

# Estimated incidence and production loss due to acute gastroenteritis in Sweden

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## BACKGROUND

• Little is known about the annual incidence and societal costs due to acute gastroenteritis in Sweden, information important for planning control measures and setting priorities.

• We conducted a survey in May 2009 to estimate the incidence and production loss due to acute gastroenteritis.

## METHODS

• A postal self-administered questionnaire was distributed to 4000 persons randomly selected from the national registry.

• We asked about the number of episodes of acute gastroenteritis during the previous 12 months followed by questions about symptoms, duration of sickness and work/school absenteeism related to the last episode.

• A case was defined as a person with at least one episode of diarrhea or three or more of the symptoms: vomiting, stomach cramps, nausea or fever.

• We adjusted the incidence estimate for age and calculated a 95% confidence interval.

• Incidence per person year was calculated by using the number of reported episodes as numerator and the total number of respondents as denominator.

• Production loss due to sick leave of cases was calculated using data on average wage costs by age group and gender from Statistics Sweden.

• Production loss due to parents staying at home with a sick child was calculated based on the age distribution of first time mothers plus the mean age of all cases <12 years of age.

## RESULTS

• Among 2564 respondents (66% response rate), 439 cases were identified with 1.6 episodes of gastroenteritis per case.

• In total, 19% (95%CI 17-20%) of the population suffered at least one episode of acute gastroenteritis during the study period (table 1).

• The incidence per person year was 0,27.

• 39 (8%) of the cases sought health care out of which 8 (2 % of all cases) were hospitalized.

• Of the cases, 74% took sick leave and 81% of parents of cases <12 years stayed home from work (median duration=3 days).

• Mean production loss per episode and case >15 years taking sick leave was EUR 161 and per parent staying at home with a sick child EUR 239 (table 2).

• Total production loss was estimated to EUR 198-262 million (table 3).

## CONCLUSION

• At least one episode of acute gastroenteritis occurred in 1 in 5 people during the study period resulting in extensive total production losses.

• Future surveys should also consider health care costs to estimate the total cost of illness due to acute gastroenteritis.

**Table 1.** Cases of acute gastroenteritis and mean number of episodes per case by age group

Age group	Cases	95 % CI*	Mean number of episodes per case
0-4	58 (47 %)	38-56 %	1.9
5-14	86 (33 %)	27-38 %	1.7
15-24	53 (19 %)	14-23 %	1.2
25-39	95 (24 %)	20-28 %	1.7
40-64	111 (13 %)	10-15 %	1.6
65-85	36 (7 %)	5-9 %	1.4
<b>Total</b>	<b>439 (19 %)</b>	<b>17-20 %</b>	<b>1.6</b>

\*for percentage cases per age group in the population, adjusted for age

**Table 2.** Production loss due to cases/parents staying at home by gender and age group

	Age group	Production loss due to sick leave of cases (EUR)	Production loss due to parents staying at home with a sick child (EUR)
<b>Women</b>	0-15	0	0
	16-19	940 395	0
	20-24	3 055 619	305 788
	25-34	20 554 776	17 157 042
	35-44	31 052 483	33 660 828
	45-54	8 759 452	27 37 042
	55-64	8 139 926	0
	65-85	53 806	0
<b>Men</b>	0-15	0	0
	16-19	461 755	0
	20-24	7 549 775	245 514
	25-34	15 743 217	15 347 103
	35-44	18 656 899	30 236 298
	45-54	6 095 775	2 274 644
	55-64	7 669 443	0
	65-85	157 207	0
<b>Total</b>		<b>EUR 128 890 529</b>	<b>EUR 101 964 261</b>
<b>Mean cost per case</b>		<b>EUR 161</b>	<b>EUR 239</b>

**Table 3.** Min and max total production loss

	Cases <12 years	Cases 16-85 years	Total
<b>Population</b>	1 216 204	7 372 442	
<b>Percentage of population with at least on episode of gastroenteritis per year</b>	42%	14%	
<b>Percentage of cases/parents taking sick leave</b>	81%	74%	
<b>Percentage of population staying at home</b>	(0,42*0,81) 34 %	(0,14*0,74) 10 %	
<b>95 % CI for percentage of population staying at home</b>	29-40 %	9-12%	
<b>Min indirect costs</b>	EUR 88 million	EUR 111 million	EUR 198 million
<b>Max indirect costs</b>	EUR 119 million	EUR 143 million	EUR 262 million

