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Serum Hepatitis through Blood Transfusions: A Wrong without a Remedy

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SERUM HEPATITIS THROUGH BLOOD TRANSFUSIONS:
A WRONG WITHOUT A REMEDY?

by Donald L. Sweatt

The use of blood transfusions as a therapeutic device is one of the most significant accomplishments of medical science in the last half-century. Countless lives have undoubtedly been saved through the use of this technique. But, as with most major medical advances, the transfusing of blood is not without its attendant dangers, because it may result in death or injury to the recipient of the blood. A primary cause of such death or injury is diseases transmitted through a blood or plasma transfusion. At present, there are three major diseases that can be transmitted through transfusions: malaria, syphilis, and homologous serum hepatitis. Malaria and syphilis are no longer considered significant problems. But homologous serum hepatitis is presently regarded as the most serious problem in the use of blood transfusion therapy because of the frequency with which it occurs and the severity of its effects.

Serum hepatitis is a form of hepatitis (an inflammation of the liver caused by a virus) which is normally transmitted by an injection of human blood or some product derived therefrom. Even though it may be contracted as a result of a single transfusion, the risk of infection rises sharply when...

1 Recipient death or injury may be caused by a reaction resulting from the transfusing of incompatible blood. Thomas, Blood Transfusion Liability, 10 CLEV.-MAR. L. REV. 469 (1961).
2 "Allergic" reactions are of a minor form which usually result in nothing more than patient discomfort for a short time due to skin rashes, chills, and fever. Since the consequences of such reactions are so minor, lack of a method of preventing them does not present any serious problems. Haut & Alter, Blood Transfusions—Strict Liability?, 43 ST. JOHN'S L. REV. 557, 558 (1969). The other type of reaction caused by incompatible blood is most serious. Known as the hemolytic transfusion reaction, it often results in death or serious morbidity. VanWormer, Blood Transfusion Therapy; Pitfalls and Practice, 1968 MED. TRIAL TECH. Q. 55, 61. Hemolytic reactions occur through errors made in determining the ABO and RH types of the blood. Haut & Alter, supra, at 558. Since tests are available which easily determine the ABO and RH types of blood, and are routinely made by all hospitals, hemolytic reactions are normally caused by transfusion of the wrong unit of blood as a result of careless clerical or technical errors. Hemolytic reactions can also result from an incompatibility of other factors, such as the Duffy factor, the Kell factor, and the M-N factors. However, these factors are seldom responsible for a reaction and, as a practical measure, the donor's blood is seldom tested for them. With the tests currently available, requiring all donor blood to be tested for such factors would be too great a burden on hospitals and blood banks. Thomas, supra, at 471-72.
3 Thomas, supra note 1, at 473.
4 Id.
5 Malaria and syphilis rarely occur through transfusion since they are easily detected in the blood. See VanWormer, supra note 1, at 65.
6 "Serum hepatitis is a syndrome or group of signs and symptoms produced artificially by inoculation with a filterable agent known as virus B." 14 AM. JUR. PROOF OF FACTS HEPATITIS § 5, at 121 (1964). Homologous serum hepatitis, or serum hepatitis, is also known as serum jaundice, homologous serum jaundice, post-vaccinal hepatitis, inoculation jaundice, transfusion jaundice, and late arsphenamine jaundice. Id. § 4, at 119.
8 Serum hepatitis is estimated to occur as a complication in 0.21% to 1% of all whole blood transfusions and in as many as 12% of all pooled plasma transfusions. Id. at 518.
9 Habegger, Blood Banking, 1969 MED. TRIAL TECH. Q. 103, 111-12. Serum hepatitis may also be transmitted by contaminated blood on any instrument, such as a needle or scalpel, that pierces the skin or mucous membrane. However, transmission by such methods is extremely rare because of the sterilization procedures commonly observed in the practice of medicine. 14 AM. JUR. PROOF OF FACTS HEPATITIS § 8, at 126 (1964).
multiple blood or plasma transfusions are given. The risk also rises sharply, both as to the possibility of infection and severity of effects, in patients over forty years of age.

However, the increased risk of transmitting serum hepatitis because of multiple transfusions or recipient age is not the serious problem. The major difficulty lies in the fact that there is allegedly no possible method of detecting the serum hepatitis antigen in the blood of the donor. Since any donor, even though presently healthy, who has ever had hepatitis may have the antigen in his blood, the problem of detectibility is an extremely crucial one. This problem has become increasingly important in recent years, especially to the legal profession, because of cases in which the courts, accepting the argument that the antigen cannot be detected in a donor's blood, have denied recovery for injuries caused by serum hepatitis.

I. THE ELUSIVE ANTIGEN: IS DETECTION POSSIBLE?

Detectibility becomes a crucial issue whenever the question arises concerning whether a hospital or blood bank can be held liable for transfusing blood contaminated with serum hepatitis. If it could ever be established that a practical test exists for detecting the serum hepatitis (SH) antigen in the blood of the donor, either the hospital or blood bank involved could be held liable for negligent failure to conduct the proper tests. The problem lies in the fact that no such test has yet been established, or accepted by any court. However, there has recently been a conflict of authority as to whether such a test actually exists. Since in the past courts have placed much emphasis on detectibility, a constant re-evaluation of applicable medical research is mandatory.

The tests most often suggested to detect the presence of hepatitis virus in the blood of prospective donors have been the thymol turbidity test, the urine bilirubin test, and the elevated serum glutamic oxalactic transaminase activity. Despite their impressive names, these are nothing more than simple liver function tests, and they are not specifically designed for the
detection of hepatitis virus. Also, they are not considered satisfactory. While they would not eliminate all carriers of serum hepatitis as blood donors, they would result in the rejection of approximately forty per cent of all potential donors, only a small percentage of whom would be carriers of the SH antigen. It would certainly not be practical to force such tests on hospitals and blood banks when the maintenance of an adequate supply of blood is already a widespread problem.

Despite the fact that suggested tests have not proved successful, significant research has continued in the search for the elusive SH antigen. Recently, several tests have been developed that may finally make detection of this antigen possible. The one which appears most promising is the "HIM" test. Those who have done extensive clinical research on the "HIM" test feel that it "offers the definite possibility of being the solution to the problem of the detection of viral hepatitis carriers among blood donors." The major problem that now exists with this test is that it, like the tests discussed above, would cause the rejection of approximately forty per cent of all potential blood donors. If the test can be made more accurate through continued clinical evaluation, it may supply the badly needed method of detection.

