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DISCLOSURE OF INFORMATION TO EMERGENCY RESPONSE PERSONNEL

REPORT OF THE STANDING COMMITTEE ON HEALTH AND WELFARE, SOCIAL AFFAIRS, SENIORS AND THE STATUS OF WOMEN

BARBARA GREENE, M.P.
CHAIR

June 1993

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Présidence: Barbara Greene

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Santé et du Bien-être social, des Affaires sociales, du Troisième âge et de la Condition féminine

RESPECTING:

Respecting the subject matter of Bill C-333, An Act to amend the Canada Health Act

INCLUDING:

Ninth Report to the House: Disclosure of Information to Emergency Response Personnel

CONCERNANT:

Au sujet du projet de loi C-333, Loi modifiant la Loi canadienne sur la santé

Y COMPRIS:

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We also gratefully acknowledge the contribution of Odette Madore and Margaret Young of the Library of Parliament for undertaking this challenging task with enthusiasm and competence. Our Committee was most fortunate to have researchers of their expertise and calibre and with a full realization of the importance of writing an accurate report.

We also appreciate the patience and dedication of the Clerk of the Committee, Christine Fisher who organized and co-ordinated the hearings and was responsible for the publication of the report.

Thanks also to the staff of the Committees Directorate, the Translation Bureau of the Secretary of State and the Support Services of the House of Commons and the Research Branch of the Library of Parliament for their assistance.

The Members of Parliament are to be commended for taking time to fully consider this important issue. We also thank Joy Langan of the New Democratic Party for raising this topic. We hope that implementation of our recommendations will result in a reduction in the anxiety confronting emergency service providers.

Our Committee will be monitoring this situation to ensure there is progress in addressing this important issue.

The Standing Committee on Health and Welfare, Social Affairs, Seniors and the Status of Women has the honour to present its

NINTH REPORT

In accordance with its Order of Reference from the House of Commons dated Thursday, December 10, 1992, your Committee has considered the subject matter of Bill C-333, *An Act to amend the Canada Health Act*, and agreed to report the following:

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DISCLOSURE OF INFORMATION TO EMERGENCY RESPONSE PERSONNEL

1. INTRODUCTION

On February 17, 1992, Joy Langan, NDP M.P. from Mission—Coquitlam (B.C.), introduced a Private Member's bill, C-333, an Act to Amend the Canada Health Act. The purpose of Bill C-333 was to "incite provinces to make sure that the health care insurance plan of a province provides for the obligation for hospitals to disclose, to emergency response employees who provide emergency medical or rescue services to a patient, the name of an infectious or contagious disease that the patient might have transmitted to them."[1] Employees covered by the bill included fire fighters, police officers, paramedics, emergency medical technicians, and other individuals involved in emergency situations.

The proposed legislation set out a new criterion for provinces and territories to qualify for cash contributions provided by the federal government under Established Programs Financing. This new criterion or "national standard" was the "disclosure of infectious or contagious disease". In other words, Bill C-333 would have established a mechanism to enable the federal government to impose a condition on the provinces and territories to provide an infectious disease notification protocol. The bill did not propose a specific type of protocol.

On December 10, 1992, with unanimous consent, Bill C-333 was withdrawn from the House of Commons and the subject matter was referred to the Standing Committee on Health and Welfare, Social Affairs, Seniors and the Status of Women. During February and March 1993, the Committee heard evidence from a wide range of witnesses, including Joy Langan, organizations representing emergency personnel (fire fighters, police officers, ambulance workers), associations of health care providers (physicians, nurses), and officials from Health and Welfare Canada. A list of witnesses is provided in Appendix A.

The members of the Committee decided not to restrict their study to the proposed amendment to the *Canada Health Act*, but rather to consider various options to address adequately the issue of a notification protocol for emergency providers. All members recognize the importance of protecting the health and safety of those who face, by the nature of their occupation, emergency situations on a daily basis. The members of the Committee also understand the premises underlying the request for the disclosure of information for those emergency response employees who may be exposed to contagious diseases.

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1 Bill C-333, Explanatory Notes.

2. OCCUPATIONAL EXPOSURE TO CONTAGIOUS DISEASES: DEFINITIONS

Over the years, occupational contagious diseases have increasingly become a health concern for emergency response personnel. Occupational contagious diseases are infectious diseases that are contracted in the course of a person's employment. Diseases of primary concern for emergency response employees include both airborne diseases such as Tuberculosis (TB), which has become more prevalent over the past few years, and bloodborne diseases such as Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV), which is the viral agent responsible for causing the Acquired Immunodeficiency Syndrome (AIDS). These are all considered potentially life-threatening contagious diseases as they carry a substantial risk of death if acquired by an emergency provider.

Airborne diseases are transmitted from person-to-person by an aerosol, that is an infectious agent floating in the air. Exposure to an airborne disease may occur when the emergency response employee shares air space with an infected victim, or through mouth-to-mouth resuscitation. Bloodborne diseases may be transmitted through contact with an infected person's blood or body fluids or contact with infected materials. Occupational exposure to bloodborne diseases may occur through many mechanisms: needle stick injuries or cuts with a sharp object, contact with mucous membranes (mouth, eyes and nose), contact with skin, particularly when the exposed skin is chapped, or when contact is prolonged or involves an extensive area.

Experts qualify a significant exposure to a contagious disease as one in which the contact that occurs between the infected person and an emergency response employee is sufficient to permit transmission of infection. Each disease requires different degrees of exposure to be considered significant. Shirley Paton, a nurse consultant from the Bureau of Communicable Disease Epidemiology (Health and Welfare Canada), provided the following example with respect to airborne diseases:

> You would require close exposure over a long time before you might acquire TB. For example, a police officer who transferred a client with infectious TB across town would not have experienced a significant exposure. However, if a police transfer had been made from Kenora to Winnipeg, the person had been coughing uncontrollably and the windows had been closed, significant exposure might have occurred.[2]

During the hearings, many factors were enumerated to explain the increased risk of exposure faced by emergency response personnel. The increased prevalence of life-threatening contagious diseases among the general population, and therefore among the victims rescued was noted, as was the fact that the role of emergency providers has expanded over the years. As a result, emergency response personnel, as part of their normal duties, now routinely provide emergency medical treatment to victims. Further, it was stressed that situations faced by emergency providers may be different from those found in the health care workplace: emergency medical services are provided at the scene, often in unsanitary conditions. For example, Doug Coupar, Canadian Director for the International Association of Fire Fighters, told the Committee:

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[2] *Minutes of Proceedings and Evidence* of the Standing Committee on Health and Welfare, Social Affairs, Seniors and the Status of Women (hereafter *Proceedings*), Issue No. 17, p. 17:7 and 17:8.

> This is in part because of the nature of the job. Fire fighters are no longer just people who extinguish structural fires. Fire fighters are called upon to do many things, including (. . .) extricating accident victims from motor vehicles, dealing with all kinds of victims in different situations. In the course of this work, fire fighters are occupationally exposed to a number of airborne and bloodborne diseases.[3]

The Committee recognizes that all of these factors combine to place emergency workers at risk of contracting a life-threatening contagious disease.

3. HOW CAN EXPOSURES BE PREVENTED?

During the hearings, the Committee heard repeatedly that training and education in the field of universal precautions and infection control protocols were the most appropriate and effective ways to prevent the transmission of infectious diseases. While infection control protocols apply to many forms of contagion, universal precautions are generally used to prevent contact with potentially infectious blood and body fluids. For example, it is recommended that gloves be worn when there is any likelihood of hands coming into contact with body substances, non-intact skin, or mucous membranes. In addition, it is recommended that clothing be protected with a plastic apron and that eyes and mucous membranes be protected if splashing or soiling is likely. Universal precautions also suggest that used needle and syringe units be disposed of in a sharps container at the point of usage.[4]

During their testimony, organizations representing emergency response personnel stated that they have developed their own policies and guidelines on infectious diseases, which are intended to prevent the transmission of infectious diseases and to improve infection control practices. These organizations indicated that they also offer their members training programs in universal blood and body fluids precautions and provide protective equipment and proper disinfection facilities.

However, fire fighters' and police officers' representatives contended that training and precautionary measures were not sufficient to prevent exposures. Scott Newark, a legal counsel for the Canadian Police Association, stated that:

> (. . .) the notion of saying we can deal with this matter simply by education and precautionary measures is a fiction. That denotes an absence of recognition of what police officers and emergency personnel in general go through in dealing with people. Life just ain't like that. All the precautions in the world are a necessary component part, but that's not all they are.[5]

Specifically, representatives of emergency response employees indicated that there may be circumstances where exposures cannot be prevented. In order to save the victim's life, emergency response employees may act in haste, without regard to their own safety. Protective equipment, if used, may break (gloves may get torn) or may not be readily available, or the emergency response employee may simply not have the time to take the necessary precautions. As a result, emergency

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3 *Proceedings*, Issue No. 14, p. 14:28.

4 Lynne Downing, "Universal Precautions: A New Approach for Uncertain Times", *NZ Nursing Journal*, June 1989, p. 15. This article was tabled with the Committee by the Canadian Nurses Association.

5 *Proceedings*, Issue No. 15, p. 15:5.

providers may be significantly exposed to contagious or infectious diseases, even though they are well trained and equipped. For example, Fred Nesbitt, from the International Association of Fire Fighters, explained:

> Our international union has done a lot of work in terms of educating our members on airborne and bloodborne infectious and contagious diseases. We have a lot of materials. There are certain precautions we have to take. When you are dealing with blood you automatically put gloves on, but when you are dealing with glass the gloves easily can become cut. If you are in a burning building and someone stops breathing, there are certain precautions you can take. You may not have time to take them, or sometimes a fire fighter simply reacts and throws caution to the wind. We tell them not to do that, but they do it. In this particular sense there may have been an exposure. We ask them to take precautions. We think it's good. But as we mentioned earlier, there are going to be exposures. There are going to be cut gloves, there are going to be airborne diseases.[6]

Similar concerns were expressed by police officers. James M. Kingston, Chief Executive Officer for the Canadian Police Association, mentioned that precautions may sometimes not be practical:

> The tragedy of course is that when our members are dealing with these sorts of things they are dealing in a sort of situation where they can't go out and double-glove themselves. It's absolutely not practical. First of all, in many cases they don't know that there's going to be an altercation. They don't know when their blood is going to be spilled, or someone else's. Obviously if you're at a traffic accident, your idea is not to worry about whether or not a person has an infectious disease; it's to save a life. That's what our members do, and in fairness they are the first on the scene at the vast majority of emergencies.[7]

In contrast, Heather Caloren, a nursing consultant from the Canadian Nurses Association, stated that:

> (. . .) the instinct to serve may overshadow the need to protect oneself, but no one should need to take life-threatening risks to save another life. Indeed, to do so is to fail to accept appropriate responsibility for one's personal health and that of one's clients and future clients.[8]

The Committee recognizes that universal precautions and infection control protocols are a necessary and essential part of ensuring safe working conditions in emergency situations. The Committee shares the views of the Canadian Nurses Association that no person in the course of duty must put his or her life in danger. The members of the Committee believe that, emergency situations being often unpredictable, safe working habits must be integral to everyone's regular work routine. With this perspective, the Committee endorses the position statement made by the Canadian Nurses Association's board of directors:

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6 *Proceedings*, Issue No. 14, p. 14:28.

7 *Proceedings*, Issue No. 15, p. 15:4.

8 *Proceedings*, Issue No. 16, p. 16:5.

> Employers have a responsibility to protect and promote the health and safety of their employees. Employers must provide education and preventive strategies, as well as necessary protective and/or corrective measures.[9]

The Committee welcomes the efforts made by organizations representing emergency providers to educate and train their members in the field of infection control protocols and universal precautions. However, the testimony of these organizations suggests that emergency response employees may occasionally neglect to take precautions. Rigorous training is a necessary prerequisite to the understanding of and compliance with infection control and precautions, and can therefore minimize the risk of exposure to contagious diseases. Effective teaching strategies can ensure that safe working habits will always be adopted by emergency workers. Therefore, the Committee recommends:

1. **That all employers of emergency response personnel provide rigorous training programs in universal precautions and infection control procedures;**

2. **That employers of emergency response personnel also provide the necessary equipment and supplies for the practice of universal precautions and infection control procedures and that this equipment be made readily accessible to emergency response personnel;**

3. **That emergency response personnel have an obligation to rigorously apply universal precautions and infection control procedures in all situations.**

Rigorous training programs on safe working practices and use of appropriate protective equipment can effectively protect emergency responders from potential exposure. As a result, the risk of exposure to life-threatening contagious diseases should remain very low. The Committee recognizes, however, that some circumstances may arise or some accidents may happen that place emergency response personnel at significant risk of exposure.

4. RISK OF EXPOSURE

During the hearings, the Committee received some information on the risk of exposure to infectious diseases by emergency personnel. For example, a report tabled with the Committee by the International Association of Fire Fighters indicates that, in 1991, 1 out of 27 fire fighters in Canada and the United States was exposed to a communicable disease (both airborne and bloodborne diseases). More specifically, almost 15% were exposed to TB, 17% to HBV, 37% to HIV, and 31% to some other communicable diseases.[10] However, the report does not indicate whether or not these were significant exposures and if appropriate protective equipment was used when such exposures occurred. Further, the report does not mention if there was transmission of infection to the fire fighters following the exposure. The other organizations representing emergency response employees who testified before the Committee did not provide similar data.

Other documents were provided to the Committee by the Canadian Medical Association. With respect to HIV, the Association stated that, although the responsibilities of emergency workers may place them at potential risk of exposure, the risk of transmission of HIV is extremely small and that

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[9] *Ibid.*

[10] International Association of Fire Fighters, *Infectious Diseases and the Fire and Emergency Services,* Washington, 1992, p. 1.

no cases have been recorded.[11] In addition, the Association noted that, even in the health care workplace, the occupational risk of HIV infection "though not zero, is very low."[12] The Association did not provide figures but mentioned that the risk of HBV transmission from a patient to a health care worker is greater than the risk of HIV transmission, and that there are cases in Canada where HBV was transmitted from a patient to a health care worker.[13] No data were provided by the Association with respect to the risk of HBV transmission from a victim to an emergency response employee.

The Committee also obtained information on the National Surveillance of Occupational Exposure to HIV. This survey, coordinated by the Laboratory Centre of Disease Control (Health and Welfare Canada), was initiated to monitor the risk for workers of acquiring HIV infection as a result of exposure to HIV-infected blood and other body fluids. Participation of workers was voluntary and a total of 414 employees (mainly but not entirely from the health care workplace) were included in the study. The survey indicates that 38% of workers were not wearing protective apparel at the time of exposure and that 39% of the exposures could have been prevented by adherence to universal precautions. Overall, the study found that there were no seroconversions in the 414 exposures (the seropositive status of one participant was not attributed to occupational exposure) and concluded that the risk of becoming infected after exposure to HIV was very low in Canada. The study notes, however, that the risk is not zero: data for the United States indicates that, out of 1,200 health care workers, 7 became infected as a result of needle stick injuries, 2 from cuts with sharp objects, 3 from skin contact and 1 from mucous membrane exposure to blood or blood-containing fluids. The study also mentions 6 other seroconversions worldwide: 2 workers from France, 1 from the United Kingdom, 1 from Martinique, and 1 from Australia have become infected as a result of needle stick injuries, while 1 occurred via mucous membrane exposure.[14]

Further, the Committee was told that a national surveillance program on HBV was initiated last year by the Laboratory Centre for Disease Control. However, reliable Canadian data will only be available over the next few years.

During her testimony, Shirley Paton indicated that paramedics have an increased incidence of HBV compared to the general population, while fire fighters and police officers generally do not. She recognized, however, that some fire fighters and police officers may frequently act in a paramedic role. For these workers, she suggested vaccination against HBV. The suggestion that anyone acting in a paramedic role should receive such vaccine is made by the National Advisory Committee on Immunization.[15]

Further, Mrs. Paton informed the Committee that a National Conference on Meningococcal Meningitis, held last February, concluded that the disease was not a serious infectious risk to emergency response personnel, except in very special circumstances (when an individual has direct

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[11] Canadian Medical Association, *CMA Position Paper —HIV Infection in the Workplace*, Appendix 7, 1 May 1992, p. 144.

[12] *Ibid.*, p. 145.

[13] Canadian Medical Association, *Position Paper on Hepatitis B in the Health Care Workplace*, Appendix 8, 14 May 1992, p. 151.

[14] M. Ricketts, L. Deschamps, K. Elmslie and M. O'Shaughnessy, "National Surveillance of Occupational Exposure to the Human Immunodeficiency Virus", *Canadian Journal of Infectious Diseases*, Vol. 3, No. 6, November/December 1992, pp. 290-294.

[15] *Proceedings*, Issue No. 17, p. 17:6.

contamination of his or her mouth, via mouth-to-mouth resuscitation). To her knowledge, there has been no documented case of meningococcal disease associated with any type of occupational exposure in Canada.[16]

At this point, the Committee wishes to raises three issues. First, the Committee considers that vaccination may be the best defense against contracting HBV and endorses the suggestion made by the National Advisory Committee on Immunization that all employees working in a paramedic role be immunized against HBV. Recognizing that this is primarily a matter of provincial and territorial responsibility, and given the cost of such immunization, the Committee recommends:

4. **That Health and Welfare Canada initiate discussions with provincial and territorial governments, and with associations of emergency response personnel, toward the establishment of a program for Hepatitis B vaccination for those emergency workers routinely involved in paramedic services. The need for such immunization should be assessed in terms of its cost-effectiveness.**

Second, the Committee considers that national surveillance programs are very useful in monitoring the occurrence of occupational exposures to life-threatening contagious diseases. However, the Committee is concerned that the resulting information may not reflect the particular situation faced by emergency providers. For example, of the 414 workers enroled in the HIV surveillance program, only 3 police officers, 3 ambulance attendants, 1 fire fighter and 1 fire security officer participated in the program. As a result, this survey may underestimate the actual risk for emergency workers. The Committee believes that participation of emergency response employees needs to be enhanced by a broad information campaign. Further, the Committee welcomes the HBV surveillance program recently initiated and hopes that a sufficient number of emergency response personnel will be enroled in the survey. Therefore, the Committee recommends:

5. **That Health and Welfare Canada, through the Laboratory Centre of Disease Control, implement an information campaign on both the HIV and the HBV national surveillance programs directed toward all emergency response employees, in order to enhance their participation following potential exposure.**

Third, the Committee is concerned that the information currently available with respect to the risk of emergency response personnel being infected by other life-threatening diseases is very limited on a national basis. Therefore, the Committee recommends:

6. **That Health and Welfare Canada design and implement, in cooperation with the provinces and territories, a comprehensive epidemiological study to determine the risk of acquiring life-threatening contagious diseases as a result of exposure by emergency response personnel in this country and to assess the causes of occupational exposures among these workers.**

The Committee is convinced that a survey of national magnitude specifically directed toward emergency response personnel is essential to evaluate the potential risks of exposure faced by these workers.

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[16] *Ibid.*, p. 17:6 and 17:7.

5. RATIONALE FOR AN INFECTIOUS DISEASES NOTIFICATION PROTOCOL

As a result of potential exposure by emergency response personnel during the performance of their duties, there is pressure to learn if a victim is or is not infected. Those who fear becoming infected during the course of their duties have suggested that governments establish a notification procedure which would provide information on the infectious status of a rescued victim. Their request is based on both individual and public grounds. First, emergency response employees contend that they have a right of access to the best information available as to whether an exposure may have taken place. Second, they argue that this is an issue of public health as notification would reduce the possibility of further transmission of infectious or contagious diseases. Third, in view of the publicly-financed health care system, they maintain that preventing the spread of a contagious disease is less expensive than treating it thereafter. Fourth, they believe that a notification procedure provides a balance between the right of the emergency response employee and the protection of confidentiality of a victim's health status as notification would be limited only to the fact of exposure to infection, and would not identify the victim.

In addition, it has been suggested that such a notification procedure should be established by the federal government rather than by provincial and territorial governments. Those who favour a national protocol over separate provincial or territorial protocols mentioned the following rationale for federal government involvement: the disclosure of information is considered as a basic health care need for emergency providers and, as such, a national protocol would alleviate discrepancies between provinces, thereby providing emergency responders from all across the country with an equal opportunity to benefit from the protocol.

Joy Langan, the initiator of Bill C-333, told the Committee that a situation where every province has a different protocol would be inadequate. She considered the disclosure of information to be a basic health care need for all emergency response employees. As such, she explained, it would be unacceptable to have workers "protected" in one province but not in another. Therefore, she contended that there is a need for the protocol to be national with a consistent standard across the country.[17]

Doug Coupar, from the International Association of Fire Fighters, also maintained that there is a need for a national protocol because the issue may be different from one region to another or may vary from a small town to a large city:

> To give you an example, TB would appear to be more prevalent in certain areas of our country. Hepatitis B appears in other places. Because of the patchwork approach to telling the emergency responders about what may or may not be going on there, there really is no unifying approach on the horizon. We don't see the provinces, by themselves, getting together to address this. We don't see, within their own jurisdictions, a unifying approach on this issue of big/small town. That's why we have

[17] *Proceedings*, Issue No. 14, p. 14:16.

> insisted from the beginning that it really and truly is a matter for the federal government to address so that we can begin to put those elements in place. It is an extremely uneven situation.[18]

During the hearings, witnesses often referred to legislation adopted in the United States as an example of central government involvement in the field of disclosure of information to emergency response personnel. More specifically, the United States recently enacted the *Ryan White CARE Act* which mandates hospitals to notify emergency response personnel about the infectious status of a patient who was in contact with the emergency worker. For each employer of emergency personnel there is one designated officer who acts as an intermediary between the worker and the medical facility. When available, the medical information disclosed includes the name of the disease involved and the appropriate medical treatment. The U.S. law prohibits involuntary testing of patients and only requires the hospital to share any such information in its possession. The Act is also structured in a way that it protects patient confidentiality. A summary of the U.S. legislation is presented in Appendix B.

Witnesses, however, do not believe that Canada should copy the U.S. legislation. Mr. Coupar explained:

> I would be hesitant to point to the Ryan White Act as a blueprint for our actions in Canada. I think it is a pivotal reference document for us because of the similar problems our members are facing on both sides of the border. The reason I'm hesitant is because of our historical differences in Canada over jurisdictional matters between the federal government and the provincial governments.[19]

Further, Heather Caloren, from the Canadian Nurses Association, affirmed that it may be premature at this moment in Canada to establish a procedure such as the notification system currently in place in the United States. She explained that there was an underlying structure in place before the enactment of the *Ryan White CARE Act*. She referred, for example, to preventive education, necessary equipment and supplies, and the checking back with employees to make sure that they understand and that they follow through with the requirements. According to her, Canada does not have this basic structure upon which to build such legislation right now.[20]

A critical point raised during the hearings was that, whether or not a system of notification is in place, the emergency response employee is the one who must first take the responsibility to limit the spread of a disease. Specifically, Shirley Paton, from Health and Welfare Canada, indicated:

> As soon as a worker has been exposed, she must start protecting her family, whether or not she knows or not [sic]. If a worker has been exposed to blood, has had a major gash, and there is no question that happens, she must start at that point, as soon as she knows

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[18] *Ibid.*, p. 14:30.

[19] *Ibid.*

[20] *Proceedings*, Issue No. 16, p. 16:10 and 16:19.

> she has had a significant exposure, protect her family (. . .) She has to do exactly the same thing from the point of the significant exposure. The reporting will not change anything.[21]

In other words, emergency response employees must assume, when they feel they have had a significant exposure, that the victim may be infected. They must assume that they might have been exposed to a life-threatening contagious disease, until proven otherwise. Thus, the Committee considers that they have the first responsibility to avoid the likely spread of the disease. Therefore, the Committee recommends:

7. **That, following a significant exposure, every emergency response employee immediately start using personal precautions and continue to do so until it is established that the precautions are no longer necessary.**

Immediate precautionary measures following potential exposures are the most effective way to limit the risk of further transmission to family, friends, co-workers and future clients.

