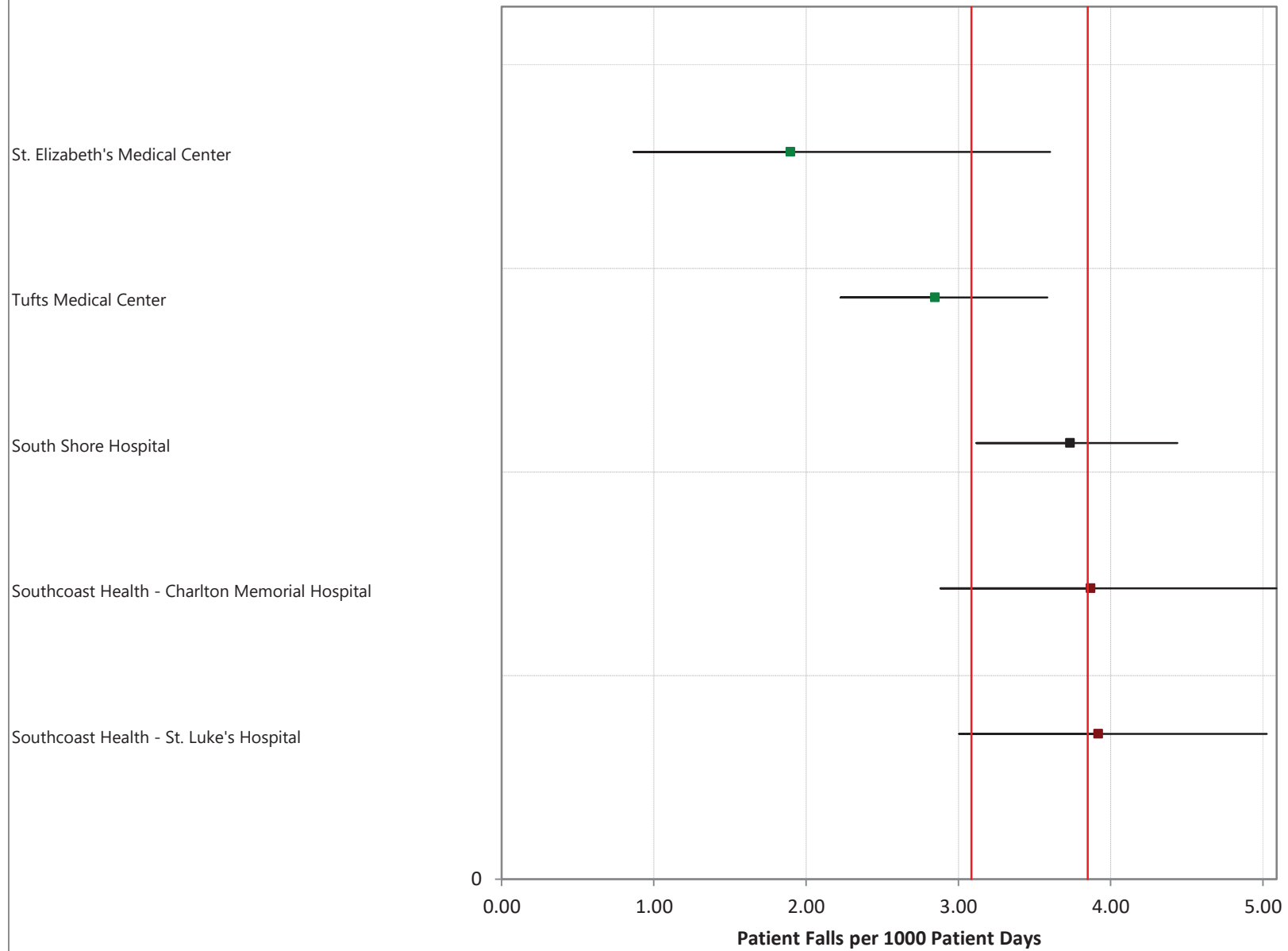
Adult Medical Units, 100-199 beds



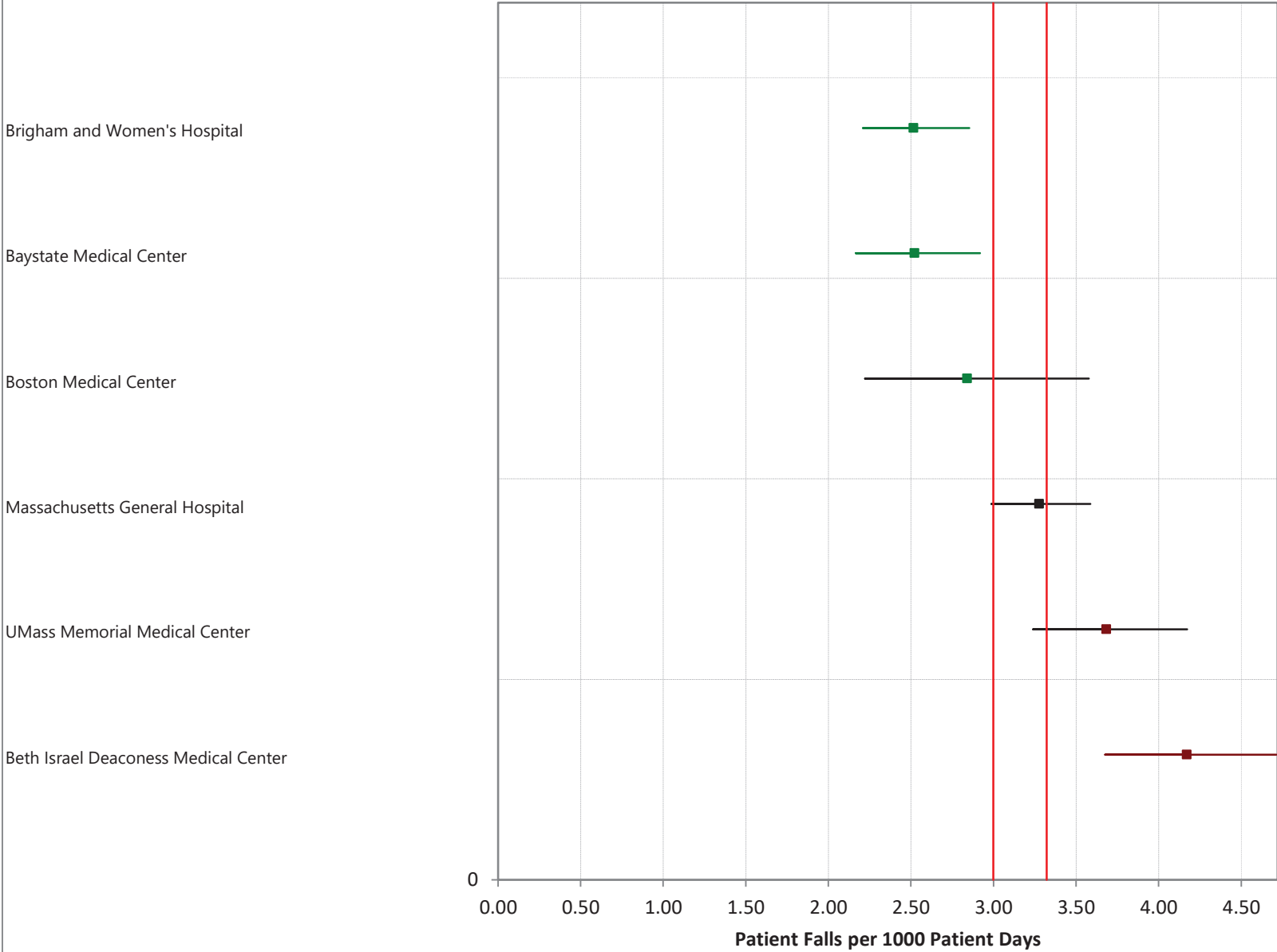
Adult Medical Units, 200-299 beds



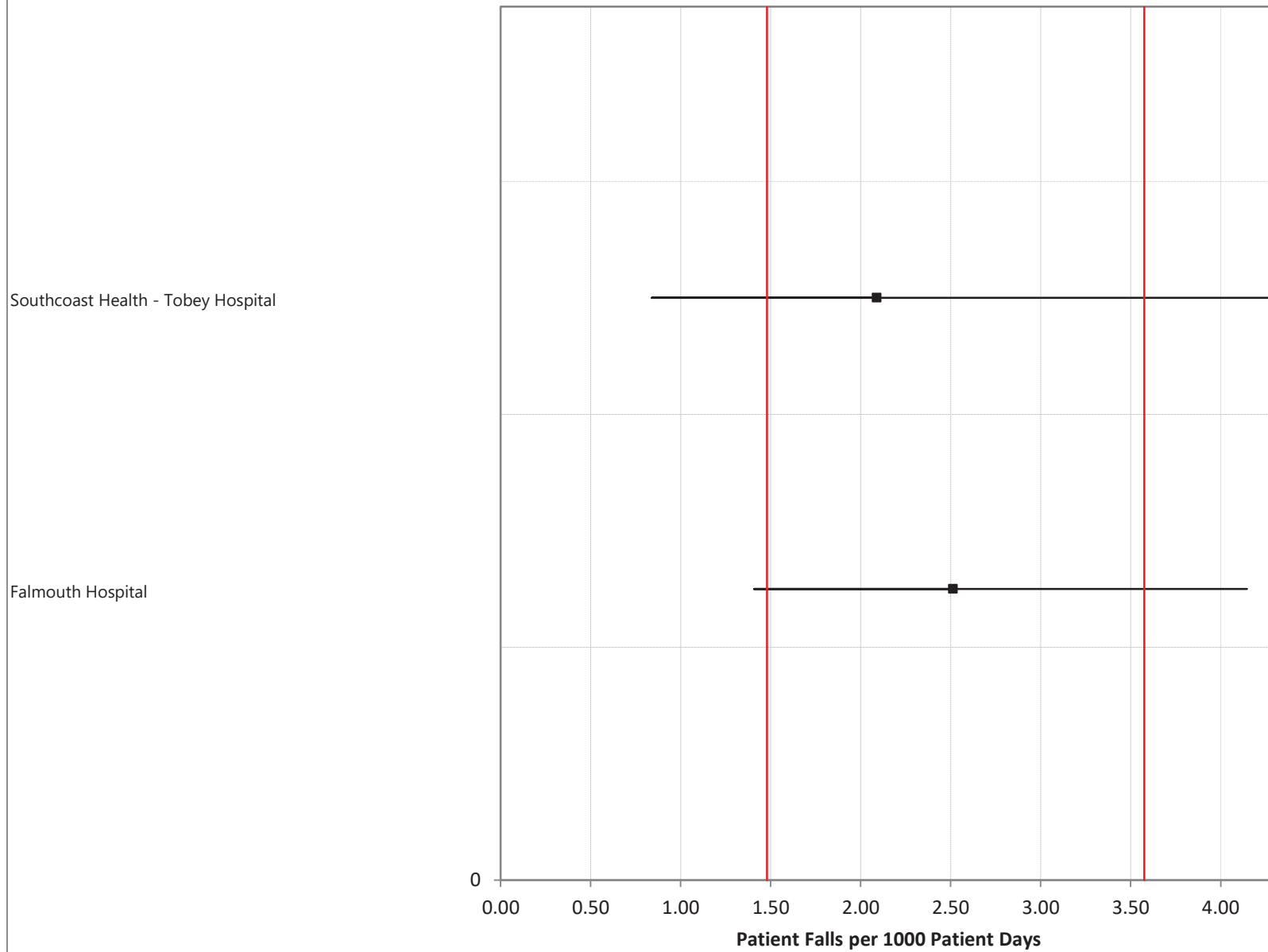
Adult Medical Units, 300-399 beds



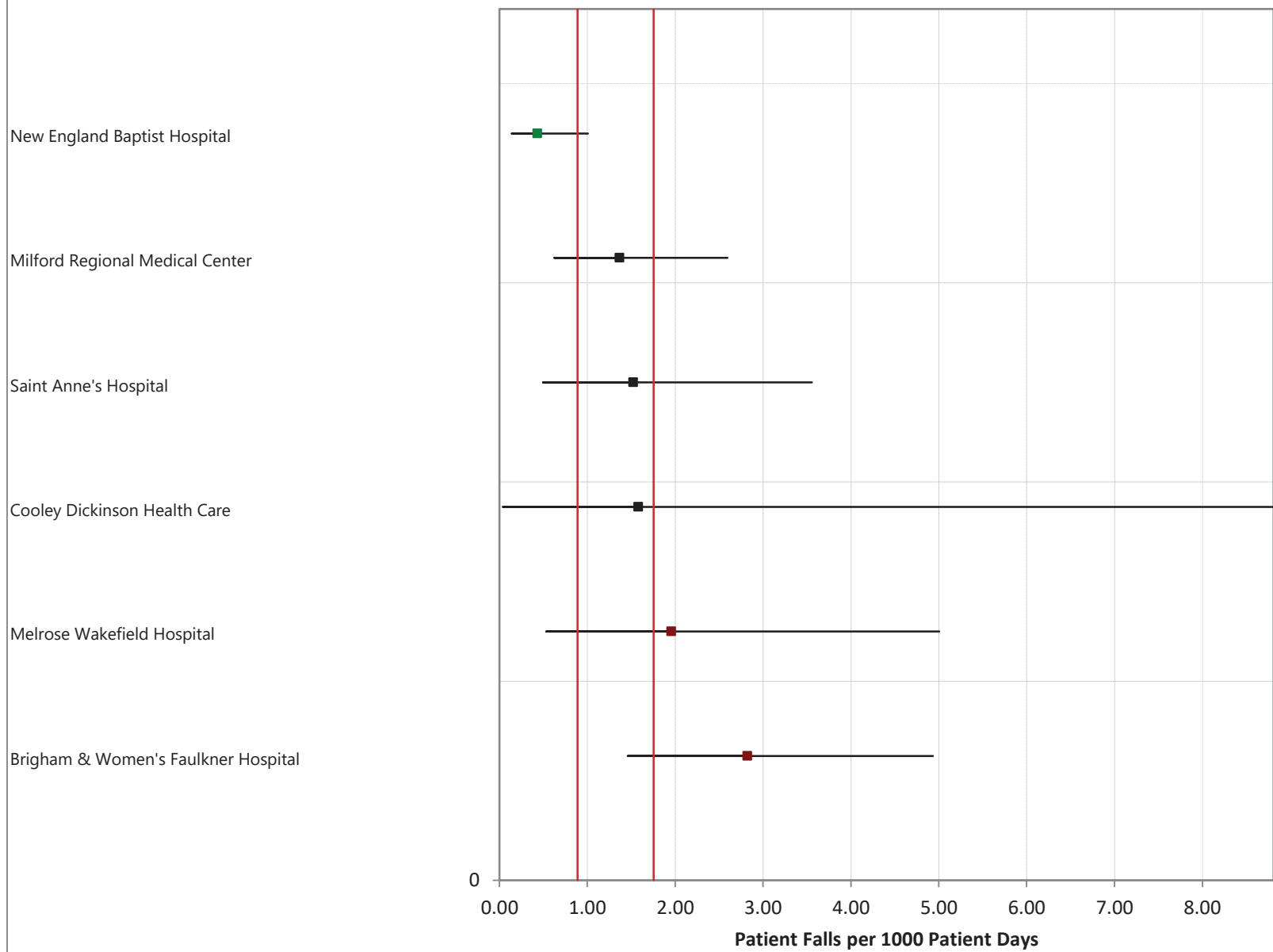
Adult Medical Units, More than 500 beds



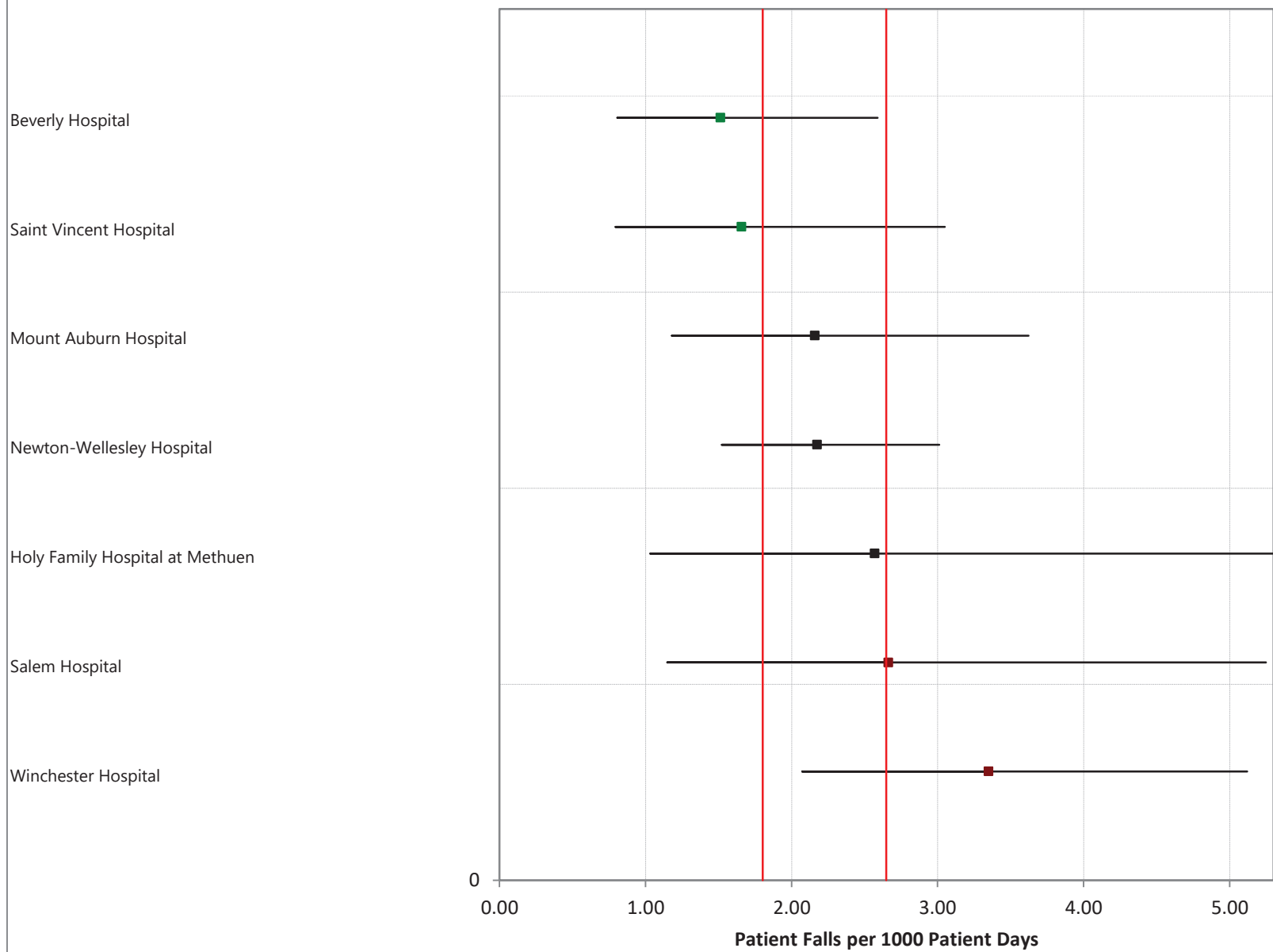
Adult Surgical Units, Less than 100 beds



