

The recording of Aboriginal and Torres Strait Islander status in general practice clinical records: a cross-sectional study

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Recording of Aboriginal and Torres Strait Islander status in health care settings has been identified as a key issue in addressing the Council of Australian Government's commitments to 'Closing the Gap' (CTG).¹

Accurate recording of Aboriginal and Torres Strait Islander status is important to both the individual patient and to the greater public health for a number of reasons. These include the planning, monitoring and evaluation of health services,^{1,2} such as estimates of the health disparity gap between Aboriginal and Torres Strait Islanders and non-Indigenous Australians,³ and assessing the effectiveness of public health interventions such as immunisation programs.⁴ But, most importantly, identification of Aboriginal and Torres Strait Islander status is a vital component of high-quality patient care. Aboriginal and Torres Strait Islander status is considered an important element of clinical decision making due to the differing health needs of this population.⁵ This is reflected in specific clinical guidelines for Aboriginal and Torres Strait Islander patients, for example, when assessing cardiovascular risk.⁶ Delivering culturally safe healthcare also requires the clinician to be aware of a patient's Aboriginal and Torres Strait Islander status.⁷ In addition, knowledge of a patient's Aboriginal and Torres Strait Islander status

Abstract:

Objectives: To document the frequency of recording of Aboriginal and Torres Strait Islander status in general practice (GP) clinical records and to establish associations of this recording.

Methods: Cross-sectional analysis of recording of patients' Aboriginal and Torres Strait Islander status in GP clinical records from GP training practices in four Australian states.

Results: Of the 9,704 clinical records examined, the patients' Aboriginal and Torres Strait Islander status had been documented in 5,165 (53.2%). Higher rates of recording were associated with older patient age, practices outside a major city, patients who were not new to the practice and the patient being Aboriginal and Torres Strait Islander. In encounters with Aboriginal and Torres Strait Islander patients, the patient's status had been documented in 82% of records. Those attending larger practices were less likely to have had their status recorded.

Conclusions: This is the first report of Aboriginal and Torres Strait Islander status recording in GP clinical records. Almost 20% of Aboriginal and Torres Strait Islander patients did not have their status recorded in the clinical record, with indications that recording may be unsystematic.

Implications: Our findings reinforce the need for a systematic approach to identification of Aboriginal and Torres Strait Islander status in general practice and will inform policy and practice in this important area.

Key words: Indigenous Australians, health records, personal, family practice, general practice

enables patients to be offered specific GP-mediated health initiatives such as Aboriginal and Torres Strait Islander health checks and the CTG medication scheme.⁸

Despite the importance of accurate recording of status, Aboriginal and Torres Strait Islander people are under-identified in many health data sets.² Data about frequency of recording of Aboriginal and Torres Strait Islander status comes largely from tertiary institutions and has not previously been documented in primary

care.^{1,9} In the hospital setting, it is estimated that 12% of Aboriginal and Torres Strait Islander patients are not correctly identified.¹⁰ Aboriginal and Torres Strait Islander status has also been shown to be under-identified on up to 27% of death records.¹¹

General practice is the cornerstone of Australian primary care¹² and, as such, has a vital role in the provision of health care for Aboriginal and Torres Strait Islander people.¹ While Aboriginal Community Controlled

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Health Services (ACCHS) have been established to provide care for Aboriginal and Torres Strait Islander people, recent figures suggest that 50–60% of Aboriginal and Torres Strait Islander patients access health care outside of these organisations.^{13,14} In Australia, Aboriginal and Torres Strait Islander patients account for about 1.6% of general practice consultations.¹⁵

