

Title: Emergency care in India: A Retrospective Cross-sectional Analysis of National Data (2019-2020)

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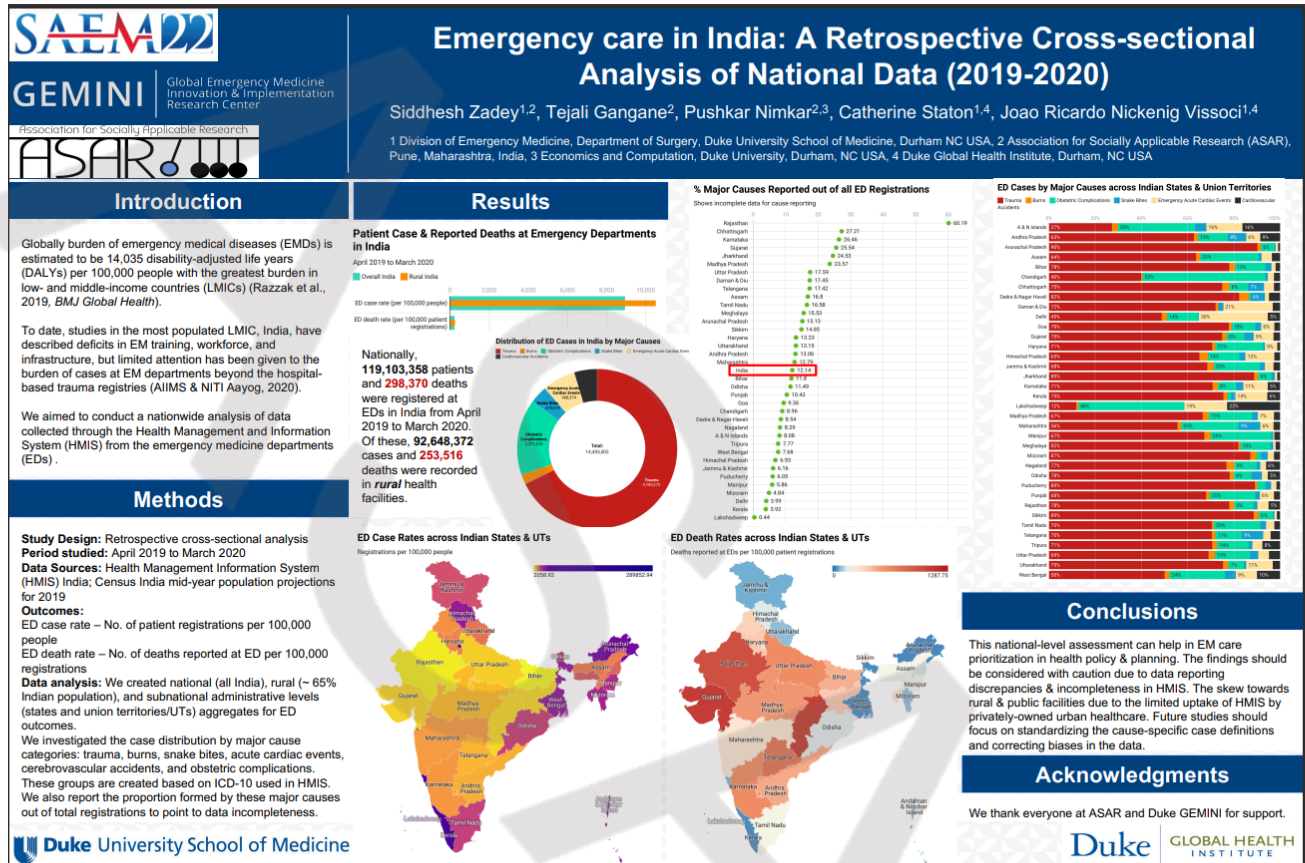
Background: Globally burden of emergency medical diseases (EMDs) in 2015 is estimated to be 14,035 disability-adjusted life years (DALYs) per 100,000 people with the greatest burden in low- and middle-income countries (LMICs). To date, studies in the most populated LMIC, India, have described deficits in EM training, workforce, and infrastructure, but limited attention has been given to the burden of cases at EM departments beyond the hospital-based trauma registries. To better understand the burden, we aimed to conduct a nationwide analysis of EM admissions data collected through the Health Management and Information System (HMIS).

Methods: This study is a retrospective cross-sectional analysis of the HMIS data collected from April 2019 to March 2020. We created national (all India) and subnational (state-level) aggregates for cases (patient registrations) and deaths registered at EM departments. Among the cases, we also investigated the following categories: trauma, burns, snake bites, acute cardiac events, cerebrovascular accidents, and obstetric complications. Population-level case rates (per 100,000) were calculated for total, rural, and urban regions using respective are census-based mid-year population projections for 2019.

Results: Nationally, 119,103,358 patients (8935.66 per 100,000 people) were registered at EM departments in India from April 2019 to March 2020. Of these, 92,648,372 (10507.64 per 100,000 rural-dwelling people) were recorded in rural healthcare facilities while 26,454,986 (5863.56 per 100,000 urban-dwelling people) in urban facilities. Category-wise data were present only for 12.14% of all cases. 8.22%, 0.24%, 1.86%, 0.44%, 0.81%, and 0.56% of the total cases were due to trauma, burns, obstetric complications, snake bites, acute cardiac events, and cerebrovascular accidents, respectively. 298,370 deaths (0.25% of all cases) were recorded at EM departments. Cause-specific cases and overall deaths data point to underestimation due to data missingness. Significant across-state variations were observed for multiple outcomes.

Conclusion: These findings point to emergency care needs in India with noticeable regional heterogeneity. The findings should be considered with caution due to data reporting discrepancies in HMIS. The rural-skew is most likely due to the limited uptake of HMIS by

privately-owned urban healthcare facilities. Future studies should focus on standardizing the cause-specific case definitions and correcting the data to better understand the EM care needs in India.



Methods

Study Design:

Retrospective cross-sectional analysis

Period studied:

April 2019 to March 2020

Data Sources:

Health Management Information System (HMIS) India; Census India mid-year population projections for 2019

Outcomes:

ED case rate – No. of patient registrations per 100,000 people
ED death rate – No. of deaths reported at ED per 100,000 registrations

Data analysis:

We created national (all India), rural (~65% Indian population), and subnational administrative levels (states and union territories/UTs) aggregates for ED outcomes.

We investigated the case distribution by major cause categories: trauma, burns, snake bites, acute cardiac events, cerebrovascular accidents, and obstetric complications. These groups are created based on ICD-10 used in HMIS. We also report the proportion formed by these major causes out of total registrations to point to data incompleteness.

Conclusions

This national-level assessment can help in EM care prioritization in health policy & planning. The findings should be considered with caution due to data reporting discrepancies & incompleteness in HMIS. The skew towards rural & public facilities due to the limited uptake of HMIS by privately-owned urban healthcare. Future studies should focus on standardizing the cause-specific case definitions and correcting biases in the data.

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