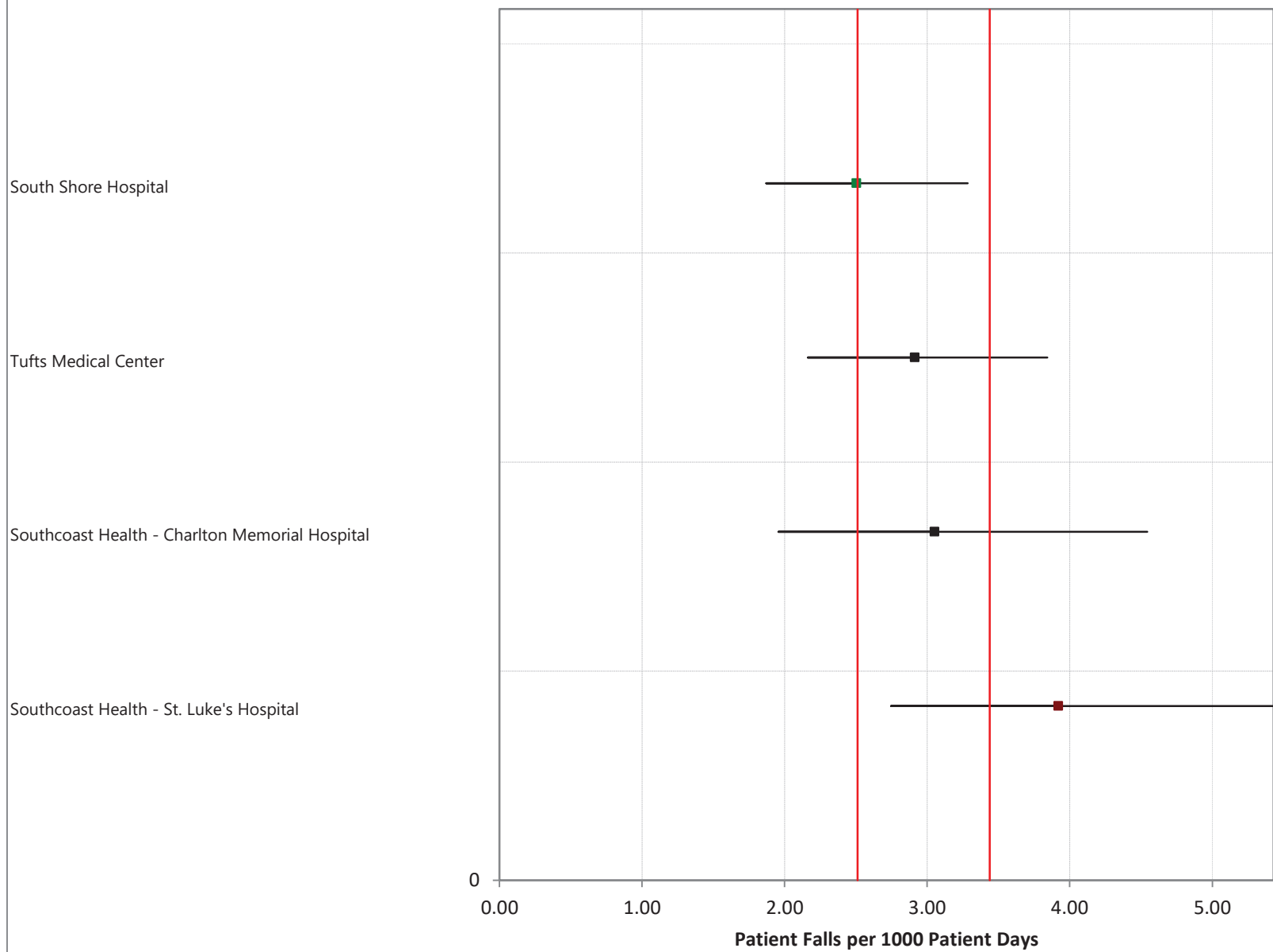
Adult Surgical Units, 100-199 beds



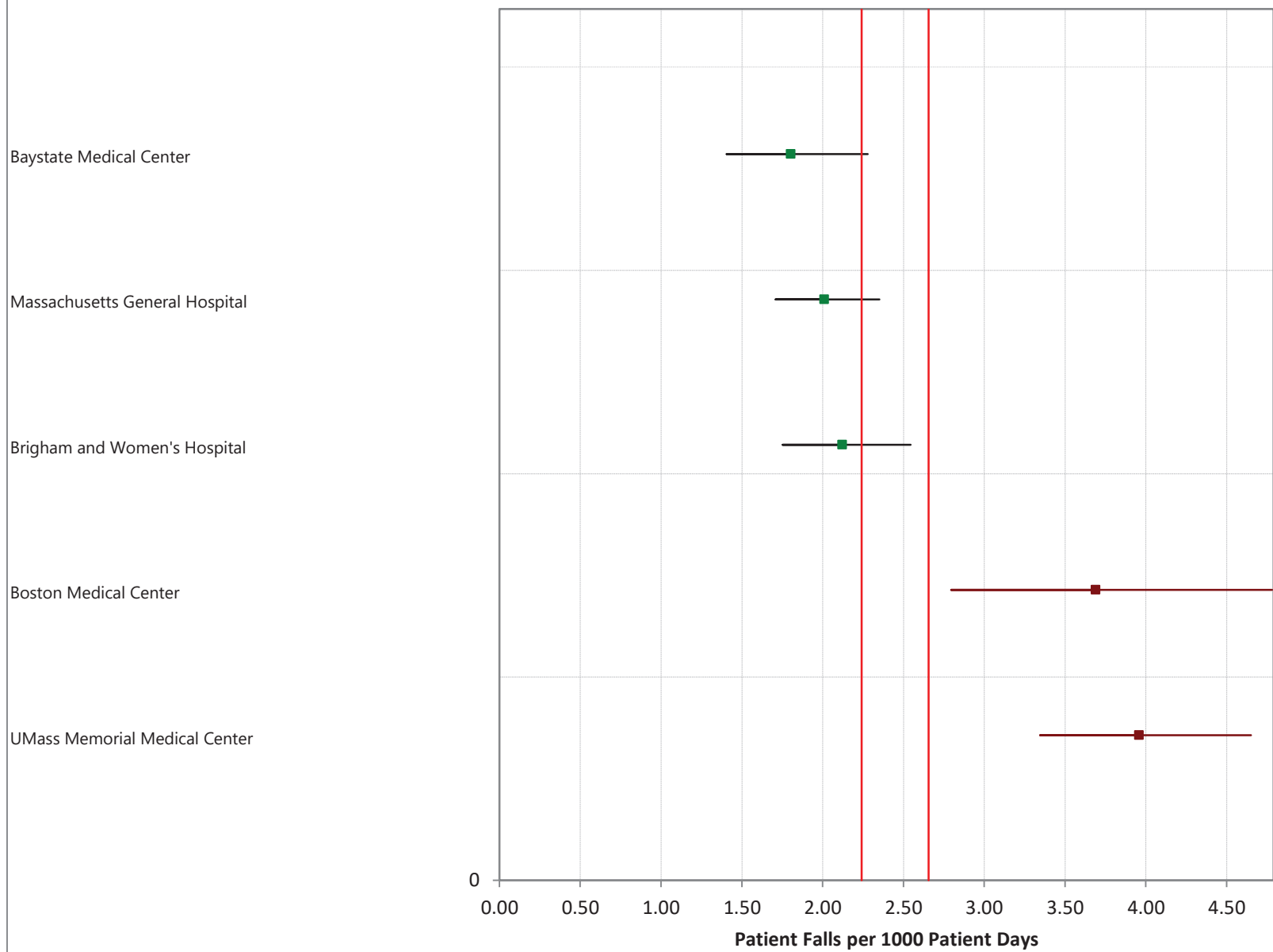
Adult Surgical Units, 200-299 beds



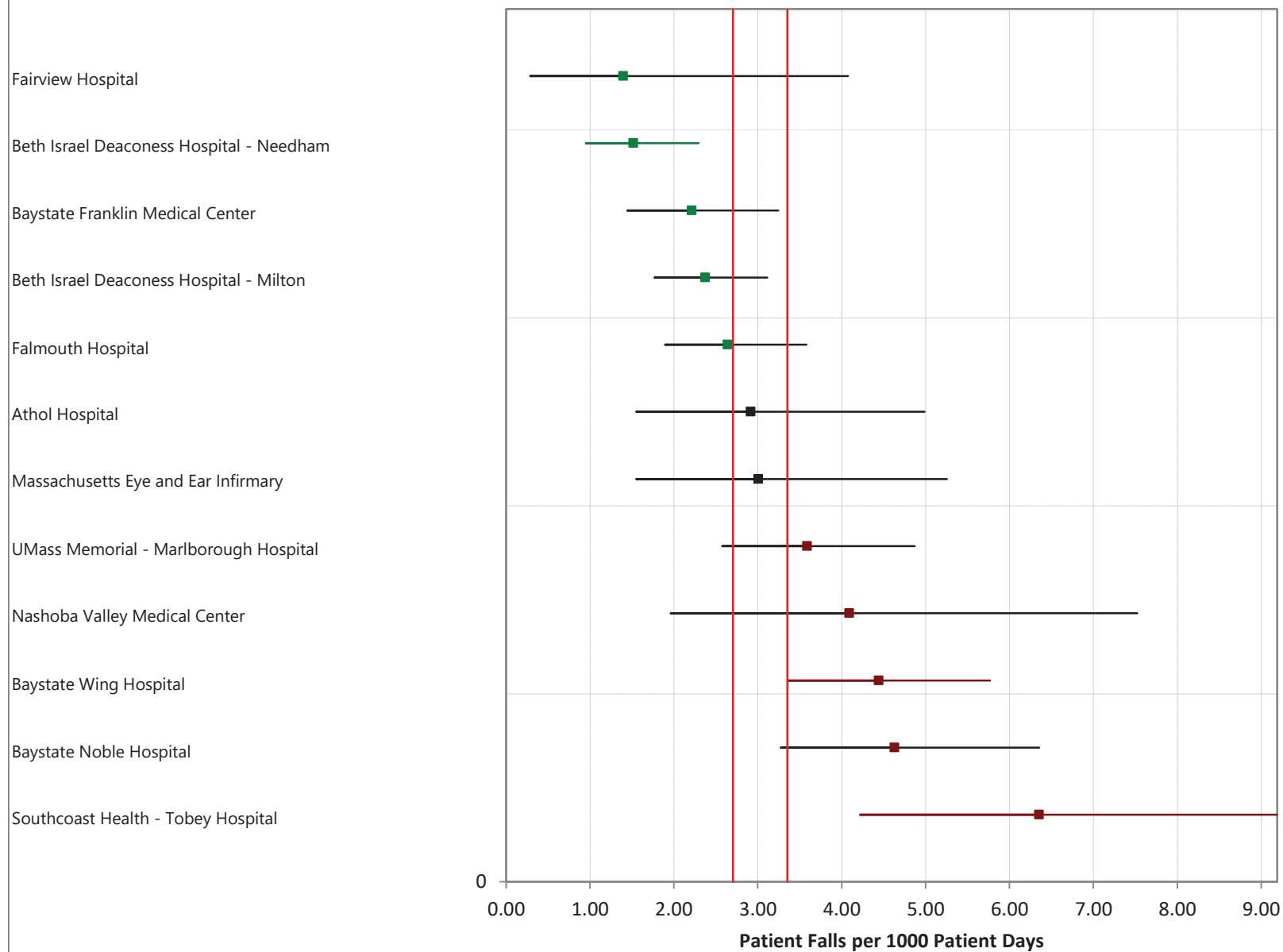
Adult Surgical Units, 300-399 beds



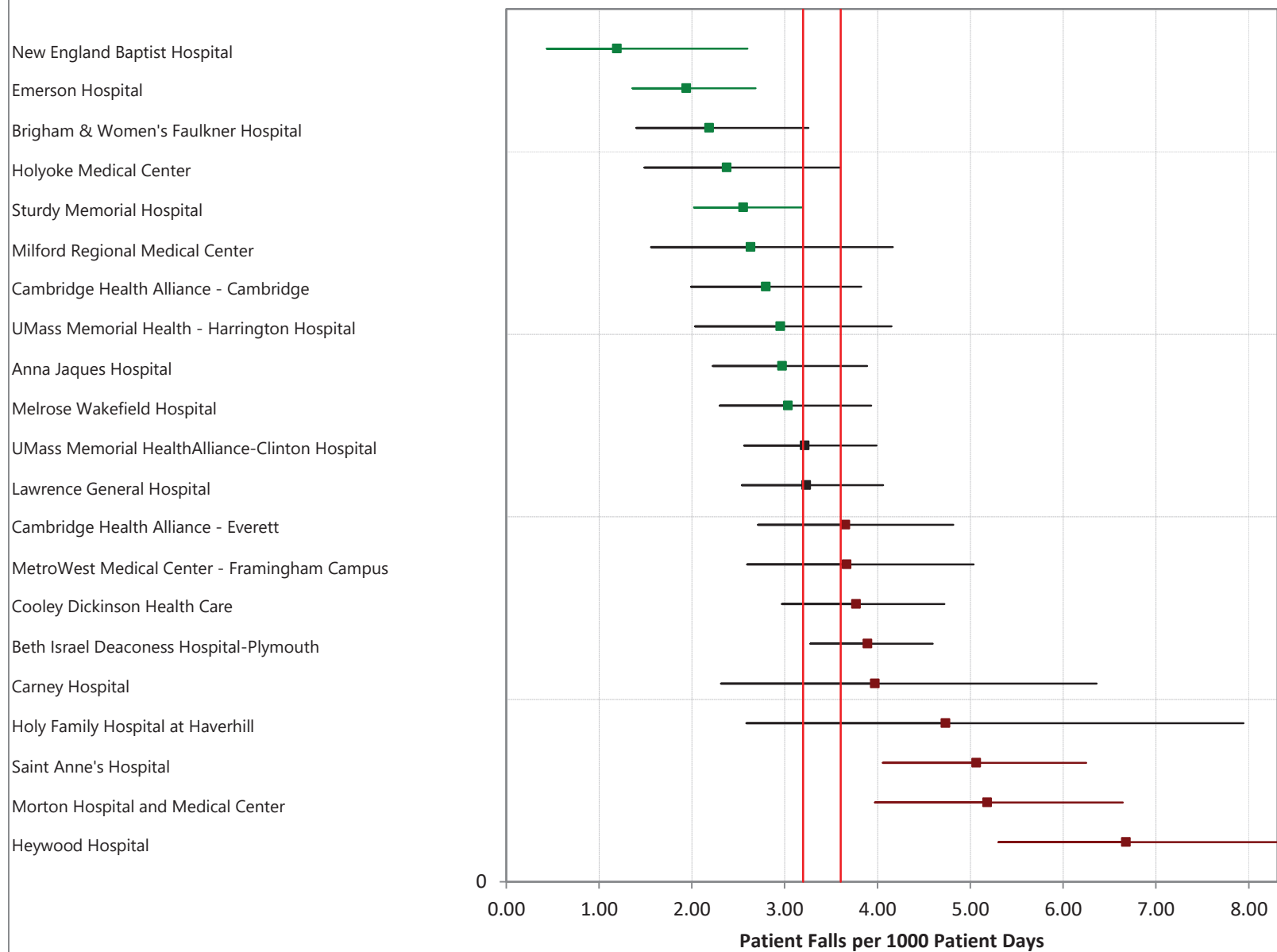
Adult Surgical Units, More than 500 beds



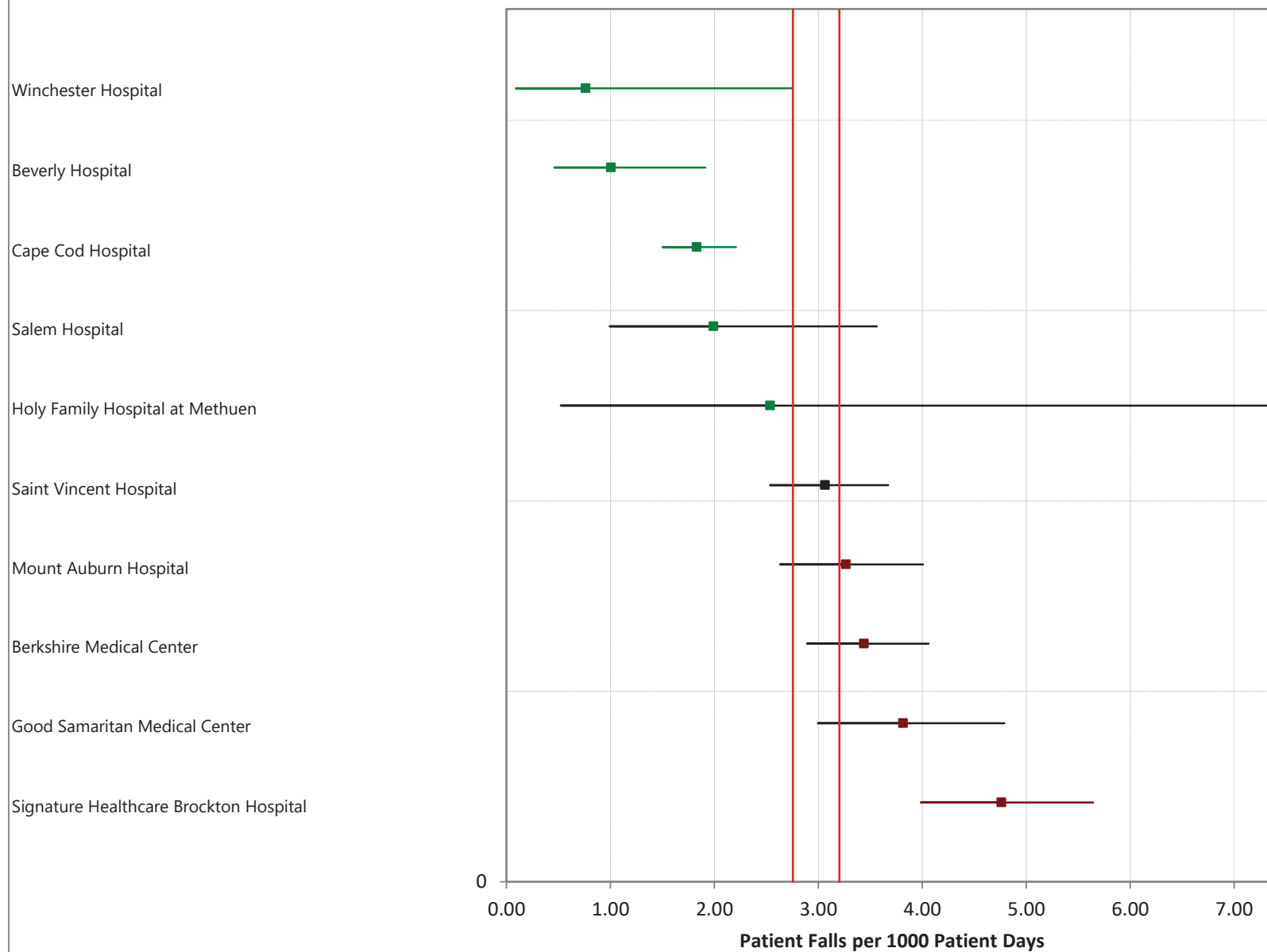
Adult Medical-Surgical Units, Less than 100 beds



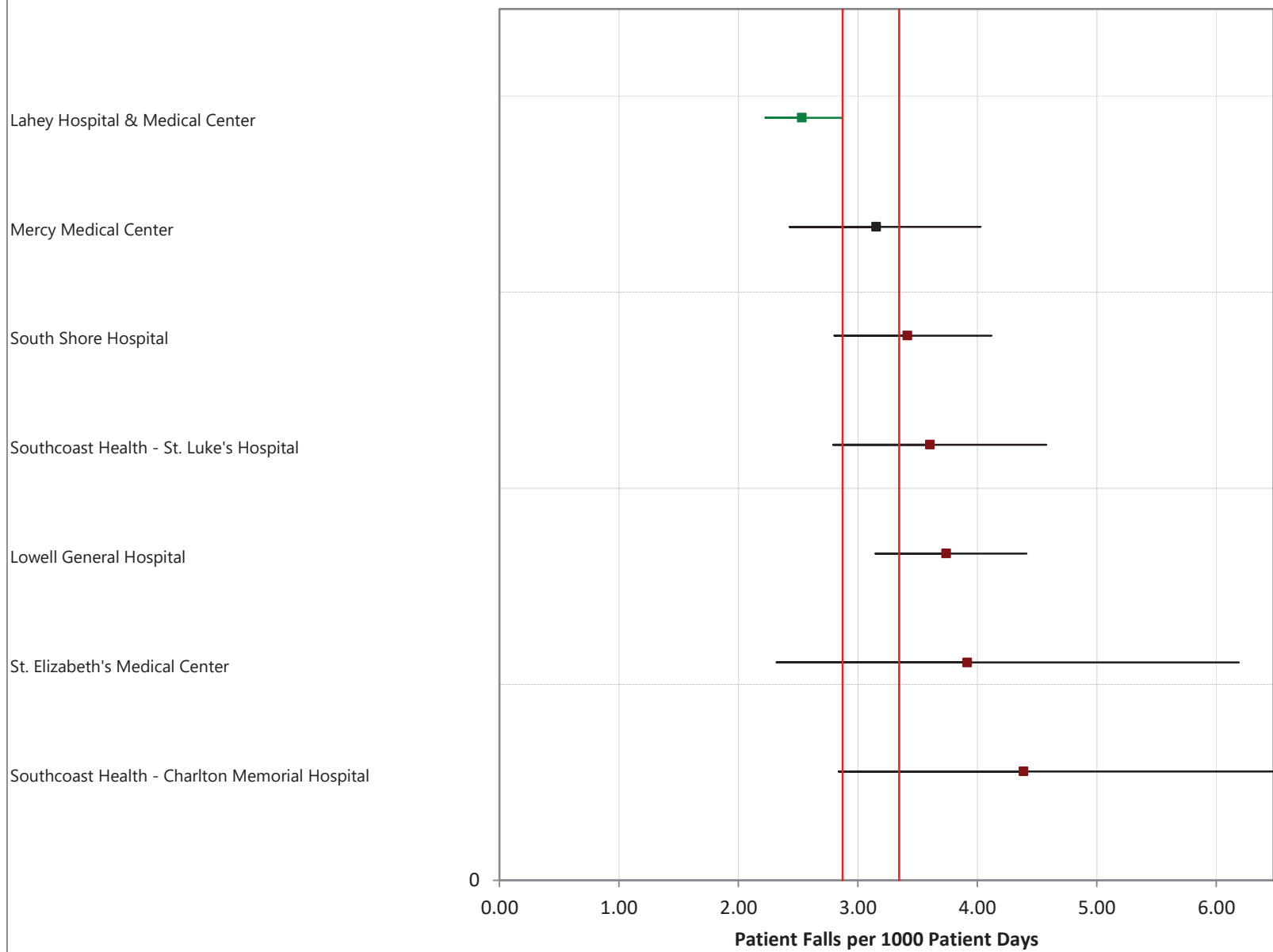
Adult Medical-Surgical Units, 100-199 beds



