

# Epidemiology and Surveillance of Equine Grass Sickness in Great Britain

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## Introduction

Equine grass sickness (EGS) is a predominantly fatal neurodegenerative disease affecting grazing horses, ponies and donkeys. Great Britain has the highest reported incidence of the disease worldwide.

## Aims

To describe incidence rates and epidemiological aspects of EGS on British premises affected since 2000.



## Methods

A nationwide surveillance scheme using postal and online questionnaires collected retrospective premises-level and prospective case-level information for EGS cases occurring in Great Britain between January 2000 and January 2011. Incidence rates were estimated from the number of horses on affected premises and time at risk from the start of the study period or from the date from which the premises history was known, if after January 2000. Recurrent premises were defined as those with a history of previous cases or where multiple cases had been reported to the surveillance scheme.

## Results

A total of 1517 EGS cases were reported from 1246 locations in Great Britain since 2000. Complete location data was available for 1049 cases, of which:

- ◆ 60.9% occurred in England
- ◆ 36.4% occurred in Scotland
- ◆ 2.7% occurred in Wales

A mean of 138 cases per year were reported to the EGS surveillance scheme (range 75 – 233 cases per year), with peaks seen consistently in the spring (April – June; Figure 1).

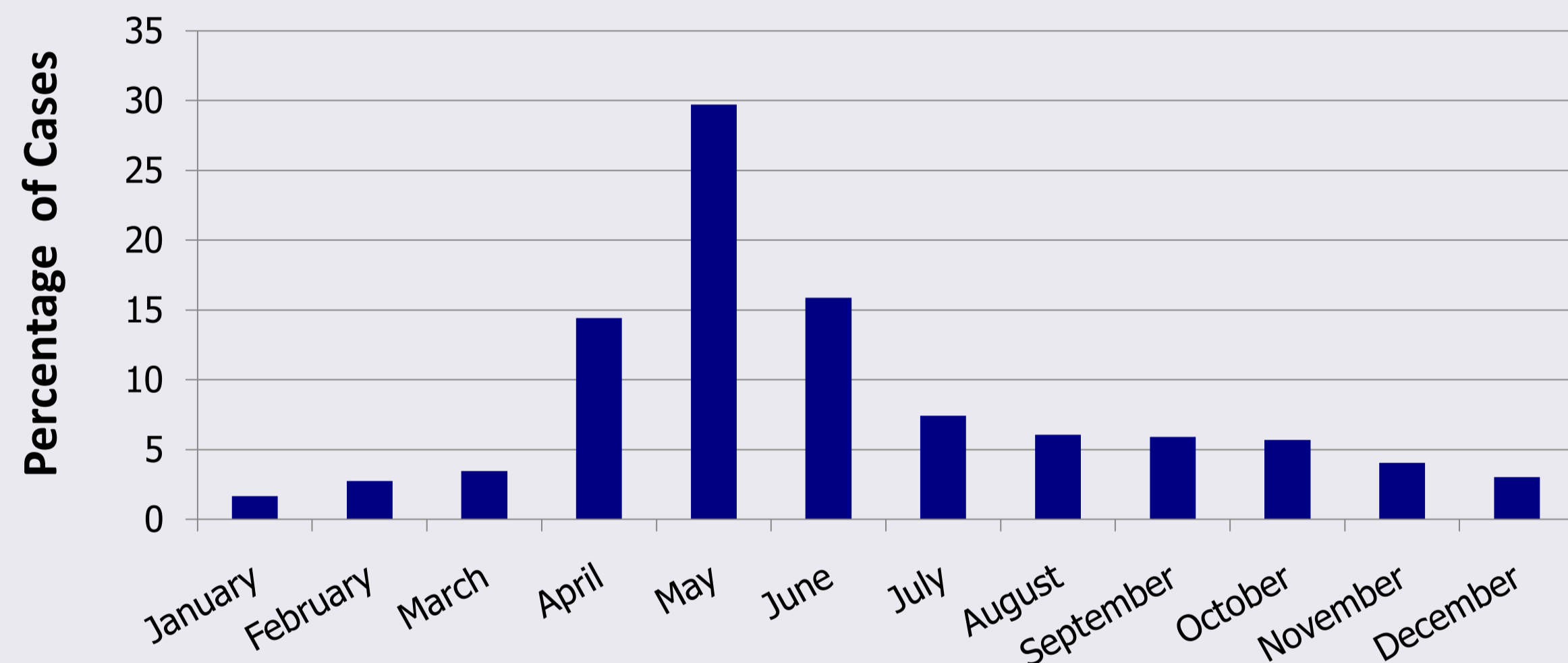


Figure 1: Histogram of the temporal distribution of 1517 EGS cases reported to the EGS surveillance scheme between January 2000 and January 2011.

## Incidence of EGS

- ◆ Overall incidence was 1.95 cases of EGS per 100 horse years at risk.

Feature of Premises	Median Incidence Rate	P Value
Recurrent premises	2.3	0.3
Non-recurrent premises	1.8	
England	1.8	0.2
Scotland	2.3	
Wales	2.3	

Table 1: Median incidence rates of EGS (cases per 100 horse years at risk) reported to the EGS surveillance scheme between January 2000 and January 2011.

## Recurrent Premises

A total of 249 locations were defined as "recurrent" EGS premises.

There was a significant association between country and recurrent premises ( $p=0.008$ ).

