

Causes and time of lamb mortality in grass-based systems of prime lamb production

Dwayne Shiels^{1,2,3}, Prof. Cathy Dwyer^{2,3}, Dr. John Mee¹, Dr. Tim Keady¹

¹Teagasc, Athenry, Co. Galway, Ireland

²SRUC, Easter Bush Campus, Edinburgh, Scotland

³University of Edinburgh, Edinburgh, Scotland

Introduction



- Lamb mortality is a major economic constraint in sheep production
- Causes of lamb mortality may be defined as ultimate (initiating) meaning the precipitating, or proximate (final), meaning the terminal cause
- Only by identifying the preventable and non-preventable ultimate causes of mortality can farmers, vets and advisors reduce lamb mortality^{1,2}
- The objective of the current study was to determine
 - a) the ultimate causes of lamb mortality
 - b) time of death
 in mid-season, grass-based systems of prime lamb production

Methods

- The 1,100 ewe flock at Athenry Research Centre, was housed and offered silage and concentrates in late gestation
- 221 full-term fetuses and lambs which died from birth to weaning were sent for post mortem (PM) to the National Veterinary Laboratory for necropsy examination
- Dam, lamb, lambing and mortality details was submitted with each dead lamb
- Time-of-death was assigned to each lamb based on a detailed submission form and the results of the necropsy
- Where a cause of death could be assigned these were aggregated into 5 main groups (accident, congenital defect, dystocia, infection and other), the remaining cases were categorised as diagnosis not reached (DNR)
- Cause of death was analysed as a multinomial variable using logistic regression with time-of-death category as the explanatory variable

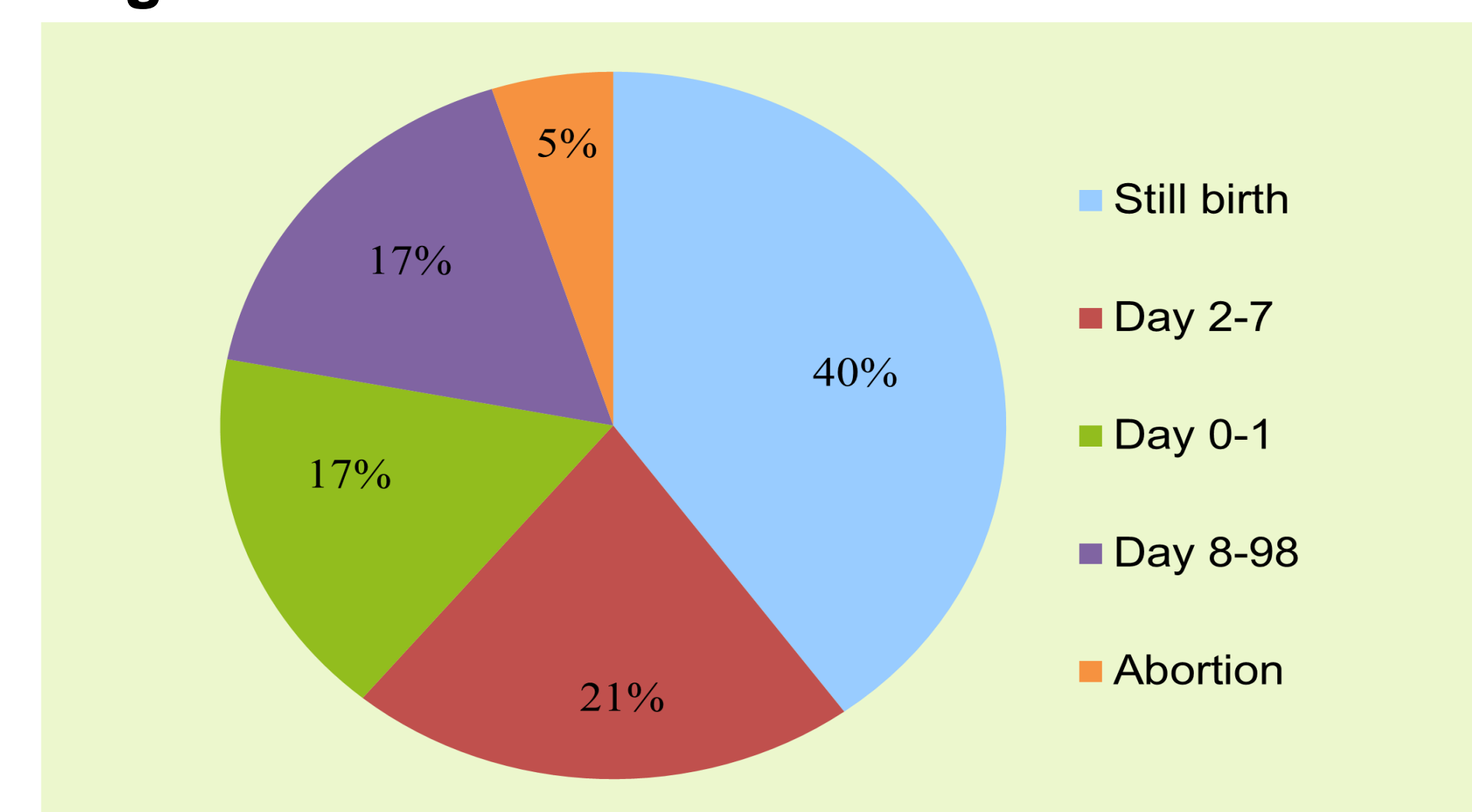
References

- ¹Kirk, J. & Anderson, B. 1982. Reducing lamb mortality: a two-year study. *VM/SAC. Veterinary Medicine and Small Animal Clinician (USA)*.
- ²Rowland, J., Salmon, M., Kimberling, C., Schweitzer, D. & Keefe, T. 1992. Epidemiologic factors involved in perinatal lamb mortality on four range sheep operations. *American journal of veterinary research*, 53, 262-267.

