

Infection control report summary

Supplementary File 1

Likely sources of infection in HCP: definitions

1. **No evidence of healthcare-associated transmission.** Among the sequences available for comparison, the likely source of infection was not a patient and was not a co-worker/employee.
2. **Outside community.** Among the sequences available for comparison, the likely source of infection was not a patient and was not a co-worker/employee and there were genetically-related community sequences available for comparison. We include cases in this category in which transmission outside the healthcare setting could be reasonably established.
3. **Patient source.** The most likely source of infection in the HCP was a patient source.
4. **Employee source.** The most likely source of infection in the HCP was a co-worker/employee.
5. **Combined patient and employee cluster.** A patient to HCP transmission event likely started this cluster and was followed by HCP-to-HCP transmission. However, we are unable to pinpoint the first HCP to become infected and/or are unable to distinguish ongoing sources of transmission as patient-to-HCP and HCP-to-HCP are both possible.
6. **Inconclusive.** No consensus sequence available, and/or there were no appropriate comparator sequences available, and/or epidemiological information were insufficient to interpret sequence data.

Summary table

Likely source of infection in HCP	Number of cases
No evidence of healthcare-associated transmission	55 (57.9%)
Combined patient and employee cluster	12 (12.6%)
Inconclusive	11 (11.6%)
Employee source (via employee-employee interactions)	10 (10.5%)
Patient source (via employee-patient interactions)	4 (4.2%)
Outside community	3 (3.2%)
Total	95

Total number of patient comparator samples = 137 (94 consensus sequences from 87 individuals).

Each case included in the above table is summarized below. For each case, we include the likely source of infection for all involved healthcare personnel (HCP). Next, we provide essential information for each associated sample in the form of a table, including sample collection date, GISAID identifier, Nextstrain clade, and Pangolin lineage. We report clades using the updated Nextstrain clade naming strategy as outlined by Bedford, Hodcroft, and Neher in *Virological.org* [1]. We report lineages according to the Pangolin nomenclature as outlined by Rambaut and colleagues[2]. A description of each Pangolin lineage can be found at *cov-lineages* [3]. Next, we provide a very brief overview of any known epidemiological interactions among the involved individuals. The level of epidemiological detail associated with each case is variable, but we have included all known information here. We include a simple alignment showing the consensus sequences mapped against the Wuhan-Hu-1 reference sequence. Consensus-level differences amongst the reference and the sample sequences are denoted with a vertical black line. Particular variant identities for each sample can be found on the GitHub accompanying this manuscript [4]. Finally, we include a time-resolved phylogenetic tree, built using Nextstrain algorithms, for each case. These trees include all sequences which are publicly available in the GISAID database from the state of Wisconsin. We highlight the samples involved in each case using bolded branches and nodes. An interactive view of this tree can be found [5].

Report #1. 2020-04-15.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

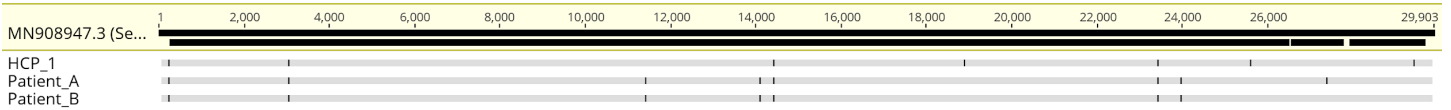
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	11 April 2020	hCoV-19/USA/IA-UW-121/2020	20A	B.1
patient A	13 April 2020	hCoV-19/USA/WI-UW-120/2020	20A	B.1.19
patient B	7 April 2020	hCoV-19/USA/WI-UW-122/2020	20A	B.1.19

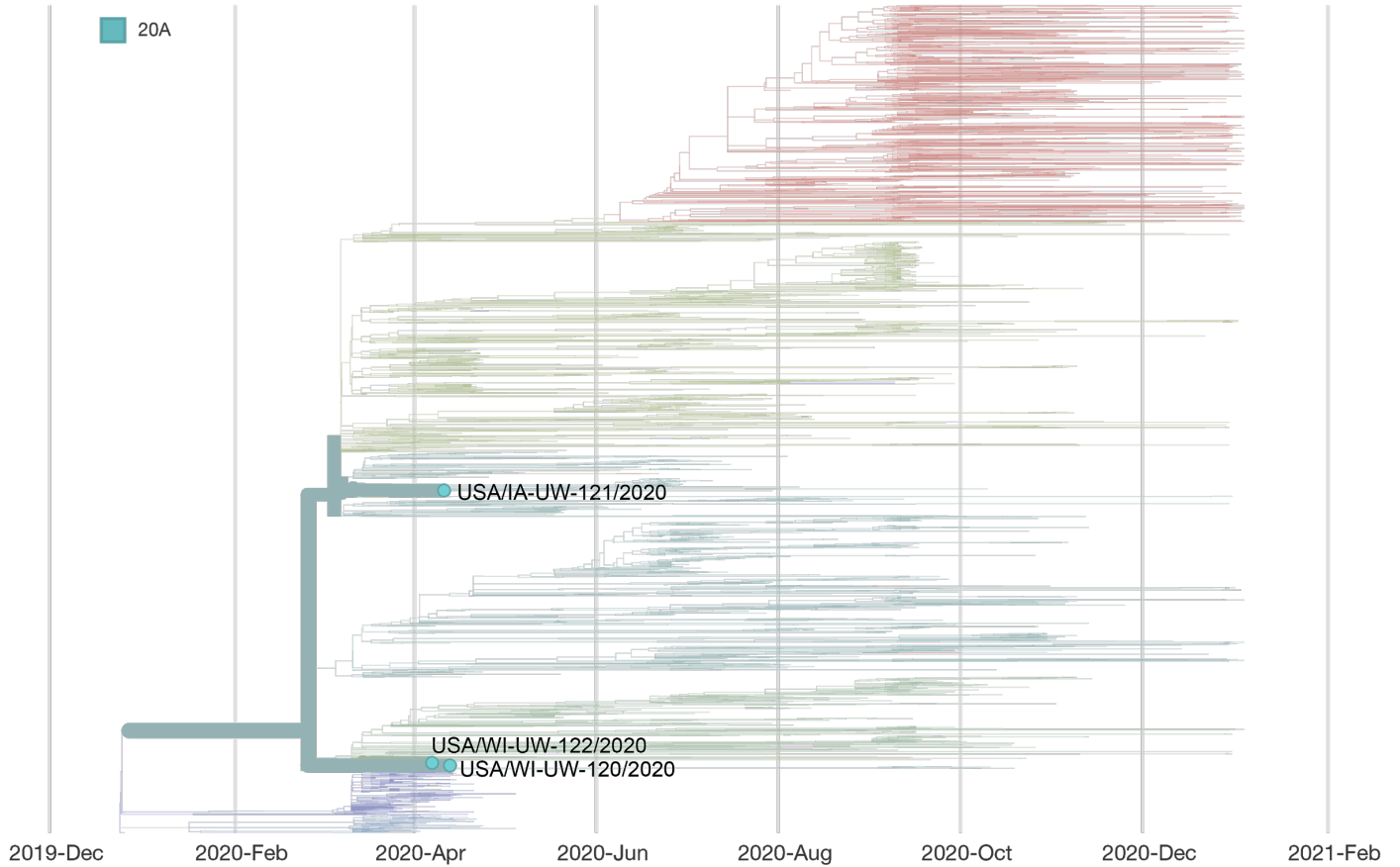
Epidemiological information

In the 14 days before symptom onset, HCP 1 interacted with patients A and B per comprehensive caregiver trace (see Methods, “Sample approvals and sample selection criteria” for further information). HCP 1 reported wearing appropriate personal protective equipment (PPE) while providing care to these patients.

Alignment



Phylogeny



Report #2. 2020-04-16.

Likely source of HCP infection

- HCP 1. Outside community (household contact).
- HCP 2. No evidence of healthcare-associated transmission.
- HCP 3. No evidence of healthcare-associated transmission.

Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
-------------	------------------------	-------------------	--------------------	--------------------

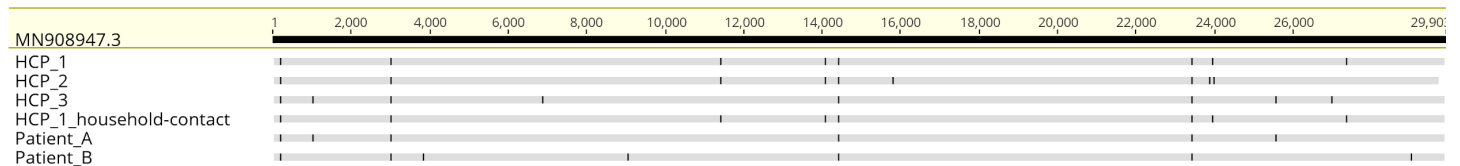
HCP 1	10 April 2020	hCoV-19/USA/WI-UW-119/2020	20A	B.1.19
HCP 2	17 April 2020	hCoV-19/USA/WI-UW-259/2020	20A	B.1.19
HCP 3	18 April 2020	hCoV-19/USA/WI-UW-260/2020	20C	B.1
Household contact (HCP 1)	13 April 2020	hCoV-19/USA/WI-UW-120/2020	20A	B.1.19
patient A	25 March 2020	hCoV-19/USA/WI-UW-118/2020	20C	B.1
patient B	31 March 2020	hCoV-19/USA/WI-UW-110/2020	20A	B.1.139

*Household contact in this case is also patient A in report #1

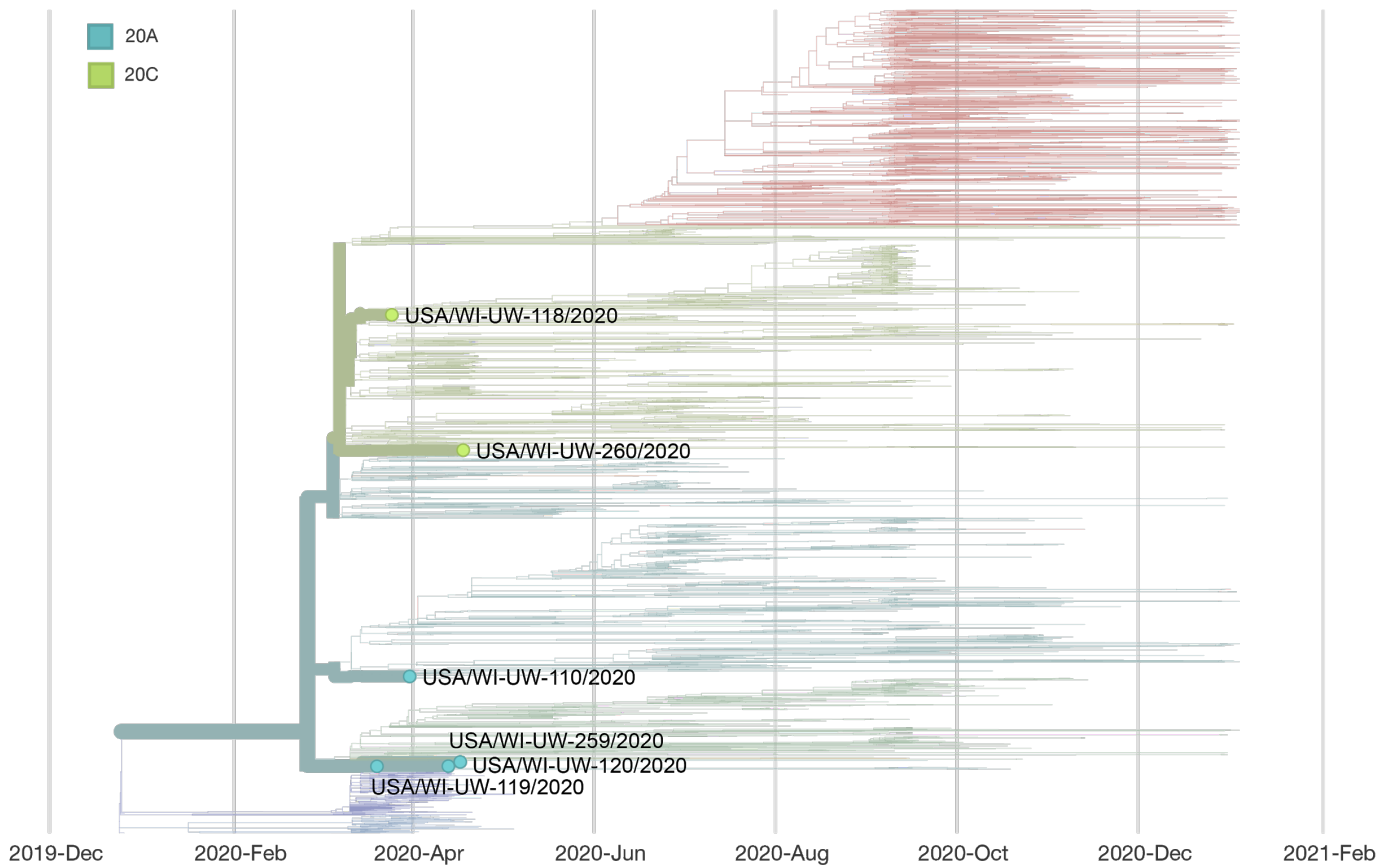
Epidemiological information

HCP 1 tested positive for SARS-CoV-2 after providing care for two SARS-CoV-2 positive patients, patients A and B. HCP 1 also had a household contact who tested positive for SARS-CoV-2 16 days before HCP 1. In the week following HCP 1's positive test, two additional HCP, HCP 2 and HCP 3 tested positive for SARS-CoV-2. HCPs 1, 2, and 3 all work in the same department, but we do not know whether these individuals had any high-risk contact with HCP 1 before their positive test results.

Alignment



Phylogeny



Notes

This case was published as an independent case report in Emerging Infectious Disease (PMID = 32758345).

Report #3. 2020-06-04.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

Samples

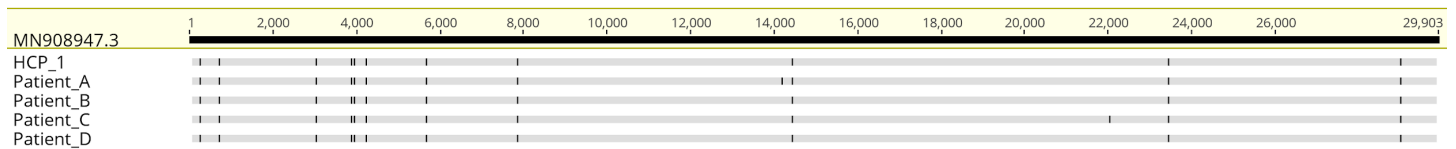
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	21 May 2020	hCoV-19/USA/WI-UW-388/2020	20A	B.1.139
HCP-C	Sample was not available			

patient A	21 May 2020	hCoV-19/USA/WI-UW-386/2020	20A	B.1.139
patient B	20 May 2020	hCoV-19/USA/WI-UW-390/2020	20A	B.1.139
patient C	26 May 2020	hCoV-19/USA/WI-UW-389/2020	20A	B.1.139
patient D	18 May 2020	hCoV-19/USA/WI-UW-387/2020	20A	B.1.139

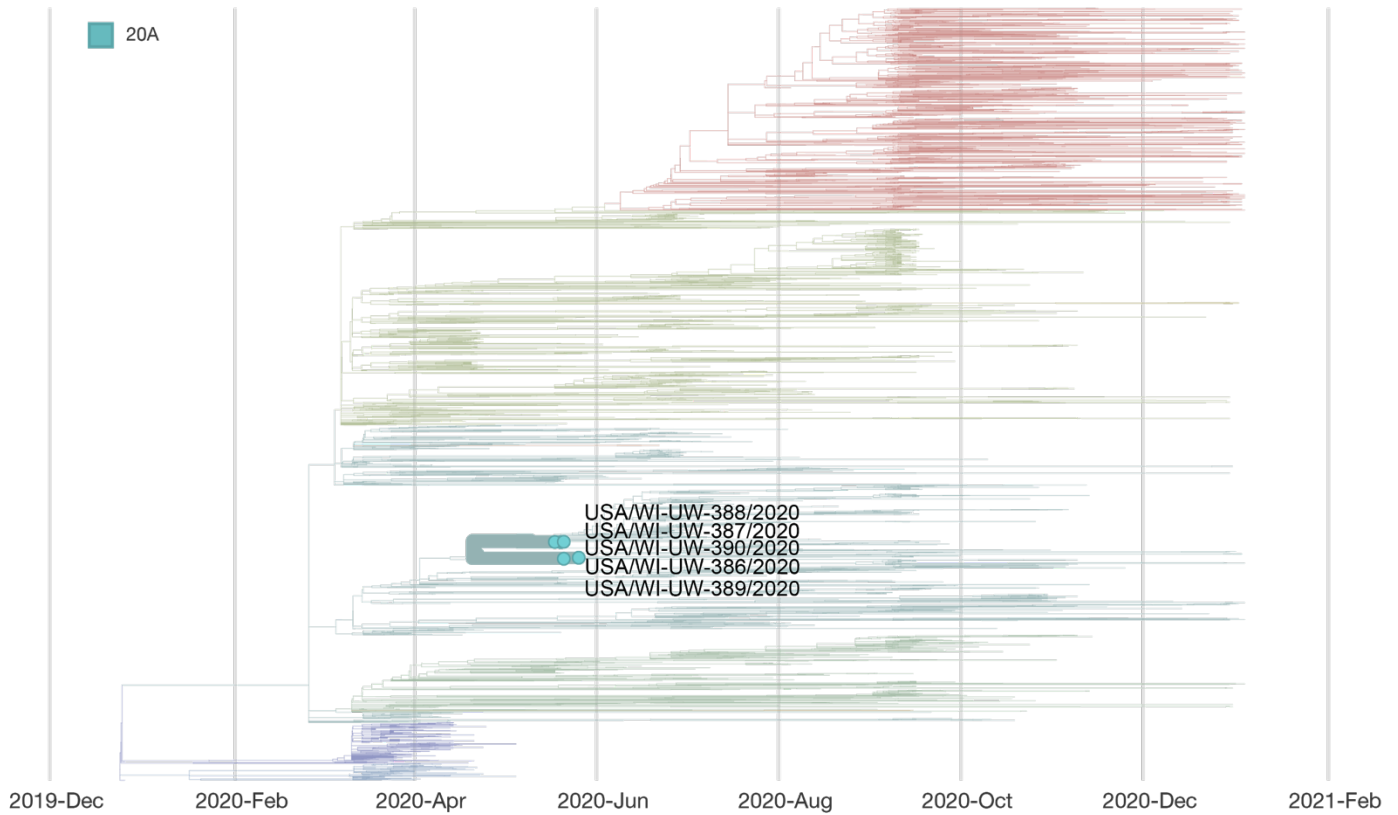
Epidemiological information

HCP 1 did not have direct contact with any of the patients included here. In this case, a household contact (HCP-C) of HCP 1 also works in healthcare, but in a different healthcare facility than HCP 1. The healthcare facility employing HCP-C was experiencing a COVID-19 outbreak at the time that HCP 1 tested positive. Patients A-D were patient samples collected from the HCP-C outbreak. A sample from the HCP-C was not available for comparison. Given the similarity in viral sequences between HCP 1 and all four patients from the outside healthcare facility, it is likely HCP 1 was exposed/infected via their household contact, who was likely exposed through patient contact. However, because we do not have HCP-C's sequence for comparison, we cannot make any definitive conclusions in this case.

Alignment



Phylogeny



Report #4. 2020-06-04.

Likely source of HCP infection

HCP 1. Patient source (patient D).

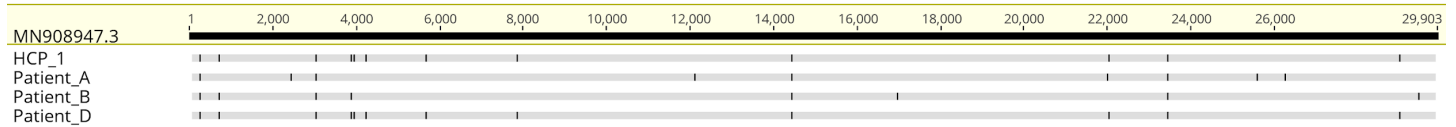
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	26 May 2020	hCoV-19/USA/WI-UW-391/2020	20A	B.1.139
patient A	20 May 2020	hCoV-19/USA/WI-UW-392/2020	20A	B.1.276
patient B	14 May 2020	hCoV-19/USA/WI-UW-393/2020	20A	B.1.139
patient C	14 May 2020	N/A - no consensus sequence		
patient D	26 May 2020	hCoV-19/USA/WI-UW-389/2020	20A	B.1.139

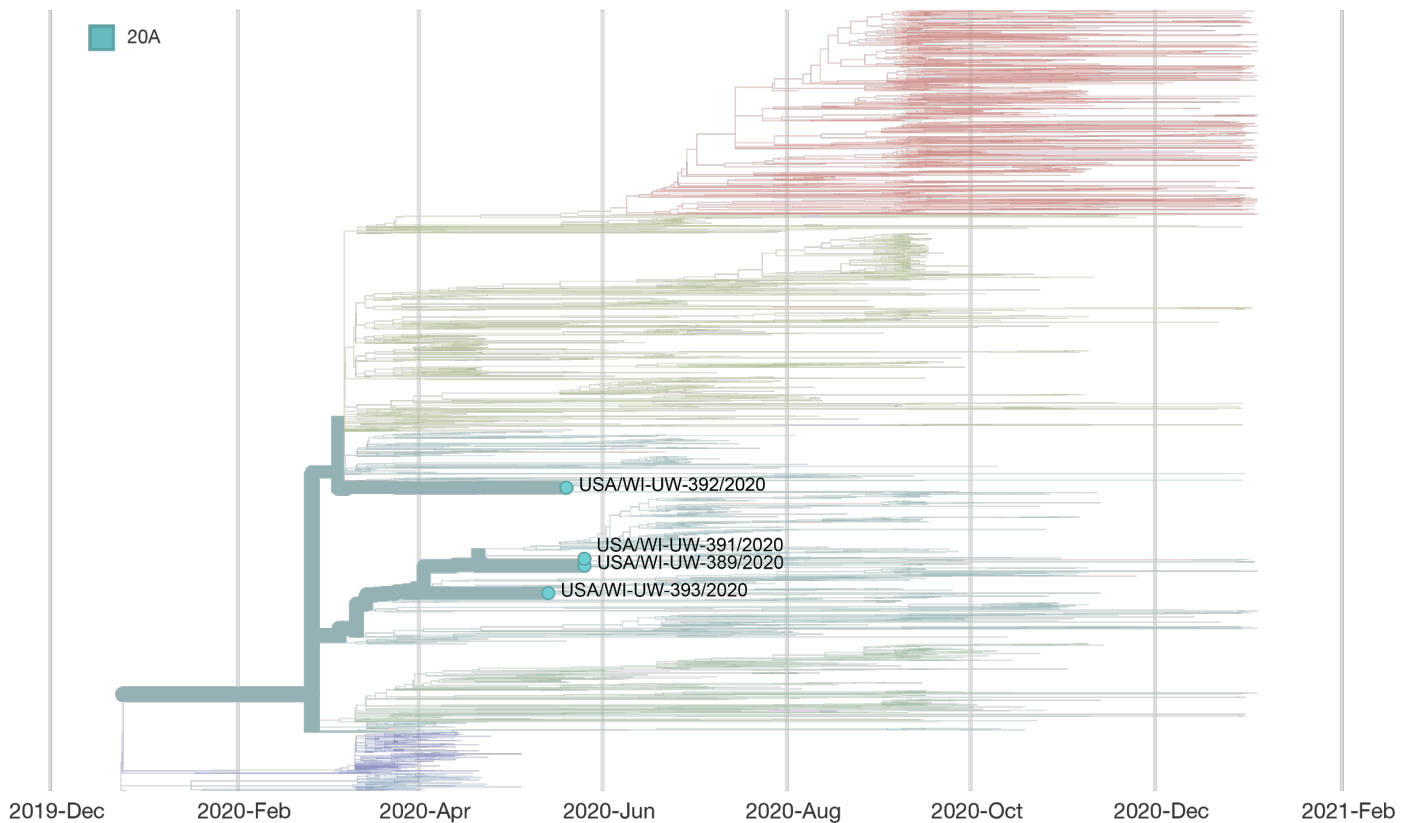
Epidemiological information

In the two weeks before symptom onset, HCP 1 provided direct care to patients A-D. HCP 1 wore appropriate PPE while providing care and was also present during patient D's treatment with the Aerobika nebulizer.