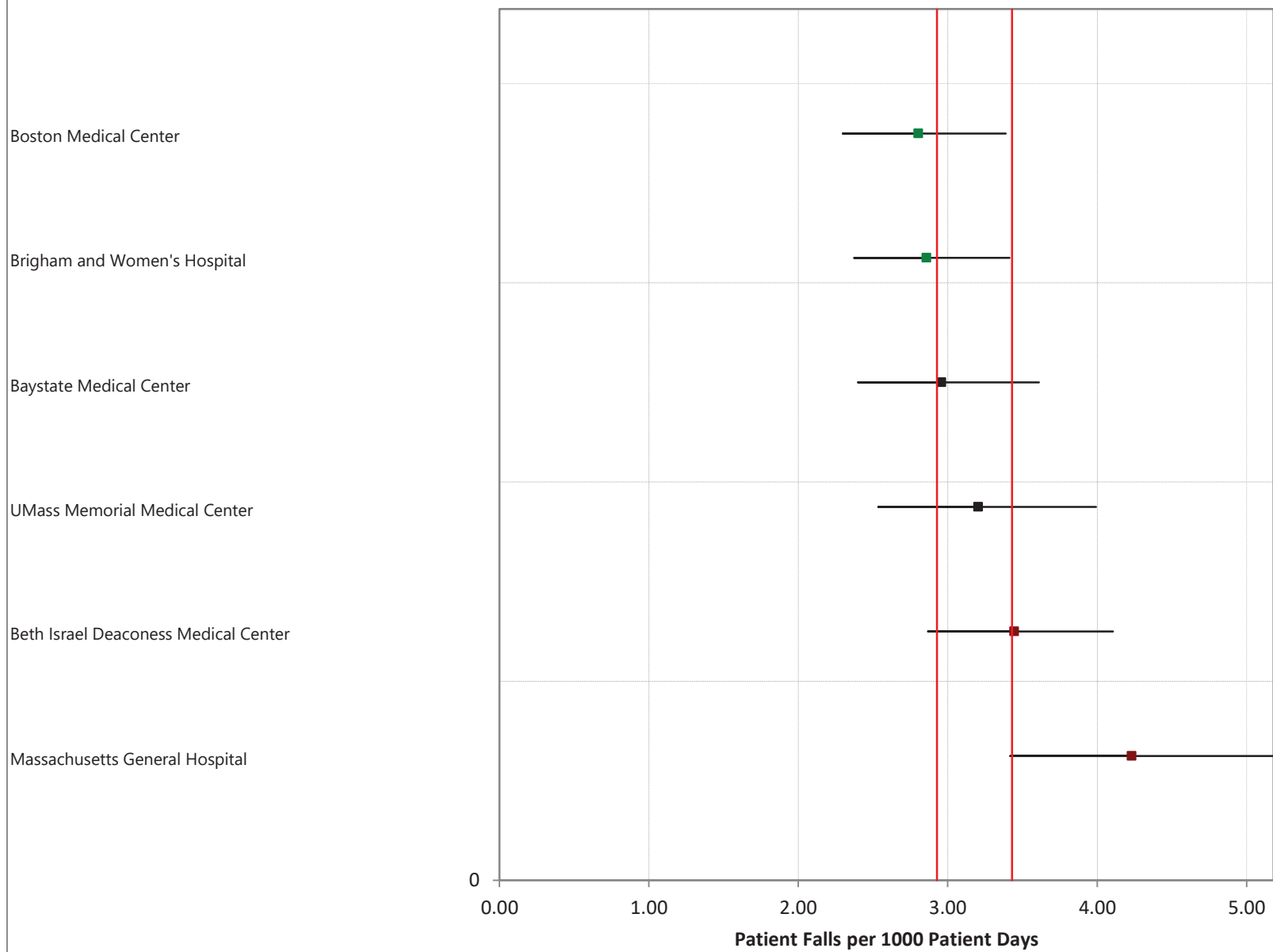
Adult Medical-Surgical Units, 200-299 beds



Adult Medical-Surgical Units, 300-399 beds



Adult Medical-Surgical Units, More than 500 beds

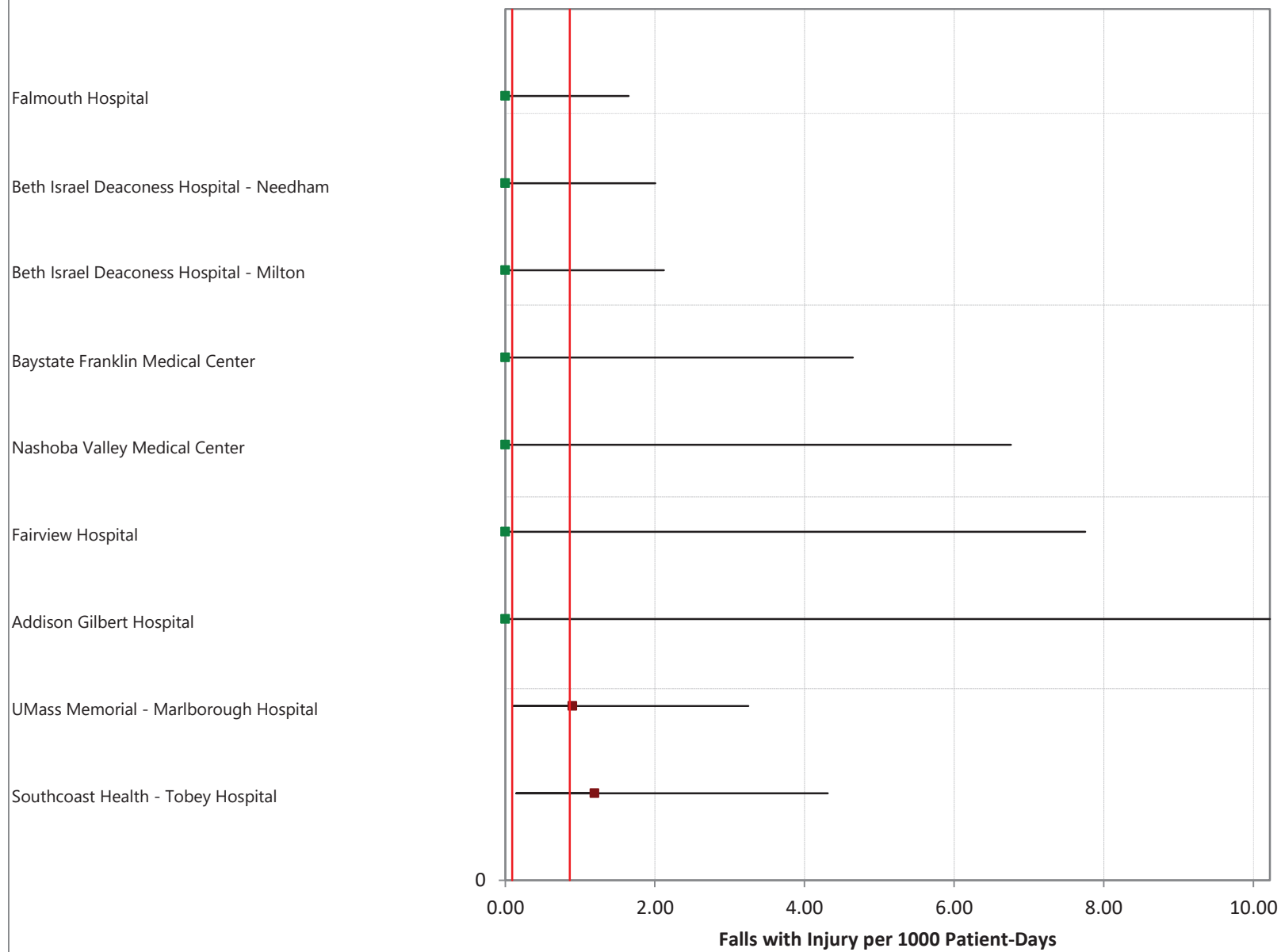


NSC-4 Falls with Injury

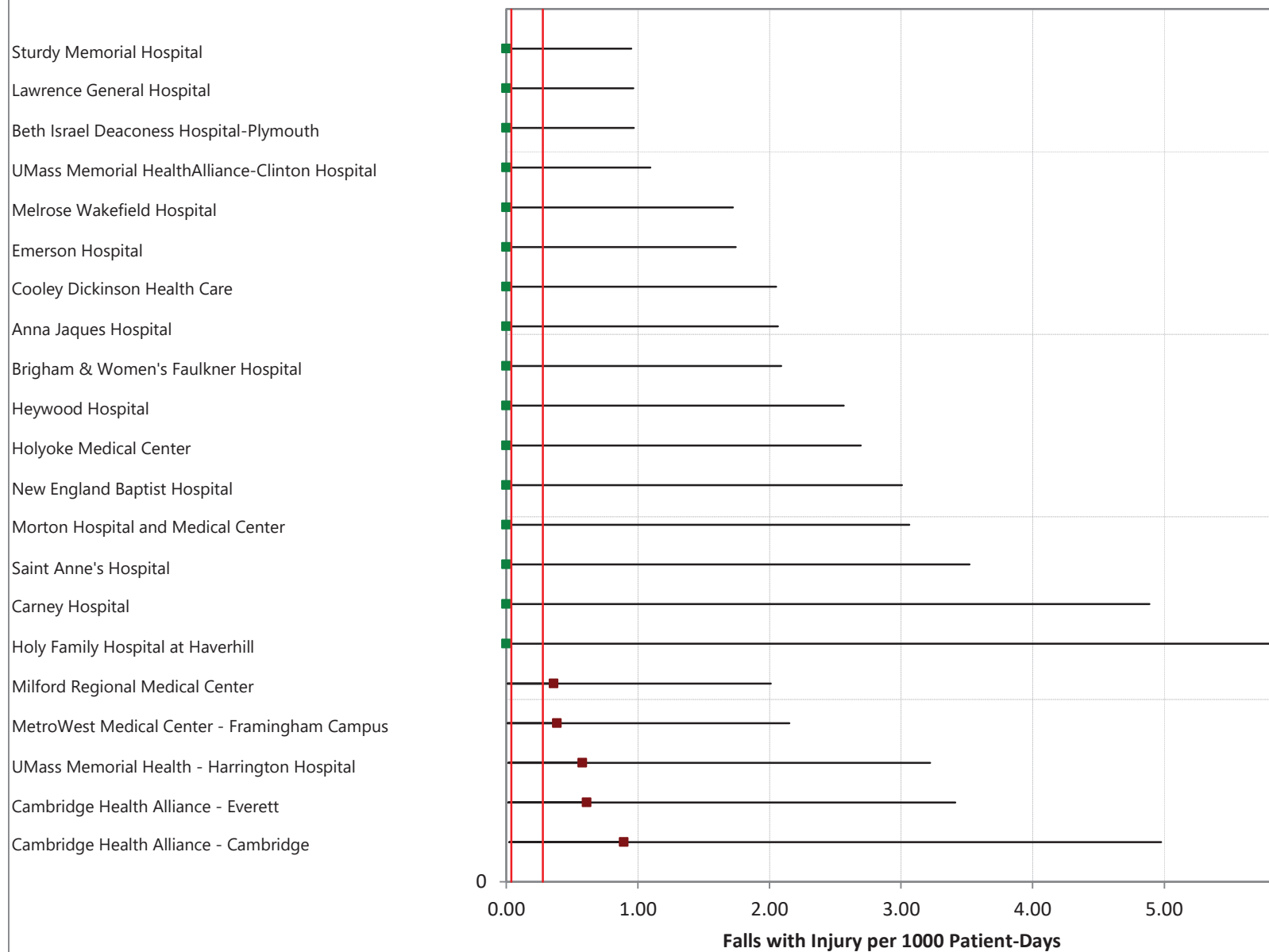
July-December 2019 *and* January-June 2022

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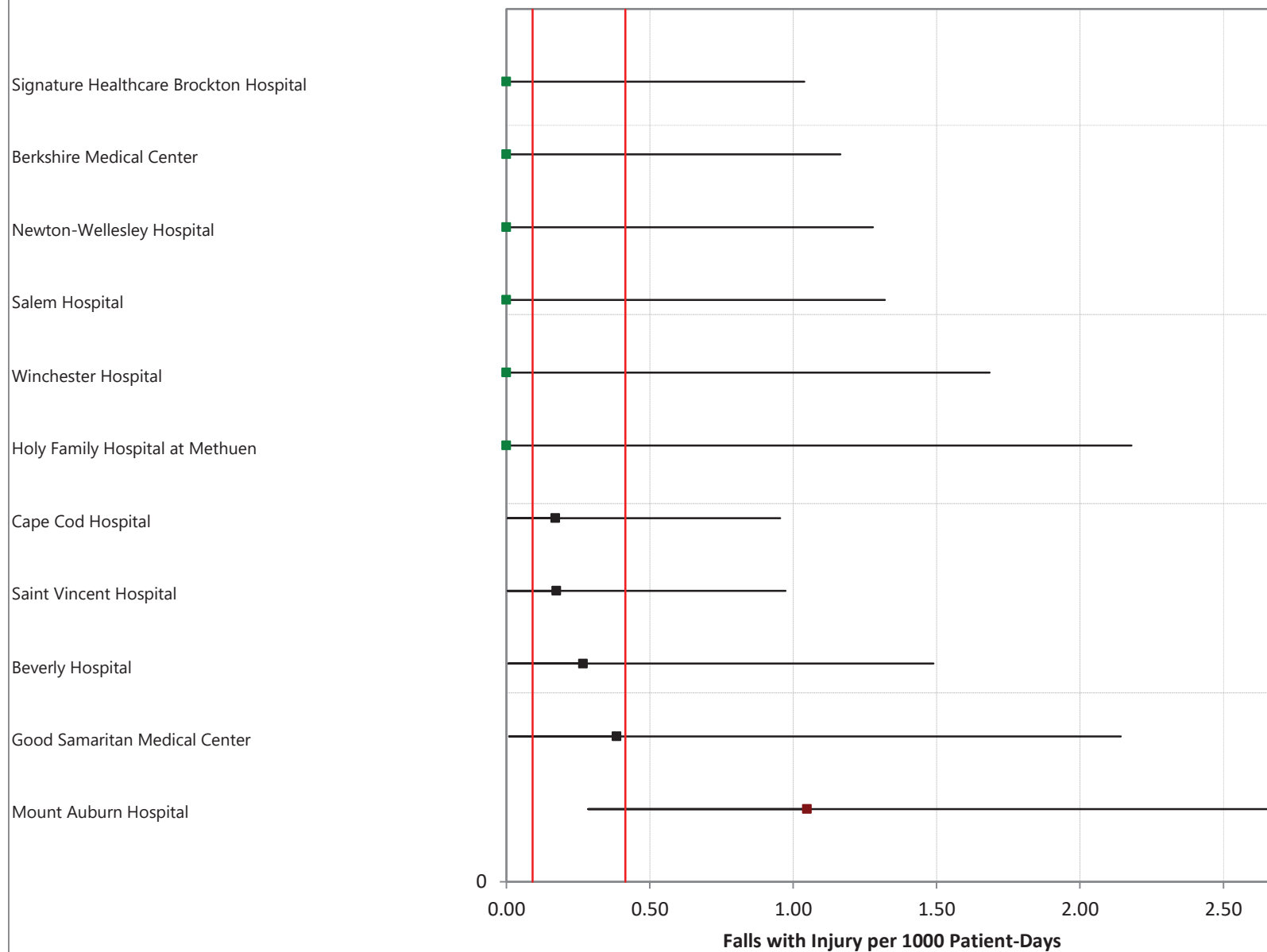
Adult Critical Care Units, Less than 100 beds



