

## RESEARCH

## A sample article title

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available at the end of the article**Abstract****First part title:** Text for this section.**Second part title:** Text for this section.**Keywords:** sample; article; author**Introduction**

Data and Information modeling in the healthcare domain have witnessed significant improvements in the last decade owing to advances in the development of state-of-the-art information and communication technologies (ICT) and formalization of storage and messaging standards. Subsequently, the scope of Healthcare Management Information Systems (HMIS), medical ontologies, and Clinical Decision Support Systems (CDSS) has broadened, beyond the operational capabilities of traditional rule based systems.

**Related Work**

Related work goes here

**Content**

Text and results for this section, as per the individual journal's instructions for authors.

**Section title**

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In this section we examine the growth rate of the mean of  $Z_0$ ,  $Z_1$  and  $Z_2$ . In addition, we examine a common modeling assumption and note the importance of considering the tails of the extinction time  $T_x$  in studies of escape dynamics. We will first consider the expected resistant population at  $vT_x$  for some  $v > 0$ , (and temporarily assume  $\alpha = 0$ )

$$E[Z_1(vT_x)] = \int_0^{v \wedge 1} Z_0(uT_x) \exp(\lambda_1) du.$$

If we assume that sensitive cells follow a deterministic decay  $Z_0(t) = xe^{\lambda_0 t}$  and approximate their extinction time as  $T_x \approx -\frac{1}{\lambda_0} \log x$ , then we can heuristically estimate the expected value as

$$\begin{aligned} E[Z_1(vT_x)] \\ = \frac{\mu}{r} \log x \int_0^{v \wedge 1} x^{1-u} x^{(\lambda_1/r)(v-u)} du. \end{aligned} \tag{1}$$

Thus we observe that this expected value is finite for all  $v > 0$  (also see [1, 2, 3, 4, 5, 6]).

Appendix

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Abbreviations

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Availability of data and materials

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The authors declare that they have no competing interests.

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Authors' contributions

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Figures

Figure 1 Sample figure title

**Figure 2** Sample figure title

**Table 1** Sample table title. This is where the description of the table should go

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A2	...	..	.
A3	..	.	.

**Tables**

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