S1 Text. List of Symbols and Glossary

**Extra nosocomial chain** The cases of extra-hospital transmission within a single family (EE, EE2, SE, TI, and FT who likely initiated the chain) recorded in Jos, Nigeria in 1970 [2], Figure 1.A.

**Generation time** The time between a primary case and a secondary case.

**Individual Effective Reproduction Number** The average number of secondary cases arising from each single infectious case in a population made up of both susceptible and non-susceptible hosts.

**KGH** Acronym for Kenema Governmental Hospital, in Sierra Leone.

**LASV** Lassa fever virus.

**LF** Lassa fever.

**Nosocomial chain** The chain of nosocomial infections recorded in Jos, Nigeria in 1970 [2], Figure 1.A and in Zorzor, Liberia in 1972 [3], Figure 1.B.

**Proportional impact** The fraction of the areas of $\sum_{S_o} R_{Ind}/\sum_{S} R_{Ind}$ where $S$ is set of all simulated $R_{Ind}$ and $S_o$ the subset of cases when $R_{Ind} > 1$.

**Q** Proportion of hospitalised patients in KGH (Figure 2), who contracted the disease from a human source. Estimating this value is a key goal of the current work.

**$R^\text{Extra Nos}_j(t_j)$** Individual effective reproduction number for case $j$ at the time $t_j$ for the extra-nosocomial situation, i.e. with the network of contacts restricted to the family TI, EE, EE2, SE and FT.

**$R^\text{Extra Nos}_{Ind}$**. The set of all individual effective reproduction numbers for the extra-nosocomial situation.

**$R^\text{Extra Nos}$** Average number of cases during the entire outbreak for the extra-nosocomial situation, i.e. $R^\text{Extra Nos} = \sum_j R^\text{Extra Nos}_j(t_j)$.

**$\overline{R}$** Daily mean effective reproduction numbers for the extra-nosocomial situations, i.e. $\overline{R} = \frac{\sum_j R^\text{Extra Nos}_j}{T^\text{Extra Nos}}$.

**$R^\text{Nos}_j(t_j)$** Individual effective reproduction number for case $j$ at the time $t_j$ for the nosocomial situations, i.e. considering the entire network of contacts in Jos and Zorzor.

**$R^\text{Nos}_{Ind}$** The set of all individual effective reproduction numbers for the nosocomial situations.

**$R^\text{Nos}$** Average number of cases during the entire outbreak for the nosocomial situations, i.e. $R^\text{Nos} = \sum_j R^\text{Nos}_j(t_j)$. 

$\overline{R}^{Nos}$ Daily mean effective reproduction numbers for the nosocomial situations, i.e. $\overline{R}^{Nos} = \sum_j R_j^{Nos} / T^{Nos}$.

$R_j(Q)$ The effective reproduction number for case $j$ at the time $t_j$ associated with a subset of the epidemic curve from KGH and assumed to be a pure human-to-human chain of transmission; this subset is obtained by randomly selecting a portion, of duration $T$, of the epidemic curve and then a fraction $Q$ of the patients.

$R(Q)$ The total effective reproduction number $R(Q) = \sum_j R_j(Q)$. This value represents the average number of cases during the entire epidemic compatible with the particular generation time.

$\overline{R}(Q)$ The daily mean effective reproduction number $\overline{R}(Q) = \sum_j R_j(Q) / T$ where $T$ is the duration of the epidemics.

$T$ The epidemic curve from KGH (Figure 2) is assumed to be a collection of multiple chains of mean duration $T$, rather than a 2-year long un-interrupted epidemic.

$T^{Nos}$ Typical duration of the nosocomial outbreaks.

$T^{Extra Nos}$ Typical duration of the extra-nosocomial outbreaks.

$\tau_{nm}$ The time of exposure of case $n$ to case $m$ while case $m$ is infectious for the nosocomial and extra-nosocomial situations (Figure 1.D).

$q_{ij}$ The relative likelihood that case $i$ has been infected by case $j$ for the nosocomial and extra-nosocomial situations.

$\tilde{w}(\tilde{\tau}_{ij})$ The distribution for the generation interval and it is assumed to be the empirical distribution obtained from the nosocomial and extra-nosocomial outbreaks (shown in Figures 3.C and 3.D).

$p_{ij}$ The relative likelihood that case $i$ has been infected by case $j$, given their difference in time of symptom onset $\tilde{\tau}_{ij}$, approximated here as the difference in time of admission to hospital.