

## An Automatic Data Processing System for the Blood Bank Project

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**DESCRIPTION:** The Blood Bank Project had been underway for only several months when it became apparent that the voluminously accumulating data was beginning to saturate the existing manual system of record keeping. In 3 months, over 2000 donors and almost 700 recipients had been enrolled in the survey. Several thousand data transactions were occurring each week in the process of keeping the donor and recipient records up to date.

Figure 1 is a schematic illustration showing the data pathways required to create and maintain the donor and recipient records. The donor master file (DMF) and recipient master file (RMF) are files of records describing each blood donor and recipient and the events that happen to them. The laboratory result file (LRF) contains results of laboratory tests performed on blood specimens from donors and recipients. The black boxes represent the laboratory. A DMF or RMF record is created when a donor or recipient is first encountered (double solid lines). As laboratory results become available, these entries are added to the DMF and RMF records (solid lines). As new events happen to the donors (additional donations) and to the recipients (transfusion, death, discharge, laboratory test request, etc), the master files are revised (double broken lines). A blood transfusion relates a donor to a recipient, leading to an exchange of information between that recipient record in the RMF and that donor record in the DMF (single broken lines). When manually maintained, the nature of this data flow limited the recorders access to the data sources and object records creating numerous problems, for the investigators had to compete with the recorders for study subjects' records compromising our ability to monitor the study. The successful execution of the project was being threatened by this sluggish and unwieldy system of manually kept data files. Thus, in August, work was begun on an automatic data processing system for the maintenance of the donor and recipient master files.

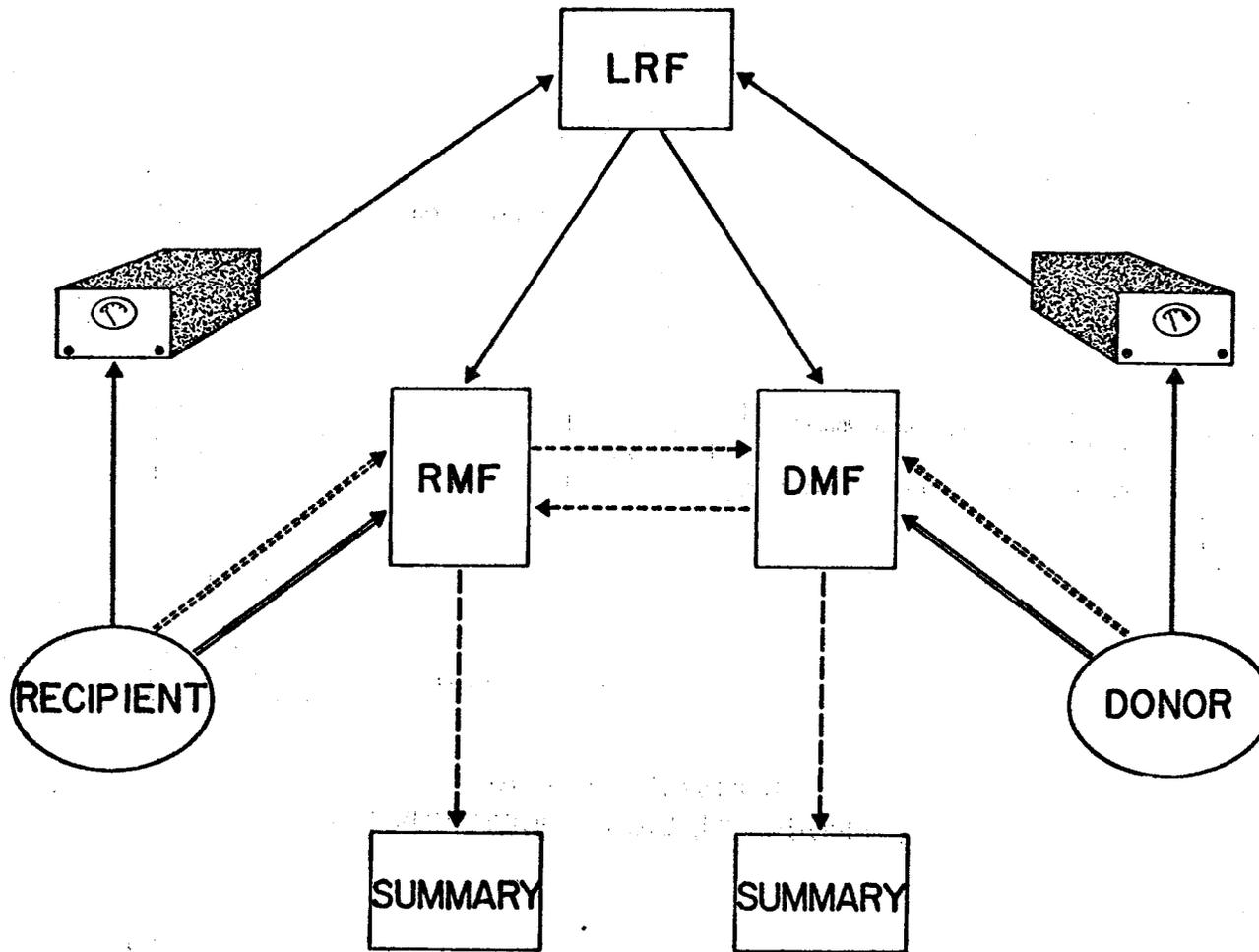
**PROGRESS:** This automatic data processing system has been operational since March, 1972. Figures 2 through 5 show how the system works. Data generated by the study is entered manually into 5 types of data sheets suitable for direct key—punch transcription to data cards (Figure 2). The resulting 5 types of data cards are then used to revise the donor and recipient master files, which are kept on magnetic tape. In addition to the magnetic tape output containing up—to—date donor and recipient master files, there are several kinds of printed output (Figure 3). A copy of each revised donor record and each revised recipient record is printed. An inventory of the recipient population is listed.\*\* Finally, data errors that the system encounters are listed. Listings of the DMF and RMF are kept in bound volumes. The volumes are kept up to date by replacing obsolete records with revised records (Figures 4 and 5). The master files are revised twice a week. Facsimiles of printed recipient records are shown in Figure 5—8 in the report "Observations of HAA in A Blood Donor/Recipient System in Thailand."

