CHAPTER II

LITERATURE REVIEW

Literature review in this chapter will be separated into four sections:

1. Knowledge about deferred blood donation and blood supply
2. Policy and system of blood donation at both international and national levels
3. Perception and satisfaction
4. Previous studies & research

1. KNOWLEDGE ABOUT BLOOD DONATION AND BLOOD SUPPLY

In this chapter the knowledge about blood donation refers to the principle of blood donation including blood supply data in Thailand and blood center practices.

The most important goal of blood donation is a safe and adequate blood supply. Each blood donor will lose about 350-450 ml of blood or 6-7% of blood volume per donation. The donor must know and acknowledge that blood from his/her donation will be used for a recipient or patient.

The quality of blood products begins with the blood donors. The appropriate product must come from a well-informed donor. First steps in assuring blood safety, blood donor recruitment and blood collection, are important.

WHO has set a target of adequate blood supply for blood centers; in countries with highly developed health services, the blood requirement can usually be met if at least 3% of the population is regular blood donor (Hollan, 1990). At present, the quantity of blood supply in Thailand is 1.9 %, which is insufficient. Only in Bangkok is the

donation higher than this estimated point, approximately 5% of the population (NBC, 2003).

In fact, the need for additional blood supply collected from the past 18 years shows that blood supply need has increased about 7.5 % per year (Nuchprayoon, 1993). When we compare this data with WHO criteria, we find that 2% is not insufficient.

One cause of low donation is deferral of blood donors. The deferral system includes self-deferred donor and those deferred by the NBC policy and staff. Self-deferral depends on the knowledge, attitudes, and practices of blood donors. Furthermore, it depends on the blood donor's understanding of the importance of blood supply. Every donor should receive educational materials about blood safety and practices to ensure quality.

The deferral rate is high each year. The annual report 2002 of the National Blood Center reports that 10.17% or 11,511 donors were deferred. A previous study shows that deferred blood donors often do not return to make another donation for 6 months or more (Enderson, 1985).

The suitability of potential donors to donate blood is determined by qualified physicians or designees who work under supervision of the physician. The screening system can only be effective if staff members are proficient in their jobs and thoroughly understand the technical information required to perform their duties.

Blood donor selection is based on personal medical history. Examination of personal history and a limited physical examination done on the day of donation, determines whether blood donation will harm the donor or a potential recipient. Some very specific questions are necessary to ensure safe blood.

Properly trained staff question prospective donors about risk behavior and monitor whether satisfactory responses are given. Deferral or rejection of potential blood donors often leaves those deferred with negative feelings about themselves and the blood center system. Donors who are deferred should be given a full explanation of the reason they were referred and whether when they can return for a future donation. Most importantly, the screening system must ensure that donors meet blood donation standards (FDA, 2004)

2. POLICY AND SYSTEM OF BLOOD DONATION AT BOTH INTERNATIONAL AND NATIONAL LEVELS

The National Blood Center, Red Cross Society of Thailand is a non-profit organizations. It is important that the organizations support community movements and respond to the community's needs. Non-profit health organizations are the vital players in improving the population's quality of health. The organization work to collaborate their efforts with both the resources and aid of the business sector and the government. The relationship between a non-profit organization and its volunteers is very important and can be viewed through six processes (Drucker, 2000):

1. different duties and responsibilities of the committees in the organization
2. volunteer recruitment
3. volunteer development and management for effective results
4. relationships with the suppliers
5. resource development and budget development
6. problems of an excess or lack of workers in the organization

However, the major challenge is to motivate the donor to also become a participant and an advocate. Volunteering with non-profit organizations makes participants proud of themselves and makes them feel that they are contributing to the development of this community. The gift of blood is a highly personal expression of altruism that should be accorded social respect and protection. In order to conserve unconditional gifts of human blood, there should be a single national blood policy, regulated by the national health authority and integrated into the national health program. The aim of the national blood policy should be the development and maintenance of a regular national blood program at a reasonable cost, with minimal waste, and optimal safety and efficacy.

