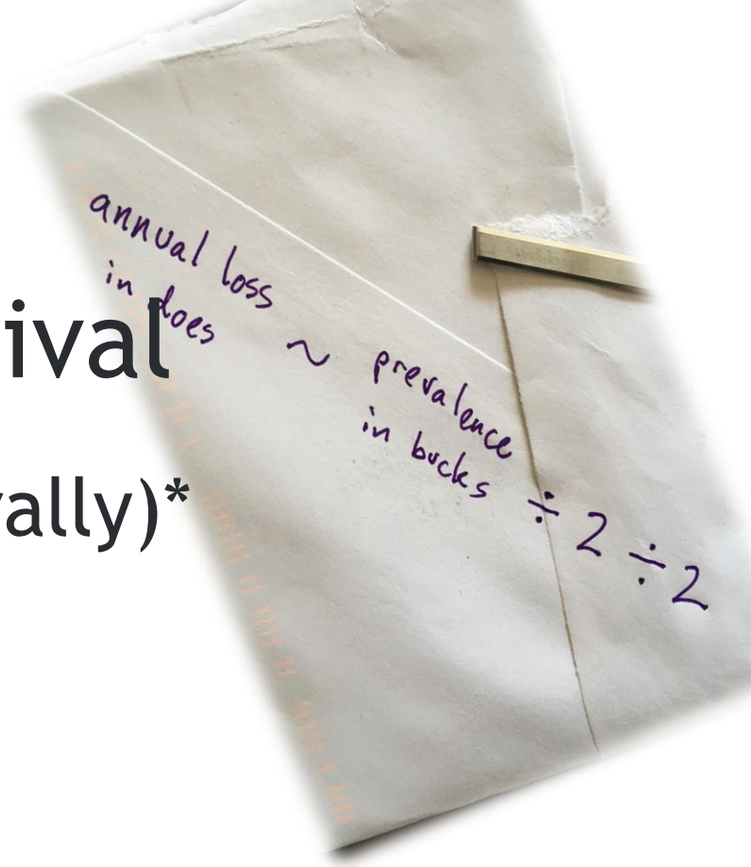
CWD Advisory Group Meeting 3

Revisiting the CWD Prevalence Threshold Discussion

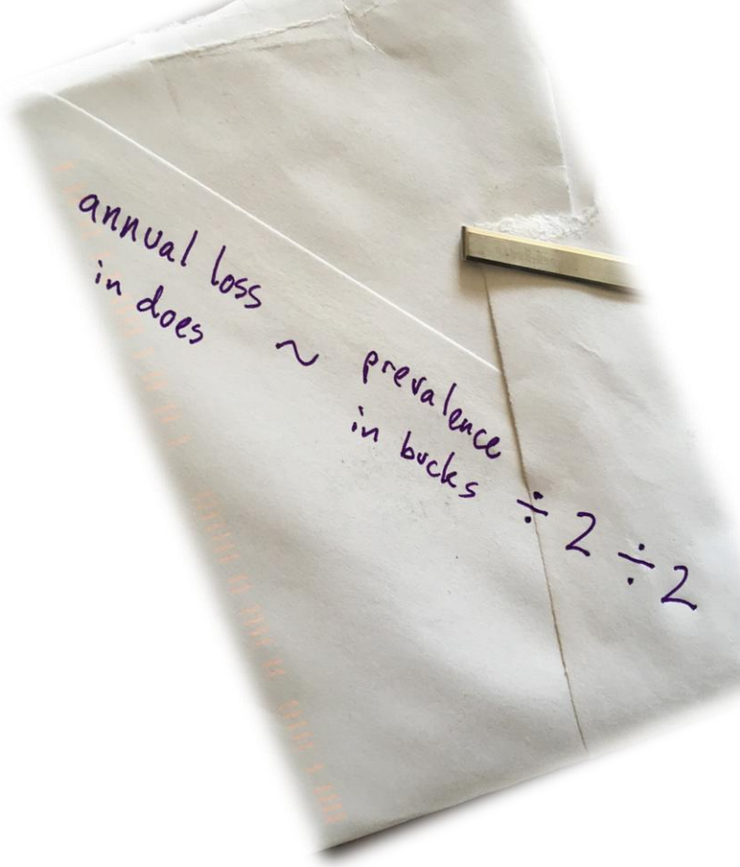
Estimating CWD Impacts on Doe Survival



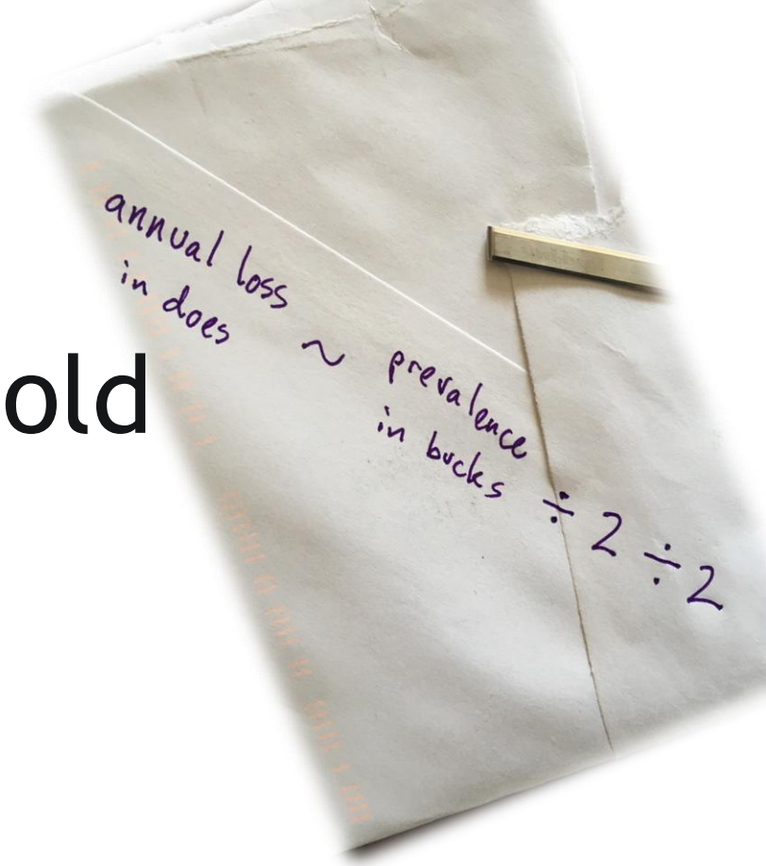
- Simple calculation (back of envelope – literally)*
- Based on Colorado field data
  - doe infection rate ~ ½ buck rate
  - ~ ½ infected individuals die each year (either sex)