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\* Contracted by Advanced Research Projects Agency, U.S. Department of Defense, Bangkok, Thailand

\*\* Not yet operational

Figure 1.



INFORMATION FLOW IN BLOOD BANK PROJECT

Figure 2.

### TRANSFUSION HEPATITIS PROJECT DATA GENERATION

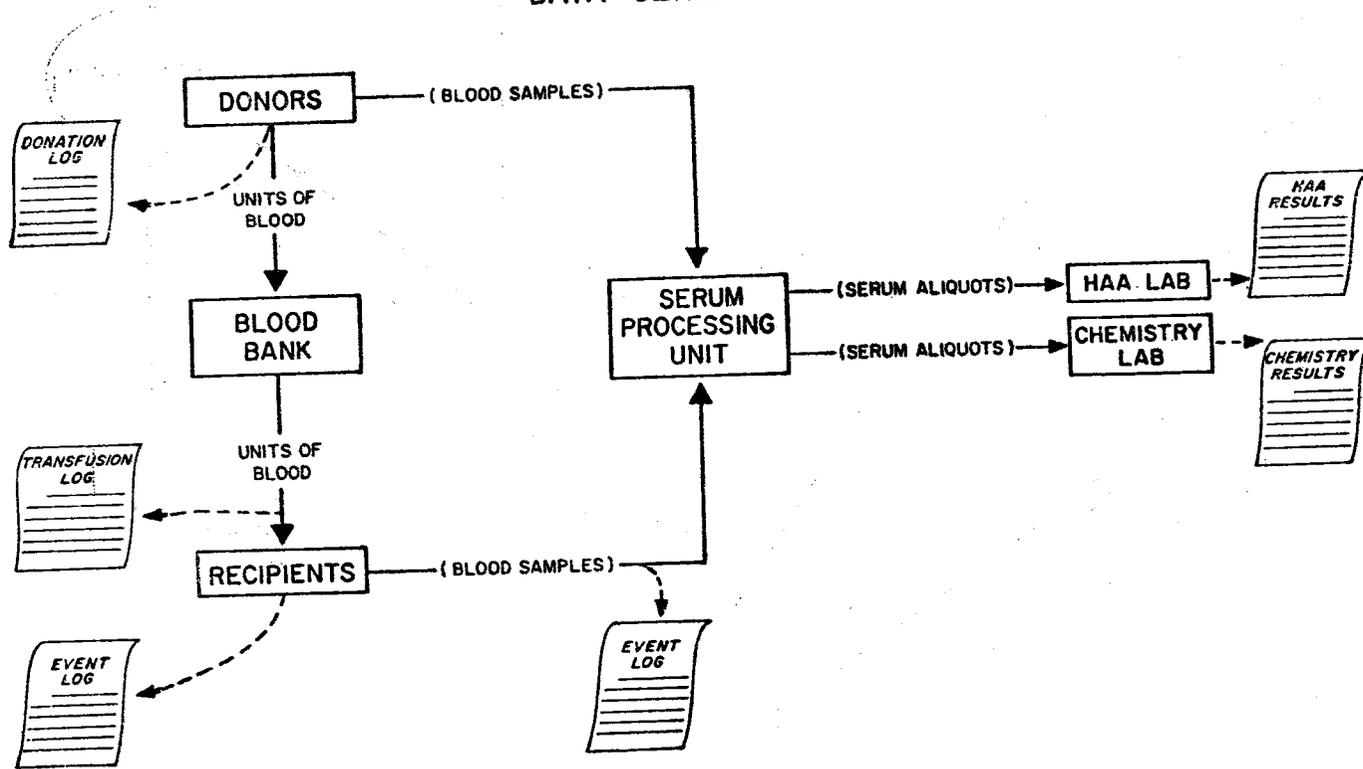


Figure 3.

