Eurosurveillance

Supplement for "Estimated incubation period distributions of monkeypox using cases from two international European festivals and outbreaks in a club in Berlin, May – June 2022"

Table S1: Parameters of the incubation period distributions (posterior median + 95% credible interval)

Weibull:

- Intercept: 2.28 (2.17– 2.38)
- Shape: 1.81 (1.57 – 2.08)
- Scale: 10.98 (9.84 – 12.11)

Lognormal:

- Intercept: 2.10 (1.98– 2.21)
- SD: 0.63 (0.55 – 0.72)

Gamma:

- Intercept: 0.10 (0.09 – 0.11)
- Shape: 2.87 (2.19 – 3.64)
- Rate: 0.30 (0.22 – 0.38)
- Scale: 3.37 (2.53 – 4.38)

Goodness of fit

Table S2. Computed goodness of fit of the models based on three parametric distributions using the widely applicable information criterion (WAIC), the leave-one-out information criterion (LOOIC) and the 10-fold cross-validation information criterion (10-fold IC).

Distribution	WAIC*	LOOIC*	10-fold IC*
Lognormal	-297.2	-297.2	-296.9
Weibull	-295.7	-295.7	-295.4
Gamma	-294.4	-294.4	-296.1

*Goodness of fit estimates, higher values indicate a better fit.

Sensitivity Analysis

1. Table S3: All cases excluding one outlier case with an incubation period of 30 to 35 days.

n = 121

Quantile	Lognormal	Weibull	Gamma
2,5%	2.4 (1.9 - 2.9)	1.6 (1.1 - 2.1)	2 (1.4 - 2.5)
5%	2.9 (2.4 - 3.4)	2.3 (1.7 - 2.9)	2.6 (2 - 3.2)
10%	3.6 (3 - 4.2)	3.3 (2.6 - 4)	3.5 (2.8 - 4.2)
25%	5.3 (4.6 - 6)	5.6 (4.7 - 6.5)	5.5 (4.7 - 6.3)
50%	8 (7.2 - 9)	8.9 (7.9 - 9.9)	8.5 (7.6 - 9.5)
75%	12.2 (10.8 - 13.8)	12.8 (11.6 - 14)	12.4 (11.1 - 13.8)
90%	17.8 (15.3 - 20.8)	16.7 (15.1 - 18.5)	16.9 (15 - 19)
95%	22.4 (18.7 - 26.7)	19.2 (17.2 - 21.4)	19.9 (17.6 - 22.7)
97,5%	27.2 (22.2 - 33)	21.4 (19.1 - 24.1)	22.9 (20.1 - 26.3)
99%	34.2 (27.2 - 42.6)	24.1 (21.2 - 27.4)	26.6 (23.1 - 30.8)

2. Table S4: All cases that attended the fetish festival (Antwerp, Belgium), gay pride festival (Gran Canaria, Spain) and Club C (Berlin, Germany; 14/15 May 2022).

n = 71

Quantile	Lognormal	Weibull	Gamma
2,5%	3 (2.1 - 3.8)	2 (1.2 - 2.8)	2.5 (1.5 - 3.4)
5%	3.6 (2.7 - 4.5)	2.9 (1.9 - 3.9)	3.2 (2.2 - 4.2)
10%	4.5 (3.6 - 5.5)	4.2 (3 - 5.4)	4.3 (3.2 - 5.5)
25%	6.5 (5.4 - 7.6)	6.9 (5.5 - 8.3)	6.7 (5.5 - 8)
50%	9.8 (8.4 - 11.3)	10.8 (9.4 - 12.4)	10.3 (8.9 - 11.8)
75%	14.8 (12.6 - 17.4)	15.4 (13.6 - 17.4)	15 (13.1 - 17.2)
90%	21.5 (17.6 - 26.2)	20 (17.6 - 22.8)	20.2 (17.4 - 23.6)
95%	26.8 (21.4 - 33.7)	22.8 (19.8 - 26.2)	23.9 (20.3 - 28.1)
97,5%	32.5 (25.3 - 42.2)	25.4 (21.8 - 29.5)	27.3 (23 - 32.6)
99%	40.6 (30.3 - 54.4)	28.4 (24.3 - 33.6)	31.8 (26.3 - 38.4)

