HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

Temperature Mapping

Katie Corrigan

Health Products Distribution Inspector

HPRA GDP Information Day

3rd May 2022

Radisson Blu Royal Hotel, Dublin

HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

Temperature Mapping

- Examples of specific storage statements declared on the label of a medicinal product:
  - Do not store above 25°C/Do not store above 30°C
  - Store below 25°C/Store below 30°C
  - Store in a refrigerator (2°C – 8°C)
  - Store and transport refrigerated (2°C – 8°C)
  - Store in a freezer (temperature range)*
  - Do not refrigerate/Do not freeze
  - (*Freezer storage temperatures may vary from 0°C to -20°C or below -20°C)

Deficiencies breakdown by frequency

Major Deficiency	Percentage frequency
Management of temperature at the site was deficient	87%
Mapping studies were not performed correctly or not at all	79%
CC/CAPA/Deviations raised not handled correctly or not raised/not fit for purpose	47%
Storage of medicinal products at the site was deficient	23%
Validation study and management of was deficient (transport)	20%

HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

Overview

- Temperature mapping through the distribution process
  - Systematic approach to conducting temperature mapping
  - Specific guidance for cold chain
  - Considerations for the transportation of medicinal products

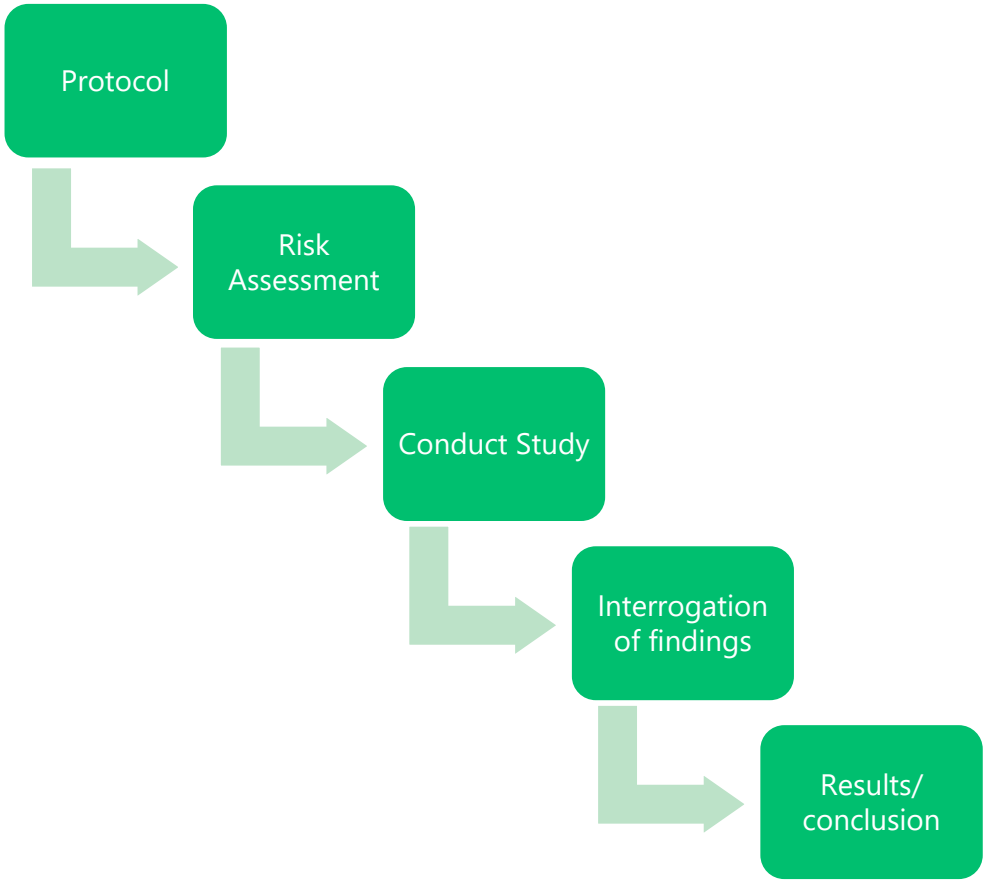
HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

Requirement for Mapping Study?

