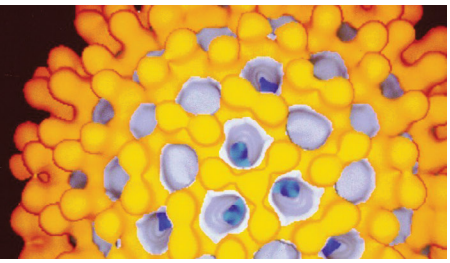
MiSAC
MICROBIOLOGY IN SCHOOLS ADVISORY COMMITTEE

Promoting microbiology in schools and colleges since 1969



Assessing the risks

Before embarking on any practical microbiology work, it is essential that teachers and technicians should consult a model risk assessment which their educational employer should have provided. For most establishments in England, Wales and Northern Ireland, this will involve consulting material supplied by CLEAPSS; in Scotland, this will be from SSERC. The model risk assessment will describe the procedures that should be followed to enable practical microbiology to be carried out safely. Depending on the circumstances (eg, equipment and laboratory/prep room facilities available, expertise of staff, student behaviour), it may be necessary to modify/customise aspects of the written risk assessment so that safety is maintained. The table below lists the factors that need to be considered.

Further guidance is provided in the accompanying pdf document *Safety guidelines* (see *www.misac.org.uk*) which is based on T*opics in Safety 15 Microbiology* (ASE, revised 2018).

Factors to be considered in risk assessment

Factor	Relevance
Good microbiological laboratory practice (GMLP)	Protection of operators (students, teachers and technicians).
Level of practical work (Levels 1, 2 and 3)	Degree of risk of microbial culture; expertise of teacher and technician; student age and level of class discipline.
Choice of microorganisms (ACDP Hazard Group 1)	Cultures that present minimum risk when GMLP is followed.
Source of cultures	Reputable specialist supplier or approved environmental sample.
Type of investigation/activity	Adequate containment of cultures; practical work or demonstration.
Choice of culture medium	Some culture media are designed only for professional use to select for the growth of pathogens, i.e. *not* in ACDP Hazard Group 1.
Incubation conditions	Temperatures above 30 °C and lack of oxygen may allow the growth of pathogens, i.e. microbes *not* in ACDP Hazard Group 1.
Volume of culture	Increased risk when dealing with, and disposing of, large volumes of liquid culture.
Laboratory facilities	Suitable level of containment for practical work.
Equipment	Adequate for purpose; a pressure cooker or autoclave is **essential**.
Disposal of contaminated materials	Elimination of risk to others.
Expertise of teacher and technician	Competence and suitable training in techniques and procedures appropriate to the level of work (Levels 1, 2 and 3). **Technicians need to work at Level 3 to prepare for *all* practicals at levels 2 and 3.**
Student age and class discipline	Level of work (Levels 1, 2 and 3); confidence in class discipline.
Sources of competent advice	ASE*, CLEAPSS*, SSERC*, MiSAC, NCBE (*members only).
Useful checklist	CLEAPSS publications on its web site - use search facility; SSERC *Safety in Microbiology: A Code of Practice for Scottish Schools and Colleges*.

Key to abbreviations: ACDP (Advisory Committee on Dangerous Pathogens); ASE (Association for Science Education); MiSAC (Microbiology in Schools Advisory Committee); NCBE (National Centre for Biotechnology Education); SSERC (Scottish Schools Equipment Research Centre). For contact details, refer to the Links page on *www.misac.org.uk*.

This table of risk assessment factors was developed from that in *Basic Practical Microbiology - a Manual* (Microbiology Society, 2006) which was based on a suggested risk assessment strategy in the 2nd edition of *Topics in Safety* (ASE, 1988).

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