

Validating Indigenous status in a regional Queensland hospital emergency department dataset with patient-linked data

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Indicators used to plan and evaluate health services for Aboriginal and Torres Strait Islander (Indigenous) people are based upon administrative data. In major Queensland public hospitals, the Emergency Department Information System (EDIS) captures records of patient progress in emergency departments (EDs).¹ Inaccurate representation of Indigenous status in datasets has been previously identified, and government agencies have been directed to improve data quality, and particularly to reduce the under-reporting of Indigenous status.^{2,3}

In a study published elsewhere,⁴ we explored factors that influenced the presentation of adults to the Cairns Hospital ED. Ethics approval for the study was obtained from the Far North Queensland Human Research Ethics Committee (reference, HREC/16/QCH/81-1068). We linked data from a face-to-face patient perspective survey with EDIS data. Both the face-to-face patient survey and EDIS datasets were independently cleaned and validated prior to merging. For this article, we compared the patient-reported responses regarding Indigenous status with the corresponding EDIS records. As the survey data and EDIS record for each patient were generated during the same episode of ED care, it would be anticipated that the two data sets should be congruent.

During the one-month survey period (March–April 2014), 3229 individual people aged at least 18 years attended the Cairns Hospital ED; of these, 1000 who were local residents participated in a face-to-face patient survey that included self-identification of Indigenous status. Indigenous status as reported to the patient survey was concordant with EDIS records for 102 Indigenous people. In the face-to-face survey, 21 people identified as being Indigenous but in their EDIS records they were recorded as being non-Indigenous (17 people) or status data were missing (four people) (Box). This degree of under-reporting (21 of 123, 17%) is consistent with previous estimates of under-reporting of Indigenous status in Australian hospital data.²

Twelve people who reported being non-Indigenous in the face-to-face survey were identified as Indigenous in the EDIS dataset. Discussions of Indigenous status reporting have focused on under-identification rather than over-identification.^{3,5} Although the number was small, the potential effect of this type

Indigenous status according to face-to-face patient survey and Emergency Department Information System (EDIS) record

	Patient survey				Total
	Indigenous	Non-Indigenous	Total status recorded	Status not recorded	
EDIS record					
Indigenous	102	12	114	0	114
Non-Indigenous	17	847	864	2	866
Total status recorded	119	859	978		
Status not recorded	4	16			
<i>Total</i>	<i>123</i>	<i>875</i>			<i>1000</i>

of discrepancy on population health statistics and the risk of erroneous conclusions caused by the quality of the recorded data should be considered.

We assessed the sensitivity, specificity, and accuracy (with binomial exact 95% confidence intervals [CIs]) of the EDIS dataset, with survey responses as the comparator; these analyses were conducted in Stata 13.1. Sensitivity (the proportion of self-identifying Indigenous people recorded by EDIS as being Indigenous) was 85.7% (95% CI, 78.1–91.5%); specificity (proportion of true negatives) was 98.6% (95% CI, 97.6–99.3%); and overall accuracy (proportion of true positives and negatives) was 97.0% (95% CI, 95.8–98.0%).

Inaccuracies in administrative datasets can influence health service decision making. Our validation study identified discrepancies between face-to-face patient survey data and EDIS data on Indigenous status in both directions. Efforts to minimise dataset inaccuracies in recorded Indigenous identification are warranted.

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1 The State of Queensland (Queensland Audit Office). Emergency department performance reporting. Report 3: 2014–15. Brisbane, 2014. <https://www.qao.qld.gov.au/reports-parliament/emergency-department-performance-reporting> (viewed Dec 2018).

2 Australian Institute of Health and Welfare. National best practice guidelines for collecting Indigenous status in health data sets (Cat. No. IHW 29). Canberra: AIHW, 2010. <https://www.aihw.gov.au/getmedia/ad54c4a7-4e03-4604-a0f3-ccb13c6d4260/11052.pdf.aspx?inline=true> (viewed Feb 2019).

3 Australian Institute of Health and Welfare; Australian Bureau of Statistics. National best practice guidelines for data linkage activities relating to Aboriginal and Torres Strait Islander people. Canberra: AIHW, 2012. <https://www.aihw.gov.au/getmedia/6d6b9>

- [365-9cc7-41ee-873f-13e69e038337/13627.pdf.aspx?inline=true](#) (viewed Feb 2019).
- 4 O'Loughlin M, Harriss L, Thompson F, et al. Exploring factors that influence adult presentation to an emergency department in regional Queensland: a linked, cross-sectional, patient perspective study. *Emerg Med Australas* 2019; 31: 67–75.
 - 5 Randall DA, Lujic S, Leyland A, Jorm L. Statistical methods to enhance reporting of Aboriginal Australians in routine hospital records using data linkage affect estimates of health disparities. *Aust N Z J Public Health* 2013; 37: 442–449. ■