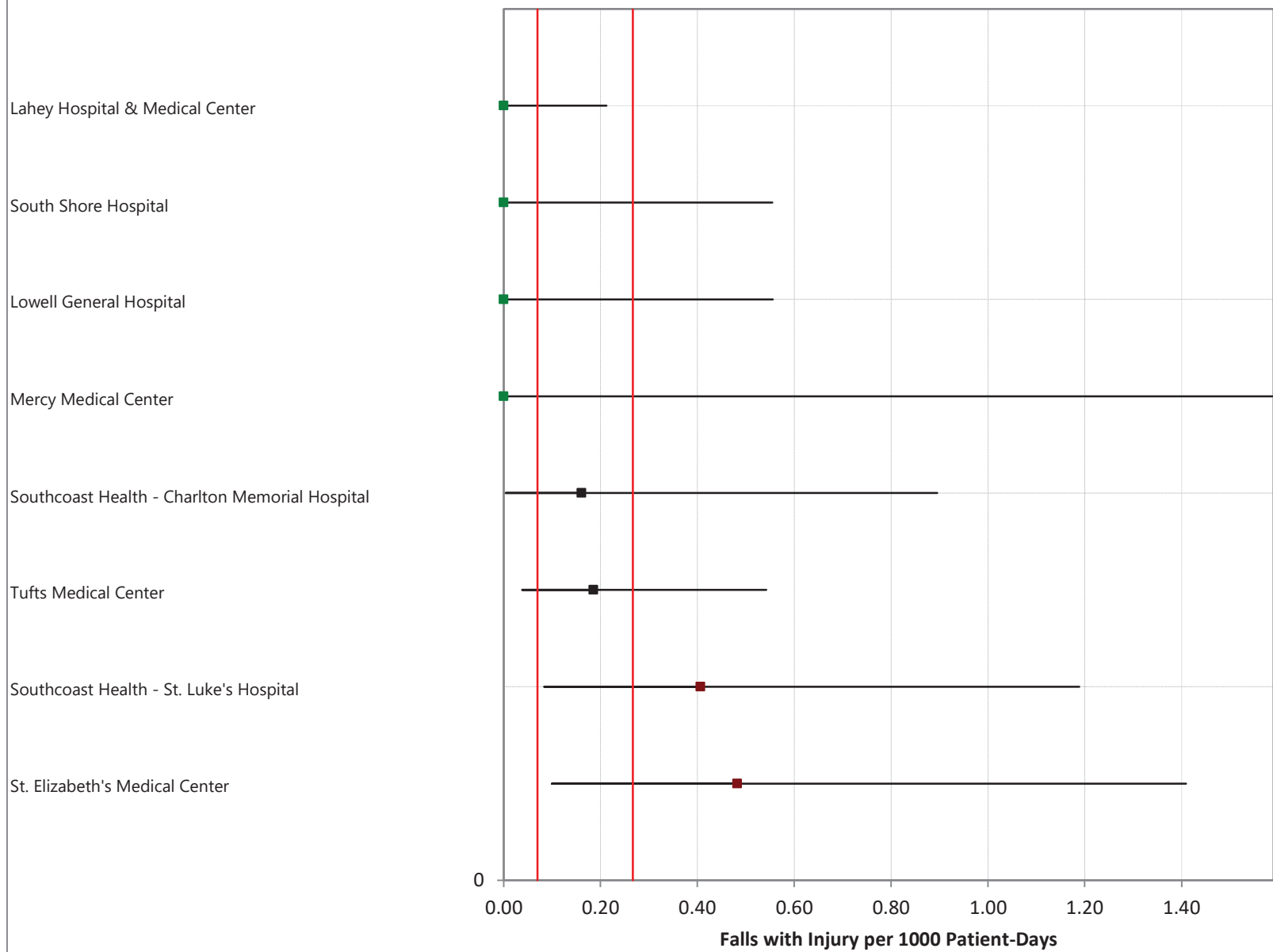
Adult Critical Care Units, 100-199 beds



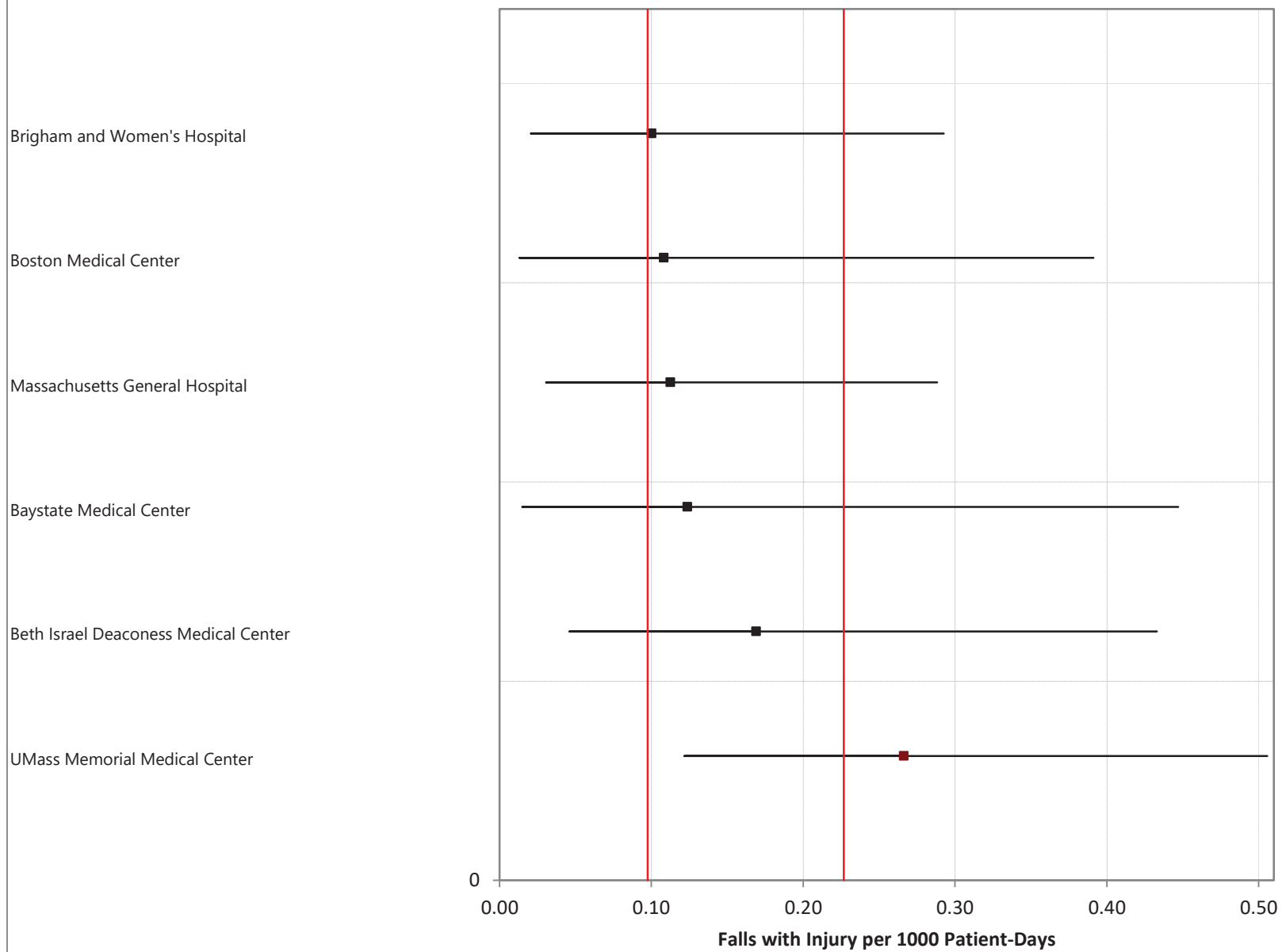
Adult Critical Care Units, 200-299 beds



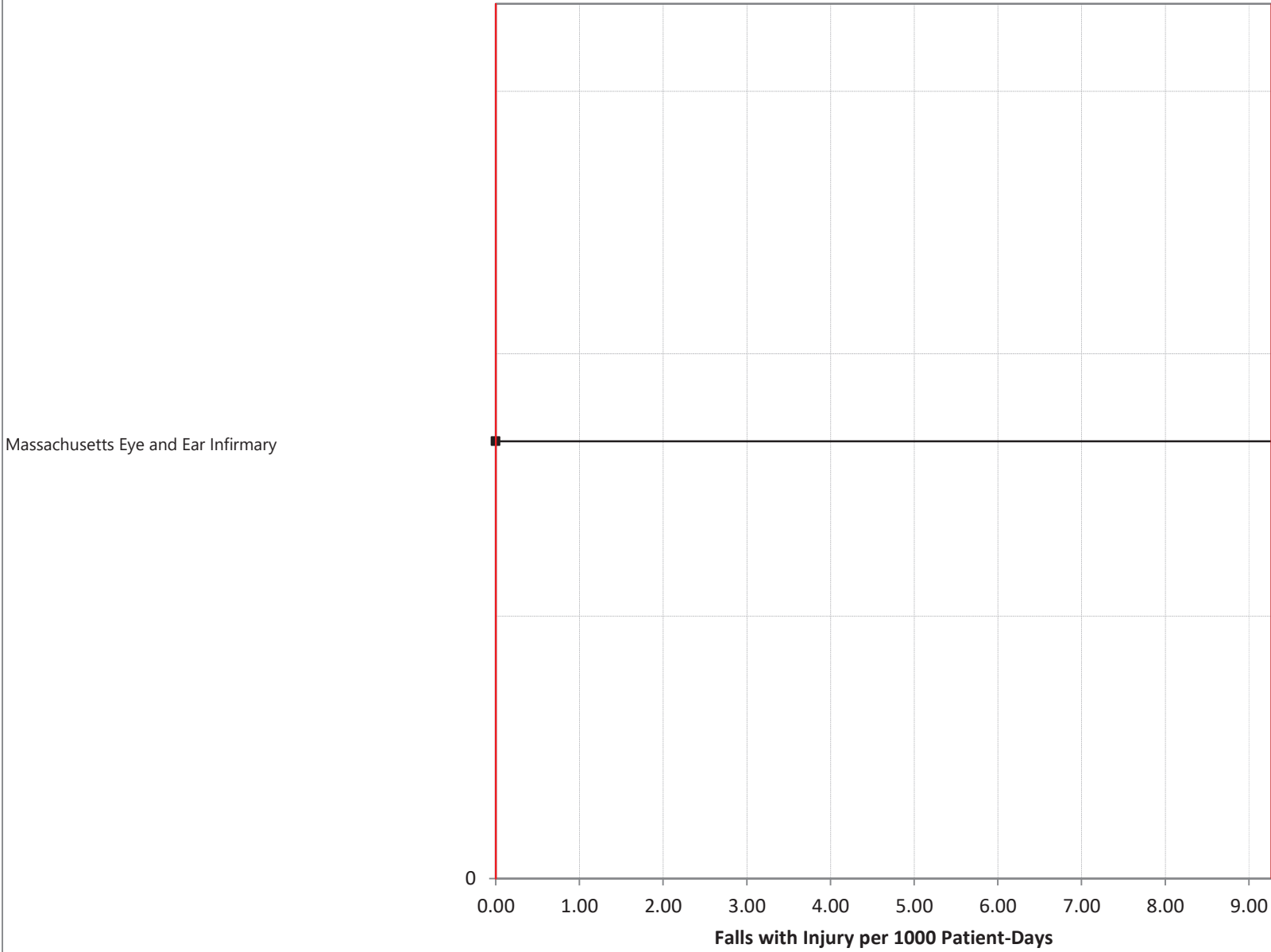
Adult Critical Care Units, 300-399 beds



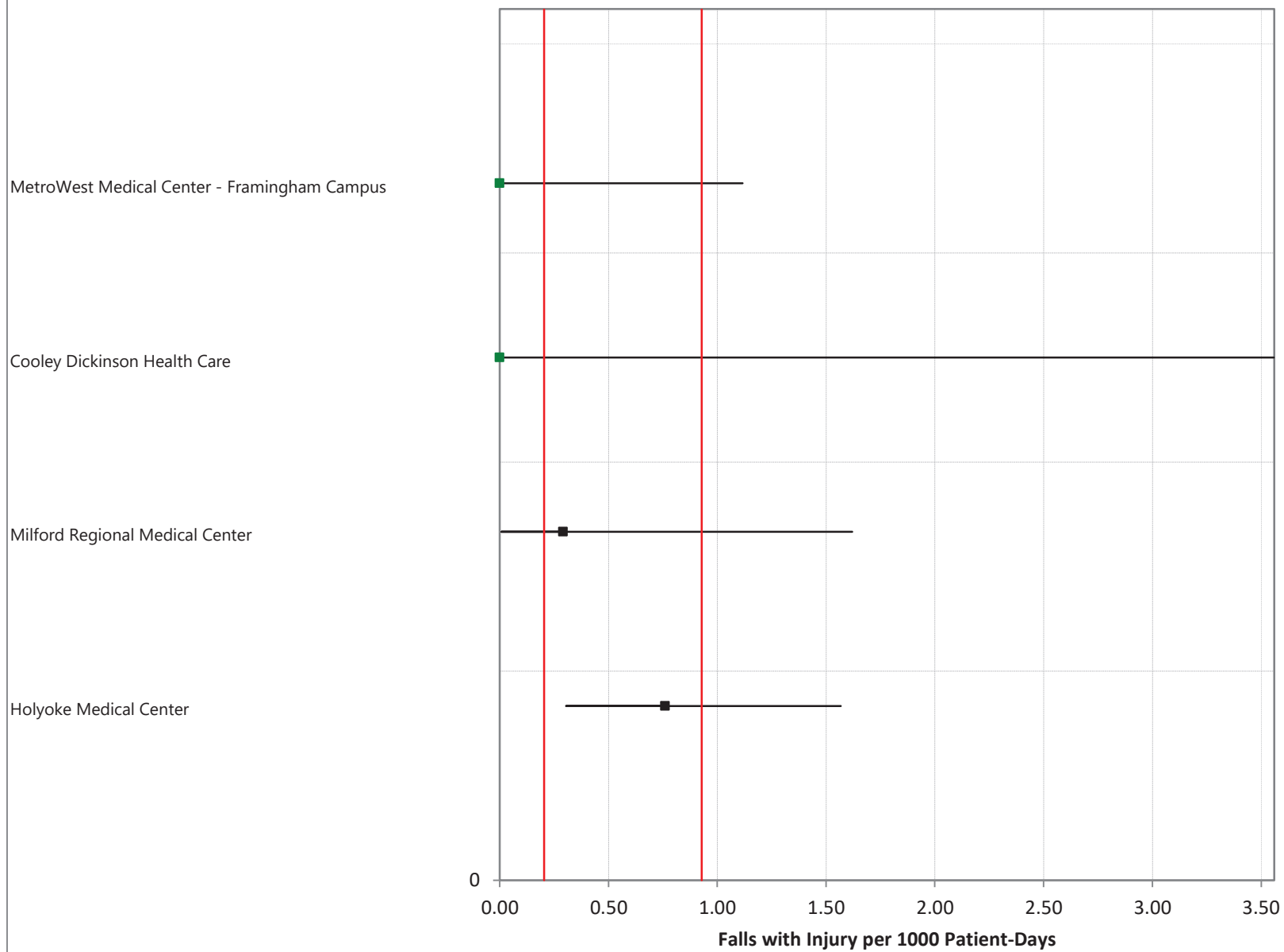
Adult Critical Care Units, More than 500 beds



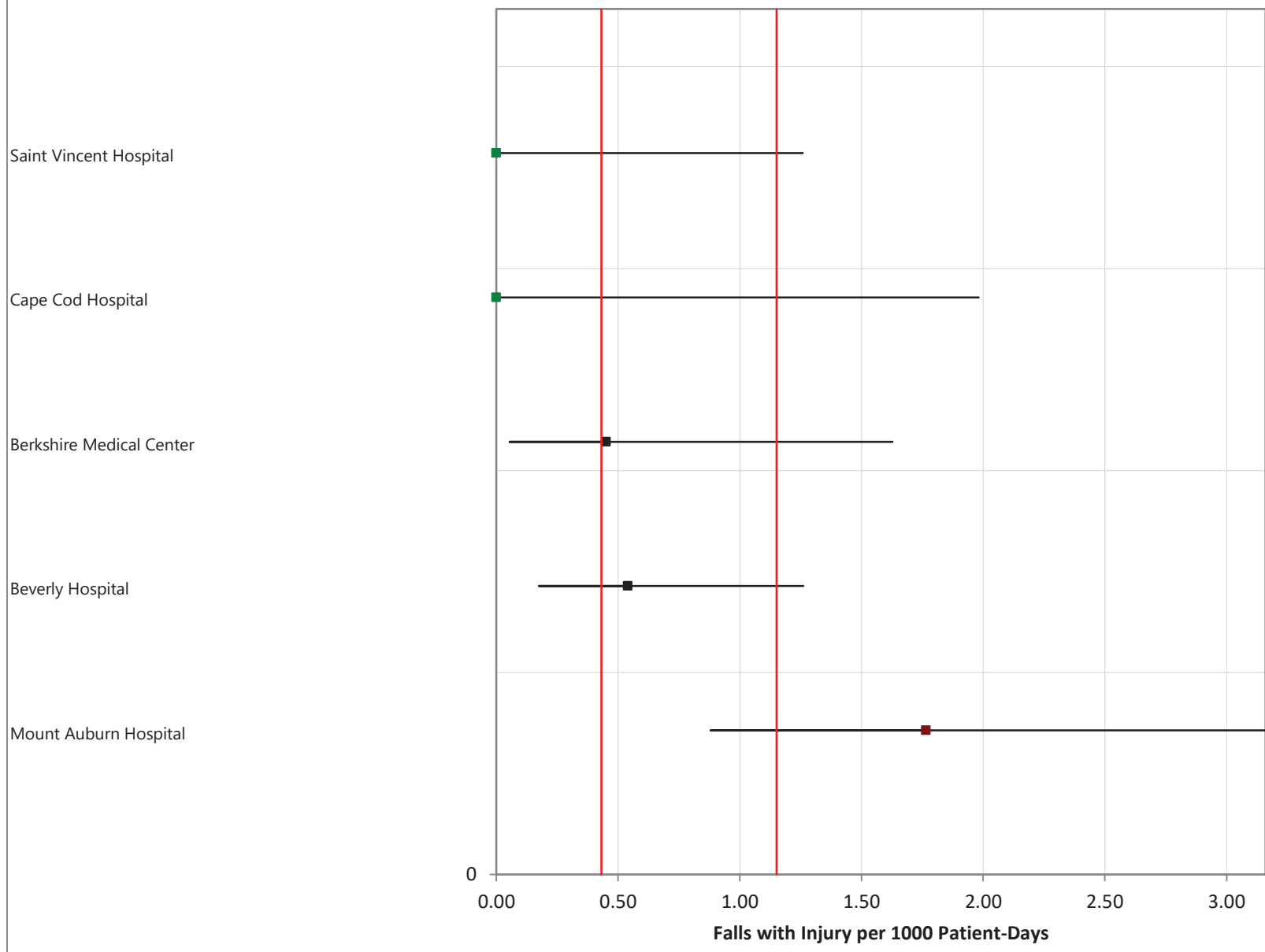
Adult Step-Down Units, Less than 100 beds