Results

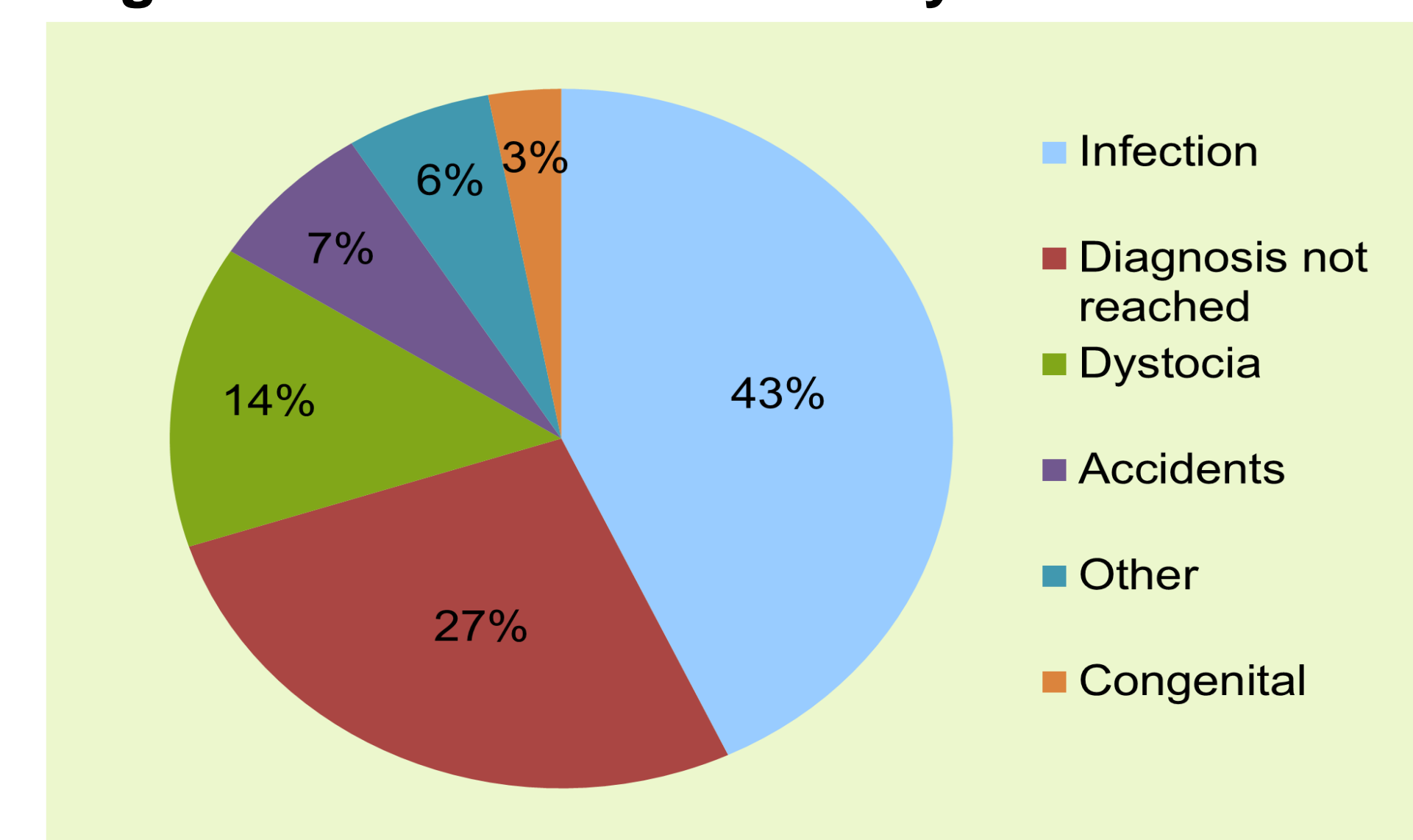
- Total lamb mortality to weaning was 11.7%

Fig 1: Time of death



- 62% of lamb mortality occurred prior to 24h of age
- 83% of lamb mortality occurred in the first 7 days

Fig 2: Cause of lamb mortality



- Infection and dystocia were the main causes of mortality

Table 1: Causes of neonatal (0-7days) mortality in 172 lambs (% of lambs that died)

Cause of death	Time of death			
	0h	Day 1	Day 2-7	Total
Accident	1.7 ^a	2.9 ^a	3.5 ^a	8.1
Congenital defect	1.2 ^a	0.6 ^a	1.2 ^a	3
Dystocia	11 ^a	3.5 ^a	0.6 ^b	15.1
Infection	16.8 ^a	5.2 ^a	15.7 ^b	37.7
Other	1.7 ^a	4.1 ^b	1.7 ^{a,b}	7.5
DNR	19.2 ^a	5.2 ^{a,b}	4.1 ^b	28.5
Total	51.6	21.5	26.8	100

- ^{a,b} Means within a row with common superscripts do not differ ($P < 0.05$)
- Causes of mortality changed with age

Conclusions

- Majority of lamb losses occurred at birth
- Infection and dystocia were the most common causes of mortality
- These causes of death are potentially preventable
- The high DNR rate, particularly in stillbirths, requires further research.

Acknowledgements

I would like to acknowledge the Teagasc Walsh Fellowship scheme, the staff from Regional Veterinary Laboratories, Teagasc Athenry and SRUC for their assistance.

Further information on this work is available from:
Email: dwayne.shiels@teagasc.ie