#### **Parameters**

- v (total) birth rate
- per capita background mortality rate
- v<sub>t</sub> proportion successfully vaccinated
- **B** transmission coefficient
- σ progression rate
- α disease-induced mortality rate
- ε (total) case importation rate
- p<sub>t</sub> proportion vaccinated
- f vaccine efficacy

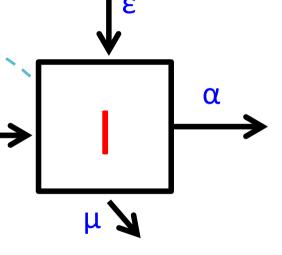
What level of vaccination is needed to eliminate domestic dog rabies in Tanzania?

## **State Variables**

**S**usceptible

σ

- **E** Exposed (infected)
- Infectious (symptomatic)
- Vaccinated (immune)

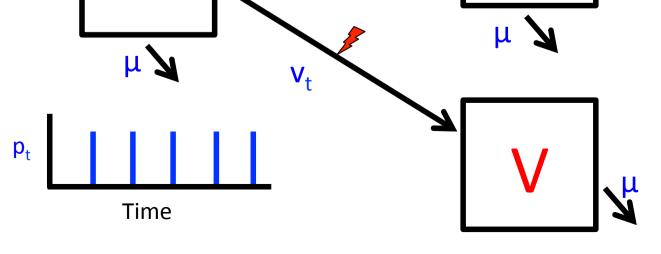


**Derived quantities:** 

$$N = S + E + I + V$$

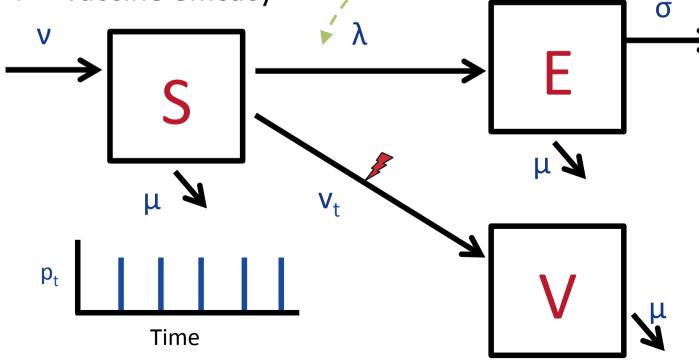
$$v_t = fp_t$$

Force of infection:  $\lambda = \frac{\beta}{\lambda}$ 



#### **Parameters**

- v (total) birth rate
- μ *per capita* background mortality rate
- v<sub>t</sub> proportion successfully vaccinated
- β transmission coefficient
- σ progression rate
- α disease-induced mortality rate
- ε (total) case importation rate
- p<sub>t</sub> proportion vaccinated
- f vaccine efficacy



### **State Variables**

- **S** usceptible
- **E**xposed (infected)
- Infectious (symptomatic)
- V Vaccinated (immune)

# **Derived quantities:**

$$N = S + E + I + V$$

α

$$v_t = fp_t$$

Force of infection:

$$\lambda = \frac{\beta I}{N}$$

