eAppendix 1. Deaths registered as (largely) unspecified gastroenteritis, 1999-2006 (viral and infectious), in the total Dutch population.

ICD10 code	Description	As primary cause	As primary or secondary cause
A08	Intestinal infections, viral & specified	215	280
(A08.0	*Enteritis due to rotavirus)*	(5)	(6)
(A08.1	*Enteritis due to norwalk-virus)*	(2)	(2)
(A08.2	*Enteritis due to adenorovirus)*	(1)	(3)
(A08.3	*Viral enteritis, other)*	(6)	(12)
(A08.4	*Viral enteritis, not elsewhere specified)*	(201)	(257)
(A08.5	*Intestinal infections)*	(0)	(0)
A09	Diarrhea & gastroenteritis of infectious origin	283	354
Total		**498**	**634**
In elderly[a]		[a]**437 (88%)**	[a]**551 (87%)**

eAppendix 2.

Poisson regression models (with a identity link and poisson error) explaining the variation in the number of unspecified gastro-enteritis cases per week were constructed. A separate model was constructed for each data source: unspecified gastroenteritis registered in 1) general practitioner sentinel data, 2) hospitalizations, and 3) mortality.

Unspecified gastroenteritis$_t$ ~ Poisson(λt)

$$\lambda t = \beta 0 + \beta 1 t + \beta 2 \sin(2\pi t/52) + \beta 3 \cos(2\pi t/52) + \beta 4 P1, (t\text{-}lagP1) + \beta 5 P2, (t\text{-}lagP2) + \ldots + \beta m Pk, (t\text{-}lagPk)$$

t Time in weeks.

λt The intensity or expected value at time t.

$\beta 0$ Regression coefficient describing the expected baseline numbers of unspecified gastroenteritis unexplained by any of the model parameters.

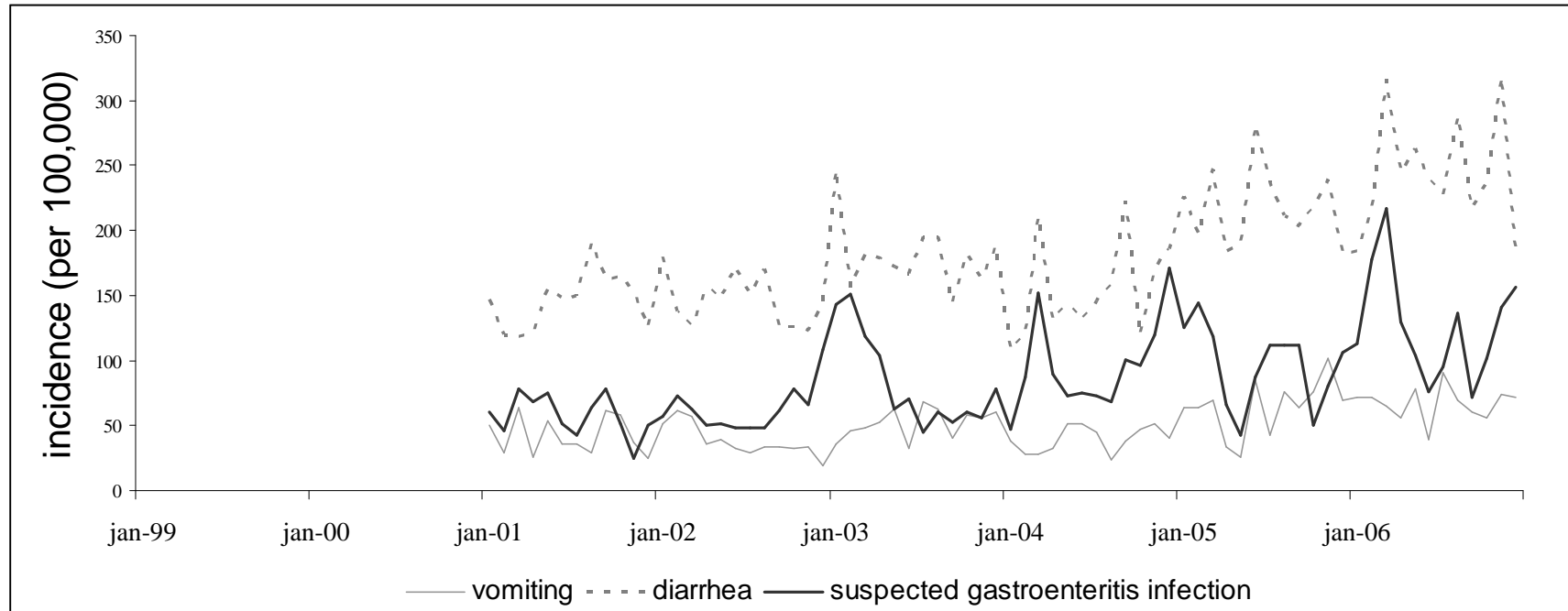$\beta 1$ Regression coefficient for linear trend in time.