Until such time as the "HIM" test can be made more specific, some authorities feel that a method now exists which can be effectively used to screen potential blood donors. Since there is some evidence that the serum immunoglobulin level is increased for a period of time after a person has had hepatitis, it is believed that an immunoglobulin assay test may provide an effective screening device. Studies show that the main objection to the "HIM" test, the rejection of a large percentage of potential donors, is eliminated by the serum immunoglobulin test. Preliminary study has shown that although some potential donors would be rejected, this objection is outweighed by the advantage of eliminating a large number of hepatitis virus carriers. Even though those authorities who have conducted studies feel that the test is a rapid, simple, and inexpensive method of routinely screening prospective donors, it would appear that further studies must be conducted by others before any definite conclusion can be drawn as to the test's effectiveness.

Other research, although yet not as encouraging as that done on the "HIM" and immunoglobulin assay tests, has indicated a third possible method for detection of the SH antigen in the blood of prospective donors. Some relation has been found to exist between the Australia and SH anti-

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18 Id.
19 Weaver, King, & Brown, A Clinical Evaluation of the "HIM" Test, 49 AM. J. CLINICAL PATHOLOGY 647, 651 (1968).
20 Id.
22 Id. at 40.
23 Id.
24 Id.
25 Id.
The findings suggest that the Australia and SH antigens are very closely related and possibly identical. Since the Australia antigen is "more specifically and sensitively detected and identified," a method may prove effective for detection of the SH antigen if the relationship between the two is established. However, much more research will be required to establish conclusively such a relationship. Even though the effectiveness of any test for detection of the SH antigen has not been conclusively established, medical research in this area should not be considered static. Since research could find an adequate detection method in the near future, the courts should not be reluctant to review the advances made in the area when determining the liability of hospitals and blood banks for transfusing blood contaminated with serum hepatitis. Recent advances made by medical researchers make it mandatory that any lawyer involved in this kind of litigation keep abreast of medical, as well as legal, developments. Once an effective method of detection is established, liability could easily be based on negligent failure to use such a test. However, until such time, practitioners will have to look to some other theory in order to hold hospitals and blood banks liable for the transfusion of blood contaminated by the "elusive" antigen.

II. Catch Them If You Can—Theories of Liability

Since no test has been accepted by the courts as being capable of conclusively detecting hepatitis virus in the donor's blood, various theories other than negligent non-detection of the virus have been advanced in attempting to hold physicians, hospitals, and blood banks liable for injuries resulting from the transfusion of hepatitis-contaminated blood. Thus far, none of the theories used has met with a great deal of success.

Statutory Violation. In only one reported case, Merck & Co. v. Kidd, has a plaintiff attempted to base liability for transfusion of blood contaminated by the hepatitis virus upon a statutory violation. This single attempt proved unsuccessful. In that case a patient who had contracted serum hepatitis from a transfusion of pooled blood plasma sought to hold the manufacturer of the plasma negligent per se for violation of the Tennessee Food, Drug, and Cosmetic Act. The Act provides that a drug is adulterated if it consists in whole or in part of any filthy substance. The issue of non-detectibility was most influential in the court's decision.

29 Id.
30 Id. at 463.
31 Other research projects are also engaged in a search for a method to detect the hepatitis virus in the blood or to destroy it in blood plasma. As yet, these studies have not advanced to a point where they can be termed significant developments. A report of these projects can be found in the following authorities: Salsbury & Brozovich, Experience with a Hepatitis-Free Plasma Protein Solution, [1968] 3 Brit. Med. J. 332; Sumida, Okuyama, & Kamegai, Serum-Hepatitis from Frozen Blood, [1967] 2 The Lancet 121; Turner & White, S.H. Antigens in Haemodialysis-Associated Hepatitis, [1969] 2 The Lancet 121.
22 242 F.2d 592 (6th Cir. 1957).
The court held that since the serum hepatitis virus could not be seen even with the most powerful microscope, could not be described, and its presence could not be known except for its ultimate result, the virus could not be termed a "filthy substance" within the Act. Since there was no statutory violation in the manufacture of the plasma, recovery was denied. The lack of success in Merck should not discourage completely the use of such theories. Although there was no statutory violation in that case, there is a possibility that recovery could be based upon violation of a federal statutory provision. Also, in the event that the hepatitis virus is capable of detection in the blood, the virus might well be termed a "filthy substance" under the Tennessee Food, Drug, and Cosmetic Act, or any other act similarly formulated.

Strict Liability in Tort. One theory of liability which has been put forward only infrequently in litigation is the strict liability in tort of the supplier or transfuser of contaminated blood. In the first reported case in which this theory was advanced, Jackson v. Muhlenberg Hospital, it was rejected. Although the court held a cause of action to be stated on other grounds, it held that the blood bank which supplied the contaminated blood could not be held liable under strict tort liability. In making this determination, the court was influenced primarily by the fact that the virus is not detectible in the blood of the donor. The court found that the situation was governed by comment k of section 402-A of the Restatement (Second) of Torts. Under this section, strict liability is not imposed upon the seller of a product if it is "unavoidably unsafe." Because the virus could not be detected, the court found blood contaminated by the hepatitis virus to fall within the "unavoidably unsafe" category, and the seller was therefore not liable.

Despite Jackson, the landmark decision of Cunningham v. MacNeal Memorial Hospital held that the doctrine of strict tort liability was applicable to a serum hepatitis situation. In Cunningham an action was brought against the hospital for injuries received by a patient who had developed serum hepatitis as the result of several whole blood transfusions received in the hospital. The hospital contended that it could not be held liable because whole human blood is not a product, and because the transfusing of human blood was a service rather than a sale. The court held that the complaint was sufficient to state a cause of action. In holding whole human blood to be a product, the court relied on the fact that it

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32 242 F.2d at 596.
33 See note 39 infra, and accompanying text.
36 Although the court refused to recognize strict liability in tort, it held that the furnishing of blood by the blood bank was a "sale," and that the complaint therefore stated a cause of action against the blood bank. 232 A.2d at 884.
37 Restatement (Second) of Torts § 402-A, comment k, at 353 (1965).
38 113 Ill. 2d 74, 211 N.E.2d 733 (1969).
is considered as such for purposes of federal regulation of commerce. Since blood was a product, the court held that the transfusion of it into the possession of a patient was a "sale" to which the doctrine of strict tort liability was applicable. In reaching its decision, the court refused to consider the issue of detectibility, finding the question to be one for the determination of the trial court upon remand of the case.

In holding the doctrine of strict tort liability to be applicable, the court was strongly influenced by two cases. Suvada v. White Motor Co. established the doctrine of strict tort liability in Illinois, and Darling v. Charleston Community Memorial Hospital abolished any immunity previously enjoyed by Illinois hospitals. The court in Cunningham stated that it appeared that recovery against hospitals had been denied in other jurisdictions because of the belief that doctors, hospitals, and blood banks were entitled to preferential treatment under the law because of their meritorious services. Since Darling completely abolished such preferential treatment, the court felt compelled not to ignore recognized doctrines, as other jurisdictions had, in order to avoid holding a hospital liable.

Because Cunningham was decided recently, there is no indication whether it will be followed by other jurisdictions. However, it represents a significant breakthrough in serum hepatitis liability. Until such time as a method of detecting the hepatitis virus in the blood is established, Cunningham will no doubt represent the attorney's most valuable tool in the quest to hold physicians, hospitals, and blood banks liable for transfusing contaminated blood.

Negligence. As might well be expected, the first reported case involving serum hepatitis injury attempted to establish liability on the basis of negligence. In Parker v. State the recipient of a pooled plasma transfusion died as the result of serum hepatitis contracted through the transfusion. The decedent's administratrix brought an action for negligence against the state, which had distributed the pooled plasma to the hospital at the request of the Red Cross. The action was based on the theory that the state, as distributor, was negligent in failing to warn the physicians who would be using the pooled plasma of the danger that it might contain the hepatitis virus. In affirming a dismissal of the action, the court held that the state had a right to assume that a hospital authorized to use the plasma

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40 32 Ill. 2d 612, 210 N.E.2d 182 (1965).
41 33 Ill. 2d 326, 211 N.E.2d 213 (1965).
43 The transfusing of pooled blood plasma greatly increases the risk of serum hepatitis transmission and is therefore usually done only under strict emergency conditions. The increased risk from the use of pooled plasma results from the fact that it consists of blood plasma taken from many donors. If any one donor in the group has the hepatitis virus in his blood, the virus can be transmitted through the transfusion.
would be aware of the danger and would use sound medical judgment in its transfusion. Therefore, the state was not liable for failure to warn. Even though they were not parties to the action, the court also discussed the possible liability of the hospital and its agent, the physician who ordered the transfusion, for negligent use of the pooled plasma. The court found that neither could have been held liable because of the emergency situation that existed. (The patient had suffered a cerebral concussion.) In such an emergency, the risk of using the pooled plasma was not as great as the risk of failing to administer it.

In its decision in *Parker*, the court seemed to have established an unfortunate trend—denying the liability of all parties connected with the transfusing of blood contaminated with serum hepatitis. This trend, at least, endured in actions based on negligence. The second reported serum hepatitis case based solely on negligence, *Hiddy v. State,* also denied liability. Again, this was an action against the state for negligence as distributor of pooled, unirradiated blood plasma. A patient who had received a plasma transfusion died as the result of serum hepatitis. The court, relying on *Parker*, held that the state, as distributor, was not negligent because the pooled plasma had many advantages despite its inherent dangers. However, the court clearly implied that the physician who had ordered the plasma could be held liable for negligence. In this case, as distinguished from *Parker*, no emergency existed to justify the use of the pooled plasma. The patient had been in the hospital for fifteen hours, thus giving ample time to "type" the blood. Also, an adequate supply of whole blood was available for transfusion. Under these conditions the physician was negligent in ordering a transfusion of pooled plasma rather than whole blood. However, the hospital and its agent-physician could no longer be held liable because of the statute of limitations.

*Fischer v. Wilmington General Hospital,* the only reported case based solely on negligence in the transfusion of whole blood, also denied liability, even though the action was against the hospital and physician and based on a theory of negligence different from those previously used. In *Fischer* the injured patient alleged that the hospital was negligent in not testing the blood for foreign substances, in failing to warn the patient that the blood might contain viruses when the hospital should have known that the danger existed, and in failing to exercise care in obtaining the blood from a source not likely to be infected by the virus. The court held that there could be no negligence in failing to test the blood since there was no known method of detection. Also, the hospital was not shown by the evidence to be negligent in obtaining the blood from a blood bank. However, the court did find that the hospital would be liable if it knew that the


46 The main advantage of plasma is that it can be used to replace body fluid in an emergency situation where there is not time to type the blood of the patient. There is no danger of plasma causing an incompatibility reaction. However, the same advantage can be attained through the use of plasma from a single donor as well as through the use of pooled plasma.

47 51 Del. 554, 149 A.2d 749 (1959).
blood bank was not using due care in the selection of donors. Although these findings were significant, the most important aspect of Fischer was the court's holding that there was no duty of the hospital or physician to warn the patient of the risk of contracting serum hepatitis as the result of a blood transfusion. Since the risk of hepatitis virus transmission was slight compared with the risk in not administering the blood, and since it was not the general practice in the immediate medical community to warn of such dangers, there was no negligence in failing to warn the patient. Also, the court accepted the argument that to warn the patient might have an adverse psychological effect that would lessen the chances of recovery. The holding that there was no duty to warn seems especially significant because of its continued acceptance by the courts.48

Although actions based solely on negligence in serum hepatitis transfusion cases have been far from successful, the value of this theory of liability in such cases should not be overlooked. The language in Hiddy shows that the courts may, under the proper circumstances, hold physicians liable for negligence in transfusing contaminated blood. More important is the fact that when medical science finally devises an effective test for detecting the SH antigen, negligence will probably be the primary theory of recovery in actions against hospitals and blood banks which fail to detect the antigen.

Implied Warranty. Most of the litigation involving the question of liability for the transfusion of hepatitis-contaminated blood has been founded upon a theory of breach of implied warranty. The landmark decision that first decided this question, Perlmutter v. Beth David Hospital,49 has had a more profound effect upon this area than any other case. In Perlmutter a patient who contracted serum hepatitis brought an action against the hospital for the resulting injuries. The complaint did not allege negligence. Instead, the action was predicated on the theory that the supplying of blood by the hospital for $60 a pint was a "sale" within the Sales Act,50 and that the warranties of reasonable fitness for purpose and merchantable quality attached to the transaction. The patient alleged that these warranties were breached because of the hepatitis virus in the blood, and that the hospital was thereby strictly liable for any resulting injuries.