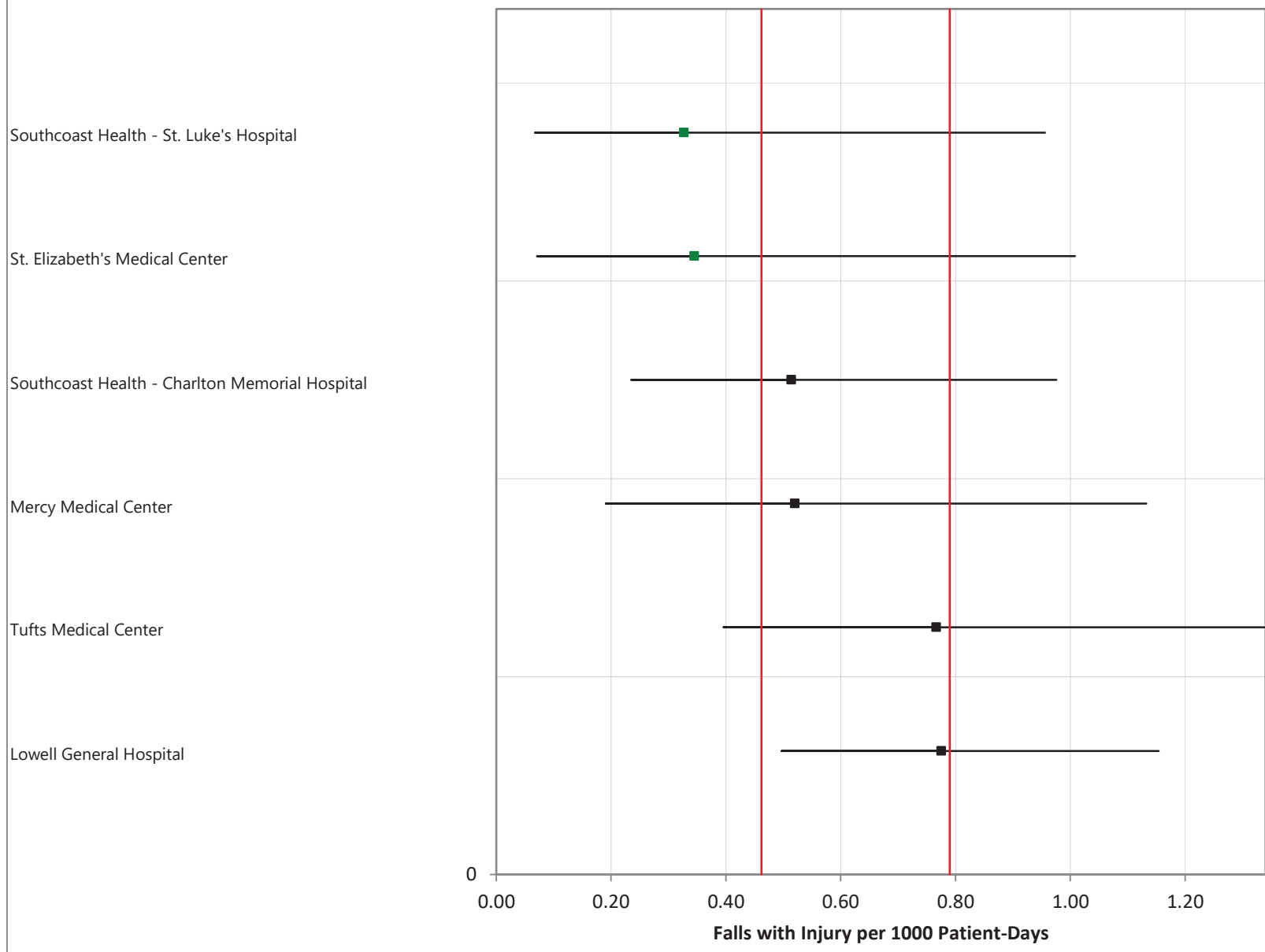
Adult Step-Down Units, 100-199 beds



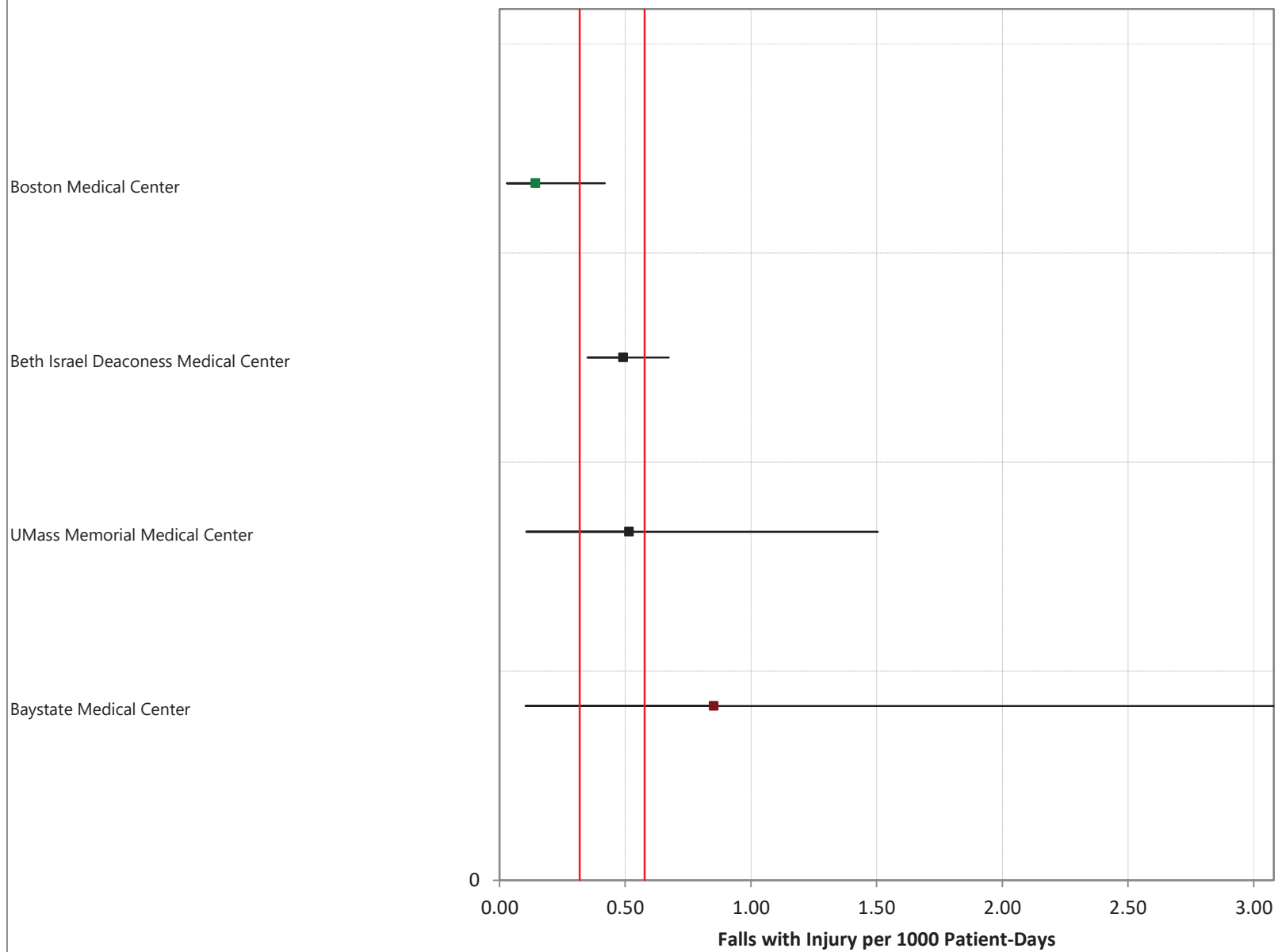
Adult Step-Down Units, 200-299 beds



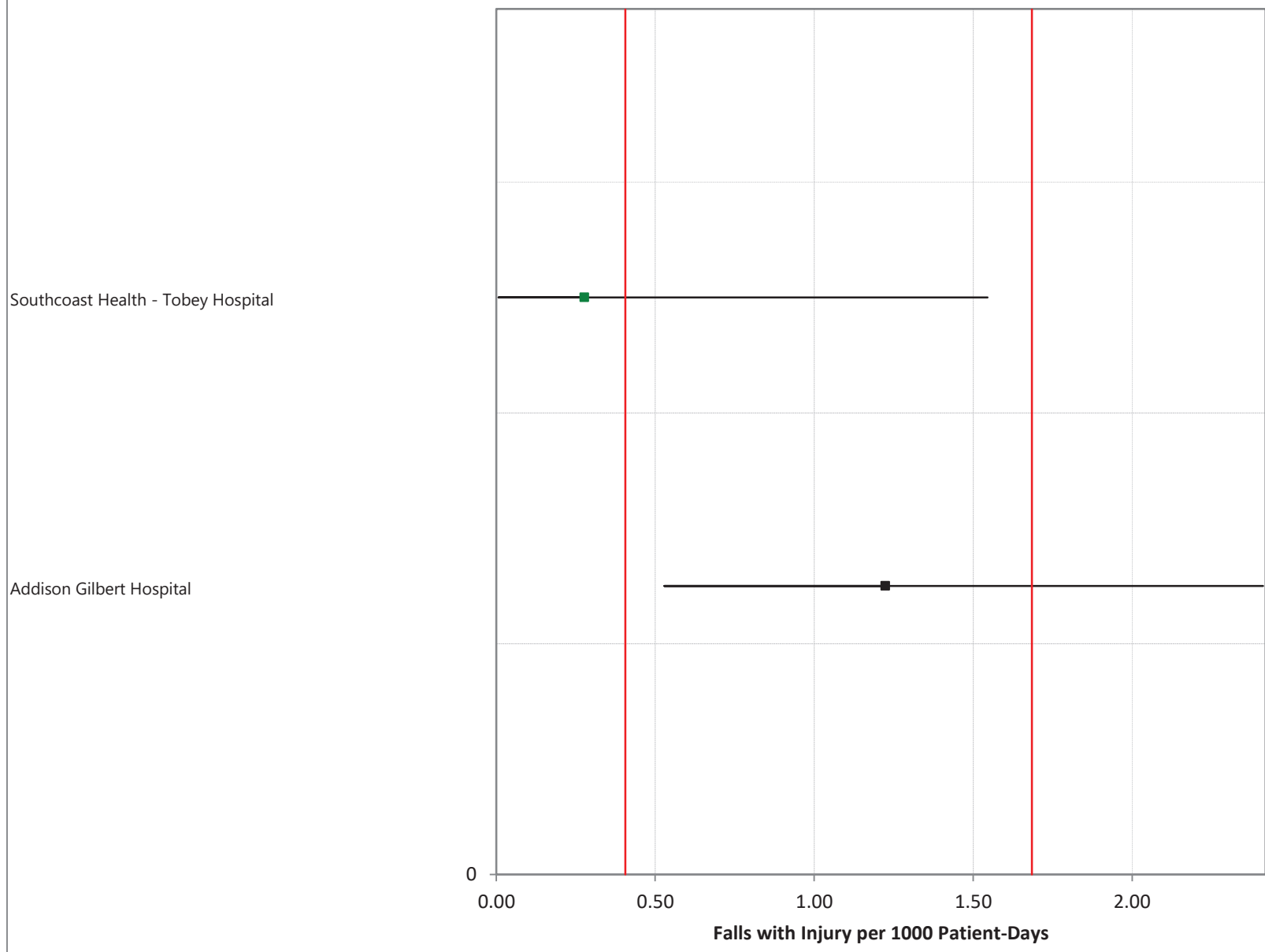
Adult Step-Down Units, 300-399 beds



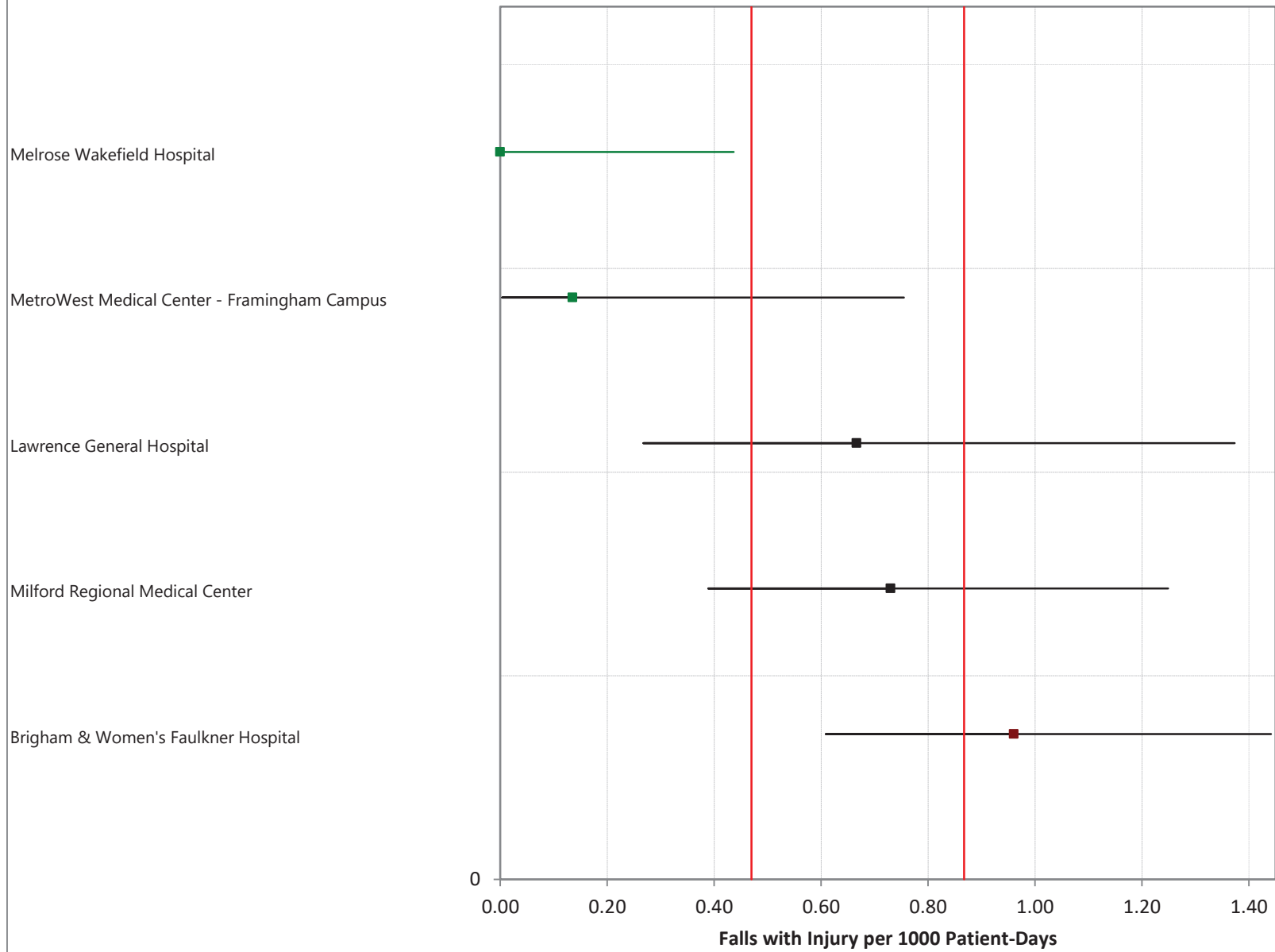
Adult Step-Down Units, More than 500 beds