$\beta 2$, $\beta 3$ Regression coefficients for sine and cosine terms. This models seasonal trends in which the period of the cyclical trend is defined as recurring each 52 weeks (i.e. yearly).

$\beta 4$, $\beta 5$, ..., βm Regression coefficients for each of the pathogens in the model that significantly explain variation in unspecified gastroenteritis.

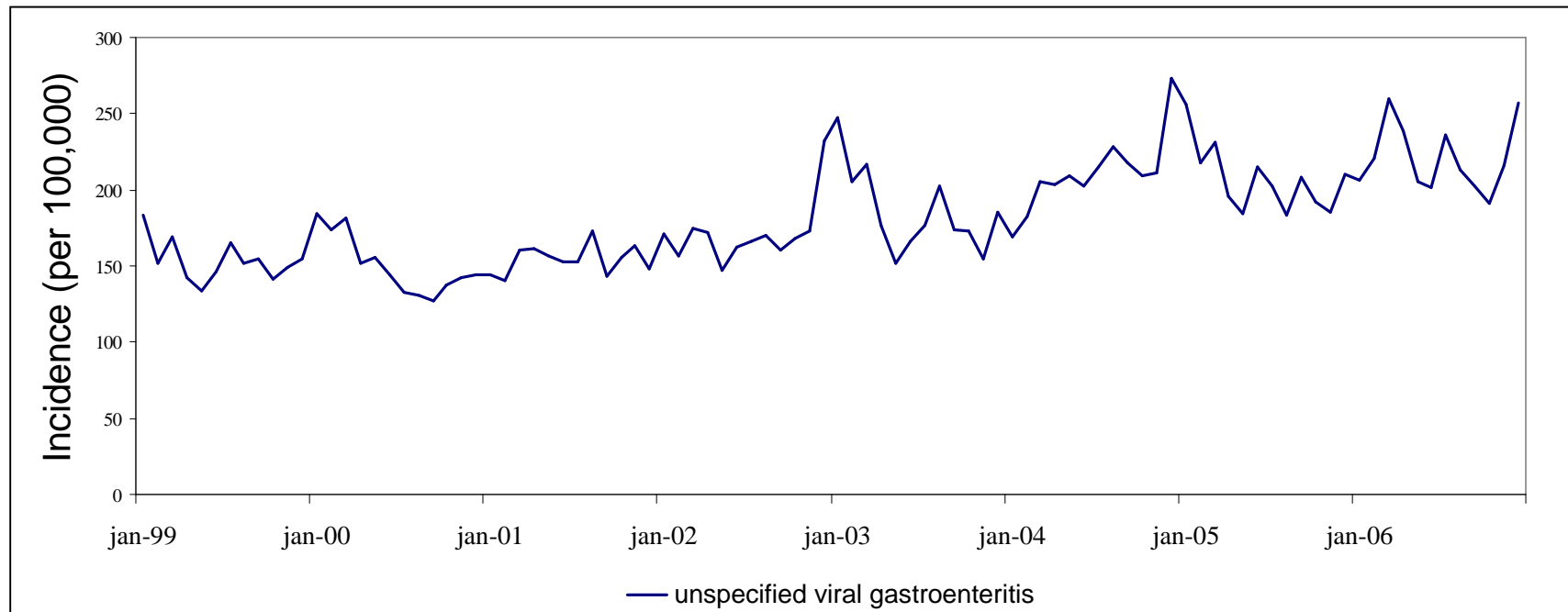Pi,t Number of cases of pathogen $i = 1 \ldots k$ at time t (from laboratory surveillance).