In Australian general practice, sub-optimal collection and recording of Aboriginal and Torres Strait Islander status is proposed to be a long-standing problem.¹ However, evidence regarding prevalence of Aboriginal and Torres Strait Islander status recording is lacking. Recently, steps have been taken to improve recording with changes to practice accreditation standards specifying that practices must routinely record Aboriginal and Torres Strait Islander status in patient health records.⁵ It is recommended that questions about Aboriginal and Torres Strait Islander status be part of new patient registration information.⁹ Previous studies have examined general practice procedures, rather than individual clinical files, and demonstrated that only a minority of mainstream practices had routine identification procedures in place.^{9,16}

Previous studies have examined barriers to identification of Aboriginal and Torres Strait Islander patients in general practice. Such barriers have included a lack of routine processes for identification,⁹ lack of awareness of the importance of identification, apprehension regarding reactions of patients to the question, and assumptions that Aboriginal and Torres Strait Islander patients did not attend particular practices.¹⁶

This study aimed to document the prevalence of recording of Aboriginal and Torres Strait Islander status in the individual patient's clinical record and to establish patient and practice associations of this recording in general practice.

Methods

This was a cross-sectional analysis of practice data collected during general practice consultations as part of the Registrar Clinical Encounters in Training (ReCEnT) cohort study. The ReCEnT study methodology has been described in detail elsewhere.¹⁷ Briefly, ReCEnT is an ongoing cohort study of the clinical and educational content of GP registrar encounters with patients. It is undertaken in four general practice regional training providers (RTPs), encompassing

major cities through to very remote practices in four Australian states (New South Wales, Victoria, Tasmania and South Australia). Data collection for the ReCEnT project takes place within mainstream general practices. No Aboriginal Community Controlled Health Services are included in the analysis.

Characteristics of the participating practices are recorded by each registrar each term, on a paper based questionnaire.

Participating GP registrars undergo face-to-face orientation in how to complete the patient encounter forms and record encounter data on the paper data collection instrument. The collected data includes patient demographics, including Aboriginal and Torres Strait Islander status. Registrars are requested to directly ask each patient their Aboriginal and Torres Strait Islander status according to best practice.¹⁸ GP registrars record the details of 60 consecutive patient encounters each training term.

For one round of data collection in the second half of 2012, an additional question was added to the data collection instrument. This question was: *"Was the patient's Aboriginal and/or Torres Strait Islander status documented in the clinical record prior to this consultation?"* Response options were 'yes' or 'no'.

Outcome factors

The primary outcome factor was prior recording of Aboriginal and Torres Strait Islander status in the individual patient's clinical record. Records from encounters where there was prior recording of status were compared to all other clinical records of patients included in the study.

A secondary analysis was performed that included only patients of Aboriginal and Torres Strait Islander background. Records from encounters where prior recording of status had occurred were compared to all other clinical records of Aboriginal and Torres Strait Islander patients.

Independent variables

Independent variables were categorised as patient or practice factors.

Patient factors were age, gender, Aboriginal and Torres Strait Islander status, non-English speaking background (NESB), new patient to registrar, and new patient to practice (that is, not having previously attended the practice).

Practice factors included rurality, decile of the Socioeconomic Index for Area (SEIFA) Relative Index of Disadvantage,¹⁹ number of GPs working at the practice, use of computerised medical records and whether the practice

routinely bulk bills (i.e. there is no out-of-pocket expense to the patient). Practice postcode was used to define the Australian Standard Geographical Classification – Remoteness Area (ASGC-RA)²⁰ (the degree of rurality) and the SEIFA code of the practice location.

Statistical analysis

Analysis was performed on one round of data collection from 2012.

For the primary outcome of whether Aboriginal and Torres Strait Islander status had been recorded in the clinical record, univariable associations with independent variables were tested with logistic regression within a generalised estimating equations (GEE) framework to account for clustering of consultations within registrars. Multivariable analysis was then performed using logistic regression within a GEE framework to account for clustering of consultations within registrars.

For the second analysis confined to patients of Aboriginal and Torres Strait Islander background, univariable associations with independent variables were tested with logistic regression within a GEE framework. Multivariable analysis was then performed using logistic regression within a GEE framework and exact methods were used when there were small numbers of observations.