In reaching its decision the court held that the supplying of blood by the hospital was a "service" rather than a "sale." Since there was no sale, no warranties attached to the transaction, and the hospital could not be held liable under such a theory. The court reasoned that "it was not for blood—or iodine or bandages—for which plaintiff bargained, but the wherewithal of the hospital staff and the availability of hospital facilities to provide whatever medical treatment was considered advisable."51 Even though the complaint was held not to state a cause of action for breach of implied

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49 308 N.Y. 100, 123 N.E.2d 792 (1954).
51 123 N.E.2d at 795.
warranty, the court noted that the hospital could be held liable if it were negligent in failing to detect or destroy the hepatitis virus in the blood. This holding seems to have been mere surplusage, since the court also found that there was no possible method to detect or destroy the virus. Even though the court did not admit it, the lack of an effective method of detection seems to have influenced its decision.

However, there was a lack of unanimity in *Perlmutter*. Three of the seven judges who heard the case expressed, in an extremely strong dissent, their opinion that the supplying of blood by the hospital was a “sale” within the Uniform Sales Act, and that the hospital was therefore liable for breach of implied warranty. Although the majority rejected the argument with little discussion, the dissenters found the situation analogous to the serving of food in a restaurant. Since the serving of food was a “sale” of goods under the Sales Act, the dissent could not find any reason for distinguishing, as a “service,” the supplying of blood by a hospital. They found that receiving blood transfusions from a hospital for $60 a pint was just as much a purchase of goods as the consumption of food in a restaurant.

Despite the closeness of the decision in *Perlmutter*, the strong dissent, and the frequent criticism that has been made of the case, many jurisdictions have followed it without question. Also, the reasoning of *Perlmutter* has been extended by some jurisdictions to hold the “service” theory applicable to the furnishing of hepatitis-contaminated blood by charitable blood banks, and even by a commercial blood bank. In all of these cases the results have been consistently the same—the denial of recovery to the innocent recipient of “tainted” blood.

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52 Id. at 796.
53 Id.
55 The substantial impact of *Perlmutter* is further evidenced by the fact that three jurisdictions, including Texas, have enacted statutory provisions which follow the holding of the case. Tex. Bus. & Comm. Code Ann. § 2.316(e) (1968): “The implied warranties of merchantability and fitness shall not be applicable to the furnishing of human blood, blood plasma, or other human tissue or organs from a blood bank or reservoir of tissue or organs. Such blood, blood plasma or tissue or
III. A Step in the Wrong Direction—But Some Refuse To Follow

The *Perlmutter* decision was one of the most unfortunate in the past several years. Because the court seemed to find that as a matter of public policy the hospital should not be held liable for transfusing "bad blood," it invented the artificial "service-sale" distinction to implement this public policy decision. It would have been better if the court had simply held that the hospital was not liable because of public policy considerations, for the "service-sale" dichotomy fails to withstand analysis.

No matter what approach is taken, there seems to be no valid reason for distinguishing between the sale of food in a restaurant and the transfusing of blood by a hospital, especially in those instances where the patient is charged a price for the blood that is above the hospital's cost. Merely to state that the buyer contracts for a product in the first instance and for services in the latter, does not draw a valid distinction, and certainly does not explain why such a distinction should even be made. Since it is widely held that the serving of food in a restaurant is a sale to which either implied warranties or strict tort liability attaches, the same result should arise from the transfusing of "bad" blood by a hospital.

Besides the faulty reasoning which is apparent in *Perlmutter* when it is compared with adulterated food cases, the same state which decided *Perlmutter* has since rendered several decisions that point out the weakness of the holding. In these cases the courts found, in distinguishing *Perlmutter*, that a cause of action could be stated against a hospital for breach of express warranty in the transfusing of blood which resulted in the patient suffering an incompatibility reaction. It would seem impossible to defend the position taken by these courts that the transfusing of blood by a hospital can be a "sale" for the purpose of determining breach of an express warranty and yet, at the same time, be a "service" for the purpose of determining whether an implied warranty of fitness or merchantability attaches to the transaction. The reasoning of these cases clearly points out the weakness of the *Perlmutter* decision.

*Perlmutter*, however, was not the actual step in the wrong direction. More unfortunate were the many decisions that accepted its reasoning blindly without questioning the policy considerations that were involved. Even worse were the decisions that extended the fallacious reasoning to apply to cases involving the liability of blood banks for supplying contaminated blood. Fortunately, not all courts applied or extended the

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organs shall not for the purpose of this Title be considered commodities subject to sale or barter, but shall be considered as medical services." See also Ariz. Rev. Stat. Ann. § 36-1111 (1956); Cal. Health & Safety Code § 1606 (West 1955).


See the cases collected in W. Prosser, The Law of Torts § 97, at 675 nn.53-69 (3d ed. 1964).


See note 55 supra.

See note 56 supra.
*Perlmutter* doctrine merely because it seemed to be an established, irreversible trend.

The first state to recognize the fallacy of *Perlmutter* was Florida. In *Russell v. Community Blood Bank, Inc.*64 the propriety of extending *Perlmutter* to apply to the supplying of blood by a blood bank was questioned. *Russell* involved an action by a hospital patient against the blood bank which had supplied blood to the hospital. The patient contracted serum hepatitis from the blood. In her action against the blood bank, the patient sought recovery on the ground that there had been a breach of the implied warranties of merchantability and fitness for purpose, since the blood was impure. Since there were no Florida cases on point, the trial court looked to the decisions in other jurisdictions. As a result, the court held that the transfer of blood by a blood bank or hospital was a service to which no implied warranties attached. Accordingly, the complaint was dismissed.65

The court of appeals, in reversing the decision of the trial court, held that the supplying of blood to the patient by a blood bank, for a consideration, was a sale to which the resulting implied warranties attached.66

In finding that the transaction between the blood bank and the patient was a sale, the court relied on Florida’s rejection of the service theory in the sale of food by a restaurant.67 Even though the court approved the *Perlmutter* service theory as it applies to hospitals, the court found, despite authority to the contrary,68 that this service theory should not be extended to transactions between a patient and a blood bank. The court found that the authorities that had so extended *Perlmutter* did so because of a finding that the hepatitis virus could not be detected in the blood. According to the court, “[t]he rationale of the cases denying liability seems to be . . . that the defect which causes the harmful virus in the blood cannot be detected and therefore it is against public policy to hold hospitals and blood banks strictly liable when they are supplying a commodity essential to health.”69 The public policy argument was insufficient to persuade the court to ignore the analogy between a restaurant and a blood bank.

