

Formulae, coefficients and variables used in our modelling

The following formulae describe how projections were calculated for numbers of transplants, the size of the waiting list, and the size of the dialysis population. Coefficients and variables used in the calculations are also described.

Coefficients

A = Number of transplants actually performed in the first month since Day 0 = 128

B = Number of transplants anticipated in each subsequent month = 0

C = Number of deceased donors each month (normal activity) = $2577/12 \approx 215$

D = Number of living donor transplants each month (normal activity) = $1020/12 = 85$

F = Size of list on Day 0 = 4748

G = Reduction in size of active transplant waiting list between 31 March 2019 and 5 March 2020 = 206 (4.16%)

H = Anticipated monthly reduction in waiting list size (business as usual scenario), based on assumption that F (4748) will reduce by 4.2% (~G) over the year ≈ 17

I = Total number of transplants per month (normal activity) = $3597/12 \approx 300$

J = Proportion of deceased donor transplants which go to dialysis patients = 87%

K = Proportion of living donor transplants which go to dialysis patients = 62%

Variables

M = Number of months since Day 0

Formulae

T = Number of transplants anticipated (COVID-19 pandemic) = $A + B = 128$

U = Projected size of active waiting list at month M (normal activity) = $F - (M * H)$

W = Projected size of the list at month M (COVID-19 pandemic) = $F + (M * (I - H)) - T$

X = Cumulative number of additional dialysis patients at month M due to missed living donor transplants = $M * D * K$

Y = Cumulative number of additional dialysis patients at month M due to missed deceased donor transplants (COVID-19 pandemic) = $((C * M) - T) * J$