

Seclusion and Intensive Care Evaluation Study (SPICES)

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Background

NIHR funded research – report published – but an extension is ongoing

Focuses on seclusion and PICU – coercive interventions which are less acceptable than e.g. time out and PRN, but more acceptable than alternatives such as mechanical restraint (Whittington et al 2009)

Part of the research tries to understand how and why seclusion and PICU are used as interventions – I will only touch on this today

More importantly, we wanted to know whether seclusion and PICU actually reduce violence

Not really any properly usable evidence on this because existing studies don't really take account of differences between treated and untreated people

Good question – but how do you answer it?

Methods (1)

We used the CRIS system at SLaM / KCL to perform parallel non-randomised studies of seclusion and PICU, comparing those 'treated' with those 'untreated'

CRIS contains all of SLaM's electronic patient records since 2006 in anonymised form (structured and unstructured data)

Aim was to use sampling in such a way that it would be possible to fully take account of relevant differences between untreated and treated people

We compared people put in seclusion while on PICU with people who, on the day they were sampled, were on PICU and weren't put in seclusion

We compared people sent to PICU from general adult wards with people who, on the day they were sampled, were on a general adult ward and weren't sent to PICU

Methods (2)



Methods (3)

Predictors

Behaviours occurring 0-2 days before the sampling date were coded (manual coding, aided by tagging of 'trigger' words) – 12 different behaviours for seclusion, 14 for PICU, ranging from 'refusing' to 'attacking'

Structured variables were age, sex, ethnicity, legal status, diagnosis, time since admission, ward, financial year

Outcomes

Incidents of verbal aggression, aggression to objects, attempted violence and actual violence counted up to 7 days from the sampling date. Analysis of violence includes just the last two; general aggression includes all.

Mentions of Datix forms being filled were retrieved for 30 days and coded if they described a serious untoward incident

Every single free-text progress note with one of our trigger words was extracted into a vast Excel spreadsheet, manually reviewed and coded

Results (Seclusion)

990 occasions of seclusion; 1032 occasions of non-seclusion; all from 771 people, 233 of whom contributed at least one seclusion and one non-seclusion

Predictors

Being secluded was more common for younger patients and those who had been in hospital for under a week; use varied substantially across SLAM's four PICUs; unsurprisingly, its use was associated with pretty much all the disorderly or aggressive behaviours we looked at

Outcomes

After adjustment for all measured factors, seclusion was associated with:

- 70% higher rate of aggressive incidents

- 94% higher rate of violent incidents

- 42% higher rate of Datix recorded SUIs among men (no significant difference for women)

Results (PICU)

986 transfers to PICU; 944 non-transfers; all from 1,360 people, 152 of whom contributed at least one PICU transfer and one non-transfer

Predictors

PICU was commonest among young, male, detained patients with BPAD who had been in hospital for under a week; use varied across SLAM's wards; again, it was associated with many of the disorderly or aggressive behaviours we looked at

Outcomes

After restricting to male, detained, psychotic patients (which makes treated and untreated more similar, but means only 616 treated and 283 untreated) and adjustment:

144% higher rate of 7 day aggressive incidents ($p < 0.0001$)

115% higher rate of 7 day violent incidents ($p = 0.0005$)

139% higher rate of 30 day SUIs ($p = 0.0010$)

(effects are larger when estimated in the whole sample)

Discussion

Taken at face value these results suggest that both seclusion and PICU increase aggression and violence

However, examination of the probability of treatment based on our measurement of risk factors indicated that controls overwhelmingly had a very low probability of treatment

Thus, there were too few control observations with *common support* – a condition needed for unbiased estimation of treatment effect

In essence, our sampling strategy, which made it possible to model predictors of transfer without bias, did not allow us to estimate treatment effects without bias, so these estimates were left out of the project report

So...Dr Alexis Cullen and I have been working on an extension

The essential problem is how to find the relatively small number of usable control observations (around 5% of total for seclusion controls)

Methods

1. We looked at our original dataset and compared coded values for the behavioural risk factors with the original, automatically extract data; we selected the variables where agreement was high
2. We divided up every period of non-seclusion in PICU into its individual day and extracted the selected behavioural risk factors for each day; these were combined with the treated data that we already had
3. We used logistic regression to calculate the probability of transfer into seclusion
4. We selected observations with common support ($0.1 < p < 0.9$) following Crump et al 2009
5. Alexis started coding the violence and aggression outcomes for the new controls
6. I took what we had last week and analysed it, again using Poisson regression

Results

There were 473 usable treated observations and (so far) there are 964 control observations. (Note that this means that estimation is not based on the total sample of those treated.)

The unadjusted rate ratio was 0.94 (95% CI 0.76 to 1.16; $p = 0.56$)

We adjusted for sex, diagnosis, year, agitation and hitting in the final analysis. (Other co-variates did not have any impact on the estimate.)

The adjusted rate ratio was 0.91 (95% CI 0.74 to 1.13; $p = 0.39$)

In other words, this *interim and partial* analysis suggests that seclusion had no statistically significant effect in reducing violence

Discussion and questions

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