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| **CHARACTERISTICS** |
| Morphology | Member of Family Orthomyxoviridae. Negative sense single-stranded RNA virus. Virus capsid is enveloped. Virions are spherical to pleomorphic. |
| Disease | In humans, clinical presentations resulting from infection by IAV subtypes H5, H7, and H9 range from asymptomatic or mild illness, such as conjunctivitis or mild upper respiratory tract illness, to severe respiratory illness. |
| Zoonosis | Sporadic infections have occurred in humans. |

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| **HEALTH HAZARDS** |
| Host Range | Primarily domestic and wild avian species, sporadic in mammals (vertebrates). |
| Modes of Transmission | Human infection with IAVs of H5, H7, and H9 subtypes primarily occurs through exposure of mucous membranes to secretions or excreta from infected birds and can also occur by inhalation of aerosols, droplets, or contact transmission. Transmission bycontact with virus-contaminated environments and fomites is plausible. |
| Signs and Symptoms | Fever, runny nose, sore throat, diarrhea, coughing, vomiting, nausea, lethargy, myalgia, anorexia anddyspnea. Conjunctivitis. |
| Infectious Dose | Unknown in humans. |
| Incubation Period | 2-5 days, ranging up to 17 days in humans. |

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| **MEDICAL PRECAUTIONS/TREATMENT** |
| Prophylaxis | Antiviral chemoprohylaxis with antiviral drugs. |
| Vaccines | Seasonal vaccine available. |
| Treatment | Neuraminidase inhibitors, including oseltamivir, zanamivir, peramivir and laninamivir. |
| Surveillance | Daily temperature recording. |
| MSU Requirements | Report any exposures. |

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| **LABORATORY HAZARDS** |
| Laboratory Acquired Infections (LAIs)  | None reported to date. |
| Sources | Cultures, frozen stocks, other samples described in IBC protocol. |

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| **RISK GROUP & CONTAINMENT REQUIREMENTS** |
| Risk Group 3 | Agents are associated with serious or lethal human disease for which preventive or therapeutic interventions may be available. |
| BSL3 | For all procedures involving suspected or known infectious specimen or cultures. |

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| **VIABILITY** |
| Disinfection | Susceptible to 1:10 bleach:water, 70 % ethanol and 5 % Lysol 1.5 % Micro-Chem Plus. |
| Inactivation | Influenza A is sensitive to treatment with heat, lipid solvents, non-ionic detergents, formaldehyde, oxidizing agents, irradiation. Inactivated by moist heat (1 hour at 121oC) and dry heat (1 hour at 160-170oC). |
| Survival Outside Host | Influenza viruses can remain infectious for about one week at human body temperature, over 30 days at 0° C, and indefinitely at very low temperatures. |

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| **SUPPLEMENTAL REFERENCES** |
| BMBL | <https://www.cdc.gov/labs/BMBL.html>  |
| CDC | Influenza |
| NIH Guidelines | <https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf>  |
| Canada PSDS | <http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/index-eng.php> |

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| **SPILL PROCEDURES** |
| Small | Notify others working in the lab. Remove and don new PPE. Cover area of the spill with absorbent material and add 5 % Micro-Chem. Allow 30 minutes of contact time. After 30 minutes and then cleanup and dispose of materials. |
| Large | * Immediately notify all personnel in the lab and clear all personnel from the area. Remove any contaminated PPE/clothing and leave the lab.
* Secure the area by locking doors, posting signage and guarding the area to keep people out of the space.

For assistance, contact MSU's Biosafety Officer (406-994-6733) or Safety and Risk Management (406-994-2711). |

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| **EXPOSURE PROCEDURES** |
| Mucous membrane | Flush eyes, mouth, or nose for 5 minutes at eyewash station. |
| Other Exposures | Wash area with soap and water for 5 minutes. |
| Reporting | Immediately report incident to supervisor, complete a [First Report of Injury](https://firstreportinjury.mus.edu/) form, and submit to Safety and Risk Management. |
| Medical Follow-up | **During business hours:**Bridger Occupational Health 3400 Laramie Drive Weekdays 8am -6pm. Weekends 9am-5pm406-577-7674**After business hours:**Bozeman Deaconess Hospital Emergency Room915 Highland Blvd |

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| **PERSONAL PROTECTIVE EQUIPMENT (PPE)** |
| Minimum PPE Requirements | Socks, scrubs and shoes; coveralls with attached booties; 2 sets of nitriles gloves; outer booties; and PAPR prior to working with Influenza. |
| Additional Precautions | Follow all JRL SOPs, policies, and procedures. |