

Human Subject Safety

The Medical view of Universal Precautions

Physicians working on Clinical Research studies, as a group, would recommend:

1. That “universal precautions” are used in the sampling of body fluids (blood, urine, feces, saliva etc.) on all subjects on all studies even where complete viral testing is done.
2. That testing for hepatitis “C” (HCV) takes place in all studies involving the collection of body fluids.
3. That all associates involved in the sampling of body fluids be advised that it is in their interest to be tested for the HCV *and* HBsAby regularly (such as annually). Those with low titers of HBsAby would be offered a booster of HBV vaccine or the series if they were vaccine naïve.

The responsibilities of a Principle Investigator (PI) extend from before a study starts to well beyond a study’s conclusion. These responsibilities include:

- **Clinical responsibilities:** that the study meets appropriate scientific criteria and is of benefit to science.
- **Moral responsibilities:** to the organization, the subjects, the (Investigator Review Board (IRB), the Sponsor, and to mankind in general that guarantees that, to the best of her/his knowledge, the study is reasonable and sound and that study participants are not placed at undue risk.
- **Legal responsibilities:** that no harm come to subjects under the PI’s care and that the Protocol is followed as written and approved by all responsible agencies.

The matter of the use of “Universal Precautions” crosses these responsibilities and has ramifications for the reputation of any medical research organization and, as well, the health and safety of human subjects as well as staff. This issue is a combination of the use of proper technique and the emergence of a serious worldwide problem.

Background: A number of Physicians recently reviewed and discussed the handling of needle stick injuries to staff. They have come to the conclusion that for maximum protection to staff (and presumably study participants as well), we should review the standards of care and testing presently used at all research organizations. Further impetus for this reevaluation is the observation that clients are increasingly requesting that viral testing be done and that tests for Hepatitis “B” (HBV) and “C” (HCV) are being included along with the HIV test and that HCV positive subjects are noticed to be alarmingly common.

The matter of HCV is of concern because of its current and emerging worldwide importance as the largest single cause of total liver failure (and subsequent need for liver transplant surgery) around the world. It is because of the seriousness of this infection and the essentially unknown modes of transmission coupled with the absence of a vaccine (in contrast to Hepatitis “A” or “B”) that the medical community is taking notice.

Hepatitis “C” is singled out and placed in contrast to Hepatitis “B” and HIV for a number of reasons. Firstly, with regard to HBV, the incidence of progressive and fatal chronic hepatitis is considerably less than that with HCV infections and, importantly, there is a vaccine to protect at risk populations from HBV infections.

This vaccine is recommended for all at-risk associates. No vaccine is available for HCV at the present time. It is acknowledged that HCV is much less infective than HBV but there is evidence that the HCV is rather stable and will remain viable even in dried specimens. The seriousness of HCV infection cannot be overstated, a fact which seems to be noted by an increasing number of clients who request HCV along with HBV and HIV testing pre-study.

The physicians have noticed that each time HCV is tested, individuals testing positive are found. This is of concern when a subject who has been found HCV positive has a history of having been on many previous studies (where no testing was done) and who do not come from a known high-risk group. If asked if this could have been acquired while in our unit, no physician could say with certainty that exposure could not have happened in that manner.

Some concern does exist for HIV infection following needle stick injuries and we are currently working to identify the best procedure and protocol to follow for this eventuality. There is less concern for non-needle stick transmission for a number of reasons including the relative difficulty of transmission that is partly due to the friability of the virus. There is medical concern for the HBV but far less than with the HCV because the former only rarely becomes chronic and fulminating and, in addition, there is an excellent vaccine which all associates should be required to take.

It seems that an important goal of study conduct review is that the standard universal precautions, as to the handling of body fluids, become part of the standard. What this basically comes to is that it was stated that the changing or cleaning of gloves, by phlebotomists or others handling body fluids between sample collection from each subject become Standard Operating Procedure (SOP).

The medical concern was that it was possible to transmit from one subject to the next contaminants present in body fluids of previously handled subjects. Some of these contaminants could be virus particles. Of particular concern is the HCV because of its long-term morbidity and mortality even though it is the HBV that is quite a bit more easily transmitted in this manner.

Few physicians would argue that the use of universal precautions should be used when taking blood, urine or feces samples. In addition, there was concern that the reputation of wherever we may be working as an investigator might also be at stake if there became a perception that subjects who took part in studies did not receive the highest standard of care and cleanliness.

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