6. DO WE NEED TO ESTABLISH A NOTIFICATION PROTOCOL?

Those who request the establishment of a national notification protocol suggest that emergency response employees be notified, by the hospital or through an appropriate mechanism, about the infectious status of a rescued victim if such information already exists or if it becomes available through the normal course of treatment as a result of the emergency.

These proponents told the Committee that there is currently no possible way to obtain such information. Fret Nesbitt, from the International Association of Fire Fighters, stated:

> Our idea for the creation of this infectious disease protocol was based on our experience. We have story after story, as true in the United States and in Canada, where fire fighters have had an exposure to an infectious and communicable disease, where they did not get the information, were not able to get the information. It places a certain burden on them. There are stories of legitimate exposures.[22]

Mr. Nesbitt provided the following examples:

> We had a fire fighter extricate a woman out of an automobile, a very bad wreck, a lot of glass, a lot of blood. He wore gloves. Our people are trained. There was no exposure on his hands but there was a lot of blood. In the process of moving her out of the car and onto an ambulance cot, when she was transported by someone else to the hospital, he noticed his toe had a tingle to it. He kept working. Finally, he sat down on the truck, pulled off his boot and there was an IV needle stuck in his toe. It had gone through the boot. It had been dropped by the ambulance people. He called the hospital and told

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[21] *Proceedings*, Issue No. 17, p. 17:13.

[22] *Proceedings*, Issue No. 14, p. 14:25.

> them he was involved in extricating this woman from a car and was stuck by an IV needle. He asked if he'd been exposed to any type of infectious and communicable disease. The hospital's response was that it was none of his business.[23]

> The other case we've had is a situation where the fire fighters brought a woman out of the woods who'd been shot with an arrow. There was tremendous bleeding. They had to carry her a mile, put her in an ambulance, transport her to a hospital emergency room. When they opened their coats, their clothing underneath was soaked with blood, clear down to their skin. As they were walking out of the hospital, they overheard two nurses saying that they knew that lady. She was HIV positive. It was chance information. The hospital knew it; we didn't. The hospital employees work under the most sanitary, controlled conditions. We work under the least sanitary, least controlled conditions possible.[24]

On the other hand, some witnesses were not in agreement on the benefits of a notification procedure. First, the Committee was told that a protocol for information disclosure would do nothing to avoid the transmission of infectious and contagious diseases. As stated by Heather Caloren, from the Canadian Nurses Association: "(. . .) after-the-fact reporting provisions would in no way avoid the transmission of infection if it has already occurred".[25] Second, Shirley Paton, from Health and Welfare Canada, pointed out that there is no data which supports the supposition that a notification system would enhance the safety or decrease the emotional concerns of emergency providers. However, in a paper prepared at the request of the International Association of Fire Fighters, Dr. Deborah M. Ratliff, M.D., M.P.H., a resident in Occupational Medicine at the John Hopkins School of Hygiene and Public Health, cited and agreed with a study that concluded that "(. . .) knowledge that the source was negative for HIV, TB or Hepatitis B or C following a significant exposure can allay unnecessary anxiety and eliminate the need for further follow-up and prophylactic treatment."[26] Such a notification system, in Dr. Ratliff's view, should be in addition to using universal precautions.

Third, both Mrs. Caloren and Mrs. Paton shared the view that a notification procedure could deflect attention away from the importance of safe practices. Mrs. Caloren stated:

> Provision for after-the-fact initiatives such as proposed in Bill C-333 might only lead to a false sense of security, thus encouraging workers and their employers to ignore their responsibilities to follow safe practices.[27]

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[23] *Ibid.*

[24] *Ibid.*, p. 14:26.

[25] *Proceedings*, Issue No. 16, p. 16:10.

[26] Brief submitted to the Committee, p. 2.

[27] *Ibid.*, p. 16:7 and 16:8.

Similarly, Mrs. Paton contended:

> The evidence does not support the contention that knowledge of a client's infectious status would increase the safety or health of emergency responders. If anything, dependence on a notification system, especially when all may be unaware of an individual's infectious status, may well engender an attitude that leads to a relaxation of protocols, resulting in a situation that could truly be a danger.[28]

While the Committee recognizes the possibility that instituting a notification system could lead to a relaxation of universal precautions, we are confident that with well-informed professional bodies this would not be the case. As Dr. Ratliff noted, universal precautions are well-established as the primary means of infectious disease prevention. All experts, and this Committee, who support a notification procedure see it as an additional measure for those cases where significant exposures may have occurred despite universal precautions.

Fourth, it was argued that emergency providers should be treated the same as all other health care workers, that is, they should not be routinely notified of patients' infectious status. This argument is based on the premise that notification does not change anything; emergency responders must do the same thing following an exposure, whether or not the rescued victim is infected. Shirley Paton told the Committee:

> The follow-up response cannot be dependant on knowing whether or not the patient is infected. There are too many unknowns. You have to do exactly the same thing whether you know or not. The greatest risk all health care workers face, including emergency responders, is from those clients with infectious disease that no one is aware of. (. . .) Half of the people with Hepatitis B have no sign of illness. People with HIV can be infectious for years and not know it. Someone with a chronic cough may be a smoker or they may have early TB. All may be capable of transmitting the disease yet no one knows. Emergency responders and other health care workers have to accept that they may have been or they may be exposed to infectious diseases.[29]

Finally, and most importantly, it was stressed that there are existing mechanisms through which this issue of notification could be resolved. Dr. David Walters, from the Canadian Medical Association, told the Committee:

> (. . .) we are saying we don't think there's a huge exposure risk here. We think there's some. But certainly education is very important. Rather than devising new mechanisms, new legislation, or changing legislation, we really have to examine how the existing system and mechanisms could be applied. That's what we think there are a lot of things in place.[30]

Dr. Walters, along with other witnesses, referred to provincial and territorial public health statutes concerning communicable diseases.

Overall, the Committee clearly understands the emotional concerns and the anxiety felt by emergency responders following a significant exposure and can therefore appreciate their desire for information. We recognize however that confidentiality rules do not currently permit hospitals to provide a victim's medical history directly to emergency personnel.

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[28] *Proceedings*, Issue No. 17, p. 17:10.

[29] *Ibid.*, p. 17:8 and 17:9.

[30] *Proceedings*, Issue No. 15, p. 15:22.

7. CURRENT PROVINCIAL AND TERRITORIAL STATUTES WITH RESPECT TO COMMUNICABLE DISEASES

In most provinces, the law concerning communicable diseases is set out in public health statutes and the accompanying regulations. These acts and regulations generally provide for the identification, notification, reporting and control of certain communicable diseases.

More specifically, provincial and territorial regulations and legislation require that notification be given to the authorities where the presence of a communicable disease is confirmed. Cases of communicable diseases are reported by physicians, hospital administrators or laboratory operators to the medical health officer or the head of the community health department, who then must report to the provincial health officer or to the Ministry of Health.

The report to the medical health officer can vary from jurisdiction to jurisdiction in the amount of information that is required. In most instances, the law protects the confidentiality of health information, except in situations where the law expressly requires that such information be revealed. It is generally acknowledged that reporting by number, age, sex and municipality provides sufficient information for epidemiological purposes.

Provincial and territorial health authorities also have wide powers to compel a person suspected of being infected with a communicable disease to undergo medical examination. The conditions under which such regulations may be used vary from province to province.

Although tracing procedures are not expressly dealt with, some provincial and territorial statutes include provisions designed to limit the spread of a communicable disease. For example, in Ontario, the medical health officer may direct a health unit to take action to eliminate or decrease the risk to health presented by a communicable disease.[31] In Alberta, a medical officer of health must take "whatever steps are reasonably possible to suppress the disease, identify others who may be at risk, protect those not yet protected, break the chain of transmission, and prevent the spread of the disease".[32] In Quebec, the head of the community health department "must take the necessary measures to prevent and arrest contagion and protect the health of the population".[33]

Although these statutes do not expressly provide for the disclosure of information relating to persons with contagious diseases specifically to emergency personnel, it is generally acknowledged that they provide for tracing by the medical health officer. For example, the Ontario Ministry of Health has recently sent out letters to all medical health officers reminding them to ask appropriate questions to determine if emergency responders have had significant exposures to individuals with a reportable contagious disease.

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[31] Ontario, *Health Protection and Promotion Act*, clause 22.

[32] Alberta, *Communicable Diseases Regulation*, section 8.

[33] Quebec, *Public Health Protection Regulation*, section 38.

8. IS THE CURRENT SYSTEM APPROPRIATE?

While the International Association of Fire Fighters was not aware that mechanisms were in place to inform emergency response personnel following exposure to contagious diseases, other emergency providers' representatives were of the view that the current system is not working well and they expressed concerns about the "silence" or lack of notification surrounding the occurrence of exposures. James M. Kingston, from the Canadian Police Association, indicated:

> Ontario is apparently using the medical officers of health, but really, in practical terms, it just doesn't happen. The medical officers of health have enough to do. They're not at all the hospitals. . . In practical terms, our members tell us that although Ontario say they have a protocol in place, the reality is they do not.[34]

Similarly, Bud Shiaro, Acting Director with the Canadian Union of Public Employees, said:

> We're concerned about the lack of accountability at provincial levels and regional levels within provinces on the reporting and tracking of these exposures, be they trivial or significant. The less significant they are, the more difficult they seem to be to track.[35]

During the hearings, other witnesses held opposite views. For example, Shirley Paton stated:

> We believe that it is erroneous to think the current system fails to notify emergency responders when they have been significantly exposed to an infectious disease. The public health acts in each province were created in part to respond to concerns that individuals might come in contact with infectious diseases and not know it. The provincial health acts ensure that emergency responders, along with other Canadians, will be contacted should specific interventions be required following a significant exposure to an infectious disease. Specific protocols have been established in all provinces to seek out individuals who are at risk of acquiring one of the important notifiable diseases, either through work-related, community or family contacts.[36]

For Mrs. Paton, the system of notification that already exists generally works well. Emergency response employees may have the impression that they are not notified more often about exposures; she suggested that this means that significant exposures rarely occur:

> That's one of the reasons emergency responders have not been notified of infectious disease contacts. Many of their exposures have not been significant enough to have put them at risk of acquiring infection. A number of studies support the view that fire fighters and police officers seldom experience significant blood exposures in spite of the fact they deal with horrendous situations.[37]

However, there may be situations where it is simply impossible for the medical health officer to notify emergency response personnel about occupational exposures. In some provinces, for example, the report forwarded to the medical health officer does not include the name of the infected

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[34] *Proceedings*, Issue No. 15, p. 15:11.

[35] *Proceedings*, Issue No. 17, p. 17:23.

[36] *Ibid.*, p. 17:6.

[37] *Ibid.*, p. 17:8.

person. As a result, tracing is not possible. Further, as noted previously, a number of victims rescued by emergency providers may be infected with a life-threatening contagious disease without knowing it. In such circumstances, the medical health officer would not be able to determine whether or not an emergency responder has been significantly exposed to a contagious disease.

Even if the existing notification mechanisms provided under provincial and territorial legislation and regulations are satisfactory, there will be cases of significant exposures where the infectious status of the person will not be known to the medical health officer. To resolve this issue, it was recommended that a protocol for post-exposure management of individuals potentially exposed to contagious diseases be established. This recommendation reflects the consensus of a wide range of Canadian organizations participating in a National Conference on Bloodborne Pathogens organized by the Laboratory Centre for Disease Control (Health and Welfare Canada). All statements and recommendations adopted during this conference are reproduced in the *Canada Communicable Disease Report* of 25 December 1992. This report states:

> A protocol for post-exposure management and follow-up of persons exposed to bloodborne pathogens should be generally applicable to all bloodborne pathogens and be adaptable to a variety of health settings. Designated persons who are readily available should manage and follow-up exposed health care workers and patients according to current established protocols.[38]

Further, the report recommends that:

> All significant exposures should be reported through a proactive mechanism that:
>
> (a) is easy to access and is user-friendly;
>
> (b) assures confidentiality;
>
> (c) clearly and succinctly outlines information required from health care workers;
>
> (d) provides for referral to appropriate experts;
>
> (e) activates a protocol for follow-up that instills confidence in the exposed worker.[39]

During her testimony, Shirley Paton stressed that this statement and this recommendation should also apply to emergency response personnel. She also indicated:

> A key element in these recommendations is that someone has to be designated as the worker's contact. That person should ideally be part of the employee's occupational health program. Members of the emergency responders occupational health program need to be available to assess exposures. They also have to establish links with local hospitals so that patients' consent for testing can be acquired if necessary. Training of local personnel will be required concerning the identification of significant exposures and the procedures to follow. If patient consent is obtained, the emergency responder's

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[38] Health and Welfare Canada, "Bloodborne Pathogens in the Health Care Setting: Risk for Transmission", *Canada Communicable Disease Report*, 25 December 1992, p. 181.

[39] *Ibid.*, p. 182.

> designate will be informed of the test result. It is important to remember, however, that testing can only take place if and when a patient consents and that what the emergency responder has to do is no different if they know or if they don't know.[40]

In summary, the Committee acknowledges that provincial and territorial statutes with respect to communicable diseases contain provisions that emergency workers will be notified if information is available to the medical health officer as to whether they have been significantly exposed to a life-threatening contagious disease. However, the Committee recognizes that there may be situations in which such information is not available through the medical health officer and, as a result, the medical health officer is unable to properly assess if a significant exposure has really occurred. The Committee therefore urges that a post-exposure management protocol be established for emergency response personnel. Further, we recommend that the protocol be extended to cover exposures to both airborne and bloodborne diseases.

With respect to jurisdictional issues, Joy Langan suggested during her testimony:

> I would hope that certainly the federal and provincial ministers of health would work together to establish a protocol that is acceptable to every province and to the federal government. But someone would have to administer the protocol, and I would think that probably the provinces would administer it but the federal government would oversee to ensure it is implemented.[41]

Further, all witnesses cautioned the Committee that any proposed federal initiative should only be considered following extensive consultations with provinces and stakeholders alike.

The Committee recognizes that a federal legislative initiative to require a protocol for post-exposure management and follow-up of emergency responders would raise various legal and constitutional issues. For example, control over hospitals, public health and the health and safety of provincially-regulated employees all fall within provincial jurisdiction. A research paper prepared for the Committee by a lawyer from the Research Branch of the Library of Parliament concludes that the federal government could not constitutionnally legislate a notification requirement. However, the Committee believes that, although it may be a matter of provincial and territorial responsibility, there could be a role for the federal government to ensure that emergency response employees all across the country have a uniform access to protocols developed within provinces and territories. Therefore, the Committee recommends:

8. **That the federal government, through Health and Welfare Canada, encourage provincial and territorial governments to develop and implement within their jurisdictions a protocol for post-exposure management and follow-up of emergency response personnel exposed to airborne and bloodborne diseases;**

9. **That Health and Welfare Canada collaborate with provincial and territorial governments to ensure that emergency response personnel have an equal opportunity to benefit from such a protocol.**

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[40] *Proceedings*, Issue No. 17, p. 17:9.

[41] *Proceedings*, Issue No. 14, p. 14:15.

Finally, the Committee considers that there should be a follow-up on the development of such a protocol by the provinces and territories. Therefore, the Committee recommends:

10. That, within a one-year period, Health and Welfare Canada report back to the appropriate Standing Committee on the progress of implementing such a protocol and further, that the Standing Committee revisit the topic at that time.

LIST OF RECOMMENDATIONS

1. **That all employers of emergency response personnel provide rigorous training programs in universal precautions and infection control procedures;** (Page 5)

2. **That employers of emergency response personnel also provide the necessary equipment and supplies for the practice of universal precautions and infection control procedures and that this equipment be made readily accessible to emergency response personnel;** (Page 5)

3. **That emergency response personnel have an obligation to rigorously apply universal precautions and infection control procedures in all situations.** (Page 5)

4. **That Health and Welfare Canada initiate discussions with provincial and territorial governments, and with associations of emergency response personnel, toward the establishment of a program for Hepatitis B vaccination for those emergency workers routinely involved in paramedic services. The need for such immunization should be assessed in terms of its cost-effectiveness.** (Page 7)

5. **That Health and Welfare Canada, through the Laboratory Centre of Disease Control, implement an information campaign on both the HIV and the HBV national surveillance programs directed toward all emergency response employees, in order to enhance their participation following potential exposure.** (Page 7)

6. **That Health and Welfare Canada design and implement, in cooperation with the provinces and territories, a comprehensive epidemiological study to determine the risk of acquiring life-threatening contagious diseases as a result of exposure by emergency response personnel in this country and to assess the causes of occupational exposures among these workers.** (Page 7)

7. **That, following a significant exposure, every emergency response employee immediately start using personal precautions and continue to do so until it is established that the precautions are no longer necessary.** (Page 10)

8. **That the federal government, through Health and Welfare Canada, encourage provincial and territorial governments to develop and implement within their jurisdictions a protocol for post-exposure management and follow-up of emergency response personnel exposed to airborne and bloodborne diseases;** (Page 16)

9. **That Health and Welfare Canada collaborate with provincial and territorial governments to ensure that emergency response personnel have an equal opportunity to benefit from such a protocol.** (Page 16)

10. **That, within a one-year period, Health and Welfare Canada report back to the appropriate Standing Committee on the progress of implementing such a protocol and further, that the Standing Committee revisit the topic at that time.** (Page 17)

APPENDIX A

List of Witnesses

Associations and Individuals	Issue	Date
Canadian Medical Association		
Dr David Walters, Director, Department of Health Care and Promotion	15	February 16, 1993
Carole Lucock, Assistant Director, Department of Ethics and Legal Affairs		
Canadian Nurses Association		
Carole Pressault, Public and Government Relations Manager	16	February 23, 1993
Heather Caloren, Nursing Consultant, Health Issues		
Canadian Police Association		
James M. Kingston, Chief Executive Officer	15	February 16, 1993
Scott Newark, Legal Counsel		
Canadian Union of Public Employees	17	March 9, 1993
Bud Shiaro, Acting Director, Health and Safety		
Health and Welfare Canada		
Dr John Spika, Director, Bureau of Communicable Disease Epidemiology	17	March 9, 1993
Shirley Paton, Nurse Consultant, Bureau of Communicable Disease Epidemiology		
International Association of Fire Fighters		
Doug Coupar, Canadian Director	14	February 9, 1993
Fred Nesbitt, Director of Governmental Affairs, Washington, D.C.		
Langan, Joy, M.P.	14	February 9, 1993
NDP (Mission—Coquitlam, B.C.)		

APPENDIX B

NOTIFICATION PROCEDURE IN THE UNITED STATES

On August 18, 1990, the U.S. Congress adopted the *Ryan White CARE Act*. This Act establishes a system of notification for emergency employees who may have been exposed to a life-threatening infectious disease. The diseases referred to include airborne diseases (Infectious Tuberculosis), bloodborne diseases (Hepatitis B and C, and HIV\AIDS) and uncommon or rare diseases (Diphtheria, Haemorrhagic Fevers, Meningococcal Disease, Plague and Rabies).

The system of notification works in two ways. First, if a medical facility determines that a victim has (or had, if the patient dies) an airborne infectious disease, the medical facility must notify a designated officer of the emergency employees who transported the victim. Second, if a designated officer determines, at the request of an emergency response employee, that the employee may have been occupationally exposed to a life-threatening infectious disease, the officer must request that the hospital notify him or her of its opinion as to whether there has been exposure to a disease, and the name of the disease. There is one designated officer for each employer of emergency personnel in each State. The medical facility must respond within a period not exceeding 48 hours after receipt of the request.

There are three types of responses by the medical facility: there was an exposure to the infectious disease, there was no exposure, and there is insufficient information to determine if exposure occurred. After receiving a notification of exposure, the designated officer must, to the extent possible, immediately inform the emergency response employee. Such information also includes the name of the disease involved and any actions indicated as medically appropriate for the emergency response employee.

The U.S. legislation also contains limitations with respect to duties performed by medical facilities. The Act only applies to medical information possessed by the facility while treating the victim for conditions arising from the emergency, or for 60 days (whichever is shorter). Furthermore, the Act includes a certain number of interesting provisions. First, the liability of medical facilities and designated officers is limited. Second, a provision referring to testing stipulates that a medical facility is not authorized to perform tests on any victim of emergency for any infectious disease. Third, another provision relating to confidentiality states that medical facilities, designated officers and emergency employees cannot disclose identifying information of a victim or an emergency response employee. Finally, the Act cannot be construed to authorize any emergency employee to fail to respond, or to deny services, to any victim of an emergency.

During his testimony, Fred Nesbitt, from the International Association of Fire Fighters, indicated that the U.S. legislation also allows for states, if they have provisions greater than the federal provision, to opt out of the federal provision and implement their own state provisions. In

fact, many States have their own emergency personnel notification law.[1] Specifically, 28 States have laws that allow for testing of victims of emergencies if emergency personnel can document that an exposure occurred. Among them, some require informed consent from the victim and some others require obtaining a court order to perform testing of the victim. Furthermore, 44 States have laws that allow for emergency personnel notification, but they do not specifically require any testing of the victim. The determination is made on the basis of the facts that the medical facility has available to them at the time. As stated by Fred Nesbitt, the *Ryan White CARE Act* is therefore considered as the minimum standard imposed by the central government. As yet, there are no data on compliance.[2]

1 International Association of Fire Fighters, *Infectious Diseases and the Fire and Emergency Services,* Washington, 1992, p. 34.

2 Proceedings, Issue No. 14, p. 14:29.

APPENDIX C

FEDERAL JURISDICTION OVER NOTIFICATION PROCEDURES FOR EMERGENCY RESPONSE PERSONNEL

William C. Bartlett
Law and Government

10 May 1993

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APPENDIX C

FEDERAL JURISDICTION OVER NOTIFICATION PROCEDURES FOR EMERGENCY RESPONSE PERSONNEL

This paper discusses the question of federal jurisdiction to impose a notification requirement for emergency response personnel by means of legislation. Two possible sources for such legislation are examined. First, the constitutionality of the direct approach of legislation made pursuant to the federal Parliament's general power to enact laws for "peace, order and good government" will be assessed. Second, the scope of the federal spending power will be examined to assess whether the same result could be achieved indirectly through an amendment to the *Canada Health Act* or by virtue of a separate statute.

DIRECT FEDERAL LEGISLATION

Health as an overall subject matter has not been assigned by the *Constitution Acts* to either the federal or provincial governments. It has been described by the Supreme Court of Canada (see, for example, *Schneider v. The Queen*, [1982] 2 S.C.R. 112), as an "amorphous" area that can be addressed by both levels of government, depending on the nature of the health problem and the means chosen to deal with it. In order for either level to legislate directly, the subject matter and purpose of the legislation must come within one of the areas of jurisdiction assigned to that Parliament or Legislature by section 91 (Federal Parliament) or 92 (Provincial Legislatures) of the *Constitution Act, 1867*.

The federal Parliament can therefore deal with a threat to public health by using its power over criminal law and procedure, as it has in the *Food and Drugs Act*. In *Schneider* and other cases, however, the Supreme Court has recognized that general control over public health and health care services are matters of provincial jurisdiction. Even more importantly in this case, hospitals and the occupational safety and health of these particular emergency response employees both come within the jurisdiction of the provinces.

Control over hospitals, other than marine hospitals (there are none of these in existence now), is specifically assigned to the provinces by section 92(7). Jurisdiction over labour standards for firefighters, police officers, paramedics and other such employees of services not subject to federal regulation (such as banking and airlines), falls to the provinces under section 92(13) as a matter of property and civil rights (see, for example, *A.-G. Can. v. A.G. Ont.* (Labour Conventions) [1937] A.C. 326). This includes occupational safety and health measures designed to protect such employees from the risks posed by the circumstances of their employment.

