

Testing new predictive models involving biological warfare attacks on civilians

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Abstract

Walden and Kaplan (2004) and Brookmeyer, Johnson, and Bollinger (2003) have recently used complex mathematical models to predict projected infections and fatalities, respectively, from biological warfare anthrax attacks on civilians. Their models have been based, in large part, on the events at Sverdlovsk when anthrax spores were released by mistake from a Soviet facility in 1979. Dr. Brookmeyer, when contacted by the senior author, provided a revised table of predictions, since his original published table had included substantial errors. Here, the new models' predictions are validated against the anthrax epidemic that occurred at the Arms Mill in Manchester, New Hampshire in the autumn of 1957. The models predicted approximately 8 infections and 5 deaths. Nine infections occurred, providing support for the Walden and Kaplan (2004) model. Given that 4 deaths occurred with one death prevented only by timely administration of antibiotics, the mortality outcome also provides support for Brookmeyer et al.'s (2003) statistical modeling. Thus, both models appeared to predict the outcomes of the relatively small epidemic at Manchester with adequate accuracy. Whether the models would accurately predict the outcomes of much larger attacks is yet to be determined.

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