

## Blood borne viruses (BBVs)

Wafaa Ahmed Zahran

Blood borne viruses (BBVs) are viral infections that can be transmitted from person to person through blood or body fluids. The BBV infection is a major global health problem, posing great risk to both healthcare workers and patients in their care. In health care settings, Healthcare workers (HCW) may acquire bloodborne infections from lacerations, punctures, and non-intact skin exposures to the blood or body fluids of infected patients. Exposures may occur during surgical or invasive medical/dental procedures. Transmission of BBV infection to patients may occur by injection, infusion, transplantation, unsterile equipment, or other accidental injury/penetration. So, the workshop will concentrate on the BBVs that could be transmitted in the healthcare settings; HBV, HCV and HIV: for each of these viruses, there will be clarification of their characteristics, worldwide epidemiology, modes of transmission, clinical significance, laboratory diagnoses, and updates of treatments. In this part, PowerPoint presentation together with interaction with the audience in the form of think, pair and share activity about simple basic knowledge in relevance to these BBVs. In the second part, there will be discussion about risk of transmission between patients and healthcare workers, Factors influencing the occupational risk with elaboration of different conditions/ situations for transmission; how to get Risk Reduction of transmission to Healthcare Workers and Risk Reduction of transmission to Patients; with review of Infection control measures for prevention of transmission of Blood borne Viruses in Healthcare Settings: standard precautions, safe sharps disposal, safe injections, decontamination and healthcare workers vaccination. Discussion would elaborate the Updated Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Post exposure Prophylaxis. Animation and short videos will be used to elucidate the PowerPoint presentation of this part. Third part, will be in the form of interactive groups discussion about some presented case scenarios, showing different clinical presentations and select and explain best management modalities to ensure deep understanding and optimum knowledge retention.

Blood Borne Viruses (BBVs) are viruses that may be carried by some people's blood and which may cause severe disease in certain people and few or no symptoms in others. Some of the main BBVs are:

- Hepatitis B, C and D viruses which cause the liver disease hepatitis.
- Human Immunodeficiency Virus (HIV) which causes AIDS (Acquired Immune Deficiency Syndrome) which affects the immune system

of the body.

The viruses can also be found in breast milk. Other body fluids or materials such as urine, faeces, saliva, sweat and vomit carry a minimal risk of BBVs unless they are contaminated with blood.

Occupations that may be at risk include those working in the refuse and recycling industry, laundry workers, laboratory workers, vehicle recovery and repair workers, correctional officers, emergency responders, morticians, hair dressers, beauticians, dentists, needle exchange service workers, plumbers, local authority workers, tattooists and healthcare personnel. The risk of being infected by a BBV whilst carrying out first aid duties is small but appropriate precautions should be followed.

### Preventing Infection

The following precautions can help to reduce the risk of infection:

- Avoid all contact with blood or body fluids where possible. Cover breaks in exposed skin by means of waterproof dressings and/or gloves.
- Treat all blood or blood products as if it were infectious.
- Use engineering controls e.g. needle safe systems.
- Use safe work practices e.g. have documented safe practices for handling and disposing of contaminated sharps, handling specimens, handling contaminated laundry, items and surfaces etc.
- Wear appropriate Personal Protective Equipment (PPE) to avoid contamination e.g. gloves, goggles or visor, disposable clothing protection such as aprons.
- Make hepatitis B vaccinations available to those at risk.
- Ensure emergency procedures and post-exposure plans are in place for those who experience an exposure incident e.g. needlestick injury.
- Follow good basic hygiene practices such as hand washing before and after glove use and avoid hand to mouth or eye contact.

**Bloodborne viruses (BBVs)** are [viral infections](#) that can be transmitted from person to person [through blood or body fluids](#). Some ways that BBVs can be transmitted include sexual intercourse, needle sticks, or if the blood or body fluids of an infected person come into contact with another person's mucous membranes, open wounds, or skin abrasions.

Some bloodborne viruses cause few to no symptoms,

while others can cause severe illness and even death. That is why it is important to understand the [types of bloodborne viruses](#) and what to do if you find yourself in situation where you need to clean up blood or body fluids.

Managing the spread of BBVs is best achieved through the continuation of successful 'partnership models', such as the models of collaboration initiated to combat HIV/AIDS.

Strategies that address the spread of viral hepatitis, HIV, and HTLV-1 must be supported by the close collaboration of governments, medical practitioners, health workers, and relevant non-government organisations (NGOs).

Individuals found to have a chronic BBV infection should be linked to care and support for ongoing monitoring and lifestyle modification, and to reduce the risks and impacts of co-morbidities. Among people infected with viral hepatitis, this includes raising awareness of self-management strategies, reducing risk factors such as the use of alcohol, and stressing the importance of adopting a healthy lifestyle to prevent progression to liver cancer or liver cirrhosis. Of particular importance is the provision of hepatitis A and B vaccinations for

patients with chronic hepatitis C.

Early diagnosis provides the best opportunity for effective medical support, the prevention of onward transmission to others, and improved long-term health outcomes and associated co-morbidities. Treatment for BBV infection can also contribute to preventative efforts; for example, HIV antiretrovirals can reduce the viral load and thereby reduce the risks of onward transmission.

#### **Biography**

Wafaa Ahmed Zahran is a Professor of Medical Microbiology& Immunology, Faculty of Medicine, Dean of Faculty of Pharmacy, Menoufia University Egypt. She is also the Head of infection control unit, Menoufia University Hospitals. She completed her MBBch faculty of Medicine at Tanta University. She did her MSc and ph D in Microbiology & immunology in Menoufia University. Dr. Wafaa also completed her Infection control Professional Diploma AUC, Cairo and Medical Education Diploma, at Arab institute for continued development.

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*Note: Joint Event on 33rd International Conference on Oncology Nursing and Cancer Care and 16th Asia Pacific Pathology Congress  
September 17-18, 2018 Tokyo Japan*

Volume 2, Issue 1