A notification requirement for the benefit of emergency service providers such as firefighters, police officers and paramedics would be primarily an occupational safety and health measure. Insofar as it would also help to protect unpaid volunteers, and spouses or other members of the public

to whom a paid employee or unpaid volunteer might communicate an infectious disease, it would also be a general public health measure. In both cases, the legislation would thus be in regard to matters within provincial jurisdiction.

The only power within the jurisdiction of the federal Parliament which could conceivably provide constitutional justification for a notification requirement would be the responsibility given to it in the preamble to section 91 to make laws for the "peace, order and good government" of Canada ("POGG"). If the legislation dealt with a health problem which had attained the dimension of a *"national concern"* or constituted a *"national emergency,"* it might be justified as an exercise of POGG. The "national concern doctrine" and the "national emergency doctrine" are principles developed by the courts to test the constitutionality of federal legislation that purports to have been made pursuant to POGG.

The "national" dimension at issue in these constitutional tests is not a matter of geographic breadth. It does not turn on whether the problem is a matter of concern, or is viewed as an emergency, by Canadians in all parts of the country. It is, rather, a matter of whether the legislative capacity of the provinces is equal to the task, or if there are extra-provincial implications that can only be addressed adequately on a national basis by the federal government. If it is a matter within provincial jurisdiction and can be dealt with on a province- by-province basis, the federal government cannot step in on the ground that it has its own view of how the problem should be dealt with.

The "extra-provincial" dimension is the key to the constitutionality of federal legislation under POGG that intervenes in a matter that is otherwise within provincial jurisdiction. The courts have described it using terms such as "singleness, distinctiveness and indivisibility" (see, for example, *R. v. Crown Zellerbach Canada Ltd*, [1988] 1 S.C.R. 401). If the problem cannot be dealt with adequately on a provincial level, it may have this "indivisible" quality. If the failure of any of the provinces to deal effectively with it could have harmful effects on other provinces, the nation as a whole, or international interests, the federal government may be able to impose a national solution.

It would be difficult to argue that the provinces *cannot* adequately provide for the occupational safety and health of emergency response employees and protect public health in the province from the dangers posed by infectious and contagious diseases. If a province were clearly failing to do so in any particular case, its residents would certainly have the right to demand that the provincial government take the appropriate action. The federal government might pressure a province to take action on a matter within provincial jurisdiction, but it could not step in to fill the gap with federal legislation. There would appear to be no extra-provincial dimension in this case that would provide a constitutional basis for the use of the POGG power.

THE FEDERAL SPENDING POWER AND THE CANADA HEALTH ACT

The development of federal grant programs, and federal-provincial shared-cost programs, has given the federal government an opportunity to create certain national standards in areas of provincial jurisdiction. In the fields of health care, education, welfare, employment training and regional development, the federal government has passed legislation which *indirectly* imposes federally-mandated standards. Where conditions are attached to the transfer of funds, the provinces may be effectively required to accept them if they wish to be part of the program.

The federal "spending power," although now the main lever of federal influence in fields which are legislatively within provincial jurisdiction, is a relatively recent constitutional development. There is no large body of jurisprudence on the nature of the conditions that can validly be attached to transfers of federal money. The standards that the courts have examined in statutes such as the *Canada Health Act* have been general in nature, and have so far passed constitutional muster. The courts have not, however, had to deal with a condition that had the particularity of the proposed notification requirement.

The *Canada Health Act* now prescribes five primary criteria for health care insurance plans that are eligible for federal support — public administration, comprehensiveness, universality, portability, and accessibility. The Act also deals specifically with extra-billing by doctors. The extra-billing provisions could be seen as prescribing an additional standard, or as a further definition of what is required to meet one or more of the "five pillars," such as accessibility.

The validity of these conditions was briefly examined in the case of *Winterhaven Stables Ltd. v. Canada (A.-G.)* ((1988), 53 D.L.R. (4th) 413), a decision of the Alberta Court of Appeal. The appellant was an individual taxpayer who was challenging, among other things, the constitutionality of various federal "spending" statutes, including the *Canada Health Act*. The Court of Appeal upheld the validity of the "five pillars" and the extra-billing provisions, but it did not suggest that *any* requirement would be constitutionally valid so long as it took the form of a condition. Validity must turn on the nature and purpose of the requirement, rather than its form.

The Court considered the question of whether the existing criteria were "*colourable*, as distinct from setting *legitimate national standards*" (at p. 433, emphasis added). "Colourability" is a constitutional test for determining when the nature and purpose of a requirement are outside legislative jurisdiction. The Court thus drew a distinction between conditions that set legitimate national standards and those which "amount in fact to a regulation or control of a matter outside federal authority" (at p. 434, quoting with approval from the trial decision). It concluded that the existing conditions were valid national standards that did not overstep the division of powers.

It is unlikely that the courts would agree that the proposed condition regarding "disclosure of infectious or contagious diseases" was of the same nature as the "five pillars" and the extra-billing provisions discussed in *Winterhaven*. It deals, first of all, with a different element of the health care system. The *Canada Health Act* funds provincial health service *insurance* plans. These insurance plans cover the *payment* of services at the level of the health care consumer. They do not fund the creation or maintenance of the health care facilities and services themselves.

The Act is thus not directly involved with the funding of hospitals, emergency services, the employment of emergency response personnel, provincial public health programs dealing with infectious and contagious diseases, or indeed any particular health care service or public health program. The question of protecting emergency response employees and the public from infectious diseases really lies entirely outside the scope of the *Canada Health Act*. It would thus be difficult to justify the disclosure or notification requirement as a national standard for the purposes of that Act, even in terms of the requirement's general subject matter.

Secondly, even if the subject matter of the condition did come within the scope of another or a new federal spending statute, the degree of particularity and detail would distinguish it from the conditions found to be valid national standards in the *Winterhaven* case. It could be seen as different

in kind from those standards on two levels. It would not deal with the larger topics of health protection, such as the fields of public health and occupational safety and health, but rather with a particular issue within those two fields, and it would prescribe a particular approach to that issue.

The condition would specifically require the provinces to take action in regard to the protection of emergency response employees from infectious or contagious diseases, only one of a multitude of responsibilities which the provinces must discharge in regard to both public health and occupational health and safety within the province. It would then go even further in terms of both detail and the degree of intervention, and prescribe one particular method as the only acceptable approach to the issue of protection in that specific case.

It is unlikely that the courts would accept as consistent with the overriding principle of the division of powers a prescription that the provinces discharge such a responsibility in one way only — that is, by means of a notification or disclosure requirement. As reflected in the recommendations included in the draft report before the Committee, there would appear to be other viable approaches to the discharge of this responsibility, a responsibility that clearly belongs constitutionally to the provinces. Even if the federal government could argue that a notification provision was the best approach, it is difficult to see how it could argue that this was the only approach that the provinces could take to satisfy a legitimate national standard involving the protection of emergency response personnel from infectious or contagious diseases.

APPENDIX D

Infectious Diseases and the Fire and Emergency Services

Infectious Diseases and the Fire And Emergency Services

Department of Occupational Health and Safety
International Association of Fire Fighters, AFL-CIO, CLC

International Standard Book Number: 0-942920-15-5

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We would like to especially thank Clifford S. Mitchell, S.M.D., M.D., M.P.H., IAFF Medical Resident and Sharon Doyle, M.P.H., IAFF Occupational Safety and Health Assistant for the development of this manual.

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Foreword

This IAFF manual, *Infectious Diseases and the Fire and Emergency Services*, is designed as a guide to assist the fire fighter, EMT, and Paramedic in communicable disease prevention in today's fire service across the United States and Canada. Infectious or communicable disease exposure on the job has been provided greater emphasis with the world-wide explosion of the fatal disease AIDS. Recently, occupational infectious disease prevention has been strengthened through the introduction of the OSHA Bloodborne Pathogens Standard. Additionally, the IAFF is continuing in its legislative efforts in the United States and Canada to obtain notification laws and further protection from infectious diseases for our members.

This manual is intended to broaden the fire service's approach to implementing a successful infectious disease prevention program and provide valuable insight into the interpretation of laws, regulations, and standards for the protection of fire fighters, EMTs and paramedics. It was developed by the IAFF Department of Occupational Health and Safety with the assistance of our Medical Residency Program. The Medical Residency Program, now entering its seventh year, has provided numerous services to the IAFF and our affiliates. This manual once again highlights the importance of this program.

We encourage all locals to support the issue of an infectious disease program for all members. Such a program should be the objective of every fire department in cooperation with its local IAFF affiliate.

We all realize the hazards of fire fighting and emergency medical response and that we are continually exposed to communicable diseases on the job. Every year the *IAFF Death and Injury Survey* documents these exposures with increasing frequency. We need to strengthen our efforts for the protection from exposures to tuberculosis, hepatitis, HIV and all other communicable diseases. We need for our fire departments and health care providers to have informed knowledge regarding our occupation and for our occupational exposures to infectious diseases. For this reason this manual has been developed to assist locals in the implementation of a fire department occupational infection control program. The manual has incorporated the resources of occupational medicine, NFPA and government standards, legal decisions, fire department policies and relevant documents to make a comprehensive guidebook of value to all our members.

Alfred K. Whitehead
President

Vincent J. Bollon
Secretary-Treasurer

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Chapter I

Introduction

Over the past several years the issue of infectious (communicable) disease in the fire service has taken on a new and urgent meaning with the advent of AIDS, hepatitis, and tuberculosis. However, the range of disease that may affect fire fighters, EMTs and paramedics goes well beyond this list. The IAFF *1991 Death and Injury Survey* reports that 1 out of every 27 fire fighters was exposed to a communicable disease during that year, with 14.7% exposed to tuberculosis, 17.2% exposed to hepatitis B, 36.9% exposed to human immunodeficiency virus (HIV), and 31.2% exposed to some other communicable disease.

This document is intended as a resource for all those interested in the prevention and control of infectious disease within the fire service. The goal of the manual is to provide a background in the nature of the infections of concern to fire fighters and how they are recognized and prevented. Applicable contagious disease standards and legislation of interest to the emergency responder also are addressed within this manual.

Infectious disease is an area of rapidly changing conditions. Some of the controversies that may be expected in the next several years include the issue of mandatory testing for HIV, antibody screening for hepatitis B vaccine, and whether to regulate exposures to non-bloodborne pathogens such as tuberculosis. While this guide may discuss some of these issues, this will continue to be an evolving field.

IAFF Policy

This document is intended to support the provisions of the IAFF Executive Board policy on infectious diseases. Every attempt is made within this manual to substantiate, support, and provide recommendations for our locals to establish similar policies within their departments for the health and welfare of our fellow brothers and sisters.

The policy has been updated by the IAFF due to current concern regarding the risk of transmission of HIV and other infectious diseases to emergency response personnel. Therefore, the Executive Board developed and adopted the following position statement and recommended guidelines to address this issue:

The IAFF Executive Board supports the NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, as it relates to fire department medical programs (Chapter 8). Most importantly, Section 8-4.1 which states:

The fire department shall have an officially designated physician who shall be responsible for guiding, directing, and advising the members with regard to their health, fitness, and suitability for various duties

With this section in mind, the IAFF Executive Board does believe a policy that specifies limitations on HIV-infected fire fighters, EMTs or paramedics is necessary. If there is clear evidence that such workers pose a significant risk of transmitting infection through an inability to meet basic infection control standards or guidelines, appropriate limitations of duty should be instituted.

Through NFPA 1500, fire departments are responsible for evaluating the health status of all fire fighters, EMTs and paramedics and their capability to perform assigned duties.

The IAFF also demands that all fire departments adopt NFPA I 500, especially in light of the requirements on implementing a fire department infection control program. Such a program must include policy guidelines for the prevention of transmission of bloodborne pathogens and other infectious diseases during fire fighter, EMT, and paramedic response activities as well as guidelines for improving infection control practices. The fire department must be responsible for providing barrier protection equipment (gloves, protective garments, etc.), supplies and proper disinfection facilities.

The fire department must implement annual training for all fire department personnel in universal blood and body fluid precautions, barrier techniques, and other scientifically accepted infection control policies. Such training also should provide information on infectious disease risk factors and the contagiousness and transmission of infectious disease as well as information on the availability and mertis of voluntary, confidential or anonymous counseling and testing as a personal health measure for fire department personnel. Training materials must include information on exposure to infectious diseases and reproductive health.

The fire department must establish procedures for the evaluation of work limitations for employees with an infectious disease who in the course of performing their duties demonstrate evidence of functional impairment or inability to adhere to standard infection control practices or who present an excessive risk of infection to patients or fire department members. The fire department physician must evaluate fire fighter, EMT and paramedic job duties to determine job limitations, if any, in the event of an individual's infectious disease. The evaluation should include an assessment of any factors that may compromise the performance of job duties, as well as a review of scientifically and medically accepted infection control practices. Factors include illness or presence of exudative or weeping lesions that may interfere significantly with the firefighters', EMTs'and paramedics' ability to perform their jobs and provide quality care. Both physical and mental competencies are also to be considered. Additionally, the fire department physician should review the immunologic status of the fire fighter, EMT and paramedic and susceptibility to infectious diseases.

The fire department physician must assist with developing policies addressing limited duty assignment for non-infectious personnel where there is a greater potential for that individual to contract an infectious disease. Fire fighters, EMTs and Paramedics with extensive skin lesions or severe dermatitis on hands, arms, head, face, or neck must be evaluated to determine whether they should engage in direct patient contact, handle patient care equipment, or handle medical waste until such time that they are healed.

Infectious Diseases of Concern to Fire Fighters

Occupational contagious diseases are infectious diseases that are contracted through the course of a person performing his or her work. These contagious diseases are usually caused by viruses or bacteria, though in some occupations parasitic agents are important. Occupationally contracted contagious diseases are considered compensable through the workers' compensation system, just like any other occupationally-caused disease. The infectious diseases of primary concern to fire fighters include hepatitis B virus (HBV); human immunodeficiency virus (HIV), which is the viral agent responsible for causing the Acquired Immunodeficiency Syndrome (AIDS); and tuberculosis (TB). Other infectious diseases of importance to fire fighters, although not as occupationally common, include the hepatitis viruses A, C, D, and E; herpes; influenza; lyme disease; meningitis; mumps; scabies; and tetanus.

While working, fire fighters often respond to emergency situations involving victims who have been injured and are actively bleeding. The victim may require extrication from a difficult to access accident scene, such as a motor vehicle accident or poorly accessible building. There may be broken glass or other sharp objects at the scene that are poorly visualized, and the lighting at the scene may be minimal. In addition, if the victim is exsanguinating and needs to be extricated quickly to save his/her life, the emergency provider may act in haste, with disregard for his or her own safety. Fire fighters also may be involved in emergency medical treatment at the scene, including intravenous line insertion and blood drawing. The infectious disease status of the victim is almost never

known to the fire fighter while he or she is rendering emergency services. All of these factors combine to place the fire fighter at increased risk of contracting a bloodborne contagious disease through a puncture wound, skin abrasion or laceration that can become contaminated with infected blood from the victim.

Education and training are the most effective means available to limit the risk of contracting a bloodborne contagious disease in fire fighters. The risk of contracting an infectious disease, and methods used to avoid exposure, should be a part of every fire fighter's education. Universal precautions, such as the wearing of protective gloves, safety glasses, masks, and gowns, should be used whenever exposure to bodily fluids is possible. These precautions should be taken whether or not the infectious status of the patient is known. The new regulations from the Occupational Safety and Health Administration (OSHA) outlined in 29 CFR 1910.1030 require any personnel who are potentially exposed to bloodborne pathogens to be equipped with personal protective equipment sufficient to prevent such exposures.

The few seconds that it takes for the fire fighter to don protective gear in order to protect himself or herself will not make a significant difference in the survival of the patient. Fire fighters should be trained to automatically don protective gear, to carefully evaluate possible hazards at the scene that may cause lacerations or abrasions, and to maximize the lighting available at the scene as much as possible to better visualize the hazards.

Chapter II:

Occupational Infectious Diseases

This section describes communicable diseases that may pose an occupational risk to the fire fighter and EMT. Each blood, air, soil, or vector borne disease will be described in terms of its pathophysiology, symptoms, and prevention strategies.

Exposure to bloodborne pathogens can occur through many mechanisms: needle sticks, being splashed with blood or body fluids on the mucous membranes (the mouth, eyes, and nose), even in some cases human bites (although the risk of transmission of HIV in human bites is extremely low). If you are exposed to a bloodborne pathogen or think you have been exposed, it is important to seek medical attention as soon as possible. Early follow-up helps to clarify your risks of developing disease, improves your physician's ability to treat you, and helps in any subsequent decisions regarding compensation.

Arthropod-borne diseases are diseases that are transmitted via a vector, usually an arthropod or other insect, or they are diseases that have developed and become infectious within the arthropod. The arthropod acts to carry the disease from an infected individual to a noninfected individual. Emergency responders are at risk of contracting these diseases during field operations and through close contact with the general public. Fire fighters and EMTs should be aware of insect bites, and be cautious of insects found on skin, hair, or clothing. Medical attention should be sought as quickly as possible for suspicious findings.

Bloodborne Diseases

Hepatitis

"Hepatitis means inflammation of the liver." It may be caused by viruses, chemicals, drugs, autoimmune diseases, and a number of other conditions. The infections that cause hepatitis are many; most are caused by viruses, and it is this viral hepatitis that is the object of recent concern. The symptoms of hepatitis include jaundice (a yellow-green coloring of the skin or eyes), pain in the "stomach" or abdomen, fatigue and diarrhea.

Among the viruses that cause hepatitis are hepatitis A; and hepatitis B, previously called "serum hepatitis," which is a major bloodborne disease. Other less common bloodborne hepatitis viruses, include the so-called "delta" virus, hepatitis C (previously non-A, non-B hepatitis), hepatitis D, and hepatitis E. Some of these viruses are more important than others for the fire fighter.

Hepatitis A

Hepatitis A is known as Infectious Hepatitis. This disease is often associated with fecal contamination of water and is spread person-to-person through poor sanitary habits and the intake of uncooked food or unclean water. It takes about 15-50 days to develop symptoms of Hepatitis A after exposure, and symptoms usually disappear even without treatment about two weeks later. This illness is most commonly seen among children and young adults, and outbreaks are not uncommon at camps or military posts. While a vaccine is presently under development, anyone exposed to Hepatitis A can be given a shot of immune globulin (IG) to prevent infection. Although this is the most common type of viral hepatitis, it should not be a problem for most fire fighters, unless their meals are prepared by an infected person or they are infected by contaminated materials at a fire.

Hepatitis B

Hepatitis B is by far the most important occupational bloodborne disease in health care providers today. Persons infected with the hepatitis B virus run the risk of developing severe health complications, including becoming a hepatitis B carrier, developing cirrhosis, liver cancer, liver failure, and death. Blood infected with the hepatitis B virus is much more infectious than HIV infected blood, and the proportion of the United States population infected with hepatitis B is much higher than the proportion infected with HIV.

Hepatitis B is spread in much the same manner as HIV virus, through sexual relations, sharing needles, or contact with blood and other body fluids. In the past, this disease has been passed through blood transfusions, but now all blood is rigorously screened for Hepatitis B before it is given to patients, and those with the illness are not allowed to donate blood. Several groups are noted to have a high risk of Hepatitis B, including parenteral (IV) drug abusers, heterosexuals with multiple partners, homosexual men, clients and staff in institutions for the retarded, prisoners, and patients of hemodialysis centers.

Vaccination is the best defense against contracting Hepatitis B. Once exposed to the virus, it may take as long as 45-160 days to develop the disease. However, studies show that most people who are vaccinated develop protective antibodies against the virus. If you are exposed, it is a good idea (and will be an OSHA requirement) to have blood drawn as soon as possible to determine your **baseline serologic status**, that is, whether you have protective antibodies (since these take several weeks to develop, blood drawn immediately after exposure will not develop antibodies as a result of that exposure right away). If you do not have protective antibodies, your physicians may decide to give you the vaccine. You also may receive Hepatitis B Immune Globulin (HBIG), which provides some additional level of protection through what is sometimes called "passive immunity." Ultimately, however, the hepatitis B vaccine is a safe, highly effective method of protecting fire fighters from contracting hepatitis B on the job. This vaccine is recommended for all fire fighters, EMTs and paramedics.

Hepatitis C

Hepatitis C is not nearly as common as Hepatitis B, but it is similar in its effects and in how it is spread. A blood test for Hepatitis C antibodies has recently become available, as more and more cases of this increasingly common disease are surfacing. It is approximated that the chance of contracting HCV as a health care worker is about 4%, whereas HBV presents a 20% to 40% risk. In the general population Hepatitis C has been accounting for a large number of deaths from cirrhosis and chronic liver disease. It has been associated with blood transfusions, and fire fighters may come into contact with groups of the population who have Hepatitis C.

At this time, a vaccine is under development, which may be recommended for fire fighters when it is marketed. In the meantime, the HBIG previously mentioned may give some protection to those exposed.

Hepatitis D

Hepatitis D is a variant of Hepatitis B. It is similar in its characteristics, but as a disease it is much less common. There is a blood test available to detect HDV, but the Hepatitis B vaccine will protect against Hepatitis D virus as well.

Hepatitis E

Fortunately, Hepatitis E has not yet spread around the US. It is found in other parts of the world, including Mexico, and has been seen in US travelers returning from some of these countries. It is most common among young and middle-age adults, and there is no

vaccine available. However, it is similar to Hepatitis A and can be prevented in the same ways.

Prevention strategies

Fire fighters are at risk of exposure to any of these types of viral hepatitis. Hepatitis A and B are the most common risks. By ensuring that only safely prepared food and water are consumed, especially when traveling outside the country, exposure to both Hepatitis A and E can be minimized. The vaccine for Hepatitis B will protect against both Hepatitis B and D. Following the new guidelines in OSHA's standard for Occupational Exposure to Bloodborne Pathogens, fire fighters can lessen their risk of contracting Hepatitis C, any other viral hepatitis, and even AIDS.

The effects from all the forms of hepatitis discussed here can be additive. A fire fighter who drinks heavily, has inhaled toxic chemicals and then gets Hepatitis B may greatly increase his chance of permanently damaging his liver and shortening his life. Take the time to follow these precautions and protect yourself and your liver.

Human Immunodeficiency Virus (HIV)

Human immunodeficiency virus (HIV) is the virus responsible for the Acquired Immune deficiency Syndrome (AIDS). AIDS was first recognized in the U.S. in the early 1980's, when two unusual diseases (Kaposi's sarcoma, a type of cancer, and *Pneumocystis carinii*, an organism that causes pneumonia in people with impaired immune systems) began to appear in homosexual men. Since that time, our understanding of the disease has progressed rapidly, although measures to prevent the spread of the disease have lagged behind. It is not an understatement to say that AIDS is the most serious public health threat the world has seen in the past 50 years. *There is no part of the U.S., or the world, for that matter, that can be considered "safe" from the threat of HIV and AIDS.*

HIV is a virus of the type known as *retroviruses*. These viruses infect certain cells in the body, incorporating their viral genetic material into the cell's own DNA. The body's cells then begin to produce the virus, and in the process, may themselves be killed. In the case of HIV, this virus infects only selected cells in the body, of which the most important are certain infection-fighting white blood cells known as lymphocytes, specifically those lymphocytes known as "helper cells" (which can be identified because they carry a marker called "CD4"). HIV can also infect certain cells in the nervous system.

