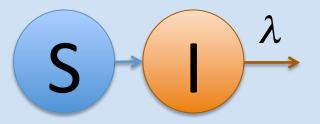
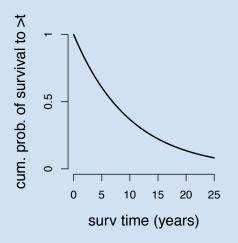
# Justification of the Distributed Delay (Boxcar Model)

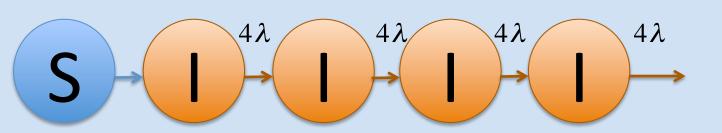
## **Exponential survival:**

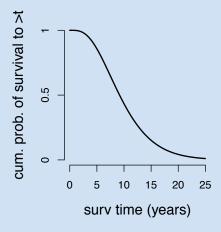


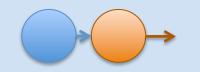


### Gamma survival:

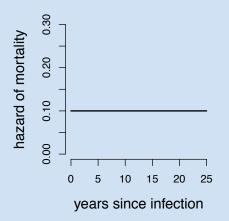
Average rate is the same, distribution is different!

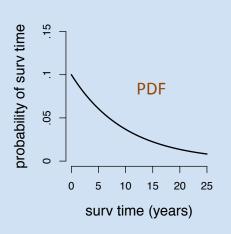


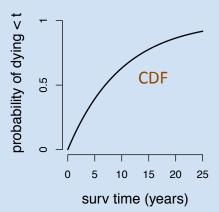


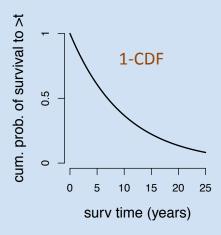


### **Exponential Survival Times**





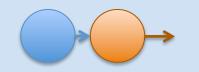




hazard of mortality: deaths / (person\*year) probability of dying AT year t

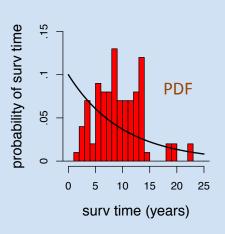
probability of dying BY year t

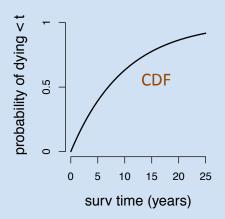
probability of surviving PAST year t

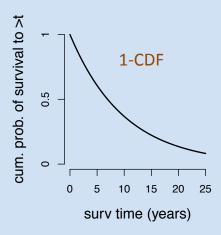


#### **Exponential Survival Times**





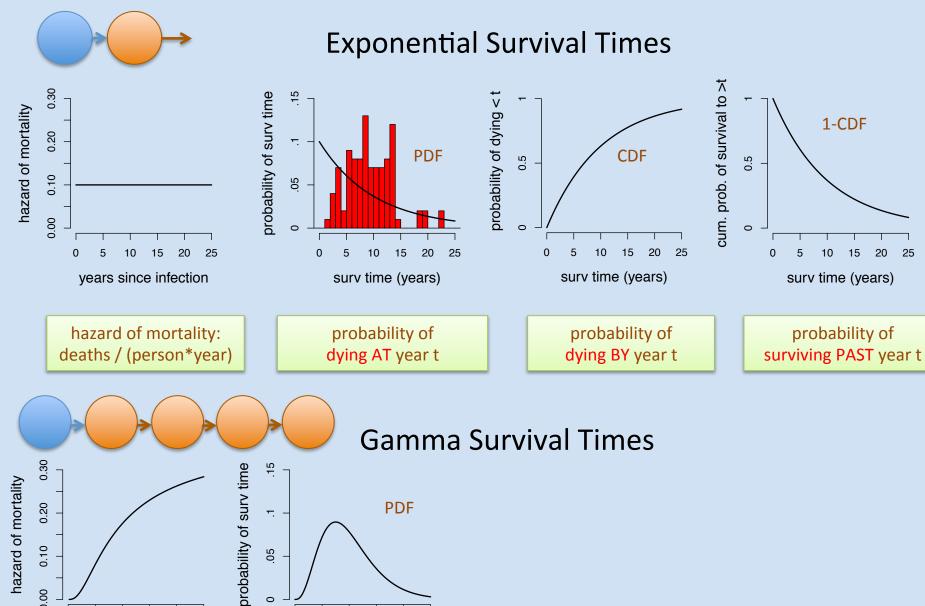




hazard of mortality: deaths / (person\*year) probability of dying AT year t

probability of dying BY year t

probability of surviving PAST year t



surv time (years)

years since infection

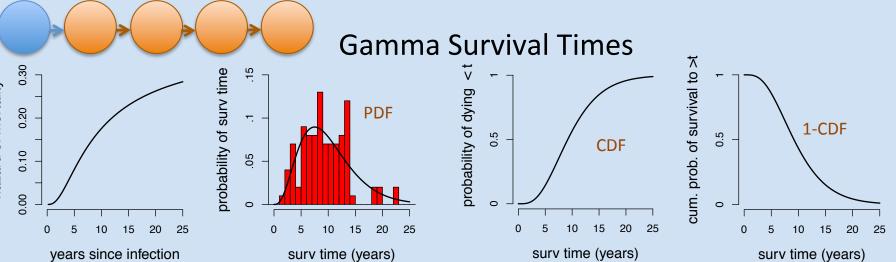
0.00

1-CDF

surv time (years)

probability of

#### **Exponential Survival Times** cum. prob. of survival to >t probability of surv time probability of dying < t hazard of mortality **PDF CDF** 0.5 0.5 .05 0.00 0 25 20 25 10 15 20 25 20 10 surv time (years) years since infection surv time (years) hazard of mortality: probability of probability of deaths / (person\*year) dying AT year t dying BY year t **Gamma Survival Times** 0.30 hazard of mortality



1-CDF

surv time (years)

probability of surviving PAST year t

25

20