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## Efficacy of the Zero Suicide framework in reducing recurrent suicide attempts: cross-sectional and time-to-recurrent-event analyses

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### Summary

#### Background

The Zero Suicide framework is a system-wide approach to prevent suicides in health services. It has been implemented worldwide but has a poor evidence-base of effectiveness.

#### Aims

To evaluate the effectiveness of the Zero Suicide framework, implemented in a clinical suicide prevention pathway (SPP) by a large public mental health service in Australia, in reducing repeated suicide attempts after an index attempt.

#### Method

A total of 604 persons with 737 suicide attempt presentations were identified between 1 July and 31 December 2017. Relative risk for a subsequent suicide attempt within various time periods was calculated using cross-sectional analysis. Subsequently, a 10-year suicide attempt history (2009–2018) for the cohort was used in time-to-recurrent-event analyses.

#### Results

Placement on the SPP reduced risk for a repeated suicide attempt within 7 days (RR = 0.29; 95% CI 0.11–0.75), 14 days (RR = 0.38; 95% CI 0.18–0.78), 30 days (RR = 0.55; 95% CI 0.33–0.94) and 90 days (RR = 0.62; 95% CI 0.41–0.95). Time-to-recurrent event analysis showed that SPP placement extended time to re-presentation (HR = 0.65; 95% CI 0.57–0.67). A diagnosis of personality disorder (HR = 2.70; 95% CI 2.03–3.58), previous suicide attempt (HR = 1.78; 95% CI 1.46–2.17) and Indigenous status (HR = 1.46; 95% CI 0.98–2.25) increased the hazard for re-presentation, whereas older age decreased it (HR = 0.92; 95% CI 0.86–0.98). The effect of the SPP was similar across all groups, reducing the risk of re-presentation to about 65% of that seen in those not placed on the SPP.

#### Conclusions

This paper demonstrates a reduction in repeated suicide attempts after an index attempt and a longer time to a subsequent attempt for those receiving multilevel care based on the Zero Suicide framework.

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