

# Machine for performing Double Volume Exchange Transfusion - DVET

## Introduction

Severe jaundice (hyperbilirubinemia) is a common problem amongst newborn infants. Most infants with severe jaundice require only phototherapy but a few do not respond to it and end up requiring a double volume exchange transfusion. Double volume exchange transfusion involves replacing the entire blood volume of the neonate twice over with adult donor blood. In India and other developing nations, a disproportionately high number of jaundiced neonates require double volume exchange transfusions.

## Features

- Automates the manual procedure of exchange transfusion through umbilical vein
- Ensured and well calibrated smooth flow of the blood into the baby and out of the baby at all times
- Reduces the chances of unintended hypervolemia, hypovolaemia, haemodynamic fluctuations
- Based on double syringe pump technology
- Biocompatible and disposable fluid flow circuit
- Air-bubble and clot detection
- Device can be started again from the same position where it was paused during error.

## Specifications

- Aliquot Volume range : 1-10 ml
- Total exchange volume setting : 0 - 999 ml
- User set parameters : Volume per stroke; Total exchange Volume; Stroke duration
- System calculated parameters : Current ongoing cycle; Total number of cycles; Time elapsed; Total Volume exchanged
- Audio – Visual Alarms : Bubble and Clot detection; Syringe not fixed; Each Cycle completion; Process Completion
- GUI : 3.5” colour LCD; 4x5 Keypad
- Duration of Stroke : 60-200 seconds

## Benefits

- Reduces wastage of time, frustration and fatigue amongst doctor
- Eliminates the manual process of double volume exchange transfusion in neonates, which is laborious, tedious, repetitive and prone to error
- Maintains a fixed flow rate of infusion and extraction and reduces chances of mechanical haemolysis
- Reduces chances of human errors occurring during the present manual process like missing phases of a cycle or entire cycle, incorrect volume of blood withdrawn/infused, accidental infusion of air bubbles or clots

## Applications

For use in Neonatology department of hospitals

## Status

Present TRL Level – 6

### DVET machine