For both outcomes, variables with a p-value <0.20 and a relevant effect size in the univariable analysis were included in the multiple regression model.

To analyse the effect of missing data on results, further analyses employing multiple imputation were performed using chained regressions to generate 10 imputed data sets. Missing values were predicted (under the missing at random assumption) using an iterative series of appropriate regression models conditional on the observed value of the outcome variable. Coefficients and standard errors for the variability between imputations were combined using the method of Rubin.²¹ All regression analyses were performed using SAS v9.4 (SAS Institute Inc., Cary, NC, USA) and multiple imputation using Stata v13 (Statacorp, College Station, TX, USA).

Statistical significance was set at the 0.05 level.

Ethics approval for the study was obtained from the Human Research Ethics Committee of the University of Newcastle, NSW. H-2012-0110.

Results

The response rate of registrars for the ReCEnT project for this round of data collection was 94.7%. There were 13,078 patient encounters, collected from 152 practices by 217 registrars. The question regarding prior recording of Aboriginal and Torres Strait Islander status was answered in 9,704 encounters (74.2%).

Table 1 shows the characteristics of the patients and practices in this study and their univariable associations with status recording. Of the 9,704 valid encounters, 3,675 (37.9% [95%CI: 36.9-38.8]) were with male patients. The mean age of patients was 39.9 years. Of these encounters, 117 (1.2% [95%CI: 0.9-1.4]) were with patients who identified as Aboriginal and Torres Strait Islander. Practices were from locations across ASGC-RA²⁰ codes 1 to 5, reflecting major cities through to very remote practice locations.

Univariable associations of status recording in Aboriginal and Torres Strait Islander patients are presented in Table 2.

Of practices included in our study, 98.2% used computerised medical records.

All patients including non-Aboriginal and Torres Strait Islander patients

In 53.2% (5,165 of 9,740 [95%CI: 52.2-54.2]) of all patient encounters, the patient's Aboriginal or Torres Strait Islander status had been documented in the clinical record prior to the consultation.

The regression model (including records of both Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander patients) with outcome factor 'Aboriginal and Torres Strait Islander status recorded' is presented in Table 3. Prior recording of Aboriginal and Torres Strait Islander status was significantly associated with older patient age and the patient being Aboriginal and Torres Strait Islander. Patients who were new to the practice or new to the registrar were significantly less likely to have had their status recorded previously.

Compared to patients attending practices in major cities, patients attending practices in inner regional areas were more likely to have their status recorded prior to the consultation. However, the increased odds of patients in outer regional and remote areas (compared to major cities) having their status recorded did not reach statistical significance.

Table 1: Characteristics associated with recording the patient's Aboriginal and Torres Strait Islander status (n=9,704^a).

Variable	Class	Aboriginal and Torres Strait Islander Status recorded		
		No (n=4,539)	Yes (n=5,165)	p ^b
Patient age group	<15	881 (52%)	816 (48%)	0.004
	15 to <31	929 (45%)	1,139 (55%)	
	31 to <55	1,451 (48%)	1,591 (52%)	
	55+	1,234 (44%)	1,569 (56%)	
Patient gender	Male	1,776 (48%)	1,899 (52%)	0.37
	Female	2,681 (46%)	3,170 (54%)	
Aboriginal or Torres Strait Islander	No	4,518 (47%)	5,069 (53%)	<0.001
	Yes	21 (18%)	96 (82%)	
Non-English Speaking Background	No	4,096 (46%)	4,778 (54%)	0.55
	Yes	270 (52%)	249 (48%)	
New patient to the registrar	No	1,899 (43%)	2,502 (57%)	<0.001
	Yes	2,546 (49%)	2,612 (51%)	
New patient to surgery	No	4,051 (45%)	4,898 (55%)	<0.001
	Yes	445 (67%)	223 (33%)	
Practice size ^c	Small	1,325 (47%)	1,504 (53%)	0.89
	Large	3,175 (47%)	3,563 (53%)	
Does the practice routinely bulk bill ^d	No	3,860 (49%)	3,939 (51%)	0.025
	Yes	628 (34%)	1,199 (66%)	
Rurality	Major city	2,979 (53%)	2,682 (47%)	0.021
	Inner regional	1,101 (37%)	1,837 (63%)	
	Outer regional/ Remote/Very remote	459 (42%)	646 (58%)	
SEIFA Index (decile)	mean (SD)	6.6 (2.2)	6.4 (2.2)	0.60