After determining that the transaction was a sale to which implied warranties attached and that a cause of action was stated against the blood bank for breach of implied warranty, the court qualified its holding. Persuaded by the argument that the product might be "unavoidably unsafe,"70 the court held that as a matter of law the patient could “only recover for injuries if they were caused by the failure to detect or remove a deleterious substance capable of detection or removal.”71 Although the

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64 185 So. 2d 749 (Fla. Ct. App. 1966).
65 Id. at 750.
67 Cliett v. Lauderdale Biltmore Corp., 39 So. 2d 476 (Fla. 1949).
69 185 So. 2d at 753.
70 See RESTATEMENT (SECOND) OF TORTS § 402-A, comment k (1965).
71 185 So. 2d at 755.
burden of proof was on the blood bank to show that no test existed which could detect or remove the virus, proof that the virus could not be removed or detected was held to be a defense to breach of implied warranty. Since the record of the case did not contain a showing that the defect was undetectable, the court remanded the case for further consideration.

The *Russell* case was taken under consideration by the Supreme Court of Florida by grant of a writ of certiorari. On this appeal, the holding that the transaction was a sale rather than a service was affirmed with the characterization that it was "eminently correct." However, the supreme court did not agree that undetectibility would be a defense to breach of implied warranty. In fact, the court stated that this issue should not have even been considered. It was held that the question of detectibility was one of fact and that it was error for the court of appeals to consider the issue merely because the trial court had done so in going beyond the controlling question. Therefore, the supreme court affirmed the decision only in so far as it determined the transaction to be a sale subject to implied warranties.

A significant point in the supreme court's determination of *Russell* was the concurring opinion of Justice Roberts. The majority opinion stated that allowing undetectibility as a defense to breach of implied warranty was in direct conflict with the case of *Green v. American Tobacco Co.* and did not consider the point further. Justice Roberts felt the issue was important enough to warrant expansion. According to his concurrence, the holding of the court of appeals, that only injuries resulting from failure to detect a substance capable of detection would establish liability, was not only in direct conflict with *Green* and other Florida cases, but also ran "counter to the very basis of the strict or implied warranty theory of liability." Justice Roberts believed that the blood bank should be liable even if the virus could not be detected, for detectibility was not an issue relevant to the determination of liability for breach of implied warranty. The statements of Justice Roberts, considered with the majority statement that the finding of the court of appeals was in direct conflict with *Green*, may imply that in the future the Florida supreme court will not consider detectibility to be an issue in similar actions against blood banks.

During the same year that the Florida supreme court decided the *Russell* case, a Florida court of appeals was presented with the same question in *Hoder v. Sayet*. *Hoder* was an action against both a commercial blood bank and a hospital for the death of a patient allegedly caused by hepatitis-contaminated blood. The commercial blood bank supplied the blood to the

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72 Community Blood Bank, Inc. v. Russell, 196 So. 2d 115 (Fla. 1967).
73 Id. at 118.
74 114 So. 2d 169 (Fla. 1963).
75 Kenower v. Hotels Statler Co., 124 F.2d 658 (6th Cir. 1942); Florida Coca-Cola Bottling Co. v. Jordan, 62 So. 2d 910 (Fla. 1953); Blanton v. Cudahy Packing Co., 154 Fla. 872, 19 So. 2d 313 (1944); Wagner v. Mars, Inc., 166 So. 2d 673 (Fla. Ct. App. 1964). All of these cases establish that a deleterious substance that is incapable of detection in a product can result in liability of the seller of the product for the injuries which it causes.
76 196 So. 2d at 119.
77 196 So. 2d 205 (Fla. Ct. App. 1967).
hospital and the hospital administered the transfusion. Breach of warranty and negligence were alleged against both defendants. The court, relying on *Russell*, held that the transaction was a sale as regarding the blood bank, but a service as regarding the hospital. In so finding, the court held that a cause of action was stated against both the hospital and the blood bank for negligence, but only against the blood bank for breach of implied warranty. The court stated that undetectibility would probably be a defense for breach of implied warranty, but this statement was of doubtful validity considering the supreme court’s opinion in *Russell*. The court did, however, go one step further than *Russell*. Even if serum hepatitis could not be detected, the court found that the risk of its presence could be greatly minimized through the selection of donors. The blood bank was held to be under a duty of care in its selection of donors. Even if the blood was “unavoidably unsafe,” this did not “license its processor to disregard all standards of care and precaution, merely because he is secure in the knowledge that he does not impliedly warrant it against its ‘unavoidable’ defects.” Thus, even if it were found that no implied warranty existed because of undetectibility, the blood bank could still be liable for negligent screening of donors.

In *Hoder* a theory of liability was also alleged that had never been previously attempted. The plaintiff contended that it was negligence per se for a hospital to obtain blood from a commercial blood bank because commercial procurement increases the chances of the blood being infected with hepatitis. Although various studies have shown that commercial blood banks have a higher incidence of infected blood, the court rejected the plaintiff’s contention. As long as such blood banks continue to supply a major portion of all blood used, it is doubtful that any court would accept such an argument. To do so would effectively preclude hospitals from obtaining blood from commercial sources, and thus dangerously reduce the supply of available blood.

The second state to recognize the fallacy of *Perlmutter* was New Jersey. In *Jackson v. Muhlenberg Hospital* the court not only held that the supplying of blood by a blood bank was a sale, but went even further to hold that the transfusion of blood into the human body by a hospital for a consideration was also a sale. Thus, for the first time, *Perlmutter* was absolutely rejected and transfusions given by a hospital were held to be sales to which implied warranties attached.

*Jackson* involved actions brought by the husband and his wife, a patient who had contracted serum hepatitis, against the hospital which had transfused the blood and the two blood banks which had supplied it. The actions were based on strict liability, breach of implied warranty of merchant-

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*In Hoder* the duty of care a blood bank must exercise in selecting donors was especially significant, since the evidence showed that one donor had given a fictitious name and another was not questioned about his medical history.

*196 So. 2d at 209.*

*Saut & Alter, supra note 1; Somayaji, Stone, & Glover, Risk of Anicteric Hepatitis Following Blood Transfusions, 8 Gut 614 (1967).*

*96 N.J. Super. 314, 232 A.2d 879 (Super. Ct. 1967).*
ability, breach of express warranty, and negligence. The hospital and one of the blood banks moved for summary judgment on all claims. While granting summary judgment on the claims based on strict liability and breach of implied warranty, the superior court refused the same relief on the claims based on breach of express warranty and negligence. As far as implied warranties were concerned, the court found that a disclaimer of implied warranties on each unit of blood was effective under the Uniform Commercial Code. However, this disclaimer raised an express warranty that the blood bank would use "utmost care" in the selection of donors. The court refused to grant summary judgment as to the express warranty because the record did not show whether the blood bank had exercised this degree of care. If the plaintiffs could show on remand that this express warranty had been breached, they would be entitled to recover. As to the question of strict liability, the court granted summary judgment on the basis that since the product was "unavoidably unsafe" because the virus was undetectable, strict liability should not be applied.

