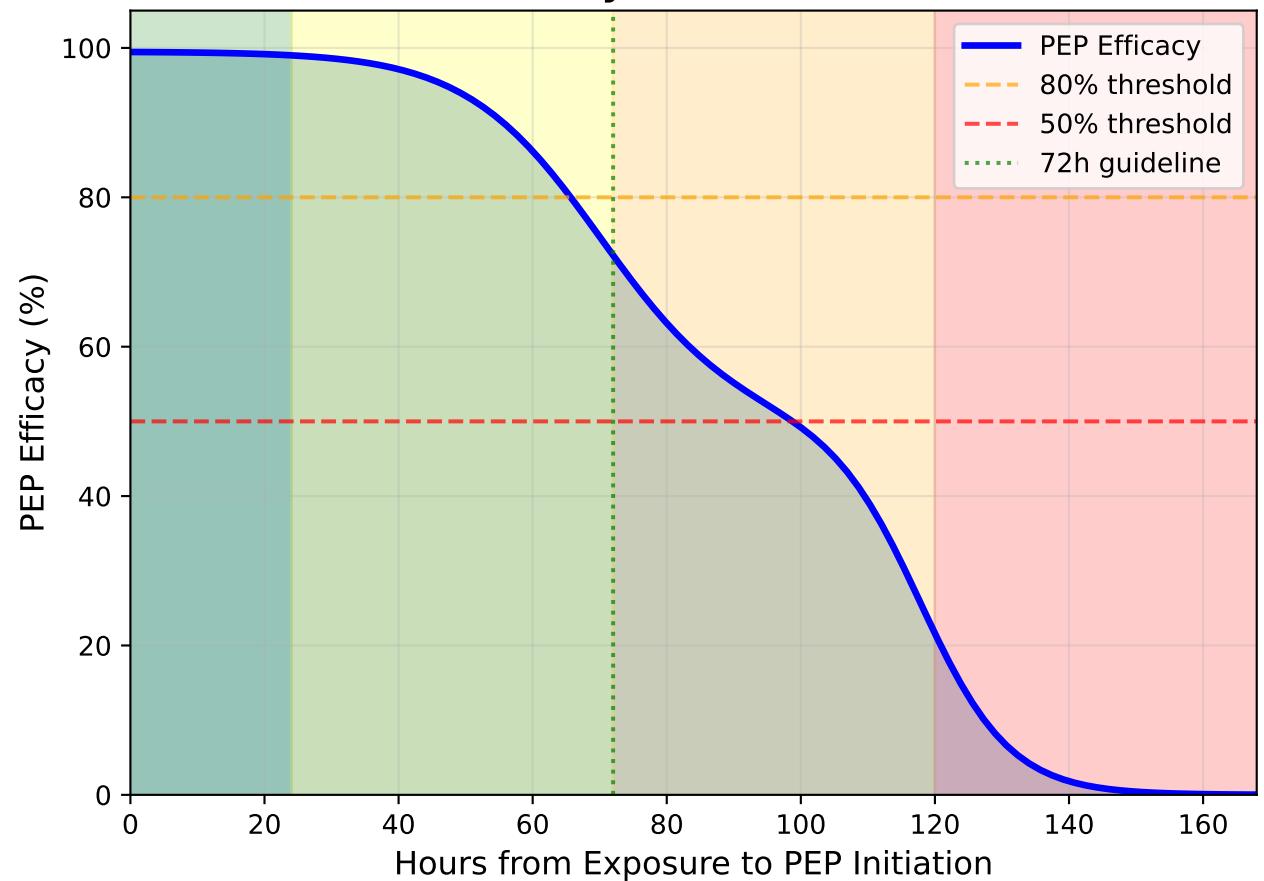