*(originally calculated on a bar napkin…)

Estimating CWD Population Impacts



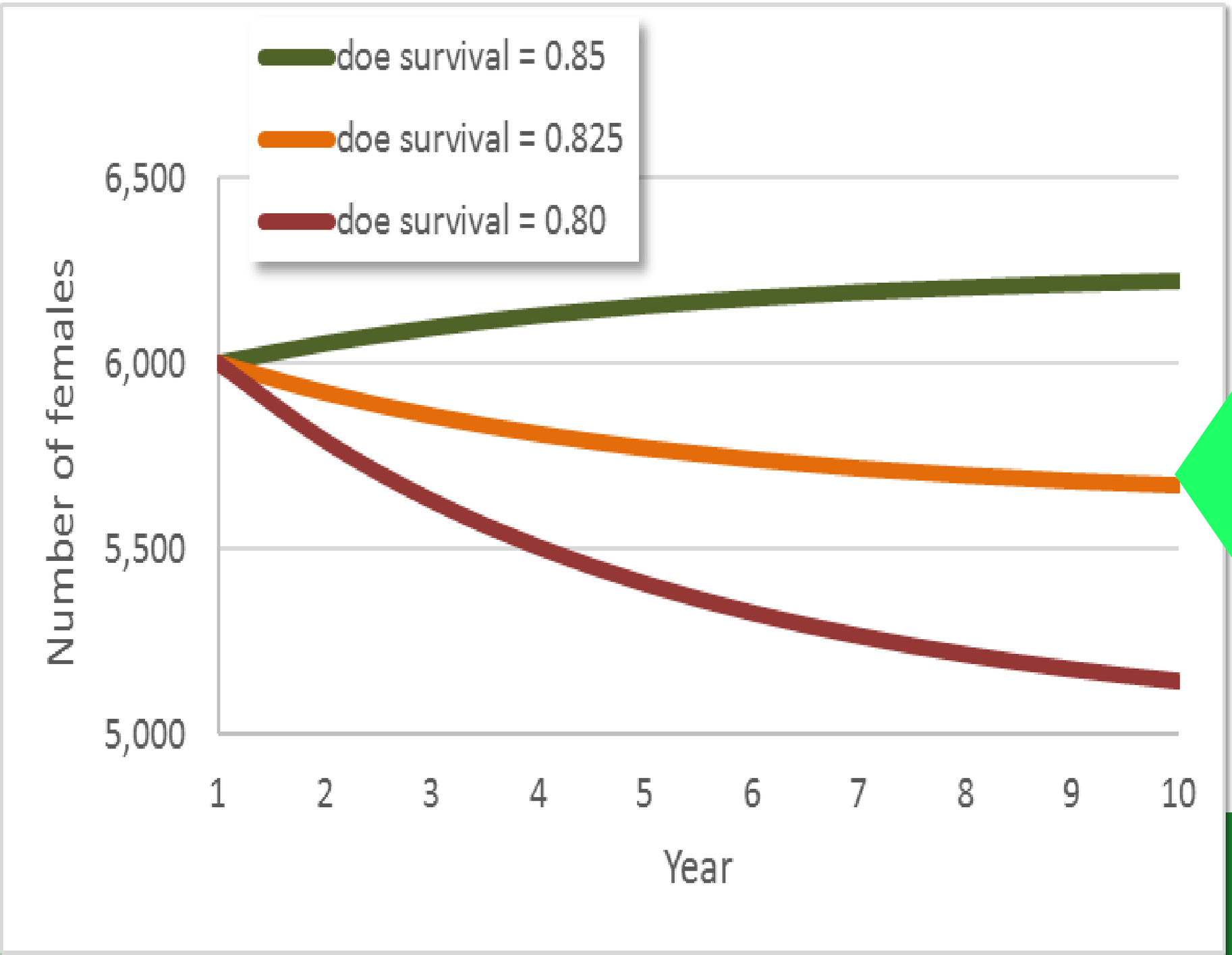
- Driven by impaired doe survival
- "Healthy" doe survival ~85% ('CWD-free')
- CWD losses further reduce doe survival
  - ~85% – (annual disease loss)
- Sufficiently low doe survival will depress herd trends