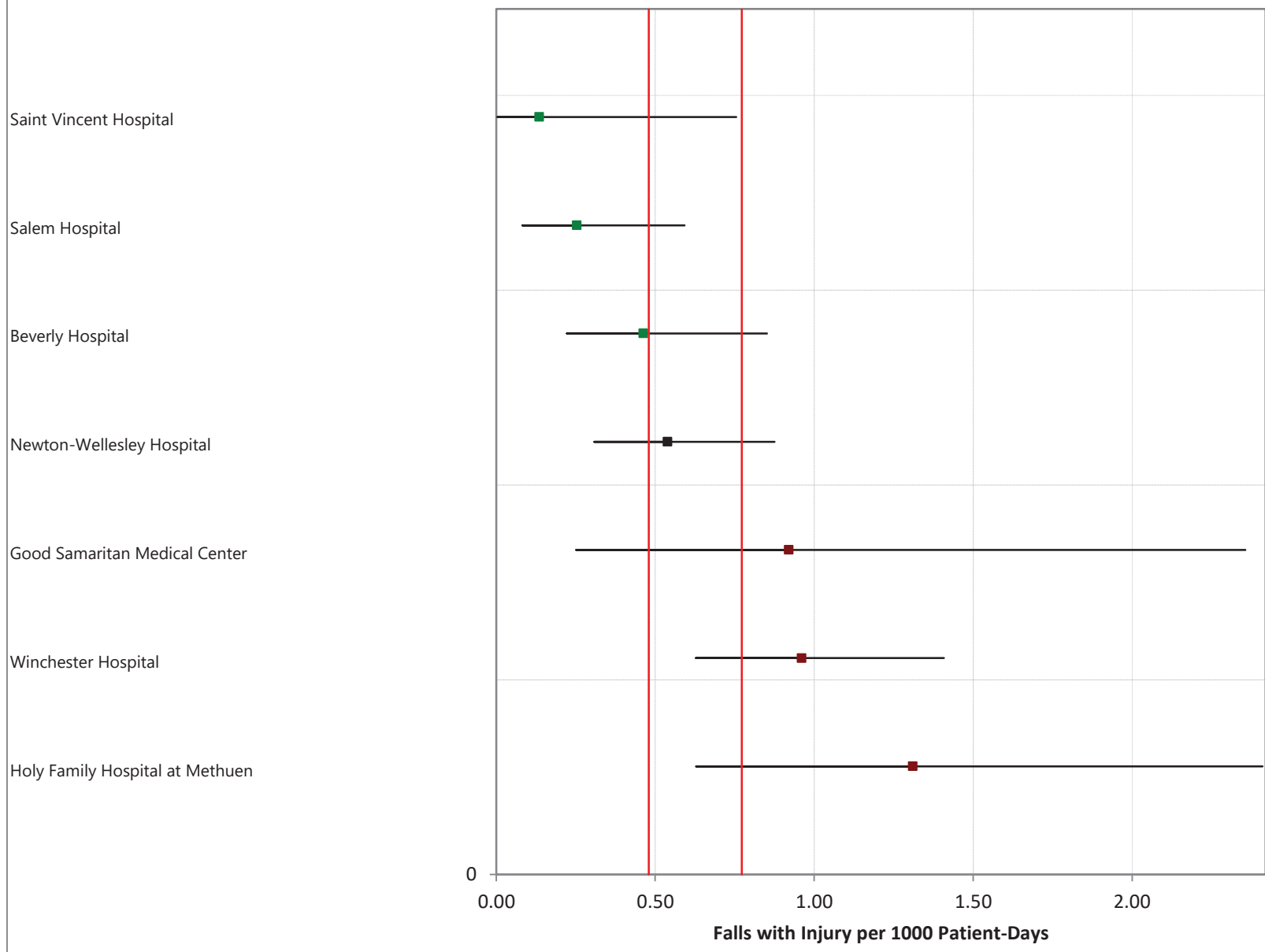
Adult Medical Units, Less than 100 beds



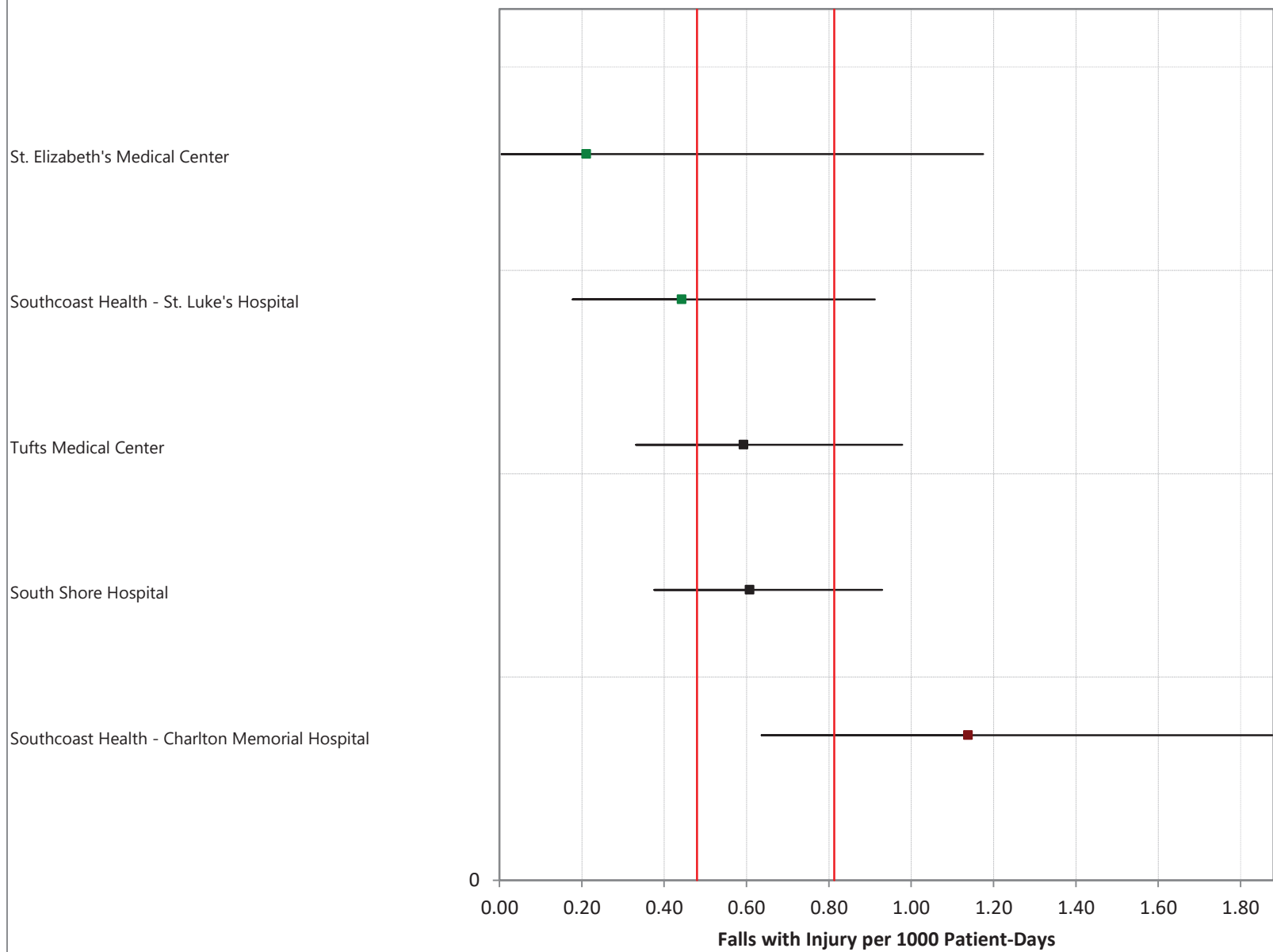
Adult Medical Units, 100-199 beds



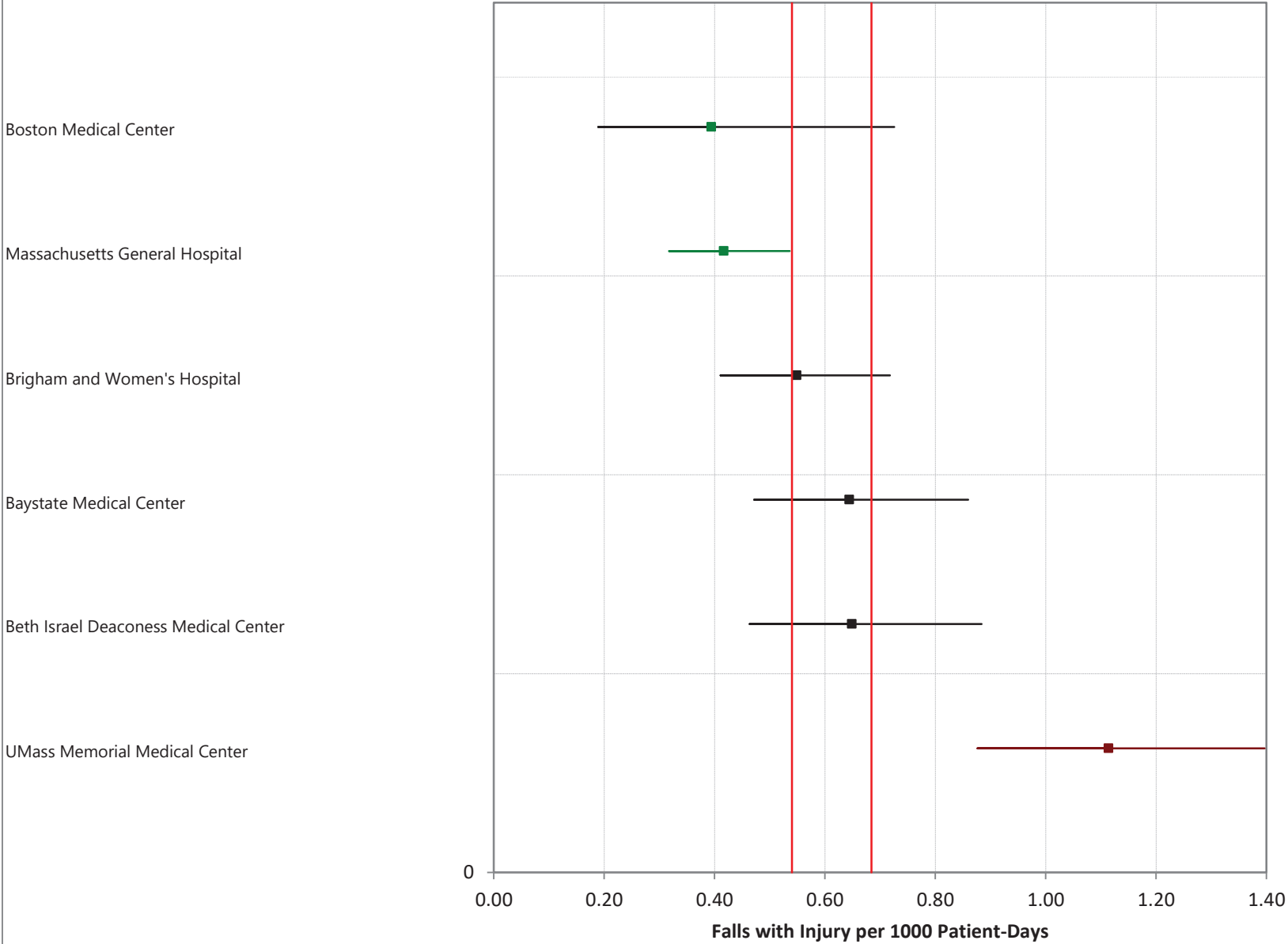
Adult Medical Units, 200-299 beds



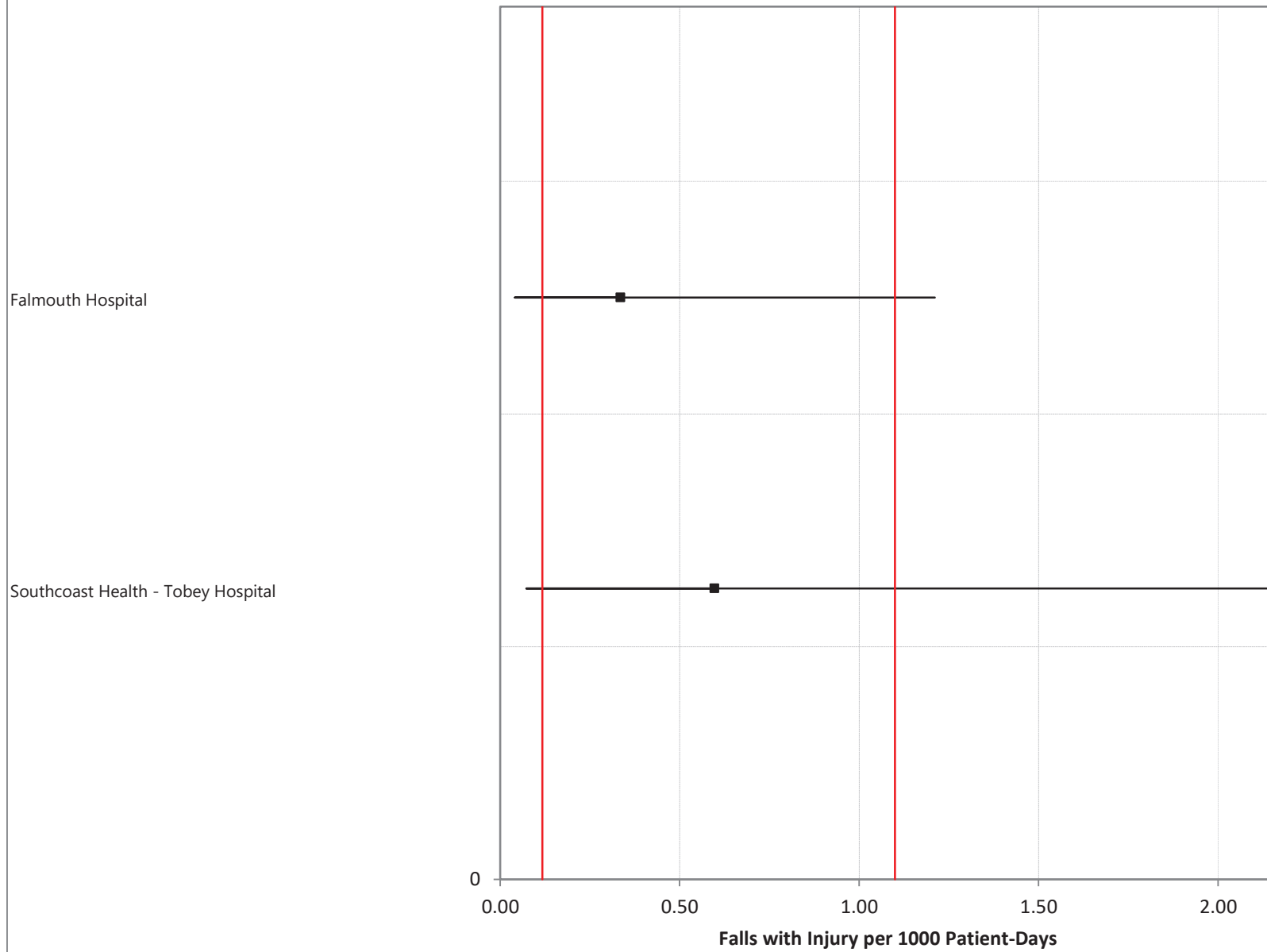
Adult Medical Units, 300-399 beds



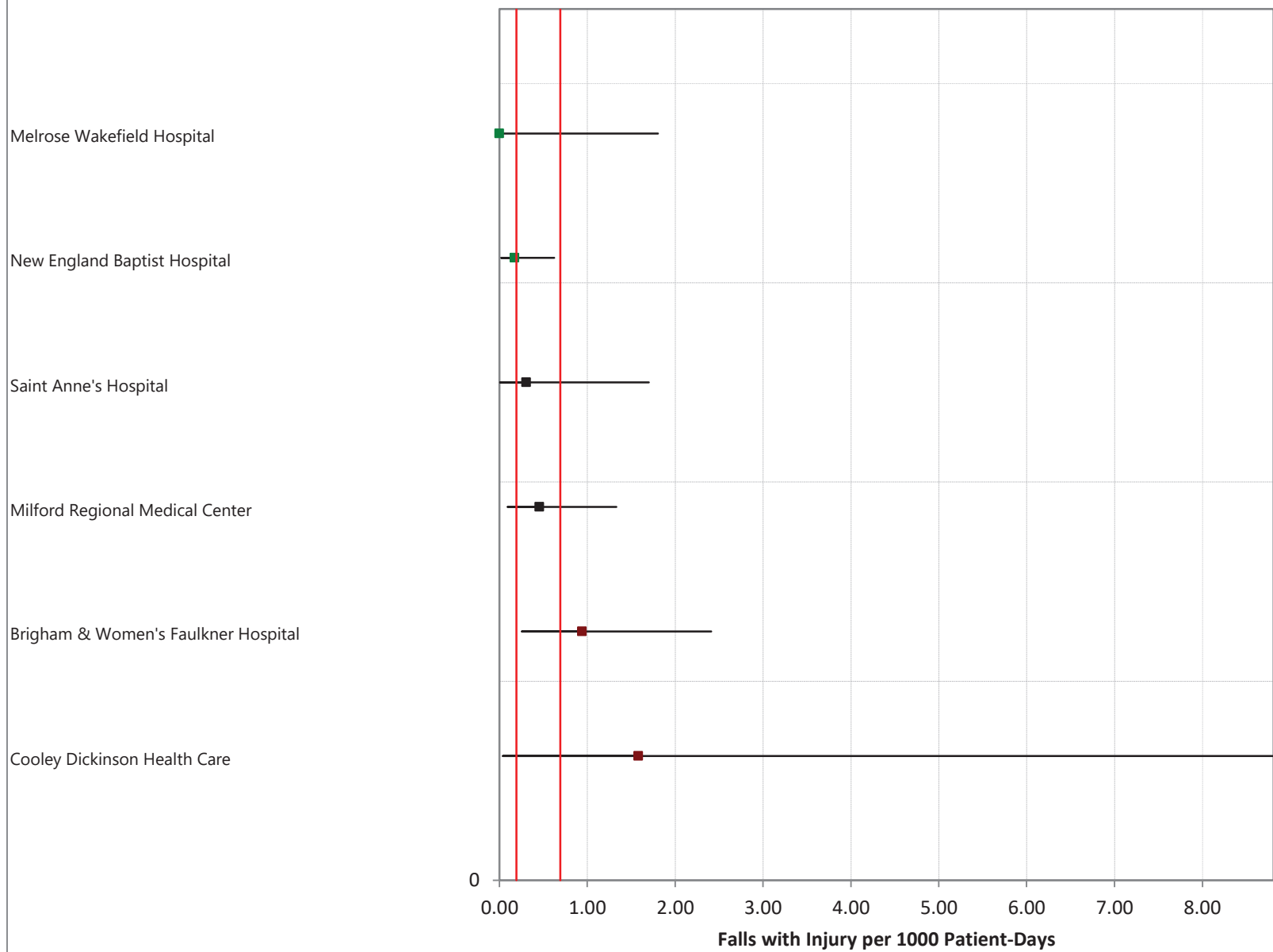
Adult Medical Units, More than 500 beds



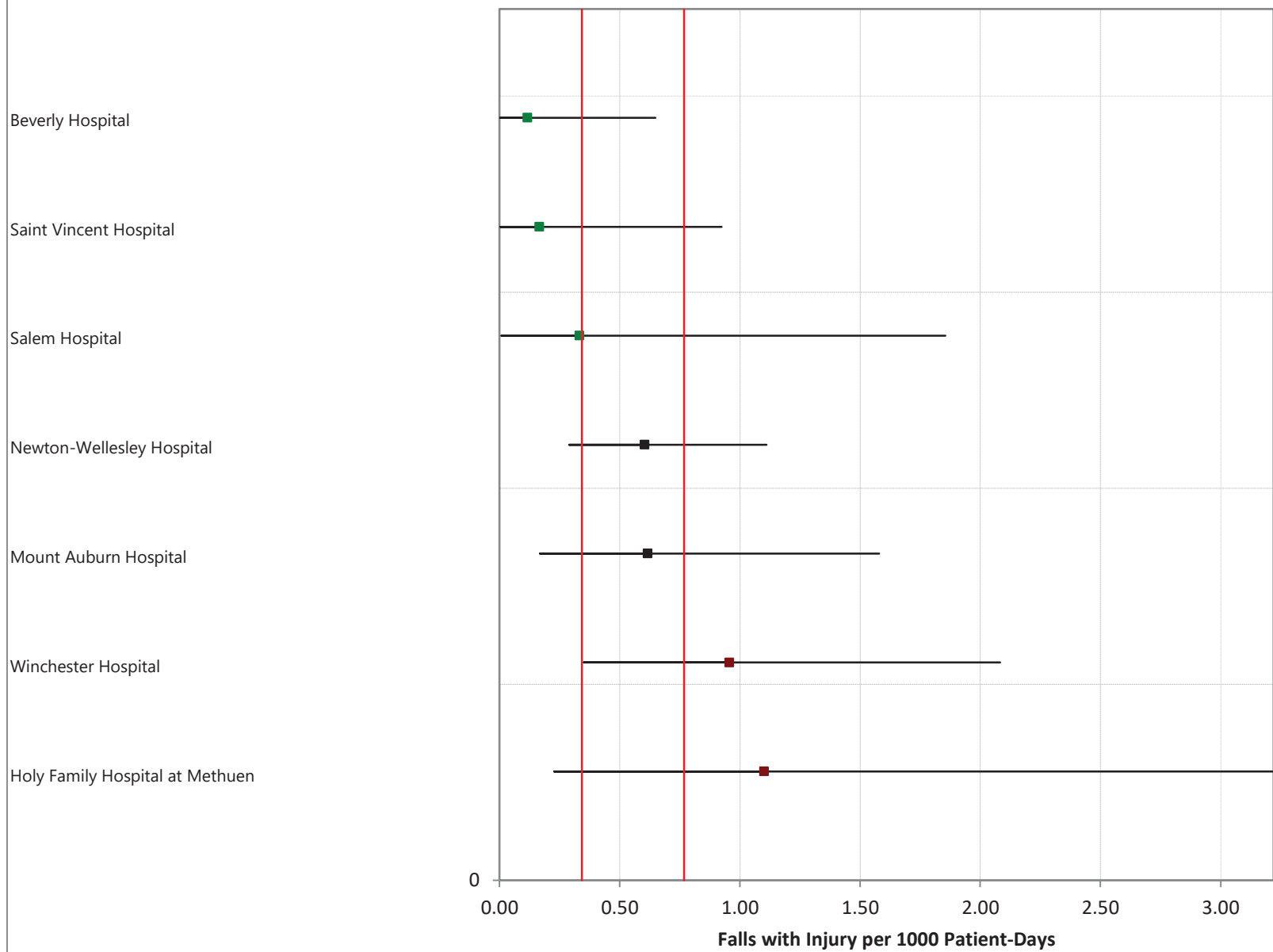
Adult Surgical Units, Less than 100 beds