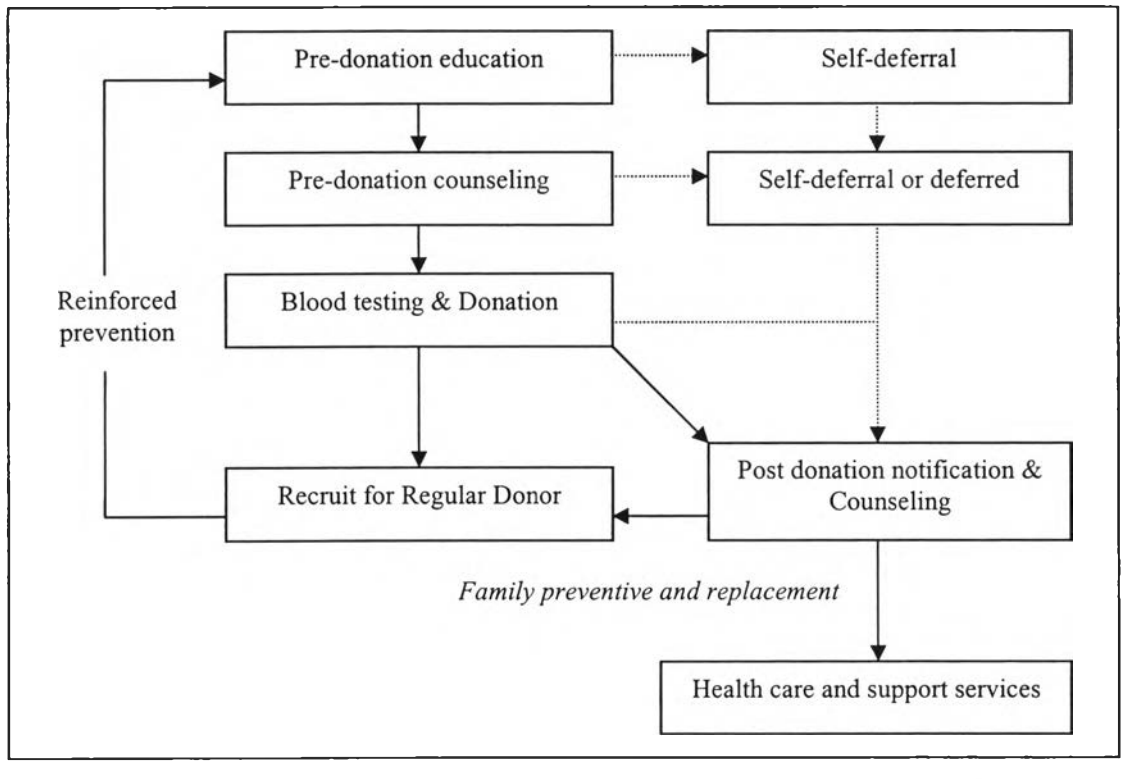

Figure 2.1 Donor recruitment and blood collection (Viputsiri, 2004)

The suitable way of donor recruitment at NBC, recommended by Viputsiri was NBC should run the pre-donation program by educating blood donor. Blood donor could

exclude themselves before coming to blood center. Post donation notification and counseling is important for both donor and deferred blood donor.

The National blood program implementation directive recommendations from WHO (WHO, 1990) has six primary requirements:

1. Ensure that adequate funding is available to maintain the highest possible standards of transfusion practice and quality management throughout the country, commensurate with the state of development of the national health program
2. Establish a forum for human resources development and for the exchange of technical information
3. Actively promote the education of the population, particularly the young
4. Blood product must be tested before use
5. Permit the non-profit supply of blood products
6. Follow, in all legislation and regulations, the Code of Ethics of the International Society of Blood Transfusion and the WHO manual for practices

This blood transfusion flow-chart (Figure 2.2) shows the pathway of blood with output for consumption by the end-user designated as "products", "services" and "others".

Outputs consist of three items: blood product output (blood and blood components); services outputs (donor and patient care, other laboratory services); other outputs (research & development and education).

Good product output must come from the quality of system since donor recruitment process till end. There are the other services supports the main production line: donor and patient care, laboratory services, and research & development and education.

