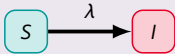


### Instantaneous



$$\lambda \propto [1 - (1 - \beta)^{F\delta}]IC$$

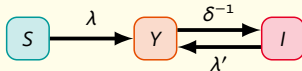
S: susceptible

I: infectious, new partner

Y: infectious, same partner

$\lambda$ : incidence

### Proposed



$$\lambda \propto \beta F[Y(C-1) + IC]$$

$\beta$ : transm prob per contact

F: contact frequency

$\delta$ : partnership duration

C: simultaneous partnerships