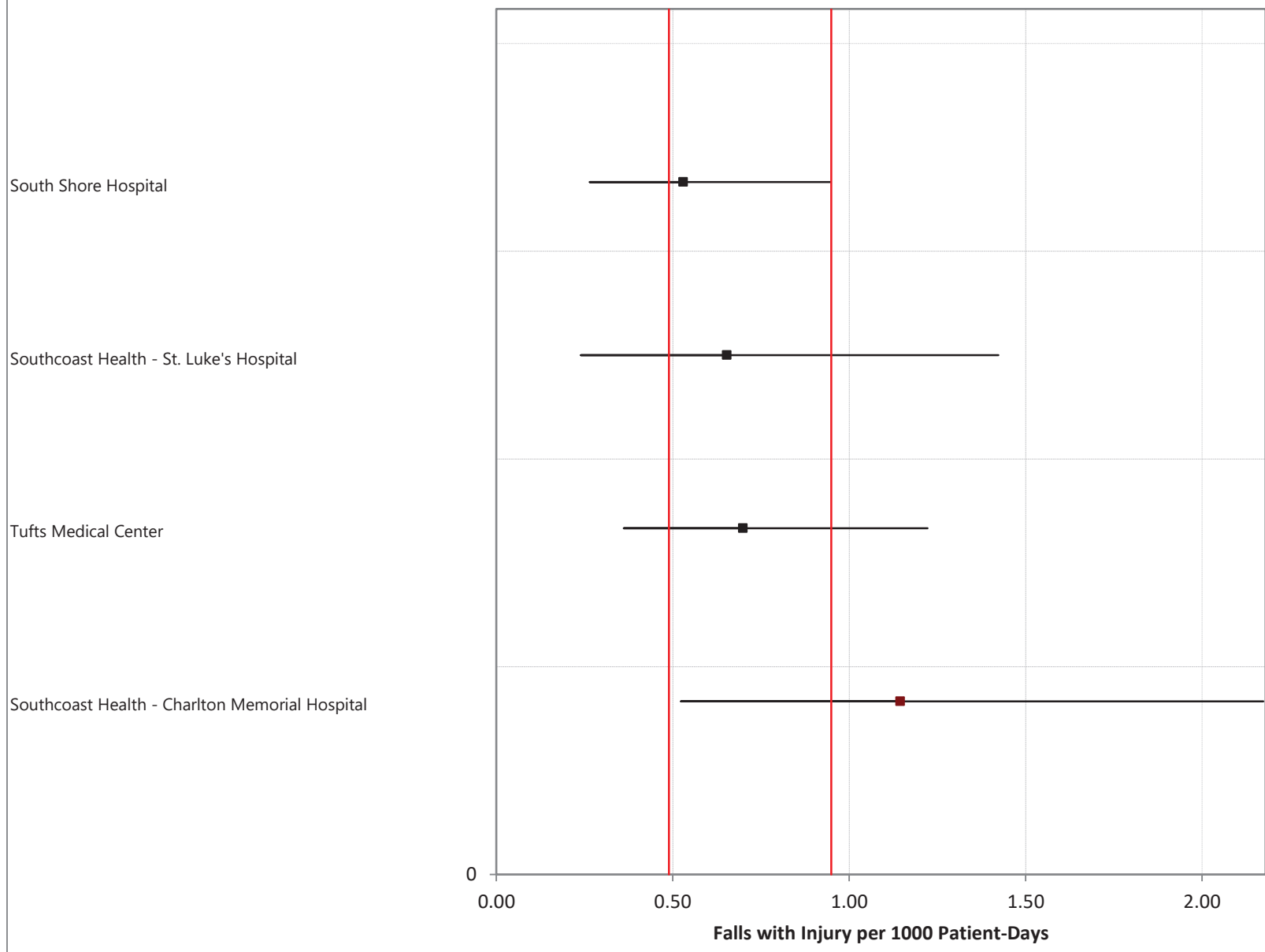
Adult Surgical Units, 100-199 beds



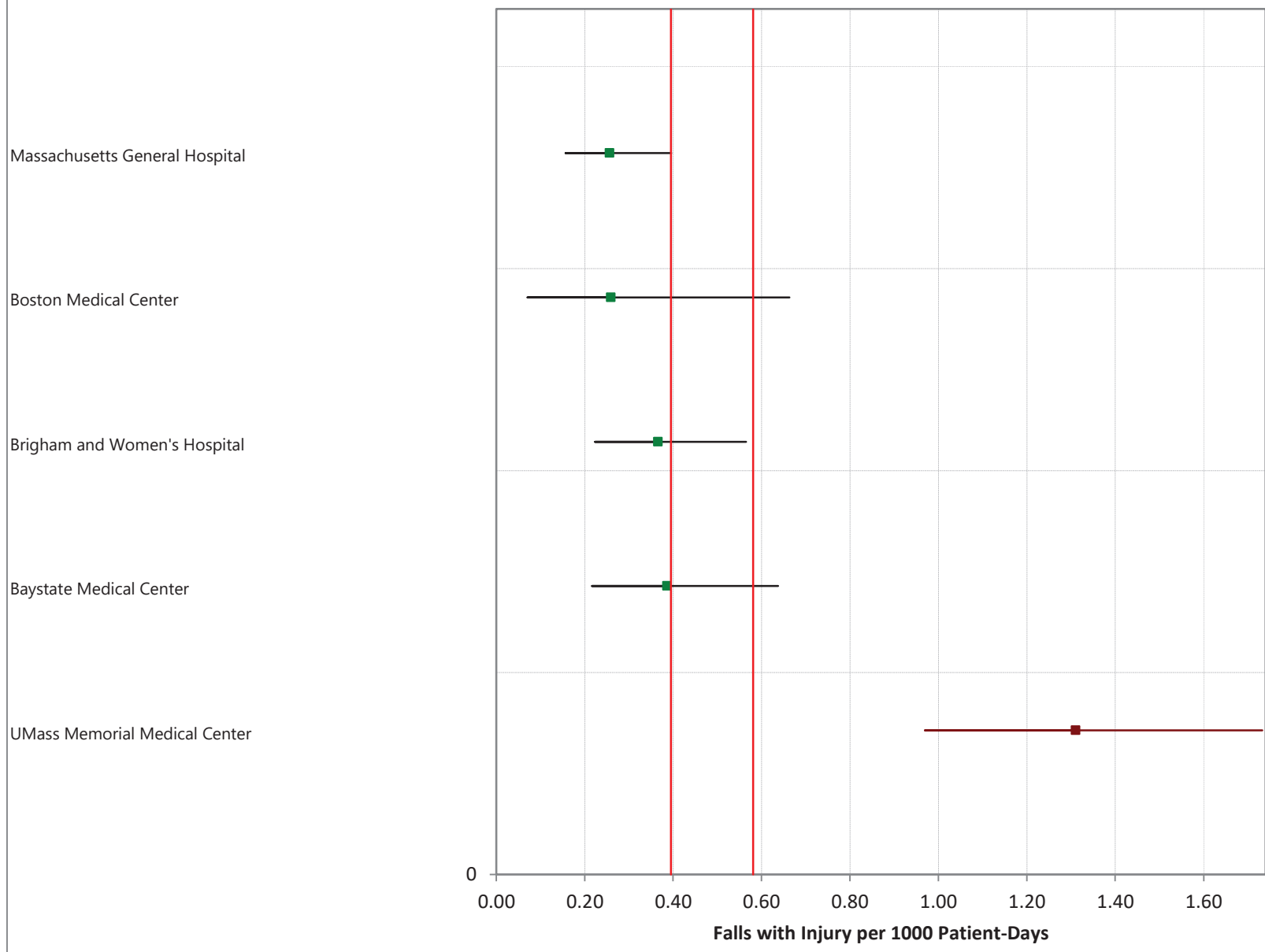
Adult Surgical Units, 200-299 beds



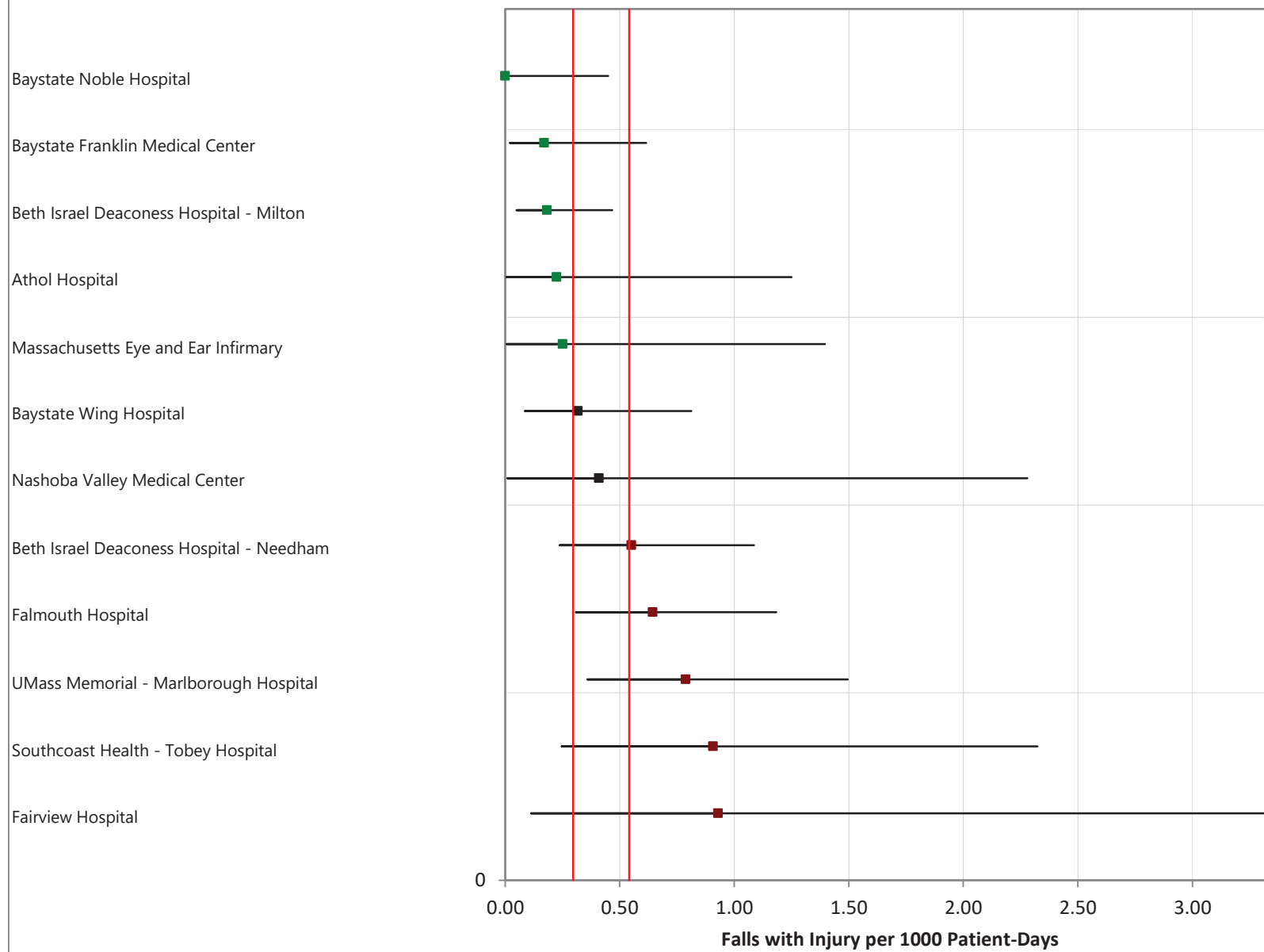
Adult Surgical Units, 300-399 beds



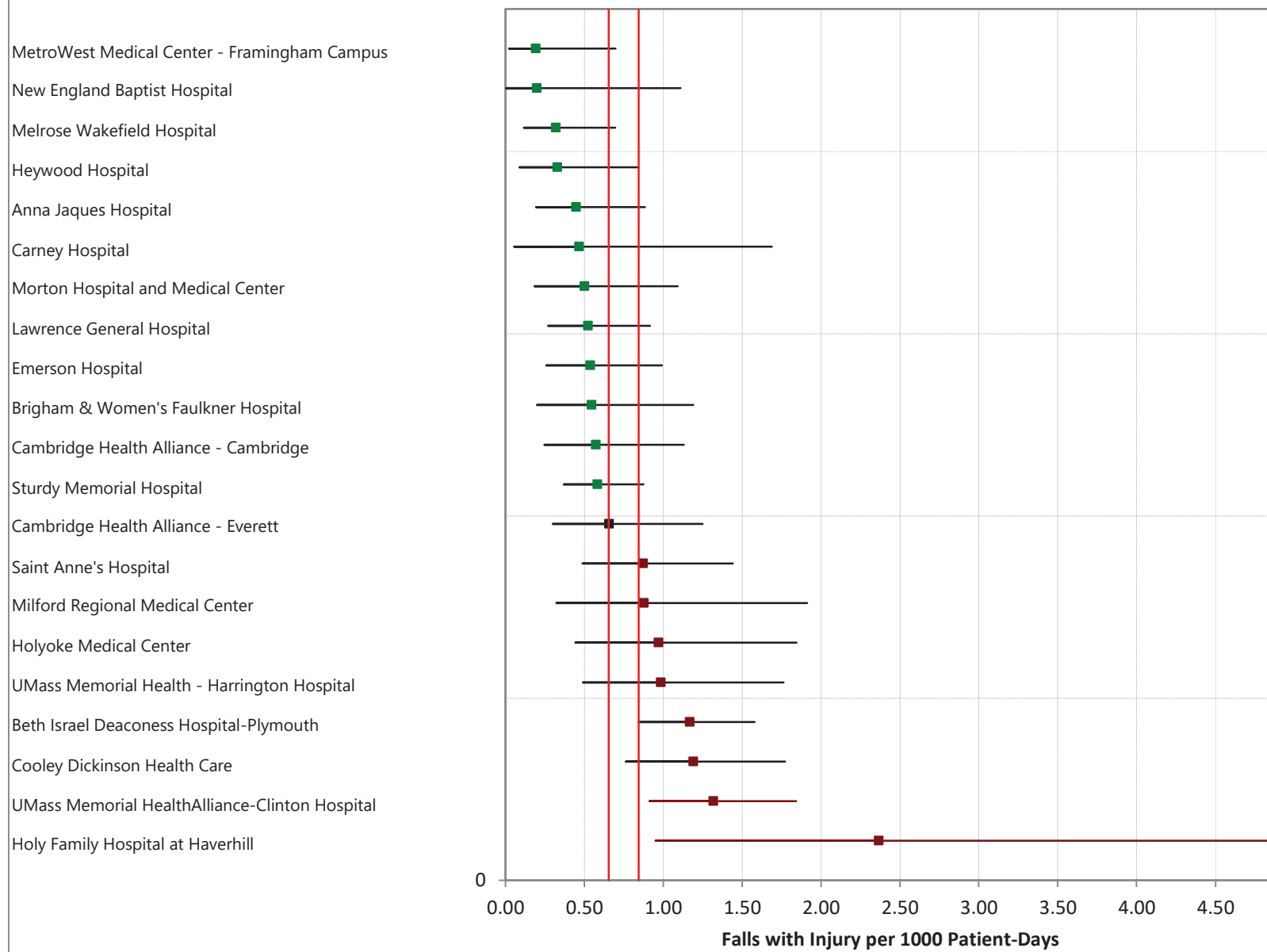
Adult Surgical Units, More than 500 beds



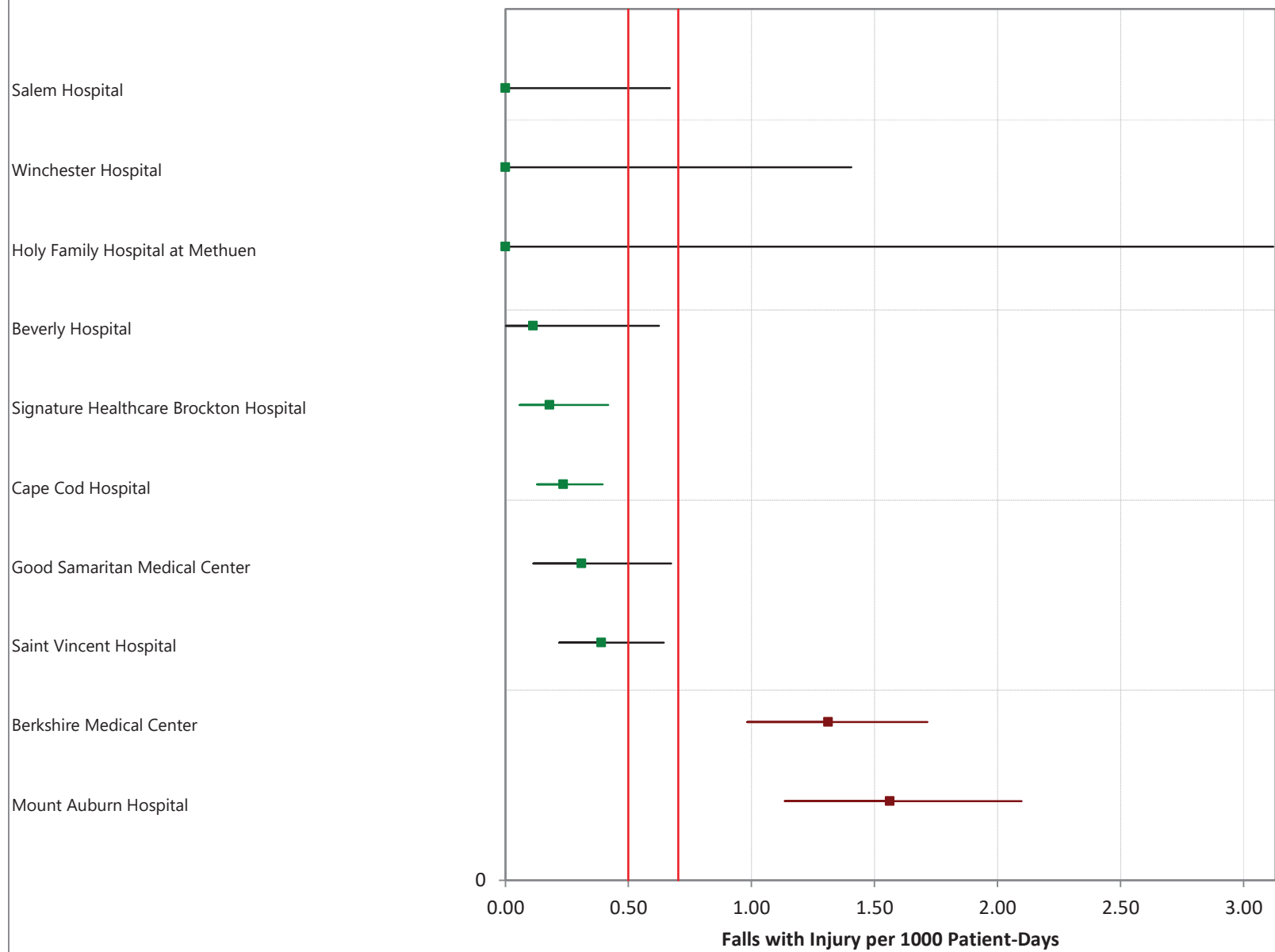
Adult Medical-Surgical Units, Less than 100 beds



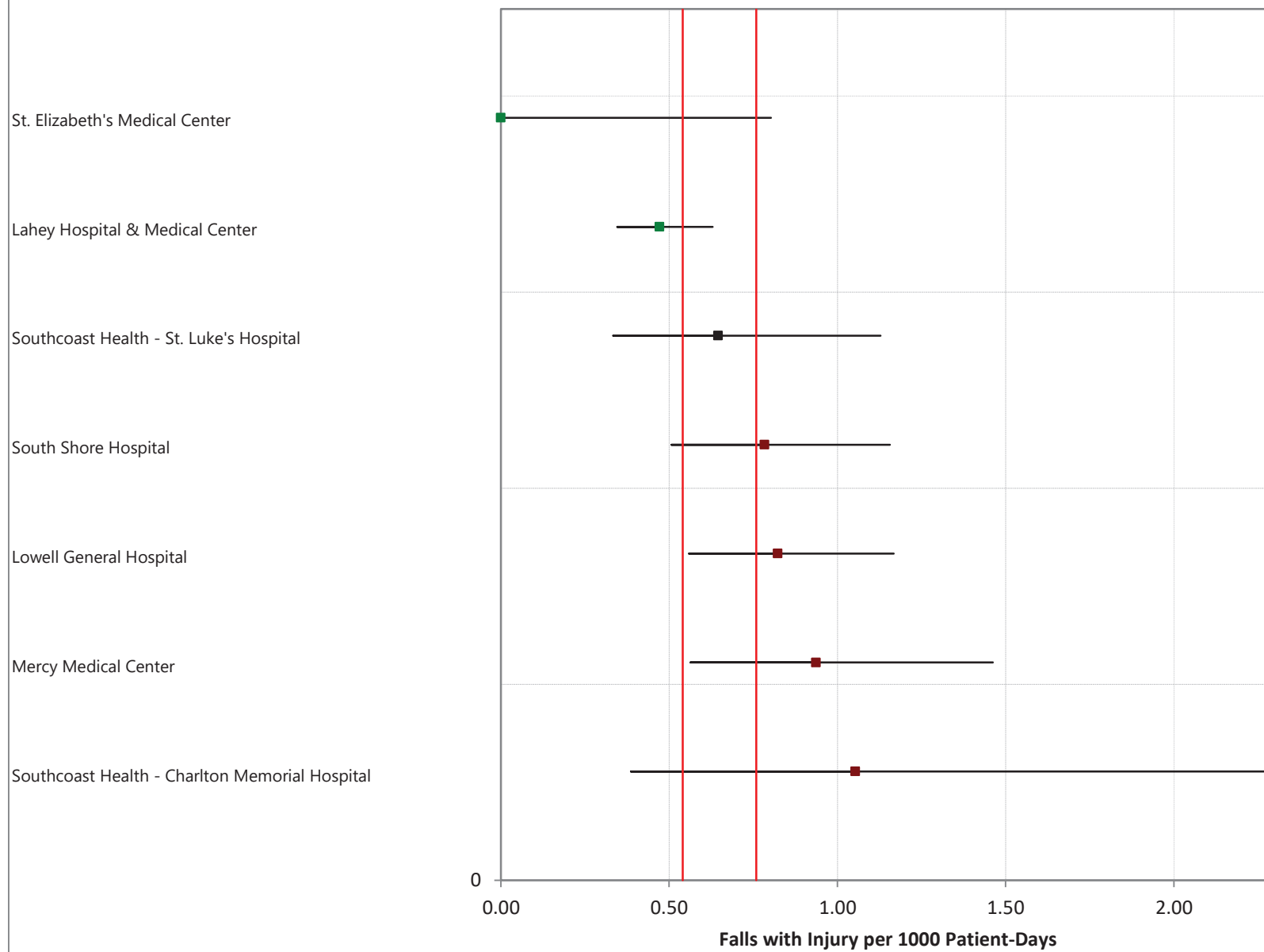
Adult Medical-Surgical Units, 100-199 beds



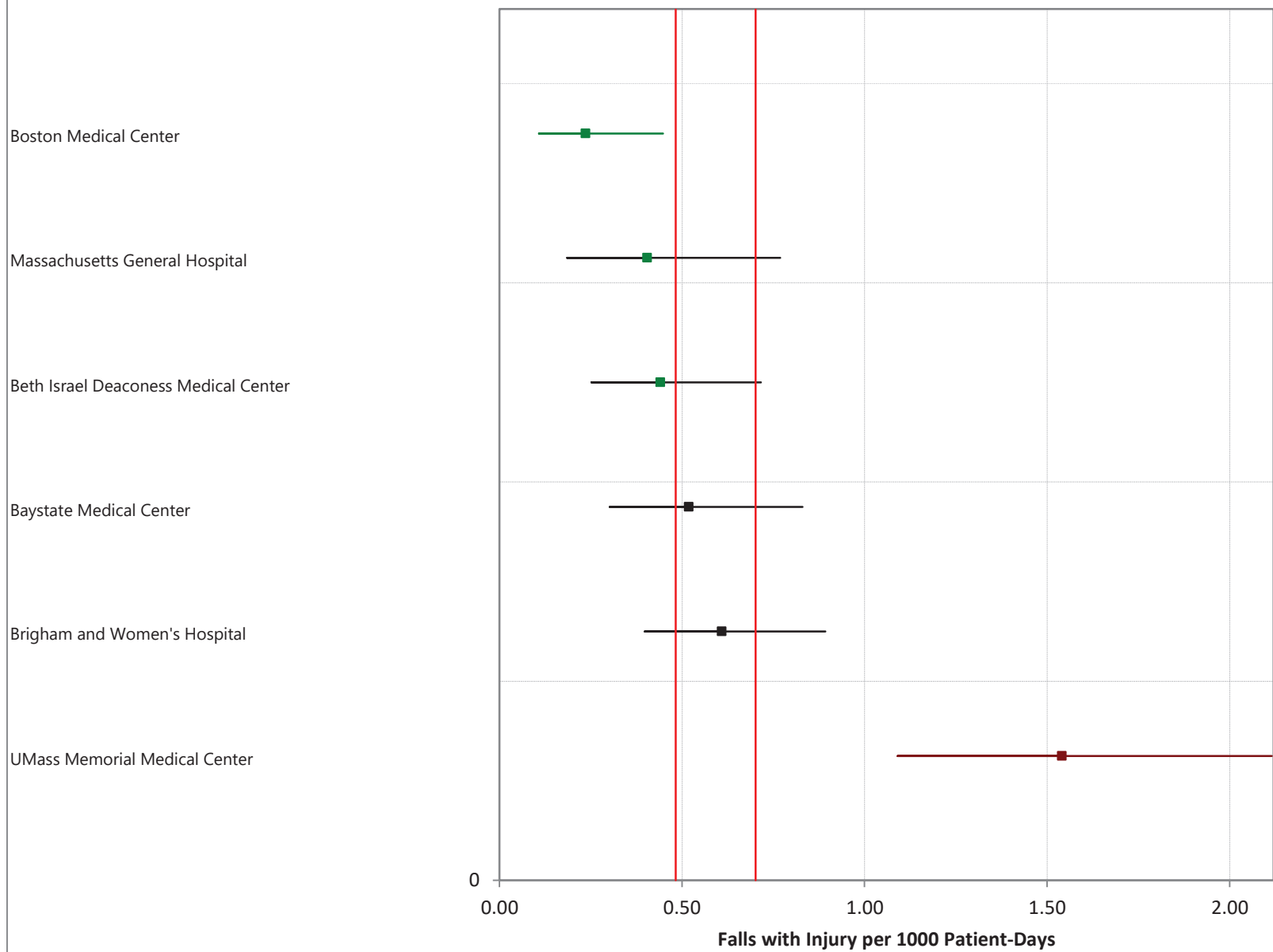
Adult Medical-Surgical Units, 200-299 beds



