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<b>Title:</b>	<b>Biological Risk Groups</b>		
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## Introduction

Organisms have traditionally been categorized into **risk groups**, which rank according to the relative hazard of the pathogen. Multiple factors are used to determine into which risk group an organism falls:

- ε Pathogenicity
- ε Infectious dose
- ε Mode of transmission
- ε Host range
- ε Availability of effective preventative methods
- ε Availability of effective treatment

It is presumed that ordinary circumstances exist in a laboratory or that the growth of small volumes of pathogens for diagnostic or experimental purposes is undertaken. A list of pathogens, listed according to their risk group, is available through PHAC. These "schedules" are under constant review and are only a guideline for determining risk groups.

## Associated Procedure

### ***Risk Group 1-Low individual and community risk***

A microorganism, nucleic acid, or protein that is either a) not capable of causing human or animal disease; or b) capable of causing human or animal disease, but unlikely to do so. Those capable of causing disease are considered pathogens that pose a low risk to the health of individuals and/or animals, and a low risk to public health, livestock or poultry. RG1 pathogens can be opportunistic and may pose a threat to immunocompromised individuals. Neither of the RG1 subsets is regulated by the PHAC due to the low risk to public health, livestock or poultry. Nonetheless, due care should be exercised and safe work practices (e.g., good microbiological practices) should be followed when handling these materials

- ε Example: Non-wild type (lab strains) E.Coli

### ***Risk Group 2-Moderate individual risk, low community risk***

A pathogen that poses a moderate risk to the health of individuals and/or animals and a low risk to public health, livestock or poultry. These pathogens are able to cause serious disease in a human or animal but are unlikely to do so. Effective treatment and preventative measures are available and the risk of spread of diseases caused by these pathogens is low

Example: Legionella pneumonia, Herpes simplex viruses

***Risk Group 3-High individual risk, low community risk***

A pathogen that poses a high risk to the health of individuals and/or animals and a low risk to public health. These pathogens are likely to cause serious disease in a human or animal. Effective treatment and preventive measures are usually available and the risk of spread of disease caused by these pathogens is low for the public. The risk of spread to livestock or poultry, however, can range from low to high depending on the pathogen

Example: Yersina pestis, Human Immunodeficiency Virus

***Risk Group 4-High individual risk, High community risk***

A pathogen that poses a high risk to the health of individuals and/or animals and a high risk to public health. These pathogens are likely to cause serious disease in a human or animal which can often lead to death. Effective treatment and preventive measures are not usually available and the risk of spread of disease caused by these pathogens is high for the public. The risk of spread of disease to livestock or poultry, however, ranges from low to high depending on the pathogen

Example: Ebola virus

## References

Public Health Agency of Canada (PHAC), Canadian Biosafety Standards and Guidelines 1st ed. 2014

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**Contact**

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