Reviewer's report

Title: Emergency department utilization among recently released prisoners: a retrospective cohort study

Version: 2 Date: 1 May 2013

Reviewer: Sheila Bird

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1. Description of ex-prisoner cohort is careless, and this carelessness is carried into Abstract.

1.1 1434/6046 ex-prisoners (24%) had at least one ED visit in the 1st year after index release; and these 1434 accounted for 5145 1st-year ED visits, an average of 3.6 visits per person who visited ED; or of 0.85 1st-year ED visits per ex-prisoner.

1.2 Ex-prisoners 1st year ED-visit rate of 0.85 per ex-prisoner compares with 328,224 visits in 3-years by general population aged 18-70 years of 1,048,309 persons, an average of 0.10 ED-visits per person per annum. By ED-visit type, ex-prisoners’ annual rate per 100-persons: for b) mental health was 5.4 per 100 ex-prisoners vs 0.4 per 100 persons aged 18-70 yrs in general population; for c) substance use was 13.4 per 100 ex-prisoners vs 0.4 per 100 persons aged 18-70 yrs in general population; and for d) ACSC was 11.6 vs 1.4 per 100 persons aged 18-70 yrs in general population.

1.3 Of the 6045 ex-prisoners, 455 (7.5%) had 3 or more ED visits and 102 (1.7%) had 10 or more. [EDIT ABSTRACT!]

1.4 Of 6045 ex-prisoners, only 338 (5.6%) were re-incarcerated in the 1st year after index-release.

2. REVISE Table 1 & Figure 1 - the rest of this paper is about 3 types of ED visit or 1st-ED visit.

2.1 Present Figure 1 as 4 mini-figures, the first a) (as now) for 1st ED-visit of any type - add to mini-figure the number of such visits in 1st fortnight; 2nd fortnight, next 8 weeks [219; 135; 316, I think] & note that if week 3-12 rate had applied in 1st fortnight, you’d have expected 90.2 1st ED-visits in weeks 1+2, not 219 (2.4 times as many):

ADD to ABSTRACT. Now show the same information but separately for 1st ED visit for b) mental health; c) substance use; d) ACSC. I’d expect multiplier c) to be higher than multiplier a) which is 2.4.

2.2 Present Table 1, as now, for all ED-visits and all ex-prisoners but also re-present Table 1 separately for the majority demographic among ex-prisoners, eg Males aged 18-34 years at index-release; and for Males aged 35-70 years at index release. In these sub-tables, provide number of ex-prisoners/persons in
general population as well as number of ED-visits by these prisoners/persons. Edit row heading to 'mean age at ED-visit' as older ex-prisoners will tend to have more ED-visits than older compatriots.

3. REPEAT Table 3 for males only. Repeat Table 3 for males aged 18-34 years only. Repeat Table 3 for males aged 35-70 years only. Do all inferences stand? The reason for above suggestion is that I'm very sceptical about assumed age-linearity for all three outcomes. I'd much prefer to fit indicator variables such as for 18-24 years versus 25-34 years (as baseline) vs 35-44 years, 45-54 years, 55-64 years, and 65-70 years.

Discussion does not explain why Hospital B is the more obvious one for ED-visits by reason of mental health or substance use (for which hospital C is relatively shunned). Zip code seems to suggest that mental health and ACSC visits are more likely in high population density locations (if I understand the covariate correctly - little Discussion by authors).

The fact that authors made elementary errors in section 1 above makes me a little nervous of their correct use of more sophisticated statistical methods. Hence the need to see repeats of Table 3 to allow reader to have greater confidence that interactions are properly handled & likewise whether age is best modelled as linear effect. NB Multifactorial, not multivariate.