a: Numbers may not add to 9704 due to missing data

b: Logistic regression adjusted for clustering

c: Practices defined as small if less than 6 GPs were working in the practice

d: Practices were defined as routinely bulk-billing if all patients were routinely bulk-billed.

Aboriginal and Torres Strait Islander patients

For patients of Aboriginal and Torres Strait Islander background, the univariable findings of association of status recording are presented in Table 2 and the multivariable model is presented in Table 3. Of Aboriginal and Torres Strait Islander patients, 82.0% (96 of 117 [95%CI: 73.9-88.5]) had their status documented prior to the encounter. Aboriginal and Torres Strait Islander patients attending a doctor at a larger practice size (6 or more GPs) were significantly less likely (OR of 0.15 [95%CI: 0.04-0.65]) to have their status recorded prior to that visit.

Imputation analyses

There were missing data of 25.8% for the outcome variable. In the imputation analyses (see Supplementary Table 1, available online) for all patients (Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander patients), the same variables remained in the model. All significant variables remained significant. The non-significant finding of bulk-billing

practices being more likely to have status recorded became statistically significant, as did recording in outer regional/remote/very remote locations.

In records of Aboriginal and Torres Strait Islander patients only (examining our secondary outcome), NESB dropped out of the imputed multivariable model.

Discussion

Summary of main findings

Patients were found to have their Aboriginal and Torres Strait Islander status documented prior to the consultation in 53.2% of encounters. Associations of recording of status were older patients, Aboriginal and Torres Strait Islander patients and the patient not being new to the practice.

Of the Aboriginal and Torres Strait Islander patients in this study, four in five were found to have their status documented prior to the encounter. In this smaller number of consultations, the only significant association of recording of status was size of practice, with those attending larger practices less likely to have their status recorded.

Strengths and limitations

A major strength of our study is the high response rate, with 94.7% of registrars participating, and the conduct of the study across four Australian states and all ASGC-RS classifications. This response rate is exceptional for studies of general practitioners.²² While the response rate is high, there was 25.8% missing data for the

outcome variable. For the primary analysis; however, use of multiple imputation techniques strongly supported the findings of our analysis.

Another strength of the study is the face-to-face orientation of the ReCEnT project, including orientation to best practice in asking Aboriginal and Torres Strait Islander status.¹⁸ We are thus confident

of the reliability of data for this important independent variable (the Aboriginal and Torres Strait Islander status of each patient).

A potential limitation is that while there is excellent generalisability to Australian GP practices that train registrars, these practices may differ from non-training practices. A further limitation is that while the findings of the primary analysis regarding the associations of recording Aboriginal and Torres Strait Islander status in the full practice population are robust, interpretation of the associations of recording in Indigenous patients is limited by the smaller sample size.

Comparison with existing literature and interpretation of findings

The percentage of patients in mainstream general practice in our study who identified as Aboriginal or Torres Strait Islander (1.2%) is broadly consistent with previously published data.^{15,23}

To our knowledge, this is the first time prevalence and associations of documentation of Aboriginal and Torres Strait Islander status in the clinic record has been described in the general practice setting (the setting of a substantial proportion of Aboriginal and Torres Strait Islander health care delivery). As a result, there is no literature with which to compare our prevalence of 53.2% documentation of status.

