Severe Acute Respiratory Syndrome (SARS)

Severe Acute Respiratory Syndrome (SARS) is an acute respiratory illness caused by infection with the SARS virus. Fever followed by a rapidly progressive respiratory compromise is the key complex of signs and symptoms, which also include chills, muscular aches, headache and loss of appetite.

Mortality, initially believed to be around 3%, may well be as high as 15%. The WHO estimates that the case fatality ratio of SARS ranges from 0% to 50% depending on the age group affected: less than 1% in persons aged 24 years or younger; 6% in persons aged 25 to 44 years; 15% in persons aged 45 to 64 years; and greater than 50% in persons aged 65 years and older

The etiologic agent of SARS is a virus which was identified in March 2003. The initial clusters of cases in hotel and apartment buildings in Hong Kong have shown that transmission of the SARS virus can be extremely efficient. The virus is predominantly spread by droplets or by direct and indirect contact. Shedding in faeces and urine also occurs. Medical personnel, physicians, nurses, and hospital workers are among those commonly infected.

In the absence of effective drugs or a vaccine for SARS, control of this disease relies on the rapid identification of cases and their appropriate management, including the isolation of suspect and probable cases and the management of their close contacts. If the disease is not contained this could result in the deaths of many…..

In March 2003 the World Health Organisation (WHO) issued a global warning.

The table below gives the cumulative number of deaths over a five week period (Day 0 = 28 March 2003). Use this to model to predict the possible increase in the total number of deaths from SARS and comment on your predictions and the reliability of your model(s).

SARS – Cumulative No of deaths from Marc 2003 (day 0)	
Day	**Deaths**
0	53
7	89
14	119
21	182
28	293
35	435

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Although deaths continued to increase for several more weeks the rate of increase decreased. Use the table below to produce a mathematical model based on the number of deaths over a thirteen week period.

SARS – Cumulative No of deaths from Marc 2003 (day 0)	
Day	**Deaths**
0	53
7	89
14	119
21	182
28	293
35	435
42	526
49	623
56	696
63	764
70	784
77	801
84	809
91	812

Comment on the reliability of your model(s) and whether they could be reliably used to predict future increases in the number of deaths.

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