

# Prediction of Death Within 12 Months by ICU Clinicians



Turner J, Aldridge K, Hulme J.

Sandwell and West Birmingham NHS Trust

## Introduction

The ‘surprise question’, “**would you be surprised if this patient died within the next 12 months?**” has been proposed as a tool for identification of those who may benefit from advanced care planning, and possibly palliative care, as part of the Gold Standards Framework<sup>1</sup>.

This predictive ability may have an impact on decisions about treatment escalation planning and communication with patients and their families.

We set out to investigate the accuracy of intensive care clinicians’ predictions on the likelihood of death within 12 months.

## Methods and Materials

A retrospective audit of treatment escalation planning was carried out in March 2019<sup>2</sup>: medical records for all hospital admissions, excluding obstetrics, for three 24-hour periods were assessed.

Within the audit, intensive care unit (ICU) clinicians were asked the ‘surprise question’ about each patient on review of clinical records.

After 15 months, the electronic patient record of every patient was accessed to record if the patient had died and compared to the initial prediction to create a list of ‘unexpected survivals’ and ‘unexpected deaths’. The number of days from the index admission to the date of death, if relevant, were calculated.

### The value of the ‘surprise question’

Positive predictive value	33%
Negative predictive value	96%
Sensitivity	83%
Specificity	72%

	Modified Rankin Scale >3	Charlson Comorbidity Index >3	Age >70	Age >80
Unexpected Survivors	61%	41%	74%	54%
Expected Survivors	4.7%	9.1%	20%	5.2%
Expected Deaths	66%	63%	82%	61%

## Results

ICU clinicians were correct in predicting either death or survival in 207 of 282 (73%) of cases. 174 of these were correct predictions of survival. In addition, 5 patients who were not expected to survive 12 months died outside of the 12-month window, but within 15 months. There were 7 unexpected deaths.

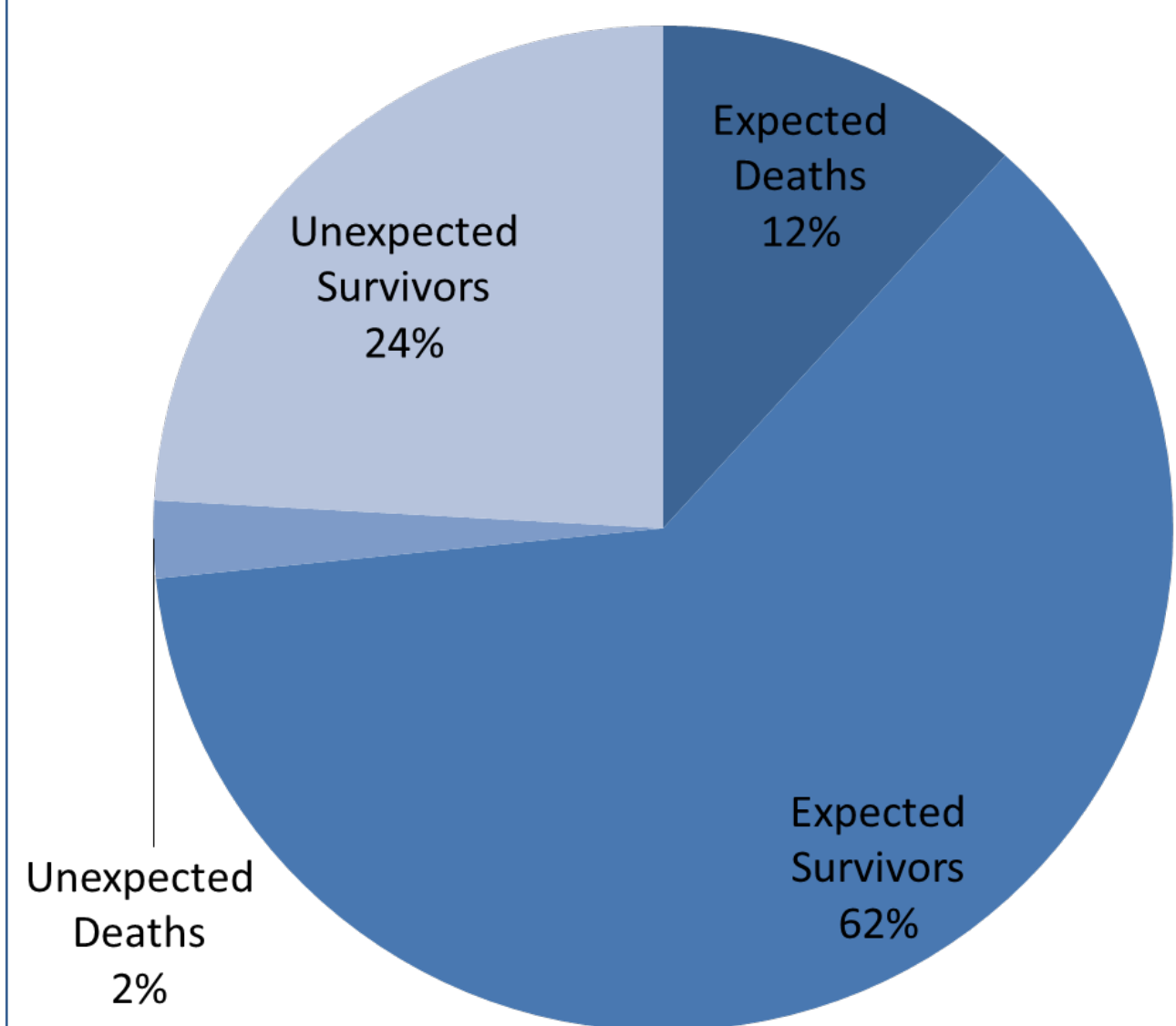


Chart 1. Breakdown of patient outcomes.

## Conclusions

ICU clinicians can often correctly predict those patients who are likely to die within the next year.

However, almost a quarter of patients in whom death in the next 12 months would not be a surprise do survive longer than this (consistent with previously published data<sup>3</sup>), though a substantial proportion of these patients were elderly, considerably frail, and had a significant burden of comorbidity.

The overestimation of risk of death based on this question may suggest that doctors who work in intensive care units have a more pessimistic view of survival than is borne out by data. This underlines the importance of considering not just likelihood of survival, but other important patient outcomes and patient goals of care when communicating the risks and benefits of higher-level care and planning treatment escalation.

## References

1. Thomas K, Armstrong W, GSF Team. Proactive Identification Guidance (PIG) National Gold Standards Framework Centre in End of Life Care 2016 [Available from: <https://www.goldstandardsframework.org.uk/PIG>].
2. Aldridge K, Sherwood N, Hulme J. ICS SOA 2019 Poster 0224: Treatment escalation planning in acutely unwell patients – are we missing opportunities? Journal of the Intensive Care Society. 2020;21(2):1-225.
3. White N, Kupeli N, Vickerstaff V, Stone P. How accurate is the ‘Surprise Question’ at identifying patients at the end of life? A systematic review and meta-analysis. BMC Med. 2017;15(1):139.