



# Alleviating the Financial Burden for Dialysis Patients in Low-and Middle-Income Countries During the COVID-19 Pandemic

Md Sohrab Hosen <sup>1,\*</sup>, Md Nafiujjaman <sup>2</sup> and Tawhida Rahman Nishat <sup>3</sup>

<sup>1</sup>Department of Pharmacy, Square Hospitals Limited, Dhaka, Bangladesh

<sup>2</sup>Department of Biomedical Engineering, Michigan State University, Michigan, USA

<sup>3</sup>Department of Medicine, Enam Medical College and Hospital, Savar Union, Bangladesh

\*Corresponding author: Department of Pharmacy, Square Hospitals Limited, Dhaka, Bangladesh. Email: [hosensbi@gmail.com](mailto:hosensbi@gmail.com)

**Received** 2020 June 21; **Revised** 2020 September 06; **Accepted** 2020 September 10.

**Keywords:** Coronavirus, Immune System, Dialysis, Safety, Financial Burden

## Dear Editor,

The novel coronavirus disease 2019 (COVID-19), caused by the pathogen, namely SARS-CoV-2, was first identified in December 2019 in Wuhan, China. It spread rapidly and manifested as a global pandemic. As of Sep 04, 2020, the pathogen has infected 26171112 people and caused 865154 deaths across the globe (1). Bangladesh, which happens to be a densely populated country, had its first cases identified in March 2020. Since then, the country has been facing mounting challenges in combating COVID-19. In Bangladesh, 321615 confirmed cases and 4412 fatalities of COVID-19 reported as of 04 Sep 2020 (2). In this unprecedented situation, routine health services have been thoroughly disrupted due to the increased risk of infection and lack of hospital beds. Critical patients who are in dire need of these regular services have been put in jeopardy.

Dialysis is defined as the process of removal of wastes and excess fluid from blood (3). Dialysis is performed when the kidneys are damaged and can't filter blood to remove the accumulated toxins and excess water from the body (4). However, dialysis for kidney failure patients in low-and middle-income countries (LMICs) is very expensive around US\$ 3,424 to US\$ 42,785 per year for hemodialysis (HD) and US\$ 7,974 to US\$ 47,971 for peritoneal dialysis (PD) (5). In Bangladesh, around eight lac (0.8 millions) kidney failure patients require dialysis, and among them, only 30 thousand are able to receive dialysis due to lack availability of dialysis centre and patients financial capability (6). Only 101 dialysis centers have been established in Bangladesh till date (5), and all of them are mostly located within the city limits. Patients often need to travel long distances in order to access this crucial treatment, and long-distance travel could potentially exacerbate existing conditions.

During this pandemic, kidney failure patients have been gravely inconvenienced. They are required to conduct COVID-19 testing every 14 - 21 days which is prior to undergoing HD. This testing is in itself very difficult to attain owing to the lack of testing facilities and the government only enabling testing for those who have developed symptoms. Moreover, after the stay at home order was issued on March 26, patients have been encumbered by additional costs of hiring private transport to reach those hospitals. As these patients live with multiple comorbidities and a compromised immune system, they are required to wear PPE. However, unfortunately, Bangladesh is facing a crisis due to the unavailability of personal protective equipments (PPEs) for front line health workers and COVID-19 patients. Hence these patients who seek treatment are required to buy their own PPE. Furthermore, healthcare settings have imposed additional charges for "Infection control", around two thousand taka for each schedule of dialysis.

A study mentioned that around 50% - 90% of the population does not have any health coverage so they pay their treatment from their own pocket in LMICs (7). Recently, Bangladesh has migrated to LMIC with per capita income around 1909 USD in 2019 (8). However, there are still hundreds of thousands of people living in poverty. People who received dialysis, their mean age  $54.9 \pm 10.5$  and female and the male ratio was 1.4:1 in Bangladesh (9). A study revealed that the pathogen was detected in 15% of HD patients and the mortality rate within these patients has reached to 29% (10). With all these testing, safety processes and some expansive medicine incorporated into their treatment, these patients have been afflicted with a devastating financial burden.

Despite all of these, patients still need to go to health care centers on a regular basis in order to receive dialysis and improve life expectancy. Missing out on a single session may lead to the accumulation of fluid in their heart and lungs which can be at often time's life-threatening (11). Hence I believe, financial support from the respective governments, free transport, cost-effective COVID-19 testing and treatment facility, and subsidizing the price of costly medications could be an effective measure to alleviate the financial burden for dialysis patients during this pandemic. Moreover, the government of LMICs including Bangladesh should consider the above-mentioned points to improve the healthcare system and decrease the mortality rate, especially where there is a glimmer of hope for millions of people to live a little longer and to live to their fullest.