Alignment



Phylogeny



Notes

The Aerobika nebulizer was added to the list of aerosol-generating procedures requiring enhanced PPE based on this case.

Report #5. 2020-07-08.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

HCP 2. Outside community (likely source was HCP 1, but infection took place outside of the workplace).

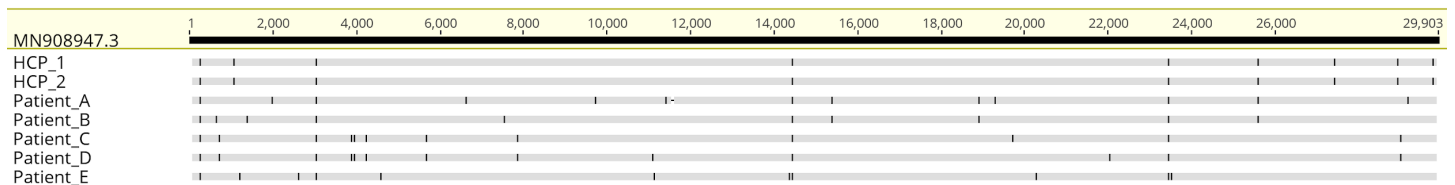
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	21 June 2020	hCoV-19/USA/WI-UW-588/2020	20C	B.1
HCP 2	23 June 2020	hCoV-19/USA/WI-UW-610/2020	20C	B.1
patient A	9 June 2020	hCoV-19/USA/FL-UW-473/2020	20A	B.1.162
patient B	8 June 2020	hCoV-19/USA/WI-UW-469/2020	20A	B.1.162
patient C	2 June 2020	hCoV-19/USA/WI-UW-497/2020	20A	B.1.139
patient D	3 June 2020	hCoV-19/USA/WI-UW-493/2020	20A	B.1.139
patient E	10 June 2020	hCoV-19/USA/WI-UW-479/2020	20A	B.1.139
patient F	2 June 2020	N/A - no consensus sequence		

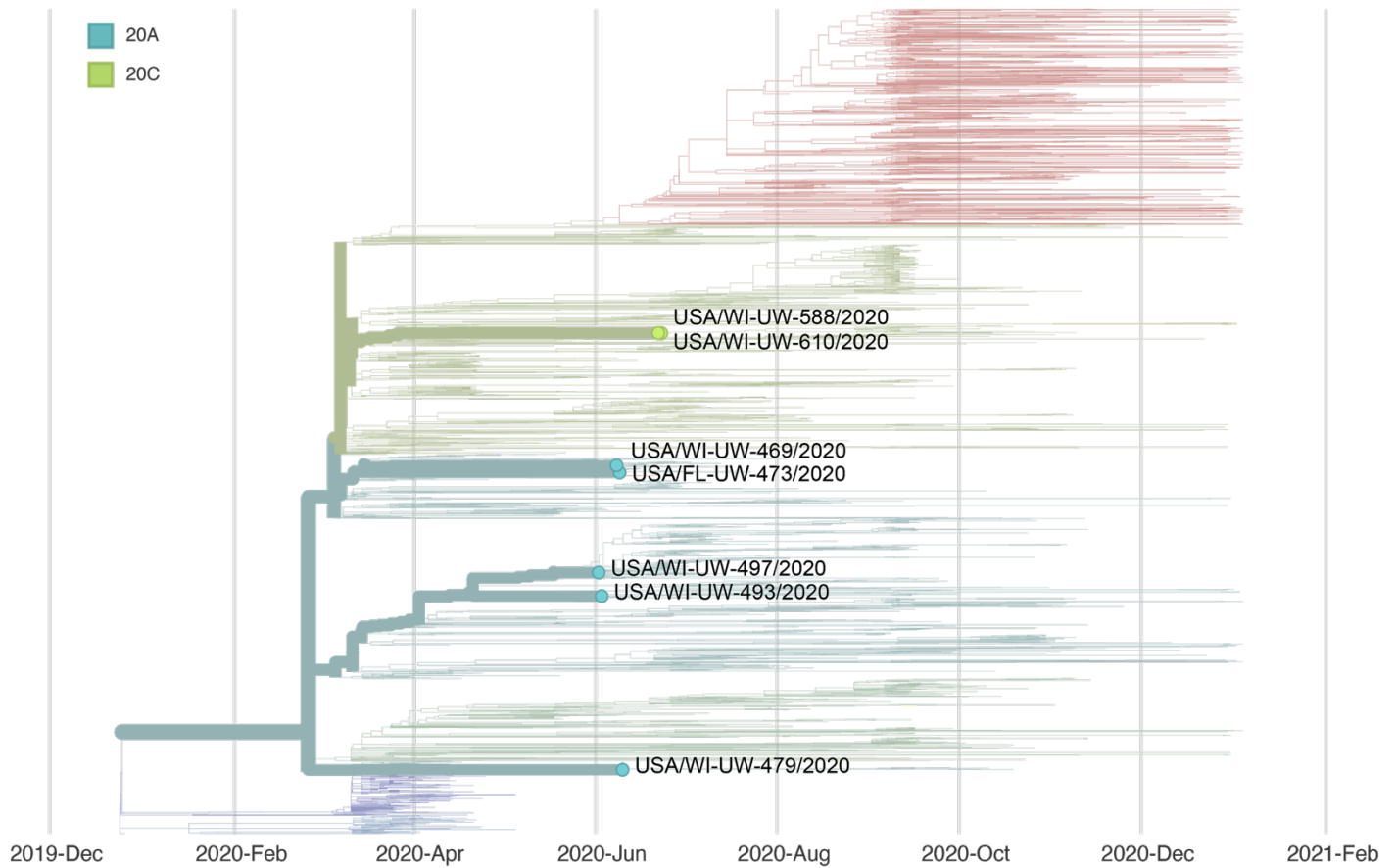
Epidemiological information

HCP 1 had direct contact while wearing appropriate PPE with patients A-E. HCP 1 and HCP 2 had unmasked interactions (>15 mins) with each other outside of the workplace. HCP 2 did not have contact with any SARS-CoV-2 positive patients in the 14 days before symptom onset.

Alignment



Phylogeny



Report #6. 2020-08-13.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

HCP 2. Employee source (likely source was HCP 1).

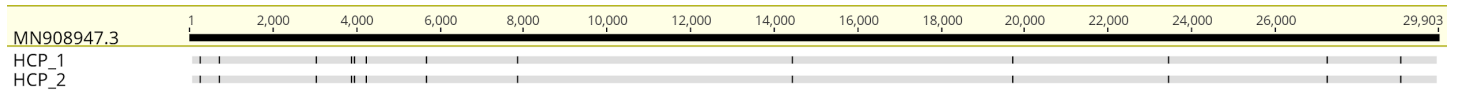
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	24 June 2020	hCoV-19/USA/WI-UW-520/2020	20A	B.1.139
HCP 2	30 June 2020	hCoV-19/USA/WI-UW-726/2020	20A	B.1.139

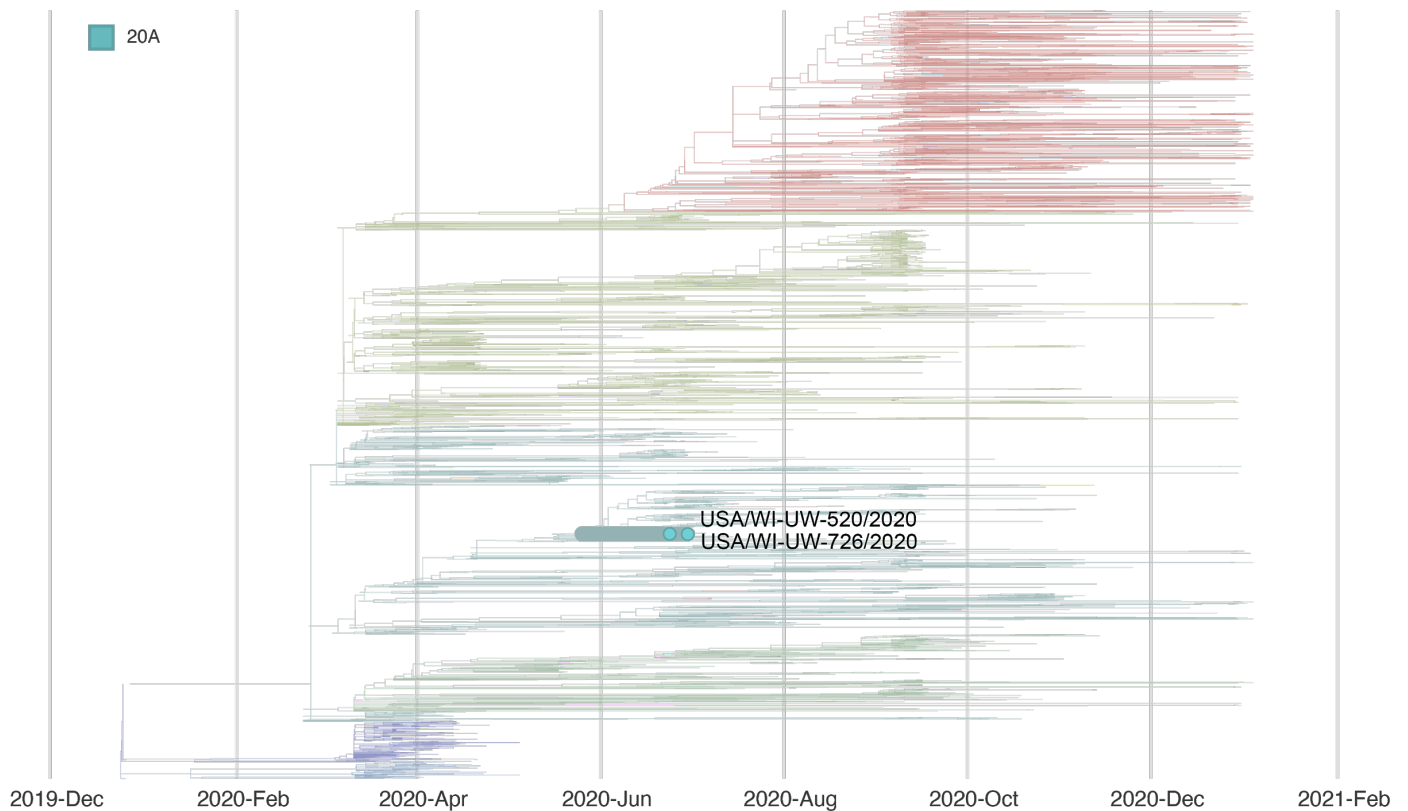
Epidemiological information

HCP 1 had a high-risk exposure event in the community before testing positive. This event was indoors, unmasked, and lasted longer than 15 minutes. HCP 1 works in the same department as HCP 2. Neither HCP 1 nor HCP 2 provided direct care to patients diagnosed with COVID-19 in the 14 days before their symptom onset. HCP 2 reported wearing a mask around all coworkers except while eating in the breakroom. HCP 2 reports removing their mask while eating, but maintaining a 6-foot physical distance from others during this time.

Alignment



Phylogeny



Report #7. 2020-08-04.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

Samples

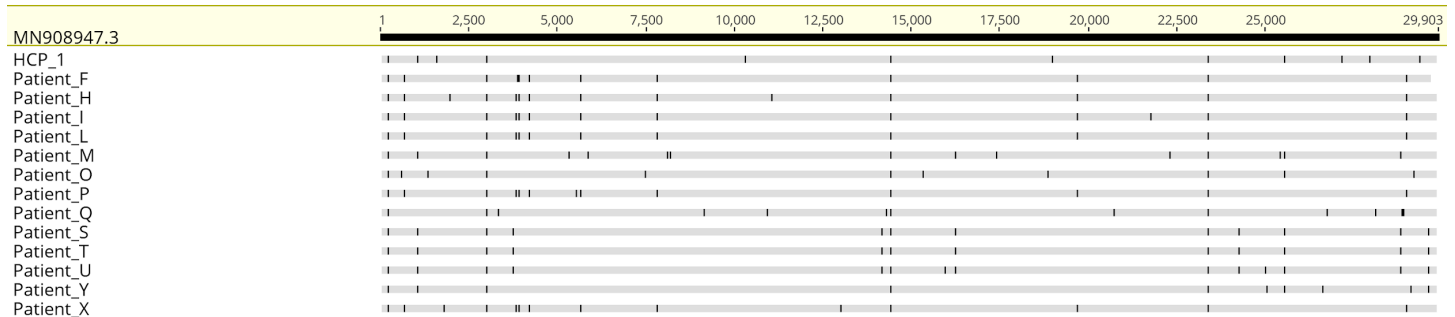
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	17 July 2020	hCoV-19/USA/WI-UW-973/2020	20C	B.1.2
patient A	8 July 2020	N/A - no consensus sequence		
patient B	8 July 2020	N/A - no consensus sequence		
patient C	8 July 2020	N/A - no consensus sequence		
patient D	8 July 2020	N/A - no consensus sequence		
patient E	8 July 2020	N/A - no consensus sequence		
patient F	8 July 2020	hCoV-19/USA/WI-UW-852/2020	20A	B.1.139
patient G	8 July 2020	N/A - no consensus sequence		
patient H	8 July 2020	hCoV-19/USA/WI-UW-870/2020	20A	B.1.139
patient I	8 July 2020	hCoV-19/USA/WI-UW-847/2020	20A	B.1.139
patient J	13 July 2020	N/A - no consensus sequence		
patient K	13 July 2020	N/A - no consensus sequence		
patient L	13 July 2020	hCoV-19/USA/WI-UW-927/2020	20A	B.1.139
patient M	13 July 2020	hCoV-19/USA/WI-UW-878/2020	20C	B.1.369
patient N	13 July 2020	N/A - no consensus sequence		
patient O	13 July 2020	hCoV-19/USA/WI-UW-886/2020	20A	B.1.162
patient P	13 July 2020	hCoV-19/USA/WI-UW-880/2020	20A	B.1.139
patient Q	13 July 2020	hCoV-19/USA/WI-UW-894/2020	20B	B1.1
patient R	13 July 2020	N/A - no consensus sequence		

patient S	13 July 2020	hCoV-19/USA/WI-UW-895/2020	20C	B.1.1369
patient T	13 July 2020	hCoV-19/USA/WI-UW-876/2020	20C	B.1.369
patient U	13 July 2020	hCoV-19/USA/WI-UW-931/2020	20C	B.1.369
patient V	13 July 2020	N/A - no consensus sequence		
patient W	13 July 2020	N/A - no consensus sequence		
patient X	15 July 2020	hCoV-19/USA/WI-UW-898/2020	20A	B.1.369
patient Y	15 July 2020	hCoV-19/USA/WI-UW-883/2020	20C	B.1
patient Z	15 July 2020	N/A - no consensus sequence		
patient AA	15 July 2020	N/A - no consensus sequence		

Epidemiological information

HCP 1 collected nasopharyngeal specimens from patients with suspected COVID-19. HCP 1 wore appropriate PPE while collecting these specimens and reported no breach in PPE. Patients A-AA were collected in the 14 days before symptom onset in HCP 1.

Alignment



Phylogeny



Report #8. 2020-08-18.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

Samples

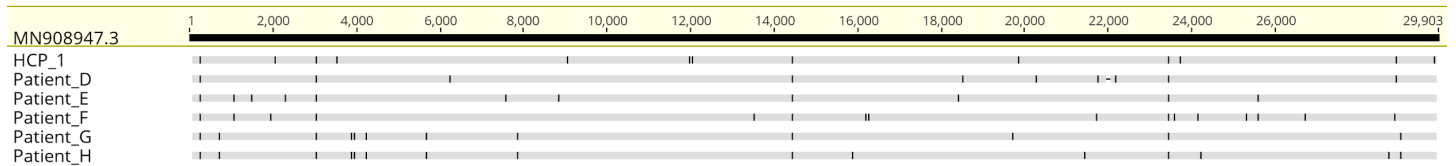
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	31 July 2020	hCoV-19/USA/WI-UW-1022/2020	20B	B.1.1.73
patient A	15 July 2020	N/A - no consensus sequence		
patient B	Unknown	N/A - no consensus sequence		
patient C	2 July 2020	N/A - no consensus sequence		
patient D	13 July 2020	hCoV-19/USA/WI-UW-923/2020	20A	B.1.240
patient E	23 June 2020	hCoV-19/USA/WI-UW-614/2020	20C	B.1.330

patient F	14 July 2020	hCoV-19/USA/WI-UW-875/2020	20C	B.1.369
patient G	14 July 2020	hCoV-19/USA/WI-UW-889/2020	20A	B.1.139
patient H	28 July 2020	hCoV-19/USA/WI-UW-1100/2020	20A	B.1.139

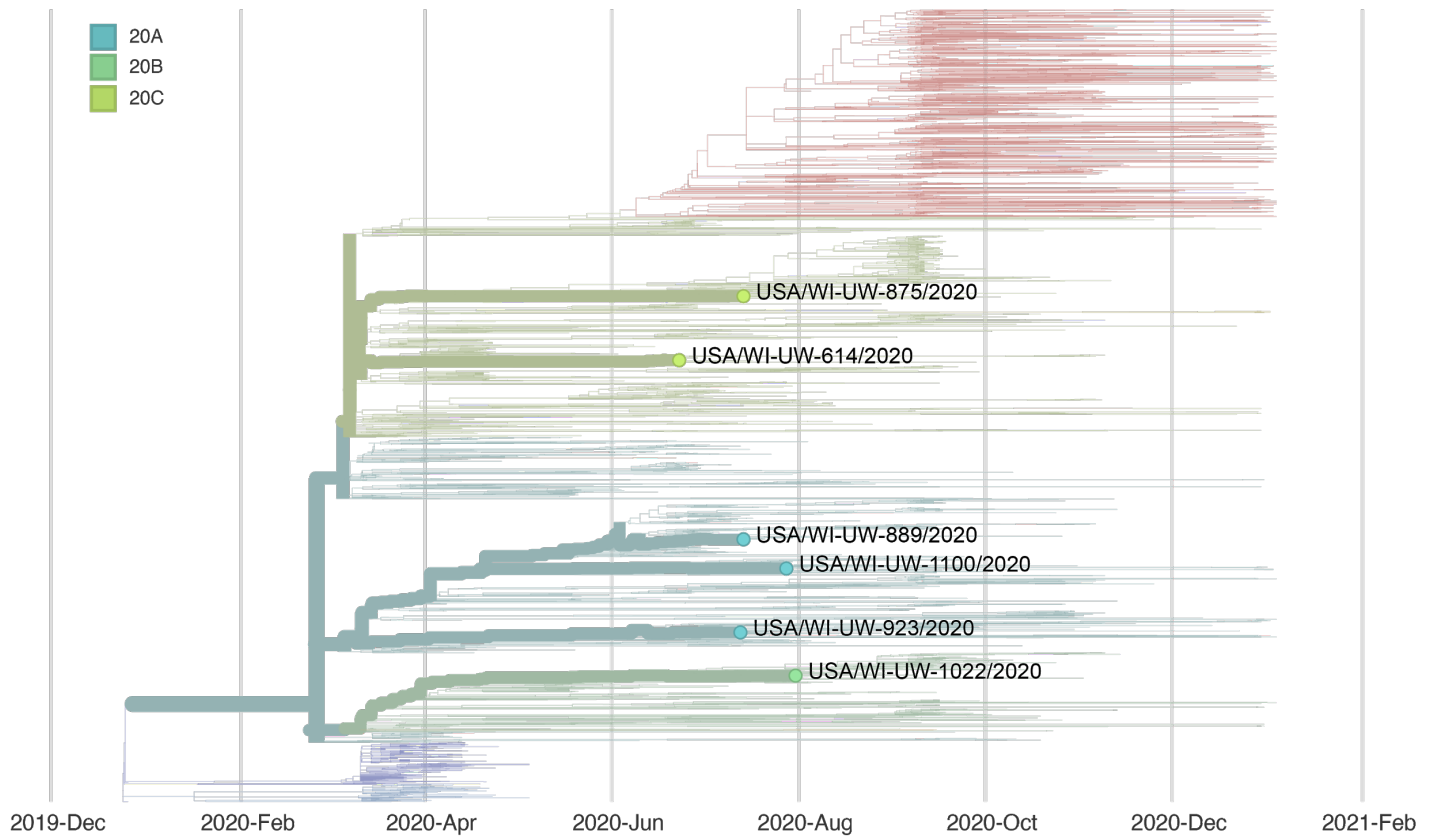
Epidemiological information

HCP 1 likely did not have direct interactions with any of the patients listed here. HCP 1 did, however, perform cleaning duties in the rooms of each of these patients in the 14 days before symptom onset.

