

The adequacy of user seal checking for N95 respirators compared to formal fit testing, a multicentre observational study

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Introduction

- Routine fit testing of N95 respirators was not widely practiced in Victorian healthcare settings prior to the COVID-19 pandemic; the User Seal Check (USC) was deemed satisfactory to ensure proper fit
- Over 3000 Victorian healthcare workers contracted COVID-19 at work in 2020.
- Reliance on the USC may have contributed to healthcare worker acquired COVID-19.

Aim

- To evaluate the adequacy of the USC compared to fit testing, and identify possible risk factors.

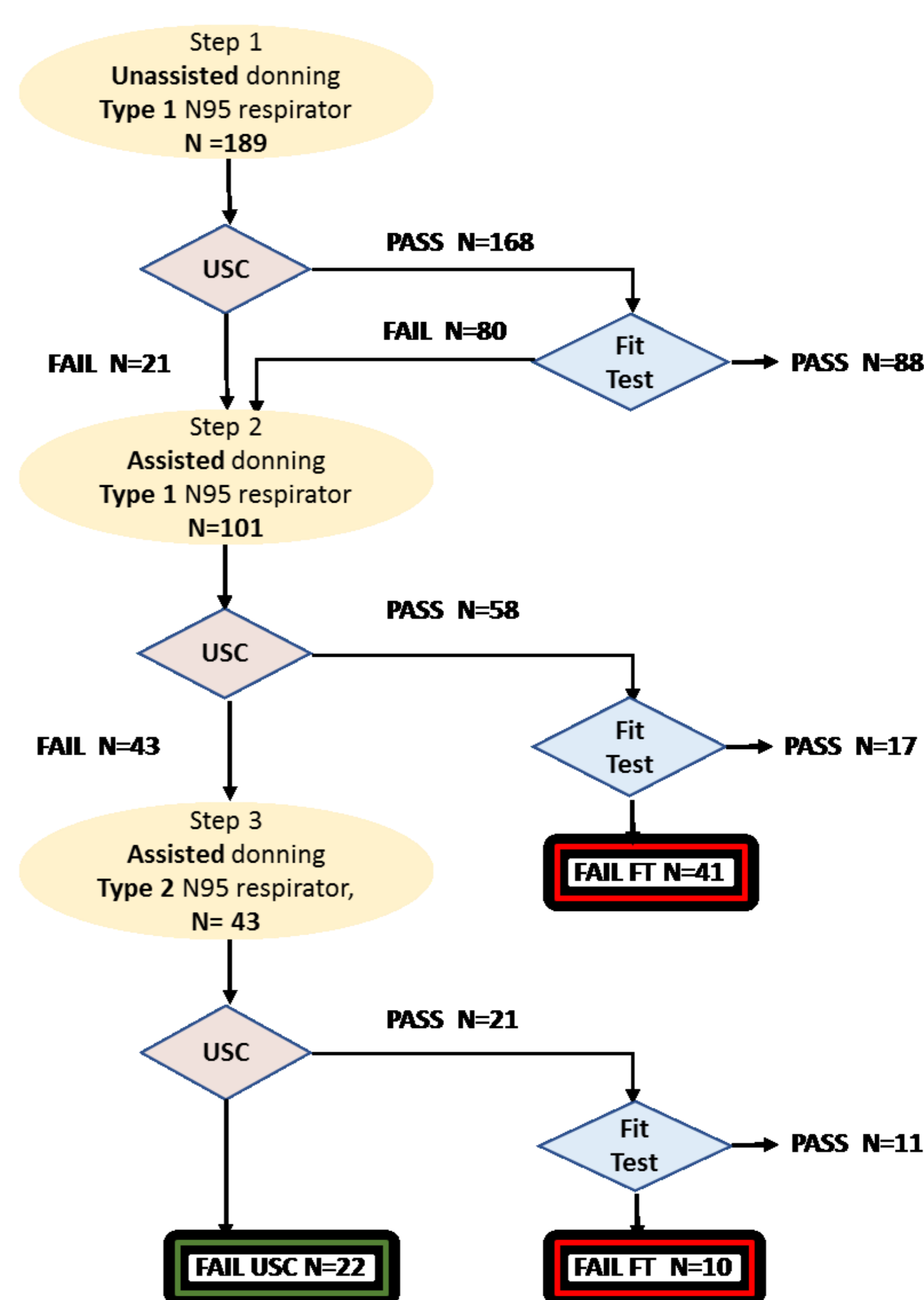
Method

- Prospective, observational study of ICU staff in 3 private ICUs
- Three respirators were available: two N95 brands and a Powered Air Purifying Respirator (PAPR).
- Participants sequentially tested on N95 respirators followed by PAPR until successful fit testing or failure of all 3 respirators.
- Primary outcome was failure rate of fit testing on the first N95 type that passed USC.

