

Risk Types	Diet	#Obs	Size
Low	$\exp(\theta)$	0	N/A
med	$\exp(2\theta)$	3	1, 2, 3
high	$\exp(3\theta)$	1	15

$$\text{Prob} = \frac{e^{-1/2\theta}}{2\theta} \cdot \frac{e^{-2/2\theta}}{2\theta} \cdot \frac{e^{-3/2\theta}}{2\theta} \cdot \frac{e^{-15/3\theta}}{3\theta} = \frac{e^{-8/\theta}}{24\theta^4}$$

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$$l(\theta) = -\ln 24 - 4 \ln(\theta) - 8/\theta$$

$$0 = -\frac{4}{\theta} + \frac{8}{\theta^2}$$

$$0 = 4 + \frac{8}{\theta}$$

$$0 = -4\theta + 8$$

$$4\theta = 8$$

$$\hat{\theta} = 2$$