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Supporting Information

Supplementary methods; full author details

This appendix was part of the submitted manuscript and has been peer reviewed.
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Appendix to: The Communicate Study group. Improving communication with Aboriginal hospital inpatients: a quasi-experimental interventional study. *Med J Aust* 2020; doi: 10.5694/mja2.50700.

Supplementary methods

Background

We hypothesised that improved communication during hospitalisation, measured as an increase in the proportion of Aboriginal patients gaining access to an Aboriginal interpreter, would be associated with a reduction in rates of self-discharge among Aboriginal inpatients. Poor communication has been frequently cited as an important contributor to high self-discharge rates in Northern Territory hospitals.[1-3]

Methods

Process for language documentation and interpreter bookings

The Aboriginal interpreter Service has a guideline on how to determine whether an interpreter is needed, based on the use of the 'teach back' method.[4] The guideline is available on the health service's online guideline portal. Health care providers are encouraged to frame the need for an interpreter as being their own need, to allow the health care provider to understand and communicate effectively. This can help to avoid 'shaming' the patient about low English proficiency, and reduce the chance of refusal of interpreter services where they would be beneficial.

The need for an interpreter is often underestimated when patients and health care providers share conversational English abilities.[5] Also, health care providers are unfamiliar with Aboriginal language names, and documentation of language is poor.[6] Documentation of language and interpreter requirements is made by Aboriginal Liaison Officer, nurses, doctors, other health care providers and/or ward clerks. At least seven different medical forms include space for language documentation, and there is also scope for electronic documentation.

Royal Darwin Hospital uses the offsite Aboriginal Interpreter Service which services a number of government agencies (e.g. legal and CentreLink as well as health). Interpreters are available for face-to-face, telephone or audio-visual interpreting. The service also provides one 'rostered interpreter' to the hospital on weekdays for four hours. Interpreter bookings can be made through the Aboriginal Liaison Officer, ward clerk or directly by contacting the Aboriginal Interpreter Service. After a booking is received, bookings may be fulfilled (usually within 48 hours) or cancelled.

The Aboriginal interpreter Service database indicates for each job whether the outcome was completed or cancelled ['Interpreter did not show' or 'No Interpreter available']. Cancellations occur if an interpreter accepts a job but does not show up (e.g. being held up at a previous job); when no interpreter for that language is available; the patient declines; the health care provider cancels the booking; or the patient has been discharged or dies prior to interpreter service being provided.

Analyses

Data and inclusion / exclusion criteria

Top End Health Services interpreter bookings data for 1 April 2016-31 March 2019 were provided by the Aboriginal Interpreter Service. This database includes all requests made to the service by Royal Darwin Hospital including ward, language and whether completed or cancelled (if so, cancellation reason). Royal Darwin Hospital separations data, used as a measure of inpatient health care utilisation, were obtained for all Indigenous people for the same timeframe. There were no restrictions relating to elective or emergency cases, or repeat hospitalisation.

Torres Strait Islanders, admissions for dialysis, same-day procedures, private hospital, outpatient cardiology, boarders and care provided in psychiatry units (where interpreter use is already high)[6] were excluded.

In this paper we use the term 'self-discharge' synonymously with 'left against medical advice/discharge at own risk'. Separations are classified by the health service as: discharged or transferred, left against medical advice/discharge at own risk, died, unknown, other or change of care type. Implications in the terminology that patients wilfully leave against advice convey incorrect assumptions that advice has actually been provided in a comprehensible manner (to the contrary, many patients misunderstand the need to stay and are unaware of hospital policy which discharges them if they are absent for >4 hours).

Time series analysis

Analyses used *R* statistical software 3.6.1. Interpreter booking numbers and rates were calculated monthly, providing 36 timepoints. Interrupted time series analysis was undertaken to examine the change in gradient and intercept from the baseline to the intervention period in the primary and secondary outcomes. A model was fitted to estimate slopes and difference between slopes. To ensure we fitted a model accounting for the correct autocorrelation structure, we performed a Cumby-Huizinga general test for autocorrelation[7] (note, no evidence of autocorrelation was found). The relationship between interpreter bookings and self-discharge rates was tested using linear regression.

Interrupted time-series analysis was selected since this offers a robust method for before-and-after comparisons. The 'interruption' was the onset of study activities, timed with commencement of the Aboriginal Interpreter Coordinator being employed. STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines have created a reporting template tailored for time-series analysis[8] to which we adhered. A longitudinal analysis was considered more appropriate than a randomised design e.g. where outcomes are evaluated after randomisation of patients to receipt of an interpreter or not, since this approach would have been unethical. Randomisation of the study intervention activities (activities confined to some wards, units or clinicians) e.g. in a cluster randomised / stepped wedge design, would also have been inappropriate due to the heterogeneity between wards/units (different % Aboriginal inpatients, rates of self-discharge etc). Also, cross contamination would occur since patients are seen by dozens of health care providers, and they change ward location and admitting team during a single hospitalisation; also, health care providers work across different wards/units (and hospitals).

Proportion of Aboriginal patients in need of an interpreter

Approximately 60% of Aboriginal people at Royal Darwin Hospital[3] and in the Northern Territory[9] speak an Aboriginal language as their first language. Community consultation indicates that a significant majority would benefit from an interpreter in health care interactions. We conservatively estimated that 50% of Aboriginal patients (calculated as 50% of Aboriginal separations during the baseline [April 2016 – March 2018] and intervention study periods [April 2018 - March 2019]) would benefit from an interpreter. In fact the true proportion is unknown for the reasons of limited ascertainment and documentation described above. Better documentation of this is a key priority for Top End Health Services, with strategies underway to improve electronic capture.

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