

Video abstract transcript**Age-Stratified 30-day Rehospitalization and Mortality and Predictors of Rehospitalization Among Patients With Systemic Lupus Erythematosus: A Medicare Cohort Study**

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Slide 1:

I'm Dr. Maria Schletzbaum, and on behalf of my co-authors, I will be presenting an overview of our paper titled "Age Stratified 30-Day Rehospitalization and Mortality and Predictors of Rehospitalization Among Patients with Systemic Lupus Erythematosus, which has been published in the Journal of Rheumatology. Systemic lupus erythematosus is a multisystem chronic autoimmune disease that affects up to 1.5 million Americans. The burden of lupus can be high on patients and the healthcare system. Prior research has shown that lupus patients have over two times the number of hospitalizations each year compared to people without lupus, and approximately a quarter of lupus patients are hospitalized annually.

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Recently, U.S. Healthcare policy has focused on readmissions to the hospital within 30 days of discharge as a marker of healthcare quality. Researchers and healthcare systems have been working to reduce readmissions, including through programs targeted for patients with specific conditions known to have high readmission rates. 30-day readmission rates in lupus are as high as some of the prioritized conditions, but there has been a limited focus on lupus readmissions. Notably, unlike other conditions, readmissions and lupus are higher among younger patients, and factors driving the increased readmissions in young adults are unclear.

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Thus, our objectives for this study were one) to assess rates of 30 day rehospitalization and mortality by age group among Medicare beneficiaries with lupus and compare them to beneficiaries without lupus, and two) to identify predictive factors for 30 day rehospitalization among young adults with lupus and compare them to older adults with lupus.

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We used a 20% national sample of Medicare in the US from 2014. To be included, a hospitalization had to have systemic lupus erythematosus listed as one of the discharge diagnoses. The patient had to be alive at discharge and have had Medicare coverage for twelve months prior to hospitalization to evaluate for other health conditions. Each patient could contribute multiple hospitalizations to the sample. Categories were created based on the patient's age at admission. Our key outcome measures were 30 day all-cause rehospitalization and mortality. Our analyses first included calculating rates for 30 day rehospitalization and mortality by age category and lupus status. We then used generalized logistic regressions to identify factors predictive of readmission. We created one model and applied it to all ages, and then created a model specific for each age group.

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Our cohort included over 1.3 million non-lupus hospitalizations and 10,868 hospitalizations associated with a lupus diagnosis. 10% of lupus hospitalizations were among young adults, 45% among middle-aged beneficiaries, and the remaining 45% among older adults.

Notably, young adults with lupus had more additional health conditions and lived in more socioeconomically disadvantaged neighborhoods compared to older beneficiaries with lupus and compared to age-matched peers without lupus.

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30-day rehospitalization rates were higher among lupus related hospitalizations across all age groups. The highest readmission rate was among young adults with lupus at 36%. This was ten percentage points higher than hospitalizations of young adults without lupus and 16 percentage points higher than older adults with lupus.

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Observed 30-day mortality was similar for hospitalizations of young adults with and without lupus at 0.5 and 0.7%. Expectedly, mortality increased with age in beneficiaries with or without lupus, but was statistically lower for lupus hospitalizations compared to non-lupus hospitalizations in the middle-aged and older age groups.

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We then used regression to identify factors predicting rehospitalization overall in lupus and then in each age group separately. Odds ratios in bold are statistically significant. Values above 1 indicate increased risk for rehospitalization, while values below 1 indicate decreased risk for rehospitalization. Hospital length of stay and additional comorbid conditions were predictive in all ages, but the importance of specific health conditions varied by age group. Among young adults, having a cogulopathy, congestive heart failure, fluid or electrolyte disorder, or drug use disorder increased the risk of

hospitalization, while fewer readmissions were associated with increasing age and having paralysis. The C statistics for the models, indicating how accurate the model would be in predicting patients who are rehospitalized, were between 0.67 and 0.77, with better predictive value among the young adults.

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To summarize, we found the highest 30 day readmission risk was for young adults with lupus at 36%. In our models, which incorporated patient demographics, length of index hospitalization, and comorbidity scores, and specific comorbidities, we had moderate to good accuracy for predicting readmission - up to 77% among young adults with lupus. Our results highlight that young adult lupus patients with additional health conditions are at the highest risk for readmission, especially if they have specific additional health conditions. Future efforts to reduce readmissions in this high risk patient population would benefit from working with young adults with lupus to identify their needs after discharge in order to avoid preventable rehospitalizations and adapt existing interventions from other conditions.

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Thank you for learning more about our team's study. For further details and discussion, including supplementary analyses, we invite you to check out the full paper from the Journal of Rheumatology.