Proportion of affected premises reporting recurrent EGS cases:

- ◆ Scotland 57.5%
- ◆ England 43.0%
- ◆ Wales 35.3%

Compared to non-recurrent EGS premises, recurrent EGS premises had significantly (all  $p<0.001$ ):

- ◆ Large total premises size
- ◆ Larger size of affected paddocks
- ◆ Greater total number of horses
- ◆ Greater number of horses grazing affected paddocks

## Clinical Presentations

Clinical presentation was recorded for 1324 EGS cases, of which:

- ◆ 46.6% were acute
- ◆ 20.4% were subacute
- ◆ 33.0% were chronic

Time on Premises	Median Acute/Subacute EGS Cases	Median Chronic EGS Cases	P value <sup>1</sup>
Time resident on affected premises	365 days	730 days	0.05
Time resident grazing affected paddock	60 days	90 days	0.009

Table 2: Median time spent on affected premises and pasture of 1324 acute/subacute and chronic cases of EGS reported to the EGS surveillance scheme between January 2000 and January 2011. <sup>1</sup>Mann Whitney U p value for difference in median values.

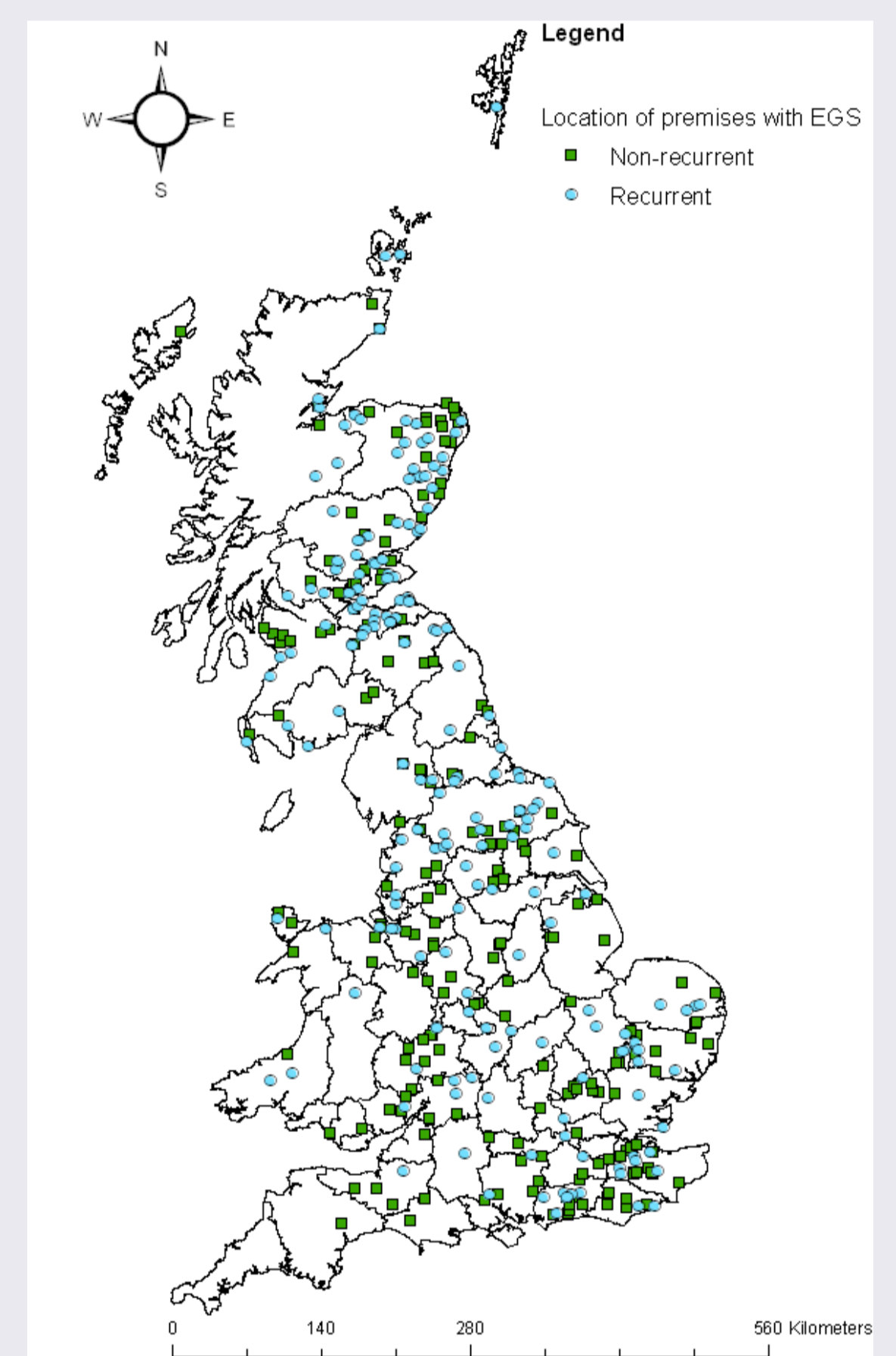


Figure 2: Map of the geographical distribution of 1049 recurrent and non-recurrent premises for cases reported to the EGS surveillance scheme between January 2000 and January 2011.

## Conclusions

A greater proportion of recurrent premises were located in Scotland and were larger establishments. Horses with chronic EGS had been kept on affected premises and paddocks for longer periods prior to disease compared to acute and subacute cases, which could be consistent with some degree of acquired immunity or increased exposure to protective factors resulting in decreased severity of clinical signs. This information, particularly data regarding areas of increased disease incidence and high risk premises, will be valuable in the development of future intervention studies, such as vaccination field trials.



## Acknowledgements

The authors gratefully acknowledge our collaborators on the Equine Grass Sickness Surveillance Scheme: The Universities of Edinburgh and Liverpool and the Equine Grass Sickness Fund. Jo Ireland is supported by The Stafford Trust.