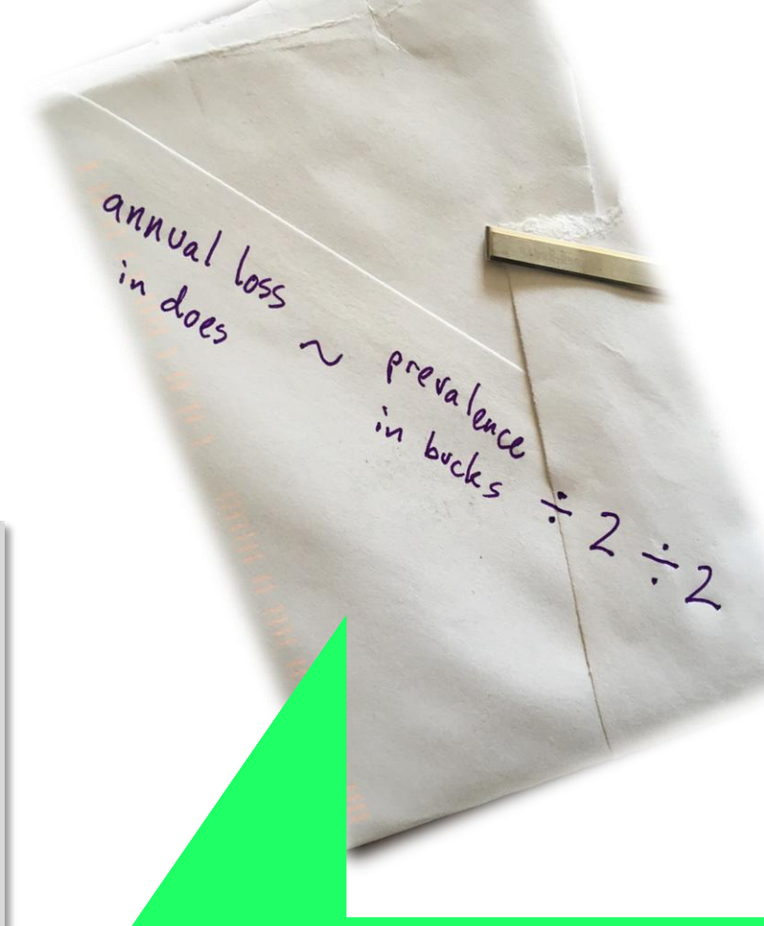


Suggesting a 10% prevalence threshold for adult bucks

- Here's the math:
  - $prev_{buck} \div 2 \div 2 = added\ loss_{doe}$
  - $10\% \div 2 \div 2 = 2.5\%$
  - $85\% - 2.5\% = 82.5\%$

Why use a 10% prevalence threshold?





At the 10% prevalence threshold (adult bucks), affected herds would begin to decline.

Modeled Effect of CWD--Base Vital Rates

- Fawn: Doe ratio—55.8 fawns per 100 does (statewide 3 year average)
- Fawn survival—68.1% (statewide average)
- Yearling survival—84% (Assumed CWD free)
- Doe survival—84% (Assumed CWD free)