The New Jersey supreme court reversed and remanded for determination whether strict liability should be imposed and whether any of the parties were negligent in procuring or transfusing the blood. Although upholding the decision in other respects, the court found the record insufficient to hold strict liability inapplicable. Before deciding an issue of such significance, the court stated that it would require findings based on detailed expert testimony on the issues of detectibility, the incidence of hepatitis in blood received by commercial blood banks as compared to other sources, and economic and related factors bearing on the public policy issues involved. These requirements are significant in that they would permit a court to go outside the confines of the Restatement of Torts in determining whether strict liability should apply. This appears to be an approach never before taken by any court. It is too early to determine whether or not other courts will reject the "Perlmutter fallacy" and follow the trend established by these recent decisions. At the very least, these cases should point out the flaws in the Perlmutter reasoning to any jurisdiction faced with a similar set of facts. The reign of the "service" theory may well be approaching its end.

IV. Texas' Opportunity: A Suggested Approach

One Texas case, decided before the adoption of section 2.316(e) of the Texas Business and Commerce Code, has accepted the Perlmutter service
theory as being applicable to blood banks. This acceptance is neither authoritative nor binding on future decisions. The statement accepting this theory was merely dicta in an opinion by the Dallas court of civil appeals. Therefore, when a Texas court is presented with a case where liability for serum hepatitis transmitted by blood transfusion is actually at issue, the decision will be the first to apply section 2.316(e). The opportunity to decide such a case is very likely to arise in the near future.

In *Villarreal v. Santa Rosa Medical Center* an action was instituted by a paying patient against a charitable hospital to recover for injuries from serum hepatitis allegedly contracted from a transfusion of adulterated blood. The trial court entered a take-nothing summary judgment on the ground that, under the doctrine of charitable immunity, a non-profit hospital corporation could not be held liable for the torts of its agents. The San Antonio court of civil appeals reversed and remanded without considering the question of liability for serum hepatitis. While recognizing that the charitable immunity doctrine had been used in Texas to bar recovery against such institutions, the court held that it should no longer be applied. In so holding, the court relied on *Watkins v. Southcrest Baptist Church*, in which a majority of the Supreme Court of Texas declared an intention not to be bound by the charitable immunity doctrine in actions arising subsequent to that case. The court of civil appeals distinguished other cases that had applied the charitable immunity doctrine in actions decided after *Watkins*, and found that they were under a duty to follow the intention declared by a majority of the supreme court.

If the Supreme Court of Texas affirms the abolishment of the charitable immunity doctrine in *Villarreal*, as it probably will if the case is appealed, then the issue of liability for the transfusion of contaminated blood will have to be decided for the first time. Even if the doctrine of charitable immunity is not abolished on that appeal, the serum hepatitis issue could

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89 Goelz did not even involve the issue of serum hepatitis liability. The action was one solely for injuries caused by a transfusion of incompatible blood. Since the defendant blood bank was a charitable institution, the case was decided entirely on the basis of charitable immunity from tort liability enjoyed by such institutions in Texas. The court also held that since the blood was not actually defective, no implied warranties would have been breached even if the transaction had been held a sale. Any injuries caused resulted from the negligence of defendant's agents in mislabeling the blood rather than from an inherent defect.
91 See Southern Methodist Univ. v. Clayton, 142 Tex. 179, 176 S.W.2d 749 (1943), cited at 443 S.W.2d at 623.
92 399 S.W.2d 130 (Tex. 1966).
93 Although Watkins upheld the charitable immunity doctrine, it is obvious from the opinion that considerable dissatisfaction existed in regard to its continued application. While four justices felt it should be applied in the future, one stated that he would abolish it in all cases arising after Watkins, two stated they would reconsider the doctrine in future cases, and two stated in a dissenting opinion that they would abolish it immediately.
94 Since the Watkins case was decided, the chances that the charitable immunity doctrine will be abolished may have increased. Two of those who favored continued future application, Justices Norvell and Griffin, have subsequently retired from the court and have been succeeded by Justices Reavley and McGee. Although the views of Justices Reavley and McGee are not certain, one or both may favor abrogation. In any event, even if the doctrine is not completely abolished, the court may accept a proposal by Justice Greenhill to apply the doctrine in the future only in favor of churches, and to hold all other charitable institutions liable in tort. See Greenhill, *Should Governmental Immunity for Torts Be Re-examined, and, If So, By Whom?*, 31 Tex. B.J. 1036 (1968).
possibly arise in some other situation. In any event, when the issue does arise, the courts will be faced with a complex and controversial decision. The following is a suggested approach which Texas lawyers and courts might employ. Included is an approach that should be taken by those jurisdictions that have not enacted provisions comparable to section 2.316(e).

**Liability of Physicians.** The liability of physicians and surgeons should not be based upon any theories of implied warranty or strict liability. Any liability of a physician for transfusing contaminated blood should be found upon negligence, as in any other medical malpractice situation. Of all the parties involved in the transfusing of blood, the physician has the least control over its quality. It is usually supplied for his use by the hospital, which itself determines its source. However, the physician is the party that determines when transfusion is necessary. As such, he should be held liable for his negligent ordering of a transfusion. And, since a physician should know of the dangers attendant in the use of blood transfusions, he should be liable for any injuries, including contraction of serum hepatitis, which are proximately caused by the negligent ordering of a blood transfusion.

Although a blood transfusion can be a highly effective therapeutic device, its use is not indicated in all instances. In fact, the indiscriminate use of blood transfusions has been characterized as “playing Russian roulette with bottles of blood instead of a revolver. While the odds are in the physician’s favor . . . , the patient takes the risk.” The use of blood transfusions is a proper device only in certain instances: (1) to replace whole blood that has been lost, (2) to maintain or improve the hemoglobin level, (3) to improve coagulation of the blood, and (4) to provide protein or iron. However, even in these situations the factors necessitating a blood transfusion must be evaluated on an individual basis.