Transmission of HIV

HIV has been found in several body fluids, including blood, semen, vaginal secretions, saliva, and tears. However, there is no evidence that HIV can be spread by casual contact with someone infected with HIV, or through contact with saliva or tears. At this point, it is fairly well established that HIV is spread through direct contact with blood or blood products, semen, or vaginal secretions, and is acquired through "high-risk" activities including sexual intercourse (vaginal or anal), direct injection of contaminated blood by transfusion or the use of contaminated needles, or contact with contaminated blood or blood products. In addition, HIV may be transmitted from a mother to an offspring either through transmission directly to the fetus before it is born, or through breast feeding with infected breast milk.

Occupational transmission occurs primarily through accidental injection from contaminated needles, although there have been cases of contamination occurring through splashes of mucous membranes with contaminated blood. In contrast to Hepatitis B virus, which is easily transmitted, studies of health care workers have consistently shown that the risk of becoming infected with HIV after a needle stick is very small, less than 1 percent, and the risk of transmission by splashing of mucous membranes is even less. Although there has been considerable public concern expressed over the

potential for infected health care workers, there is only one documented case of a health care professional infecting his patients (a dentist in Florida). Several ongoing studies by the Centers for Disease Control have failed to find any other such cases, even among infected surgeons.

Testing for HIV infection

HIV infection can be detected, even in asymptomatic individuals, with a blood test. The first, more sensitive test detects human antibodies to HIV through a test known as an ELISA. Ordinarily, this test will detect infections in almost every person infected with HIV, with two exceptions. The first exception is, individuals with recently acquired infection may take up to six weeks to produce enough antibodies to produce a positive ELISA. In addition, patients with late stage clinical HIV may have a decrease in antibodies and have a negative test.

Infection with HIV

HIV infection progresses through several stages, from an asymptomatic infection to the condition known as AIDS. AIDS is the most severe form of the infection and at the present time has been uniformly fatal. The most widely used classification of the stages of HIV infection, adopted by the CDC, are shown below.

Clinical stages of HIV infection

- Acute HIV Infection
- Asymptomatic HIV infection
- Persistent generalized limphadenopathy
- Other HIV-related conditions
  - Constitutional symptoms
  - Neurologic disease
  - Secondary infectious disease
  - Secondary malignancies
  - Other conditions

Acute HIV infection is a flu-like illness that usually occurs shortly after initial infection with HIV. It may be so mild as to be undetectable, and many individuals with HIV infection will be unable to remember any illness associated with their initial exposure.

In *asymptomatic HIV infection*, there is no indication that the individual is infected. However, the HIV antibody test will be positive, and the individual is still capable of infecting others because there are virus particles in his or her bloodstream. Almost all individuals with asymptomatic infection will develop full-blown AIDS at some point, usually at a rate of approximately 5 to 8 percent per year.

Symptomatic HIV infection can be broken down into several categories. For some, the only sign of disease initially is persistent swollen lymph nodes (lymphadenopathy). As the disease progresses, the individual may develop AIDS-related complex (ARC), which consists of a number of constitutional symptoms (including fever, weight loss, diarrhea, and malaise) without a specific AIDS defining illness. The most severe form of HIV infection, *AIDS*, is defined by the CDC as a syndrome in which the individual has one or more specific conditions with or without a blood test confirming HIV infection.

HIV Exposure, Detection, and Prophylaxis

Following an exposure to blood or blood products (or other potentially infectious materials) contaminated with HIV, the exposed individual should have blood drawn to determine his or her baseline HIV status. The development of antibodies following infection usually takes a few weeks to several months, and 95% of people who become infected will develop antibodies within 5 months. Thus, after exposure a physician will determine the best time to draw additional blood to see whether "seroconversion" has occurred. The shift to seroconversion assumes the baseline test showed the exposed individual as not already infected. At all stages, testing should be accompanied by a discussion with a counselor and the employee, indicating why the test is done, its limitations, and its implications.

There have been suggestions that AZT (3'-Azido-2,3'-Dideoxythymidine), a drug that has been shown to be effective in slowing the progression of AIDS, should be taken soon after an exposure to reduce the likelihood of becoming infected. AZT acts as a prophylaxis. Currently, there are no convincing studies which show that 3'-Azido-2',3'-Dideoxythymidine (AZT) prophylaxis following an exposure is effective in preventing HIV infection. There are four individuals who have had documented seroconversion even though they took AZT after being exposed. However, the rate of seroconversion following a needle stick is so low anyway that scientists have not been able to recruit enough subjects to do an appropriate study to show that AZT does prevent HIV. In addition, the experimental evidence in a monkey model suggests that even if AZT is given before the exposure, and only a small dose of the virus is given, there is little or no protection from the AZT. At this point, although the company that manufactures AZT is collecting information on the exposed individuals who take AZT, there are not enough patients to show any statistical benefit from the drug.

As for the optimal time after exposure to take AZT, since no one has even shown a conclusive benefit, there is no definitive information on how long after exposure to take the AZT. The only recommendation is that the sooner, the better.

There are side effects associated with taking AZT. Many individuals experience nausea, fatigue, and flu-like symptoms, and some have to discontinue or reduce dosage of the drug because of these side effects. There are side effects on the bone marrow which result in some degree of mild anemia, but this is minimal. Finally, of more concern are some of the potential long-term effects such as the teratogenic and carcinogenic potential of AZT; that is, its ability to cause birth defects or cancer.

In conclusion, should someone who is exposed to HIV take AZT? This is up to the individual fire fighter. The data suggest that if there is any benefit to AZT it should be taken as early as possible, but even then it is probably of limited benefit. However, since the infection is so deadly it may still be worth the risk to take the drug.

Herpes Simplex

Fire Fighters may repeatedly come in contact with the Herpes Simplex virus (HSV). HSV infections are among the most common maladies affecting humans. The Herpes Simplex virus family is responsible for illnesses such as chicken pox, infectious mononucleosis, and the common fever blister or cold sore. Genital herpes is also an infectious disease caused by the HSV Type II virus, but is not considered an occupational concern for fire fighters.

The principle mode of spread for the HSV is through direct contact of infected secretions. Oral or genital secretions from a symptomatic or asymptomatic infected individual are the primary source of virus. The virus HSV-1, spread through oral secretions, is an occupational hazard to emergency response personnel performing respiratory care. Individuals with active lesions can infect others. Fire fighters, EMTs and paramedics should be aware of the potential for infection.

Preventive measures on the job for emergency response personnel with the potential to come in contact with the HSV include the universal precautions that should be applied to all patient care situations. Specifically, response personnel should wear gloves when in direct contact with potentially infectious lesions. Fire fighters, EMTs, and paramedics also should be provided health education and personal hygiene directed toward minimizing the transfer of infectious material.

Airborne Diseases

Tuberculosis

Tuberculosis is a disease caused by a family of organisms known as *Mycobacteria*. The disease commonly known as tuberculosis (TB) is caused by one species of *Mycobacteria*, called *Mycobacterium tuberculosis (M. tuberculosis)*. Other members of the *Mycobacterium* have been found to infect people with compromised immune systems such as AIDS or cancer patients on chemotherapy. These organisms (*Mycobacterium avium intra cellulare Myobacterium kansasii*), ordinarily pose no risk to normal individuals.

TB is an ancient disease that used to be widely feared throughout the world, accounting for large numbers of deaths and chronically ill persons. In part, this is because TB thrives and spreads best in crowded conditions among people with weakened resistance, conditions often found among the poor. After several decades of declining incidence, the number of new cases of tuberculosis is now on the rise, particularly in congested urban areas where there is also a rise in the crowded and poor social conditions that are prime ingredients for TB. In addition, in certain populations (prisoners, indigents, recent immigrants, institutionalized patients, AIDS patients) the incidence and prevalence of TB is a major concern to public health officials. Fire fighters and EMS personnel are routinely exposed to all of these populations. In the IAFF "1990 Death and Injury Survey," tuberculosis exposures accounted for 13.3% of all communicable disease exposures.

Tuberculosis is transmitted by individuals with active infection through airborne **respiratory droplets**, produced by coughing, sncezing, or even talking. These respiratory droplets can survive suspended in the air for several minutes, particularly if there is poor air circulation, so that the person with TB does not even have to be in the room for the air to be infectious. However, in circulating air the number of infectious respiratory droplets quickly drops off. The TB germs are also killed by sunlight and ultraviolet light.

In a normal person with a normal immune system, exposure to *M. tuberculosis* is followed by a strong immune response. The droplet with the organism is inhaled deep into the lungs, where the organism initially multiplies. A healthy immune system is able to contain the infection easily, but while the infection may be controlled by the immune system, the organism will remain dormant in the body, and can become active again, even many years later unless treated medically. That is the reason that TB testing, and a complete course of treatment, are necessary to protect against later illness.

While healthy individuals are able to contain their infection, people with any type of depressed immune systems, either from illness (for example, AIDS, cancer, or alcoholic liver disease) or from poor living conditions (malnutrition) may go on to develop active tuberculosis. The most common form of active TB is pulmonary (lung) TB, which progresses from non-specific symptoms (fatigue, weight loss, night sweats) to the chronic cough, coughing up blood-streaked sputum, and wasting. The importance of this is that even relatively asymptomatic individuals may spread infection through occasional cough, sneeze, or even conversation.

Finally, even healthy individuals who successfully combat their infection may be at risk of reactivating their original infection later in fife. This reactivation can occur as a result of an illness, depressed immune system, or simply because of advancing age. This is why it is important to look for signs of TB exposure in asymptomatic individuals, so that they can be treated to kill the dormant TB germs that might otherwise remain to cause infection later in life. Also, a current concern with TB is its potential to initiate development of multi-drug resistant TB (MDR-TB), which resists standard therapies that have been able to cause a decrease in the amount of TB in the United States in the past.

Tuberculosis testing

The most effective means of controlling tuberculosis is through early detection and treatment. Tuberculosis exposure is detected through a test known by its initials, "PPD" (which stands for Purified Protein Derivative), or sometimes, "Tuberculin test." In this test, a small amount of purified TB protein (which is not capable of causing disease) is injected just under the skin. If the body has been exposed to TB previously, the immune system will recognize and attack the protein, causing localized redness and induration. The test is read by a nurse or physician after 48-72 hours, and the results interpreted as positive, negative, or indeterminate. If the test is positive, the individual has most likely been exposed to TB at some point, and appropriate recommendations are made by the physician.

A "PPD converter" is someone who has had a negative skin test in the past and now has a positive skin test. Persons who have recently converted to a positive skin test have approximately a 3% chance of developing active TB in the first year after conversion. If they are untreated, they will have approximately a 0.2% chance per year of developing active TB; that is, over a 10 year period, 2 out of 100 people with untreated old TB infections will develop reactivated TB later on in life.

Active tuberculosis is detected through a chest X-ray, combined with finding the TB germs in the sputum, either under the microscope or by culturing them. This is often a long and difficult process, and it is common to treat persons with suspected TB while waiting for their tests to become final.

Patients who are new "PPD converters" are first examined and given a chest X-ray to see if they have any sign of active infection. If not, they should be treated with isoniazid (INH) for 6-12 months to reduce their chances of developing active TB later on. There is a minor risk of developing INH-induced hepatitis (inflammation of the liver), particularly among individuals older than 35, so blood tests are done to check the liver enzymes periodically. While the hepatitis is completely reversible with discontinuation of the drug and occurs in only a small number of the individuals taking the drug, it must be weighed against the small chance of developing TB, which can be a fatal infection. Even older individuals can be safely treated with INH with careful monitoring. Also, it is important to know that if one has been successfully treated for tuberculosis, re-infection in a normal healthy person is rare, due to acquired immunity. However, in rare circumstances it may be possible to become re-infected, particularly if the immune system becomes compromised for any reason.

The most common reason for treatment failure is that medicine is not taken for the entire time prescribed. The new multiply resistant TB recently discovered in New York is almost certainly due to the fact that many people take their medicine for less than the prescribed amount of time, and instead of killing all the germs, it selects for those TB germs who are able to resist the medicines the best.

Patients who are found to have active TB must take at least 3 drugs for a prolonged period of time, to completely eradicate the active infection. The most important thing to do if a PPD is positive or indeterminate is to ensure that there is close medical follow-up. Even if employees are not treated for their infection, they may need to be followed with periodic chest X-rays to ensure they remain free of active disease.

For employees who have had negative PPD skin tests in the past and no other sources of exposure, it is likely that a new PPD conversion is due to "on-the-job" exposure. They should be eligible for workers' compensation for any medical bills or lost work time incurred due to this exposure now or at any time in the future.

Employees who have never had a skin test for TB in the past, and who have no prior history of significant TB exposure, must also be assumed to have obtained their TB exposure on the job, and are thus entitled to the same workers' compensation benefits as the PPD converters. This may be a problem if any of these patients are immigrants from countries where TB is endemic.

Employees who have had a positive skin test in the past obviously have had TB exposure prior to this episode, and would not be eligible for workers' compensation. However, they should be followed by a physician to ensure they do not develop signs of active TB.

A case of tuberculosis must be reported to the state Public Health department. However, the employee's right to privacy is protected as in other cases of reportable illnesses. It is important to realize that *people who have a positive skin test to TB, but who do not have active TB, do not* pose *any risk to others.* In addition, after an initial period, *even individuals with* active *TB who are undergoing appropriate therapy* are non-infectious.

Influenza

Influenza is a yearly concern of health professionals as it is a constantly changing and highly infectious virus. The illness commonly associated with influenza is better known as "The Flu". Most often present in the fall and winter months, the flu can reach epidemic proportions in many geographic areas and communities.

It is generally believed that the influenza virus is commonly spread through respiratory droplets of an infectious person. This person to person transmission of the virus can occur through respiratory aerosols produced by coughing, sneezing, and talking. A single infected individual can transfer the virus to a large number of susceptible persons.

Fire fighters should be aware of its characteristic onset. The flu usually presents itself suddenly with chills, followed rapidly by fatigue, headache, and generalized myalgia. Fever, cough, and viral upper respiratory infection also accompanies this illness. The flu tends to last 24 hours to several days.

Emergency responders should protect themselves from this seasonal virus through yearly shots of the flu vaccine. While the vaccine can not provide absolute immunity due to the virus' ability to constantly mutate, it can provide some measure of protection. It is important to realize that the nature of contact with the generalized population and life within the fire station can predispose the fire fighter to succumbing to this virus.

Mumps

Mumps is primarily a disease of childhood. However, it does occur in adolescents and adults. Although mumps has been controlled through vaccination, its presence within society still lingers. Mumps is usually characterized as an acute viral disease with fever, swelling and tenderness of the salivary glands.

Mumps has been controlled through vaccination of young children, but the greatest risk of infection has now shifted towards older children and young adults. Individuals born before 1957 tend to be naturally immune through previous exposures, despite not having had clinical disease or vaccination.

Mumps is most common in the winter and spring months. Mumps is commonly spread by droplet infection and through the direct contact of saliva of an infected person. The

incubation period of the disease ranges from 2 to 4 weeks. Mumps can be prevented through vaccination, which is usually provided to the individual as a child.

If a fire fighter or emergency responder has been exposed to the mumps virus, he or she should be quarantined until medical evaluation has been completed. Likewise, due the high infectivity of the virus, all other susceptible individuals within the station house should be medically evaluated and provided vaccination if indicated.

Soil Borne Diseases

Tetanus

Tetanus is an acute disease produced by spore forming bacteria commonly found in soil, street dust, and animal or human feces. The spores are introduced into a wound, laceration or puncture and start to produce a highly toxic material that causes painful muscular contractions and rigidiry, usually within 14 days of infection. The disease can be fatal if untreated.

Tetanus can be prevented through proper immunization. If a fire fighter or other emergency response personnel has received a wound from a soiled object he or she should attempt to cleanse the wound immediately and report this as soon as possible. An examining physician will determine the time since the individuals last immunization. A booster shot of Td anti-toxin should be given every 10 years. If the fire fighter sustained a significant or contaminated wound he or she should receive an additional booster shot, if a tetanus toxiod shot has not been received within 5 years prior to the injury.

Vector Borne Diseases

Lyme Disease

Lyme disease is an infectious disease spread by ticks. In general it is not of concern to fire fighters, but since it is a risk for outdoor workers, it is included here.

Lyme disease is caused by the microorganism *Borrelia burgdoferi*. The disease was first recognized as a clinical disease in 1977 after a group of children in Lyme, Connecticut came down with similar symptoms and were found to be infected. Since that time, it has become recognized as the most common vector-borne disease (that is, a disease that is transmitted through other animal intermediates) in the U.S. The disease is spread to humans through the bite of a tick of the *Ixodes* group, which include the deer tick *Ixodes dammini* in the Northeast. The disease has several stages, starting with a characteristic rash proceeding (if untreated) to a flu-like illness within days or weeks. Finally, there can be long-term effects including persistent arthritis and effects on the nervous system.

Those at risk for Lyme disease are individuals who are at risk for exposure to ticks, including outdoor workers in areas with woods and fields. Ordinarily fire fighters will not be exposed because of their clothing and equipment, and because the environment during the time they are exposed usually is inhospitable to the ticks (wildfires). However, they should be aware of the risk on those occasions when they find themselves in terrain where ticks are known, and take precautions, including appropriate clothing and use of tick repellents. In addition, it is important to know that Lyme disease can be successfully treated even in its late stages, so seeking medical attention can be valuable even long after an exposure.

Scabies & Lice

Scabies and Lice are classified as parasitic diseases of the skin caused by mites and lice. In Scabies, the mites penetrate the skin by digging burrows. The mite lays its eggs underneath the skin causing intense itching. It is this intense itching that causes the greatest problems for an infected individual. The itching can lead to dermal lesions which in turn can become infected.

Scabies is quite common, especially in crowded areas of poor sanitation. The mite is easily transmitted through skin-to-skin contact and it is not particular as to its host. Individuals living in close quarters in the fire station may be at risk of infecting each other. The scabies can be carried into the station from home (and vice versa), or potentially contracted through daily contact with the public.

Personal hygiene and sanitation in the fire station are very important. Bed linens and clothing should be regularly laundered after each use. An infested individual should be excluded from work for 24 hours after treatment. Individuals who have had skin-to-skin contact with the infested individual should be treated prophylactically to prevent additional scabies infections. Other individuals within the fire station should be evaluated for unrecognized cases. Topical treatment, frequent bathing, and changes of clothing and bed linen are required to eradicate the parasite.

Lice infestations (called "pediculosis" in medicalese) are caused by small parasites that live entirely on humans. The female lice hold on to skin or hairs and lay their eggs (nits). Both the adults and the immature larvae feed on human blood, and the small bites from the lice are intensely irritating. The bites cause the individual infested to repeatedly scratch which can lead to secondary infections. It is important to treat all potentially infected sources to eliminate reinfection. As a hygiene problem, the fire department should take the same precautions with lice as they do with scabies to prevent the spread of the lice among its members.

Rabies

Rabies is rare in the United States and Canada. It is known to be primarily a disease of animals. If a fire fighter is bitten or scratched by a wild animal or stray domestic animal he or she should seek medical evaluation immediately. The wound also should be attended to immediately with a thorough cleaning and flushing. The animal should be isolated by the proper agency for evaluation of the presence of the rabies virus.

Infectious Disease Testing and Vaccinations for Fire Fighters, EMTs and Paramedics

Employers and employees both clearly have a right to be concerned about on-the-job impairment due to an infectious disease. Though the potential of transmitting an infection to co-workers or patients during emergency care is remote, this also may be an area of concern. Employers may be liable in tort law if they are aware that an employee's job performance is hampered by an infectious disease. The legal issue may be compounded if no steps are taken to address the problem and that employee transmits such a disease, or because of reduction of physical or mental capacities, injures a co-worker in an on-the-job accident. Conversely, employers' testing programs for infectious disease programs should not violate individual rights.

Careful attention must be paid to the means by which employers seek to create an infection free workplace. Principles of public safety and efficient performance must be balanced against individuals' reasonable expectations of privacy. In particular, the confidentiality of any employee medical records produced from department-required testing should be treated the same as with any other medical record. Legal rights of individual employees should not be sacrificed as employers haphazardly rush to implement a testing program.

Pre-employment medical screening is done during training or as part of the application process. Under most circumstances, infectious disease testing of applicants should be part of the hiring process only to assure that the individual is functionally capable of performing the duties of a fire fighter, EMT and/or paramedic. The employer, however, must administer the tests for job related reasons and must administer them in a nondiscriminatory manner. An employer's desire to avoid hiring fire fighters whose physical or mental capacities are diminished or who may infect other personnel may meet that standard. For example, an applicant with chronic active hepatitis may not be a proper candidate for fire fighting activities due to contigiousness of the disease or functional incapacitation of the individual. The ADA however, prohibits employers from discriminating against hiring individuals that are either HIV-positive or have AIDS, unless the individual is physically or mentally unable to pass validated entry standards.

Periodic physical examination of which laboratory testing of blood and body fluids, and infectious disease testing (e.g. TB testing) are a routine component, should be permissible as long as the testing is related to the nature of the job. However, if the physical examinations are instituted as a subterfuge to require infectious disease testing, are administered only infrequently or are not administered to all employees, the tests should be struck down as violating the Fourth Amendment.

Most of the concern for testing for infectious disease on a periodic basis surrounds HIV infection. To begin, there is a remote risk of HIV infection from occupational exposure. This risk is diminished substantially for transmission by a fire fighter, EMT or paramedic to a patient or co-worker. These risks, to date, have not been quantified in the fire service. Therefore, for HIV testing fire department policies should be designed with the following objectives:

- Encouragement of fire fighters, EMTs, and paramedics to learn their HIV status, through their personal health care provider, to protect and improve their own health;
- Encouragement of HIV-infected fire fighters, EMTs, and paramedics to inform fire departments when their is risk of compromised job performance;
- Assurance that limitation of work responsibilities remain individualized based on functional ability and infection control status.

At the present time, such periodic or annual testing for all fire fighters needs serious consideration and medical community input prior to implementation. The costs for such testing are substantial and the overall accuracy of the testing, especially the specificity of such testing, certainly play a siguificant role in this decision making process. Therefore, such testing would presently be of minimal value in seeking to minimize the number of infected individuals on the fire department. It would likely result in some false positive tests which could have devastating consequences.

However, post-exposure evaluations should be made available to all fire department personnel after an exposure occurs. There is no significant argument against these post-exposure tests and the IAFF certainly encourages such testing. If an individual's on-the-job exposure to blood or body fluids causes an infection to manifest, the fire department has the responsibility to provide early diagnosis and treatment to that individual.

An important consideration to proper medical testing is confidentiality. It is difficult to overemphasize the crucial importance of maintaining confidentiality. If fire fighters don't believe the records are confidential, then the records will be inaccurate and/or incomplete, and much less useful. The confidentiality issue also gives rise to the following:

- Who will own the records?
- Who is authorized to see them?
- Where and how will they be stored?
- If computerized, are they really secure?

Confidentiality also has legal implications, since failure to maintain confidentiality can result in a lawsuit. Apart from the physical security of records, it is important to consider just how much information is needed for personnel functions. Fire department management needs to know only whether or not a fire fighter can do his/her job, or if not what specific restrictions apply. Specific medical diagnosis must not be revealed to management. If medical surveillance is to be meaningful, records must be as complete as possible. Only with confidentiality of records is this possible.

Exposure Reporting

An occupational exposure is an exposure during the performance of job duties that may place a worker at risk of infection. Exposure is defined as a percutaneous injury (e.g., needle stick or cut with a sharp object), contact of mucous membranes, or contact of skin (especially when the exposed skin is chapped, abraded, or afflicted with dermatitis or the contact is prolonged or involving an extensive area) with blood or other body fluids to which universal precautions apply.

Reporting Procedures, Record Keeping, and Confidentiality

Your fire department must have standard procedures for the reporting and managing of exposures. Post-exposure management should include counseling of fire fighters and their families.

