

Lab, Infectious Disease Epidemiology,

6 September 2017

In Denmark, chlamydia is the most frequent sexually transmitted infection caused by bacteria. Chlamydia is detected primarily among young (15-29 years) people with multiple sexual partners. Chlamydia symptoms include itching, flux and weak pain. Presumably only one third of those infected develop symptoms and are laboratory confirmed. Untreated chlamydia infection may cause fertility problems later in life. A vaccine against chlamydia is not readily available, and people cannot be immune. The infectious period of chlamydia is up to two years, where after the infection is cleared. If symptomatic, sexually transmitted chlamydia infection will give symptoms within three weeks (incubation period). The latent period is not known, but for this lab consider it 0 days.

Below is a table showing made-up data regarding 20 university students' sexual activity and sexually transmitted chlamydia infection. Students were asked about debut date of chlamydia infection symptoms, date(s) of sexual activity, and identity of sexual partner(s). Serotyping based on blood sampling at the end of the study on 28-02-2012 was used to determine who infected who. Data covers the three-month period from 01-12-2011 to 28-02-2012. None of the students had chlamydia symptoms at study entry on 01-12-2011.

Stud.	Gender	Sympt_date	Sex_date1	Partner1	Sex_date2	Partner2	Sex_date3	Partner3	Inf. by
1	F	14-01-2012	31-12-2011	12	01-01-2012	9			12
2	M								
3	F		02-12-2011	5	24-12--2011	17			
4	F								
5	M	23-12-2011	02-12-2011	3	04-02-2012	14			3
6	M								
7	F		11-01-2012	19					
8	F								
9	M	10-01-2012	01-01-2012	1					1
10	F								
11	F								
12	M		31-12-2011	1	10-01-2012	15	15-02-2012	20	
13	M								
14	M		04-02-2012	5					
15	F		10-01-2012	12					
16	F								
17	M		24-12-2011	3					
18	F								
19	M		11-01-2012	7					
20	F	22-02-2012	15-02-2012	12					12

1. Enter data in to a spread sheet or some statistical software.

Note: In e.g. Excel, SPSS, and SAS dates can be subtracted.

2. Calculate the overall incidence of sexually transmitted chlamydia infection symptoms during the 3-month observation period?

Note: Remember the incubation period.

3. Is sexually transmitted chlamydia infection epidemic in this population? Evaluate by calculating e.g. IRR or IRD.

Note: Among young people in the Copenhagen area the incidence of laboratory confirmed chlamydia was 770 per 100000 risk-years in 2011.

4. Calculate the average incubation period in this population of university students. Does it differ between men and women?

5. Make a schematic representation of the spread of the sexually transmitted chlamydia infection and calculate the basic reproductive rate (R_0).

Note: See example in text book figure 11.2.