

Medication storage temperatures inside emergency vehicles

A pilot study in a temperate climate country

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Background and importance

Crucial medicines are carried on board of **emergency vehicles**.

Out-of-hospital environments were shown to expose medicines to **extreme temperatures, sunlight and vibrations^{2,3}**.



Aim and objective

Determine whether the **interior** of our local emergency vehicles met **room temperature (RT) standards (15 – 25°C)**.



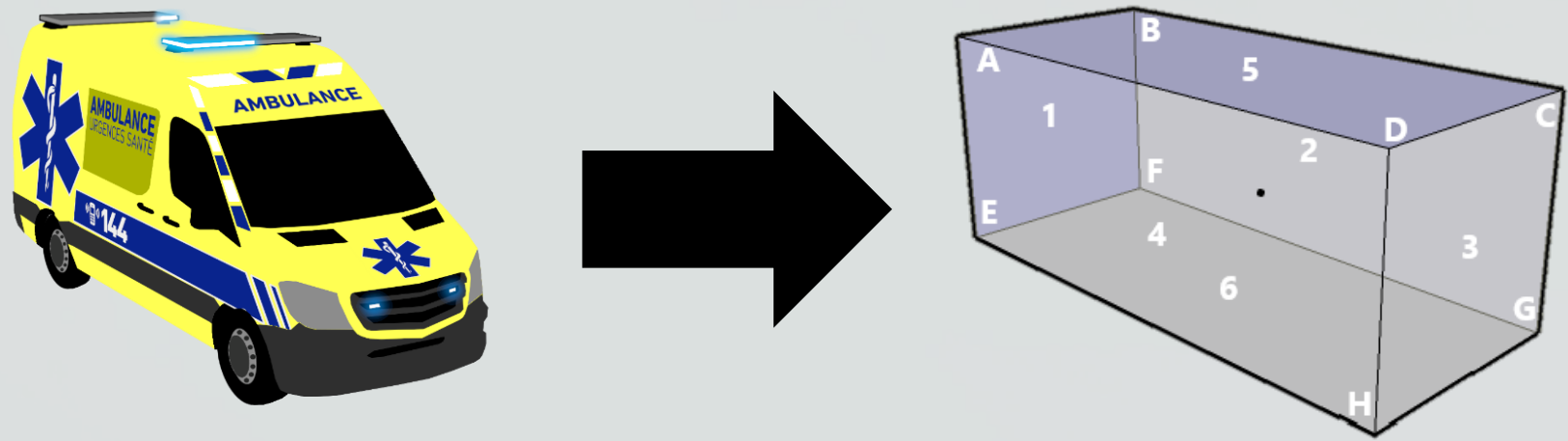
Conclusion and relevance

- During the summer of 2020, **none** of the seven emergency vehicles monitored **were consistent with RT requirements** with extremes temperatures up to 38.9°C.
- Our results endorse the implementation of **continuous temperature monitoring, periodic stock rotation** and the use of **controlled temperature storing boxes²**.

Materials and methods

Phase 1 MAPPING

- 48 hours** (1 point/minute)
↳ 2 x 12-hour observation
July 2020
1 vehicle
15 temperatures probes



Phase 2 MEASURING

- 6 weeks** (1 point/10 minutes)
July – August 2020
7 vehicles
6 non-medical vehicles
1 medical vehicle
14 temperatures probes
↳ 2-4 per vehicle (storage bags)

