## STATISTICAL SIGNIFICANCE

*Statisticians assess both short-term and long-term effects of a new health policy. They extract and analyze data retrospectively from large-scale electronic medical records. Statistical analyses explain why health policy implementation might not show immediate improvement in patient outcomes, and why optimizing health policy into clinical workflow plays an important role in harnessing long-term benefit.*

# Rapid Response Team and In-Hospital Mortality

### RAPID RESPONSE TEAM (RRT):

Rapid response team (RRT) is a dedicated, usually multidisciplinary team that initiates supportive critical care and determines whether a transfer to an intensive care unit (ICU) is necessary. RRTs are individualized according to local institutional needs and resources.

Implementation of a RRT imposes a substantial financial and organizational burden with uncertain patient benefit. Existing data are mixed with respect to the effect of RRT on mortality.



### HOW RRT AFFECT IN-HOSPITAL MORTALITY:

Statisticians assess both short-term and long-term effects of RRT in terms of its initiation and policy change. In this 15-year retrospective review of in-hospital mortality after initiation of an RRT program, we found that implementation of the RRT in 2009 was associated with a small initial increase in in-hospital mortality immediately after the intervention and then a downward trend in in-hospital mortality over time when compared to the pre-intervention baseline.

Although our data did not allow us to demonstrate causality, they indeed suggested that reductions in hospital mortality may not occur immediately after RRT implementation. Our data also implied that optimizing the RRT process may improve its effectiveness.

### OPTIMAZING RRT PROGRAM:

In a large retrospective dataset analysis, we found that in-hospital mortality at a large tertiary medical center progressively declined over the decade after initiation of an RRT program. Our data may explain why previous trials of RRT implementation did not show immediate improvement in patient outcomes, and suggested that optimizing how the RRT is organized and/or integrated into the clinical workflow may play an important role in realizing benefit from an RRT service.

Statisticians provide insights on how to best use RRT. Although we could not identify specific reasons for the mortality decrease, a transition in RRT leadership to anesthesiologists and other policy changes may have contributed to the changes we observed.

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