Exposures should be documented and recorded in the fire fighters' confidential medical record. **Once again, the importance of maintaining confidentiality cannot be overemphasized.** Relevant information for the fire fighters' medical record include the following:

- date and time of exposure;
- job duty being performed by the fire fighter at time of exposure;
- details of exposure, including amount of fluid or material, type of fluid or material, and severity of exposure (e.g., for a percutaneous exposure, depth of injury and whether the fluid was injected; for a skin or mucous membrane exposure, the extent and duration of contact and the condition of the skin such as chapped, abraded, or intact);
- description of source of exposure-including, if known, whether the source material contained HBV or HIV, or other infectious diseases; and
- details about counseling, post-exposure management, and follow-up.

Post-Exposure Management Procedures

The Centers for Disease Control has published post-exposure management procedures for exposures to HBV and HIV. These procedures are widely accepted, and are updated regularly to reflect advances in medical knowledge. Their use is highly recommended. For exposures to other diseases (e.g., tuberculosis), the CDC publication, *Guidelines for Infection Control in Hospital Personnel*, written by Walter W. Williams, MD, MPH is a useful reference.

The local health department or an Infection Control Committee at a local hospital can also provide valuable assistance regarding post-exposure management procedures.

Designated Local Hospital Liaison

Your fire department must have a designated infection control officer. This officer should maintain communications between the fire department and the health care facility and other health care professionals.

Chapter III

APPLICABLE REGULATIONS AND STANDARDS

OSHA STANDARD ON BLOODBORNE PATHOGENS

On December 2, 1991 the Occupational Safety and Health Administration promulgated a new standard for bloodborne pathogens that will greatly change how fire fighters, emergency response personnel and all other workers potentially exposed to bloodborne diseases will be trained and equipped to protect themselves from infections. The new standard, which is known as the Bloodborne Pathogens standard (29 CFR 1910.1030) was published in the Federal Register on December 6,1991(56 FR 64004). This memorandum will summarize the key points of the standard as well as what it means for fire fighters, emergency respenders, and others.

The rationale for the standard is described in the extensive introductory text. In essence, OSHA recognizes that bloodborne pathogens, including (but not limited to) Hepatitis B Virus (HBV) and Human lmmunodeficiency Virus (HIV), among others, account for significant morbidity and mortality in the workplace. In the preamble to the final standard, OSHA estimates that, "for every 1000 workers with occupational exposure to blood or other potentially infectious material, between 83 and 113 will become infected with HBV over the course their working lifetime because of occupational exposure to the virus. Of these, 21 to 30 will suffer clinical illness and 4 to 6 will need hospitalization. Between 4 and 12 of the cases with clinical illness will become chronic carriers, and 1 to 3 of them will suffer from chronic hepatitis. HBV infection from occupational exposure will lead to the death of 2 to 3 of these 1000 exposed workers."

The standard relies on several mechanisms to protect workers. It calls for identifying workers at risk through **exposure control plans**; it sets requirements for limiting exposure to those workers through a combination of **engineering controls, personal protective equipment, and worker training**, and it calls for **hepatitis vaccination** to be offered to all at-risk employees at no cost to the employees. OSHA estimates that universal vaccination of at-risk employees would prevent from 244,000 to 274,000 cases of HBV infection over 45 years, resulting in the saving of some 5,400 to 6,100 lives over that time. Finally, there is a provision for **post-exposure evaluation and follow-up**, so that workers who are exposed on the job can receive proper assessment of their risk and appropriate treatment and documentation.

Highlights of the Standard

The following is a summary of the most important parts of the standard applicable to fire fighters. **This is not a word-for-word transcription of the standard, and does not contain all of the provisions of the standard.** It also does not contain the preamble to the standard, which contains some of OSHA's explanations for various provisions. Where appropriate, some of these comments have been added. However, this summary should not substitute for the regulatory text itself.

- Employers must develop comprehensive **exposure control plans**, which describes how the employer will meet the overall goals of the standard (minimizing employee exposures) and the specific elements of the program.

- Employers must develop ***exposure determinations,*** which list job classifications, activities, and potential for exposures to infectious materials.

- ***Universal precautions*** shall be followed whenever the potential for exposure exists.

- ***Engineering and work practice controls*** shall be used by employers to eliminate or minimize employee exposures. Where occupational exposures remain after these controls are instituted, **personal protective equipment** (PPE) is also to be used. There must be a regular maintenance and replacement schedule for engineering controls.

- ***Hand washing facilities*** will be accessible to all employees, or, where this is not feasible, antiseptic hand cleaner with cloth or paper towels. Hands must be washed after removal of PPE; hands, mucous membranes, or other exposed skin must be washed after exposure to blood or other infectious materials.

- ***Sharps*** may not be bent, recapped, or removed unless there is no feasible alternative. If they must be recapped or removed, it must be through a one-handed technique.

- ***Workplace practices*** are specified, including immediate safe disposal of sharps, prohibition against eating, drinking, or other practices in areas where there is a "reasonable likelihood" of occupational exposure, and a requirement that blood and other potentially infectious materials be handled in a way so as to minimize potential exposures. **[Note:** In the summary and explanation, OSHA states, "...[The] Agency recognizes that circumstances could arise which would require employees to remain in ambulances for extended periods of time. It is not the Agency's intent to prohibit these employees from eating or drinking during such extended periods. Therefore, eating and drinking in ambulance cabs is permitted under the final standard provided the employer has implemented procedures to wash up and change contaminated clothing prior to entering the cab. In addition, employers must prohibit the consumption, handling, storage, and transport of food and drink in the rear of the vehicle."]

- ***Potentially contaminated equipment must*** be inspected and decontaminated, if necessary, before servicing or shipping.

- ***Personal protective equipment*** (PPE) shall be provided at no cost to all employees and accessible in situations where there is occupational exposure. The PPE will be considered "appropriate" if it prevents penetration of the potentially infectious material to the employee's skin, street clothing, or mucous membranes. **[Note:** In the summary and explanation, OSHA states, "Based upon the information provided in the comments, OSHA has concluded that minimization of mouth-to-mouth resuscitation is prudent practice and that the most effective means to do so is to require ventilation devices be provided for resuscitation. Consequently, these devices have been retained under the requirements for provision of personal protective equipment. In addition...these devices are to be readily accessible to employees who can reasonably be expected to resuscitate a patient."]

- The employer is responsible for seeing that the employees use the appropriate PPE. The employer may show that the employee "temporarily and briefly" ***declined to use PPE*** if the employee judged that use of the PPE would have prevented the delivery of health care or increased the hazard to the employee or a co-worker; however, the circumstances of the occurrence are supposed to be investigated so as to prevent similar events in the future. [**Note**: In the summary and explanation, OSHA discusses at length the rationale for providing an exemption to the use of PPE. "...The types of circumstances which OSHA envisions may necessitate invocation of the exemption are those which require an on-the-spot decision and would not be conducive to awaiting approval or disapproval of the employer...OSHA does not intend to compel an employee to bypass the use of appropriate personal protective equipment against the employee's will...Utilization of the exemption is to occur, as stated in the standard, only in rare and extraordinary circumstances which are unexpected and threaten the life or safety of the patient, worker, or co-worker...It should also be understood that the decision not to use personal protective equipment is to be made on a case-by-case basis and in no way is to be generally applied to a particular work area or recurring task..."]

- PPE must be ***accessible at the worksite or issued to employees***. For people with sensitivity to the gloves ordinarily provided, alternatives (hypoallergenic gloves or glove liners, for example) must be provided. [**Note:** In the summary and explanation to the standard, OSHA commented on the need for accessibility in cases where it was not possible to return to a "home base" between emergency calls. "OSHA agrees...that..."accessible" would be on-scene, either on an individual's person or on the vehicle, depending upon the nature of the equipment.. .[The] second set of clothing could be kept on the ambulance or employees could be provided with several sets of replaceable coveralls to be kept on the vehicle. *The employer's responsibility to ensure accessible personal protective equipment for employees at non-fixed worksites cannot be overemphasized*. (emphasis added).]

- PPE shall be ***cleaned, laundered, and disposed of*** as appropriate by the employer at no cost to employees. It shall also be ***repaired or replaced at no cost. If penetrated with blood or other potentially infectious materials***, the garment shall be removed immediately. PPE must be ***removed prior to leaving the work area, and placed in a designated area or container*** for storage, washing, decontamination, or disposal.

- ***Gloves*** shall be worn in all situations where it may be "reasonably anticipated" there may be contact with blood or "other potentially infectious materials, mucous membranes, and non-intact skin; when performing vascular access procedures (except in volunteer blood banks under specified conditions); and when handling or touching contaminated items or surfaces." Disposable gloves must be disposed of after use or if they are contaminated, torn, or punctured; they may not be washed or decontaminated.

- ***Masks, eye protection, and face shields*** shall be used whenever potentially infectious material may be "reasonably anticipated" from splashes, spray, spatter, etc.

- **Gowns, aprons, and other protective body clothing** may be used depending on the type of situation.

- *Housekeeping* requirements include an appropriate written schedule for cleaning and decontamination of the worksite (based on the activity or potential contamination of the area), cleaning and decontamination of equipment, environmental and working surfaces after contact with blood or other potentially infectious materials; prompt removal of protective coverings (plastic, aluminum foil, or imperviously-backed absorbent paper) immediately if they become contaminated or on a regular schedule; inspection and decontamination of bins, pails, cans, and similar waste receptacles; removal of broken glassware with mechanical means (brush and dustpan, tongs, or forceps); and storage of reusable sharps in such a fashion that employees do not have to reach into a container with their hands.

- **Sharps must be disposed of** in appropriate containers. **Containers for sharps** shall be closable, puncture resistant, leakproof on the sides and bottom, labeled and color-coded, easily accessible, maintained upright, and replaced routinely. When removed from the area of use, the containers must be closed prior to removal, placed in a secondary container if leakage is possible, and may not be reopened in any way that would expose an employee to the risk of an injury.

- *Other regulated waste* (materials that have come in contact with or could release infectious material) must be placed in containers that are closable, do not leak, are color-coded, and are closed prior to removal. If the outside of the container is itself contaminated, it must be placed in a secondary container that is similarly constructed.

- *Contaminated laundry* must be bagged or containerized at the location where it was used without any sorting or rinsing, and shall be transported in labeled or color-coded containers or bags to the laundry facility. Employees who handle the laundry must wear gloves and other appropriatePPE.

- *Hepatitis B vaccine* shall be made available to **all employees who have occupational exposures, at no cost to the employees.** The vaccine shall be made available "after the employee has received the training required" (see below) and "within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons." Vaccinations are to be given by or under the supervision of a licensed physician or other health care professional according to the recommendations of the U.S. Public Health Service. Participation in *a prescreening program* (a program to screen people for previous exposure to Hepatitis B) can not be made a prerequisite for receiving Hepatitis B vaccination. If an employee initially declines vaccination but decides later to get vaccinated, the employer shall make the vaccine available at no cost. If an employee declines to receive the vaccination, he/she must sign a **waiver** described in the standard. If at some point the U.S. Public Health Service recommends that people who have had the vaccination series should receive routine **booster doses,** they shall be made available to all employees at no cost.

- *Post-exposure evaluations and follow-up including prophylaxis in the case of exposure*, are also to made available to **all employees at no cost and at a reasonable time and place**. After the exposure incident is reported, the employer will make available to the employee a confidential medical evaluation and follow-up, which includes at least:
    - Documentation of the **route of exposure and circumstances** under which it occurred;
    - Identification and documentation of the "**source individual**" (the individual whose blood or body fluids were the source of the exposure) unless that identification is not feasible or is prohibited by state or local law; once the source individual is identified, his blood shall be **tested for HIV and HBV infectivity** (if patient consent for testing is legally required it must be obtained before his blood can be tested; if consent is required but not obtained that must be established by the employer; if consent is not required then the source individual's blood will be tested and the results documented). **Testing is not required** if the source individual is already known to be infected with HIV or HBV. Once the source individual's status for HIV and HBV infectivity is known, that information is made available to the exposed employee, as well as any "laws or regulations concerning disclosure of the identity and infectious status of the source individual;"
    - **Testing of the employee for HBV and HIV serologic status** as soon as feasible after consent is obtained. The employee may consent to give blood but not have HIV serologic testing; if so, the blood must be stored for at least 90 days, so that the employee can later elect to have the sample analyzed;
    - **Post-exposure prophylaxis** when medically indicated, as recommended by the U.S. Public Health Service;
    - **Counseling**; and
    - **Evaluation of reported illnesses.**
- The standard defines ***information provided to the healthcare professional***, including a copy of the regulation for the healthcare professional providing the Hepatitis B vaccination, and, for the healthcare professional providing care after an exposure incident, a copy of the regulation, a description of the employee's duties, documentation of the route(s) and circumstances of the exposure, results of any blood testing on the source individual, and all medical records relevant to the appropriate treatment of the employee which are the employer's responsibility to maintain.
- Within 15 days of the completion of the healthcare professional's evaluation, the employer must obtain and provide to the employee a copy of the ***healthcare professional's written opinion***, which shall include only:
    - For Hepatitis B vaccination, only whether vaccination is indicated and whether the employee has received it;

- For a post-exposure evaluation, only that the employee has been informed of the results of the evaluation, and that the employee has been told about "any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment."

- ***Warning labels*** must be affixed to "containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious material; and other containers used to store, transport or ship blood or other potentially infectious materials"; there are exceptions for red bags or red containers, blood or blood components that have been released for transfusions or other clinical uses, individual containers of blood or other potentially infection materials that are placed within a properly labeled container, or regulated waste that has been decontaminated. The label must include the biohazard legend:

BIOHAZARD

- ***A training program*** must be provided at no cost during working hours to all employees with occupational exposures. Training must be provided at the time an employee is initially assigned to a job where occupational exposure may take place, within 90 days after the effective date of the standard (March 3, 1992) and at least annually thereafter. Employees who have already had some training in bloodborne pathogens in the year prior to the standard only need training on subjects which their previous training did not cover. There must also be training updates when the tasks or procedures done by the employee change or create a new exposure. The training must include at a minimum, a copy and explanation of the standard, general explanations of the epidemiology and symptoms of bloodborne diseases, how bloodborne diseases are transmitted, the employer's exposure control plan and how the employees can obtain a copy, how to recognize tasks that may involve exposures to bloodborne pathogens, the methods (and limitations of those methods) that will prevent exposures to bloodborne pathogens, including appropriate engineering controls, PPE, and work practices, the "types, proper use, location, removal, handling, decontamination and disposal" of PPE, the selection of appropriate PPE, information on Hepatitis B vaccination, including the benefits and the fact that it is no cost to the employee, actions and procedures to be followed in the event of exposure and a description of the post-exposure evaluation, and labeling and signing requirements.

- The employer is required to ***maintain records*** according to the following schedule: **medical records** (including the employee's name, social security number, hepatitis B vaccination status, all examinations and

evaluations required under the standard, healthcare professionals' written opinions, and information provided to the healthcare professionals) for the duration of employment plus at least 30 years; and **training records** for 3 years from the date on which the training occurred. Medical records are confidential and may not be disclosed or reported without the employee's written consent. Medical records are to be available to employees and to anyone having written consent of the employees upon request. Training records are available to the employee or employee representative upon request.

Effective Dates of the Standard

The standard became effective 90 days since its publication in the Federal Register (March 6, 1992). The employer's Exposure Control Plans should have been completed within 60 days of the effective date (May 5, 1992). The Information and Training and Record keeping requirements were to take effect within 90 days of the effective date (June 4, 1992). The provisions on Engineering and Work Practice controls, PPE, Housekeeping, HIV and HBV research laboratories, Hepatitis B vaccination and Post-Exposure evaluation and follow-up, and labels and signs, were to take effect 120 days after the effective date (July 6, 1992).

Applicability of the Standard

Who is affected by this standard? The standard applies to "...[All] occupational exposure to blood or other potentially infectious materials..." Specifically, "occupational exposure" means, "reasonably anticipated skin, eye, mucous membrane, or parenteral (intravascular) contact with blood or other potentially infectious materials that may result from the performance of an employee's duties." This means that any fire fighter who **may** have contact with blood or other materials, either as a first responder or in any other way that is work-related, is subject to the provisions of the standard. In its Regulatory Impact and Regulatory Flexibility Analysis, "...OSHA based its estimate of the population at risk on survey responses which indicated essentially all EMT's to be exposed (98 percent)...and 80 percent of all fire fighters to be exposed." If there is any doubt, the assumption should be that anyone who could possibly be exposed to bloodborne pathogens should be assumed to be at risk, should be immunized, and should adhere to the other provisions of the standard.

Under the Occupational Safety and Health Act of 1970, federal OSHA has no direct enforcement authority to ensure that state and local governments comply with health and safety standards, such as the OSHA Fire Brigade Standard, for public employees. However, the OSHA law does permit other methods to be utilized in order to maximize the protection of public employees' health and safety.

In lieu of federal OSHA enforcement of health and safety standards, a state may opt to implement their own enforcement program providing federal OSHA has approved their state safety and health plan. Section 18 of the Occupational Safety and Health Act requires that a state must provide satisfactory assurance that it will establish and maintain an effective and comprehensive occupational safety and health program for all public employees as effective as that contained in the approved state plan covering private employees. OSHA has given the State Plan states 6 months from the publication date of the final standard to adopt a comparable standard that is "at least as effective" as the OSHA standard. All fire departments' whether state, county, or municipal, in any of the states or territories where an OSHA State Plan agreement is in effect has the protection of the minimally acceptable health and safety standards promulgated by federal OSHA. Individual states may provide more stringent standards, if they wish to do so.

The following twenty-five states/territories have State OSHA Plans:

OSHA APPROVED STATE PLANS

Alaska	Kentucky	North Carolina	Virginia
Arizona	Maryland	Oregon	Virgin Islands
California*	Michigan	Puerto Rico	Washington
Connecticut*	Minnesota	South Carolina	Wyoming
Hawaii	Nevada	Tennessee	
Indiana	New Mexico	Utah	
Iowa	New York*	Vermont	

*For state and local government employees only.

In addition, federal OSHA has issued a set of rules and regulations which would allow for the development of a state plan applicable and enforceable for public employees in states where an approved state plan does not yet exist. These rules and regulations, 29 CFR 1956, entitled "State Plans for the Development and Enforcement of State Standards Applicable to State and Local Government Employees in States Without Approved Private Employee Plans" sets forth the requirement that states without approved plans must develop a safety and health plan for public employees similar to those required for states with approved plans if they wish to receive federal financial support for public employee safety and health programs.

OSHA announced on December 2,1991 that it would be sending letters to the governors of states which do not yet have approved state plans, "to encourage them to extend the protections of the standard to public sector employees."

Finally, Executive Order 12196 issued February 26,1980 and implemented December 21, 1980 requires that all federal agencies comply with the same safety and health requirements as private employees. Thus, federal fire fighters are protected under federal OSHA safety and health standards.

The coverage of public employees under minimum acceptable standards as promulgated by federal OSHA becomes important when we consider this infection control regulation. This standard is enforceable for all public fire fighters in states with approved federal OSHA plans. However, all U.S. and Canadian fire fighters should consider this to be the minimum acceptable standard for protection from bloodborne pathogens.

NFPA 1500 Requirements

The NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, was developed to provide a consensus standard for an occupational safety and health program for the fire service. The intent of this standard is to provide the framework for a safety and health program for a fire department or any type of organization providing similar services.

Section 8-5.1 of the NFPA 1500 Standard provides the following requirement when dealing with infection control:

The fire department shall actively attempt to identify and limit or prevent the exposure of members to infectious and contagious diseases in the performance of their assigned duties.

Section 8-5.2 continues with:

The fire department shall operate an infection control program that meets the requirements of NFPA 1581, Standard on Fire Department Infection Control Program. When appropriate, inoculations, vaccinations, and other treatment shall be made available.

The NFPA 1500 Standard also provides the following appendix item in regard to contagious diseases:

When fire department members routinely respond to emergency medical incidents, the fire department should consult with medical professionals and agencies on measures to limit the exposure of members to infectious and contagious diseases. This should include the provision and maintenance of equipment to avoid or limit direct physical contact with patients, when feasible.

NFPA 1 500 also addresses protective clothing for emergency medical operations. Section 5-5.1 states:

Members who perform emergency medical care or otherwise may be exposed to blood or other body fluids shall be provided with emergency medical garments, emergency medical face protection devices, and emergency medical gloves that meet the applicable requirements of NFPA 1999, Standard on Protective Clothing for Emergency Medical Operations.

NFPA 1581 Requirements

The NFPA 1581, *Standard on Fire Department Infection Control Program (1991)*, addresses the provision of minimum requirements for infection control practices within a fire department. The purpose of the standard is "*to provide minimum criteria for infection control in the fire station, at an incident scene, and at any other area where fire department members are involved in routine or emergency operations*. "(1-2.1)

Program Components

The fire department infection control prograrn must have a written policy statement. Such a policy statement should clearly define the department's mission in limiting the exposure of members to infectious diseases during the performance of their assigned duties and while in the fire station living environment. Examples of generic policy statements are found in the appendix of NFPA 1581.

Training and education of fire service and emergency personnel is an important component of any fire department infection control program. "*The training program shall include proper use of personal protective equipment, standard operating procedures for safe work practices in infection control, proper methods of disposal of contaminated articles and medical waste, and exposure management and medical follow-up*." (2-2.2) In addition, the "*education program shall provide information on epidemiology, modes of transmission, and prevention of diseases*." (2-2.3) Fire fighters and emergency responders should be educated on the diseases that have the potential for occupational exposure. These diseases are discussed in the beginning of this manual.

The infection control program should have an experienced individual within the department designated as the infection control liaison. The liaison has the responsibility to maintain communication between the fire department and all community health care professionals. The infection control liaison also has the responsibility to investigate exposure incidents, notify members of exposure, properly document the exposure, and ensure medical follow-up is received by the individual following an exposure.

Exposure to a infectious or contagious disease requires prompt action, particularly if the individual does not have adequate immunity to the disease. The standard provides instructions for the treatment of an exposure. An exposure should be washed immediately, reported to the infection control liaison, and treated by the fire department physician. All exposures of an individual to an infectious or contagious disease, while on or off the job, should become a part of that person's confidential health file. In addition, the information from the duty-related exposure should be made anonymous and added to the department's health data base.

The standard outlines the recommended facilities for infection control within the department. These recommendations also comply with CDC and OSHA regulations. The fire department should be equipped with facilities for disinfection, cleaning, and storage. The appendix of NFPA 1581 provides recommendations for the building of new fire stations. Consideration of infection control measures should be applied to bathrooms, kitchens, sleeping areas, and laundry facilities.

The standard details the protection of the fire fighter and other emergency responders while performing emergency medical operations. Personnel physical condition, protective clothing and equipment, and operational techniques are provided minimum standards for infection control.

The infection control program outlined within the standard also addresses skin washing practices, disinfectant handling and use, cleaning of contaminated emergency medical equipment, disposal of infectious materials, and the laundering of linens. As an important factor in infection control, the standard addresses hand washing with, *"Hands shall be washed after each emergency medical incident, after cleaning and disinfecting emergency medical equipment, after cleaning protective clothing or equipment, after any cleaning function, before and after using the bathroom, before and after handling food or cooking and food utensils, and before and after handling cleaned and disinfected emergency medical equipment."* (5-1.2) As another important factor in infection control, cleaning and disinfection of equipment and clothing should be performed in the proper area and on a regular basis and/or immediately following an exposure incident. Under no circumstances should contaminated equipment or clothing be taken home for cleaning.

The appendix material includes methods for disinfection and sterilization of equipment used in emergency medical operations. Cleaning procedures for structural fire fighting protective clothing details proper washing instructions, spot cleaning and pretreating of a soiled area, and the selection of proper cleaning products.

