

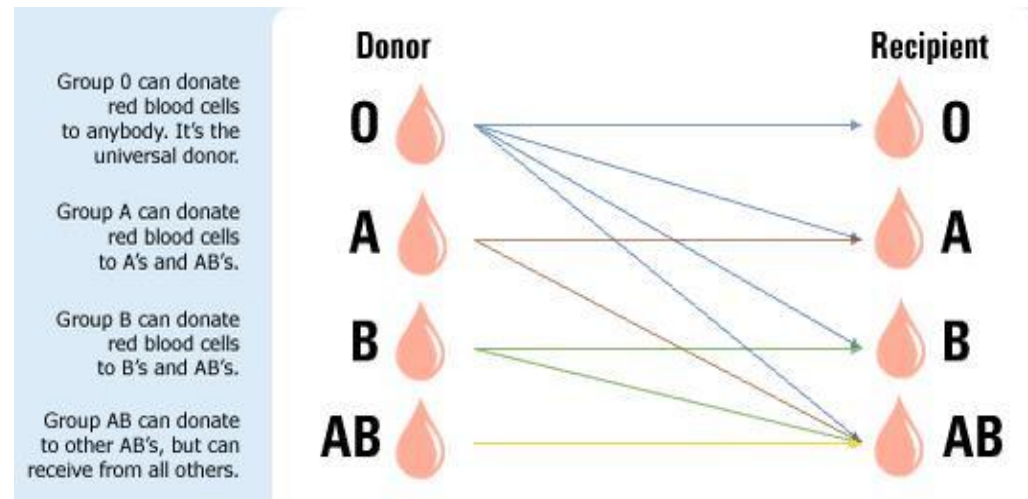
BLOOD BAG

A WEB APPLICATION TO MANAGE ALL BLOOD DONATION AND TRANSFUSION PROCESSES

Abstract

- Many lives could be lost due to the difficulty in obtaining a proper blood bag, Therefore, this work aims to help citizens fulfill their needs for a safe and reliable blood group by searching for and locating a specific blood group.
- In this paper, we illustrate the problem of the blood bags shortage which is represented in the uncontrolled blood banks and parallel markets, lack of awareness and confidence, disappearance of the rare blood groups, and the difficulty in finding a specific blood group.
- Hence, we proposed the Blood Bag web-based application that is connected to a centralized database to gather and organize the data from all blood banks and blood donation campaigns. The proposed application organizes and controls the whole critical processes related to blood donation, testing and storage of blood bags, and delivering it to the patient.

- Some important facts should be explained first before explaining the proposed system. These are:
 - A. Blood knowledge
 - B. Blood banks
 - C. Blood groups
 - D. Blood components
 - E. Problems of blood bags shortage
 - F. Donation eligibility requirements



Objectives

- We proposed the “Blood Bag” as a web-based application connected to a centralized database which gathers and organizes the data from all blood banks and the blood donation campaigns. This system sorts out and controls the entire basic procedures identified with blood donation, testing and storing blood bags, and delivering it to the patient.
- This all guarantees the delivery of a safe and reliable blood bag to the patients .

Phases of developing the proposed application

- Scope definition: Control pure blood bag and combating the parallel market. This will be done by controlling the whole donation process from empty blood bag till filled one whose used by anyone really need it. Passing through donation process, donor, follow him up, the application registration and campaigns.
- Requirement analysis: ◦ Observation the work environment during actual donation and all processes related to the donation. ◦ Interviews to collect information about donation, campaigns, and blood analysis.
- Problem analysis: ◦ Where blood groups are available. ◦ The difficulty in obtaining the required blood group. ◦ Blood donation is invalid. ◦ Parallel markets. ◦ Repeated blood analysis. ◦ Fear of blood donation. ◦ Lack of knowledge of the benefits of donating blood.
- System design and implementation ◦ This system was built using Microsoft Visual Studio 2015 (ASP.net-C#), Dev Express 15.2.7, and Microsoft SQL Server 2012. ◦ System Requirements: “Blood Bag” supports the following web browsers(Chrome v. 50.0 or later, Firefox v. 48.0 or later, and Internet Explorer v. 11.0 or later). ◦ The system runs on Microsoft Windows (versions 7, 8, 8.1, and 10).

Benefits for Society and Environment

- Blood Bag system helps blood banks and donors save lives of the patients through a controlled system which manages all blood donation and transfusion processes. These processes are stored in a central database
- We aim to ensure that the transfusion blood is safe, and reliable. Moreover, we aim at defeat the uncontrolled blood banks and parallel markets, raise the awareness, and support confidence.
- Following up the donors through sending an SMS with the next donation campaign date and location, we aim to encourage them to donate and give them the ability to review their analysis report on the proposed website.
- All donors data registered in the system are available for all blood banks and campaigns to avoid uncontrolled donation processes from infected donors. The responsible physician must search for the donor data by the national distinguishing proof and audit the status (accepted, rejected) before the donation.