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BETTER CARE FOR A BETTER WORLD

Cost analysis of the NIRUDAK clinical diagnostic model for volume deficit in patients with acute diarrhea

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Background and Objectives

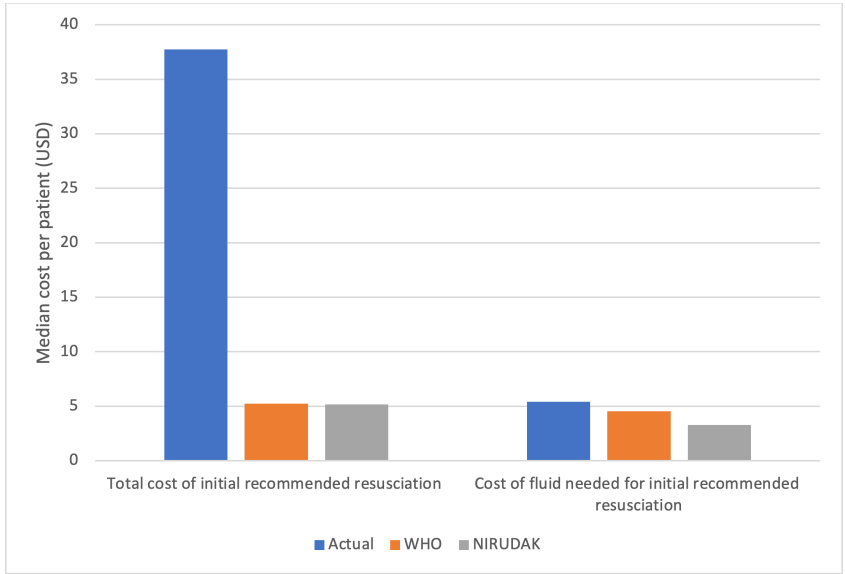
- With over 6.5 billion cases and 1.4 million deaths in 2019, diarrheal diseases are a major cause of morbidity and mortality and place a heavy burden on healthcare systems worldwide
- This study aims to compare simulated treatment costs of acute diarrhea management using the World Health Organization (WHO) guidelines[a] or the recently developed NIRUDAK model[b] to the actual cost of care in patients over 5 years old

Methods

- Cost of care for each patient included fluid administered, hospital costs, and equipment for patients presenting to icddr,b's Dhaka Hospital between March 2019 – March 2020
- Total costs of resuscitation along with cost of fluid required for initial resuscitation (within first 6 hours of admission) were calculated and reported as median and interquartile range (IQR) in USD

Results and Conclusion

- Using the NIRUDAK model, patients had a median projected total cost of $5.18 (IQR: 0 – 25.56)
  - Median projected total costs using the WHO guidelines were $5.23 (IQR: 5.09 – 22.17)
  - Actual total cost of care was $37.75 (IQR: 15.69 – 45.00)
- When isolating costs for initial fluid resuscitation, the median projected cost per patient was $3.27 (IQR: 0 – 4.27) using the NIRUDAK model
  - Median projected fluid cost was $4.55 (IQR: 0 – 5.76) using the WHO guidelines
  - Actual costs of fluid were $5.43 (IQR: 4.16 – 5.43)
- Implementing the most cost-effective approach to diarrhea management will help optimize allocation of resources, which is especially critical in low resource settings



References

a World Health Organization (WHO). IMAI District Clinician Manual: Hospital Care for Adolescents and Adults. World Heal Organ [Internet]. 2011; 2:780. Available from: http://apps.who.int/iris/bitstream/ 10665/77751/3/9789241548290_Vol2_eng.pdf?ua=1

b Levine AC, Barry MA, Gainey M, Nasrin S, Qu K, Schmid CH, et al. (2021) Derivation of the first clinical diagnostic models for dehydration severity in patients over five years with acute diarrhea. PLoS Negl Trop Dis 15(3): e0009266. https://doi.org/10.1371/journal.pntd.0009266