PROTECTIVE CLOTHING AND EQUIPMENT STANDARDS

The fire department must provide the following protective clothing and equipment for each of its members during medical emergencies:

- single use medical gloves;
- fluid resistant clothing;
- pocket masks;
- splash resistant eyewear;
- respiratory assist devices;
- approved sharps containers; and
- leakproof bags.

Standards for Purchasing Protective Clothing and Equipment

NFPA 1500 also addresses protective clothing for emergency medical operations. Section 5-5.1 states:

Members who perform emergency medical care or otherwise may be exposed to blood or other body fluids shall be provided with emergency medical garments, emergency medical face protection devices, and emergency medical gloves that meet the applicable requirements of NFPA 1999, Standard on Protective Clothing for Emergency Medical Operations.

NFPA 1999 specifies "*minimum documentation, design criteria, performance criteria and test methods for emergency medical clothing, including garments, gloves, and face protection devices.*" (1-1.1*) This standard was developed to provide biological protective clothing, gloves and facewear for fire fighters, EMT and paramedics to utilize during emergency medical operations. The standard is the only standard, both from within and outside the fire service, that includes performance tests to ensure that each type of clothing resists penetration to bloodborne pathogens. Garments also are required to meet stringent requirements for liquid tight integrity in those areas of the garment that are designed to provide protection, material strength and physical hazard resistance, seam strength, and closure strength. Gloves are tested for tensile strength and elongation both before and after heat aging and isopropyl alcohol immersion. Additionally, gloves must meet requirements for dexterity, puncture resistance, liquid tight integrity and minimum sizing. Like the garments, facewear must meet requirements for liquid tight integrity in those areas of the facewear that are designed to provide biological protection.

Manufacturers of clothing that meet this standard must provide sufficient documentation to the purchaser or end user of the protective equipment which details the equipment's technical data and user information.

User instructions and information for all emergency medical garments, gloves, and face protection devices must include the following:

- *Donning procedures;*
- *Doffing procedures;*
- *Safety considerations;*
- *Optimum storage conditions;*
- *Recommended storage life;*
- *Decontamination recommendations and considerations;*
- *Retirement considerations; and*
- *Disposal considerations. (2-8)*

In addition, emergency medical garments must provide the following instruction and information:

- *Cleaning instructions;*
- *Marking and storage instructions;*
- *Frequency and details of inspections;*
- *How to use test equipment, where applicable;*

- *Maintenance criteria;*
- *Method of repair, if recommended by manufacturer; and*
- *Warranty information.* (2-8.1)

ASTM also has a standard for medical gloves, ASTM *Standard Specification for Rubber Examination Gloves, Designation D 3578-77.* This standard includes requirements for sampling to insure quality control, watertightness testing for detecting holes in the gloves, physical dimension testing to insure proper fit of gloves, and physical testing (tensile strength and ultimate elongation) to insure that the gloves do not tear easily. Practical advice about gloves may also be available from local hospital and emergency room staff. This standard was incorporated into the requirements of the NFPA 1999 Standard.

Selection Criteria

Each fire department should provide guidelines for the selection and use of appropriate protective clothing and equipment during emergency medical work. NFPA 1500 requires that protective clothing, including garments, face protection, and medical gloves meeting NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations*, be provided to and used by personnel that may be exposed to blood or other body fluids. Fire fighters should use gloves meeting the performance requirements of NFPA 1973, *Standard on Gloves for Structural Fire Fighting*, **including the requirements for water penetration,** during situations where sharp or rough surfaces are likely to be encountered (e.g. vehicle extrications).

The CDC *Guidelines for Public Safety Workers*, discusses the selection and use of appropriate clothing and equipment during medical emergencies. CDC recommends that disposable gloves be worn by all personnel prior to initiating **any** emergency patient care tasks involving exposure to blood or body fluids. Extra pairs of gloves should always be available. For multiple victims, gloves should be changed between patient contacts.

While wearing gloves, members should avoid handling personal items, such as combs and pens, that could become contaminated. Gloves contaminated with blood or other body fluids to which *universal precautions* apply should be removed as soon as possible, taking care to avoid skin contact with the exterior surface.

The use of gloves does not eliminate the need to wash hands after emergency medical incidents. **Handwashing is one of the most important elements of infection control!!**

Masks, eyewear, and gowns should be present on all emergency vehicles that respond or potentially respond to medical emergencies or victim rescues. Masks, eyewear, and gowns should be donned by all personnel prior to any situation where splashes of blood or other body fluids to which universal precautions apply are likely to occur. Finally, contaminated gloves should be placed and transported in bags that prevent leakage and disposed of properly; or, in the case of reusable gloves, cleaned, disinfected, and stored properly.

No transmission of hepatitis B or HIV infection during mouth-to-mouth resuscitation has been documented. However, because of the risk of salivary transmission of other communicable diseases (e.g. Herpes simplex and Neisseria meningitidis) and the theoretical risk of HIV and hepatitis B transmission during artificial ventilation of victims, CDC recommends the use of *mechanical respiratory assist devices, such as bag-valve masks and oxygen demand valve resuscitators, or pocket mouth-to-mouth*

resuscitation masks (i.e., double lumen systems) designed to isolate emergency response personnel from victims' blood and blood-contaminated saliva, respiratory secretions, and vomitus.

One final note, the CDC *Public Safety Worker Guidelines* has a table with examples of emergency medical tasks and activities and the recommended personal protective equipment that would be appropriate for these tasks.

Decontamination of Clothing/ Equipment and Disposal of Medical Waste

Each fire department must have procedures for the decontamination of specific items of clothing and equipmenf CDC has published recommendations for these procedures in their *Public Safety Worker Guidelines*. Cleaning, disinfecting and disposal criteria are included in NFPA 1581, *Standard on Fire Department Infection Control Program* and are required to be utilized by NEPA 1500.

Clothing

The CDC recommends and US OSHA requires that laundry facilities and/or services be routinely made available by the employer. Protective clothing and station work uniforms should be washed and dried according to manufacturers recommendations. Also, boots and leather goods can be scrubbed with soap and hot water to remove contamination. The OSHA standard, 1910.1030 also has specific laundering requirements.

Equipment

The CDC *Public Safety Worker Guidelines* describe methods for cleaning, disinfecting, and sterilizing equipment and surfaces in the pre-hospital setting. *Before disinfecting always clean thoroughly with soap and water.*

Choosing Disinfectants

Disinfectants used for decontaminating equipment should be EPA *registered hospital disinfectant chemical germicides that have been documented as effective against myobacterium tuberculosis*.

Care also must be taken in the use of disinfectants. Members should be aware of the flammability and reactivity of disinfectants and should follow manufacturer's instructions for use (e.g., contact time and temperature). Disinfectants should only be used with adequate ventilation and while wearing appropriate infection control garments and equipment for cleaning and disinfecting, including eye protection, gloves, and aprons. It also is important when disinfecting equipment, to check with the manufacturer of the germicide to determine compatibility of the medical equipment and protective clothing with the disinfectant.

Information on specific label claims of commercial germicides can be obtained by contacting the Disinfectants Branch, Office of Pesticides, EPA, 401 MSt. S.W., Washington, D.C. 20460.

Setting Aside an Area for Decontamination

The fire department should set aside an area in each fire station for the storage, cleaning, and disinfecting of emergency medical equipment. The room should be physically separated by four walls from other fire station areas, properly lighted, vented to the outside environment, and fitted with floor drains connected to a sanitary sewer system.

Procedures for Disposal of Medical Waste

Disposal of medical waste is a high profile topic. Every fire department should develop and implement procedures for the disposal of medical waste. Compliance with State, Provincial and Local regulations should be carefully considered when developing an infectious waste management plan. A waste management plan should include the following:

- designation of the waste that should be managed as infectious,
- segregation of infectious waste from the noninfectious waste,
- packaging,
- labeling,
- storage,
- treatment,
- disposal, and
- training.

Needles and sharps must be placed in approved puncture resistant disposable containers. These containers should be in all patient transport vehicles and readily available in areas such as drug boxes, trauma kits, and IV kits.

Any disposable medical supplies and wastes generated during emergency medical care must be placed in sealed, leakproof bags and disposed of as medical waste.

Consultation with local hospital infection control practitioners also can be helpful in establishing guidelines for handling medical waste.

Chapter IV

INFECTIOUS DISEASE LAWS

The legal ramifications and impact of laws and court decisions regarding infectious disease are not at all clear as to their direct effect on fire fighters and emergency medical service personnel. However, there are applicable laws and a few cases that have been decided, and others pending, that help to identify the rights of emergency service employees and to establish some precedents.

The Ryan White Comprehensive AIDS Resources Emergency Act

The Ryan White Comprehensive AIDS Resources Emergency Act became public law August 18,1990. The Act authorizes Federal appropriations of $5,000,000 for each of the fiscal years 1991-1995. This money is for grants to states and political subdivisions for the purpose of implementing the Center for Disease Control (CDC) infection control recommendations found in their publication, *Guidelines for Prevention of Transmission of Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) to Health Care and Public Safety Workers, February 1989.*

Subtitle B of the act is designed to allow for requests of notification of exposure by Emergency Response Employees who believe they may have had an exposure and a procedure for that notification to manifest. The Law in a reduced form says that if emergency response personnel feel they have been exposed to an infectious disease they may put in a request to a designated officer. There will be one designated officer or official of each employer of emergency response employees in each state. The designated officer or official will be designated by the public health officer in that state.

The details of each potential exposure shall be collected and evaluated by the designated officer. If he or she feels there was a potential for exposure he or she will submit a request to the medical care facility as soon as possible but within a period not exceeding 48 hours after the receipt of the employee request. The medical care facility will then evaluate the injured victim and make a decision on the basis of the medical information possessed by the facility at that time whether or not there may have been an exposure. There are three types of notification. The types are listed below:

- There was an exposure
- There was no exposure
- There is insufficient information to determine if an exposure occurred.

This notification by the medical facility shall be made to the designated officer in writing as soon as possible, but within a period not exceeding 48 hours after the receipt of the request by the designated officer. The designated officer will then inform the employee or employees involved of the determination. This act does not authorize or require a medical facility to test any such victim for any infectious disease, nor can this act be construed to authorize any emergency response employee to fail to respond, or to deny services, to any victim of an emergency.

States That Have Worker Notification Laws

Forty-four states have laws that allow for worker notification, but do not specifically require any testing of the victim. The determination is made on the basis of the facts that the medical facility has available to them at the time.

Alabama	Illinois	Mississippi	Pennsylvania
Arizona	Indiana	Missouri	Rhode Island
Arkansas	Iowa	Montana	South Carolina
California	Kansas	Nebraska	Tennessee
Colorado	Kentucky	New Hampshire	Texas
Connecticut	Louisiana	New Jersey	Utah
Delaware	Maine	North Carolina	Virginia
Florida	Maryland	North Dakota	Washington
Georgia	Massachusetts	Ohio	West Virginia
Hawaii	Michigan	Oklahoma	Wisconsin
Idaho	Minnesota	Oregon	Wyoming

States That Have Laws Allowing For Testing Of Victims

The following states have laws that allow for testing of victims if emergency response personnel can document that an exposure occurred.

Arkansas	Iowa	Mississippi	Pennsylvania[1,2]
Colorado	Illinois	Montana[1,2]	Rhode Island[2]
Connecticut[2,3]	Louisiana[2]	Nebraska	Texas
Delaware	Maine[3]	New Mexico	Utah[1]
Florida	Maryland[1]	North Dakota[1,4]	Virginia
Hawaii	Michigan	Ohio[3]	Washington[3]
Idaho	Minnesota[1,4]	Oregon[1,4]	Wisconsin[3]

[1] Requires informed consent from the victim.
[2] Testing may be performed on any blood or bodily fluid previously drawn.
[3] A court order to require testing of the patient may be obtained.
[4] Consent not required on deceased persons.

Statute Of Limitations For Filing Claim of Occupational Exposure

Most states have a statute of limitations for filing a claim of occupational exposure to infectious disease. There have been a few cases that address this issue. Although none of them address the fire or emergency services, they do offer guidelines and also some information. Some infectious diseases, particularly HIV/AIDS, may have long periods of incubation before any effects become apparent. Typically, the view is that the statute of limitations begins upon discovery of the effects of the injury, not the point of transmission. Using HIV as an example, the latent effects could take years to manifest. If an employee has been exposed, he may not find out until he either (1) is affected by the disease, or (2) is tested and a positive result is determined. In many states the statute of limitations to file a claim is from a year to two years. It is common place for infected persons not to be aware of their state of health until this term has lapsed. Many states have specific statutes that address the latent effects of infectious diseases.

Fourth Amendment Rights Concerning Mandatory Testing

Anonymous Fireman v. City of Willoughby

Currently there have been a few cases addressing the constitutionality of mandatory HIV testing including one that addresses the fire and emergency services. The focus of this case centers around the collection of the blood sample and whether the requirement of mandatory blood testing is a violation of the Fourth Amendment, Illegal Search and Seizure. Fire fighters from Willoughby, Ohio were transported to a medical laboratory and ordered to undergo a HIV blood test. One fire fighter objected, although he complied with the directive, since the City did not obtain a warrant authorizing the testing and did not have any facts constituting probable cause or reasonable suspicion. He also believed that the City did not have any justification for routine testing, did not have any education and counseling program and did not have any procedures to insure confidentiality.

The Fourth Amendment does not prohibit all searches and seizures, only those that are unreasonable. The determination of the reasonableness of the search requires balancing the need to search against the invasion that the search entails. On one side of the balance is placed the individual's legitimate expectations of privacy, on the other, the government's need for effective methods to deal with legitimate governmental interests.

The Supreme Court in a drug testing case has ruled that the "intrusion occasioned by a blood test is not significant, since such tests are a common place in these days of periodic physical examinations ... and blood tests do not constitute an unduly extensive imposition on an individual's privacy and bodily integrity." The decision goes on to state that "the expectations of privacy of covered employees are diminished by reason of their participation in an industry that is regulated pervasively to ensure safety, a goal dependent, in substantial part on the health and fitness of covered employees." (*Skinner v. Railway Labor Executives' Ass'n*)

The Willoughby decision found that the fire industry is one of the most highly regulated of any industry concerning the performance of their employees. Criminal standards applying the unreasonable search and seizure tests to the city of Willoughby are inappropriate, since fire fighters have a diminished expectation of privacy due to their heavily regulated public employment. (*Chicago Fire Fighters Union, Local 2 v. Chicago*) Mandatory testing of employees can be valid only if the group of employers involved is at a high risk of contracting or transmitting AIDS/HIV to the public, as is the case with the fire and emergency service.

Additionally, the court recognized that a HIV test result would not prevent AIDS from developing, but that persons who have tested positive for the HIV virus or AIDS, can take extra precautions to avoid the spread of HIV/AIDS. Additionally, the court found that those persons who test positive for the HIV virus can perform their work at whatever level and there is no danger of transmitting the HIV virus, there should be no problem with employment. These persons should not be discriminated against or ostracized from society or in their employment. The intended goal is preventing persons from contracting and/or transmitting the HIV virus or AIDS. Reaching this goal of "non transmission" is a compelling governmental interest.

In the Willoughby decision the judge did determine that the Fire Department members could be tested because there was a significant risk of exposure and transmission to themselves and to the public due to the nature of the occupation. Of further interest in this case, the collective bargaining agreement provided for HIV testing and the City argued that whatever rights the employee had were waived by the agreement. The agreement stated that test results must remain confidential and that HIV-infected individuals with no AIDS-type symptoms remain eligible for all job benefits. Additionally, employee cannot be separated by a find of a HIV infection. The court reject the argument that the union had the right to waive constitutional rights enjoyed by the employee. It concluded nonetheless that any intrusion on privacy is justified in the public interest.

Discrimination

There are federal laws that provide statutory protection against handicapped employees from being discriminated against in the workplace. The first of these laws is the Rehabilitation Act of 1973 (RA73). This act protects all employees who work for employers who receive federal funding. Section 504 states that no "otherwise qualified" individual with handicaps shall solely by reason of his handicap, be excluded from the participation in, be denied the benefits of or be subjected to discrimination under any program or activity receiving federal financial assistance. As recently as 1988, the U.S. Department of Justice has held the idea that the fear of being infected by a person with an infected disease was not covered by the statute. However, today there is little doubt that this statute offers this type of protection to those infected with a contagious disease. This in part is due to a Supreme Court Decision in School Board of Nassau County v Arline 107 S. Ct. 1123 (1987). This decision made clear that a person with a contagious disease (in this case Tuberculosis) was a handicapped person within the meaning of RA73 Section 504. The court said that a person was "otherwise qualified" for employment is he or she did not pose a significant risk of communicating the disease to others in the workplace or if a reasonable accommodation could remove the risk. A reasonable accommodation could include the use of protective equipment or a job duty reassignment.

All fifty states and the District of Columbia have adopted anti discrimination legislation similar to the RA73. All but five include public and private employees. To help outline the significance of this legislation, several states and municipalities have enacted HIV/AIDS specific anti discrimination legislation.

The second of these acts is the Americans with Disabilities Act that was enacted on July 26, 1990 and went into effect for state and local governments in early 1992. This act employs the same ideas as the fore mentioned but includes all employers, not just the ones who receive federal moneys.

Persons infected with contagious disease can be free from symptoms for many years depending on the type of contagion. Asymptomatic employees infected with, HIV for example, are just as capable of working as any other employees. Because HIV is not transmitted through casual contact, the potential for exposure and/or transmission is not a sufficient justification for discrimination, unless there is a high probability of exposure/ exchange of body fluids. The most difficult decisions have dealt with determining if infected individuals in the health care industry are "otherwise qualified" to continue working when they may expose patients to their blood or body fluid. To help address this, some employers have sought to test employees for HIV contamination. See previous section on Mandatory Testing.

Severino v. North Fort Myers Fire Control District

To date, there have only been two cases of discrimination relevant to the Fire and Emergency Medical Services. The first was Severino v. North Fort Myers Fire Control District. While the outcome was not in favor of the plaintiff, the case helps to illustrate some crucial points that apply to this type of discrimination.

The complaint was initiated after the plaintiff was advised of being HIV Positive. Based on the medical advice that he should not perform rescue duties required by his job as a fire fighter, Severino immediately tendered his resignation. Instead of accepting the resignation, the department assigned him to "light duty", an alternative that provided him with insurance benefits, and continued salary. Severino stayed on in the department and worked the light duty assignment which consisted of fire hydrant maintenance, dispatch duty, errands and garbage details.

During this time period, Severino began collecting medical and legal literature about AIDS and HIV which led to his interest in a possible lawsuit. He also was concerned that the AIDS infection could have occurred as a result of an occupational exposure. On March 23, 1988, Severino requested return to regular full-line duty. He did not present

conclusive medical documentation of his ability to perform the rescue work as was requested, nor did he accept the offer to comeback to work in any capacity. Severino was terminated on May 24, 1988, although health insurance coverage continued for an additional 18 months.

The view accepted by the court was that Severino instigated and took the initiative in all of the events that followed the discovery of his HIV positive status, including tendering his resignation. It was found that there was no intentional discrimination since he was fired for reasons other than his handicap. The court also found that there was no causal connection between the one departure from the regulations, in assigning Severino to "light duty" based on his handicap, and any harm to him was not in violation of Section 504, nor any other basis for relief.

Some of the key conclusions of this case with regard to The Rehabilitation Act of 1973 are as follows:

- The HIV positive fire fighter was not discriminated against on basis of handicap when he was reassigned to light duty as an accommodation to him; even if fire district's belief regarding necessity of light duty was erroneous because the district relied upon a reasonable medical opinion in assigning fire fighter to light duty.
- The HIV positive fire fighter was "handicapped" within the meaning of the RA73.
- The HIV positive ftre fighter who was assigned to light duty as an accommodation to him and who was discharged after he refused to perform light duty assignments was not discriminated against on the basis of a handicap. (*Note: the ADA, however, now prohibits segregation of disabled employees into certain positions.*)
- RA73 does not subject employers to liability for maintaining appropriate discipline in the work place or for making reasonable decisions to terminate unsatisfactory employees. Evenhanded treatment of employees in a program or activity covered by RA73 does not require the institution or employer to lower or effect substantial modifications of their employment standards to accommodate the handicapped person.
- The HIV positive fire fighter, who was assigned to light duty following his resignation and was then subsequently discharged when he refused to perform light duty assignments, failed to establish that he was denied equal protection or due process. The fire fighter was treated differently only to the extent of providing him with an alternative to his initial voluntary resignation due to his HIV status. The fire fighter was discharged because of his refusal to perform assigned duties, not because of his medical condition.

Upon appealed, the court affirmed the trial court's decision with one of the three appellate judges held a dissenting opinion. The dissenting judge felt that "he would not have been dismissed but for his medical condition, and for this reason he is entitled to relief."

John Doe v. District of Columbia, et al.

The case of John Doe v. the District of Columbia was decided July 1, 1992. In a letter dated January 23,1989 the District offered Doe a position as a fire fighter. This letter was received after Doe had successfully passed the written and physical examinations and all the other prerequisites of employment as a fire fighter. The letter of appointment notified Doe that his annual salary would be set at $23,555 and instructed Doe to report to the fire department on February 13,1989 to begin his employment. The letter further advised Doe that his "first year will be served on a probationary status, during the course of which a suitability investigation would continue. If there is any derogatory or adverse information disclosed, your appointment to the Department will be terminated." Doe did not consider his HIV-positive status to be "derogatory or adverse information" and the District had not tested him for HIV or inquired about his HIV status before offering him the fire fighter position. However, Doe was concerned that the District learn his HIV status later and consider this to be "derogatory or adverse information". Doe believed that a failure to disclose this information would warrant the termination of his employment. Thus, Doe contacted an official within the fire department and disclosed his HIV-positive status.

In response to his disclosure, Doe was informed not to report as instructed by the lever of appointment. Instead, he was asked to undergo two blood tests for HIV, both of which were positive. Although Doe contacted the fire department for several weeks, he was never informed whether he should report for work or if the offer of employment had becn withdrawn. According to a fire department officer, there was no question about Doe's capability of performing the functions of a fire fighter. Instead, the decision not to permit him to report was made because of Doe's HIV status. The captain testified that had Doe not voluntarily reported his HIV status, the department would not have found out and Doe would be a fire fighter. The Chief testified that he considered the public's perception of HIV in deciding not to permit Doe to work, commenting that he "would be crazy" not to take the public's fear of HIV and AIDS into account.

Doe testified the department's refusal to permit him to work due to his HIV status made him feel "rejected," like he was "garbage", and that the District's refusal to notify him of the status of his application was demoralizing. Doe cited his frustration at being denied the opportunity to serve as a fire fighter, a position he sought as a means of serving the community.

One of the key witnesses for the plaintiff testified, "[a]lthough it cannot be predicted with precision how long a particular HIV-positive person will remain asymptomatic, that approximately half of those for whom the date can be identified will exhibit symptoms within 10 years. Asymptomatic HIV positivity does not affect a person's physical capabilities. For example, it does not impair a person's strength, agility, or ability to breath." The witness stated that an asymptomatic HIV infected person should be able to perform the functions of a fire fighter as stipulated by the District". Based on this uncontroverted testimony the Court found that the ability to perform the functions of a fire fighter is unaffected by asymptomatic HIV-positivity.

Another expert witness, offered by the plaintiff, characterized the risk of blood to blood contact during the performance of fire fighting duties as "remote" and of transmission of HIV as "extremely small". This witness also noted that although it is "extremely rare" for a fire fighter to have mouth-to-mouth contact with a rescue victim, such contact presents "no measurable risk" of transmission of HIV. Additionally, her research revealed several fire departments throughout the United States that employed HIV-positive fire fighters in active duty status and none of these departments employed or required any special precautions to be undertaken by these HIV-positive personnel. The personal protective equipment routinely issued to all fire fighters and the routine universal precautions required by all fire fighters are sufficient to protect against harm to the fire fighter or others.

