NHS Greater Glasgow and Clyde

KELSIUS

NHS Greater Glasgow and Clyde uses Kelsius remote electronic temperature monitoring in adult vaccination clinics

NHS Greater Glasgow and Clyde (NHS GGC) adult vaccination campaigns are delivered from 18 permanent clinic venues, with vaccines stored in 53 fridges. A total of 429,308 adult vaccines were administered during 2025.

In the past, continuous fridge temperatures were recorded by an off-line electronic device stored in the fridges. To retrieve data staff were required to visit clinics and attach the device to a laptop.

The introduction of electronic fridge temperature monitoring was proposed to improve visibility of clinic fridge temperatures, thereby increasing responsiveness in the event of a reported temperature excursion outside of the range 2°C - 8°C.



Methods

- Data relating to temperature excursions reported to Pharmacy Public Health (PPH) during 2025-2026 that lasted longer than the permitted 20 minutes was reviewed.[1]
- PPH staff time spent visiting clinic venues was calculated to determine the length and severity of temperature excursions outside the range 2°C - 8°C.
- A comparison was made between the PPH staff time and travel costs associated with the temperature excursions, and indicative costs if remote continuous fridge temperature had been available in all clinics.



Previously, temperature monitoring relied on manual recordings. If a temperature excursion was identified, staff had to contact a pharmacist to assess whether the affected vaccines could still be used or required disposal.



With Kelsius continuous remote temperature monitoring, detailed temperature records are immediately available, allowing pharmacists to assess the duration and severity of an excursion more accurately. This supports faster, informed decisions, potentially reducing the time vaccines remain in quarantine and minimising unnecessary vaccine wastage.

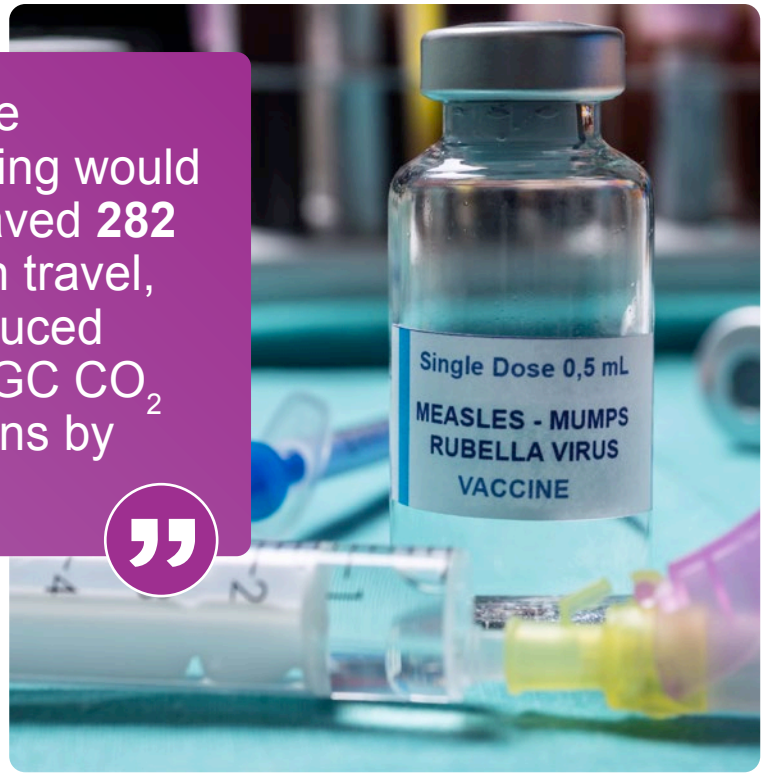
Results

Comparison of data between off-line temperature recording and remote digital real-time temperature monitoring demonstrated that the latter would provide immediate access to data, identifying when an excursion occurred, its duration and the temperatures reached. This would enable faster, evidence-based decision-making, potentially reducing quarantine times and minimising vaccine wastage.

Availability of remote fridge temperature monitoring systems at clinics would have negated the need for PPH staff to travel to the clinics.

Use of remote monitoring would have saved 282 miles in travel, and reduced NHS GGC CO_2 emissions by 70kg, which is equivalent to driving from London to Glasgow.[2]

> "Remote monitoring would have saved **282 miles** in travel, and reduced NHS GGC CO_2 emissions by **70kg**."



Evaluation

Introducing remote fridge temperature monitoring in adult vaccination clinics in NHS GGC would:

- Remove the need for staff travel to clinics.
- Diminish travel time and costs.
- Improve the skill mix as PPH staff would be available to undertake more advanced roles.



Deployment

Following the assessment of Kelsius' independent wireless temperature monitoring solution and its proven benefits, NHS Greater Glasgow and Clyde successfully deployed the system across its adult vaccination sites.

References

1. *UK Health Security Agency. Vaccine incident guidance Responding to errors in vaccine storage, handling and administration, July 2022, link.*
2. *Gov.uk. Journey emissions comparisons: methodology and guidance 19th December 2024, link.*