Adult Medical-Surgical Units, 300-399 beds



Adult Medical-Surgical Units, More than 500 beds



Post-Acute Care Hospitals

NSC-2 Pressure Ulcer Prevalence

September 2019

December 2019*

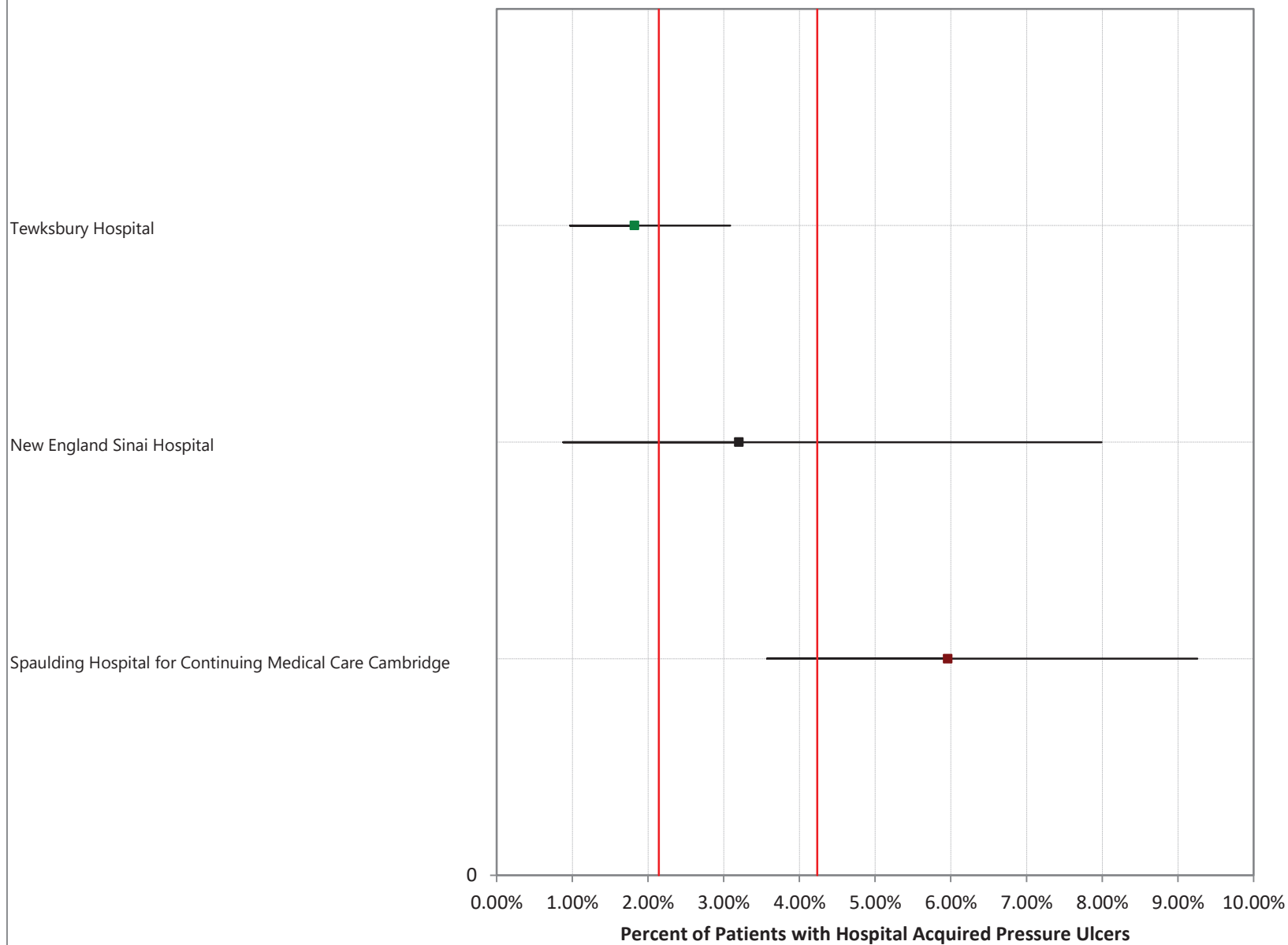
March 2022

June 2022*

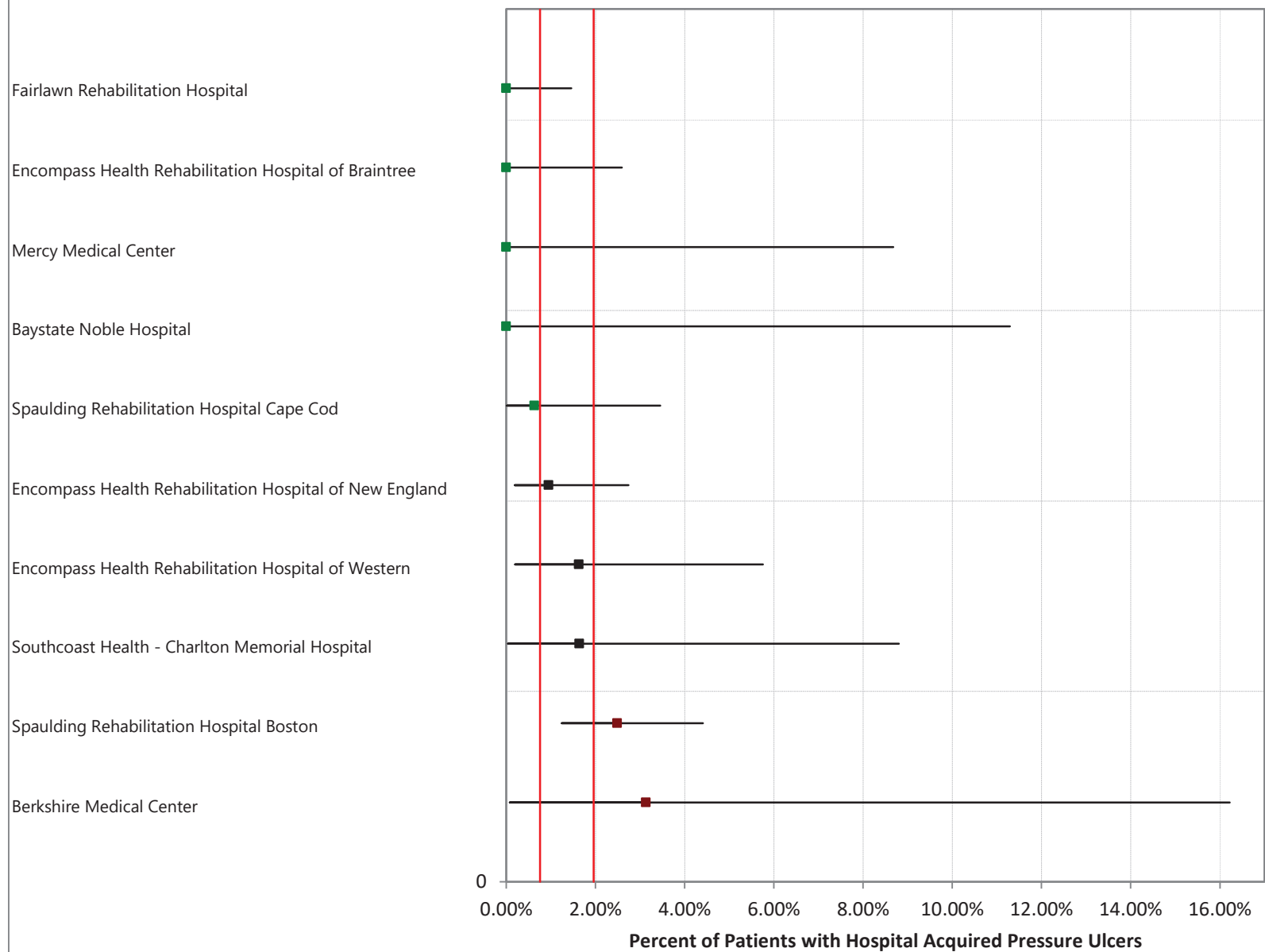
Please note: MHA and our member hospitals are committed to delivering the most reliable, transparent data on care quality. Due to the extreme and unprecedented challenges that hospitals faced through the first two years of the COVID-19 pandemic, it was not possible to accurately capture quality measure data representative of 2020 and 2021. We are pleased to announce that data collection and reporting has resumed as of 2022. MHA's methodology has always been to include a rolling four quarters of data for hospitals. Since we were not able to report on data for years 2020 and 2021, this data below includes September/December 2019 *and* March/June 2022.

*** Optional studies**

Long-Term Acute Care Hospital, Medical Unit



Rehabilitation Hospitals, Rehabilitation Unit

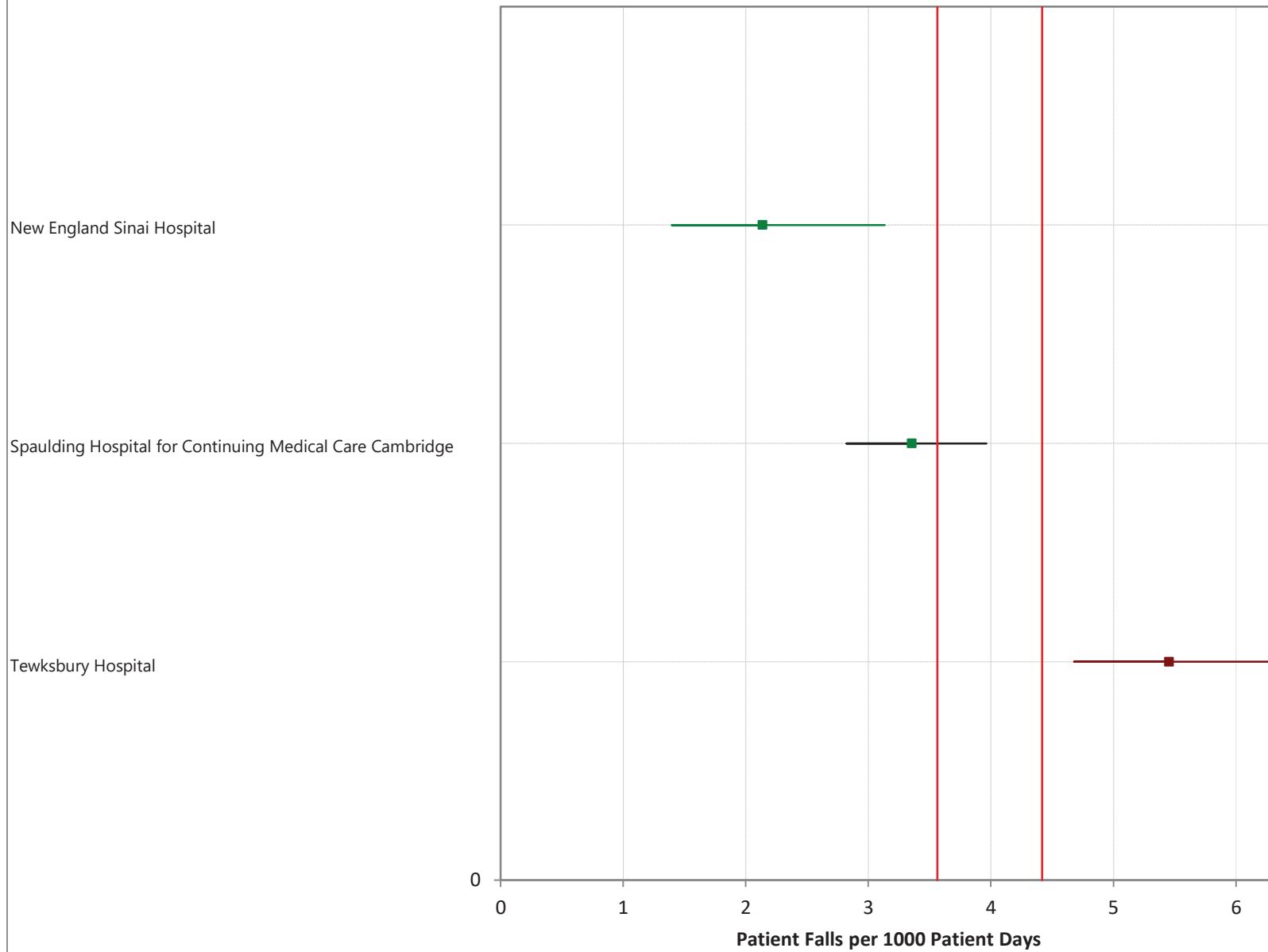


NSC-3 Patient Falls

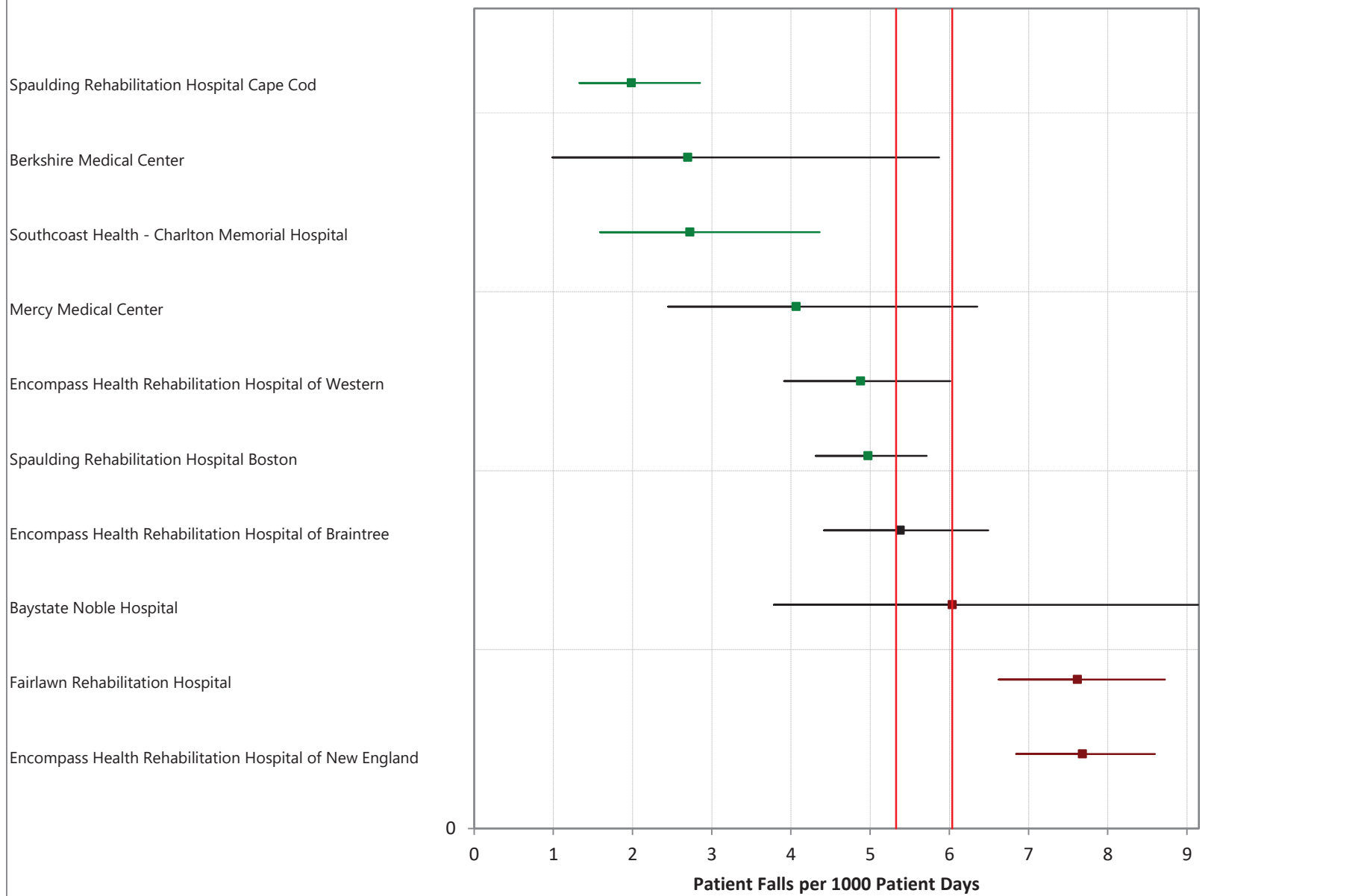
July-December 2019 *and* January-June 2022

Please note: MHA and our member hospitals are committed to delivering the most reliable, transparent data on care quality. Due to the extreme and unprecedented challenges that hospitals faced through the first two years of the COVID-19 pandemic, it was not possible to accurately capture quality measure data representative of 2020 and 2021. We are pleased to announce that data collection and reporting has resumed as of 2022. MHA's methodology has always been to include a rolling four quarters of data for hospitals. Since we were not able to report on data for years 2020 and 2021, this data below includes July-December 2019 *and* January-June 2022.

Long-Term Acute Care Hospital, Medical Unit



Rehabilitation Hospitals, Rehabilitation Unit

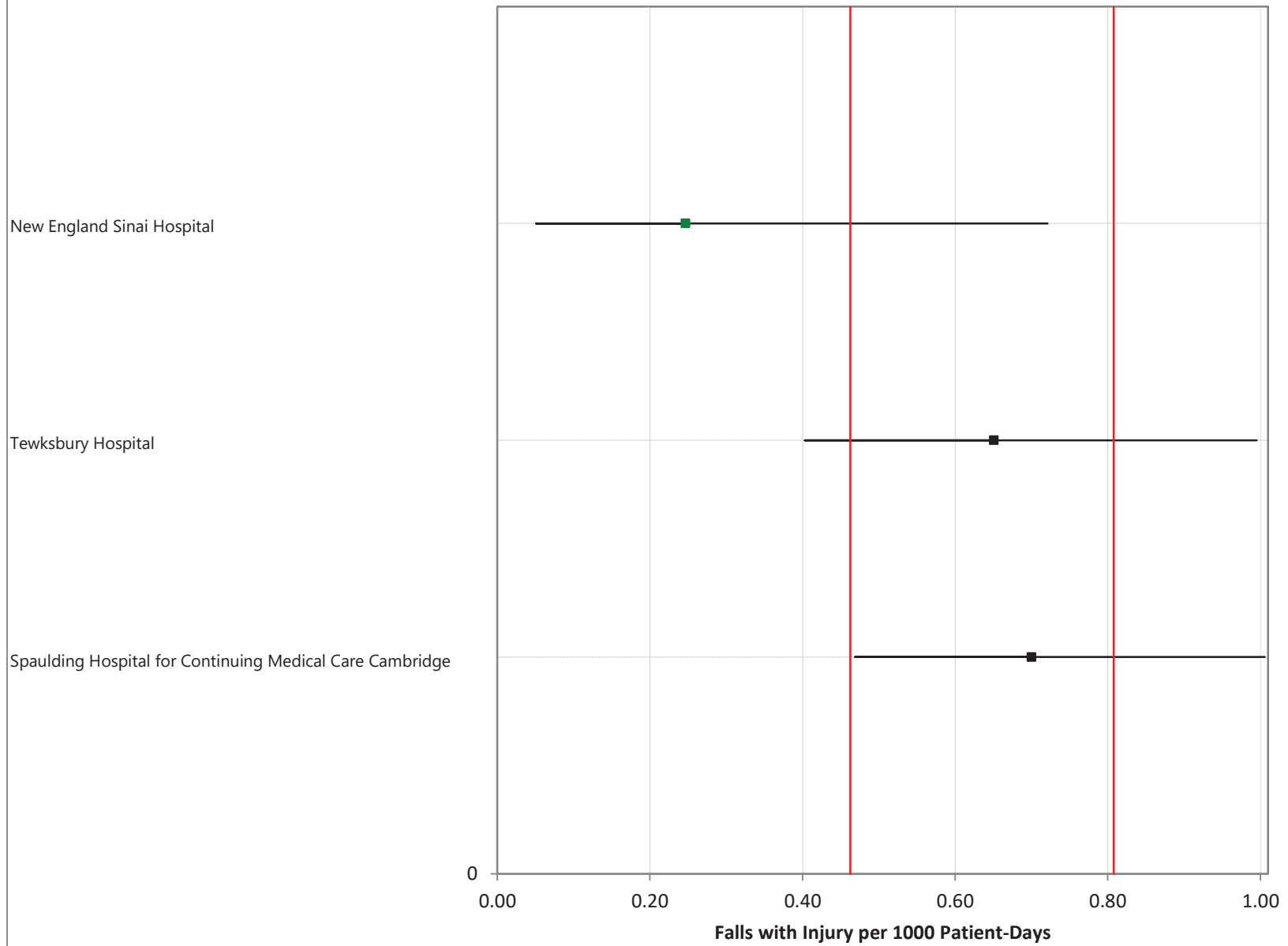


NSC-4 Falls with Injury

July-December 2019 *and* January-June 2022

Please note: MHA and our member hospitals are committed to delivering the most reliable, transparent data on care quality. Due to the extreme and unprecedented challenges that hospitals faced through the first two years of the COVID-19 pandemic, it was not possible to accurately capture quality measure data representative of 2020 and 2021. We are pleased to announce that data collection and reporting has resumed as of 2022. MHA's methodology has always been to include a rolling four quarters of data for hospitals. Since we were not able to report on data for years 2020 and 2021, this data below includes July-December 2019 *and* January-June 2022.

Long-Term Acute Care Hospital, Medical Unit



Rehabilitation Hospitals, Rehabilitation Unit

