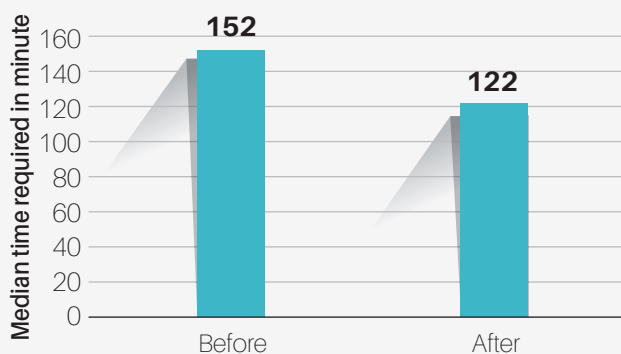


# Digital blood management system: Making blood transfusion more accessible at public hospitals of Bangladesh

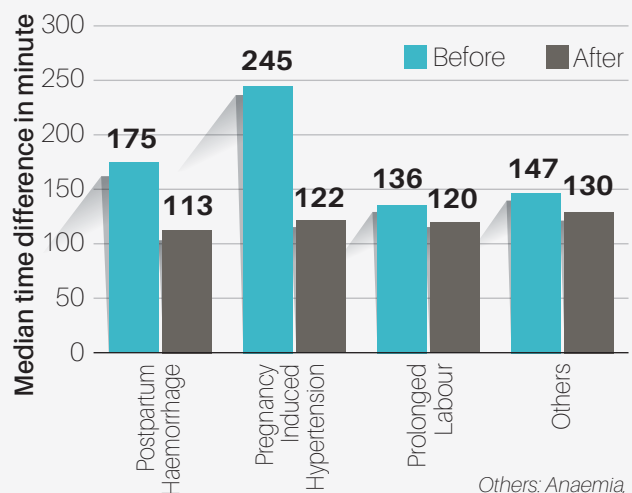
Approximately 99% of maternal deaths in developing countries are caused by pregnancy-related complications. 35% of these deaths are attributable to postpartum haemorrhage (PPH)<sup>1</sup>, which accounts for nearly 37% of all blood transfusions.

Safe blood transfusion law has been active in Bangladesh since 2002, but there remains a considerable gap between policy and practice.<sup>2</sup> In most cases, patients or their attendants do not know where to look for safe blood during emergency cases

like PPH. In addition, the quality and availability of safe blood screening are inadequate. A substantial amount of time to complete the transfusion process is required—including finding donors—which poses fatal risks for patients in urgent need of blood. Many patients depend on brokers to source blood, which in turn adds to the total expenditure. All of these factors indicate that there is a need to simplify and improve the efficiency of the blood transfusion process at public hospitals in Bangladesh.



**Figure 1:** Time difference between blood availability period



**Figure 2:** Average time taken by causes of blood transfusion

*Others: Anaemia, C-section, multigravida and premature rupture of membranes, and intrauterine death*

### Box 1. Barriers

- Unwillingness of lab technician to participate in the new system
- Brokers' influence on doctors and patients
- Lack of interest and fear of junior doctors to use new technology

### Box 2. Facilitating factors

- Saves time and money
- Less hazardous
- Beneficial for poor patients
- Provides current information on availability and stock of blood

<sup>1</sup> Countdown to 2015: Maternal, Newborn and Child Survival [Internet]. WHO and UNICEF, 2012. Available at: <http://www.countdown2015mnch.org/documents/2012Report/2012-Complete.pdf>. Last accessed 1 September 2012

<sup>2</sup> How Healthy is Bangladesh Health Governance? Bangladesh Health Watch Report 2009. University Press Limited, Dhaka. 2010

Our 'blood information management application'—which we developed through a study at Dhaka Medical College Hospital and Sandhani for emergency obstetric patients—effectively addresses this need. The automated application allows users to access a database which includes the name and location of blood centres, donors (along with their blood groups and Rh types), inventory of blood units, and requisition and issuing information of a specific blood donation request.

Despite the benefits our application offers, there is a lack of interest amongst lab technicians and junior doctors in using new technology. Brokers (who are involved in arranging blood) also exercise their influence on doctors and patients which further enables them to continue rendering their 'middleman' services. In order to successfully implement automated blood information management systems—such as the one we developed—obstetric wards and blood banks need to strengthen coordination and communication. There is also a need to train and motivate users of this system at these health facilities.

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