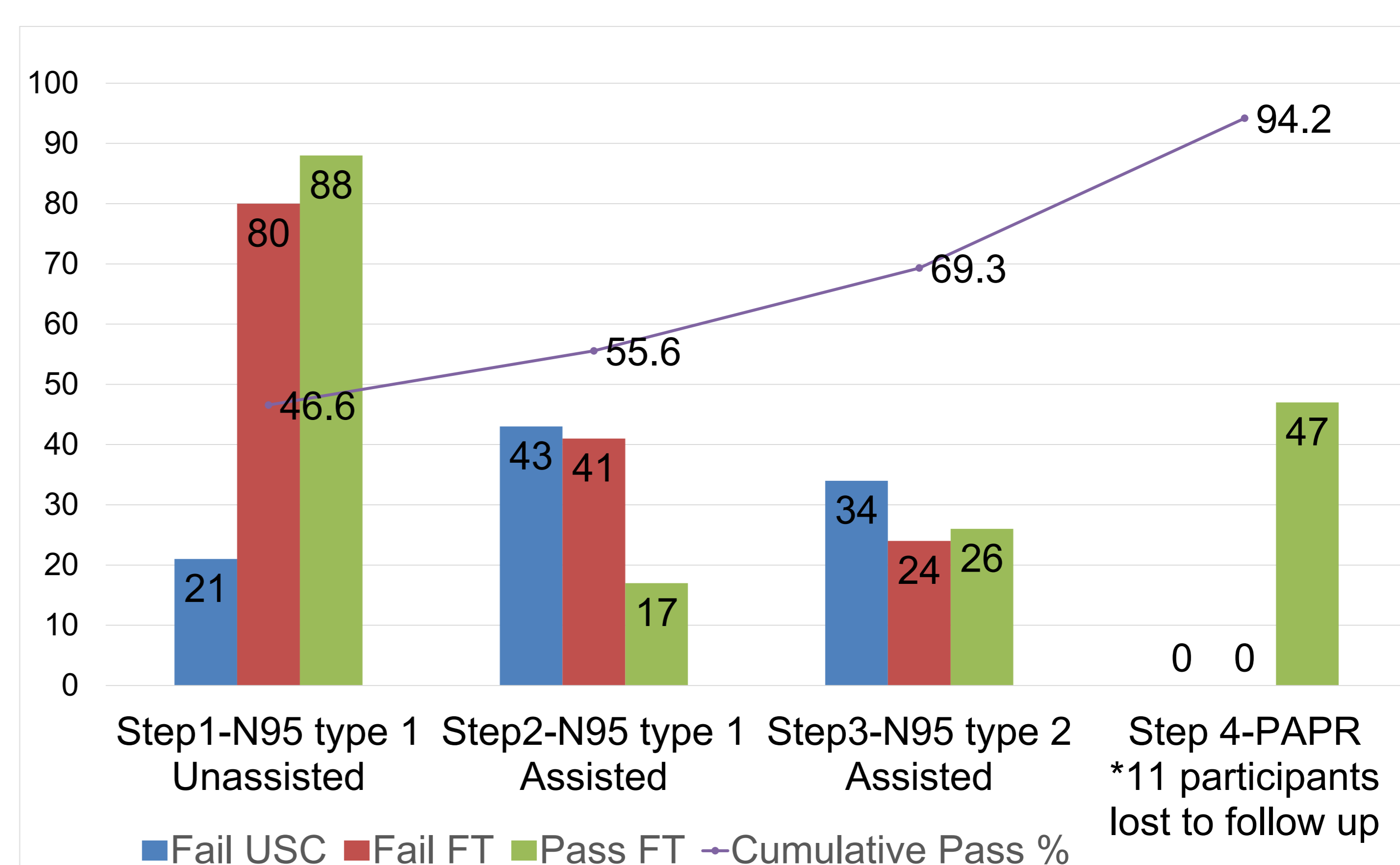
Results

- 189 staff (128 nurses, 47 doctors, 14 other); 22 failed USC on both N95s leaving 167 for the primary outcome.
- 51/167 (30.5%, 95%CI 23.7 – 38.1) failed fit testing; failure rates with each N95 were 30.0% and 30.8% respectively.
- Multivariate analysis of N95 type, sex, occupation, and experience demonstrated no significant association with failure.
- All 47 participants fit tested on PAPR passed.

Results



Primary outcome



Steps until successful fit test

Conclusion

- USC failed to identify inadequate fitting N95s in 30% of participants.
- Reliance on the USC alone places healthcare workers at risk of contracting airborne illnesses including COVID-19.