3. Table S5: All cases that attended the fetish festival (Antwerp, Belgium), gay pride festival (Gran Canaria, Spain) and Club C (Berlin, Germany; 14/15 May 2022) independent of the length of exposure.

n =120

Quantile	Lognormal	Weibull	Gamma
2,5%	2.2 (1.7 - 2.8)	1.5 (1 - 2.1)	1.8 (1.2 - 2.5)
5%	2.8 (2.2 - 3.4)	2.2 (1.5 - 2.9)	2.5 (1.7 - 3.2)
10%	3.5 (2.8 - 4.3)	3.3 (2.5 - 4.2)	3.5 (2.6 - 4.3)
25%	5.4 (4.5 - 6.2)	5.9 (4.8 - 6.9)	5.7 (4.7 - 6.7)
50%	8.6 (7.5 - 9.8)	9.7 (8.4 - 10.9)	9.2 (8.1 - 10.4)
75%	13.7 (11.9 - 15.8)	14.4 (12.9 - 15.9)	13.9 (12.4 - 15.6)
90%	20.8 (17.5 - 24.8)	19.1 (17.2 - 21.5)	19.4 (17 - 21.9)
95%	26.8 (21.9 - 32.8)	22.2 (19.8 - 25.1)	23.2 (20.2 - 26.5)
97,5%	33.3 (26.7 - 41.9)	25 (21.9 - 28.5)	26.9 (23.1 - 31)
99%	42.9 (33.1 - 55.4)	28.4 (24.6 - 32.8)	31.5 (26.9 - 36.7)

4. Effect of the length of exposure (in days) on the incubation period estimation.

Table S6: Lognormal

Quantile/length in days	4 (n=104)	5 (n=122)	6 (n=130)	8 (n=146)	10 (n=160)
2,5%	2.3 (1.8 - 2.8)	2.4 (1.9 – 2.8)	2.4 (1.9 - 2.9)	2.1 (1.7 - 2.5)	2.1 (1.7 - 2.5)
5%	2.8 (2.2 - 3.3)	2.9 (2.3 – 3.4)	2.9 (2.4 - 3.4)	2.6 (2.1 - 3.1)	2.6 (2.2 - 3.1)
10%	3.5 (2.9 - 4.1)	3.6 (3.0 – 4.2)	3.6 (3.1 - 4.2)	3.3 (2.8 - 3.8)	3.3 (2.8 - 3.9)
25%	5.1 (4.3 - 5.8)	5.3 (4.6 – 6.0)	5.3 (4.7 - 6)	5 (4.4 - 5.6)	5 (4.4 - 5.7)
50%	7.7 (6.8 - 8.7)	8.1 (7.2 – 9.1)	8.1 (7.2 - 9)	7.9 (7 - 8.8)	7.9 (7.1 - 8.8)
75%	11.7 (10.2 - 13.4)	12.5 (11.0 – 14.1)	12.3 (10.9 - 13.9)	12.4 (11 - 14.1)	12.4 (11 - 14)
90%	17.1 (14.5 - 20.3)	18.3 (15.7 – 21.3)	17.9 (15.5 - 20.9)	18.7 (16.1 - 21.8)	18.7 (16.2 - 21.6)
95%	21.5 (17.7 - 25.9)	23.1 (19.3 – 27.5)	22.4 (18.9 - 26.6)	23.9 (20.2 - 28.6)	23.9 (20.3 - 28.3)
97,5%	26.2 (21.2 - 32.5)	28.1 (23.0 – 34.3)	27.3 (22.5 - 33.1)	29.6 (24.4 - 36)	29.5 (24.2 - 35.4)
99%	32.9 (25.9 - 41.9)	35.5 (28.3 – 44.4)	34.3 (27.5 - 42.6)	37.9 (30.2 - 47.2)	37.7 (30.2 - 46.3)

