SDRN: Scottish Diabetes Research Network

Handling Dry Ice

Clinical S.O.P. No.: 35
Version 1

Compiled by:	Lorna M. Lynch
Approved by:	Shona Brearley
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CHIEF SCIENTIST OFFICE

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DOCUMENT HISTORY

Version number	Detail of purpose / change	Author / edited by	Date edited
1.0	New SOP	Louise Greig	

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1. Introduction

Study staff are often required to handle dry ice when shipping samples from one facility to another facility. It is important that this process is managed appropriately.

2. Objective

This SOP has been written to give general guidance to study personnel on how to handle dry ice and describes methods for safely using, storing, and handling dry ice.

3. Background

Dry ice is the solid form of carbon dioxide that is available in flakes, pellets or block form and is non-combustible.

Using bare hands can result in burns/frostbite to the skin in a short period of time therefore it is necessary to handle dry ice with appropriate insulated gloves. When handled properly, dry ice is safe and easy to use.

4. Safety

Dry ice is extremely cold and unlike water ice dry ice does not melt, instead it goes directly from a solid to a gas releasing carbon dioxide vapour. It will vaporize directly to the gas state at a temperature of -78.5C (-109.3F) or higher.

Dry ice should be used in a well ventilated environment as the use of dry ice in poorly ventilated areas can result in the depletion of the oxygen level resulting in asphyxiation.

Placing dry ice into a tightly sealed container can produce sufficient gas build up to cause an explosion.

5. Responsibility

It is the responsibility of all staff to ensure that they have the necessary knowledge and skill to handle dry ice safety, and that they wear the correct safety equipment when handling dry ice.

6. General guidance

- Study staff should follow any protocol specific guidelines for handling dry ice or follow the procedure outlined below.

- The investigator or delegated person must only obtain dry ice in the form and size in which it will be used. The investigator or delegated person must request dry ice from the appropriate courier company as specified in the study protocol.

- Protective clothing should be worn when handling dry ice, this includes wearing thick gloves to handle the ice. (If touched briefly dry ice is harmless but if prolonged contact with the skin is made, the cells will freeze and cause injury similar to that of a burn.)

- Dry ice should be stored in an insulated container. Failure to do so will result in the dry ice evaporating. An insulated container will be supplied from the courier company with the dry ice in it. Dry ice must not be decanted from the container.

- Dry ice should not be stored in a completely airtight container. The change of dry ice to carbon dioxide gas will cause any airtight container to expand, or possibly explode.

- Dry ice should be stored and handled in a well ventilated room. (In poorly ventilated rooms carbon dioxide gas can sink to low areas and replace oxygenated air.

- Dry ice can be left on the floor in the sealed container that it was delivered in. (Do not leave dry ice on a work bench as the extremely cold temperature could crack the surface.)

- If at any point when in an area containing dry ice someone begins to feel unwell or have rapid breathing they must leave the area immediately and seek help as this could be an indication that too much carbon dioxide has been breathed in and not enough oxygen.

- Dry ice should not be stored in a refrigerator freezer as it can cause damage to the thermostat due to its very cold temperature.

- Dry ice should be collected by the designated courier company as close to the time that it is needed as possible.

- If at any point a person sustains a burn or blister as a result of handling dry ice they must inform a member of staff, complete an incident form and seek medical advice.

- Excess dry ice should be disposed of by unwrapping the dry ice package and left at room temperature in a well-ventilated area. Ensure that it is clearly marked to prevent avoidable contact with unofficial personnel. (Dry ice must not be placed into a sink as the cold temperature may harm sink disposal and pipes.)