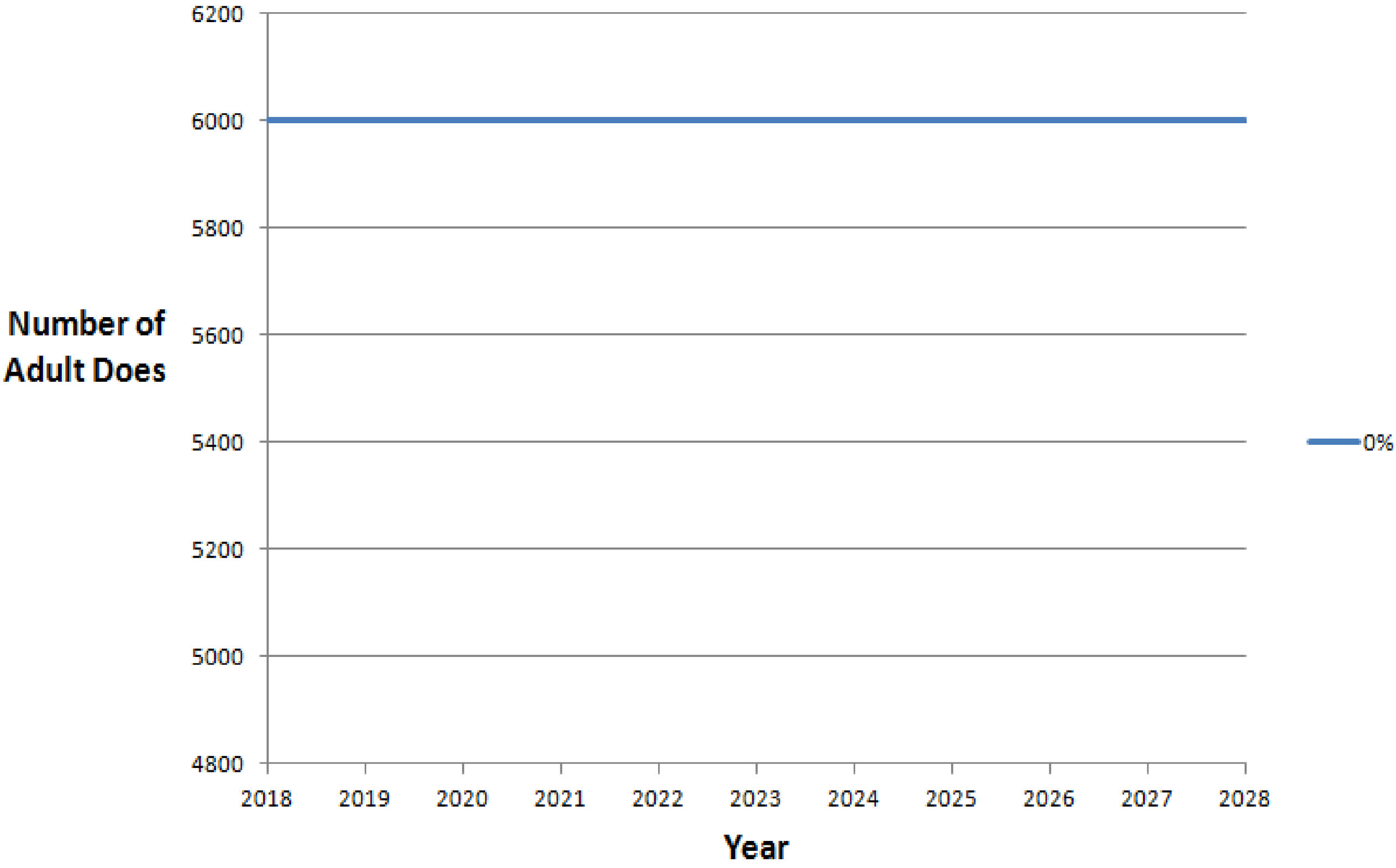
Mule Deer Intensive Monitoring Areas

January 2017

0 15 30 60 90 120 Miles

N W E S

Trends in Adult Doe Population at Various Adult Buck CWD Prevalence Rates



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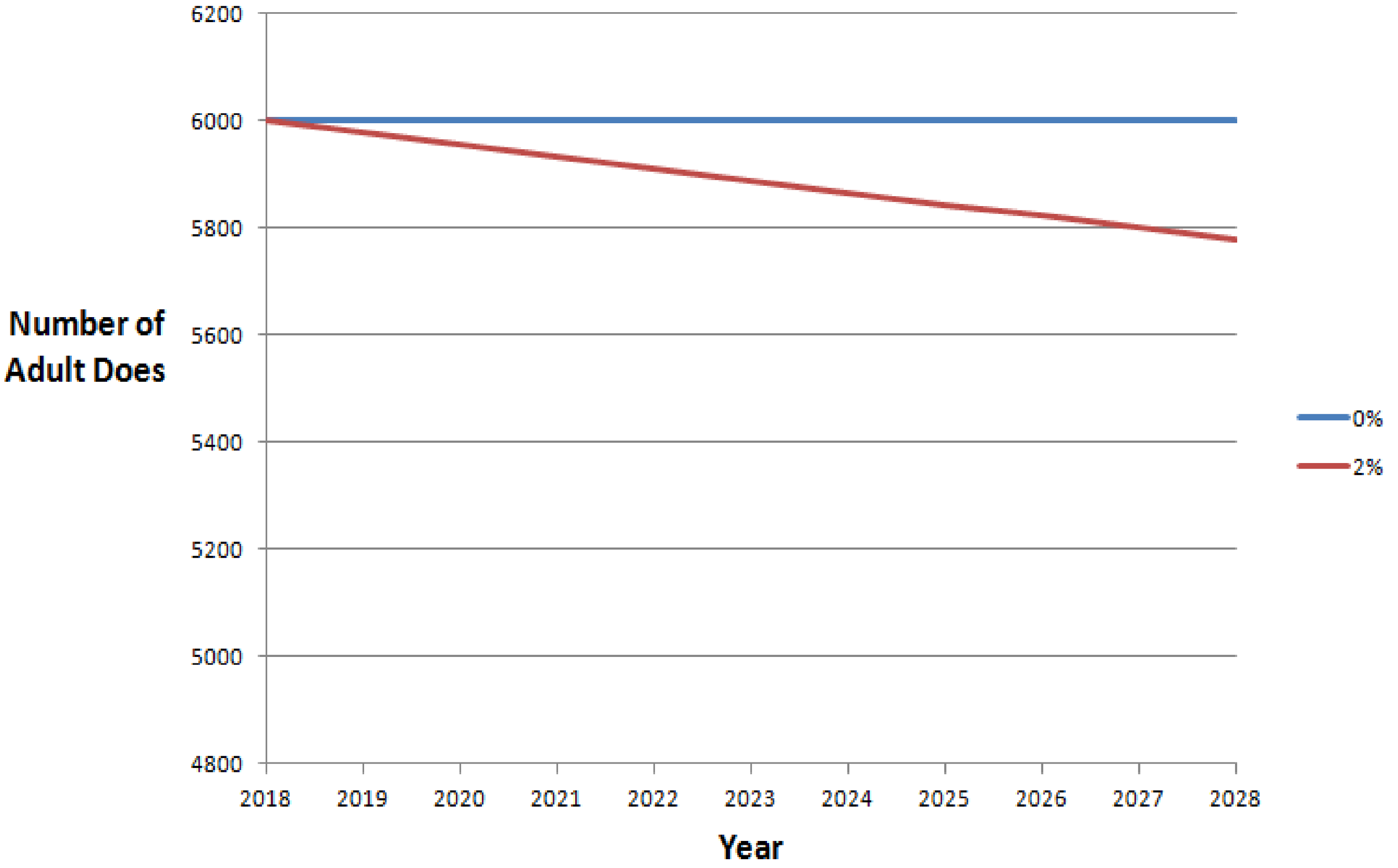

