Reviewer's report

Title: Use of a health information exchange system in the emergency care of children

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Reviewer: Stephen Ross

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This is a companion article to one recently published by the authors (JAMIA 2011 81;143-149). Both articles evaluate the use of a health information exchange for patients attending safety-net providers in the Austin, Texas area. The JAMIA manuscript evaluated use for patients 18-64, while this manuscript evaluates use for patients newborn -17. In the discussion, the authors justify a separate evaluation of use in the pediatric population (which I agree is appropriate).

As in the JAMIA article, use of the HIE was categorized as “routine” if users looked up a patient and looked at a summary screen only, and “novel” if use went beyond this. Overall, use of the HIE was higher than in previous studies; 8.7% of encounters overall (“routine usage” in 7.8% of encounters, “novel usage” in 1.5% of encounters). In regression analysis, some of the key associations with routine use were number of ED visits to other facilities (OR for >4 vs 0 = 2.19) and unfamiliarity of the patient (OR =0.46). For novel use, key associations were number of primary care visits (OR 2.2) and unfamiliarity of the patient (OR = 0.19). The fact that unfamiliarity was negatively associated with use was unexpected.

Overall, the subject is topical and interesting, and separating out the pediatric population in this manuscript vs. the JAMIA manuscript is reasonable. The methods of data collection and analysis are appropriate and well described. I initially found the term “novel” for extended use of the HIE to be confusing, as it implied first-time use, but since this term was used in the JAMIA paper it should be retained for consistency.

I only have two concerns about the paper. First, the authors don’t compare and contrast these results with those reported in the JAMIA paper. This seems like a major missed opportunity to compare use in the pediatric population vs. adult population using the same methods in the same setting. Second, much of the discussion provides very speculative explanations for results. These include speculations that “for unfamiliar patients, more attention might be paid to obtaining a thorough history, reducing any perceived need for HIE.” While I wouldn’t rule this out, it seems unconvincing. I certainly wouldn’t expect a formal qualitative analysis, but did the authors reach this speculation through any informal discussion with HIE users? It is also asserted that “usage is more beneficial to administrative functions than clinical functions” because of the OR of 1.5-1.6 for “unknown/multiple payer vs. Medicaid.” Although the OR is statistically
significant, Table 1 shows that only 3.7% of encounters were for “unknown/multiple recorded payers” – so it is very unlikely that the administrative benefit of clarifying insurance coverage for this small minority of encounters was “more beneficial” than the clinical benefit in the vast majority of encounters. Finally, the authors speculate about why, in cases of injury and poisoning, the adjusted OR was positive (1.15) for routine use and negative (0.8) for novel use. Since these are small ORs that are barely statistically significant (1.06-1.26 in routine use, 0.66-0.97 in novel use), the speculation about investigations for abuse driving differences in routine vs. novel use seems disproportionate to the findings.

MAJOR COMPULSORY REVISIONS
In the discussion, explicitly compare patterns of use in the pediatric population to patterns in the adult population reported by the authors in the JAMIA paper.

MINOR ESSENTIAL REVISIONS
None

DISCRETIONARY REVISIONS
Please consider revisiting the speculations in the discussion to address the concerns above.
A screen shot of the summary screen that constituted “routine use” would be very helpful.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests