

# Making it Complicated: Does Disparity in Access to Care Lead to More Perforated Appendicitis?

Josue B. Estrella, BS,<sup>a</sup> Heather Carmichael, MD,<sup>a,b</sup> Quintin W.O. Myers, MA,<sup>b</sup> Sterling Lee, BA,<sup>a</sup> and Catherine G. Velopulos, MD, MHS<sup>a,b,\*</sup>

<sup>a</sup> School of Medicine, University of Colorado, Colorado, USA

<sup>b</sup> Department of Surgery, University of Colorado, Colorado, USA

## ABSTRACT

***Introduction:*** Delays in obtaining care may lead to perforated appendicitis, increasing risk of morbidity and mortality. We previously explored the role of social determinants in patients undergoing cholecystectomy, finding that emergent presentation is associated with neighborhood Social Vulnerability Index (SVI). We hypothesize that social vulnerability is associated with increased incidence of perforated appendicitis.

***Methods:*** We retrospectively identified patients presenting to our urban, academic hospital with acute appendicitis during a 9-month timeframe (11/2019 – 7/2020). Patients were classified as perforated or non-perforated. Patient SVI was determined using geocoding at the census tract level. Because rates of perforation were higher in older patients, we performed a subset analysis of patients  $\geq 40$  years.

***Results:*** 190 patients were included. Patients with perforated appendicitis ( $n = 48$ , 25%) were older and were more likely to present to a clinic versus the emergency department ( $P = 0.009$ ). Perforated patients had longer delay before seeking care (56% versus 6% with  $> 72$  hours of symptoms,  $P < 0.001$ ). However, there were no differences between groups in terms of sex, race/ethnicity, insurance type, language barrier, having a primary care physician, or any of the SVI subscales. Of patients  $\geq 40$  years, a higher proportion were perforated (28/80, 35%) despite similar rates of delayed care. In this cohort, higher overall SVI as well as the socioeconomic status and household composition/disability subscales were associated with perforation.

***Conclusions:*** Contrary to our hypothesis, while perforation was associated with delayed care in this population, we did not find overall that social vulnerability or individual social determinants accounted for this delay.