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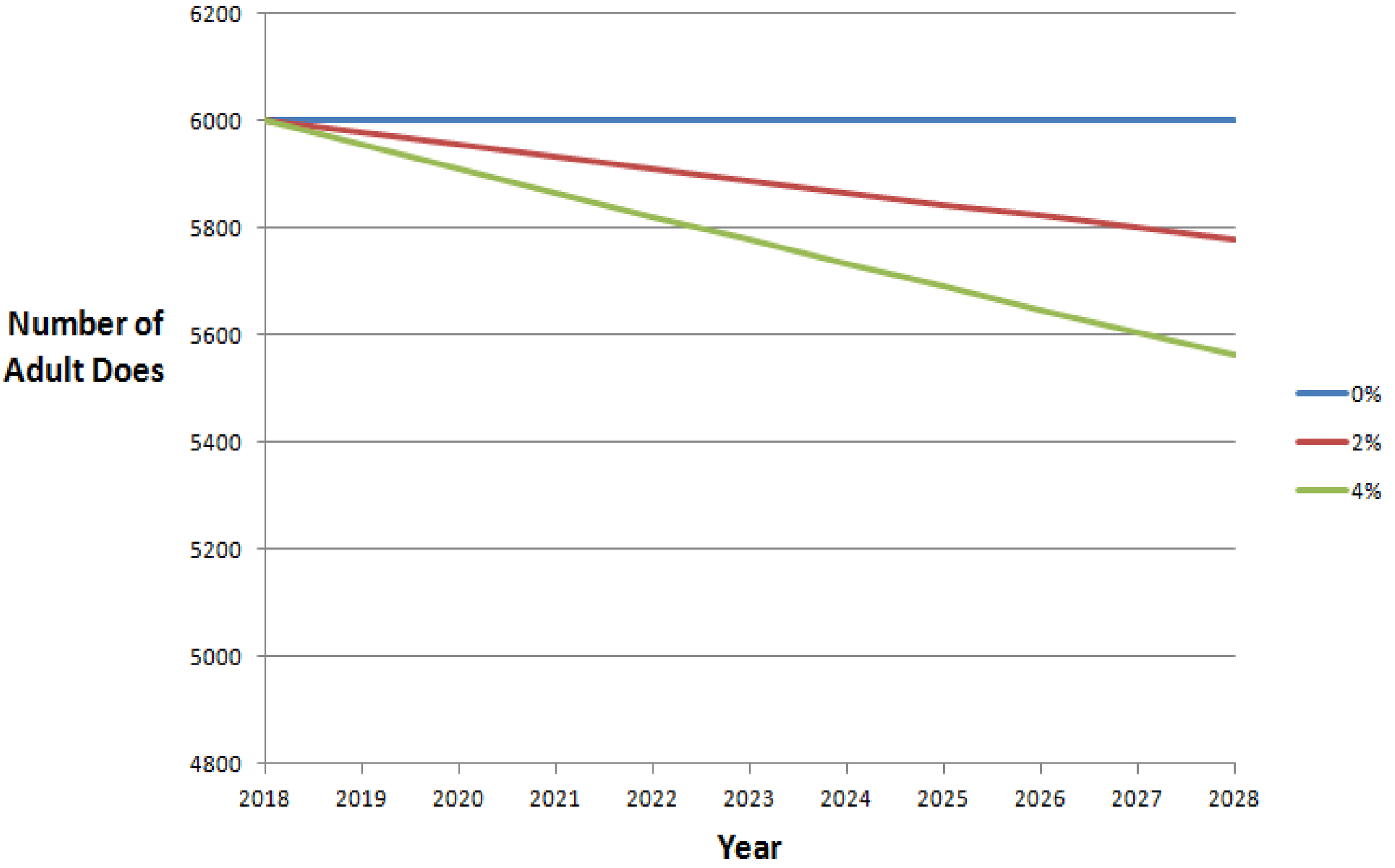

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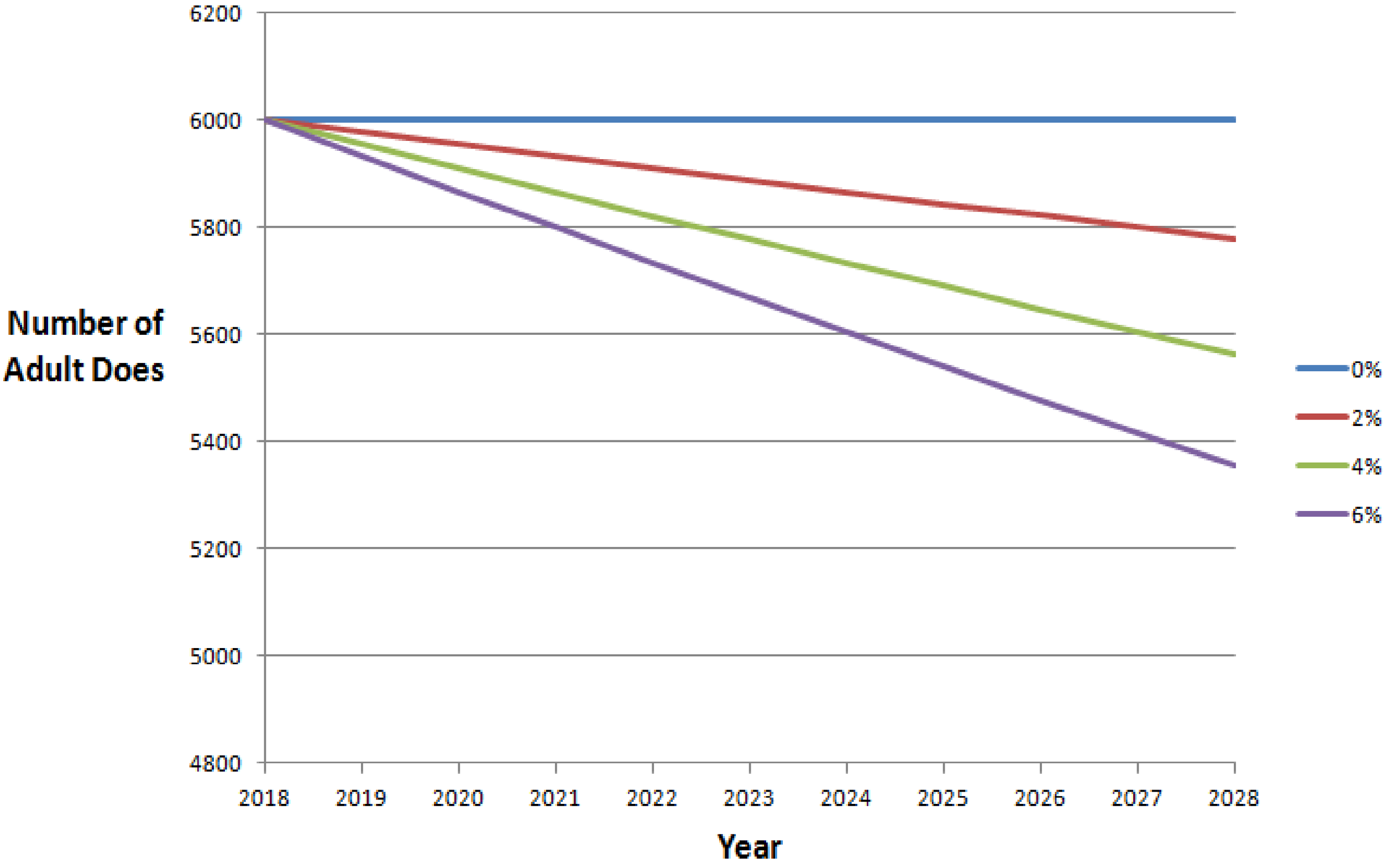