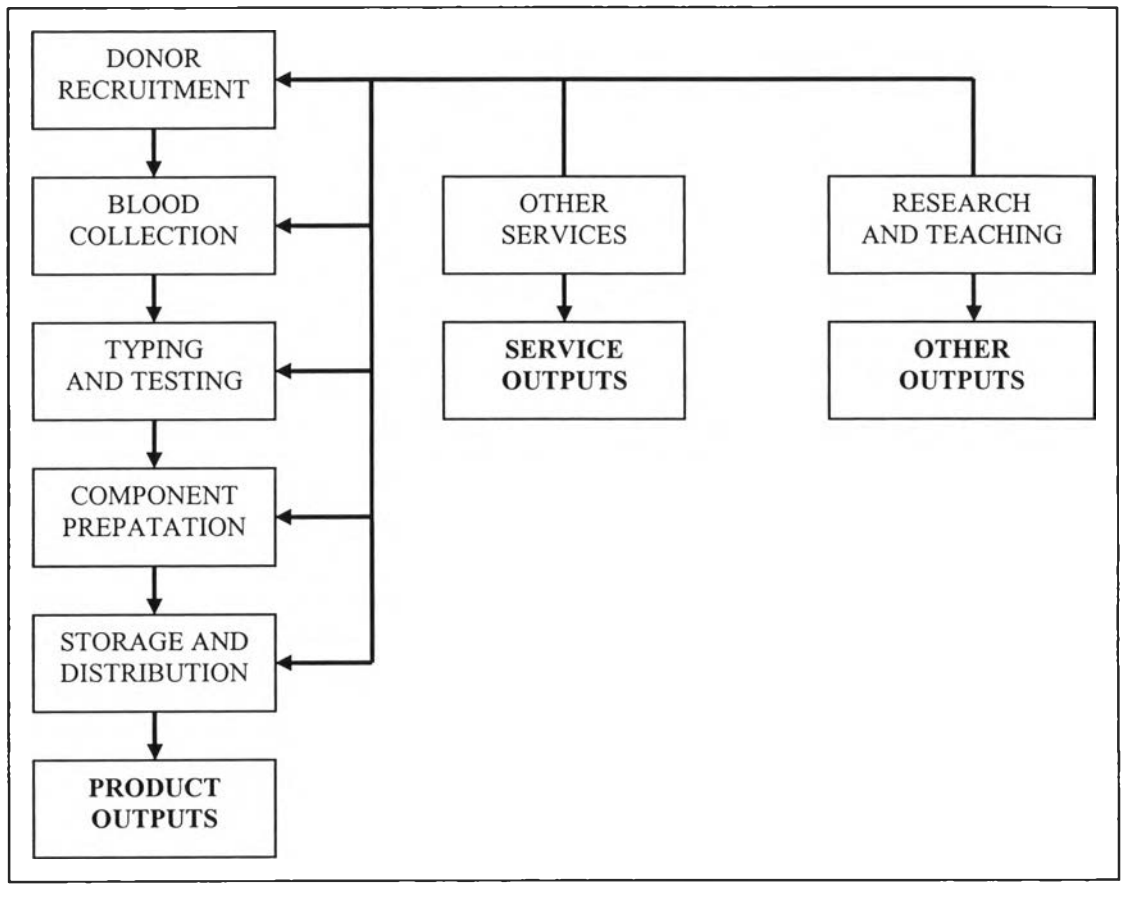

Figure 2.2 Blood transfusion flow-chart (Hollan, 1990)

The system of blood collection is shown in Figure 1.2 in Chapter I. As mentioned, the quality of blood products starts from the very beginning with blood donor recruitment. Providing education to blood donors is a blood center priority, in order to maintain the safety of donors and recipients. If donors are educated, deferral rates at blood centers will decrease because donors screen themselves before they come to blood donation sites. The satisfaction of deferred blood donors depends on their knowledge, attitudes, practices and perception.

