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# Vivarium Population Spenser: Emigration protocol

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## ABSTRACT

Description of the steps followed by Vivarium Population Spenser library when running the Emigration module.

## EXTERNAL LINK

[https://github.com/alan-turing-institute/vivarium\\_population\\_spenser](https://github.com/alan-turing-institute/vivarium_population_spenser)

## DOI

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**protocols.io**<https://dx.doi.org/10.17504/protocols.io.bn8emhte>

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## MATERIALS TEXT

The rates used in the Emigration component are found here:

[https://github.com/alan-turing-institute/daedalus/blob/develop/persistent\\_data/Emig\\_2011\\_2012\\_LEEDS2.csv](https://github.com/alan-turing-institute/daedalus/blob/develop/persistent_data/Emig_2011_2012_LEEDS2.csv)

## ABSTRACT

Description of the steps followed by Vivarium Population Spenser library when running the Emigration module.

1 Divide the annual international emigration rates for that local authority by the number of time steps existing in a year.

2 For each time step:

2.1 Select all individuals in the sample that appear as "alive" and have an associated gender.

2.2 For these individuals, get the emigration rate given their age, gender, ethnicity and location and turn it into a probability.

2.3 Using random sampling and the emigration probability of the individuals, choose which individuals emigrate in that time step.

2.4 Change the status of these individuals from "alive" to "emigrated". Record the time when they emigrated.