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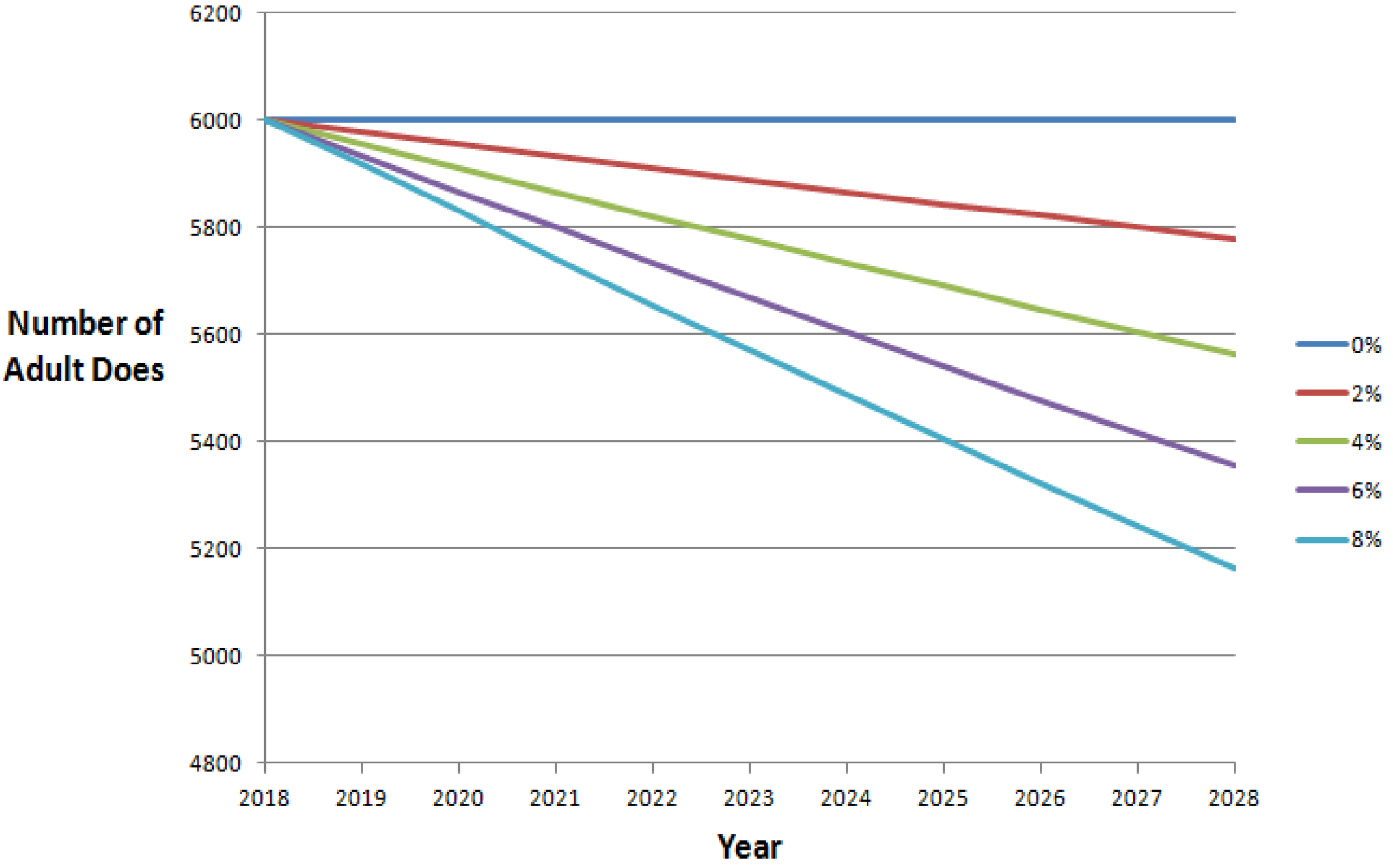