The most common use of blood transfusions is to replace blood that has been lost. Where the loss of blood is substantial, this is the proper treatment. Whether or not blood is needed is determined by the patient’s condition and his blood volume, the latter being easily measured. Since a patient, under some conditions, can lose up to 500 cc. of blood with no adverse effects, the use of a blood transfusion, even during surgery, is not always necessary. Therefore, if a patient contracts serum hepatitis because of the negligent ordering of an unnecessary transfusion, the physician should be liable for the resultant death or injury to the patient.

Although not as prevalent as the transfusion to replace blood loss, the use of blood transfusions to maintain or improve the hemoglobin, or oxygen-
carrying capacity of the blood, is becoming increasingly common.\textsuperscript{90} Again, certain factors must be taken into consideration in determining when its use is justified. The age of the patient, blood volume level, and other conditions which may complicate the anemia must be considered.\textsuperscript{100} Also, controversy exists concerning when a patient needs to be given blood to raise the hemoglobin level when he is to undergo anesthesia.\textsuperscript{101} As in the case of blood replacement, if it can be shown that the physician was negligent in ordering an unnecessary transfusion, he should be held liable for any injuries that result if the blood was contaminated.

Unlike the blood replacement and hemoglobin maintenance situations, the use of blood to enhance coagulation or to provide protein or iron is rarely justified.\textsuperscript{102} Before the use of a transfusion is justified to enhance coagulation, the cause of the bleeding must be determined and complex differences in the viability of various clotting factors must be considered. Blood transfusion may be the proper treatment to enhance coagulation under certain circumstances.\textsuperscript{103} On the other hand, the use of whole blood transfusions to provide protein or iron is justified only in rare instances. Since other injected and oral preparations can achieve the same result, blood should not be used merely to promote healing or as a tonic to make the patient feel better.\textsuperscript{104}

Since the use of blood transfusions is not always justified, it is clear that a physician may be negligent in ordering a transfusion when it is not needed. There is no reason why the physician should not be held to a duty of due care in making this determination. To hold physicians liable for serum hepatitis transmitted through transfusions which are not medically justified would place them under no more onerous a burden than to subject them to liability for any form of medical malpractice. Also, there is little danger that subjection to such liability would discourage physicians from using needed blood transfusions, since they would merely be held liable for the injuries resulting from negligently ordered transfusions.

\textit{Liability of Hospitals.} If the charitable immunity doctrine as it applies to hospitals is abolished in Texas, then all hospitals should be held liable, at least for their negligence in the transfusing of blood contaminated with serum hepatitis virus. The only manner in which hospitals could be held liable for negligence would be if they did not use due care in selecting the source or sources from which they received human blood. Even though some authorities contend that the risk of receiving contaminated blood is much greater when obtained from commercial sources,\textsuperscript{105} it is doubtful that the courts would accept the argument that such procurement is negligence per se.\textsuperscript{106} To so hold would reduce the supply of available

\hfill 90 Id.
\hfill 100 Id. at 59-60.
\hfill 101 Id. at 59.
\hfill 102 Id. at 62-63.
\hfill 103 Id. at 62.
\hfill 104 Id. at 63.
\hfill 105 Haut & Alter, supra note 1; Somayaji, Stone, & Glover, supra note 80.
\hfill 106 See Hoder v. Sayet, 196 So. 2d 201 (Fla. Ct. App. 1967).
blood to a dangerous level. A hospital, therefore, should be held liable for 
negligent procurement only if it should have known that the source from 
which it obtained blood was not using all possible due care in the selection 
of donors. This could be proved by showing an unusually high rate of 
contaminated blood coming to the hospital from this source, or by show-
ing that the hospital was familiar with the source’s donor-selection pro-
cedure. Absent such proof, the hospital should not be held liable under 
a theory of negligence.

Liability of hospitals based on negligence is not as desirable as holding 
hospitals to strict tort liability for administering transfusions of con-
taminated blood. But, since Texas accepts the “Perlmutter fallacy” that 
such a transfusion is a service, this would preclude strict tort liability. If 
the Texas legislature can be persuaded to reject the theory that this consti-
tutes a service, the doctrine of strict tort liability could be applied. This 
doctrine would be preferable in that it would place the burden of such in-
juries upon the hospital, which controls the source of the blood and may 
insure against liability, rather than upon the patient.

Those jurisdictions that have refused to apply the doctrine of strict 
tort liability to serum hepatitis cases have done so because of the Restate-
ment (Second) of Torts section 402-A, comment k. It is submitted, how-
ever, that these cases have misinterpreted this authority as it applies to 
serum hepatitis contamination of blood. Section 402-A states that the 
doctrine of strict tort liability applies to one who sells a “defective” product 
that is “unreasonably dangerous” to its user or consumer, and comment k, 
which accompanies that section, states that an “unavoidably unsafe” 
product is not one which can be termed “unreasonably dangerous.”

107 Before strict tort liability can be applied, the person sought to be held liable must be a 
109 RESTATEMENT (SECOND) OF TORTS § 402-A (1965) states:
(1) One who sells any product in a defective condition unreasonably dangerous to the 
user or consumer or to his property is subject to liability for physical harm there-
by caused to the ultimate user or consumer, or to his property, if 
(a) the seller is engaged in the business of selling such a product, and 
(b) it is expected to and does reach the user or consumer without substantial 
change in the condition in which it is sold.
(2) The rule is Subsection (1) applies although 
(a) the seller has exercised all possible care in the preparation and sale of his 
product, and 
(b) the user or consumer has not bought the product from or entered into any 
contractual relation with the seller.

Comment k to this section states: 
Unavoidably unsafe products. There are some products which, in the present state of 
human knowledge, are quite incapable of being made safe for their intended and 
ordinary use. These are especially common in the field of drugs. An outstanding ex-
ample is the vaccine for the Pasteur treatment of rabies, which not uncommonly 
leads to very serious and damaging consequences when it is injected. Since the disease 
itself invariably leads to a dreadful death, both the marketing and the use of the vac-
cine are fully justified, notwithstanding the unavoidable high degree of risk which 
they involve. Such a product, properly prepared, and accompanied by proper direc-
tions and warning, is not defective, nor is it unreasonably dangerous. The same is 
true of many other drugs, vaccines, and the like, many of which for this very reason 
cannot legally be sold except to physicians, or under the prescription of a physician. 
It is also true in particular of many new or experimental drugs as to which, because 
of lack of time and opportunity for sufficient medical experience, there can be no
“Unavoidably unsafe” products are described as those which “in the present state of human knowledge, are quite incapable of being made safe for their intended and ordinary use.”

