Impact of new AABB guidelines on hepatitis B and C testing among Saudi blood donors

Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
The new American Association of Blood Banks (AABB) guidelines for hepatitis B and C were under evaluation. These were compared with the old criteria for screening blood donors. The new AABB guidelines, adopted from July 1995, do not recommend alanine aminotransferase (ALT) testing as part of the screening protocol. The old AABB guidelines did require ALT test as part of the screening protocol.

Type of intervention
Other (guidelines for hepatitis B and C testing among blood donors).

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised all potential blood donors at the blood donor centre.

Setting
The setting was tertiary care, the King Abdulaziz Medical City (KAMC), a National Guard medical complex in Riyadh, Saudi Arabia.

Dates to which data relate
The effectiveness data and resource use data were gathered between January 1992 and December 2002. The price year was not reported.

Source of effectiveness data
The effectiveness data were derived from a single study.

Link between effectiveness and cost data
It would appear that, before 1995, a costing was carried out retrospectively on the same sample of patients as that used in the effectiveness analysis, but it was unclear when the costing was carried out after 1995 (intervention group).

Study sample
The study sample comprised all potential blood donors screened at the blood donor centre between January 1992 and December 2002. Before the introduction of the new AABB guidelines, 7,013 donors were screened during the period January 1992 to January 1995. After the introduction of the new AABB guidelines, 63,368 donors were screened during the period July 1995 to December 2002. The authors did not report whether anyone refused to participate in the study.
**Study design**

This was a before-and-after study. The study took place over a 10-year period: 4 years before and 6 years after the introduction of the new AABB guidelines.

**Analysis of effectiveness**

The primary health outcomes used were the number of screened donors, the overall number of deferred donors, and the prevalence of HBV and HCV before and after the introduction of the new AABB guidelines.

**Effectiveness results**

Between July 1995 and December 2002, 63,368 (83%) consecutive blood donors were screened for hepatitis B and C according to the new guidelines.

The overall percentage rate of deferred donors showed a significant decrease to 19.3% (14,405) in 2002, compared with 58.3% (8,349) before July 1995, (p<0.001).

The new prevalence of positive hepatitis surface antigen (HbsAg) among Saudi blood donors was 1.7%, compared with 4% under the old AABB guidelines, while the new prevalence of positive anti-HCV was 0.6%, compared with 1.4% under the old AABB guidelines.

This resulted in a significant increase in the number and yield of blood units, and a decrease in the prevalence of hepatitis B and C observed among screened donors.

**Clinical conclusions**

Fewer donors were deferred under the new AABB guidelines. The prevalence of HbsAg and anti-HCV positivity among KAMC blood donors decreased.

**Measure of benefits used in the economic analysis**

No summary measure of benefits was used. The study was, in effect, a cost-consequences analysis.

**Direct costs**

The direct costs included costs for reagents, supplies and labour. The reagent costs were based on the business-contracting concept of guaranteed price per reportable results. The labour costs were calculated using the average of the hourly paid rate for a full-time equivalent medical technologist. The total direct cost of the laboratory test was estimated using the model of Garber and Carey (see 'Other Publications of Related Interest' below for bibliographic details). The costs and the quantities were not reported separately. Although the costs were incurred during 10 years, neither discounting nor reflating were reported. The price year was unclear.

**Statistical analysis of costs**

A statistical analysis was performed using web-based chi-squared calculator software (Schnoodles.com/cgi-bin/web_chicgi).

**Indirect Costs**

The indirect costs were not included.

**Currency**

US dollars ($).
Sensitivity analysis
No sensitivity analysis was reported.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
Using the new AABB guidelines, the estimated direct cost of donor screening for hepatitis B and C decreased significantly from $42.8 per donor to $29.2 per donor, (p<0.001).

Synthesis of costs and benefits
The costs and benefits were not combined.

Authors' conclusions
Fewer donors were deferred under the new American Association of Blood Banks (AABB) guidelines, and the prevalence of hepatitis surface antigen (HbsAg) and anti-hepatitis C virus (HCV) positivity among King Abdulaziz Medical City (KAMC) blood donors decreased. Overall, implantation of the new AABB guidelines resulted in an increased yield of safe blood units at reduced cost.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear, as before July 1995 it was current practice.

Validity of estimate of measure of effectiveness
The study was based on a before-and-after study with a control group. This is likely to affect the validity of the estimate of effectiveness, because any other factors that changed during the study period might also have affected the results. The study sample was representative of the study population.

Validity of estimate of measure of benefit
The authors did not derive a summary measure of benefit. The study was therefore categorised as a cost-consequences analysis.

Validity of estimate of costs
The before-and-after study design is likely to have affected the validity of the estimate of costs. The authors stated that the estimated decrease in the total direct costs of screening might have been due, in part, to improvements in immunoassay technology, a reduction in reagent costs and the elimination of manual ALT testing. The perspective adopted in the study was not reported. In addition, the unit costs were not reported separately from the resource quantities. Although the costs were incurred during a 10-year period, neither discounting nor reflating were reported. The price year was not reported.

Other issues
The issue of generalisability to other settings was not addressed. The authors did not report any limitations of their study.

Implications of the study
The authors did not make any recommendations in relation to policy and further research.

**Source of funding**
None stated.

**Bibliographic details**

**PubMedID**
15649016

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Antibodies, Viral /analysis; Blood Banks; Blood Donors; Hepatitis B /diagnosis; Hepatitis B Surface Antigens /analysis; Hepatitis C /diagnosis; Hepatitis, Viral, Human /diagnosis; Humans; Mass Screening /methods; Practice Guidelines as Topic; Societies, Medical; United States

**AccessionNumber**
22005000104

**Date bibliographic record published**
30/06/2006

**Date abstract record published**
30/06/2006