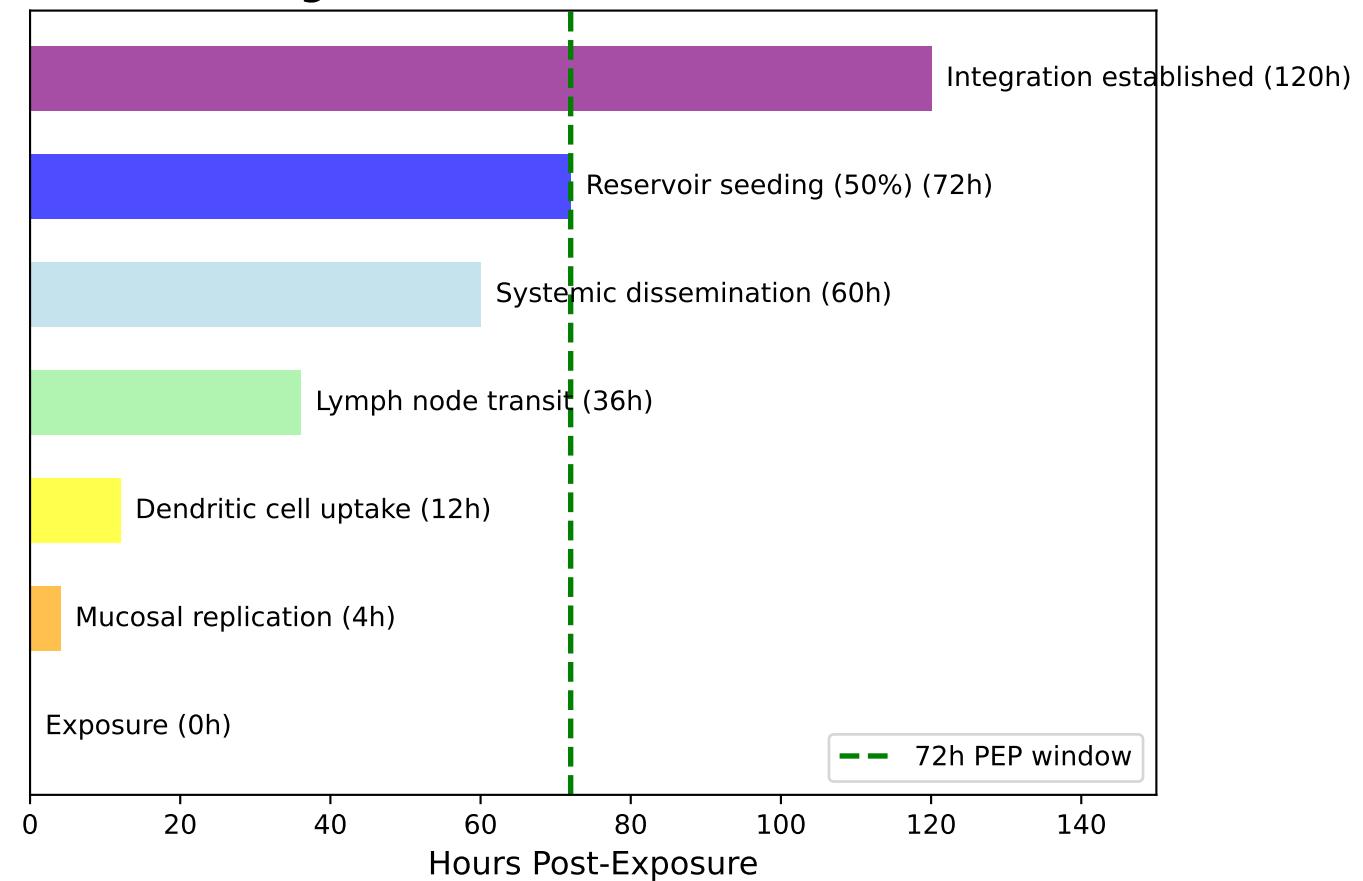