- Risk assessment of area and location of temperature monitoring probes

- The use of a max/min thermometer should be employed as a means of continuous temperature monitoring

Conducting a temperature mapping study



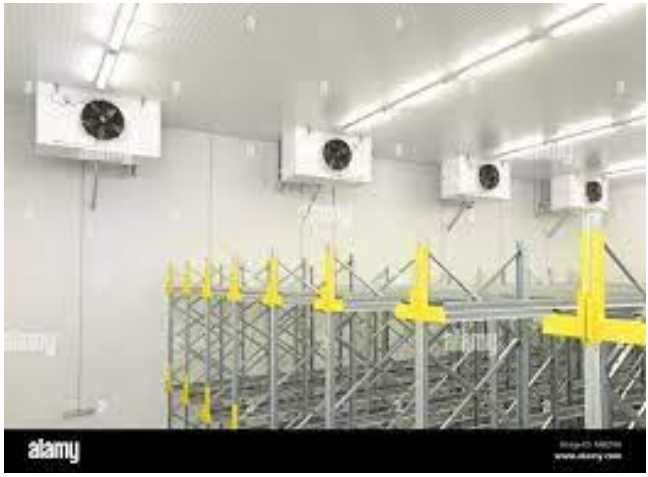
Temperature Mapping – Protocol

- Initial mapping
- Mapping under representative conditions
- Door Opening
- Power outage

HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

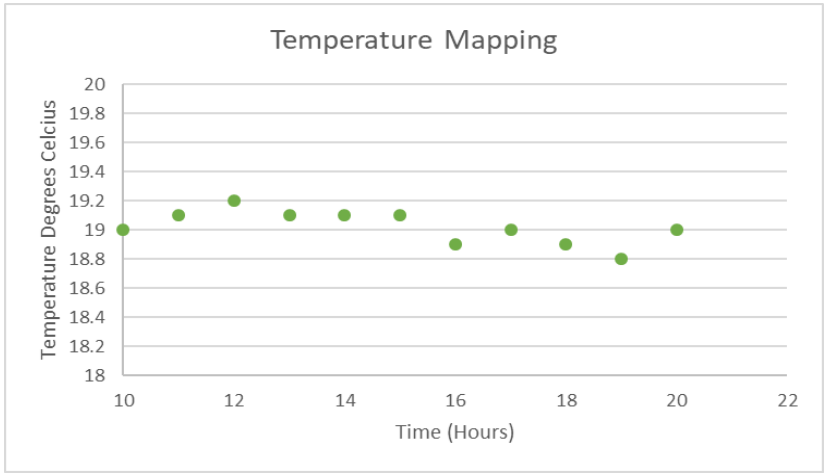
Risk Assessment

- Identify areas of risk – example windows, doors, chillers or other equipment which may contribute to temperature fluctuations

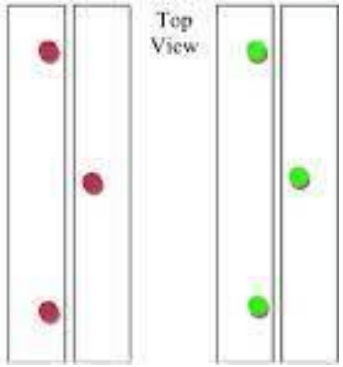


Probes

- Temperature recording probes should have an accuracy of at least +/- 0.5°C.
- The temperature monitoring devices should be calibrated on an annual basis against a certified, traceable reference standard.
- Calibrations should be performed for at least three points across the range of temperatures for which the probe will be used (e.g. 0, 15 and 30 °C for ambient warehouse probes; -10, 0, 10°C for refrigerator probes).
- Auxillary probes should be used during calibration process



Perform Study!