There are 4 stations involved in blood donor selection at the NBC

1. Self-deferral questionnaire and screening by blood center volunteers
2. Physical examination and questionnaire screening by physician or trained nurse
3. Hemoglobin test and screening by technical staff
4. Review of previous history by information staff

There are 20 questions in the self-deferral questionnaire. It includes questions about general data, previous history of illness, and high risk behavior by the blood donor. The concept of the Thai National Blood Center questionnaire was adopted from similar instruments used in other countries. At a United States Food and Drug Administration conference in July 2003, about the donor interview process, it was recommended that a self-administered questionnaire to monitor past donation information (PDI) be given. This information includes:

1. Infectious disease marker rates
2. Specific deferral trends
3. Biological product deviation reports
4. Post-transfusion infection disease reports

After the questionnaire is used for screening blood donor groups, some results should be carefully interpreted, requiring a further evaluation:

- Deferral rates should be compared with donors screened by full length questionnaire
- Deferral rates may actually increase after implementation of a questionnaire which is easier to understand
- Donor and Deferred Donor satisfaction measurement

- Rate of blood donor return
- Commitment from blood organizations to participate in post-implementation monitoring

One of the principal goals is to increase donor satisfaction which will ultimately help to satisfy anticipated increases in blood donation and availability. (Gillespie, 2002)

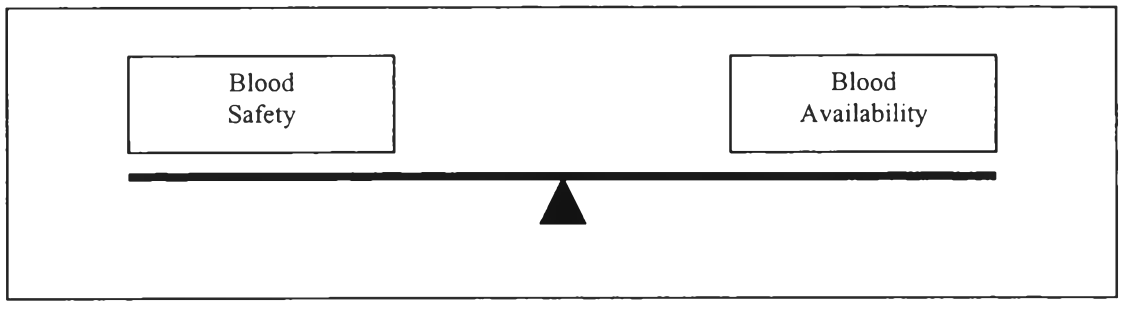

Figure 2.3 Charge of Task Force by Epstein, 2000

The donor selection process should contribute significantly toward preventing disease transmission, yet it should not discourage volunteer donors nor result in unnecessary donor deferral. Charge of task force by Epstein, 2000 (Figure 2.3) presented the balancing between blood safety and blood availability is necessary for blood center decision.

Three roles that a blood center needs to plan in a blood program are:

1. Safety: Safety efficacy equivalent to questionnaire and staff screening
   1.1. Validated questions
   1.2. Testing of questionnaire capture approach for recent changes in health status
   1.3. One-on-one cognitive evaluation

1.4. Increase donor focus on recent risk behaviors and activities

1.5. Increase donor attention by reducing time required to complete screening

2. Satisfaction: Increase donor satisfaction

3. Availability: Increase availability of safe blood

3.1. Increase donor satisfaction

3.2. Decrease phenomenon of lapsed donor

3.3. Increase frequency of donation: successfully complete full-length questionnaire at least twice, at least one donation within previous 6 month period.

International standards for a quality of blood program were presented by Healey (2004) in terms of: qualified donor standard, inventory held, community-based donor, donor education, drug screening, viral marker standard, donor history check, quality assurance, facility standards and the personnel training program.

Balridge (1995) presented seven criteria for policy improvement in a health organization. The most important criteria for the success of the organization is customer satisfaction.

Criteria	Percentage
Customer Satisfaction	30
Human Resource Utilization	15
Quality Insurance of Services	15
Quality Results	15
Leadership	10
Strategic Quality Planning	9

Information & Analysis	6
Total	100

Figure 2.4 Malcolm Balridge, 1995, Health care pilot criteria

3. CUSTOMERS' PERCEPTION AND SATISFACTION

Well managed organizations will have a better chance to increase motivation for blood donations. Human resources, both staff and blood donor; remain the most important component of a successful blood supply system.