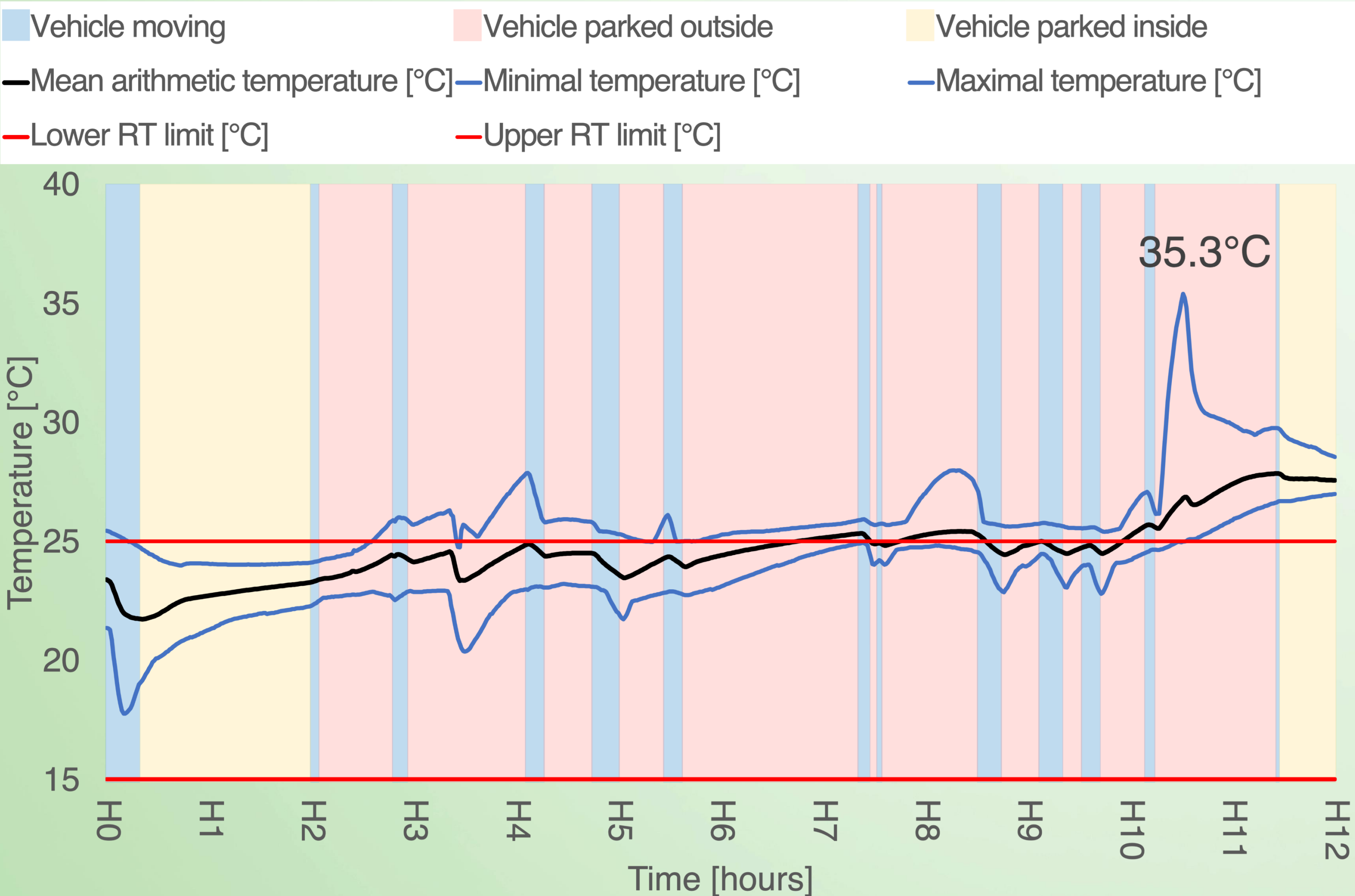


Temperature probe
Testo® 184 T3
Testo, Lenzkirch (Germany)

