Title: A one-compartment model for body cooling and a method for estimating the time of death based only on temperature readings

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Abstract: Estimation of the time of death is a fundamental problem in the forensic sciences. One popular estimation method is by body cooling. In this talk, we propose a one-compartment model for body cooling, where the compartment is the rectum. The well-known Marshall-Hoare model is obtained as a particular case. Moreover, using the Laplace transform, we give a method for estimating the time of death from temperature readings only. We present the results of numerical simulations to test the accuracy of the proposed method.