SAFETY ACTION NOTICE
By arrangement with NSS Health Facilities Scotland

AUTOMATIC ICE-MAKING MACHINES:
RISK OF INFECTION

SUMMARY

Automatic ice-making machines have the potential to become sources of contamination / infection if not properly installed, cleaned or maintained. Advice is provided.

BACKGROUND

1. Reports have been received (not from Scotland) of a number of clinical laboratory specimens, taken from water and ice in automatic ice-making machines, having grown the bacterium *Mycobacterium gordonae*.

2. *M. gordonae* is a relatively benign bacterium that is widespread in the environment. It is sometimes referred to as the ‘tap water bacterium’ as it is found so frequently in tap water. However, *M. gordonae* is increasingly recognised as a cause of infection in the severely immunocompromised, e.g. HIV/AIDS patients and transplant recipients.

3. Ice-making machines can become sources of infection in healthcare premises. They can be contaminated with organisms from the water itself or from contact with contaminated hands or fomites\(^1\), e.g. ice scoops or drinks cans inappropriately placed inside the storage compartment.

4. The build-up of micro-organisms will be aided by any ice-making machine being installed at the end of a pipe run (dead leg) allowing water to stagnate, and by allowing warm air from the heat exchanger to impinge directly onto water pipes, thereby raising the water temperature and enabling bacteria to multiply.

5. Ice-making machines have been associated in the past with a cluster of *M. gordonae*\(^2\). In this case, cleaning of the ice machines resulted in a sharp decrease in the number of *M. gordonae* isolates.

6. SHFN 30\(^3\) gives the following guidance on ice-making machines: “The type selected should be capable of automatic dispensing of ice and without a storage reservoir, which requires the users to scoop ice from a stock which may have been made too far in advance”. However, ice-making machines with storage reservoirs may still be found in healthcare premises.

ACTION

7. This notice should be brought to the attention of all appropriate managers, staff and users.

8. All automatic ice-making machine installations should be inspected to ensure that:
   a) The water supply is taken from a potable mains supply up-stream of a regularly used outlet with the minimum of intervening pipe run, i.e. less than 3 metres. Additionally, it should be established that the usage is sufficient to avoid deterioration in water quality by, for example, the inlet water temperature rising above 20ºC,
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b) The equipment is positioned so that the warm air exhaust does not impinge directly on taps, pipes or hoses supplying mains water. Supply pipe work and hoses should be insulated to prevent any heat gain.

10. Procedures should be in place in all wards / clinical areas to reduce the risk of healthcare associated infections from automatic ice-making machines and these should be approved by the infection control team, e.g. use of non-touch systems, hand hygiene practice etc. Regular infection control audits should be undertaken.

11. Procedures governing the operation of automatic ice-making machines should include the following, where appropriate:
   a) The storage compartment should be cleaned out on a frequent basis in accordance with the manufacturer’s instructions and procedures approved by the infection control team,
   b) ‘Old’ ice should be discarded in order to avoid ice stagnating in the storage compartment. It is recommended that this be done at least as often as the storage compartment is cleaned,
   c) Lids of ice storage bins, if fitted, should be kept closed to avoid contamination of the contents.

12. Maintenance and cleaning of the machine should be carried out strictly in accordance with the manufacturer’s recommendations and at regular intervals, and endorsed or amended by the infection control team depending on location and usage.

13. Care must be taken not to contaminate ice and ice-making machines when removing ice for patient use, e.g. user’s hands should not touch the ice or the storage compartment, nor should external items such as ice scoops or drinks cans be placed in the storage compartment.

14. Ice for consumption by severely immunocompromised patients should not be taken from automatic ice-making machines but should be made with sterile water. Separate local policies for the production and storage of ice will be required for such cases.

REFERENCES

1. *Fomites*, refers to any object or substance supposed to be capable of absorbing, retaining, and transporting contagious or infectious organisms.