Results

Phase 1 MAPPING

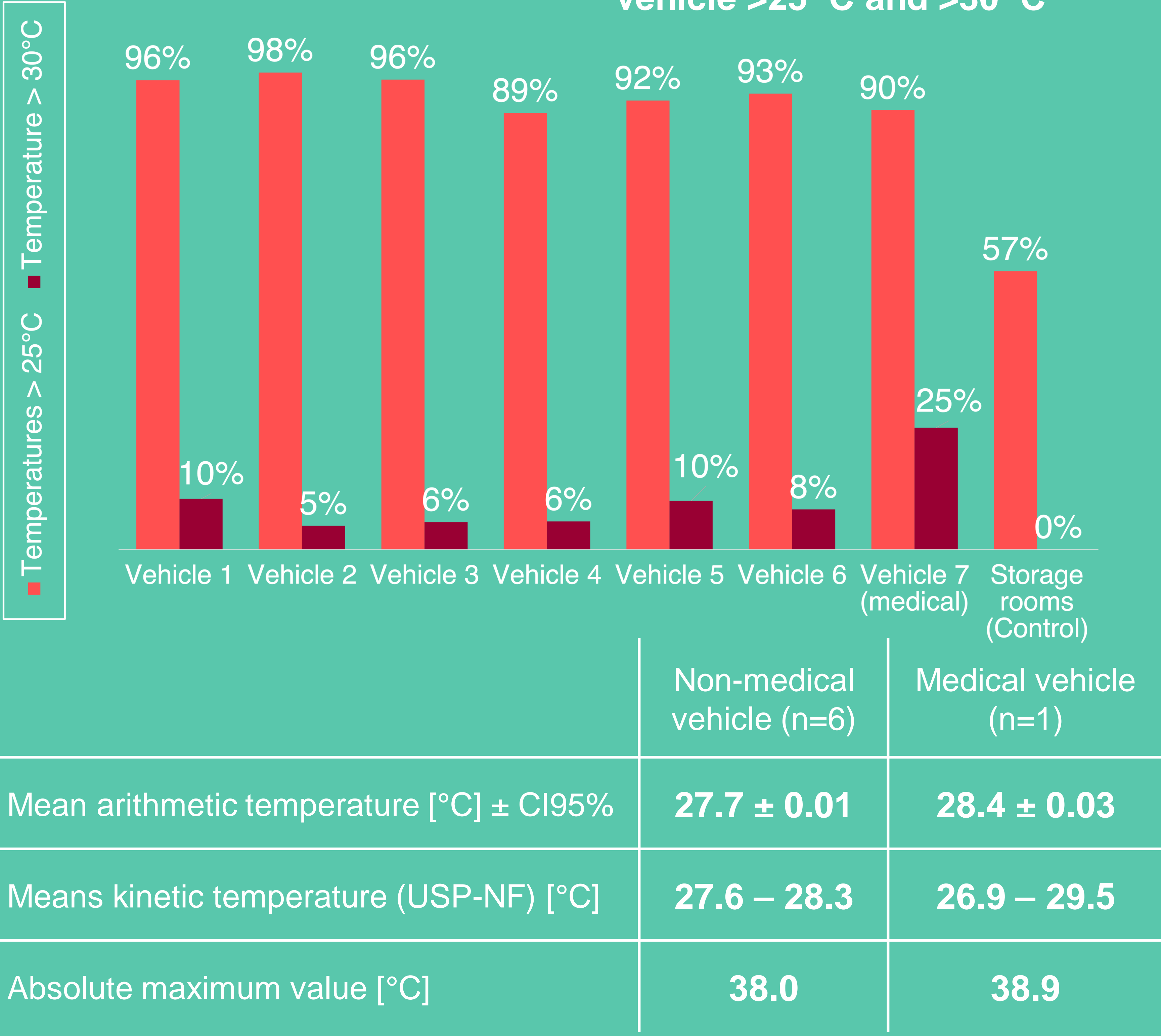
Mean arithmetic temperature [°C] ± CI95%	25.8 ± 0.2
Means kinetic temperature (USP-NF) [°C]	25.4 – 26.4
Absolute maximum value [°C]	35.3



Temperature and state variations of vehicle during Day 1 (7am-7pm) (Phase 1 MAPPING)

Phase 2 MEASURING

% of time during which temperature of vehicle >25°C and >30°C



References

- Pictures : Star Graphics (Switzerland)
- Brown LH et al. Medication storage on US ambulances: a prospective multi-center observational study. Pharmacopeial Forum. 2003;29:540-7.
- François O et al., Médicaments et température dans un véhicule d'urgence. In : Les Rencontres Prescrire 2014; 2014.

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