Alignment



Phylogeny



Report #9. 2020-08-21.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

Samples

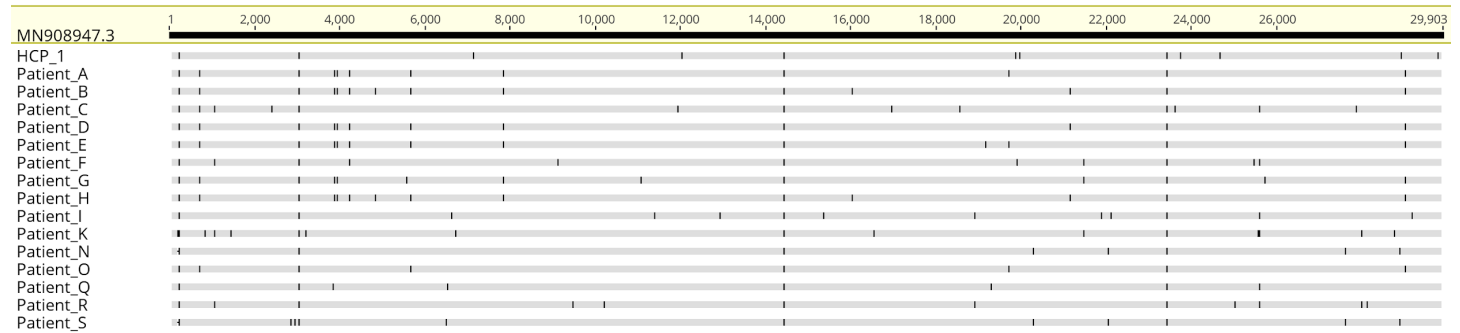
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	17 July 2020	hCoV-19/USA/WI-UW-965/2020	20B	B.1.1.73
patient A	5 July 2020	hCoV-19/USA/WI-UW-765/2020	20A	B.1.139
patient B	5 July 2020	hCoV-19/USA/WI-UW-792/2020	20A	B.1.139
patient C	5 July 2020	hCoV-19/USA/WI-UW-761/2020	20C	B.1.3
patient D	5 July 2020	hCoV-19/USA/WI-UW-781/2020	20A	B.1.139
patient E	5 July 2020	hCoV-19/USA/WI-UW-794/2020	20A	B.1.139
patient F	5 July 2020	hCoV-19/USA/WI-UW-796/2020	20C	B.1.294
patient G	4 July 2020	hCoV-19/USA/WI-UW-790/2020	20A	B.1.139
patient H	6 July 2020	hCoV-19/USA/WI-UW-768/2020	20A	B.1.139
patient I	6 July 2020	hCoV-19/USA/WI-UW-803/2020	20A	B.1.162
patient J	6 July 2020	N/A - no consensus sequence		
patient K	6 July 2020	hCoV-19/USA/MO-UW-771/2020	20C	B.1.370
patient L	6 July 2020	N/A - no consensus sequence		
patient M	5 July 2020	N/A - no consensus sequence		
patient N	6 July 2020	hCoV-19/USA/WI-UW-784/2020	20A	B.1
patient O	6 July 2020	hCoV-19/USA/WI-UW-787/2020	20A	B.1.139

patient P	6 July 2020	N/A - no consensus sequence		
patient Q	6 July 2020	hCoV-19/USA/WI-UW-786/2020	20A	B.1.112
patient R	6 July 2020	hCoV-19/USA/WI-UW-766/2020	20C	B.1.370
patient S	6 July 2020	hCoV-19/USA/WI-UW-798/2020	20A	B.1

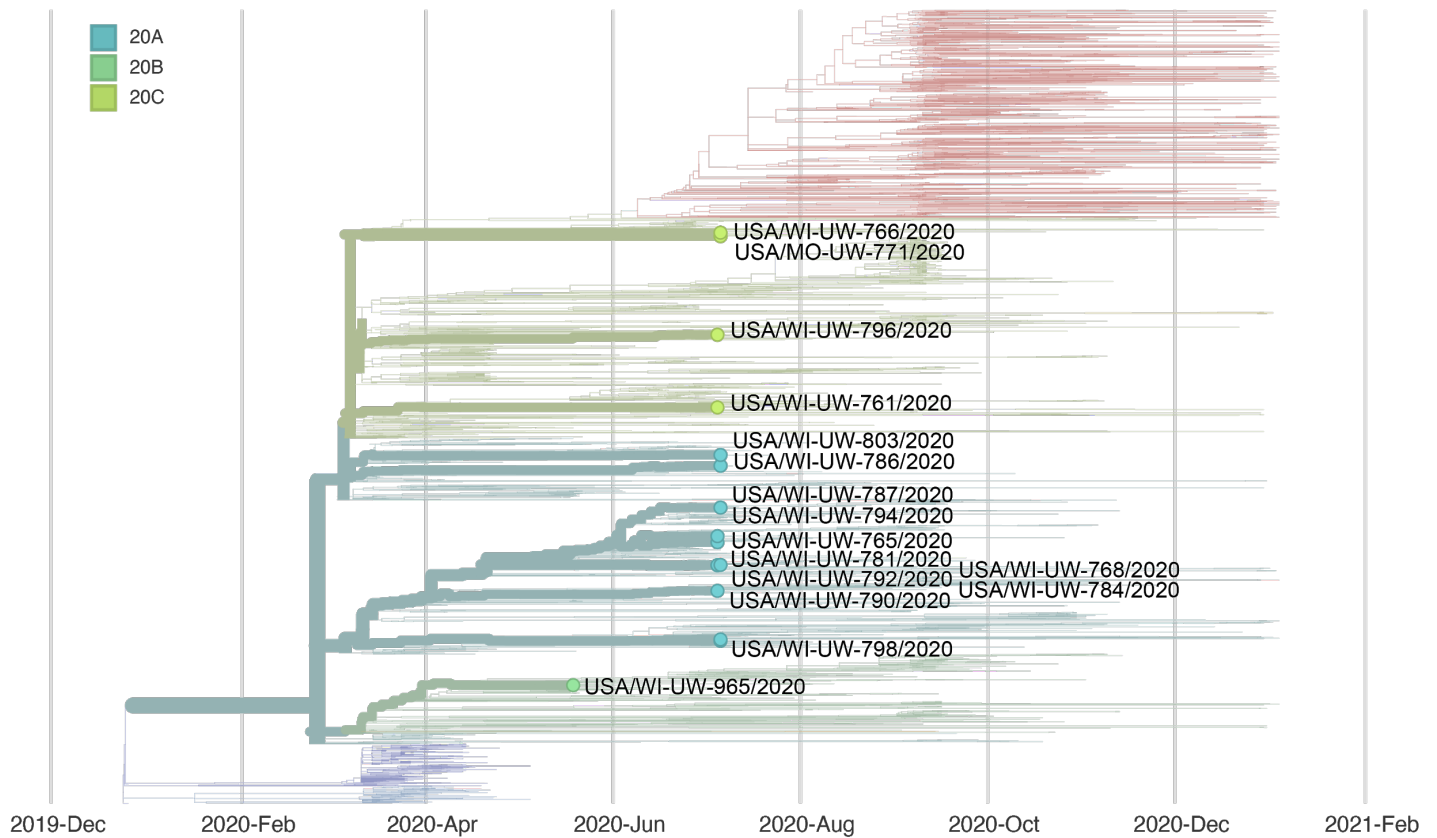
Epidemiological information

HCP 1 collected nasopharyngeal specimens from patients with suspected COVID-19. HCP 1 wore appropriate PPE while collecting these specimens and reported no breach in PPE. Patients A-S were collected in the 14 days before symptom onset in HCP 1.

Alignment



Phylogeny



Report #10. 2020-08-26.

Likely source of HCP infection

HCP 1. Patient source (patient G).

Samples

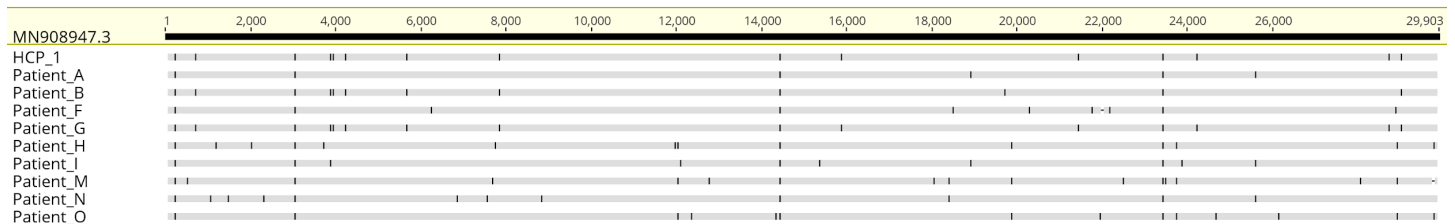
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	5 August 2020	hCoV-19/USA/WI-UW-1125/2020	20A	B.1.139
patient A	16 August 2020	hCoV-19/USA/WI-UW-867/2020	20A	B.1.255
patient B	14 July 2020	hCoV-19/USA/WI-UW-889/2020	20A	B.1.139
patient C	26 July 2020	N/A - no consensus sequence		

patient D	14 July 2020	N/A - no consensus sequence		
patient E	1 August 2020	N/A - no consensus sequence		
patient F	7 July 2020	hCoV-19/USA/WI-UW-923/2020	20A	B.1.240
patient G	28 July 2020	hCoV-19/USA/WI-UW-1100/2020	20A	B.1.139
patient H	21 July 2020	hCoV-19/USA/WI-UW-998/2020	20B	B.1.1.73
patient I	4 August 2020	hCoV-19/USA/WI-UW-1035/2020	20A	B.1.162
patient J	12 July 2020	N/A - no consensus sequence		
patient K	15 July 2020	N/A - no consensus sequence		
patient L	13 July 2020	N/A - no consensus sequence		
patient M	30 July 2020	hCoV-19/USA/WI-UW-1054/2020	20B	B.1.1.73
patient N	3 July 2020	hCoV-19/USA/WI-UW-805/2020	20C	B.1.330
patient O	30 July 2020	hCoV-19/USA/WI-UW-1090/2020	20B	B.1.1.73

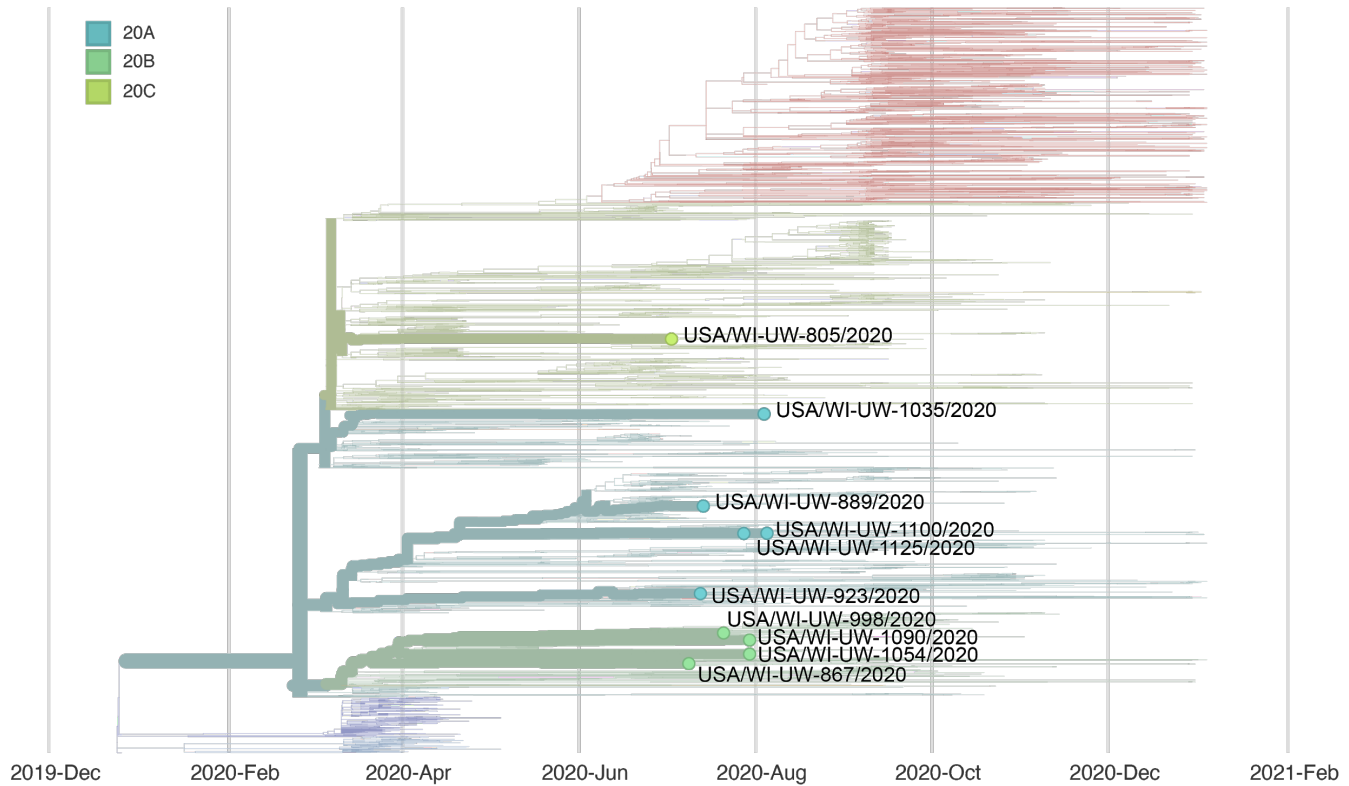
Epidemiological information

HCP 1 had direct contact while wearing appropriate PPE with patients A-O in the 14 days before symptom onset.

Alignment



Phylogeny



Report #11. 2020-09-11.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

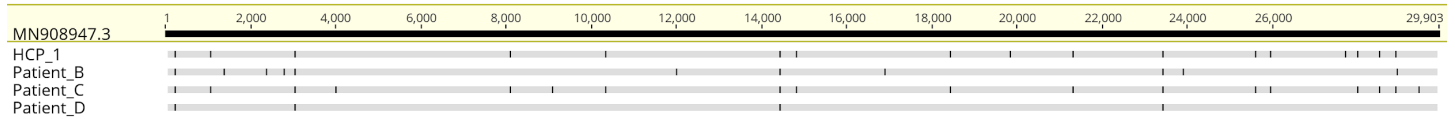
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	19 August 2020	hCoV-19/USA/WI-UW-1213/2020	20C	B.1.2
patient A	9 August 2020	N/A - no consensus sequence		
patient B	5 August 2020	hCoV-19/USA/WI-UW-1163/2020	20B	B.1.1.130
patient C	17 August 2020	hCoV-19/USA/WI-UW-1240/2020	20C	B.1.2
patient D	8 August 2020	hCoV-19/USA/WI-UW-1170/2020	20A	B.1.5

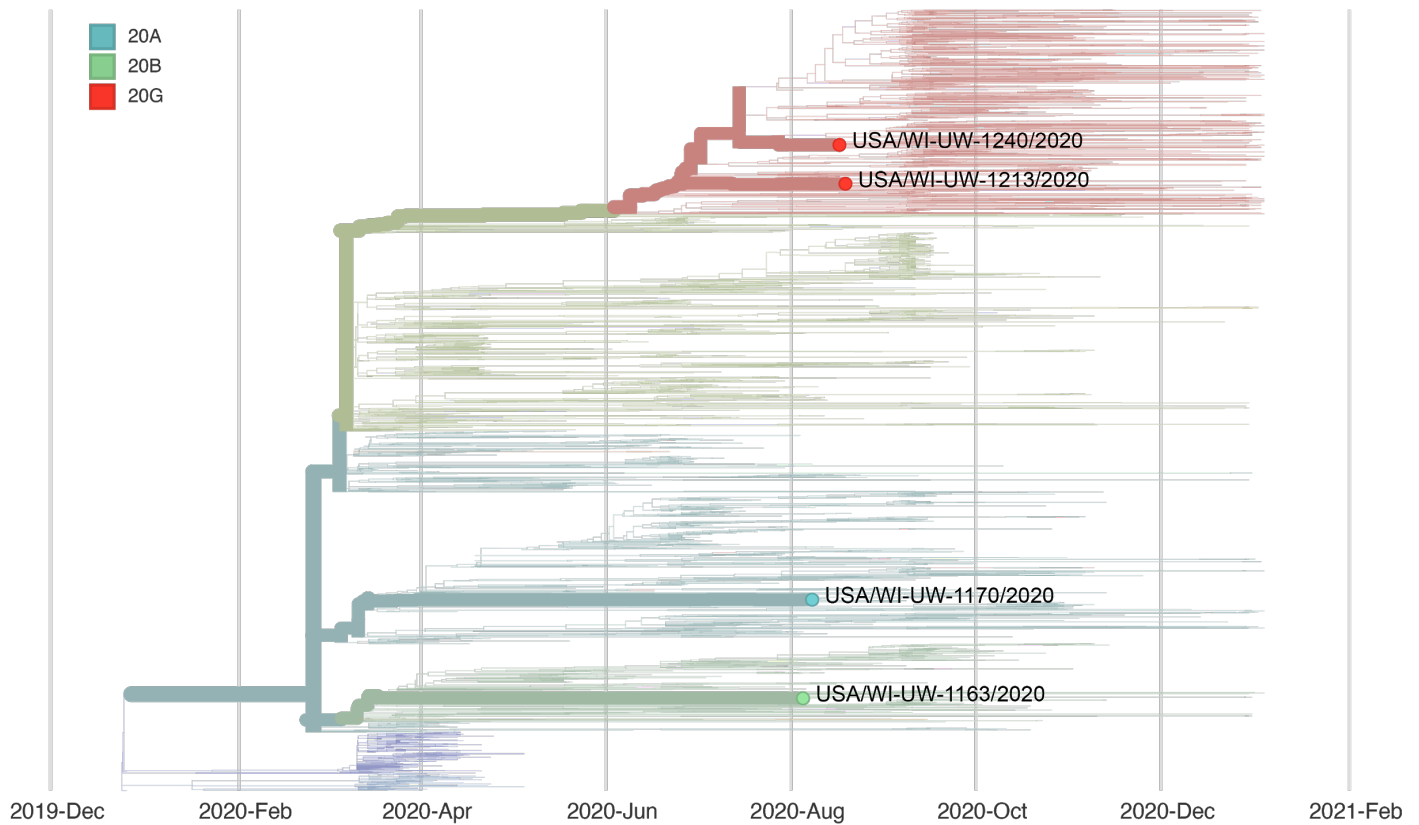
Epidemiological information

HCP 1 had direct contact while wearing appropriate PPE with patients A-D in the 14 days before symptom onset. HCP 1 denied any lapses in PPE and did not interact with coworkers without a surgical mask on.

Alignment



Phylogeny



Report #12. 2020-09-11.

Likely source of HCP infection

HCP 1. Inconclusive.

HCP 2. No evidence of healthcare-associated transmission.