Motivation, by Draft (2000:534), Griffin (1999:484), Vroom(1995: 7), Cherrington (1994:132), Luthans (1992:147) and Bolles (1967), is re-written in terms of "Agency, factor, power or driving force both internal and external body or individual, it is intensity, direction and persistence for reaching the target followed by need, drives and incentives by effort to reach the target."

In an effort to motivate the population to donate, blood centers must identify and work to retain donors by satisfying their needs.

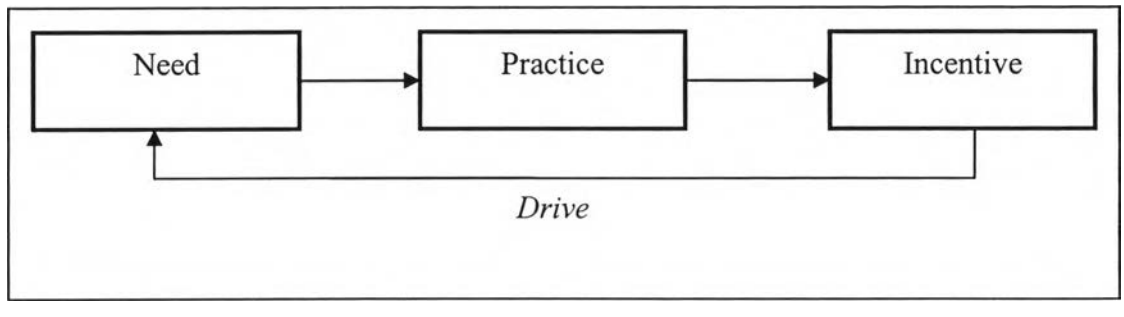

Figure 2.5 Flowchart of Motivation (Griffin, 1999)

According to Robbins, 1993 there are five aspects of needs: physiological, security and safety needs, social, esteem, and self-actualization. Blood donation help satisfy need in term of esteem and self-actualization. Esteem is the need of the individual to

find success in their life and feel a sense of pride about it. They need community respect and gain this by giving something back to their community. Self-actualization is the need for more success in life, for example; number of donation, honor, and certificate of donation.

Walman (1973) gave the definition of satisfaction as the happiness people feel when they succeed in their goal, wants, and motivation. Chaipayom (2000) suggested that satisfaction in health services depends on service skill, information explanation, convenience and ability to pay.

Satisfaction, in reference to this study, is the gap between perception and expectation. There are two component of satisfaction in health service systems, functional and technical (Edvardson, 1994). Technical quality depends on customer perception and equipments. Functional quality is depends on how the customer receives data such as environment, personal interest.