We found a strong positive association between recording of Aboriginal and Torres Strait Islander status and the patient being Aboriginal and Torres Strait Islander. This has not been described before and may reflect patients self-identifying to their GP.

Our finding of 82% of Aboriginal and Torres Strait Islander patients having had their status recorded in the general practice clinical file is comparable with hospital findings from the Australian Institute of Health and Welfare (AIHW). In hospitals, 88% of Aboriginal and Torres Strait Islander patients were found to be correctly identified on admission records.¹⁰ The same report found that the percentage of Aboriginal and Torres Strait Islander patients correctly identified increased with remoteness. Although we found that there was an increased recording of status for patients in inner regional areas compared to major cities, this association was not statistically significant for outer regional, remote and very remote areas. When we examined only Aboriginal and Torres Strait Islander patients, there was no difference in recording of status by degree of rurality.

Table 2: Characteristics associated with recording the patient's Aboriginal and Torres Strait Islander status for Aboriginal and Torres Strait Islander patients (n=117^a).

Variable	Class	Aboriginal and Torres Strait Islander Status recorded		
		No (n=21)	Yes (n=96)	p ^b
Patient age group	<15	8 (24%)	26 (76%)	0.46
	15 to <31	5 (14%)	30 (86%)	
	31 to <55	7 (21%)	26 (79%)	
	55+	1 (6.7%)	14 (93%)	
Patient gender	Male	11 (28%)	29 (73%)	0.057
	Female	10 (13%)	66 (87%)	
Non-English Speaking Background	No	19 (17%)	91 (83%)	0.15 (Exact)
	Yes	2 (50%)	2 (50%)	
New patient to the registrar	No	9 (15%)	51 (85%)	0.34
	Yes	12 (22%)	43 (78%)	
New patient to surgery	No	18 (18%)	84 (82%)	0.72 (Exact)
	Yes	3 (21%)	11 (79%)	
Practice size ^c	Small	3 (6.1%)	46 (94%)	0.004
	Large	18 (27%)	49 (73%)	
Does the practice routinely bulk bill ^d	No	19 (22%)	67 (78%)	0.051
	Yes	2 (6.5%)	29 (94%)	
Rurality	Major city	9 (17%)	44 (83%)	0.92
	Inner regional	8 (20%)	32 (80%)	
	Outer regional/Remote/Very remote	4 (17%)	20 (83%)	
SEIFA Index (decile)	mean (SD)	5.6 (2.1)	5.3 (2.6)	0.64

a: Numbers may not add to 117 due to missing data

b: Logistic regression adjusted for clustering

c: Practices defined as small if less than 6 GPs were working in the practice

d: Practices were defined as routinely bulk-billing if all patients were routinely bulk-billed.

Table 3: Results of Multivariable analyses.

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Variable	Class	Univariable		Adjusted for other variables in the model	
		OR (95% CI)	P	OR (95% CI)	P
Predictors of recording the patient's Aboriginal and Torres Strait Islander status (all patients)					
Patient age group	15 to <31	1.11 (1.01–1.21)	0.032	1.11 (1.01–1.22)	0.037
Referent age <15	31 to <55	1.13 (1.03–1.24)	0.008	1.11 (1.01–1.22)	0.037
	55+	1.22 (1.10–1.36)	<.001	1.18 (1.06–1.32)	0.004
Aboriginal or Torres Strait Islander	Yes	2.64 (1.74–4.01)	<.001	3.09 (1.91–5.00)	<0.001
New patient to the registrar	Yes	0.82 (0.75–0.89)	<.001	0.89 (0.82–0.97)	0.007
New patient to surgery	Yes	0.51 (0.42–0.62)	<.001	0.53 (0.43–0.64)	<0.001
Does the practice routinely bulk bill	Yes	1.91 (1.08–3.35)	0.025	1.79 (0.96–3.34)	0.068
Rurality	Inner regional	1.96 (1.21–3.17)	0.006	2.06 (1.22–3.48)	0.007
Referent Major City	Outer regional/ Remote/Very remote	1.51 (0.77–2.96)	0.23	1.68 (0.79–3.58)	0.18
Predictors of recording the patient's Aboriginal and Torres Strait Islander status for Aboriginal and Torres Strait Islander patients					
Patient gender	Female	2.50 (0.96–6.55)	0.061	2.19 (0.77–6.27)	0.14
Non-English Speaking Background	No	4.79 (0.63–36.15)	0.15 (Exact)	9.59 (0.97–95.17)	0.050 (Exact)
Practice size	Large	0.18 (0.05–0.64)	0.009	0.15 (0.04–0.65)	0.011
Does the practice routinely bulk bill	Yes	4.11 (0.9–18.82)	0.068	4.81 (0.75–31.06)	0.099