Samples

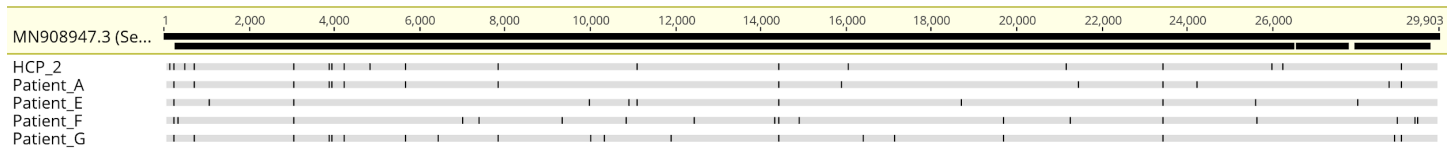
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)

HCP 1	21 August 2020	N/A - no consensus sequence		
HCP 2	21 August 2020	hCoV-19/USA/WI-UW-1278/2020	20A	B.1.139
patient A	21 July 2020	hCoV-19/USA/WI-UW-1100/2020	20A	B.1.139
patient B	26 July 2020	N/A - no consensus sequence		
patient C	26 July 2020	N/A - no consensus sequence		
patient D	17 August 2020	N/A - no consensus sequence		
patient E	8 July 2020	hCoV-19/USA/WI-UW-850/2020	20C	B.1.2
patient F	21 August 2020	hCoV-19/USA/WI-UW-1248/2020	20B	B.1.1.244
patient G	6 August 2020	hCoV-19/USA/WI-UW-1204/2020	20A	B.1.139
patient H	15 August 2020	N/A - no consensus sequence		

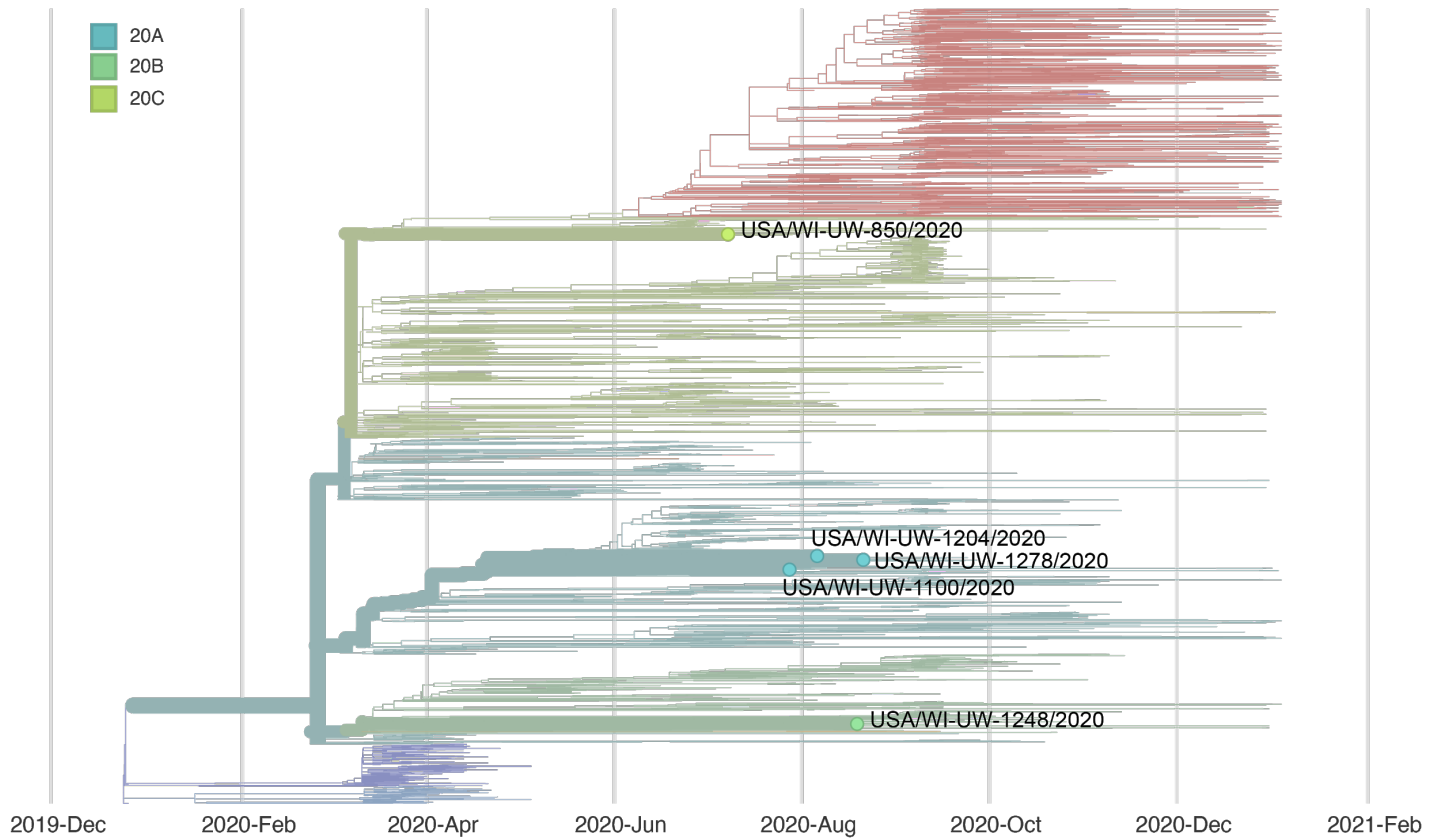
Epidemiological information

HCP 1 and HCP 2 are household contacts and one or both of these HCP provided direct patient care to patients A-H while wearing appropriate PPE in the two weeks before their symptom onset.

Alignment



Phylogeny



Report #13. 2020-09-14.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

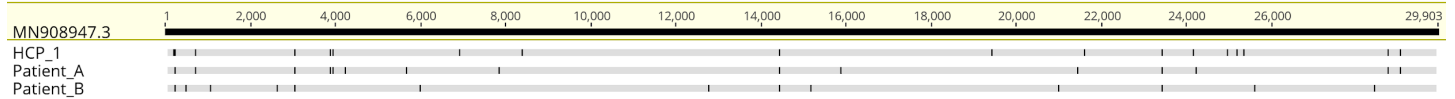
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	31 August 2020	hCoV-19/USA/WI-UW-1305/2020	20A	B.1.139
patient A	28 July 2020	hCoV-19/USA/WI-UW-1100/2020	20A	B.1.139
patient B	20 August 2020	hCoV-19/USA/WI-UW-1231/2020	20C	B.1.337
patient C	15 August 2020	N/A - no consensus sequence		
patient D	26 August 2020	N/A - no consensus sequence		

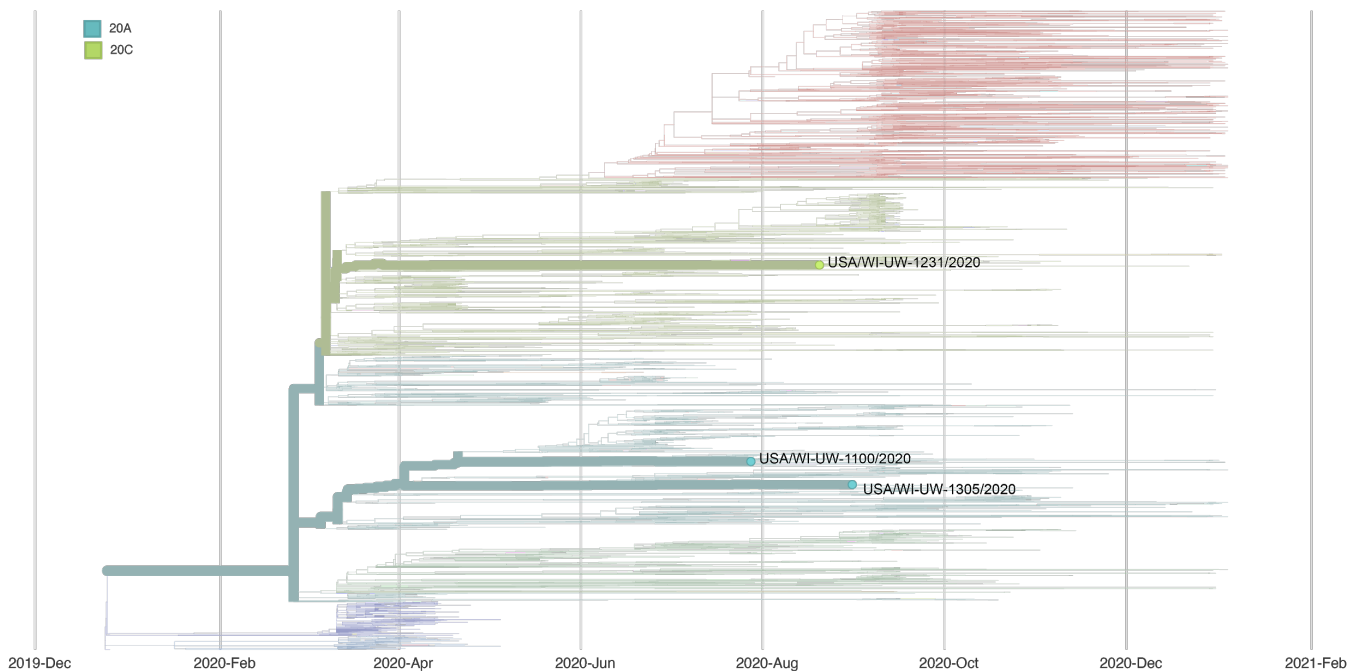
Epidemiological information

HCP 1 provided direct care while wearing appropriate PPE to patients A-D in the 14 days before symptom onset.

Alignment



Phylogeny



Report #14. 2020-09-22.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

HCP 2. Combined patient and employee cluster.

HCP 3. Inconclusive.

HCP 4. Combined patient and employee cluster.

HCP 5. No evidence of healthcare-associated transmission.

HCP 6. Employee source (HCP 9 is a likely source of infection, although the HCP 6 → HCP 9 is also possible).

HCP 7. No evidence of healthcare-associated transmission.

HCP 8. Inconclusive.

HCP 9. No evidence of healthcare-associated transmission.

HCP 10. Inconclusive.

- HCP 11. Combined patient and employee cluster.
HCP 12. Combined patient and employee cluster.
HCP 13. Combined patient and employee cluster.
HCP 14. Inconclusive.
HCP 15. Inconclusive.
HCP 16. Combined patient and employee cluster.
HCP 17. Combined patient and employee cluster.
HCP 18. Inconclusive.
HCP 19. Inconclusive.
HCP 20. Combined patient and employee cluster.
HCP 21. Inconclusive.

Patients A and C are the patients involved in this combined patient and employee cluster.

Samples

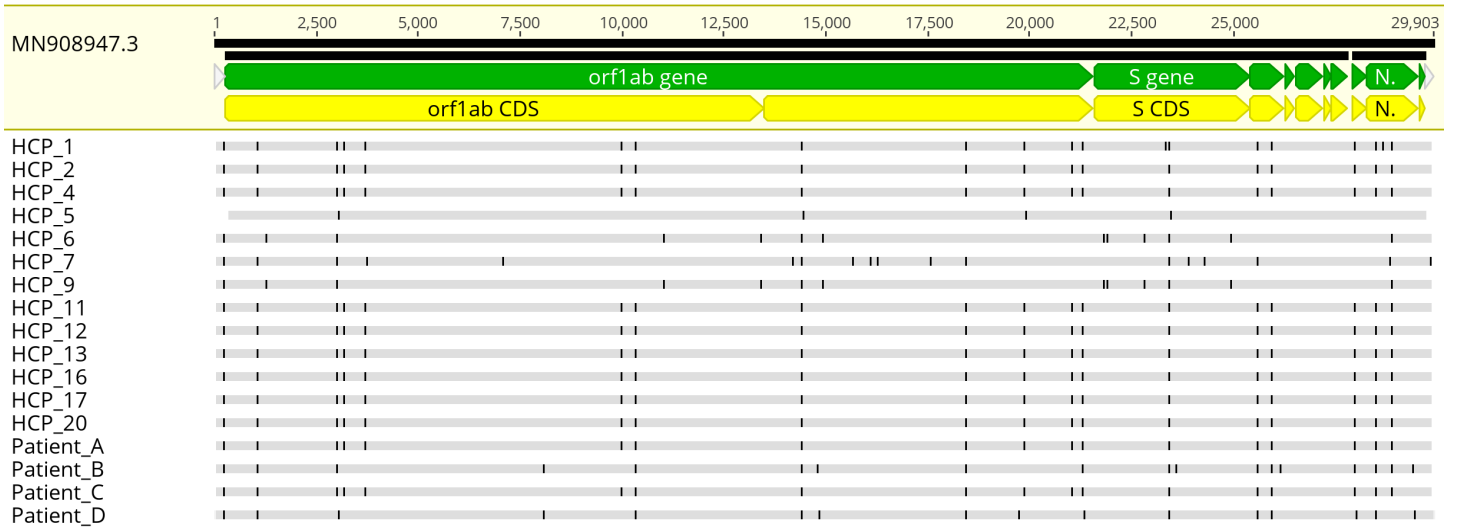
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	7 September 2020	hCoV-19/USA/WI-UW-1348/2020	20G	B.1.2
HCP 2	9 September 2020	hCoV-19/USA/WI-UW-1344/2020	20G	B.1.2
HCP 3	9 September 2020	N/A - no consensus sequence		
HCP 4	4 September 2020	hCoV-19/USA/WI-UW-1412/2020	20G	B.1.2
HCP 5	2 September 2020	hCoV-19/USA/WI-UW-1325/2020	20G	B.1.5
HCP 6	10 September 2020	hCoV-19/USA/WI-UW-1480/2020	20B	B.1.1.251
HCP 7	10 September 2020	hCoV-19/USA/WI-UW-1477/2020	20G	B.1.369
HCP 8	10 September 2020	N/A - no consensus sequence		
HCP 9	10 September 2020	hCoV-19/USA/WI-UW-1475/2020	20B	B.1.1.251
HCP 10	12 September 2020	N/A - no consensus sequence		
HCP 11	11 September 2020	hCoV-19/USA/WI-UW-1441/2020	20G	B.1.2
HCP 12	11 September 2020	hCoV-19/USA/WI-UW-1445/2020	20G	B.1.2

HCP 13	12 September 2020	hCoV-19/USA/WI-UW-1452/2020	20G	B.1.2
HCP 14	11 September 2020	N/A - no consensus sequence		
HCP 15	11 September 2020	N/A - no consensus sequence		
HCP 16	11 September 2020	hCoV-19/USA/WI-UW-1459/2020	20G	B.1.2
HCP 17	12 September 2020	hCoV-19/USA/WI-UW-1436/2020	20G	B.1.2
HCP 18	12 September 2020	N/A - no consensus sequence		
HCP 19	17 September 2020	N/A - no consensus sequence		
HCP 20	10 September 2020	hCoV-19/USA/WI-UW-1461/2020	20G	B.1.2
HCP 21	25 September 2020	N/A - no consensus sequence		
patient A	3 September 2020	hCoV-19/USA/WI-UW-1406/2020	20G	B.1.2
patient B	11 September 2020	hCoV-19/USA/WI-UW-1499/2020	20G	B.1.2
patient C	11 September 2020	hCoV-19/USA/WI-UW-1900/2020	20G	B.1.2
patient D	14 September 2020	hCoV-19/USA/WI-UW-1941/2020	20G	B.1.2

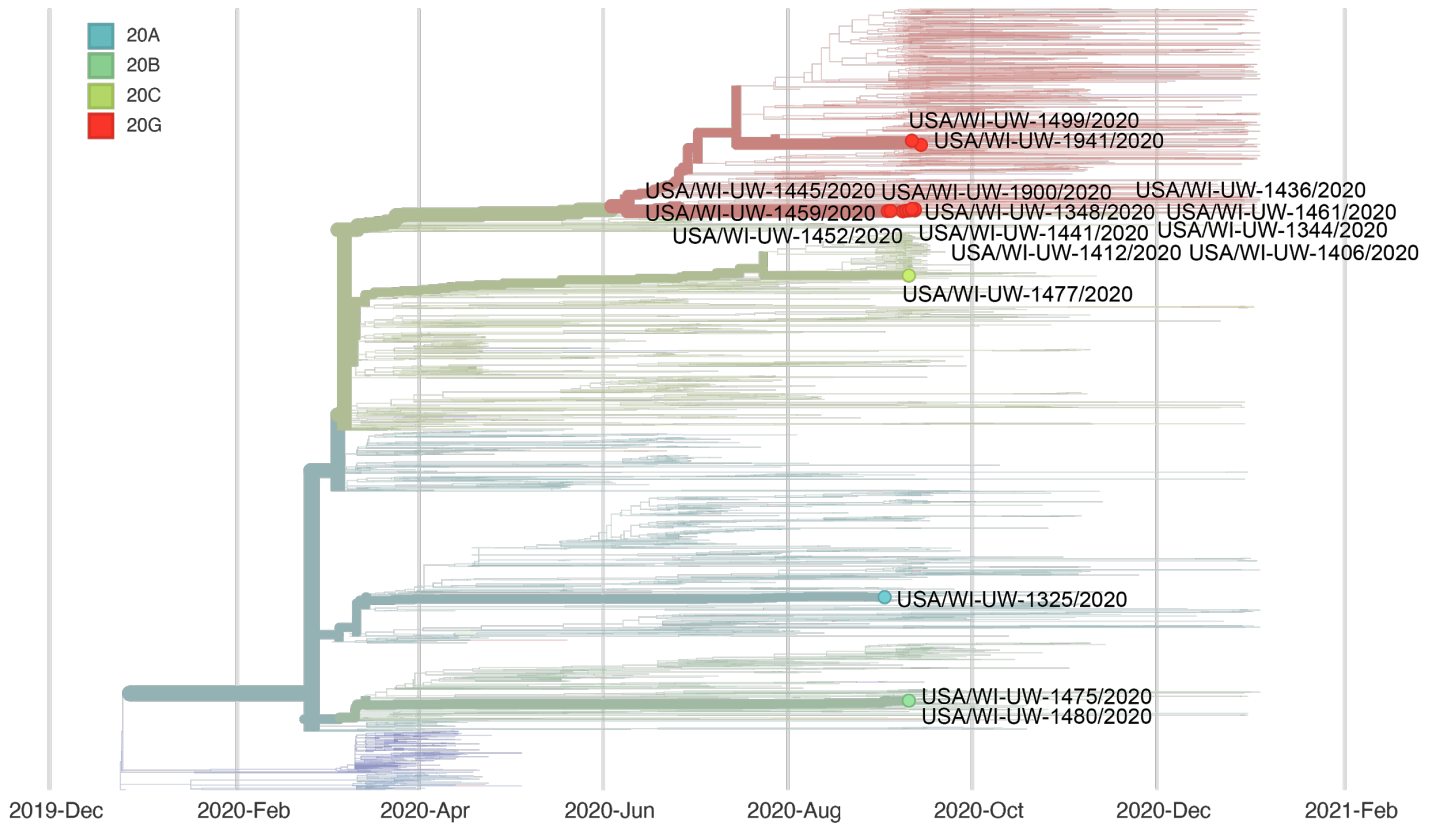
Epidemiological information

These HCP work in the same department. HCP 2, 4, 11, 12, 13, 16, and 20 provided direct care to patient A and/or patient C. HCP 17 and HCP 1 did not provide direct care to patient A or C.

Alignment



Phylogeny



Report #15. 2020-09-18.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

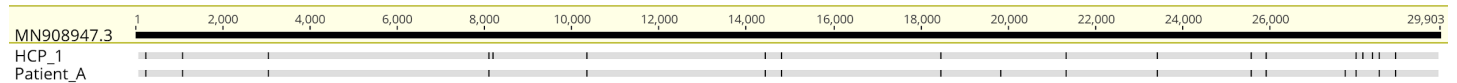
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	9 September 2020	hCoV-19/USA/WI-UW-1347/2020	20G	B.1.2
patient A	17 August 2020	hCoV-19/USA/WI-UW-1220/2020	20G	B.1.2

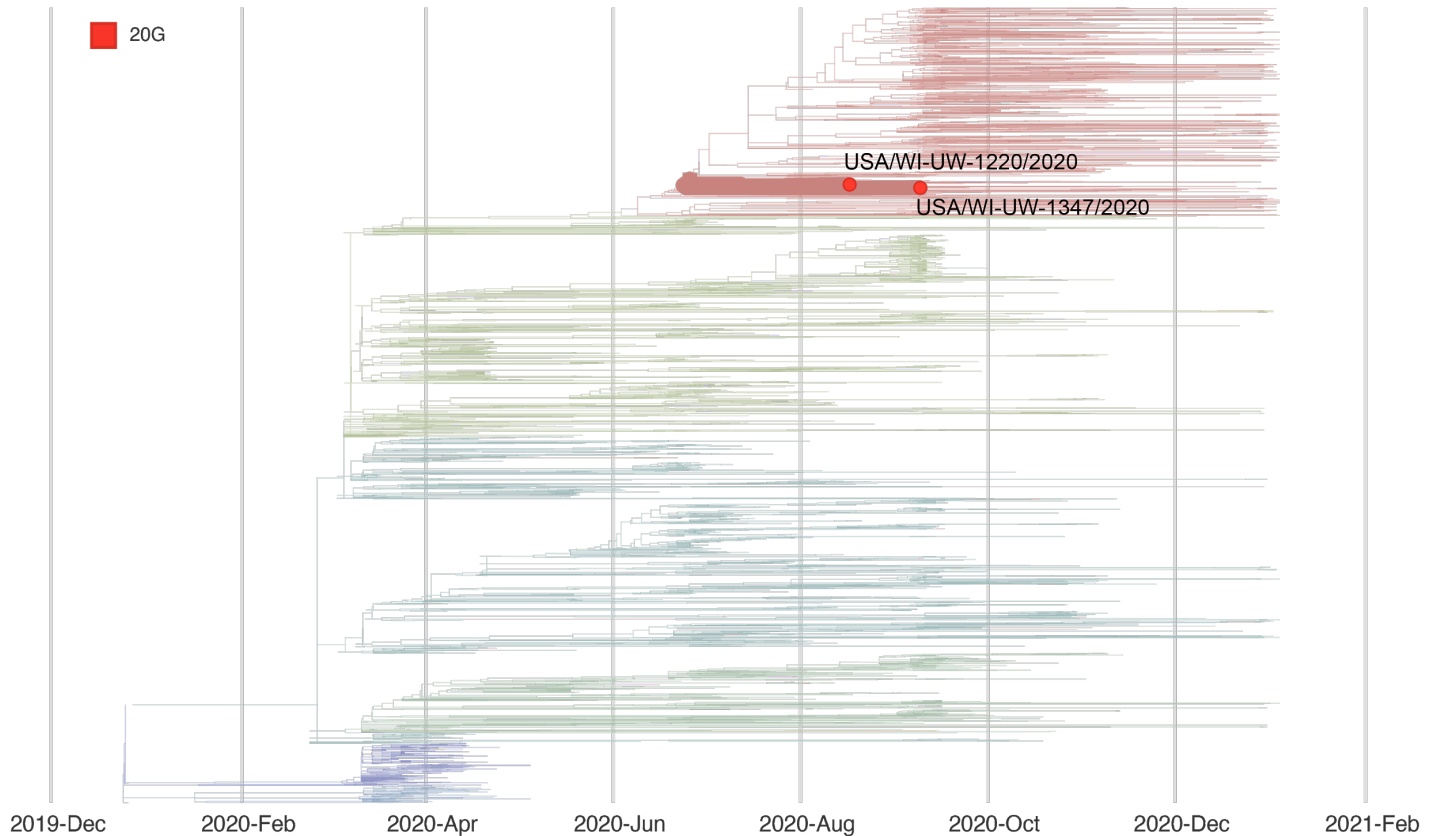
Epidemiological information

HCP 1 provided direct care to patient A while wearing appropriate PPE and with no reported lapses in PPE use.

Alignment



Phylogeny



Report #16. 2020-10-29.

Likely source of HCP infection

HCP 1. Employee source (HCP 2).