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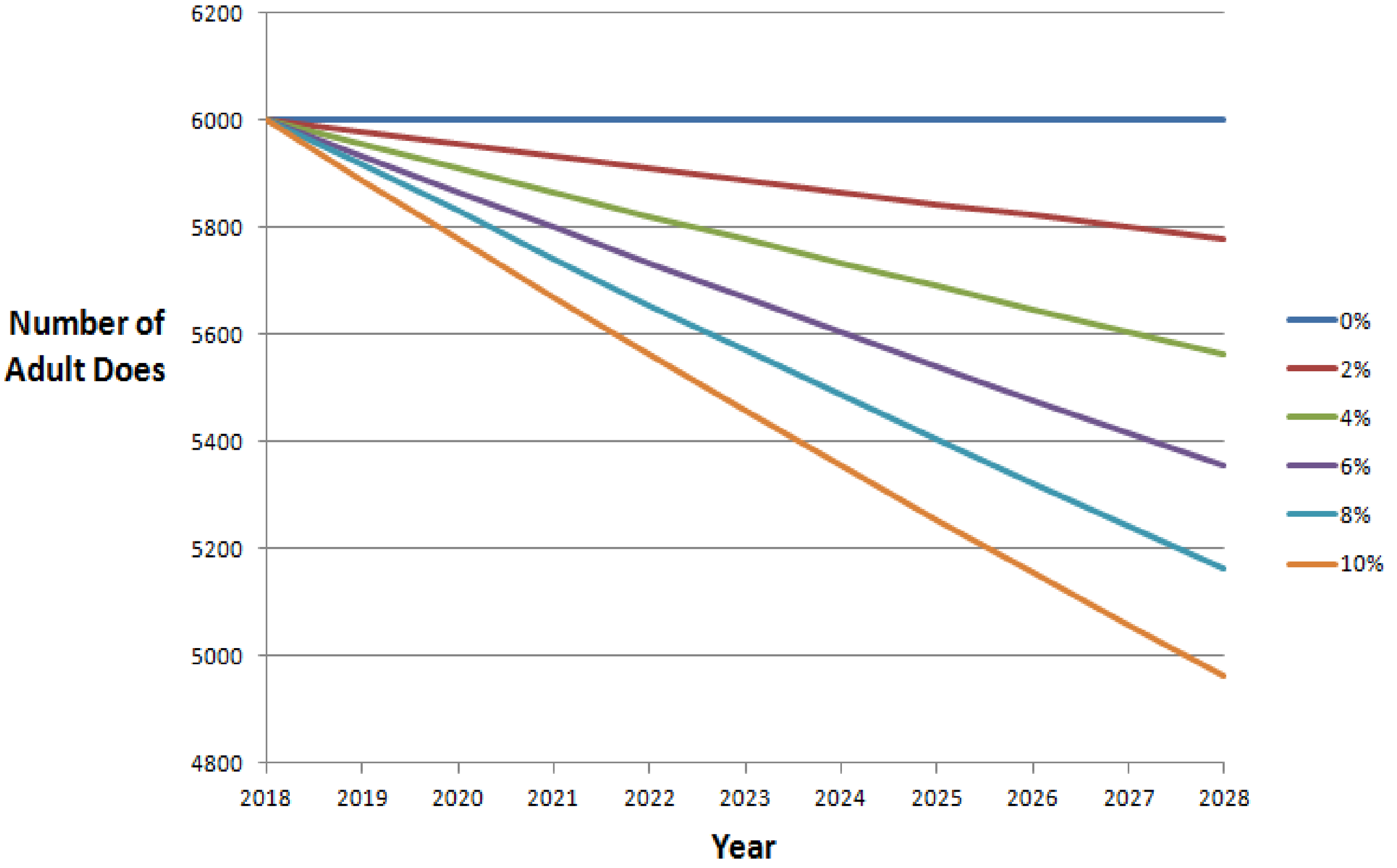
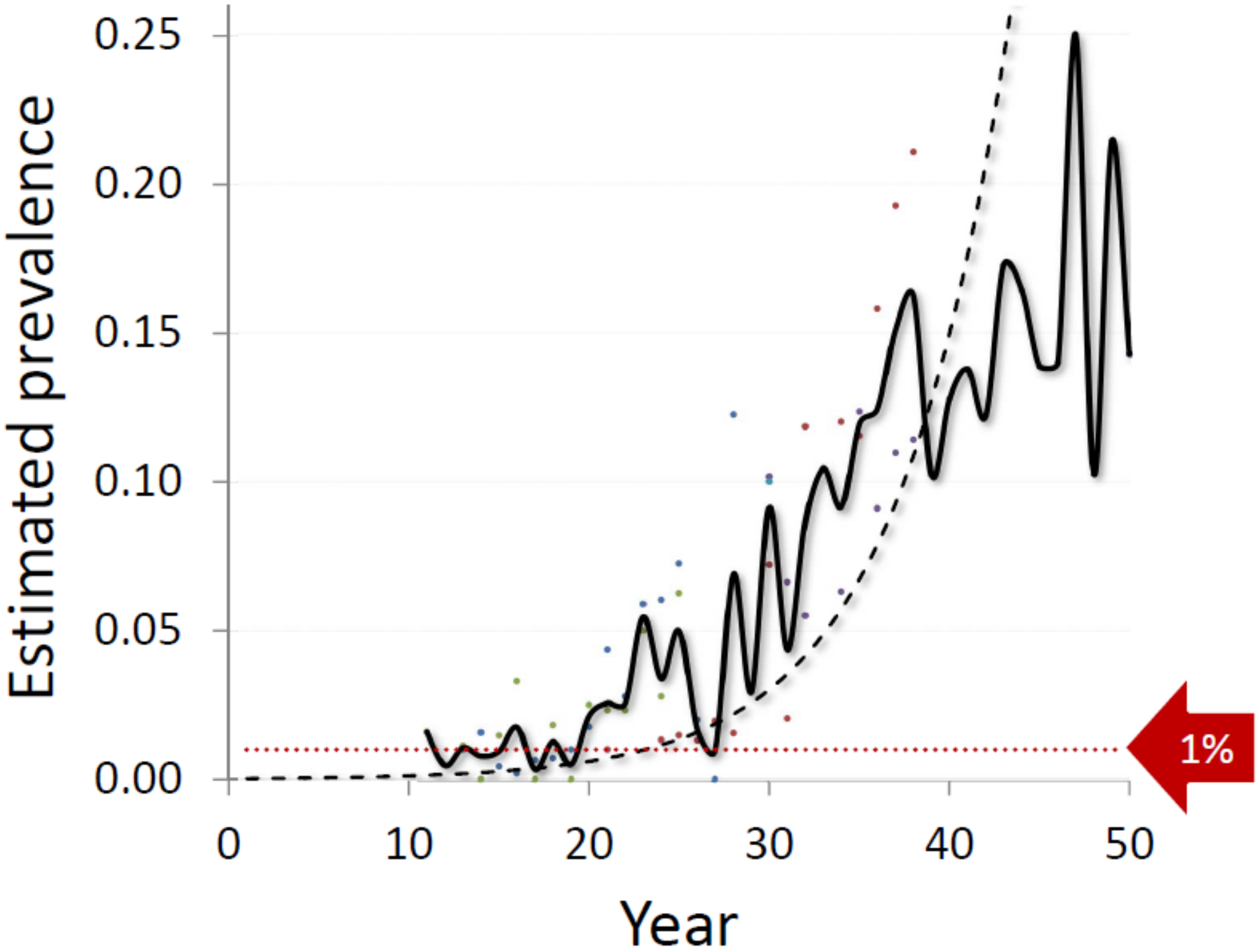