## Footnotes

**Authors' Contribution:** Study concept: MSH. Drafting of the manuscript: TRN. Critical revision of the manuscript: MN.

**Conflict of Interests:** The authors have no conflict of interest to disclose.

**Funding/Support:** The authors did not receive any grant from any funding agency.

## References

1. WHO. *Coronavirus disease (COVID-19). Dashboard*. 2020, [cited 2020 Sep 04]. Available from: <https://covid19.who.int>.
2. *Covid-19 situation in the WHO South-East Asia Region*. 2020, [cited 2020 Sep 05]. Available from: <https://experience.arcgis.com/experience/56d2642cb379485ebf78371e744b8c6a>.
3. Hakim RM, Lazarus JM. Initiation of dialysis. *J Am Soc Nephrol*. 1995;6(5):1319-28.
4. Vadakedath S, Kandi V. Dialysis: A review of the mechanisms underlying complications in the management of chronic renal failure. *Cureus*. 2017;9(8). e1603. doi: [10.7759/cureus.1603](https://doi.org/10.7759/cureus.1603). [PubMed: [29067226](https://pubmed.ncbi.nlm.nih.gov/29067226/)]. [PubMed Central: [PMC5654453](https://pubmed.ncbi.nlm.nih.gov/PMC5654453/)].
5. Mushi L, Marschall P, Flessa S. The cost of dialysis in low and middle-income countries: A systematic review. *BMC Health Serv Res*. 2015;15:506. doi: [10.1186/s12913-015-1166-8](https://doi.org/10.1186/s12913-015-1166-8). [PubMed: [26563300](https://pubmed.ncbi.nlm.nih.gov/26563300/)]. [PubMed Central: [PMC4642658](https://pubmed.ncbi.nlm.nih.gov/PMC4642658/)].
6. *Kidney dialysis*. Dhaka Tribune. Health-wellness; 2017, [cited 2020 Sep 05]. Available from: <https://www.dhakatribune.com/feature/health-wellness/2017/10/26/kidney-dialysis-tk-800>.
7. Mendis S, Fukino K, Cameron A, Laing R, Filipe AJ, Khatib O, et al. The availability and affordability of selected essential medicines for chronic diseases in six low- and middle-income countries. *Bull World Health Organ*. 2007;85(4):279-88. doi: [10.2471/blt.06.033647](https://doi.org/10.2471/blt.06.033647). [PubMed: [17546309](https://pubmed.ncbi.nlm.nih.gov/17546309/)]. [PubMed Central: [PMC2636320](https://pubmed.ncbi.nlm.nih.gov/PMC2636320/)].
8. *Per capita income hits 1,909 dollars*. The daily star. Business; 2019, [cited 2020 Sep 05]. Available from: <https://www.thedailystar.net/business/news/capita-income-hits-1909-1717606>.
9. Uddin KN, Zaman S, Samdani TS, Haque HF, Mitra P, Rahim MA. Prevalence of chronic kidney disease stages 3-5 among patients with type 2 diabetes mellitus in Bangladesh. *JMC J Med Sci*. 2017;11(1):19-24. doi: [10.3329/jmcjms.v11i1.31934](https://doi.org/10.3329/jmcjms.v11i1.31934).
10. Alberici F, Delbarba E, Manenti C, Econimo L, Valerio F, Pola A, et al. A report from the Brescia Renal COVID task force on the clinical characteristics and short-term outcome of hemodialysis patients with SARS-CoV-2 infection. *Kidney Int*. 2020;98(1):20-6. doi: [10.1016/j.kint.2020.04.030](https://doi.org/10.1016/j.kint.2020.04.030). [PubMed: [32437768](https://pubmed.ncbi.nlm.nih.gov/32437768/)]. [PubMed Central: [PMC7206428](https://pubmed.ncbi.nlm.nih.gov/PMC7206428/)].
11. Bernstein L, Rowland C, Hamburger T. *Dialysis patients are at high risk during covid-19 outbreak*. The Washington Post. 2020, [cited 2020 Sep 05]. Available from: [https://www.washingtonpost.com/health/dialysis-patients-are-at-high-risk-during-covid-19-outbreak/2020/03/24/6e69f908-6aa7-11ea-b313-df458622c2cc\\_story.html#comments-wrapper](https://www.washingtonpost.com/health/dialysis-patients-are-at-high-risk-during-covid-19-outbreak/2020/03/24/6e69f908-6aa7-11ea-b313-df458622c2cc_story.html#comments-wrapper).