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News Release

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Spread of ages is key to impact of disease, animal study finds

How a disease outbreak affects a group of animals depends on the breakdown of ages in the population, research has shown.

The findings could help scientists better understand how events such as disease outbreaks may affect certain groups in a population.

Scientists sought to examine how a spread of ages can influence a population's health, by simulating an outbreak of disease in small marine animals.

With lab experiments and computer modelling, they found that disease spread can vary depending on the age at which individuals are exposed to infection, and the age at which females in the group become mothers.

Experiments in the latest study found that offspring of younger mothers were more at risk from infection. The finding builds upon previous knowledge that younger individuals are more at risk.

Taking these factors into account, computer models showed that when death rates are high, disease can spread faster – even as populations fall. This contradicts the expectation that disease should spread most easily in dense populations, in which individuals interact more.

Researchers from the University of Edinburgh carried out lab experiments with water fleas, examining how four generations of the small crustaceans responded to a common bacterial infection. Their results were used to build a mathematical model of how the organisms might respond in the long term to threats such as incidence of disease.

Their study, published in *Ecology Letters*, was funded by the Natural Environment Research Council and the Wellcome Trust.

Jess Clark, of the University of Edinburgh's School of Biological Sciences, who led the study, said: "Many societies around the world are experiencing ageing populations, and investigating the impact of this might lend valuable insight into how such populations might respond to an outbreak of disease."

For further information, please contact:

Catriona Kelly, Press & PR Office, 0131 651 4401; 07791 355940; Catriona.Kelly@ed.ac.uk

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