HCP 2. Inconclusive.

HCP 3. No evidence of healthcare-associated transmission.

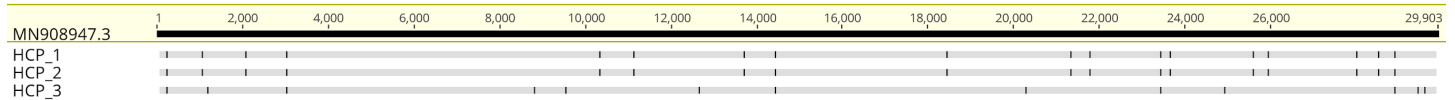
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	18 September 2020	hCoV-19/USA/WI-UW-1901/2020	20G	B.1.2
HCP 2	8 September 2020	hCoV-19/USA/WI-UW-1350/2020	20G	B.1.2
HCP 3	29 September 2020	hCoV-19/USA/WI-UW-1898/2020	20A	B.1

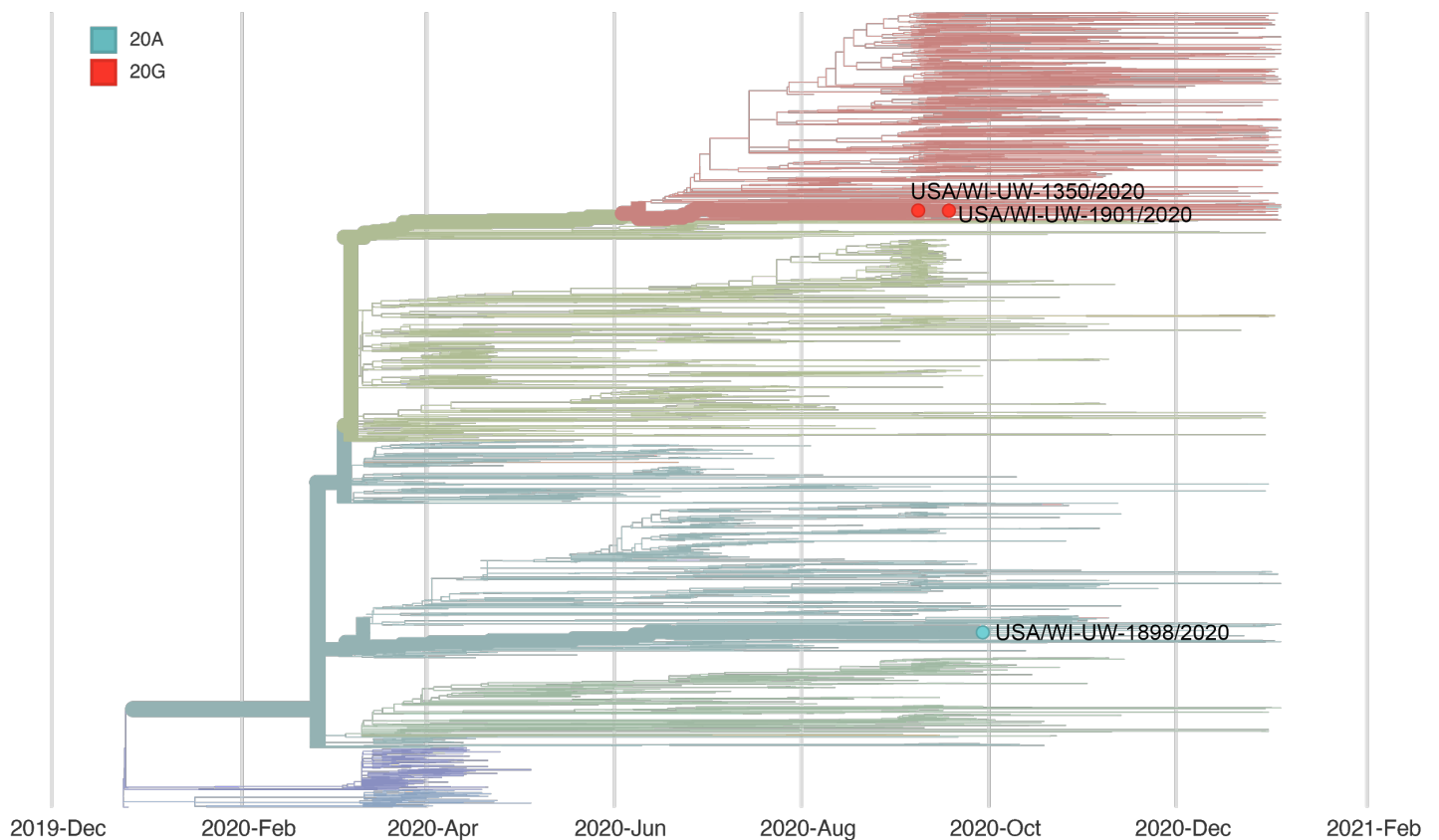
Epidemiological information

Contact tracing revealed HCP 2 worked for two days prior to symptom onset and may have had unmasked contact with HCP 1 during overlapping meal breaks. Contact tracing additionally revealed HCP 3 had a high-risk exposure even lasting >15 minutes in the outside community prior to testing positive.

Alignment



Phylogeny



Report #17. 2020-10-29.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

Samples

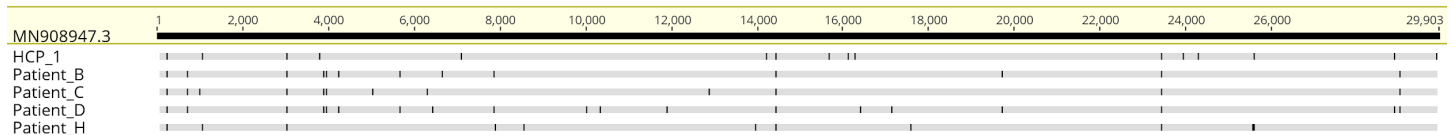
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
-------------	------------------------	-------------------	--------------------	--------------------

HCP 1	17 September 2020	hCoV-19/USA/WI-UW-1895/2020	20C	B.1.369
patient A	5 September 2020	N/A - no consensus sequence		
patient B	6 July 2020	hCoV-19/USA/WI-UW-774/2020	20A	B.1.139
patient C	10 August 2020	hCoV-19/USA/WI-UW-1198/2020	20A	B.1.139
patient D	11 August 2020	hCoV-19/USA/WI-UW-1166/2020	20A	B.1.139
patient E	27 August 2020	N/A - no consensus sequence		
patient F	5 September 2020	N/A - no consensus sequence		
patient G	22 August 2020	N/A - no consensus sequence		
patient H	31 August 2020	hCoV-19/USA/WI-UW-1301/2020	20C	B.1
patient I	25 August 2020	N/A - no consensus sequence		

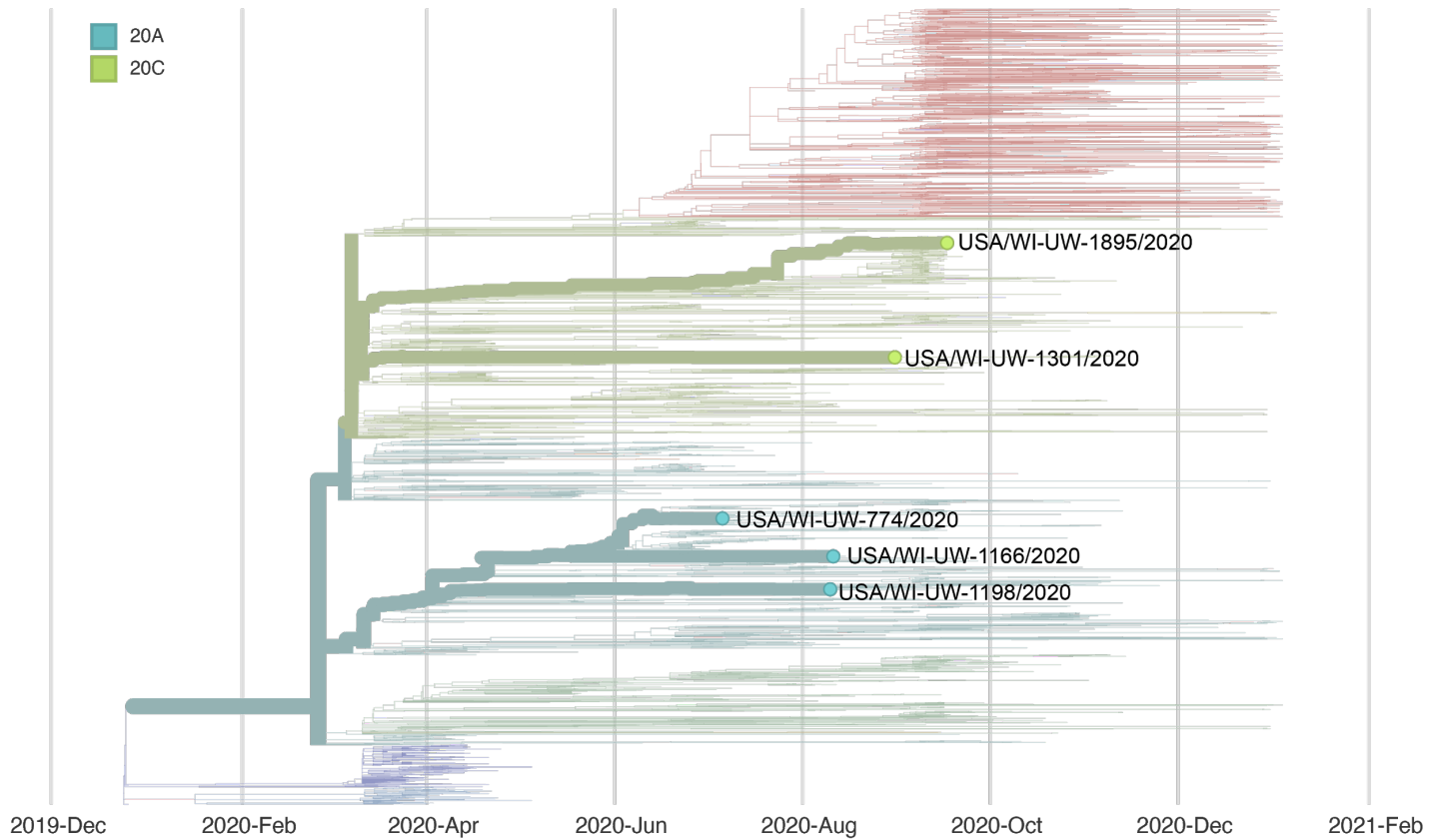
Epidemiological information

HCP 1 provided direct care to patients A-I while wearing appropriate PPE and with no reported lapses in PPE use. HCP 1 also had a household contact with confirmed SARS-CoV-2 infection who had symptoms onset prior to HCP 1's symptom onset.

Alignment



Phylogeny



Report #18. 2020-10-29.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

HCP 2. No evidence of healthcare-associated transmission.

HCP 3. No evidence of healthcare-associated transmission.

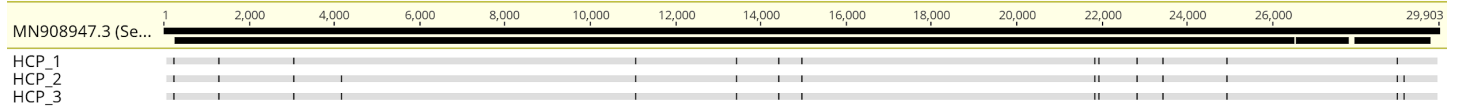
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	10 September 2020	hCoV-19/USA/WI-UW-1475/2020	20B	B.1.1.251
HCP 2	24 September 2020	hCoV-19/USA/WI-UW-1896/2020	20B	B.1.1.251
HCP 3	25 September 2020	hCoV-19/USA/WI-UW-1894/2020	20B	B.1.1.251

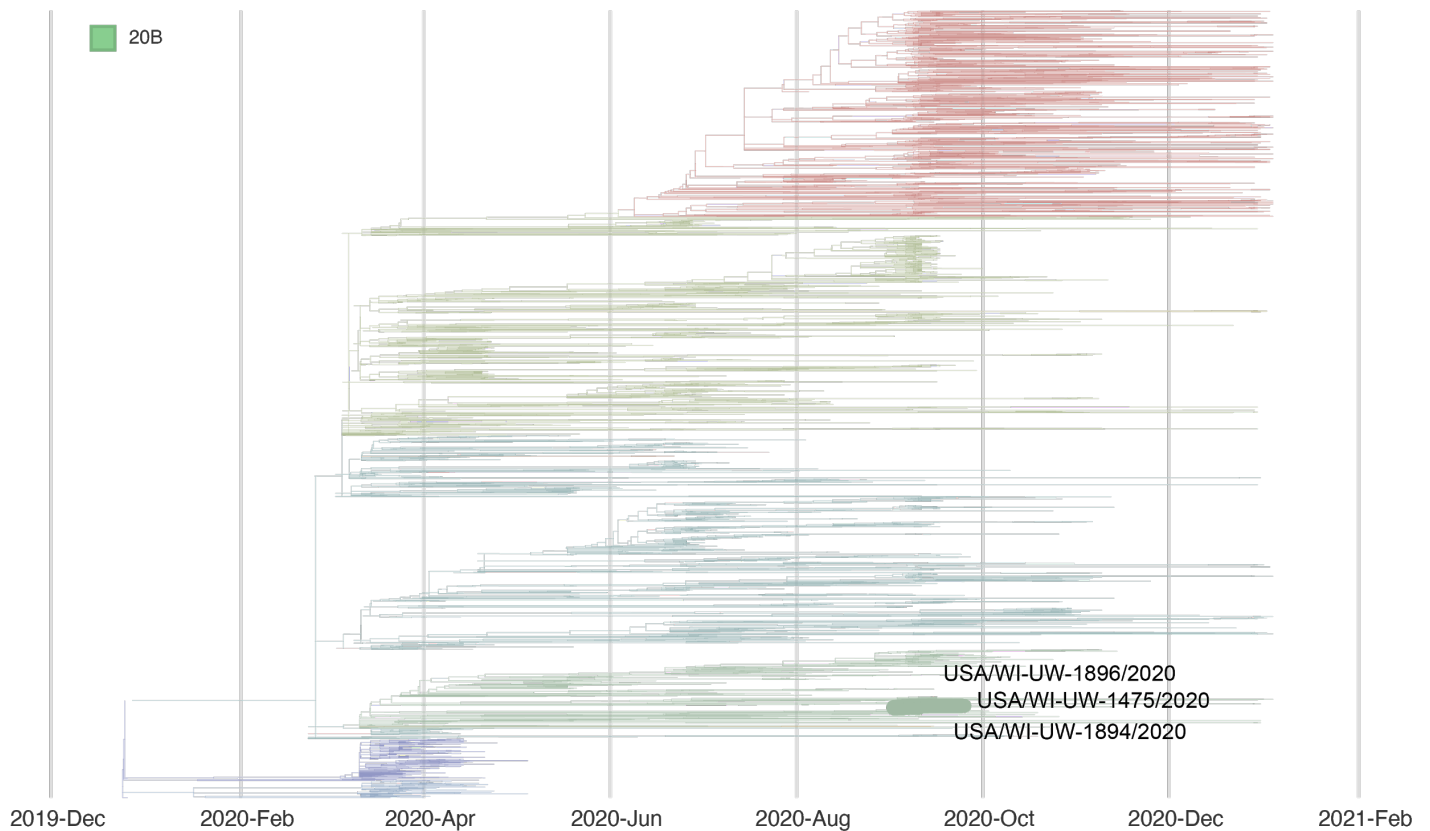
Epidemiological information

HCP 1 worked with HCP 3. HCP 3 was a household contact of HCP 2. None of these HCP had direct interactions with patients with known SARS-CoV-2 infection.

Alignment



Phylogeny



Report #19. 2020-11-05.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

Samples

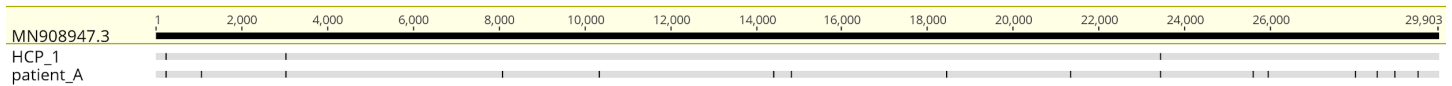
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	5 October 2020	hCoV-19/USA/WI-UW-1928/2020	19A	B.1

patient A	24 September 2020	hCoV-19/USA/WI-UW-1930/2020	20G	B.1.2
-----------	-------------------	-----------------------------	-----	-------

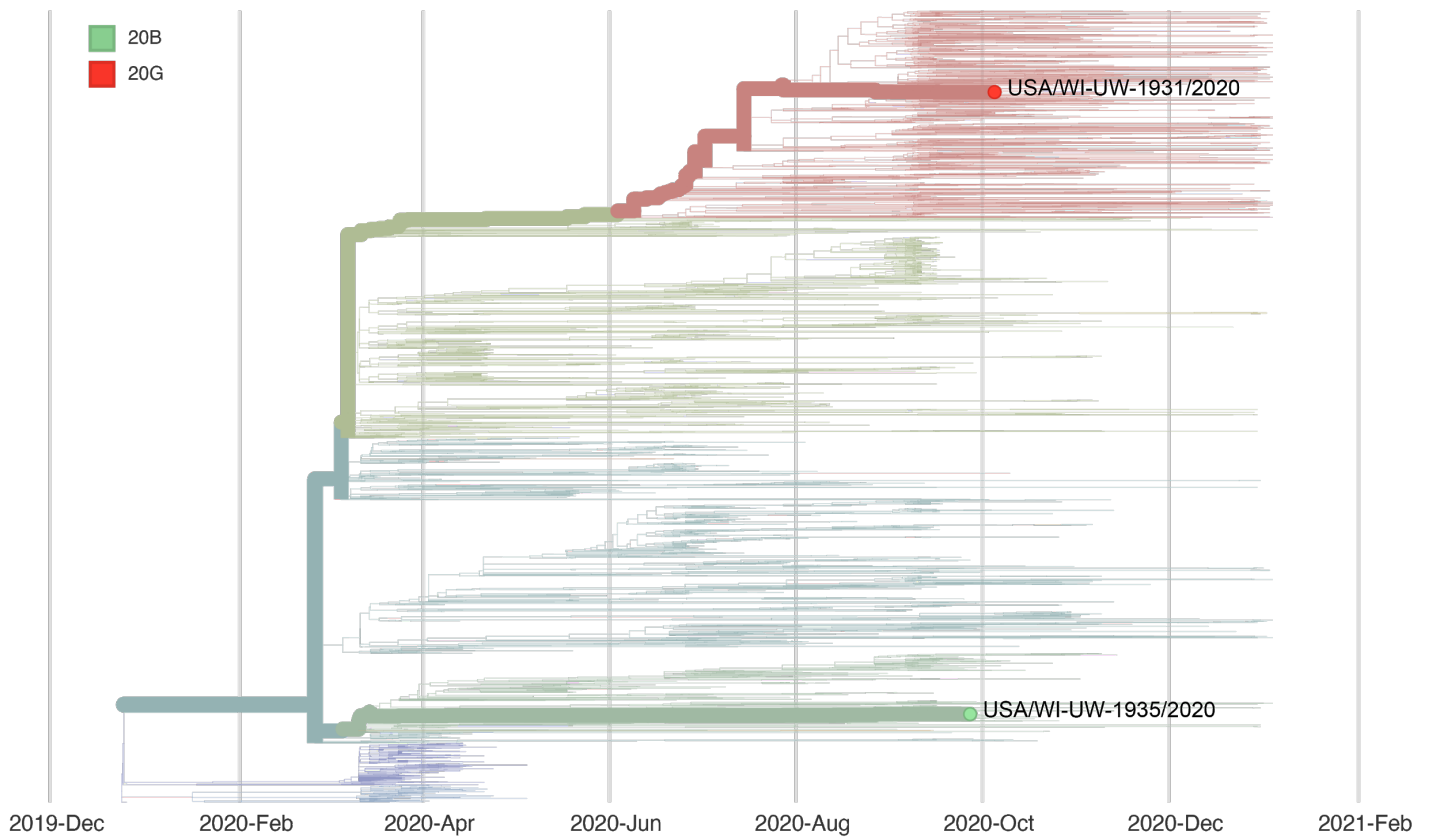
Epidemiological information

In the two weeks before symptom onset, HCP 1 provided direct care to patient A. HCP 1 wore appropriate PPE while providing care and reported no lapses in PPE use.