### TRANSFUSION HEPATITIS PROJECT AUTOMATIC DATA PROCESSING

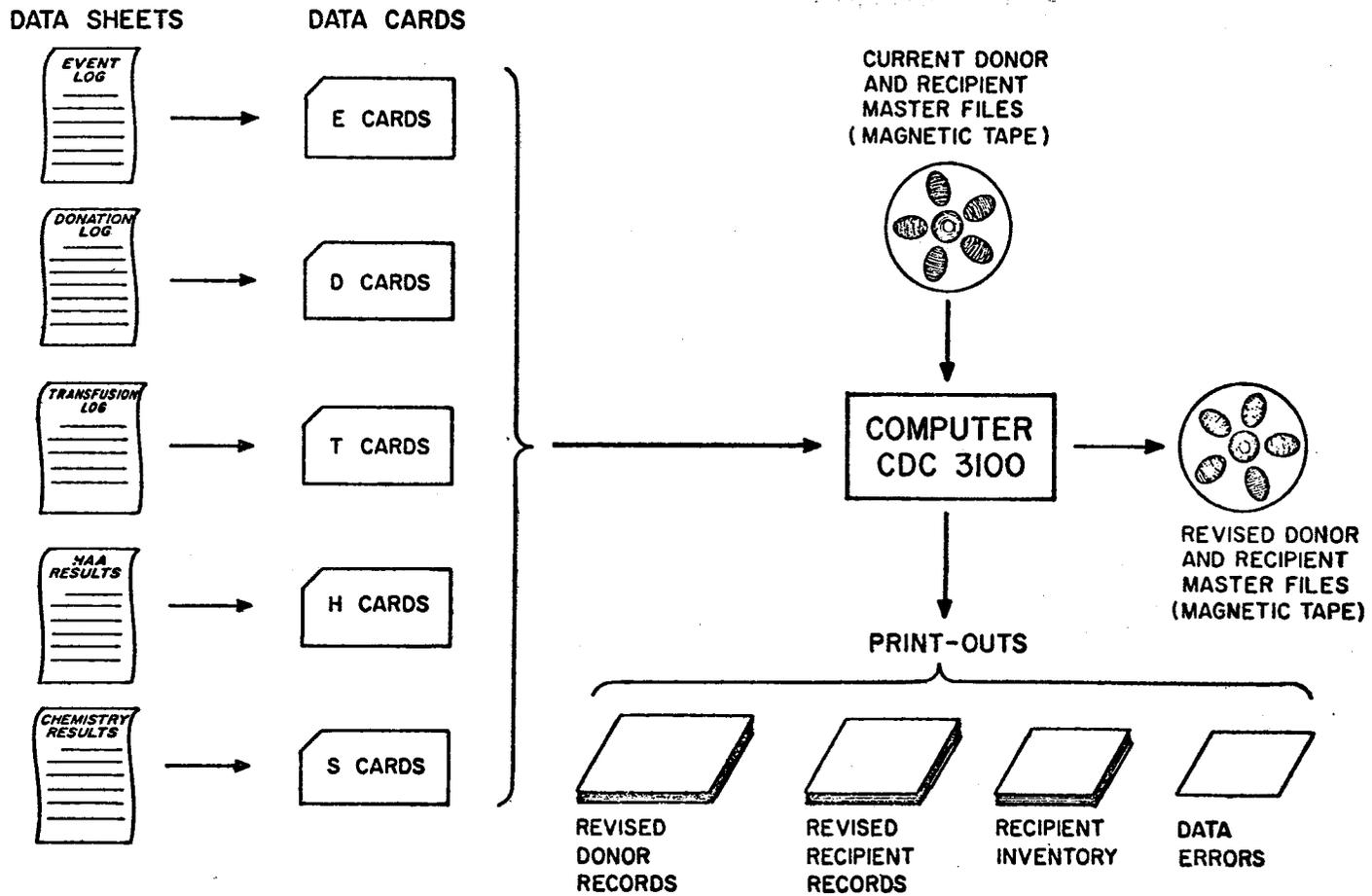


Figure 4.

# TRANSFUSION HEPATITIS PROJECT MANUAL DATA