

**Title:**

The Feedback Intervention Trial- a randomised controlled trial (RCT) to improve hand hygiene compliance in ITUs and acute elderly wards in 16 hospitals

**OBJECTIVES:**

Although RCTs show feedback improves healthcare workers' (HCWs) implementation of best practice, effects are modest & most trials don't use psychological theory to design interventions. Systematic review suggests feedback may improve hand hygiene compliance but needs regular repetition, with studies being small, short term & poorly designed. We therefore performed a national 3 year RCT of the effect of a psychological-theory based feedback intervention on hand hygiene compliance

**Methods:**

Stepped Wedge cluster RCT in 60 wards (16 ITUs & 44 acute care of the elderly [ACE] wards in 16 English/Welsh hospitals (Oct 2006-Dec 2009) NRR Web site N0256159318

The intervention was based on Goal-setting & Control theories & comprised a repeating 4 week cycle (20-30 mins/week) of observation, feedback & action planning, with HCWs & groups, recorded on forms.

Randomisation- computer generated step wise entry of hospitals.

Primary outcome- observed hand hygiene compliance (%) with blinded observers. Secondary outcome- soap & alcohol hand rub (AHR) procurement (mls/bed day).

Fidelity to intervention (forms used/month) & Confounders (staffing levels, skills mix, agency rates) measured.

Mixed effects regression analysis, accounting for confounders & temporal trends.

**Results:** All 60 wards randomised & analysed; 8 closed during study. 33 wards implemented intervention (11 ITU, 22 ACE).

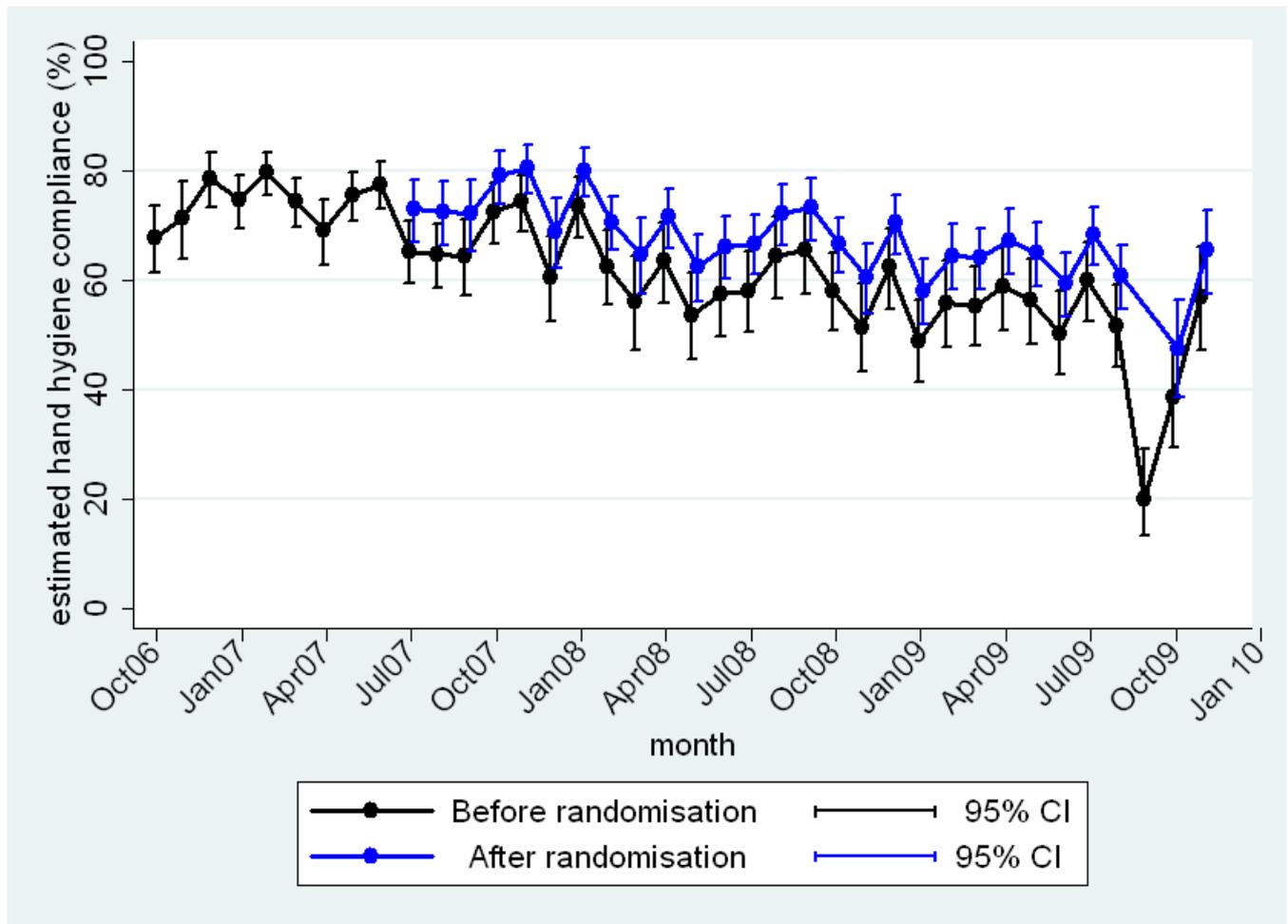
**Intention to treat analysis (ITT)s:** estimated odds ratio (OR) for compliance rose post-randomisation (1.44; 95% CI 1.18-1.76;  $p < 0.001$ ) in ITUs (Figure) but not ACE equating to a 7%-9% absolute increase in hand hygiene compliance on ITUs.

**Per protocol analysis (implementing ward):** OR for compliance rose for both ACE wards (1.67 [1.28-2.22];  $p < 0.001$ ) & ITUs (2.09 [1.55 -2.81]  $p < 0.001$ ), equating to a 10%-13% & a 13%-18% absolute rise in compliance in ITU & ACE wards respectively (Figure). OR for non-implementing wards fell (ACE) or was unchanged (ITU). Fidelity to intervention closely related to compliance on ITUs. OR for compliance 1.12 [1.04, 1.20]  $p = 0.003$  per completed form).

**Conclusions:**

Despite difficulties in implementation, ITT & per protocol analyses showed a feedback intervention based on behavioural theory significantly improved hand hygiene compliance. The effect increased with fidelity to intervention. In any one month, the greater the adherence to the intervention, the higher the compliance. The effect was greater on ITU than ACE wards. A study of the barriers & facilitators of implementation is needed to improve this & maximise the intervention's effect in different settings.

# INTENTION TO TREAT ANALYSIS ITUs



PER PROTOCL ANALYSIS ITU (top fig) & ACUTE CARE ELDERLY (lower fig)