Alignment



Phylogeny



Report #20. 2020-11-05.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

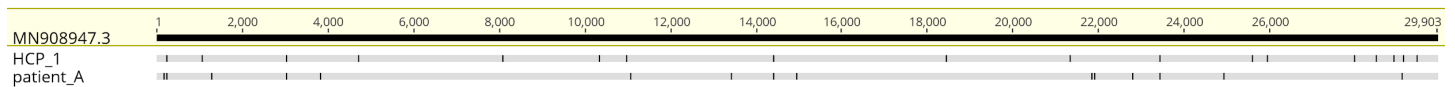
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	5 October 2020	hCoV-19/USA/WI-UW-1931/2020	20G	B.1.2
patient A	27 September 2020	hCoV-19/USA/WI-UW-1935/2020	20A	B.1

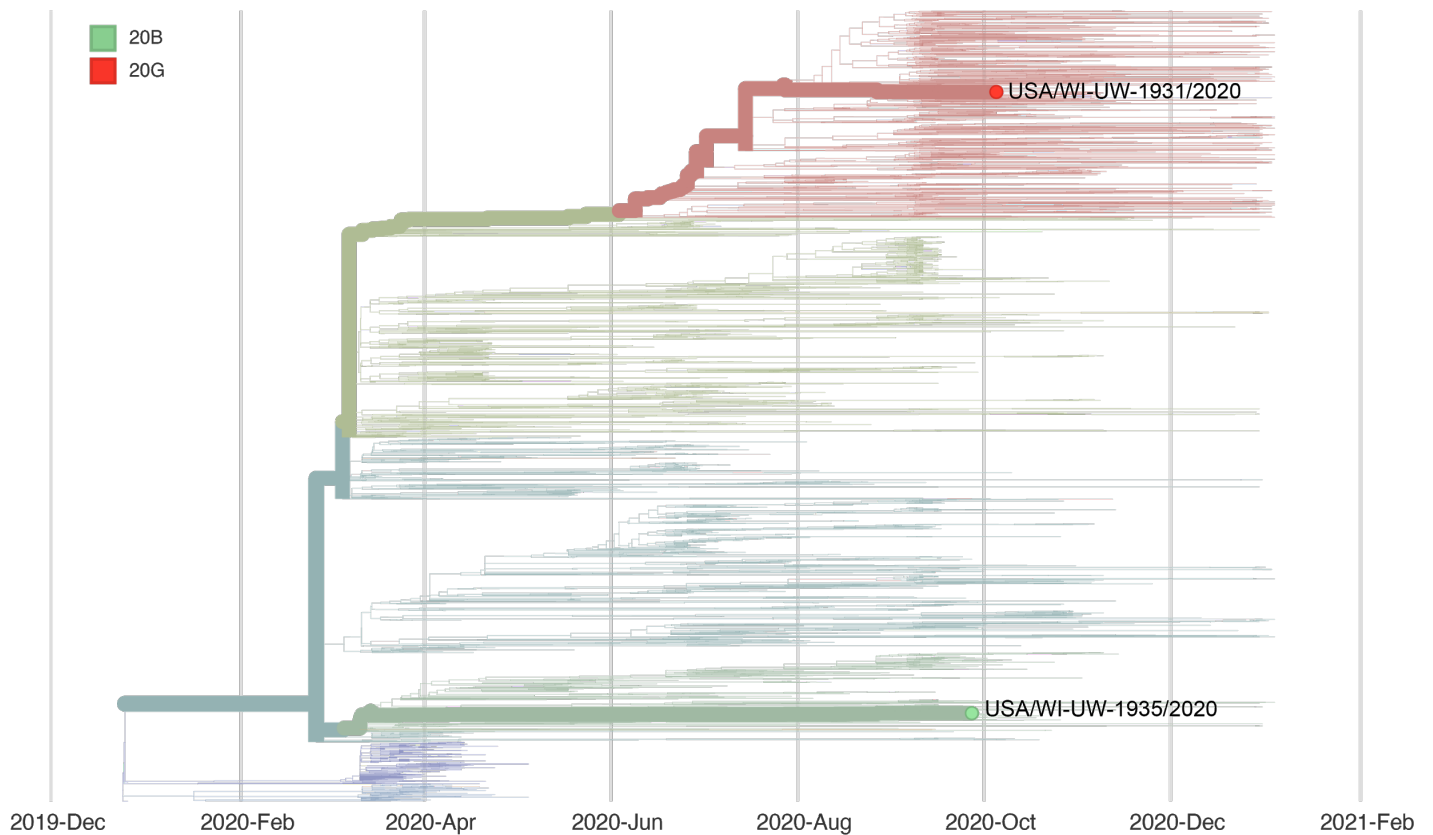
Epidemiological information

In the two weeks before symptom onset, HCP 1 provided direct care to patient A. HCP 1 wore appropriate PPE while providing care and reported no lapses in PPE use.

Alignment



Phylogeny



Report #21. 2020-11-05.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

HCP 2. No evidence of healthcare-associated transmission.

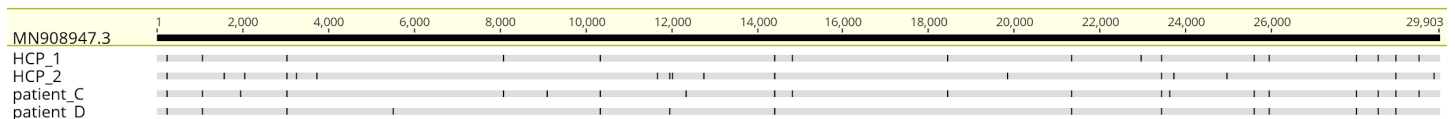
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	5 October 2020	hCoV-19/USA/WI-UW-1929/2020	20G	B.1.2
HCP 2	6 October 2020	hCoV-19/USA/WI-UW-1938/2020	20B	B.1.1.73
patient A	1 September 2020	N/A - no consensus sequence		
patient B	20 September 2020	N/A - no consensus sequence		
patient C	17 September 2020	hCoV-19/USA/WI-UW-1934/2020	20G	B.1.2
patient D	25 September 2020	hCoV-19/USA/IL-UW-1937/2020	20G	B.1.2
patient E	4 October 2020	N/A - no consensus sequence		

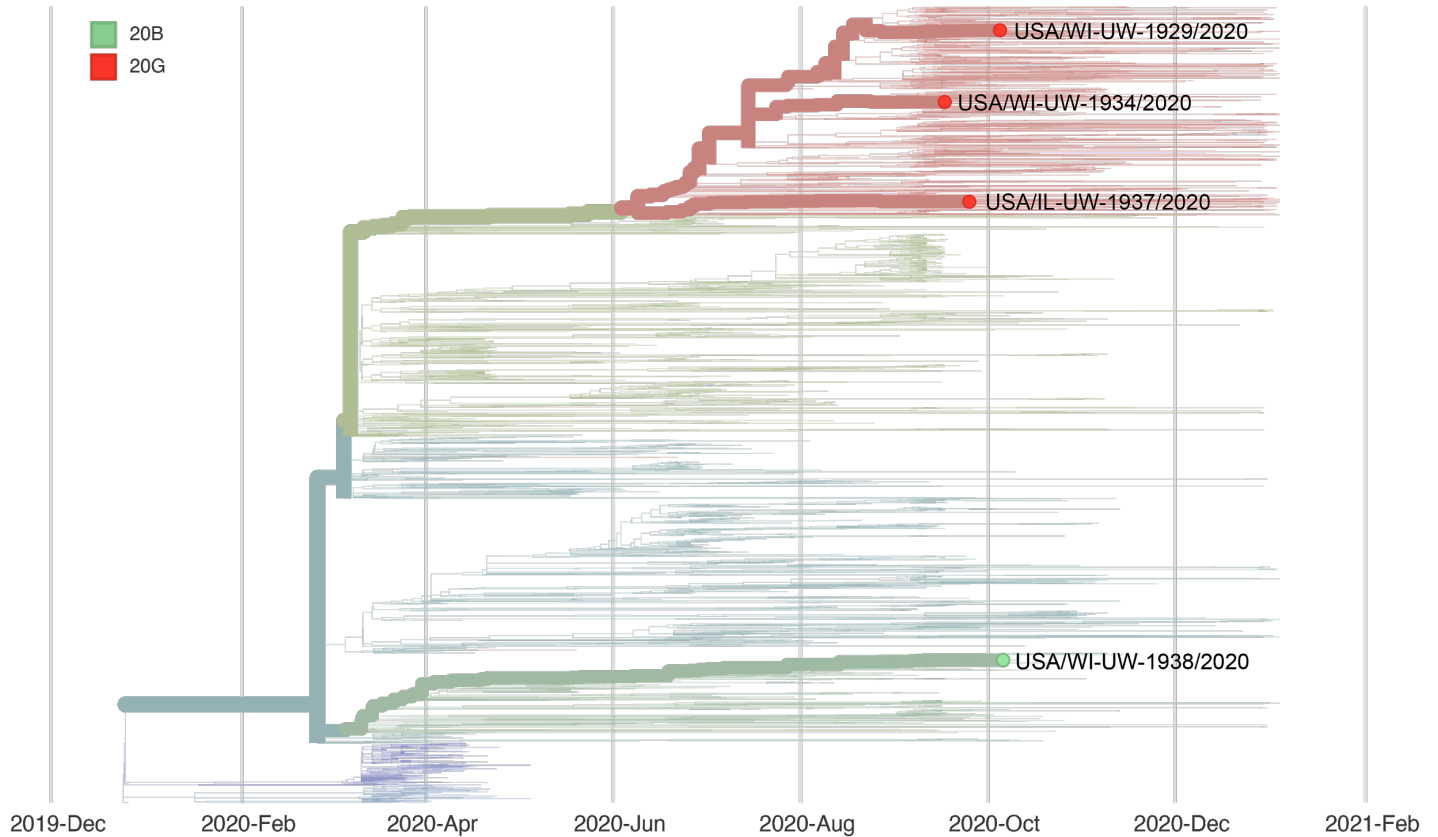
Epidemiological information

HCP 1 and 2 worked in the same department and both provided direct patient care to patients A-E in the two weeks before their onset of symptoms. HCP 1 and HCP 2 reported no lapses in PPE with each other or with their patients.

Alignment



Phylogeny



Report #22. 2020-11-05.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

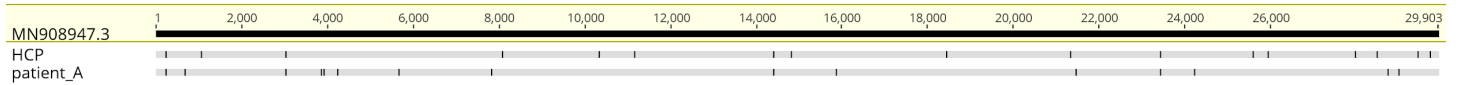
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	7 October 2020	hCoV-19/USA/WI-UW-1936/2020	20G	B.1.2
patient A	28 July 2020	hCoV-19/USA/WI-UW-1100/2020	20A	B.1.139

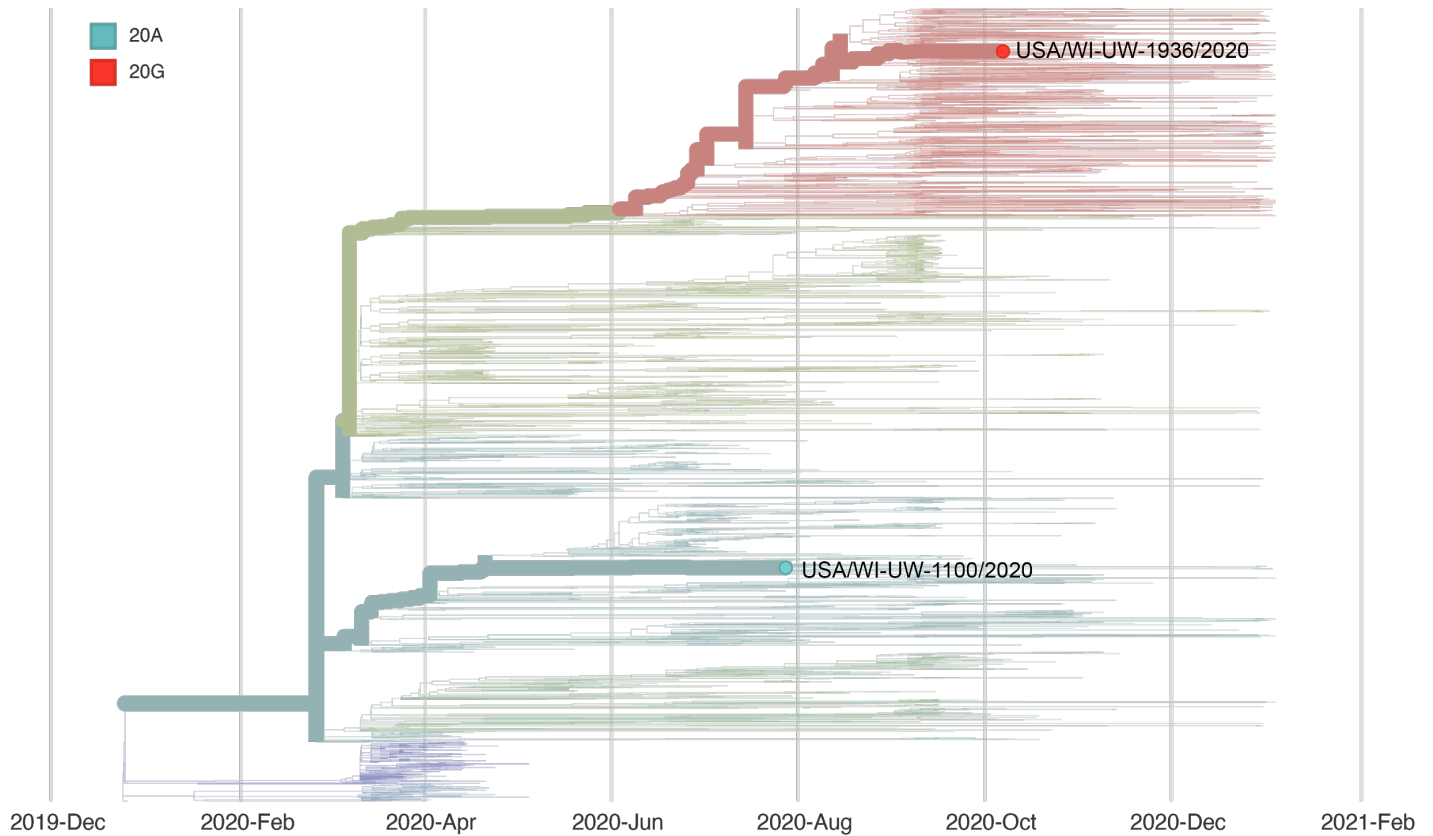
Epidemiological information

HCP 1 performed a postmortem examination on patient A. At the time the patient expired, they were known to have an active COVID-19 infection.

Alignment



Phylogeny



Report #23. 2020-11-05.

Likely source of HCP infection

- HCP 1. Outside community (household contact).
- HCP 2. Employee source.
- HCP 3. Employee source.
- HCP 4. Employee source.
- HCP 5. No evidence of healthcare-associated transmission.

Samples

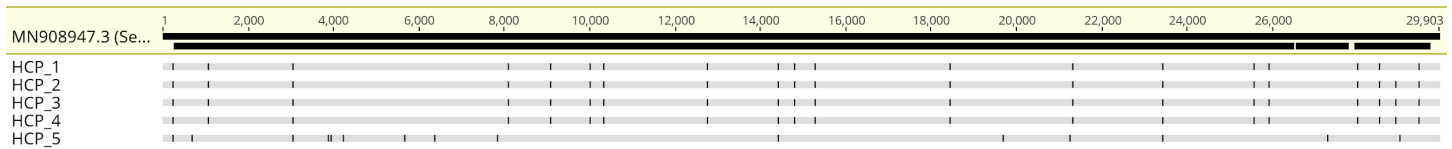
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
-------------	------------------------	-------------------	--------------------	--------------------

HCP 1	2 October 2020	hCoV-19/USA/WI-UW-1933/2020	20G	B.1.2
HCP 2	5 October 2020	hCoV-19/USA/WI-UW-1926/2020	20G	B.1.2
HCP 3	6 October 2020	hCoV-19/USA/WI-UW-1939/2020	20G	B.1.2
HCP 4	5 October 2020	hCoV-19/USA/WI-UW-1927/2020	20G	B.1.2
HCP 5	2 October 2020	hCoV-19/USA/WI-UW-1932/2020	20A	B.1.139

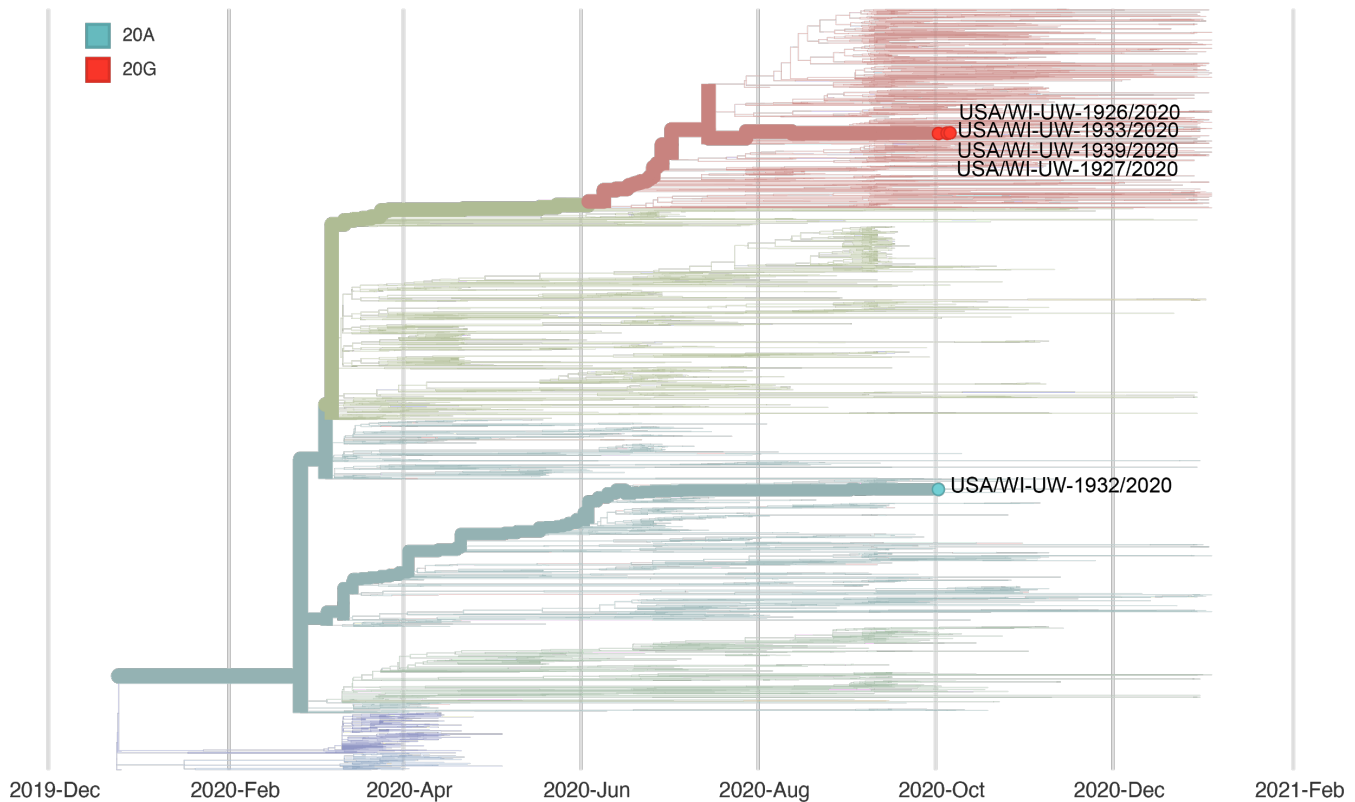
Epidemiological information

All of these HCP work in the same department, with the exception of HCP 1 who is a household contact of HCP 2. HCP 2-5 reported sharing an unmasked meal together prior to testing positive.

Alignment



Phylogeny



Report #25. 2020-12.08.

Likely source of HCP infection

HCP 1. Patient source (patient A).

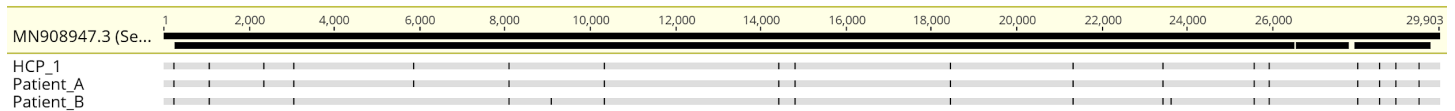
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	12 October 2020	hCoV-19/USA/WI-UW-2326/2020	20C	B.1.2
patient A	4 October 2020	hCoV-19/USA/WI-UW-2362/2020	20C	B.1.2
patient B	4 October 2020	hCoV-19/USA/WI-UW-2389/2020	20C	B.1.2

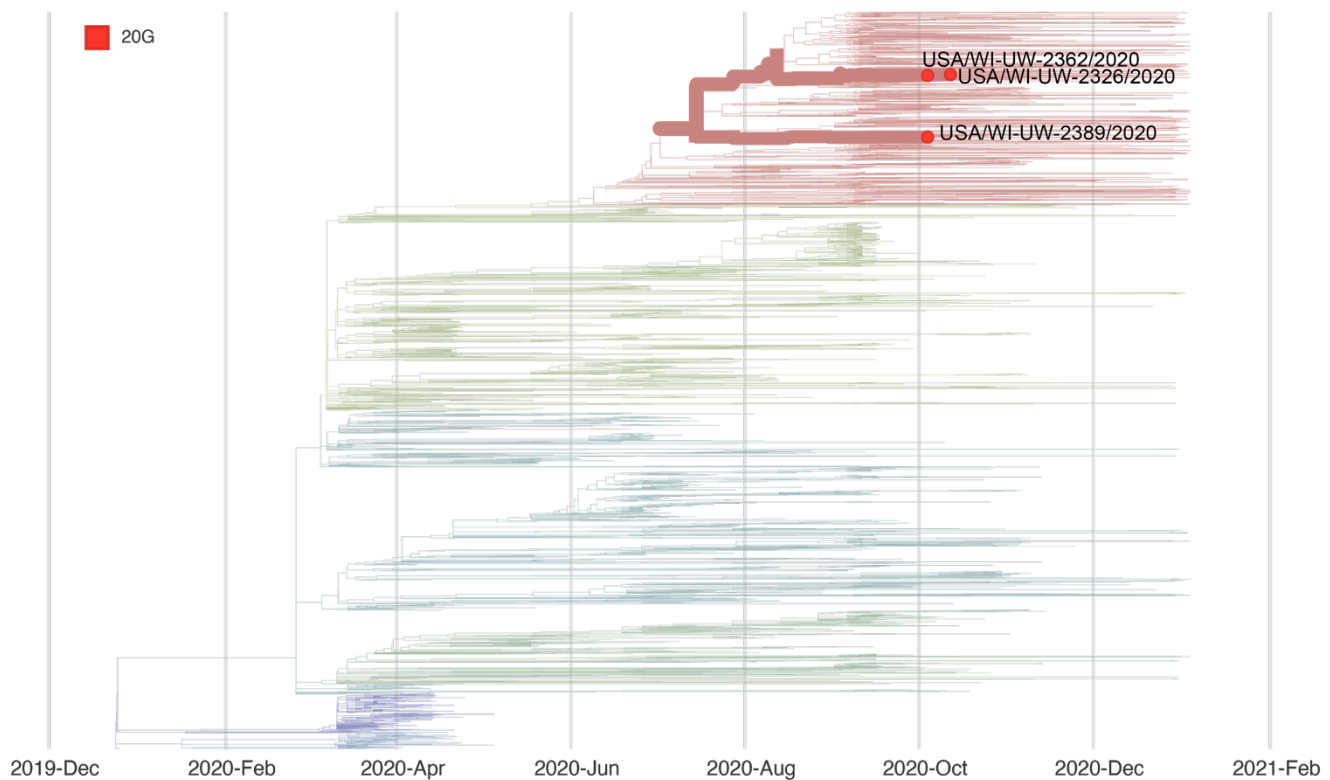
Epidemiological information

In the two weeks before symptom onset, HCP 1 provided direct care to patients A and B.