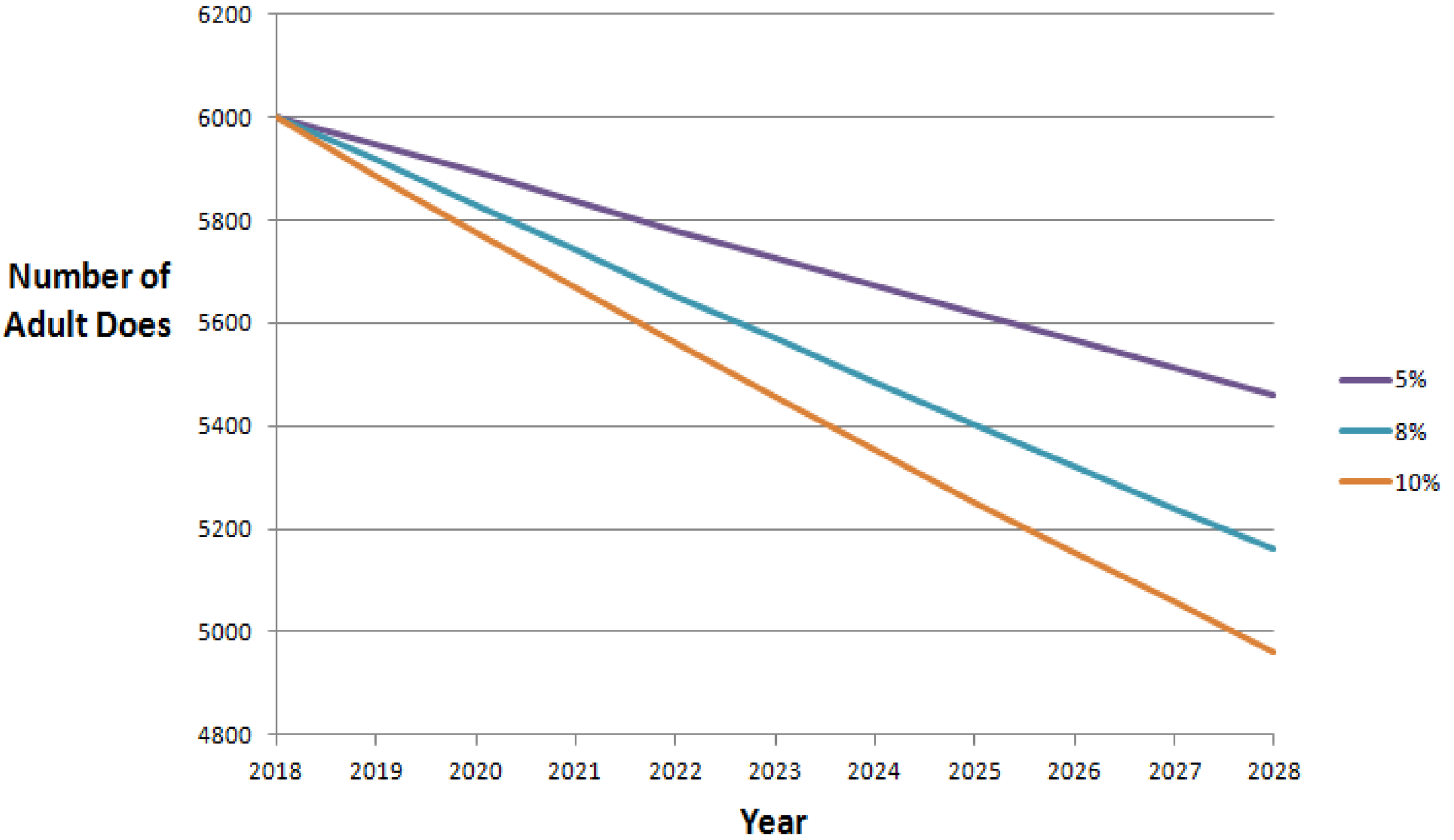
Conclusions Assuming Starting Point of 84% Doe Survival and CWD Free

- With CWD, population starts to decline
  - Sustainable doe harvest becomes increasingly difficult
- At 4% adult buck prevalence, doe population declines by 7% over ten years, ***IF*** adult buck prevalence stays at 4%
- Increasing CWD prevalence leads to steeper declines

Composite epidemic curve (field data vs. model)



Trends in Adult Doe Population at Various Adult Buck CWD Prevalence Rates--Possible Thresholds



Threshold Rates 5% vs 10%: Pros and Cons

COLORADO
Parks and Wildlife
Department of Natural Resources