The proportion of patients new to the practice with status recorded in our study was 33.4% (see Table 1). Previous literature has suggested that only one-third of practices had methods in place to routinely collect Aboriginal or Torres Strait Islander status for new patients.⁹ General practice staff have previously described that identification of Aboriginal and Torres Strait Islander status in new patients would be easier than in pre-existing patients.⁹ Our findings suggest that although it may be perceived as easier, actual recording of new patients' Aboriginal and Torres Strait Islander status is relatively infrequent.

Implications for practice and policy

We found that younger patient age was associated with less recording of Aboriginal and Torres Strait Islander status. This may suggest that Aboriginal and Torres Strait Islander status is not being routinely and systematically recorded in the clinical record by practices. An interpretation is that status tends to be recorded not systematically but, rather, only when a condition associated with Aboriginal and Torres Strait Islander status (especially a chronic condition, for example diabetes) develops. However, for the clinician, knowing the Aboriginal and Torres Strait Islander status of a child is just as important as knowing the status of an adult, e.g. in the management of otitis media.²⁴ Our findings should encourage clinicians to especially consider asking and recording the Aboriginal and Torres Strait Islander status of younger patients in their practice.

Patients attending practices in inner regional locations had almost twice the odds of having their status recorded than those in major cities. Given that 32% of Aboriginal and Torres Strait Islander people live in urban areas,²⁵ our findings suggest there is an imperative to improve recording in major cities.

This study took place after changes were made to general practice accreditation, making collection and recording of Aboriginal and Torres Strait Islander status on all patients (regardless of ethnic background) a standard for practice accreditation.⁵ Our findings – that nearly half the clinical records did not have Aboriginal and Torres Strait Islander health status documented, and that nearly 20% of Aboriginal and Torres Strait Islander patients remained unidentified – suggest that further work remains to be done. Best practice guidelines regarding identification of Aboriginal and Torres Strait Islander status in general practice recommend a systems-

based approach to identification.⁹ This includes questions about Aboriginal and Torres Strait Islander status as part of new patient registration information.⁹ Our findings regarding new patients to the surgery being less likely to be recorded suggest that this is not occurring at a practice level, or at least status is not being entered into the file prior to the clinician seeing the patient. This is consistent with the contention that ensuring all patients are asked about Aboriginal and Torres Strait Islander status “cannot easily be centrally mandated or enforced.”¹

It is perhaps encouraging that the majority of Aboriginal and Torres Strait Islander patients were recorded in the clinical record. However, given the importance of this to the individual patient, and that just under 20% of patients who identify as Aboriginal or Torres Strait Islander did not have their status recorded, there is still considerable room for improvement on this important public health issue. Promotion and education around the importance of the issue and implementation of best practice guidelines² is imperative for policy makers and practitioners alike. Our findings suggest increased attention be given to recording the status of young patients and new patients, and improving recording in practices in urban locations.

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Supporting Information

Additional supporting information may be found in the online version of this article:

Supplementary Table 1: Results of analyses including imputed data.