Alignment



Phylogeny



Report #27. 2020-12.09.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

HCP 2. No evidence of healthcare-associated transmission.

HCP 3. No evidence of healthcare-associated transmission.

HCP 4. No evidence of healthcare-associated transmission.

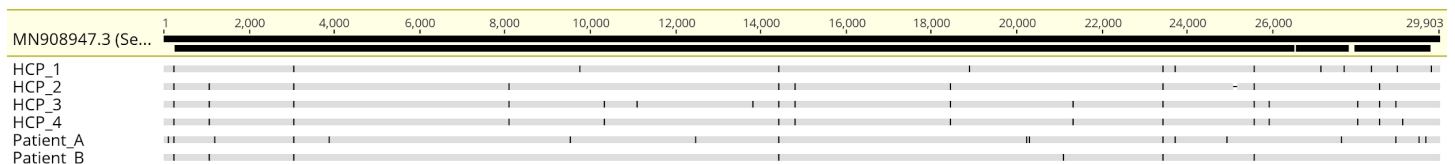
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	10 October 2020	hCoV-19/USA/WI-UW-2226/2020	20A	B.1
HCP 2	6 October 2020	N/A	20G	B.1.2
HCP 3	2 October 2020	hCoV-19/USA/WI-UW-2227/2020	20G	B.1.2
HCP 4	6 October 2020	hCoV-19/USA/WI-UW-2228/2020	20G	B.1.2
patient A	25 September 2020	hCov-19/USA/IL-UW-2327/2020	20A	B.1
patient B	29 September 2020	hCoV-19/USA/WI-UW-1972/2020	20G	B.1

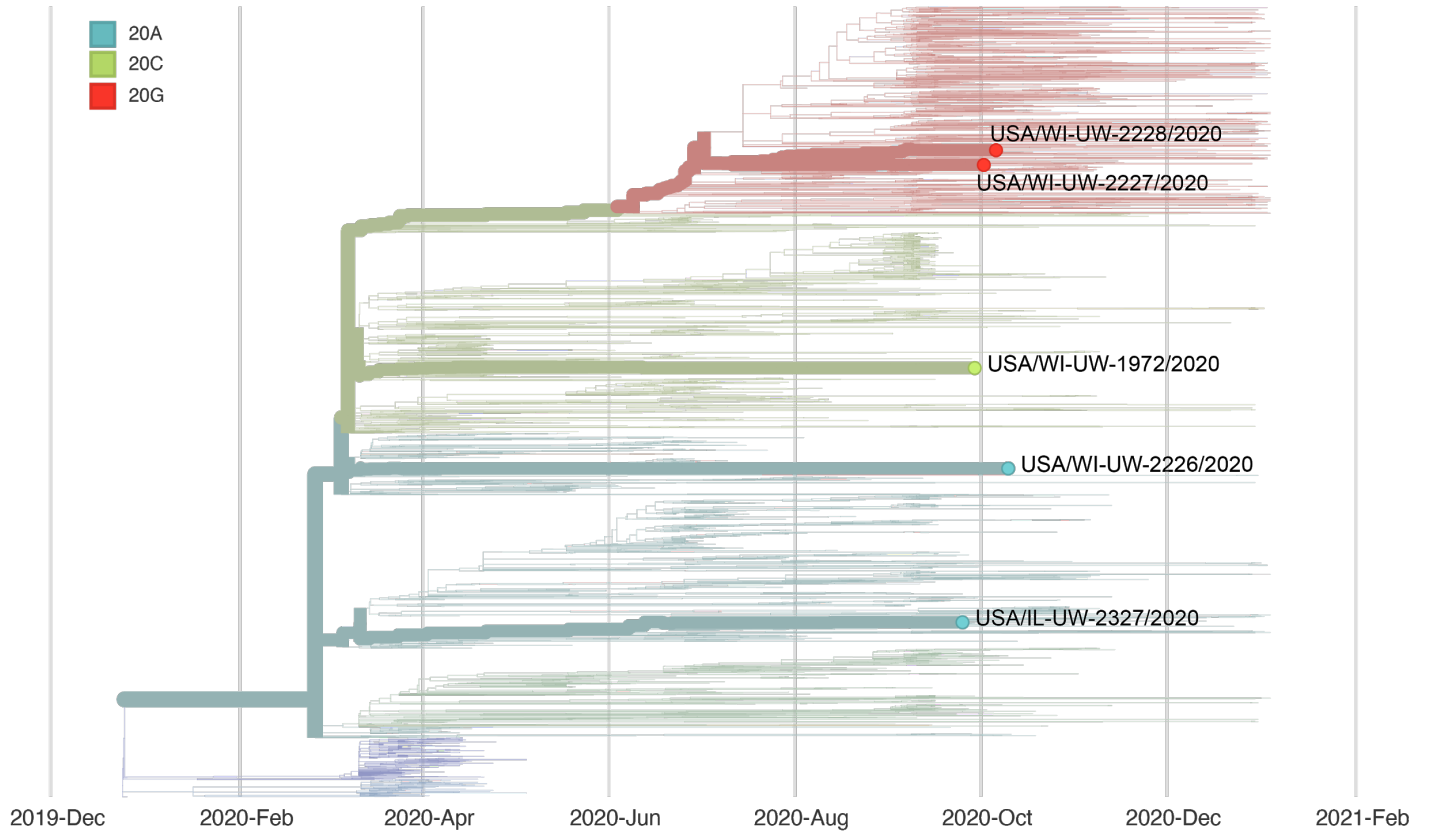
Epidemiological information

HCP 1-4 work in the same department. HCP 1-4 all had direct interactions with patients A and/or B during the 14 days prior to symptom onset.

Alignment



Phylogeny



Report #28. 2020-12.09.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.
 HCP 2. No evidence of healthcare-associated transmission.
 HCP 3. No evidence of healthcare-associated transmission.

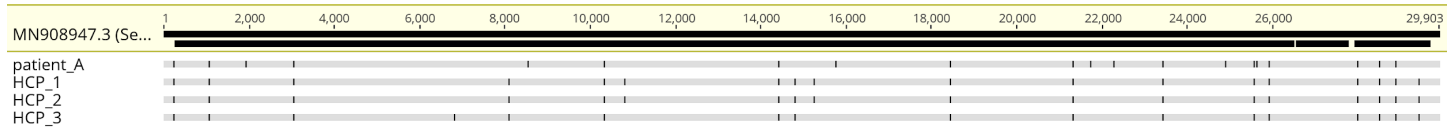
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
Patient A	1 November 2020	hCoV-19/USA/WI-UW-2265/2020	20G	B.1.2
HCP 1	28 October 2020	hCoV-19/USA/WI-UW-2266/2020	20G	B.1.2
HCP 2	27 October 2020	hCoV-19/USA/WI-UW-2267/2020	20G	B.1.2
HCP 3	9 October 2020	hCoV-19/USA/WI-UW-2268/2020	20G	B.1.2

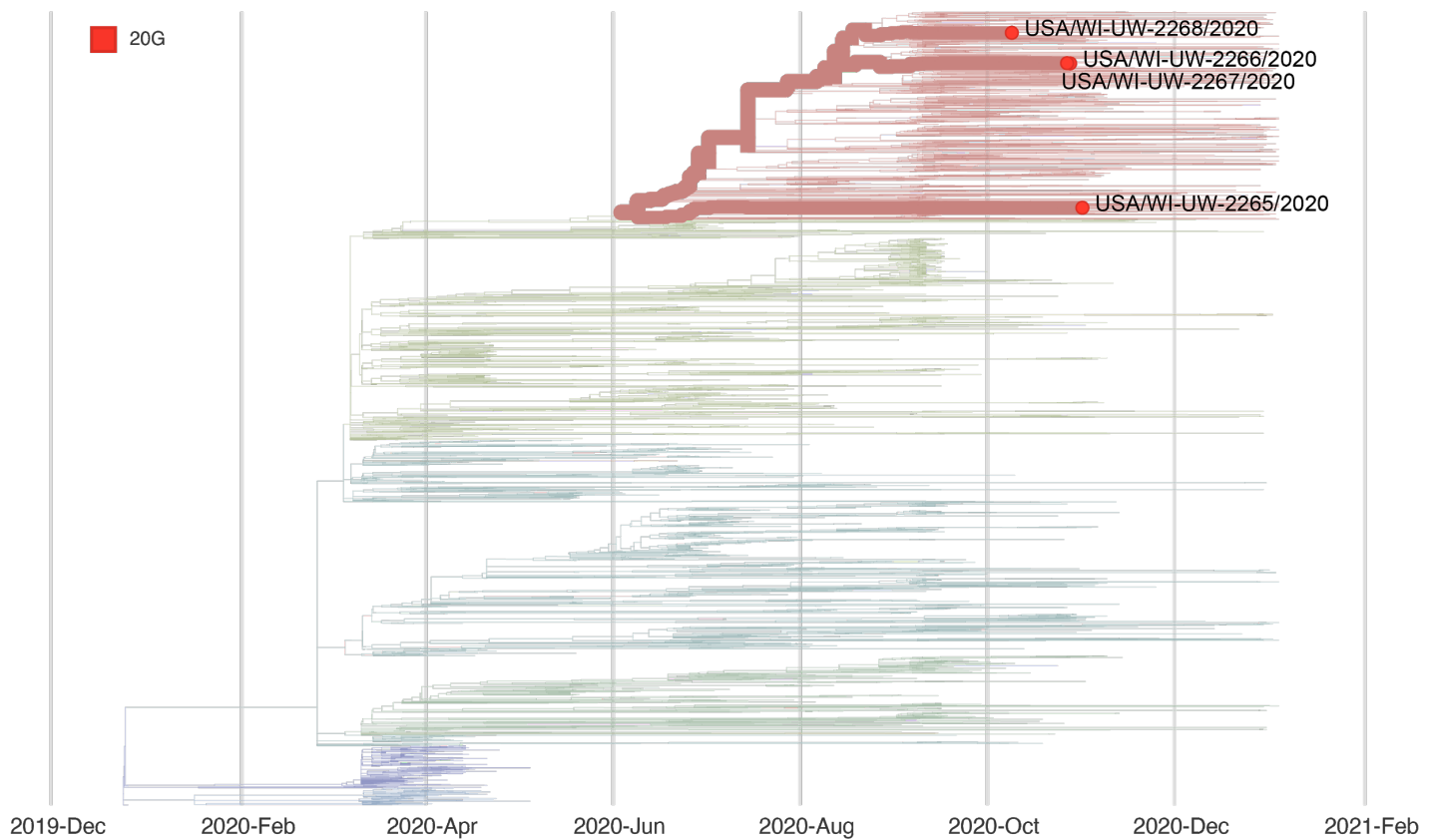
Epidemiological information

HCP 1-3 provided direct patient care to patient A in the 14 days before symptom onset. All HCP reported appropriate use of PPE with no lapses. HCP 1 and 2 had no known interactions prior to their infections. HCP 2 and HCP 3 both attended a high-risk community event for greater than 15 minutes together.

Alignment



Phylogeny



Report #29. 2020-12.09.

Likely source of HCP infection

HCP 1. Employee source (HCP 3).

HCP 2. No evidence of healthcare-associated transmission.

HCP 3. No evidence of healthcare-associated transmission.

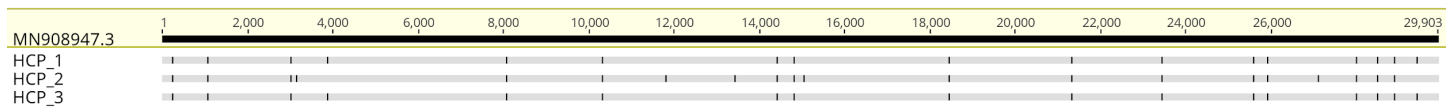
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	18 November 2020	hCoV-19/USA/WI-UW-2269/2020	20G	B.1.2
HCP 2	17 November 2020	hCoV-19/USA/WI-UW-2270/2020	20G	B.1.2
HCP 3	17 November 2020	hCoV-19/USA/WI-UW-2271/2020	20G	B.1.2

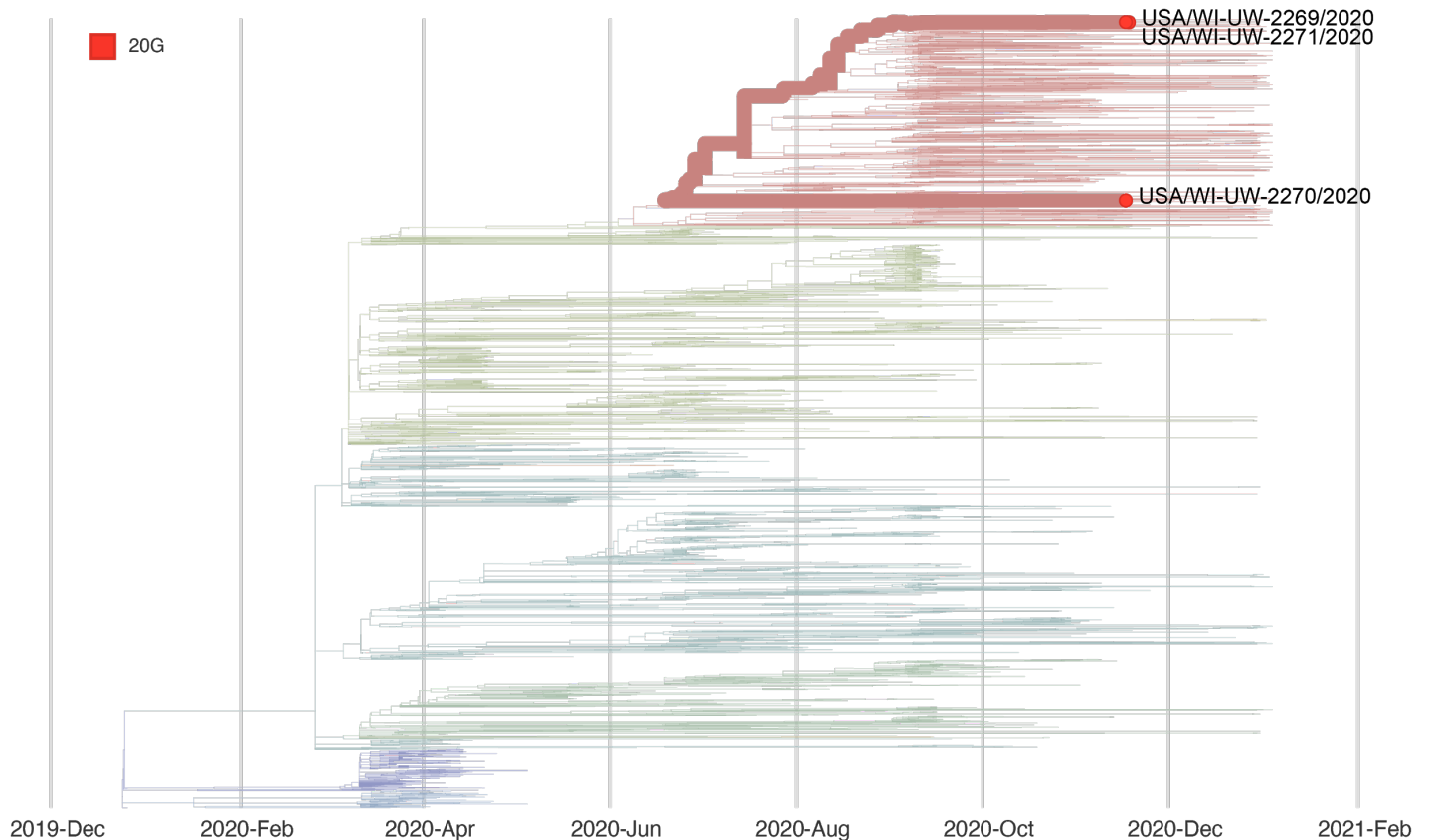
Epidemiological information

HCP 1-3 work in the same department. HCP 1 and 3 attended an in person meeting together and reported sitting 6-feet apart while wearing masks. HCP 2 did not attend this meeting. HCP 3 reported symptoms before HCP 1.

Alignment



Phylogeny



Report #30. 2020-12.09.

Likely source of HCP infection

HCP 1. Patient source (patient C).

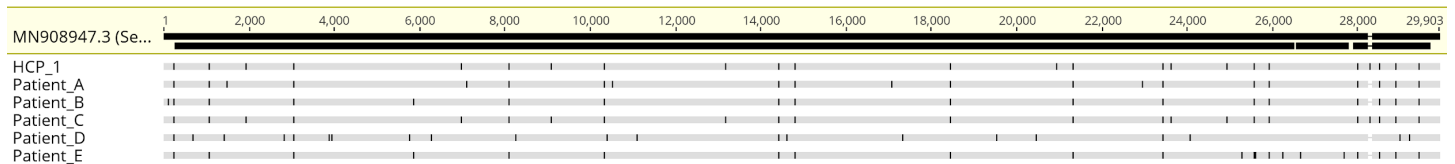
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	18 November 2020	hCoV-19/USA/WI-UW-2272/2020	20G	B.1.2
patient A	21 November 2020	hCov-19/USA/WI-UW-2324/2020	20G	B.1.2
patient B	25 October 2020	hCoV-19/USA/WI-UW-2273/2020	20G	B.1.2
patient C	8 November 2020	hCoV-19/USA/WI-UW-2274/2020	20G	B.1.2
patient D	5 November 2020	hCoV-19/USA/WI-UW-2275/2020	20A	B.1.139
patient E	10 November 2020	hCoV-19/USA/WI-UW-2276/2020	20G	B.1.2

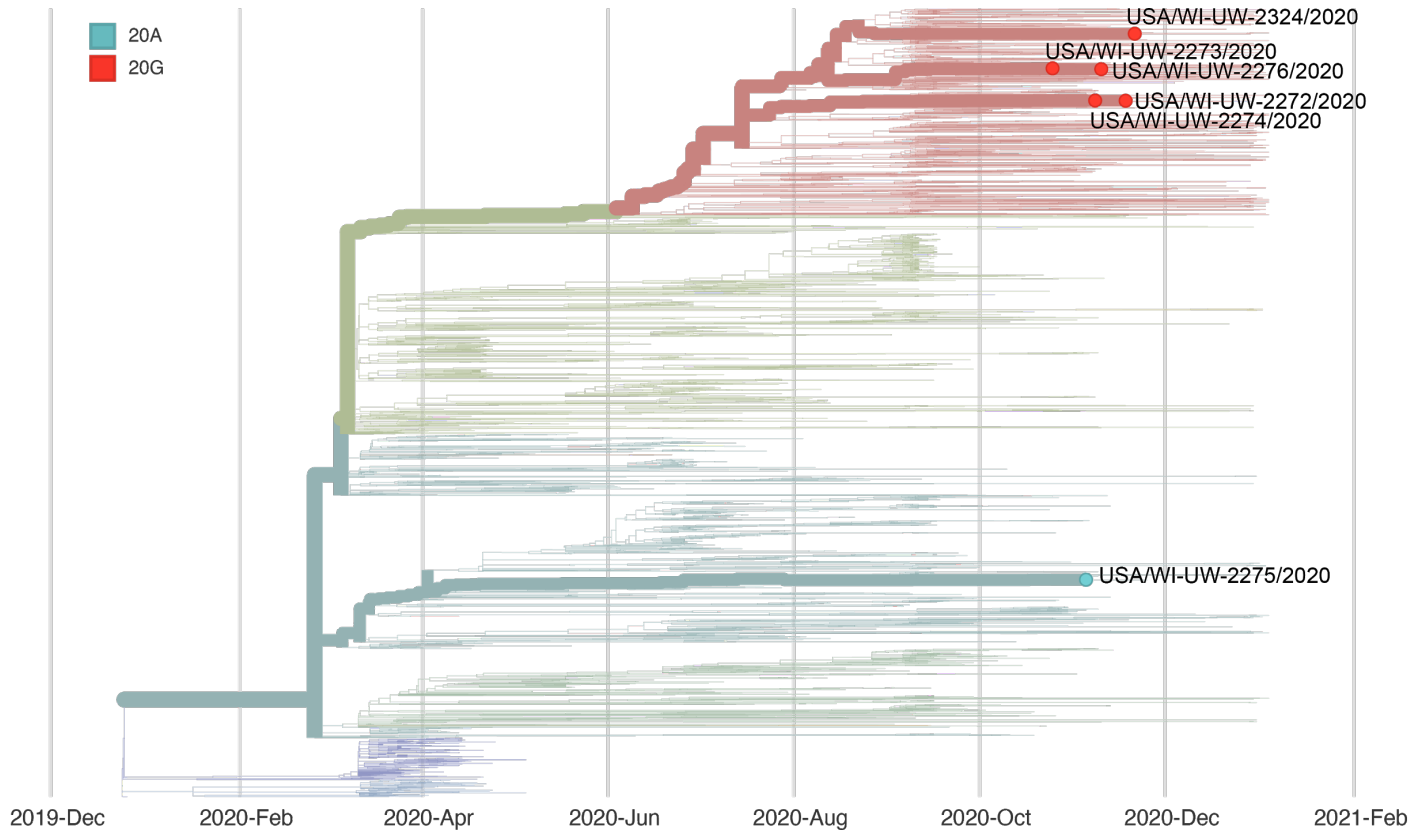
Epidemiological information

HCP 1 provided direct patient care to patients A-E and reported no lapses in PPE use.