Section 504 of RA73 provides that "No otherwise qualified individual with handicaps in the United States shall solely by reason of her or his handicap, be excluded from the

participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving any federal financial assistance." The Supreme Court has held that "an otherwise qualified person is one who is able to meet all of a program's requirements in spite of her or his handicap." The application of the standard in this case was based on the following criteria.

The court held that Doe is an "individual with handicaps" because he has a physical impairment that substantially limits major life activities such as procreation, sexual contact, and normal social relationships.

With respect to the nature of the risk, the unrebutted testimony established that there are only three methods of HIV transmission: intimate sexual contact, puncture with contaminated intravenous needles, and blood-to-blood contact. Neither of the first two methods of transmission would occur while performing the duties of a fire fighter. With respect to the third, both experts testified that the risk of transmission through this means (i.e., while functioning as a fire fighter) is extremely remote.

The testimony demonstrated that Doe was and is fully fit to serve as a fire fighter. Doe was described as being in good physical condition, asymptomatic and able to perform any job he desires. In addition, Doe passed the fire department's physical examination.

The fire department's own records unequivocally reflect the offer of employment to Doe was withdrawn because of a medical determination that his HIV status rendered him unfit to serve as a fire fighter.

The court held that Doe is entitled to instatement in the fire fighter position offered to him, retroactive to February I3, 1989. The District was also enjoined from discriminating on the basis of HIV status and was required to declare that the city's policy and practice of denying employment on the basis of HIV status violated RA73.

While there has been limited court action on worker infectious diseases issue, it is obvious that this issue will rceceive considerable attention in the future. It is also important to note that the above cases are only set precedent in their respective jurisdiction. Additionally, legislative action is pending on infectious disease issues in the United States and Canada.

Chapter V

Resources

Infectious disease issues are developing rapidly in a complex environment of government regulations, court cases and politics. The IAFF is continually receiving new information and developing new resources. Further assistance can be obtained from the lAFF Department of Occupational Health and Safety.

General

The best source of expert advice on infectious diseases is usually the Centers for Disease Control (CDC) in Atlanta, Georgia. The general number is 404-639-3311.

For information about regulations, call the National OSHA Information Office, 202-523-8148. Copies of the *Bloodborne Pathogens Standard Title 29 CFR, Part 1910.1030* is available from the Government Printing Office, Superintendent of Documents, Washington, DC 20402-9325 or phone 202-783-3238. Request GPO stock number 069-001-0040-8 ($2.00). OSHA also has developed the following materials which are available free from OSHA field offices or the OSHA Publications Office, 200 Constitution Avenue, NW, Room N-3101, Washington, DC 20210 or call 202-523-9667.

Occupational Exposure to Bloodborne Pathogens: Precautions for Emergency Responders, USDOL, OSHA 2130,1992.

Occupational Exposure to Bloodborne Pathogens, USDOL, OSHA 3127, 1992.

Bloodborne Pathogens and Acute Care Facilities, USDOL; OSHA 3128, 1992.

Bloodborne Pathogens and Long-Term Care Facilities, USDOL, OSHA 3131,1992.

The United States Fire Administration has developed a number of training materials on infection control for fire and emergency services. For further information contact the USFA, Office of Emergency Medical Service Programs at 301-447-1080. The USFA also has developed the following manual which is available free from the USFA Office of EMS Programs, 16825 South Seton Avenue, Emmitsburg, MD 21727:

Guide to Developing and Managing an Emergency Service Infection Control Program, FEMA, USFA, 1992.

The IAFF has developed a manual, *Fire Service Occupational Health Programs*, which address infectious disease programs as an important aspect of fire department medical programs. The IAFF also maintains considerable information on communicable diseases. Additional resources available from the IAFF Department of Health and Safety include the *IAFF Occupational Exposure to Contagious Disease Kit, IAFF Review of OSHA Bloodborne Pathogen Memorandum*, December 1991, *Hepatitis B Update*, February 21, 1990, and *Observations Regarding Vaccination Waiver Forms*, February 1990.

The National Fire Protection Association has a standard that addresses fire department infection control program. Your department should be implementing this standard:

National Fire Protection Association 1581, *Standard on Fire Department Infection Control Program*, (1991 Edition), NFPA, 1 Batterymarch Park, Quincy, MA 02269, (800) 344-3555 or (617) 770-3000.

The following references also provide general information on infection control:

National Institute for Occupational Safety and Health. *A Curriculum Guide for Public Safety Workers: Prevention of transmission of Human Immunodeficiency Virus and Hepatitis B Virus.* Cincinnati OH: DHHS (NIOSH) Publication No. 89-108; 1989.

National Institute for Occupational Safety and Health. *Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public Safety Workers: A response to PL. 100-607, the Health Omnibus Programs Extension Act of 1988.* Cincinnati OH: DHHS (NIOSH) Publication No. 89-107; 1989.

Oltmann M. Infectious disease protection of non-health care workers. *AAOHN J.* 1988; 36(5): 228-230.

The Emergency Cardiac Care Committee of the American Heart Association. Risk on infection during CPR training and rescue: supplemental guidelines. *JAMA* 1989;262(19):2714-2715.

Cummins RO. Infection control guidelines for CPR providers (Editorial). *JAMA* 1989; 262(19):2732-2733.

Hughes JM. Universal precautions: CDC perspective. *Occupational Medicine: State of the Art Reviews.* 1989; 4:13-20.

U.S. Department of Health and Human Services. Update on Adult Immunization: Recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR # RR-12, 1991; 40:1-7.

Risk of Infection

The following references provide information regarding fire fighter, EMT and paramedic risk of contracting infectious diseases (HBV and HIV):

Keller, Richard A. and Forinash, Melissa, *EMS in the United States: A Survey of Providers in the 200 Most Populous Cities*, JEMS, January 1990.

Valenzuela T., Hook E., Copass M., and Corey L, *Occupational Exposure to Hepatitis B in Paramedics,* Archives of Internal Medicine, Volume 145, November 1985.

Kunches L., Craven D., Werner B., and Jacobs L, *Hepatitis B Exposure in Emergency Medical Personnel, Prevalence of Serologic Markers and Need for Immunization,* American Journal of Medicine, Volume 75, August 1983.

Pepe P., Hollinger F., Triosi C., Heiberg D, *Viral Hepatitis Risk in Urban Emergency Medical Services Personnel,* Annals of Emergency Medicine 15:4, April 1986.

Centers for Disease Control, U.S. Department of Health and Human Services, *Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public Safety Workers*, February 1989.

Benenson A., Editor, *Control of Communicable Diseases in Man 14th Edition*, American Public Health Association, 1015 15th St. N.W., Washington, D.C. 20005.

Baker J. et al., *Unsuspected Human Immunodeficiency Virus in Critically Ill Emergency Patients*, JAMA Volume 257, No. 19. May 15,1987.

Kelen G. et al, *Unrecognized Human Immunodeficiency Infection in Emergency Department Patients*, NEJM Volume 318, No. 25, June 23, 1988.

Infectious Diseases

The following references provided information regarding specific infectious diseases.

Hepatitis

Valenzuela TD et al. Occupational exposure to hepatitis B in paramedics. *Arch Int Med*. 1985; 145:1976-77.

Kunches LM et al. Hepatitis B exposure in emergency medical personnel: prevalence of serologic markers and need for immunization *Am J Med.* 1983; 75: 269-272

Pepe PE et al. Viral Hepatitis Risk in Urban Emergency Medical Services Personnel. Annals Emergency Medi. 1986;15:454-457.

Richardson T. Hepatitis-B: Preventive Medicine for Emergency Responders. *Fire Engineering*.

Human Immunodeficiency Virus (HIV) and AIDS

Centers for Disease Control. Update: Human Immunodeficiency Virus Infections in health care workers exposed to blood of infected patients, *MMWR* May 22, 1987;36(19): 285-289.

Baker JL et al. Unsuspected Human lmmunodeficiency Virus in critically ill emergency patients. *JAMA* 1987;257:2609-2611.

Kelen GD et al. Unrecognized Human Immunodeficiency Virus infection in emergency department patients. *New England J Med* 1988;318:1645-1650.

Geberding JL et al. Risk of transmitting the Human Immunodeficiency Virus, Cytomega-lovirus, and Hepatitis B Virus to health care workers exposed to patients with AIDS and AIDS-related conditions. *The Journal of Infectious Diseases*. 1987; 156(1): 1-8.

Geberding JL. Occupational HIV transmission: risk reduction. *Occupational Medicine. State of the Art Reviews*. 1989;4:21-24.

Gelb A. HIV infection control issues concerning first responders and emergency physicians. *Occupational Medicine: State of the Art Reviews*. 1989;4:61-64.

Silvani DL. AIDS in the Fire Service: Setting Department Policy. *Fire Engineering.* May, 1991, pp. 65-74.

Korniewicz DM et al. Leakage of virus through used vinyl and latex examination gloves. *Journal of Clinical Microbiology.* 1990;28(4):787-788.

Tuberculosis

Connor-Barrett E. The epidemiology of tuberculosis in physicians. *J. A.M.A.* 1979; 241:33.

Farer LS, Powell KE. Tuberculosis as an occupational disease. Occupational Respiratory Diseases. J.A. Merchant, editor. Division of Respiratory Disease Studies, Appalachian Laboratory for Occupational Safety and Health, NIOSH, U. S. Department of Health and Human Services,. DHHS(NIOSH) Publication No. 86-102, 1986, pp. 709-12.

Ktsanes VK, et al. The cumulative risk of tuberculin skin test conversion for five years of hospital employment. *American Journal of Public Health.* 1986; 76(1): 65-67.

Craven RB, et al. Minimizing tuberculosis risk to hospital personnel and students exposed to unsuspected disease. *Annals of Internal Medicine.* 1975; 82(5): 628-632.

Stein JH (ed.). *Internal Medicine.* Boston: Little Brown and Co.; 1990: 1534-40.

Lyme Disease

Steere AC. Medical Progress: Lyme Disease. *New England Journal of Medicine,* 1989; 321:586-596.

Vaccinations

The following references and contacts provide information regarding vaccinations for emergency response personnel.

Guidelines and general information about vaccinations are available from:

Centers for Disease Control
Division of Immunizations
1600 Clifton Rd.
Atlanta, GA 30333
404-639-1860

American College of Physicians
4200 Pine Street
Philadelphia, PA 19104
1-800-523-1546 or 215-243-1200

American Academy of Pediatrics
141 Northwest Point Blvd.
Post Office Box 927
Elk Grove Village, IL 60009
1-800-433-9016 or 312-228-5005

Scientific and research information about specific biological and immunicological products, including vaccines, serums, toxins, and others is available from the following:

Food and Drug Administration
Division of Congressional and Public Affairs
5600 Fishers Lane (HFB-142)
Rockville, MD 20857
301-443-7532

National Institute of Allergy and Infectious Diseases
Building 31, Room 7A-32
9000 Rockville Pike
Bethesda, MD 20892
301-496-5717

The following documents deal with both general and specific aspects of vaccination against hepatitis B:

U.S. Department of Health and Human Services, Public Health Service, CDC, Center for Infectious Diseases, Division of Viral Diseases, *Protection Against Viral Hepatitis, Recommendations of the Immunization Practices Advisory Committee (ACIP)*, CDC Morbidity and Mortality Weekly Report, February 9, 1990, Volume 39, No. RR-2.

Hadler S., M.D. Deputy Chief, Hepatitis Branch, Division of Viral and Rickettsial Diseases, Center for Infectious Diseases, CDC, *Testimony on the Occupational Safety and Health Administration's Proposed Rule for Occupational Exposure to Bloodborne Pathogens*, Presented at the OSHA Informal Public Hearing in the Special Session on Hepatitis B Immunization, September 12,1989, Washington, D.C.

Legal Requirements

Department of Labor/Department of Health and Human Services, *Joint Advisory Notice: Protection Against Occupational Exposure to Hepatitis B Virus (HB V) And Human Immunodeficiency Virus (HIV)*, October 19, 1987.

U. S. Department of Labor/Occupational Safety and Health Administration, Office of Health Compliance Assistance, *Instruction CPL 2-2.44B Regarding Enforcement Procedures for Occupational Exposure to HBV and HIV*, February, 1990.

Call OSHA Fire Department Inspections for Compliance with the Infectious Disease Guidelines Issued by CDC. For information, contact Jon Rosenberg, M.D., Hazard Evaluation System and Information Service (HESIS), California Departments of Health Services and Industrial Relations, 415-540-2115.

Citation of the Ridgefield Connecticut Fire Department under the Connecticut Occupational Safety and Health Act, March 21, 1988, Connecticut Occupational Safety and Health Administration, 200 Folly Brook Blvd., Wethersfield, CT 06109.

Citation of the Vandenburg Air Force Base Fire Department by the United States Department of Labor, Occupational Safety and Health Administration, Los Angeles Area Office, 3325 Wilshire Blvd., Suite 601, Los Angeles, CA 90010, (213) 252-7829.

Kaminshine SJ. New rights for the disabled: The Americans with Disabilities Act of 1990. *AAOHN J.* 1991;39:249-251.

Videotapes

The following **videotapes** give a good overview of the necessary components of an infection control program for a fire department:

Federal Emergency Management Agency, *Emergency Education Network Videoconference: The Emergency Professional and Infectious Disease*, May 17, 1989. Copies available from TRI, 3202 Tower Oaks Blvd., Rockville, MD 20852, (301) 231-5250.

Federal Emergency Management Agency, *Videotape: Managing Communicable Disease Control Programs*. Distributed by National Audio Visual Center 8700 Edgeworth Dr., Capitol Heights, MD 20743-3701, (301) 763-1896.

National Fire Protection Association, *Fire Service Infection Control.* NFPA, 1 Batterymarch Park, Quincy, MA 02269, (800) 344-3555 or (617) 770-3000.

Standard Operating Procedures

The Pittsburgh Fire Department Infection Control Manual contains Standard Operating Procedures used in Pittsburgh:

Department of Public Safety, *City of Pittsburgh, Infection Control Manual.* Developed by the Center for Emergency Medicine of Western Pennsylvania. Pittsburgh, PA, June 1988.

Training

The Centers for Disease Control has prepared a training curriculum designed to meet the training and education needs of public safety workers (fire fighters and police officers) and emergency medical workers who may be exposed during the course of their job duties to HBV and HIV. It is based on federal guidelines for preventing occupational transmission or spread of HBV and HIV among worker groups.

Department of Health and Human Services, Public Health Service, Centers for Disease Control, *A Curriculum Guide for Public-Safety and Emergency-Response Workers, Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus,* DHHS, PHS, CDC, Atlanta, GA. February 1989.

Protective Clothing and Equipment

The National Fire Protection Association has a standard that addresses protective clothing for protection from biological exposures. Your department should be purchasing clothing that meets this standard:

National Fire Protection Association 1999, *Standard on Protective Clothing for Emergency Medical Operations*, (1992 Edition), NFPA, 1 Batterymarch Park, Quincy, MA 02269, (800) 344-3555 or (617) 770-3000.

The American Society for Testing and Materials has a standard for rubber examination gloves. You may wish to purchase gloves that meet this standard:

American Society for Testing and Materials, *Standard Specification for Rubber Examination Gloves, ASTM Designation: D 3578-77,* (Reapproved in 1988), American Society for Testing and Materials, 1916 Race St., Philadelphia, PA 19103.

Disinfectants

For a list of EPA Registered Hospital Disinfectants that are registered as tuberculocidal, contact: Juanita Wills, Chief, Disinfectants Branch, Registration Division, U.S. Environmental Protection Agency, Washington, DC 20460, (703) 557-3661.

Medical Waste

The following references may be helpful when you are developing procedures for the handling and disposing medical waste:

Centers for Disease Control, U.S. Department of Health and Human Services, *Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public Safety Workers*, February 1989.

Environmental Protection Agency, *EPA Guide for Infectious Waste Management*, (EPA 1986).

U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, *Guidelines for Protecting the Safety and Health of Health Care Workers*, September 1988, DHHS (NIOSH) Publication No. 88-119.

Garner J., R.N., M.N., Favero M., Ph.D. *Guidelines for Handwashing and Hospital Environmental Control, 1985*, Hospital Infections Program, Centers for Disease Control, Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA.

Garner J., R.N., M.N., Simmons B., M.D, *Guidelines for Isolation Precautions in Hospitals*, Hospital Infections Program, Centers for Infectious Diseases, CDC, Atlanta, GA.

Environmental Protection Agency, *40 CFR Parts 22 and 259, Standards for the Tracking and Management of Medical Waste, Interim Final Rule and Request for Comments*, March 24, 1989. For further information contact: Michael Petruska, Office of Solid Waste, U.S. EPA, 401 M St. S.W., Room S-242, Washington, DC 20460, (202) 382-3000.

Agency for Toxic Substances and Disease Registry, Atlanta, GA, Medical Wastes Group. Contact Mr. Sven Rodenbeck in regard to any relevant information you may have concerning the health effects of medical waste, (404) 488-204.

Post-Exposure Management

The following references provide guidelines for the post-exposure management of emergency medical workers:

Public Safety Worker Guidelines, U.S. Department of Health and Human Services, Public Health Service, CDC.

ACIP Recommendations Concerning Viral Hepatitis, U.S. Department of Health and Human Services, Public Health Service, CDC.

Public Health Service Statement on Management of Occupational Exposure to Human Immunodeficiency Virus, Including Considerations Regarding Zidovudine Post-exposure Use, CDC Morbidity and Mortality Weekly Report, January 26, 1990, Volume 39, No. RR- I.

Williams W. M.D., MPH, *Guideline for Infection Control in Hospital Personnel*, published July 1983, Hospital Infections Program, Center for Infectious Diseases, CDC, Atlanta, GA. Available from the National Technical Information Service (NTIS).

Notification Legislation

For sample notification legislation contact the IAFF:

IAFF Department of Occupational Health and Safety, *Packet of State Communicable Disease Notification Laws.* Note: If your state adopts such legislation please forward a copy to our office.

Facility Design

The following reference discusses fire station design and how it relates to infection control:

Williams D., Pedrotti D., *Blueprint for a Disease-Free Station,* Firehouse Magazine, February 1988.

Terms and Definitions

Antibody: A type of protein (an immunoglobulin) produced by the body's immune system that is specific for a particular antigen, conferring immunity to the body against that antigen.

Antigen: Any substance that stimulates an immune response in an individual when the individual is exposed to it. The immune response is usually in the form of antibodies. For example, vaccinations use antigens derived from bacteria or viruses to stimulate an immune response in the body. Antigens may be the whole or only part of the microbe in question.

Bacteria: A group of microscopic organisms that are capable of reproducing on their own, causing human disease by direct invasion of body tissues. Bacteria often produce toxins that poison the cells they have invaded. Numerous bacteria also live in harmony with the body and are necessary for human existence, such as bacteria that aid in digestion in the gut. Important bacterial diseases include "strep" tonsillitis, pneumonia, and meningitis.

Bloodborne pathogen: A pathologic microorganism that is present in human blood, blood components, and blood products that can cause disease in humans.

Hepatitis B carrier: A person in whom the hepatitis B virus has established a persistent low grade infection in the patient's liver that the patient's immune system is unable to clear. This occurs in 5 to 10% of all people infected with hepatitis B. Hepatitis B carriers are at increased risk of developing cirrhosis of the liver, liver cancer, and liver failure, all of which may eventually result in the patient's death.

Hepatitis B core antigen (HBcAg): This antigen is present on the inside of the hepatitis B virus, but does not stimulate the immune system to produce long lasting immunity.

Hepatitis B surface antibody (HBsAb): An antibody produced by the body's immune system that is specifically active against the hepatitis B surface antigen. This antibody confers long lasting immunity against hepatitis B.

Hepatitis B surface antigen (HBsAg): The antigen that is present on the outside surface of the hepatitis B virus. This antigen stimulates the antibody response against the hepatitis B virus that confers long lasting immunity.

Hepatitis B surface antigen (HBsAg): The antigen that is present on the outside surface of the hepatitis B virus. This antigen stimulates the antibody response against the hepatitis B virus that confers long lasting immunity.

Immunity: Resistance to a particular disease due to an activation of the body's immune system by exposure to either the infectious agent or to a vaccination prepared from the infectious agent.

Induration: An area of hardened tissue

Incidence: The number of new cases of disease in a defined population occurring over a specific period of time, usually one year.

Myalgia: Tenderness or pain in the muscles; muscular rheumatism

Prevalence: The number of existing cases of a particular disease present at a given time in a defined population. The prevalence is usually expressed as a proportion or a percentage of the population under study.

Prophylaxis: A means of providing temporary protection against disease by means of either a medication or substance that stimulates the body's own immune system against the disease, or a transfer of protective factors pooled from donors or animals.

Serology: The branch of science concerned with the study of the immune components of the serum (antigens and antibodies).

Vaccine: A preparation of killed or inactivated bacteria or viruses that is given to a person in order to artificially stimulate their immune system against a particular disease. This protects the vaccinated person from contracting the disease in the future.

Virus: A term for a group of microbes that are incapable of reproducing on their own, and must invade a host cell in order to use its genetic machinery for reproduction. Viruses are smaller than bacteria, and are responsible for the most common human diseases, the common cold and the "flu" (influenza). Viruses are also responsible for the more serious diseases AIDS and hepatitis B.

Sample Fire Department Infection Control Policy

Infectious Disease Exposure and Reporting

It shall be the policy of the Fire Department to provide a high level of protection against communicable diseases for all uniformed members while providing fire, rescue, and emergency medical services.

The Fire Department, with regard to all patients, will use accepted recognized safe practices when dealing with body fluids.

The Fire Department shall provide appropriate personal protective equipment, training, and immunization for all its uniformed employees for protection from communicable diseases.

The Fire Department shall provide appropriate information and follow-up health care should one of its members become involved in an exposure related incident.

The Fire Department shall maintain members personal health files, in a confidential manner, during the duration of employment plus thirty (30) years.

The Fire Department's Infectious Disease Exposure and Reporting instructions shall be reviewed annually.

Definitions

BLOODBORNE PATHOGENS: means pathogenic micro-organisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

CONTAMINATED: The presence or the reasonably anticipated presence of blood, body fluid or other potentially infectious materials on an item or surface.

FIRE/EMS REPORTABLE EXPOSURE: A direct introduction of a potentially infectious agent from a patient into the EMS worker's body. These exposures include:

- PERCUTANEOUS (through the skin) A percutaneous event occurs when blood or body fluid is introduced through the skin. Examples: needle stick with a bloody needle; sustaining a cut by a sharp object contaminated with blood; entrance of blood or body fluids through an open wound, abrasion, broken cuticle, or chapped skin.
- MUCOCUTANEOUS (in eye, mouth, or nose) A mucocutaneous event occurs when blood or body fluids come in contact with a mucous membrane. Example: blood or body fluid is splashed or sprayed into the eye, nose, or mouth.

EXPOSURE: Contact with infectious agents, such as body fluids, through inhalation, percutaneous inoculation' or contact with an open wound, non-intact skin, or mucous membrane or other potentially infectious materials that may result from the performance of an employee's duties.

HOSPITAL REPORTABLE EXPOSURE (unsuspected exposure): A hospital reportable or unsuspected exposure occurs if EMS employees treat or transport a patient who is later diagnosed as having a serious communicable disease that could have becn

transmitted by a respiratory route. Hospital reportable diseases include tuberculosis and meningococcal meningitis.

NOT A REPORTABLE EXPOSURE:

- Blood on intact skin;
- Blood on clothing or equipment;
- Being present in the same room as an infected person;
- Touching an infected person; and
- Talking to an infected person.

