

1. In a sector, the organ dose (red marrow, r, and lung, l) is:

$$D_r = (C_{inh} * DCF_r)_{Cs} + (C_{inh} * DCF_r)_{Ru}$$

$$D_l = (C_{inh} * DCF_l)_{Cs} + (C_{inh} * DCF_l)_{Ru}$$

2. In a sector, the risk of early fatality is:

$$R = 1 - e^{-\left(.693 * \left(\frac{D_r}{380rem} \right)^5 + .693 * \left(\frac{D_l}{1000rem} \right)^7 \right)}$$

If $D_r < 150$ rem, then D_r is set to 0.
If $D_l < 500$ rem, then D_l is set to 0.

3. In a sector, the number of early fatalities is:

$$N_{fatalities} = R * population$$

4. The total number of early fatalities is the sum of the early fatalities in each sector.

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