PROCESSING OF DONOR RECORDS

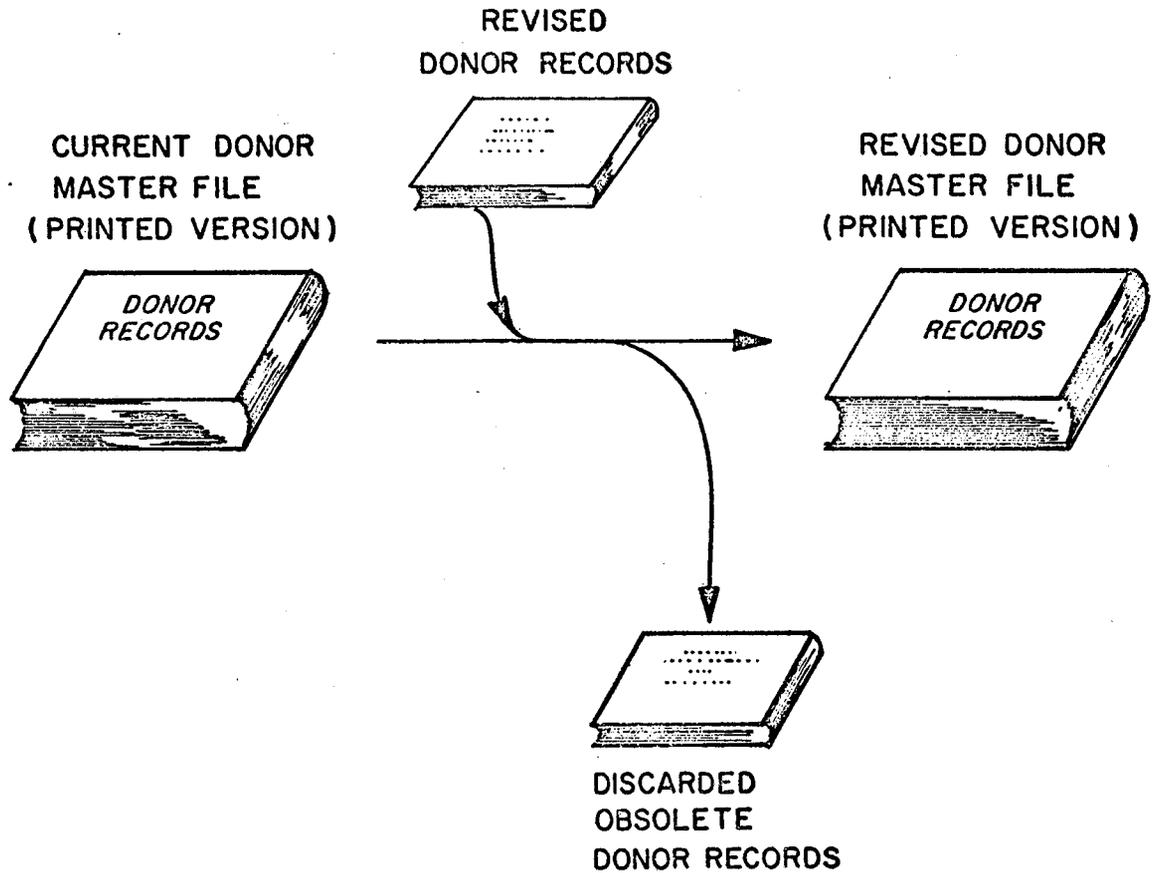


Figure 5.

## TRANSFUSION HEPATITIS PROJECT MANUAL DATA PROCESSING OF RECIPIENT RECORDS