Table S7: Weibull

Quantile/length in days	4 (n=104)	5 (n=122)	6 (n=130)	8 (n=146)	10 (n=160)
2,5%	1.4 (0.9 - 1.9)	1.5 (1.0 – 2.0)	1.5 (1 - 2)	1.3 (0.9 - 1.8)	1.3 (0.9 - 1.8)
5%	2.1 (1.5 - 2.7)	2.1 (1.6 – 2.8)	2.1 (1.6 - 2.7)	2 (1.5 - 2.5)	2 (1.5 - 2.5)
10%	3.1 (2.3 - 3.8)	3.2 (2.4 – 3.9)	3.2 (2.5 - 3.9)	3 (2.3 - 3.7)	3 (2.4 - 3.7)
25%	5.3 (4.4 - 6.2)	5.5 (4.7 – 6.5)	5.5 (4.6 - 6.4)	5.3 (4.5 - 6.2)	5.3 (4.6 - 6.2)
50%	8.5 (7.4 - 9.5)	9.0 (7.9 – 10.0)	8.9 (7.9 - 9.9)	8.8 (7.8 - 9.8)	8.8 (7.9 - 9.8)
75%	12.3 (11.1 - 13.7)	13.1 (11.9 – 14.5)	13 (11.8 - 14.3)	13 (11.8 - 14.3)	13.1 (12 - 14.4)
90%	16.2 (14.5 - 18.1)	17.4 (15.6 – 19.3)	17.1 (15.5 - 18.9)	17.4 (15.8 - 19.3)	17.5 (15.9 - 19.3)
95%	18.7 (16.7 - 21.2)	20.1 (18.0 – 22.5)	19.7 (17.7 - 22.1)	20.2 (18.1 - 22.5)	20.3 (18.4 - 22.6)
97,5%	20.9 (18.5 - 23.9)	22.5 (19.9 – 25.4)	22.1 (19.7 - 24.9)	22.8 (20.3 - 25.6)	22.9 (20.5 - 25.7)
99%	23.6 (20.5 - 27.2)	25.4 (22.2 – 29.0)	25 (22 - 28.4)	25.9 (22.9 - 29.4)	26 (23.1 - 29.4)

Table S8: Gamma

Quantile/length in days	4 (n=104)	5 (n=122)	6 (n=130)	8 (n=146)	10 (n=160)
2,5%	1.9 (1.3 - 2.4)	1.9 (1.3 – 2.5)	1.9 (1.4 - 2.5)	1.7 (1.2 - 2.2)	1.7 (1.3 - 2.2)
5%	2.5 (1.8 - 3.1)	2.5 (1.9 – 3.2)	2.6 (2 - 3.2)	2.3 (1.7 - 2.9)	2.3 (1.8 - 2.9)
10%	3.3 (2.6 - 4)	3.5 (2.8 – 4.2)	3.5 (2.8 - 4.2)	3.2 (2.6 - 3.9)	3.2 (2.6 - 3.9)
25%	5.2 (4.4 - 6)	5.5 (4.7 – 6.3)	5.5 (4.7 - 6.3)	5.2 (4.5 - 6)	5.3 (4.6 - 6)
50%	8.1 (7.2 - 9.1)	8.6 (7.7 – 9.6)	8.5 (7.6 - 9.4)	8.4 (7.5 - 9.3)	8.4 (7.6 - 9.3)
75%	11.9 (10.6 - 13.4)	12.7 (11.4 – 14.1)	12.5 (11.3 - 13.9)	12.6 (11.4 - 14)	12.7 (11.5 - 14)
90%	16.2 (14.3 - 18.5)	17.4 (15.4 – 19.5)	17 (15.2 - 19.1)	17.5 (15.7 - 19.6)	17.6 (15.7 - 19.6)
95%	19.2 (16.8 - 22)	20.6 (18.2 – 23.4)	20.2 (17.8 - 22.8)	20.9 (18.5 - 23.6)	21 (18.7 - 23.6)
97,5%	22.1 (19 - 25.4)	23.7 (20.7 – 27.1)	23.2 (20.3 - 26.4)	24.1 (21.2 - 27.5)	24.2 (21.4 - 27.4)
99%	25.7 (22 - 30)	27.6 (23.9 – 31.9)	27 (23.4 - 31)	28.3 (24.6 - 32.5)	28.4 (24.9 - 32.5)