

Table 1. Characteristics of COVID-19 cases in Tianjin and Chengdu.

	Tianjin	Chengdu
Age, median(IQR), years	49(36-61)	49(33-59)
Male, <i>n/n</i> (%)	70/131(53.43%)	44/98(44.89%)
Time from symptom onset to be defined as a confirmed case, median (IQR), days*	4.5(2-8)	6(3-11)
Time from symptom onset to hospital admission, median (IQR), days*	2(1-5)	3(0-7)
Cases with exposure history, <i>n/n</i> (%)	131/135(97.04%)	98/143(68.53%)
Imported cases, <i>n/n</i> (%)	18/131(13.74%)	30/98(30.61%)
Nonimported cases, <i>n/n</i> (%)	113/131(86.26%)	68/98(69.39%)

* Four noninformative cases in Tianjin had information about sex and age, while 42 of the 45 noninformative cases in Chengdu had no individual information. To keep the statistical analysis consistent, the descriptions of all variables (except exposure history) were based only on the cases with valid information about exposure history.

*Of the 131 cases with an exposure history in Tianjin, 13 cases lacked information about key timelines (date of symptom onset, date of hospital admission, and date of confirmation as a case). Forty-four of 98 cases with an exposure history in Chengdu lacked information about key timelines. These cases were excluded only when the time from symptom onset to hospital admission was analyzed, as well as the time from symptom onset to confirmation as a case.

Table 2. Distribution of transmission chains for COVID-19 cases in Tianjin and Chengdu.

Central node	Chain size	Tianjin		Chengdu	
		Maximum length of chains	Number of chains	Maximum length of chains	Number of chains
Hubei Province	1	1	13	1	29
	2	2	4	0	0
	3	3	1	2	1
Tianjin high-speed train administration	1	1	7	-	-
	3	3	1	-	-
	4	3	1	-	-
Infections directly related to Hubei Province	1	1	26	1	34
	2	2	7	2	3
	3	3	4	0	0
	4	4	4	0	0
	5	3	2	0	0
	6	4	3	0	0
Unclear exposures except Hubei Province	1	-	-	1	19
	3	-	-	3	1
	4	-	-	2	1
Total	-	-	73	-	88

Table 3. The detailed description for 5 indexes applied for assessing the evolving epidemiology of COVID-19.

Index	Definition	Implication in COVID-19	Example in Figure 2
Number of chains	The number of chains starting with a central node	The spread of transmission through the source of infection	2
Chain size	The number of nodes in each transmission chain except the central node	The number of cases in a chain and the scope of a transmission chain of COVID-19	Chain I: 1 Chain II: 5
Maximum length of chains	The maximum number of directional edges in each chain	The maximum generations of transmission before the secondary case is detected and controlled	Chain I: 1 Chain II: 3
Average chain size	Dividing the summation of chain sizes starting with same central node by the number of cases in the central node	The average reproductive number of cases from specific exposures	$6/2=2.5$
Average number of nodes linked to each generation of cases	Dividing the total number of nodes in the same distance with central node by the total number of front-end nodes	The infectivity of different generations of cases	First generation: $2/2=1$ Second generation: $3/2=1.5$ Third generation: $1/3=0.3$