Deficiencies breakdown by frequency

Major Deficiency	Percentage frequency
The management of temperature at the site was deficient	87%
Mapping studies were not performed correctly or not at all	79%
CC/CAPA/Deviations raised not handled correctly or not raised/not fit for purpose	47%
The storage of medicinal products at the site was deficient	23%
Validation study and management of was deficient (transport)	20%

Deficiencies breakdown by frequency

Major Deficiency	Percentage frequency
The management of temperature at the site was deficient	87%
Mapping studies were not performed correctly or not at all	79%
CC/CAPA/Deviations raised not handled correctly or not raised/not fit for purpose	47%
The storage of medicinal products at the site was deficient	23%
Validation study and management of was deficient (transport)	20%

Results – Interrogation of findings

- At a minimum, identified area with the most extreme temperature fluctuations. (highest and lowest temperatures recorded)

- Justify the number and placement of the probes

- How will door opening & power outages be managed based on the findings

Document results

- Location of permanent probe placements
- Set point of the alarms
- Set point of any equipment used

Repetition of mapping studies

- Seasonal mapping studies
- Structural changes
- Set periodic frequency
- Action to be taken in event of a temperature excursion

Deficiencies breakdown by frequency

Major Deficiency	Percentage frequency
The management of temperature at the site was deficient	87%
Mapping studies were not performed correctly or not at all	79%
CC/CAPA/Deviations raised not handled correctly or not raised/not fit for purpose	47%
The storage of medicinal products at the site was deficient	23%
Validation study and management of was deficient (transport)	20%

Deficiencies breakdown by frequency

Major Deficiency	Percentage frequency
The management of temperature at the site was deficient	87%
Mapping studies were not performed correctly or not at all	79%
CC/CAPA/Deviations raised not handled correctly or not raised/not fit for purpose	47%
The storage of medicinal products at the site was deficient	23%
Validation study and management of was deficient (transport)	20%

Deficiencies breakdown by frequency

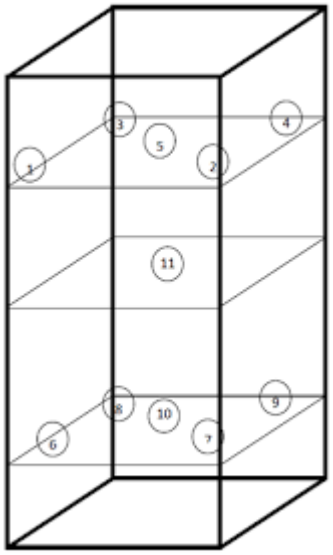
Major Deficiency	Percentage frequency
The management of temperature at the site was deficient	87%
Mapping studies were not performed correctly or not at all	79%
CC/CAPA/Deviations raised not handled correctly or not raised/not fit for purpose	47%
The storage of medicinal products at the site was deficient	23%
Validation study and management of was deficient (transport)	20%

HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

Specific Guidance for Cold Chain

Specific Guidance for cold chain mapping

- Spacing/Occupancy of medicinal products within the fridge / freezer
- Storage in relation to chillers/air flow units
- Impact of door opening
- Dual systems – system A/system B units



HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

Transportation

Transportation of medicinal products

Active vs passive transport

Passive Transport

- Manufacturing Specifications
- Door Opening
- Conditioning times
- Loading of product
- Seasonal Impacts

HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

Summary

- Consider the environment and the impact it may have in parallel with proposed activity.
- Document the environmental settings at the time of the study
- Justify, justify & justify!
- Document findings
- Consider changes which may trigger the requirement to perform a remapping exercise

HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

Resources

- *HPRA Guide to Control and Monitoring of Storage and Transportation Temperature Conditions for Medicinal Products and Active Substances*
- *HPRA Guide to Good Distribution Practice of Medicinal Products for Human Use*
- *Chapter 3, EU GDP Guidelines of medicinal products for human use, 2013/C 343/01*
- *Chapter 5, EU GDP Guidelines of active substances for medicinal products for human use 2015/C 95/01*

HPRA
An tÚdarás Rialála Táirgí Sláinte
Health Products Regulatory Authority

Thank you