NEW ANTHRAX COUNTERMEASURE

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EXECUTIVE SUMMARY

Anthrax is one of the most significant bioterrorism threats to the United States today. Left untreated, inhalational anthrax, the form most likely to be employed in a bioterrorism event, would claim at least 75% of those infected. Although treatments and a vaccine against anthrax do exist, these also produce adverse side effects and are susceptible to bacterial resistance.

In this report, we investigate the possibility of production of a novel new anthrax treatment with minimal side effects and virtually no possibility of bacterial resistance. The pharmaceutical is based on the innovative combination of two recently discovered components: an agent that aids the immune system in defeating an anthrax infection and the "bait" by which to attack the anthrax *in vivo*. The probability of successful laboratory development is analyzed in detail. Next, a thorough evaluation of the FDA process for drug approval is detailed. Finally, an in depth economic analysis is performed on the entire drug production process – from laboratory work to final product.

Based on a sample of 500 randomly produced trials, the process is shown to carry a 22% to 34% chance of profitability with an average profit between $441M and $670M over the course of a three-year production period. The average loss for unsuccessful drug procurement is $2.4M. The research and development and FDA approval of this drug is expected to take seven years and cost approximately $12M.

In conclusion, we suggested the development of a novel anthrax countermeasure. Although no laboratory tests as of yet have been completed, we detailed the experiments that should be performed and the probability of success for each of those experiments. We also analyzed the FDA approval process in detail. Finally, we examined the profitability of the drug's production and found it to be a high risk venture with the opportunity for large profit.