

# BONE MARROW TRANSPLANTATION IN BANGLADESH: EMERGING OPPORTUNITIES AND PERSISTENT CHALLENGES

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In 2022, Bangladesh recorded 7346 diagnosed cases of haematological malignancies, and this number continues to rise. Among them acute leukaemia accounts for approximately 45% of cases, lymphomas 23%, and multiple myeloma 11%. Patients present at a median age of around 42 years, considerably younger than in Western registries. For many of these patients, bone marrow transplantation (BMT) remains the only curative option. Beyond malignancy, BMT is also the standard of care for non-malignant haematological conditions such as transfusion dependant thalassaemia, bone marrow failure syndrome and congenital immune deficiency diseases, as well as for selected non-haematological disorders. The first BMT at Dhaka Medical College Hospital (DMCH) in 2014 marked a turning point. Currently, seven BMT centres are operational nationwide, and more than 400 transplants have been performed to date. Applying the Asia-Pacific average transplant rate of 53.6 BMTs per 10 million population to Bangladesh's demographics suggests a national requirement of approximately 900 to 1,000 transplants annually. This estimate alone highlights the substantial gap between disease burden and available services. Historically, BMT was entirely out of reach for most Bangladeshi families. Overseas treatment was the only option, costing BDT 15 to 20 lakh in India for an autologous procedure with Western centres charging upwards of BDT 80 to 100 lakh, and this cost is significantly more for allogeneic transplants. An autologous transplant now costs approximately BDT 5 to 8 lakh locally, while allogeneic procedures are available in the range of BDT 15 to 25 lakh in uncomplicated cases. In a healthcare system where, out-of-pocket expenditure remains the dominant mode of financing, this reduction is highly significant. Bangladesh's tropical climate, high endemic fungal burden, variable water quality, and unreliable utility infrastructure create conditions that are inherently hostile to immunocompromised patients. Maintaining HEPA-filtered, positive-pressure isolation in resource-constrained settings requires a level of vigilance that consistently tests institutional capacity. The 25-30% chance of availability of HLA matched sibling donor, smaller family size and the absence of stem cell donor registry in Bangladesh constrain allogeneic transplantation. Lack of advanced diagnostic and compatibility tests including fragmented HLA-typing and post transplantation chimerism testing forces patients and clinicians to seek them abroad at additional cost and delay. No local BMT centre currently holds FACT or JACIE accreditation, leaving quality benchmarking largely self-directed and limiting the programme's standing relative to established regional centres. Bangladesh has made significant progress for BMT in the last decade. Clinical capability is both real and steadily advancing. The next phase requires structured investment in infrastructure, establishment of a national donor registry, development of local advanced testing capacity, expansion of a specialised workforce, and a credible pathway towards international accreditation. Only then can BMT evolve from a limited service into a population-level therapeutic resource commensurate with the country's disease burden.

**Keywords:** bone marrow transplantation, hematopoietic stem cell transplant, haematological malignancy, allogeneic transplant, resource-limited settings, Bangladesh's healthcare progress.

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