Supplemental Digital Content

Ambient Air Pollution-Related Mortality in Dairy Cattle: Does It Corroborate Human Findings?

Bianca Cox, Antonio Gasparrini, Boudewijn Catry, Frans Fierens, Jaco Vangronsveld, Tim S Nawrot

Table of Contents

eTABLE 1. Cumulative (Lag 0–25) Effects of Air Pollution on Dairy Cow Mortality, Belgium 2006-2009, for the Total Study Period (Main Analysis) and Excluding the Bluetongue Epidemics (August-December 2006 and July-December 2007), and Using a Natural Cubic Spline with 6 Degrees of Freedom (Main Analysis) and an Unconstrained Distributed Lag to Model the Lag Structure. Estimates Represent the Percent Change in Dairy Cow Mortality for a 10 μg/m^3 Increase in Air Pollutant Concentration.

		Percent Change (95% CI)			
		Total Study Period		**Excluding Bluetongue Epidemics**	
Season	**Exposure**	**Natural Spline**	**Unconstrained**	**Natural Spline**	**Unconstrained**
Warm	O_3	3.0 (0.2, 6.0)	3.1 (0.2, 6.1)	3.1 (-0.1, 6.3)	3.3 (0.1, 6.6)
	PM_{10}	3.2 (-0.6, 7.2)	3.7 (-0.2, 7.9)	4.0 (-0.3, 8.3)	4.2 (-0.2, 8.8)
	NO_2	1.4 (-4.9, 8.2)	1.8 (-4.8, 8.8)	3.6 (-3.4, 11)	3.9 (-3.3, 12)
Cold	O_3	4.6 (2.2, 7.0)	4.0 (1.7, 6.5)	4.4 (1.8, 7.1)	3.6 (0.9, 6.3)
	PM_{10}	-0.5 (-3.1, 2.2)	0.6 (-2.1, 3.4)	1.5 (-1.6, 4.7)	3.2 (0.0, 6.5)
	NO_2	-4.0 (-8.4, 0.6)	-2.7 (-7.2, 2.1)	-1.8 (-6.6, 3.3)	0.0 (-5.0, 5.3)

eTABLE 2. Cumulative (Lag 0–25) Effects of Air Pollution on Dairy Cow Mortality, Belgium 2006-2009, Using Different Specifications for the Temperature Cross-basis. Estimates Represent the Percent Change in Dairy Cow Mortality for a 10 μg/m^3 Increase in Air Pollutant Concentration. The Models Used in the Main Analysis Are Shown in Bold.

	Temperature			**Percent Change (95% CI)**	
Exposure	**Var Df [a]**	**Lag Df [b]**	**AIC**	**Warm Season**	**Cold Season**
O_3	3	6	257123.0	3.1 (0.4, 5.9)	5.0 (2.8, 7.2)
	5	**6**	**257127.5**	**3.0 (0.2, 6.0)**	**4.6 (2.2, 7.0)**
	7	6	257121.7	3.6 (0.6, 6.7)	4.9 (2.4, 7.5)
	5	3	257143.4	3.7 (0.8, 6.6)	4.9 (2.5, 7.3)
	5	5	257128.1	3.0 (0.1, 5.9)	4.5 (2.2, 6.9)
	5	7	257112.1	3.1 (0.2, 6.0)	4.6 (2.2, 7.0)
PM_{10}	3	6	257153.5	3.7 (-0.1, 7.7)	-1.2 (-3.7, 1.4)
	5	**6**	**257154.2**	**3.2 (-0.6, 7.2)**	**-0.5 (-3.1, 2.2)**
	7	6	257149.7	3.8 (-0.2, 7.9)	-0.4 (-3.1, 2.4)
	5	3	257175.8	2.6 (-1.2, 6.5)	-0.3 (-2.9, 2.4)
	5	5	257160.4	3.0 (-0.8, 7.0)	-0.4 (-3.0, 2.3)
	5	7	257137.3	3.2 (-0.7, 7.1)	-0.5 (-3.1, 2.2)
NO_2	3	6	257111.9	1.7 (-4.6, 8.4)	-5.3 (-9.5, -0.8)
	5	**6**	**257115.5**	**1.4 (-4.9, 8.2)**	**-4.0 (-8.4, 0.6)**
	7	6	257108.1	2.4 (-4.3, 9.6)	-3.3 (-7.9, 1.4)
	5	3	257142.9	0.6 (-5.6, 7.3)	-4.7 (-9.0, -0.1)
	5	5	257128.3	1.2 (-5.1, 8.0)	-4.0 (-8.4, 0.6)
	5	7	257098.7	1.6 (-4.8, 8.3)	-3.9 (-8.3, 0.7)

[a] Degrees of Freedom for the Temperature-Response Function

[b] Degrees of Freedom for the Lag-Response Function