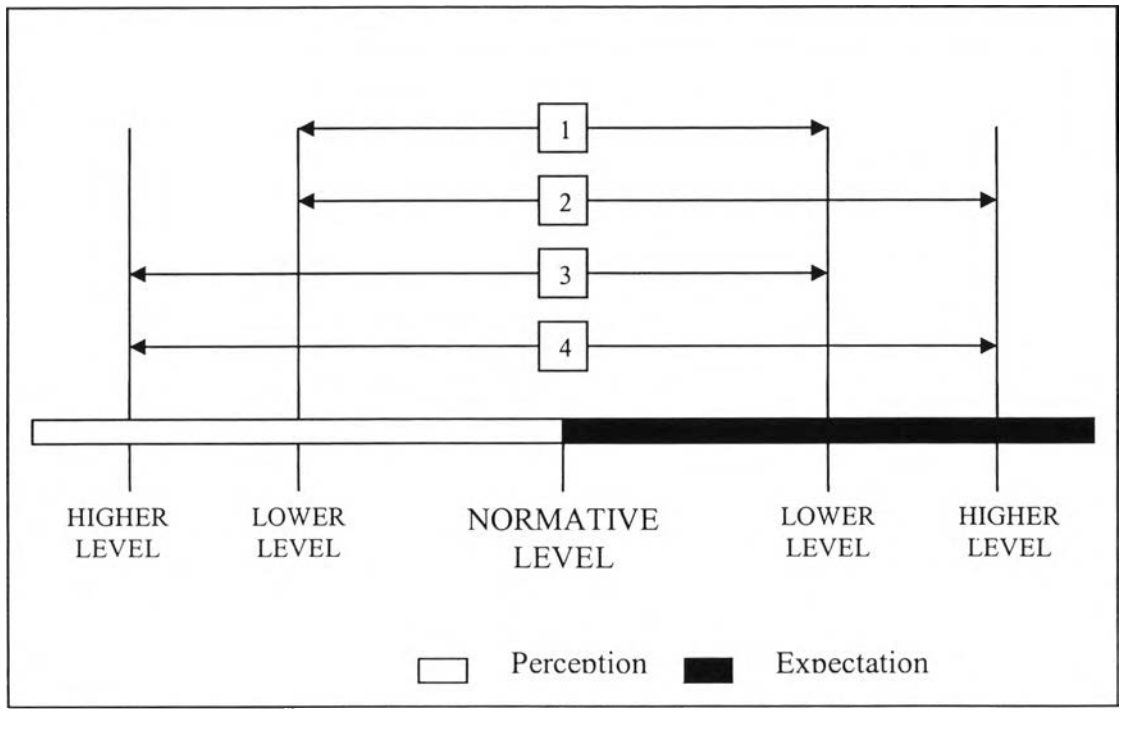

Figure 2.6 Satisfaction (Gap) between Expectation and Perception

However, if the expectation is higher or perception is lower than average or both, the gap or the result of a comparison will be wider. This results in dissatisfaction as shown in Figure 2.6.

1. The result is in Moderate level range of satisfaction
2. The result is in Low level range of satisfaction
3. The result is in High level range of satisfaction
4. The result is in Moderate level range of satisfaction

4. PREVIOUS STUDIES & RESEARCHES

Previous research in Thailand related to this study:

Cluermungkorn, 1989 (Ramathibodi Hospital) Average age group of blood donor is 21-40 year. Male 82%. Positive thinking about blood donation is "Want to help others people". The reasons for decision "not donation" are: fear of pain 60%, fear of needle 42%, fear of infectious disease 26%.

Vivanitchkul, 1993 (National Blood Center) Average age group of blood donors is 21-39 years old. Male to female ratio: 3 to 1. Educational level is high with donors often possessing Bachelor degree and Diploma level. Average income is about 5,000 Baht per month. Student came in during working hours and private employee came

during holidays. Private employee are the main group who donate blood. Overall Satisfaction > 90%.

Kijsuwankool, 1994 (Cheang-Rai Province) The largest reason for deferral is because of infectious blood. Three-fourths are male. Males were deferred by self-deferral questionnaire more than females.

Bangsuwan, 1995 (National Blood Center, Mobile) Incentive for blood donation are: knowledge about blood donation, well known and respectable of National Blood Center. Social and environmental aspects also influenced the decision. Reason for deferral are: fear of infectious disease, have the underlying disease, not prompt today and lack of information about donation time.

Nuchprayoon, 1996 (National Blood Center) Mean age is 31.5 years old. Male 82.4%, Satisfaction with staff interest 99.3%. Reason for donation is "Happy to donate blood" 92.3%.

Viputsiri, 2004 (National Blood Center) had conducted about dissatisfaction rate.

Blood donor dissatisfaction rate in services of the NBC, Thai Red Cross (%)

Topic	1994-1995	1996-1997
Reception	1.5	0.8
Registration	2.9	1.4
History Taking	1.0	1.0
Blood Testing	2.3	0.3
Physical Examination	0.7	1.3
Environment	2.3	1.3

Blood donor dissatisfaction rating for personnel (%)

Personal	1994-1995	1996-1997
Reception	1.2	0.9
Register	3.2	0.5
History Taker	1.2	1.0
Blood Tester	1.0	0.2
Doctor	1.3	0.9

In all the previous studies, where donors completed the donation process, we found that the average group of blood donors is middle aged, male ¾, business as occupation, personal income about 5,000 Baht per month, main reasons for refusal to donate blood are fear and lack of information, most popular reason for donation is "Happy to donate", dissatisfaction of blood donor is in reference to services and personnel, especially in the study after year 1995 and overall satisfaction is quite high.