$lagPi$ Number of weeks for which the respective pathogen trends lag behind unspecified gastroenteritis trend ($0 \leq lagPi \leq 5$ weeks).

eAppendix 3. Monthly incidence of unspecified gastroenteritis consultations with general practitioners (sentinel network) in Dutch elderly (aged 65+).
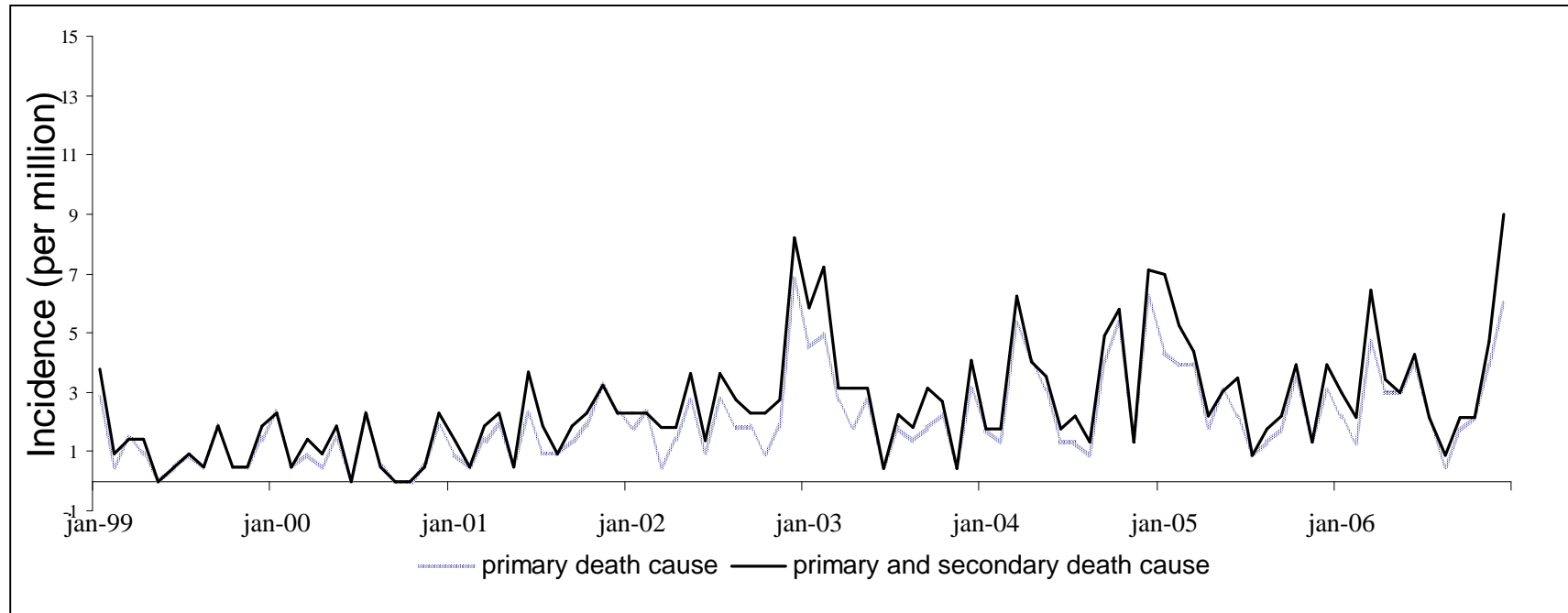

Unspecified gastroenteritis: suspected gastroenteritis infection, ICPC code D73.

eAppendix 4. Monthly incidence of unspecified viral gastroenteritis hospitalizations in Dutch elderly (aged 65+).

Unspecified gastroenteritis of possible viral origin: ICD9 codes 0086-0093 + 0059 + 5589.

eAppendix 5. Monthly incidence of unspecified gastroenteritis deaths in
Dutch elderly (aged 65+).

Unspecified gastroenteritis of possible viral origin: ICD10 codes: A08-A09. Black line: registered as either primary or
secondary death cause. Dashed line: registered as primary death cause.