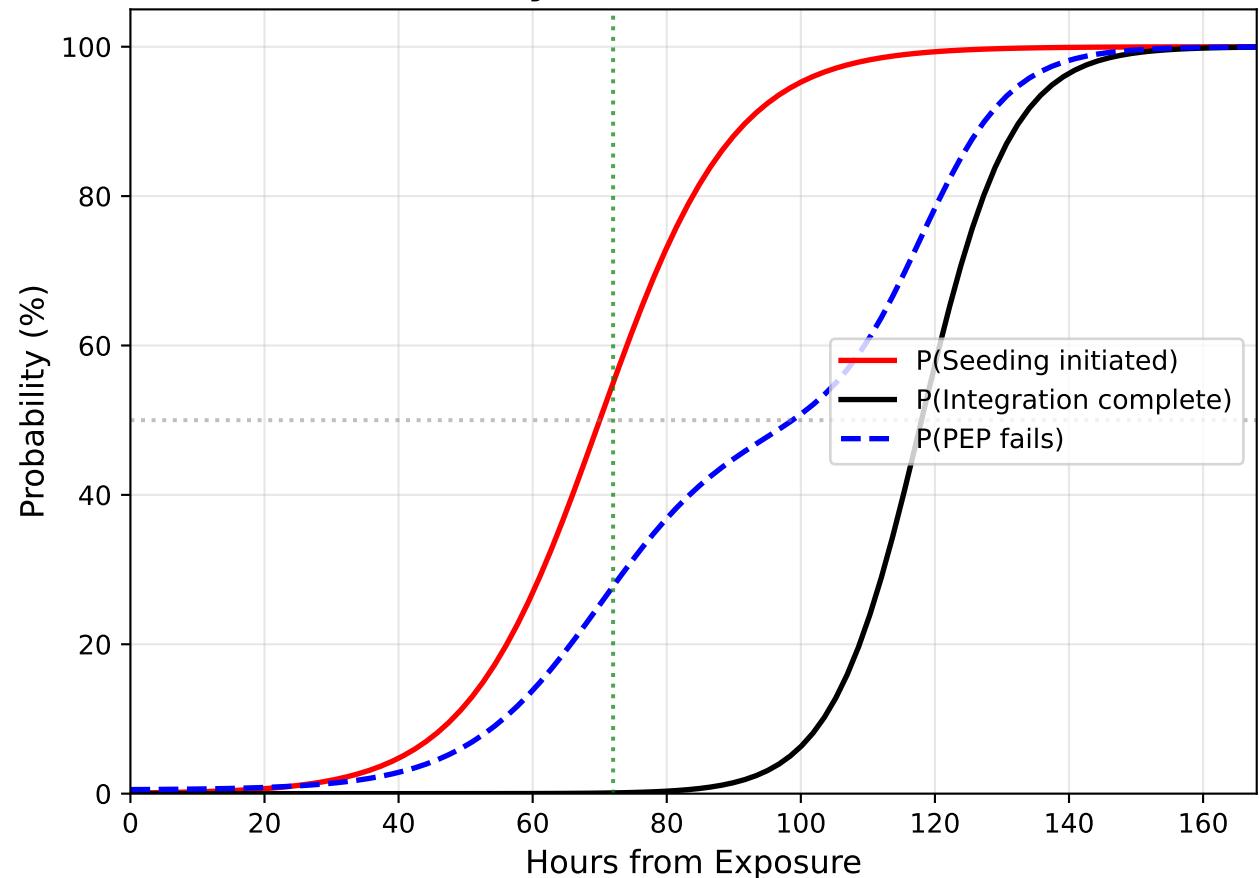
### A. PEP Efficacy vs. Time to Initiation



### B. Biological Timeline of HIV Establishment



### C. Probability of Infection Establishment



### THE PEP COROLLARY

$$\text{PEP}(t < t_{\text{crit}}) \Rightarrow R(0) = 0$$

*PEP initiated before integration completes*

*achieves Critical Windows:* *Theorem*

- 0-24h: >95% efficacy (optimal)
- 24-72h: 70-95% efficacy (standard)
- 72-120h: <70% efficacy (diminishing)
- >120h: ~0% efficacy (too late)

**Every hour matters.  
PEP is a race against integration.**