Alignment



Phylogeny



Report #31. 2020-12.09.

Likely source of HCP infection

- HCP 1. No evidence of healthcare-associated transmission.
- HCP 2. No evidence of healthcare-associated transmission.
- HCP 3. No evidence of healthcare-associated transmission.
- HCP 4. Employee source (HCP 2).
- HCP 5. Employee source (HCP 2).
- HCP 6. No evidence of healthcare-associated transmission.
- HCP 7. No evidence of healthcare-associated transmission.

Samples

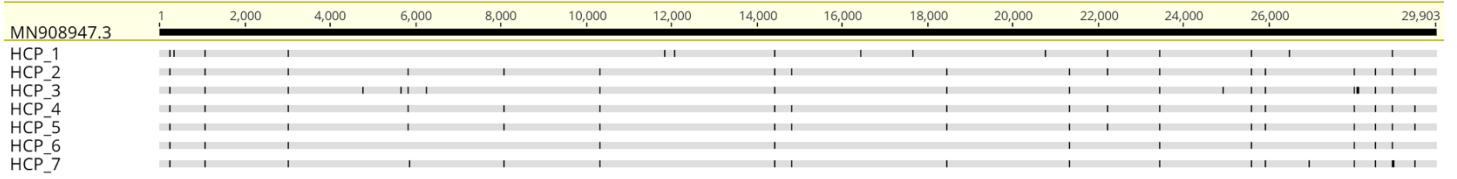
Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	11 November 2020	hCoV-19/USA/WI-UW-2312/2020	20C	B.1.363
HCP 2	12 November 2020	hCoV-19/USA/WI-UW-2277/2020	20G	B.1.2

HCP 3	14 November 2020	hCoV-19/USA/WI-UW-2278/2020	20G	B.1.2
HCP 4	15 November 2020	hCoV-19/USA/WI-UW-2279/2020	20G	B.1.2
HCP 5	16 November 2020	hCoV-19/USA/WI-UW-2280/2020	20G	B.1.2
HCP 6	17 November 2020	hCoV-19/USA/WI-UW-2281/2020	20G	B.1.2
HCP 7	18 November 2020	hCoV-19/USA/WI-UW-2282/2020	20G	B.1.2

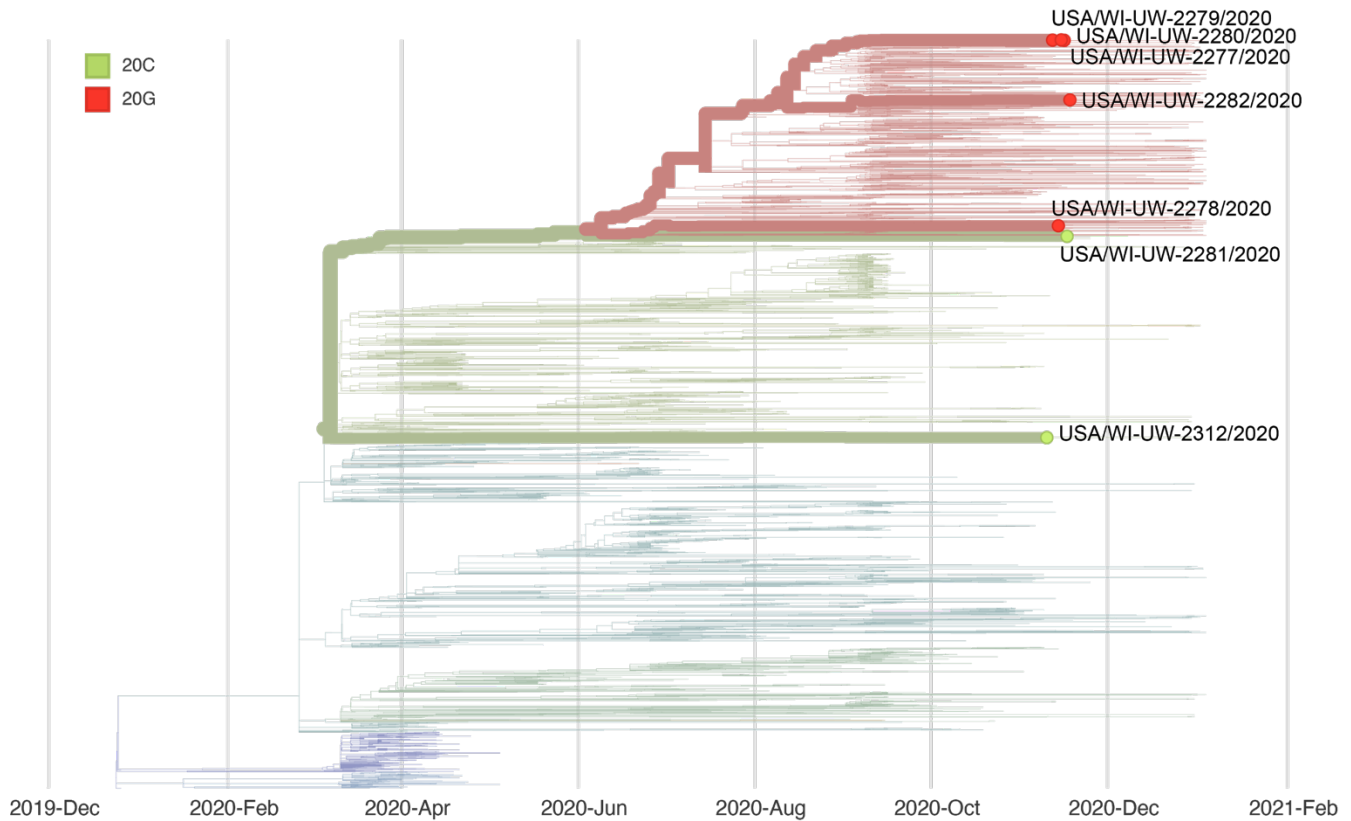
Epidemiological information

These HCP are all in the same department. Their level of interaction with each other is unclear.

Alignment



Phylogeny



Report #32. 2020-12.09.

Likely source of HCP infection

- HCP 1. No evidence of healthcare-associated transmission.
- HCP 2. No evidence of healthcare-associated transmission.
- HCP 3. No evidence of healthcare-associated transmission.
- HCP 4. No evidence of healthcare-associated transmission.
- HCP 5. No evidence of healthcare-associated transmission.
- HCP 6. No evidence of healthcare-associated transmission.
- HCP 7. No evidence of healthcare-associated transmission.
- HCP 8. No evidence of healthcare-associated transmission.
- HCP 9. No evidence of healthcare-associated transmission.
- HCP 10. No evidence of healthcare-associated transmission.
- HCP 11. No evidence of healthcare-associated transmission.

HCP 12. No evidence of healthcare-associated transmission.

HCP 13. Inconclusive (could be HCP 8, but these samples were collected >14 apart).

HCP 14. Employee source (HCP 8 or HCP 13).

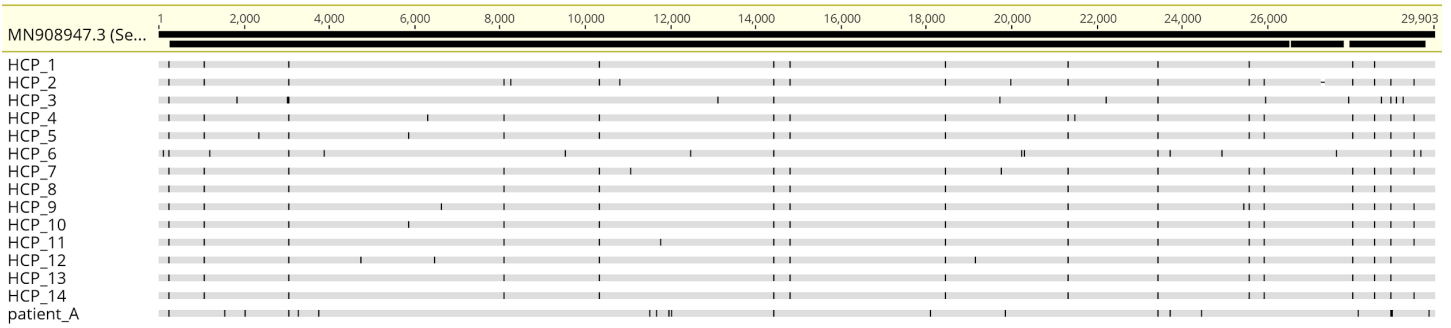
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	13 October 2020	hCoV-19/USA/WI-UW-2283/2020	20G	B.1.370
HCP 2	15 October 2020	hCoV-19/USA/WI-UW-2284/2020	20G	B.1.2
HCP 3	21 October 2020	hCoV-19/USA/WI-UW-2285/2020	20A	B.1.216
HCP 4	28 October 2020	hCoV-19/USA/WI-UW-2286/2020	20G	B.1.2
HCP 5	30 October 2020	hCoV-19/USA/WI-UW-2390/2020	20G	B.1.2
HCP 6	30 October 2020	hCoV-19/USA/WI-UW-2391/2020	20G	B.1
HCP 7	1 November 2020	hCoV-19/USA/WI-UW-2287/2020	20G	B.1.2
HCP 8	5 November 2020	hCoV-19/USA/WI-UW-2288/2020	20G	B.1.2
HCP 9	5 November 2020	hCoV-19/USA/WI-UW-2289/2020	20G	B.1.2
HCP 10	6 November 2020	hCoV-19/USA/WI-UW-2313/2020	20G	B.1.2
HCP 11	2 November 2020	hCoV-19/USA/WI-UW-2290/2020	20G	B.1.2
HCP 12	12 November 2020	hCoV-19/USA/WI-UW-2291/2020	20G	B.1.2
HCP 13	20 November 2020	hCoV-19/USA/WI-UW-2292/2020	20G	B.1.2
HCP 14	25 November 2020	hCoV-19/USA/WI-UW-2293/2020	20G	B.1.2
patient A	14 November 2020	hCoV-19/USA/WI-UW-2325/2020	20B	B.1.1.73

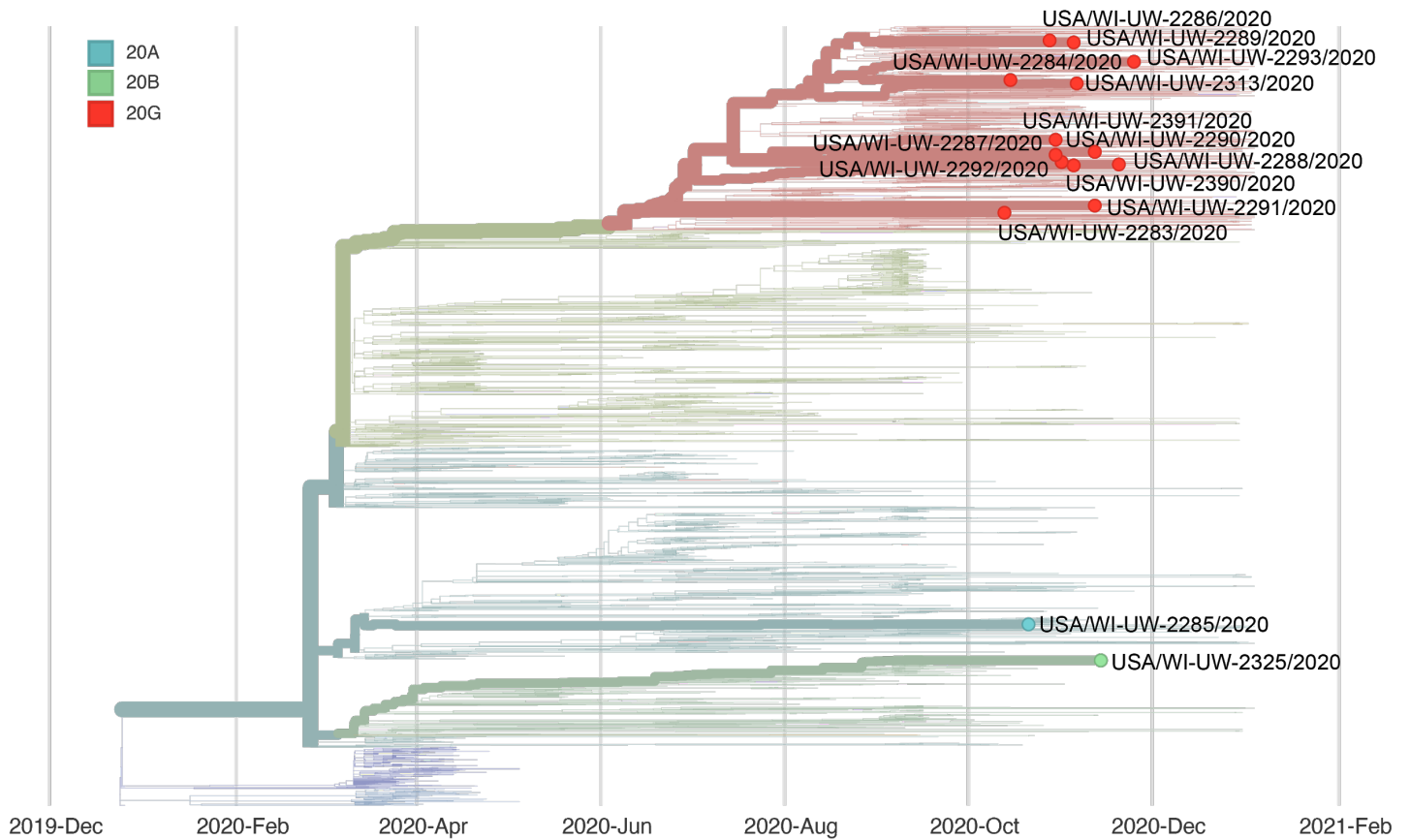
Epidemiological information

HCP 1-14 work in the same department together. One or more of these HCP provided direct patient care to patient A.

Alignment



Phylogeny



Report #33. 2021-01-03.

Likely source of HCP infection

- HCP 1. Combined patient and employee cluster.
- HCP 2. Combined patient and employee cluster.
- HCP 3. Combined patient and employee cluster.
- HCP 4. No evidence of healthcare-associated transmission.
- HCP 5. Combined patient and employee cluster.

Patients A, B and C are the patients involved in this combined patient and employee cluster.

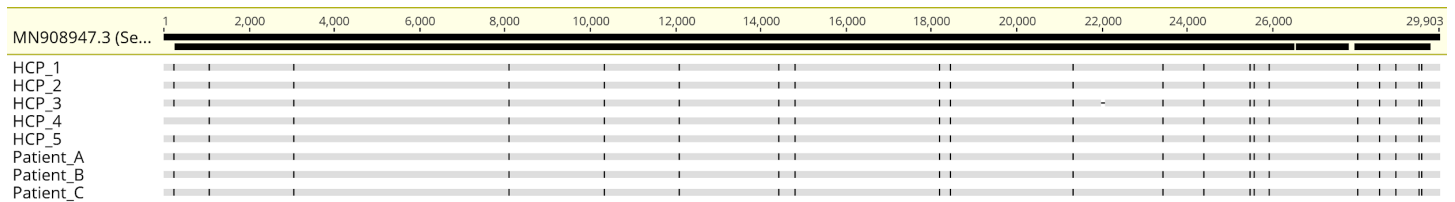
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	17 December 2020	hCoV-19/USA/WI-UW-2394/2020	20G	B.1.2
HCP 2	15 December 2020	hCoV-19/USA/WI-UW-2396/2020	20G	B.1.2
HCP 3	18 December 2020	hCoV-19/USA/WI-UW-2451/2020	20G	B.1.2
HCP 4	18 December 2020	hCoV-19/USA/WI-UW-2452/2020	20G	B.1.2
HCP 5	24 December 2020	hCoV-19/USA/WI-UW-2450/2020	20G	B.1.2
patient A	16 December 2020	hCoV-19/USA/WI-UW-2392/2020	20G	B.1.2
patient B	16 December 2020	hCoV-19/USA/WI-UW-2393/2020	20G	B.1.2
patient C	27 December 2020	hCoV-19/USA/IL-UW-2449/2020	20G	B.1.2

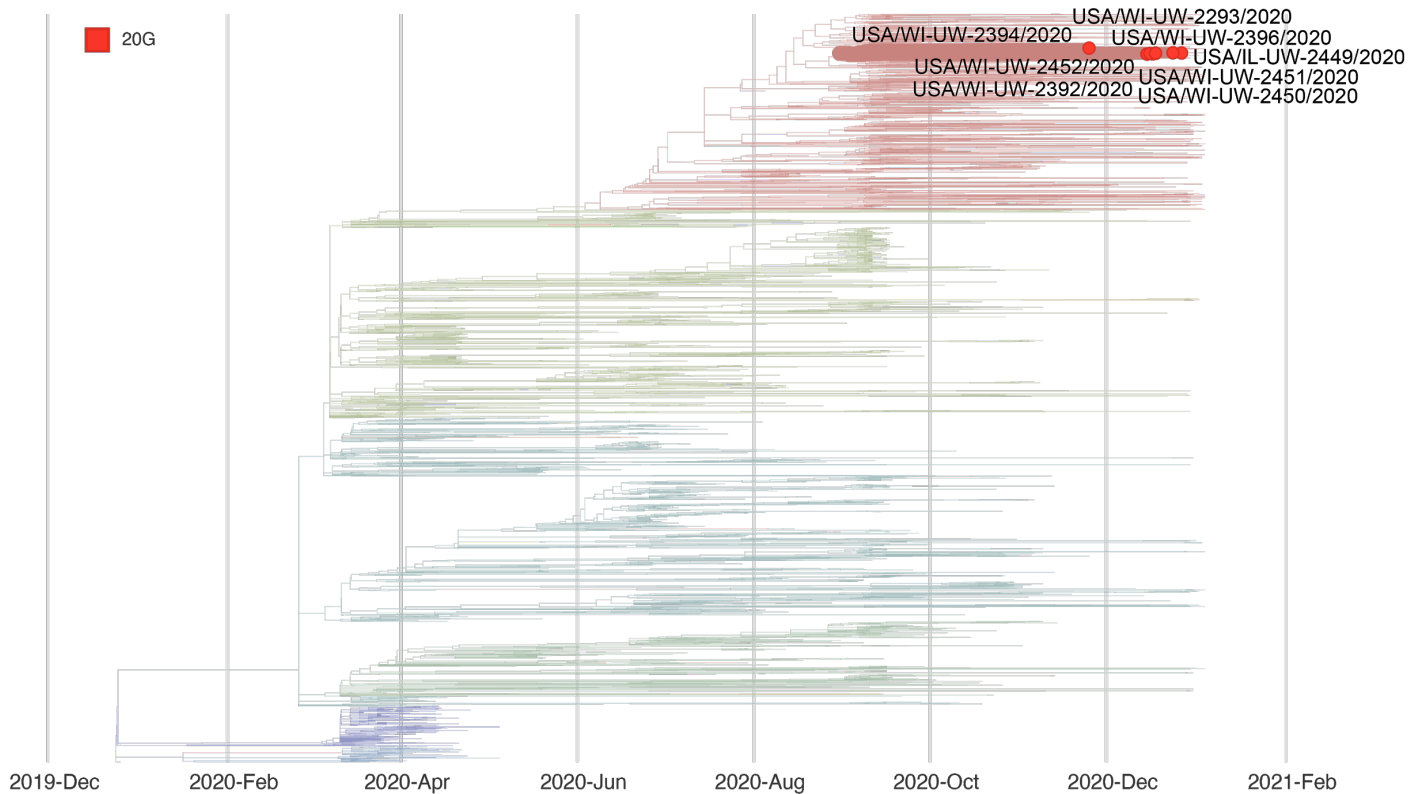
Epidemiological information

HCP 1-5 provided direct care to one or more of these patients, A-C. HCP 1-5 may have also interacted with each other. No lapses in PPE were reported. Patient A had the earliest reported symptom onset.

Alignment



Phylogeny



Report #34. 2021-01-03.

Likely source of HCP infection

HCP 1. No evidence of healthcare-associated transmission.

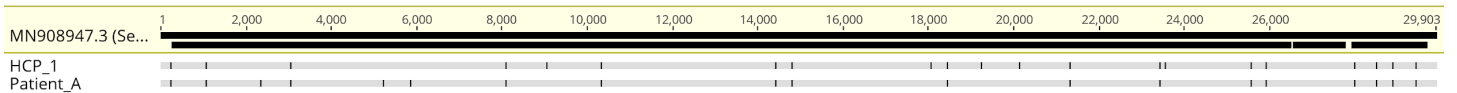
Samples

Sample type	Sample collection date	GISAID identifier	Clade (Nextstrain)	Lineage (Pangolin)
HCP 1	21 December 2020	hCoV-19/USA/WI-UW-2453/2020	20G	B.1.2
patient A	15 December 2020	hCoV-19/USA/WI-UW-2395/2020	20G	B.1.2

Epidemiological information

HCP 1 provided direct care to patient A during the 14 days prior to HCP 1's symptom onset. HCP 1 reported no lapse in PPE when providing care to patient A.

Alignment



Phylogeny



References

1. Updated Nextstrain SARS-CoV-2 clade naming strategy. 2021. Available at: <https://virological.org/t/updated-nextstrain-sars-cov-2-clade-naming-strategy/581>. Accessed 18 March 2021.
2. Rambaut A, Holmes EC, O'Toole Á, et al. A dynamic nomenclature proposal for SARS-CoV-2 lineages to assist genomic epidemiology. *Nat Microbiol* **2020**; 5:1403–1407.
3. PANGO lineages. Available at: <https://cov-lineages.org/lineages.html>. Accessed 18 March 2021.
4. Braun K. SARSCoV2_sequencing_healthcare-association_infections. Github, Available at: https://github.com/katarinabraun/SARSCoV2_sequencing_healthcare-association_infections. Accessed 18 March 2021.
5. auspice. Available at: https://nextstrain.org/community/gagekmoreno/Wisconsin-SARS-CoV-2/ncov/wisconsin/2021-1-8?c=clade_membership&r=location. Accessed 18 March 2021.