POTENTIALLY INFECTIOUS MATERIALS: The following human body fluids: semen, vaginal secretions, cerebrospinal fluids, synovial, pleural fluids, pericardial fluids, peritoneal fluids, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.

REGULATED WASTE: Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing materials during handling; contaminated sharps; and pathological and microbiological waste containing blood or other potentially infectious materials.

RESPONSIBILITY

MEMBER'S RESPONSIBILITIES

- Shall be responsible for promptly reporting all EMS reportable exposures to their supervising officer.
- Shall be responsible for promptly completing the forms required for reporting an "EMS reportable exposure and all forms required for any follow-up treatment as listed below:
  - Worker Compensation Documentation
  - Injury Form
  - Pension Board Claim Form
  - Pension Disability Accident Report
  - Shall be the member's responsibility to keep their Health History Immunization Record, up to date, at their assigned station with a current copy in their Injury/Illness file.
- Shall always use appropriate PPE as the incident dictates following Departmental procedures and guidelines for protection.
- Members may refuse immunization, or may submit proof of previous immunization. Members who refuse HBV immunization will be counseled on the occupational risk of communicable diseases and the ramifications of refusing the immunization and will be required to sign a

refusal of immunization statement. Members who refuse immunization may later receive immunization upon request.

COMPANY OFFICERS

- Company Officers shall report FIRE/EMS reportable exposures to the emergency department charge nurse verbally and forward their exposure report form to the Infection Control Officer.
- Notify their on duty Battalion Chief that an EMS reportable exposure has occurred.
- Shall attach a copy of the Department's exposure form to a copy of the Injury Form when an exposure has occurred to be filed in the member personnel file.
- Shall maintain a stock of PPE to ensure such equipment is readily available.

BATTALION CHIEFS

- Shall be responsible for the prompt completion of the required forms by members in their battalions within 24 hours or the completion of the shift.
- Shall be responsible for second level supervisor's review of required supervisor's reports. Shall mandate safe operating practices at an incident site and in the station. Shall support and enforce compliance with the Infectious Disease Control Program.
- Shall not allow new recruits to assume emergency response duties until HBV vaccination has been offered.

INFECTION CONTROL OFFICER

- Shall be the Fire Department contact person for all Hospital Reportable Exposures.
- Shall contact employees and inform them of hospital reportable exposures; and that the test results of EMS reportable exposures are available.
- Shall arrange for initiation of follow-up treatment as required. Shall notify members that results of screening for HIV and Hepatitis B are available.
- Shall ensure the confidentiality of all reports and approve the release of any related information for whatever purpose.
- Shall be the contact person after normal business hours.
- Shall coordinate the immunization program and maintain records.

- Shall keep abreast of new developments in the field of infection control and make appropriate recommendations to the Department.

SAFETY OFFICER

- Monitor the exposure and injury reporting system.
- Provide assistance to members and supervisors with problems related to exposure.
- Maintain confidential records of incidents and treatment, and ensure worker's compensation action or retirement action.
- Initiate revisions or education to prevent recurrence of incidents. Shall serve as contact person in the event the Infection Control Officer is unavailable.
- Conduct spot inspection of on scene and station operations to ensure compliance with Department's infection control policy.

DEPUTY/ASSISTANT CHIEFS

- Shall evaluate the Department's compliance with the infectious disease and exposure program.
- Shall confer with Battalion Chiefs for any remedial infection control training that may be needed and schedule such training with the Training Division.

PROCEDURE

JOB CLASSIFICATIONS/TASKS

The following job classifications or tasks are areas where members can reasonably anticipate that an exposure to blood, or other body fluids, or other potentially infectious materials may occur. These examples are not intended to cover every incident to which our members may be exposed.

- Administering emergency medical care to injured or ill patients.
- Rescue of victims from hostile environments, including burning structures or vehicles, water contaminated atmospheres, or oxygen deficient atmospheres.
- Extrication of persons from vehicles, machinery, or collapsed excavations, or structures.
- Recovery and/or removal of bodies from any of the above situations.
- Response to hazardous materials emergencies, both transportation and fixed site, involving potentially infectious substances.

The above tasks, although limited, can be expected to be encountered by all uniformed members in the performance of assigned duties.

Non uniformed members are not intended to be covered by the aforementioned applications nor would they be expected to perform those duties.

STATION ENVIRONMENT

All work uniforms shall be washed in the station. **UNDER NO CIRCUMSTANCES SHALL CONTAMINATED WORK UNIFORMS BE WASHED AT HOME.**

All members shall be provided and expected to maintain an extra clean uniform in their lockers so that contaminated uniforms can be removed and cleaned upon returning to quarters.

Disposable gloves shall be used when handling contaminated clothing.

Each station shall establish a designated cleaning area which shall be physically separated from areas used for food preparation, personnel hygiene, sleeping, and living areas.

Upon returning to quarters after an incident the following precautions shall be observed:

- Contaminated clothing shall be removed and replaced with a clean uniform.
- Contaminated clothing shall be washed as soon as possible upon returning to quarters or placed in a red biohazard bag for future cleaning.
- Contaminated clothing shall be cleaned in the designated cleaning room.
- All cleaning of contaminated clothing shall be done using a tuberculocidal cleaning agent approved and registered with the EPA.
- Small stains from body fluids shall be spot cleaned and then disinfected.
- Contaminated boots shall be brush scrubbed in the designated area, with a hot solution of soapy water, rinsed with clean water and allowed to dry.
- Members who experience body fluid contact with the skin shall shower as soon as possible upon returning to quarters.
- All waste generated during decontamination shall be placed in a biohazard bag and placed in the biohazard disposal area.

TRAINING

All uniform members of the Fire Department, prior to assignment and annually thereafter, shall be instructed on protective measures to be taken to minimize the risk of occupational exposure to infectious disease. These topics shall include but not be limited to:

- Education on infectious diseases and modes of transmission;
- Symptoms of infectious diseases;
- Review of Department's infectious disease protocol;

- Recognition of fire service tasks that may create injury or potential for exposure;
- Explanation of the types, location, use and limitation of personal protective equipment;
- Explanation of the Hepatitis B vaccine, including information on efficacy, safety, methods of administration and benefits of being vaccinated;
- Information on post exposure follow up if a sharp injury occurs; and
- Explanation of signs and labels and/or color coding used by the Department.

Written training records shall be maintained for three (3) years after the date on which the training occurred. Information within the record shall include:

- Dates of the session;
- Contents of the session;
- Name of person giving the training; and
- Persons attending the training session.

All personnel shall be tested on the content of the training provided to see if the course objectives were met.

PERSONNEL PROTECTIVE EQUIPMENT

All operation vehicles, excluding Chief's vehicles, shall have closable sharp containers which are puncture resistant and leakproof. Sharp containers shall be colored red, labeled as biohazard and shall be used as the situation dictates.

All operation members shall be issued pocket masks with one-way valves to minimize the need for mouth-to-mouth resuscitation. Mouth-to-mouth resuscitation shall be performed only as a LAST RESORT.

Members shall select PPE appropriate to the potential exposure. No standard operating procedure or PPE ensemble can cover all situations. Common sense has to be used, bit when in doubt, select maximal rather than minimal PPE.

Facial protection shall be used in any situation where splash contact with the face is possible. Facial protection may be afforded by using both a face mask and eye protection, or a full face shield. When treating a patient with a known airborne transmissible disease face mask protection shall be used. The first choice is to mask the patient; if this is not feasible, mask yourself. Face shields on helmets shall not be considered a protection for infectious disease control.

Fire fighting gloves shall be worn in situations where sharp or rough edges are likely to be encountered. If gloves are exposed to infectious diseases they shall be cleaned the same as station uniforms.

Disposable latex gloves shall be worn during any patient contact.

Where possible, latex gloves shall be changed between patients in multiple casualty situations. Disposable latex gloves shall not be reused or washed and disinfected for reuse.

IMMUNIZATIONS AND HISTORY

All members shall be offered and provided the following immunizations or document immunity:

Hepatitis B

- One series of three inoculations;
- Booster shots shall be provided in accordance with CDC recommendations;
- Initial HBV inoculations for current employees shall be provided after training, recruits shall be given inoculations during the last week of drill school.

Tetanus-Diphtheria

- Inoculation required every ten years;
- If puncture wound occurs, a booster is required if it has been seven years or more since last inoculation.

Measles, Mumps, and Rubella

- Immunization not recommended if you were born prior 1957;
- Immunization not recommended if you are pregnant or anticipate becoming pregnant within three months.

Influenza

- Influenza vaccine shall be available from October through February annually;
- The influenza virus changes from year to year, so the vaccine must be readministered annually;
- Influenza inoculations are recommended annually and shall be provided to members on a voluntary basis.

Tuberculosis

- Members shall be provided with TB screening.

All members shall complete a Communicable Disease Health History which shall be updated annually to document immunizations and TB tests.

FIRE/EMS REPORTABLE EXPOSURE

Employee shall initiate immediate self care with their wound with disinfectant, soap and hot water; flush eyes, nose, or mouth exposures with water or ringer solution.

Employee shall make an immediate verbal report of the exposure to on duty supervisor, and initiate a Communicable Disease Report.

Infection Control Officer shall call the hospital where the patient involved was transferred, and will ask to speak with the emergency department charge nurse.

Infection Control Officer shall report nature of exposure, identify incident number and patient, and request patient be tested.

Infection Control Officer shall arrange for immediate medical care of employee; per immunization history and emergency department charge nurse.

Infection Control Officer shall notify Battalion Chief that an exposure has occurred.

The Health Department or hospital shall notify the Infection Control Officer when the results of the patient's blood test are ready. This may take seven days or more.

The Infection Control Officer shall contact employee during normal business hours and inform member of test availability and recommended follow-up procedures.

If treated, members shall forward all forms as required, for treatment of an occupational injury or illness.

If the hospital recommends immediate care of member after normal business hours, the hospital shall contact the Infection Control Officer who shall arrange for the immediate treatment of member.

HOSPITAL REPORTABLE EXPOSURE

Hospitals shall notify the Infection Control Officer of all hospital reportable exposures.

The Infection Control Officer shall arrange for the member to receive follow-up medical care as indicated in the exposure follow-up protocols and as recommended by the reporting hospital.

The Infection Control Officer shall contact and inform the member of test availability and recommended follow-up procedures.

If treated, members shall forward all forms as required, for treatment of an occupational injury/illness.

APPENDIX E

DOCUMENT PREPARED FOR THE INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS BY DR. DEBORAH M. RATLIFF

My name is Deborah M. Ratliff M.D., M.P.H. I am an Occupational Medicine Resident at The Johns Hopkins School of Hygiene and Public Health. Prior to undertaking academic training at Johns Hopkins, I practiced medicine as an internist. I am sensitive to the issues of individual patient confidentiality as well as to the importance of public health surveillance of infectious diseases. I have been asked by the International Association of Fire Fighters to provide comments to the committee for Bill C-333, an act to amend the Canada Health Act.

In response to Dr. Walters' comments, I would certainly agree that universal precautions are a primary means of infectious disease prevention. However percutaneous exposures to blood continue to occur to health care providers despite such measures. Exposures are even more likely to occur to emergency response personnel in a less controlled environment than a health care setting such as a building in eminent collapse or extraction of victims from motor vehicles. Certainly, immunization is also recommended to all health care workers and emergency responders as a means of preventing Hepatitis B. Unfortunately, many employers in the emergency response field are still not providing vaccinations. Additionally, a very small percentage of those immunized may not be protected and exposure to Hepatitis B may necessitate prophylaxis with Hepatitis B immunoglobulin (HBlG).

The Ryan White Comprehensive AIDS Resources Emergency Act includes provisions regarding emergency response employees and a list of infectious diseases to which such personnel could be exposed. The Centers for Disease Control and Prevention (CDC) developed the list using the following criteria:

1. The disease is life-threatening, that is it carries a substantial risk of death if acquired by a healthy, susceptible host.
2. The disease can be transmitted from person to person.

The list included Hepatitis B and C, *Mycobacterium tuberculosis* (TB), human immunodeficiency virus (HIV), diptheria, hemorrhagic fevers, meningococcal disease, rabies, and *Yersinia pestis* (plague).

The CDC has published guidelines for occupational exposures to HIV including the use of zidovudine (AZT). (MMWR 1990;39:RR-l) HIV seroconversion is estimated to be 0.4% or 1/250 for significant parenteral exposures (contaminated needlestick or sharp). The risk is less for mucocutaneous exposures. However the risk is not zero and the outcome for HIV infection is fatal.

AZT has been proposed as a secondary measure of prevention because it inhibits viral replication and may be useful after transmission has occurred. The efficacy of AZT prophylaxis in humans is unknown because the seroconversion rate is so low. Thus the sample size is too small to detect a reliable estimate of risk reduction, if such risk reduction exists. A study of post-exposure AZT prophylaxis among health care providers by Burroughs-Wellcome was abandoned because of the lack of acceptance of randomization to placebo vs. AZT. In addition, the long-term sequelae of AZT treatmemt are unknown, particularly with regard to carcinogenicity.

Post-exposure HIV testing is currently recommended by the CDC at the time of exposure (baseline), at 6 weeks, 12 weeks, and at 6 months. Institutions such as The Johns Hopkins Hospital, the National Institutes of Health, and San Francisco General Hospital have protocols in place for voluntary testing of both the patient and the exposed health care worker. Confidentiality of the source individual as well as the health care provider should certainly be maintained at all times. Post-exposure AZT is available on a voluntary basis after careful consultation with a designated health care provider within each institution. Individuals are counseled regarding the Public Health Service recommendations for preventing the transmission of HIV during the follow-up "window period" during which they may not yet have seroconverted but may harbor the HIV virus. These recommendations include: postponement of pregnancy, cessation of breastfeeding, refraining from blood or organ donation, and abstaining from or using latex condoms during sexual inntercourse. (MMWR 1990;39:RR-1)

From a utility point of view, knowledge that the source of exposure was negative for HIV, TB or Hepatitis B or C following a significant exposure can allay unnecessary anxiety and eliminate the need for further follow-up and prophylactic treatment. Such a study was done by my Canadian colleagues (Allen et. al. 1991) to determine the value of HIV testing of patients' blood referred to as the "donor" blood. A decision analysis was conducted utilizing three options:

A. treat all exposed health care workers with AZT prophylactically for 42 days;

B. treat none of those exposed;

C. test the source of the exposure and treat the health care worker only if the source was HIV positive.

(The HIV testing by Western Blot has a sensitivity of 99.4% and a specificity of 97.0 % indicating few false negatives and few false positives respectively.) The analysis accounted for iatrogenic complications resulting, from AZT therapy. This type of analysis determined that the value of testing was independent of the efficacy of AZT prophylaxis, in other words, the value or "utility" was not in identifying the 5% eligible for AZT but rather the reduction in stress or "worrying factor" for approximately 95% of the health care workers who would be reassured by a negative test.

A second study in Canada by Allen et. al. in 1992 demonstrated the cost benefit of "donor testing," i.e. testing the patient for HIV rather than repeated testing and counseling of the exposed health care worker. A decision analysis was conducted using three strategies and employing probability based on HIV seroprevalence in the population and a seroconversion risk of 0.3% after HIV exposure. The strategies were as follows.

A. Treat all exposed health care workers with AZT initially until the results of "donor" testing is confirmed. If the "donor" is HIV negative, discontinue AZT treatment and further HIV testing. If the donor is HIV positive, then treat with AZT for 4 weeks and continue HIV testing at 6 weeks, 3 months, 6 months, 1 year, and 2 years.

B. Test the donor arnd perform follow-up testing only if the health care worker was exposed to HIV positive blood. Do not administer AZT even with positive HIV exposure.

C. Do not test the "donor" case and follow all health care workers after exposure with HIV testing at 6 weeks, 3 months 6 months, 1 year, and 2 years. Do not administer AZT.

The costs in Canadian dollars for every 100 health care workers managed with strategies A, B, and C are $47,910; $38,849; and $110,834 respectively. Therefore the most cost effective strategy was to test the source of the exposure (the patient) and provide follow-up HIV testing of the exposed health care workers only when the exposure was documented to be HIV positive. (No AZT was given in this strategy even if the exposure was documented to be HIV positive.)

HIV testing should of course be voluntary and confidential. A policy of having a designated officer at the health care facility would help maintain confidentiality of the source as well as the exposed individuals. This policy would also remove the burden of tracing contacts by many individual physicians. In conclusion, a notification system of infectious disease exposure for emergency responders does not obviate the necessity for using universal precautions to prevent disease transmission. However, such a system would allay unnecessary anxiety, eliminate the need for and expense of further follow-up, and reduce the invasion of personal privacy decisions regarding the prevention of transmission of HIV and other infectious diseases.

References

Allen UD, Gueriere M, Read SE, and Detsky AS. Percutaneous injuries among health care workers: the real value of human immunodeficiency virus testing of 'donor' blood. *Arch Inter Med* 1991;151:2033-2040.

Allen UD, Read S, and Gafni A. Zidovudine for chemoprophylaxis after occupational exposure to HIV-infected blood: an economic evaluation. *Clin Inf Dis* 1992;14:822-30.

Callaham ML. Prophylaxis with zidovudine (AZT) after exposure to human immunodeficiency virus: a brief discussion of the issues for emergency physicians. University of California, San Francisco. *Ann Emerg Med* 1991; Dec.;20(12): 1351-54.

Health and Welfare Canada. Bloodborne pathogens in the health care setting: risk for transmission. *Canada Communicable Disease Report* 25 December 1992;vol.18-24:177-184.

Centers for Disease Control. Public health service statement on management of occupational exposure to human immunodeficiency virus, including considerations regarding zidovudine postexposure use. *MMWR*. 1990;39:RR-1.

Ryan White Comprehensive AIDS Resources Emergency Act. PHS Act, 42 U.S.C. 300ff-81 to 300ff-90.

Walters D. Director, Department of Health Care and Promotion. Minutes of Proceedings and Evidence of the Standing Committee on Health and Welfare, Social Affairs, Seniors and the Status of Women. Testimony Respecting the Subject Matter of Bill C-333, An Act to Amend the Canada Health Act. Issue no. 15. February 16, 1993.

Request for Government Response

Your Committee requests that the Government table a comprehensive response to this report.

A copy of the relevant Minutes of Proceedings and Evidence (*Issues Nos. 14, 15, 16, 17 and 18, which includes this report*) is tabled.

Respectfully submitted,

BARBARA GREENE,
Chair.

MINUTES OF PROCEEDINGS

TUESDAY, APRIL 20, 1993
(24)

[*Text*]

The Standing Committee on Health and Welfare, Social Affairs, Seniors and the Status of Women met *in camera* at 4:00 o'clock p.m. this day, in Room 208, West Block, the Chair, Barbara Greene, presiding.

Members of the Committee present: Barbara Greene, Jean–Luc Joncas, Rey Pagtakhan, Barbara Sparrow and Stan Wilbee.

Acting Member present: Joy Langan for Jim Karpoff.

In attendance: From the Research Branch of the Library of Parliament: Odette Madore and Margaret Young, Research Officers.

The Committee resumed consideration of its Order of Reference relating to the subject matter of Bill C–333, An Act to amend the Canada Health Act (*See Minutes of Proceedings and Evidence dated Tuesday, February 9, 1993, Issue No. 14*).

The Committee commenced consideration of a draft report.

At 4:45 o'clock p.m., the Committee adjourned to the call of the Chair.

TUESDAY, JUNE 1, 1993
(29)

The Standing Committee on Health and Welfare, Social Affairs, Seniors and the Status of Women met *in camera* at 3:40 o'clock p.m. this day, in Room 307, West Block, the Chair, Barbara Greene, presiding.

Member(s) of the Committee present: Edna Anderson, Barbara Greene, Jean–Luc Joncas, Rey Pagtakhan, Barbara Sparrow and Stan Wilbee.

Acting Member(s) present: Joy Langan for Jim Karpoff.

In attendance: From the Research Branch of the Library of Parliament: Odette Madore, William Bartlett and Margaret Young, Research Officers.

The Committee resumed consideration of its Order of Reference relating to the subject matter of Bill C–333, An Act to amend the Canada Health Act (*See Minutes of Proceedings and Evidence dated Tuesday, February 9, 1993, Issue No. 14*).

The Committee resumed consideration of a draft report.

It was agreed,—That the document prepared for the International Association of Fire Fighters, by Dr. Deborah M. Ratliff, be printed as an appendix to the report.

At 4:45 o'clock p.m., the Committee adjourned to the call of the Chair.

TUESDAY, JUNE 15, 1993

(30)

The Standing Committee on Health and Welfare, Social Affairs, Seniors and the Status of Women met in camera at 3:40 o'clock p.m. this day, in Room 208, West Block, the Chair, Barbara Greene, presiding.

Member(s) of the Committee present: Edna Anderson, Barbara Greene, Jean-Luc Joncas and David Walker.

Acting Member(s) present: Ray Skelly for Jim Karpoff; Louise Feltham for Barbara Sparrow.

In attendance: From the Research Branch of the Library of Parliament: Odette Madore, William Bartlett and Margaret Young, Research Officers.

The Committee resumed consideration of its Order of Reference relating to the subject matter of Bill C-333, An Act to amend the Canada Health Act (See Minutes of Proceedings and Evidence dated Tuesday, February 9, 1993, Issue No. 14).

The Committee resumed consideration of a draft report.

It was agreed,—That the draft report, as amended, be concurred in.

It was agreed,—That the said report be entitled Disclosure of Information to Emergency Response Personnel.

It was agreed,—That the draft report, as amended, be adopted as the Committee's Ninth Report to the House and that the Chair be authorized to make such typographical and editorial changes as may be necessary without changing the substance of the Report and that the Chair be instructed to present the said Report to the House.

It was agreed,—That, pursuant to Standing Order 109, the Committee request that the Government table a comprehensive response to this Report.

It was agreed,—That the Committee print 2,000 copies of this Report, in tumble bilingual format, with a distinctive cover.

At 3:50 o'clock p.m., the Committee adjourned to the call of the Chair.

Christine Fisher
Clerk of the Committee

It was agreed,—That the document prepared for the International Association of Fire Fighters, by Dr. Deborah M. Redlift, be printed as an appendix to the report.

At 4:45 o'clock p.m., the Committee adjourned to the call of the Chair.

TUESDAY, JUNE 15, 1993

(30)

The Standing Committee on Health and Welfare, Social Affairs, Seniors and the Status of Women met in camera at 3:40 o'clock p.m. this day, in Room 208, West Block, the Chair, Barbara Greene, presiding.

Member(s) of the Committee present: Edna Anderson, Barbara Greene, Jean-Luc Joncas and David Walker.

Acting Member(s) present: Ray Skelly for Jim Karpoff; Louise Feltham for Barbara Sparrow.

In attendance: From the Research Branch of the Library of Parliament: Odette Madore, William Bartlett and Margaret Young, Research Officers.

The Committee resumed consideration of its Order of Reference relating to the subject-matter of Bill C-233, An Act to amend the Canada Health Act (See Minutes of Proceedings and Evidence dated Tuesday, February 9, 1993, Issue No. 18).

The Committee resumed consideration of a draft report.

It was agreed,—That the draft report, as amended, be concurred in.

It was agreed,—That the said report be entitled Disclosure of Information to Emergency Response Personnel.

It was agreed,—That the draft report, as amended, be adopted as the Committee's Ninth Report to the House and that the Chair be authorized to make such typographical and editorial changes as may be necessary without changing the substance of the Report and that the Chair be instructed to present the said Report to the House.

It was agreed,—That, pursuant to Standing Order 109, the Committee request that the Government table a comprehensive response to this Report.

It was agreed,—That the Committee print 2,000 copies of this Report, in French, bilingual format, with a distinctive cover.

At 4:45 o'clock p.m., the Committee adjourned to the call of the Chair.

Christine Fraser
Clerk of the Committee