This characterization of “unavoidably unsafe” products should not be applied to units of blood contaminated by serum hepatitis. Blood is not a product which is incapable of being made safe for ordinary use. Although there is no adequate means of detecting the virus, blood can be made reasonably safe for its intended use by employing detailed medical histories as a device to screen prospective donors.

Thus, while it cannot be made completely safe, it can be made reasonably safe through effective use of the donor-screening device. Comment k does not require that a product be capable of being made completely safe, and other areas to which strict tort liability has been applied would certainly not meet such a rigorous standard.

The fallacy of using comment k as a basis not to apply strict liability to hospitals in serum hepatitis cases is further shown by the example which the comment uses. The vaccine for the Pasteur treatment of rabies is given as an example of an “unavoidably unsafe” product. However, this vaccine does not contain any deleterious agents. The possible adverse effects of the vaccine are the result of its very nature when properly prepared. The same is not true of blood contaminated by serum hepatitis. When properly prepared, it should not result in adverse effects. The product does contain a deleterious material, and it is this deleterious virus, not the nature of the product, that causes the injury. It therefore appears that hepatitis-contaminated blood is not the type of product to which comment k refers to as being “unavoidably unsafe.” Rather than applying comment k, hospitals should be placed within the realm of strict tort liability under section 402-A, comment c. This section states that public policy requires “the burden of accidental injuries caused by products intended for consumption be placed upon those who market them, and be treated as a cost of production against which liability insurance can be obtained . . . .”

While the imposition of strict tort liability upon hospitals may seem harsh, it is not as severe as placing the burden of loss entirely on the patient who receives a transfusion. This is especially true when the hospital is charging the patient for the blood and thereby realizing a profit. It is only equitable that the hospital bear the burden of loss through the pur-

assurance of safety, or perhaps even of purity of ingredients, but such experience as there is justifies the marketing and use of the drug notwithstanding a medically recognizable risk. The seller of such products, again with the qualification that they are properly prepared and marketed, and proper warning is given, where the situation calls for it, is not to be held to strict liability for unfortunate consequences attending their use, merely because he has undertaken to supply the public with an apparently useful and desirable product, attended with a known but apparently reasonable risk.

110 Id.
114 Id. at 350.
chase of liability insurance, rather than place the entire burden on those patients who are unfortunate enough to contract serum hepatitis through a transfusion of contaminated blood.

**Liability of Blood Banks.** As in situations involving physicians and hospitals, blood banks should be held liable for their negligence in the serum hepatitis situation. Probably the only sound basis upon which an action against a blood bank for negligence could be based would be for a failure to use due care in the selection of donors. Even though no specific test exists to detect the SH antigen in a donor's blood, the incidence of serum hepatitis can be greatly reduced by the use of detailed medical histories as a donor-screening device. While donor screening would not completely eliminate the risk of hepatitis-contaminated blood, it would clearly be negligent for the blood bank to fail to reduce the risk of contamination as much as possible through the routine use of approved, donor-screening devices. Especially in the case of commercial blood banks, which are considered to have a higher incidence of contamination, it would be negligent for the blood bank to fail to use a record-keeping technique, in addition to using the medical-history device. Since many of the donors for commercial sources give blood frequently to obtain money, the blood bank should keep detailed records on all its habitual donors. By using this technique, any donor who evinces a frequent connection with serum hepatitis cases could be permanently excluded. Such exclusion would no doubt greatly reduce the incidence of serum hepatitis in blood received from commercial sources.

Liability of blood banks based solely on negligence is certainly not as sound as liability based upon breach of implied warranties which attach to a sale of goods. To hold that the transfer of blood by a blood bank to a hospital or patient is a "service," is even more ridiculous than so characterizing a transfer from a hospital to a patient. In the case of the blood bank, there is absolutely no element of a service function upon which such a characterization can be based. The blood bank procures the blood, processes it, and then transfers it to the hospital or patient for a consideration. Such a transaction cannot be logically held to be anything but a sale. Once the transaction is properly so held, the implied warranties of merchantability and fitness for a particular purpose would attach. Upon breach of one of these warranties because of the presence of serum hepatitis virus, the blood bank would be liable to the patient for injuries suffered as the result of contracting the disease.

It is only proper that blood banks be held to such a strict standard of liability for dispensing contaminated blood. Of all the parties involved in the blood transfusion process, the blood bank has the highest degree of control over the quality of the blood, since it is responsible for the initial

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115 See authorities cited in note 111 supra.
116 See authorities cited in note 105 supra.
118 Id. § 2.314.
119 Id. § 2.315.
procurement and selection of donors. It is very doubtful that such a strict standard of liability would discourage the operation of blood banks. They can protect themselves through the purchase of liability insurance, use of due care in the screening of donors, and even by excluding or modifying the warranties that attach to the sale of blood. In any event, as long as there is a profit to be made from the procurement and sale of human blood, the blood banks are certain to continue operations. Even the charitable blood banks are not likely to cease their functions merely because of the imposition of liability.

V. Conclusion

It has been contended that the imposition of liability for the sale and transfusion of blood contaminated by the serum hepatitis virus will result in medical harm to the public. The arguments advanced are that physicians would become dangerously frugal in their use of blood, a great economic burden would be placed upon hospitals, blood banks, and physicians, and an acute shortage of blood might result. It appears extremely unlikely that any of these possibilities would ever evolve into reality. In any event, these are not the important considerations, since they are mere premises. The important factor to be considered is who should bear the risk of injury from contaminated blood. Surely, the innocent patient is not the one who should bear the entire burden of loss. Usually, the patient is not financially able to absorb such a loss and has suffered enough physically, through no fault of his own, without subjecting to further suffering through an oppressive financial burden. Physicians, hospitals, and blood banks, on the other hand, are the proper parties to bear the risk of serum hepatitis injuries. They are better able to bear this risk through the purchase of liability insurance. They should bear the risk of loss because they exercise control over the use and quality of the blood. Even more important, however, is the highly beneficial result to be obtained by the imposition of such liability. By holding physicians, hospitals, and blood banks liable for serum hepatitis injuries, medical research will be encouraged to find an effective method of detecting the virus in the blood. As a result, the "elusive" antigen can finally be detected and completely eliminated as a possible menace to all those who receive blood transfusions.

120 Id. § 2.316. However, an exclusion or modification of the implied warranties may raise an express warranty upon which the blood bank could be held liable. See, e.g., Jackson v. Muhlenberg Hosp., 96 N.J. Super. 314, 232 A.2d 879 (Super. Ct. 1967).
121 Haut & Alter, supra note 1.
122 Id.