

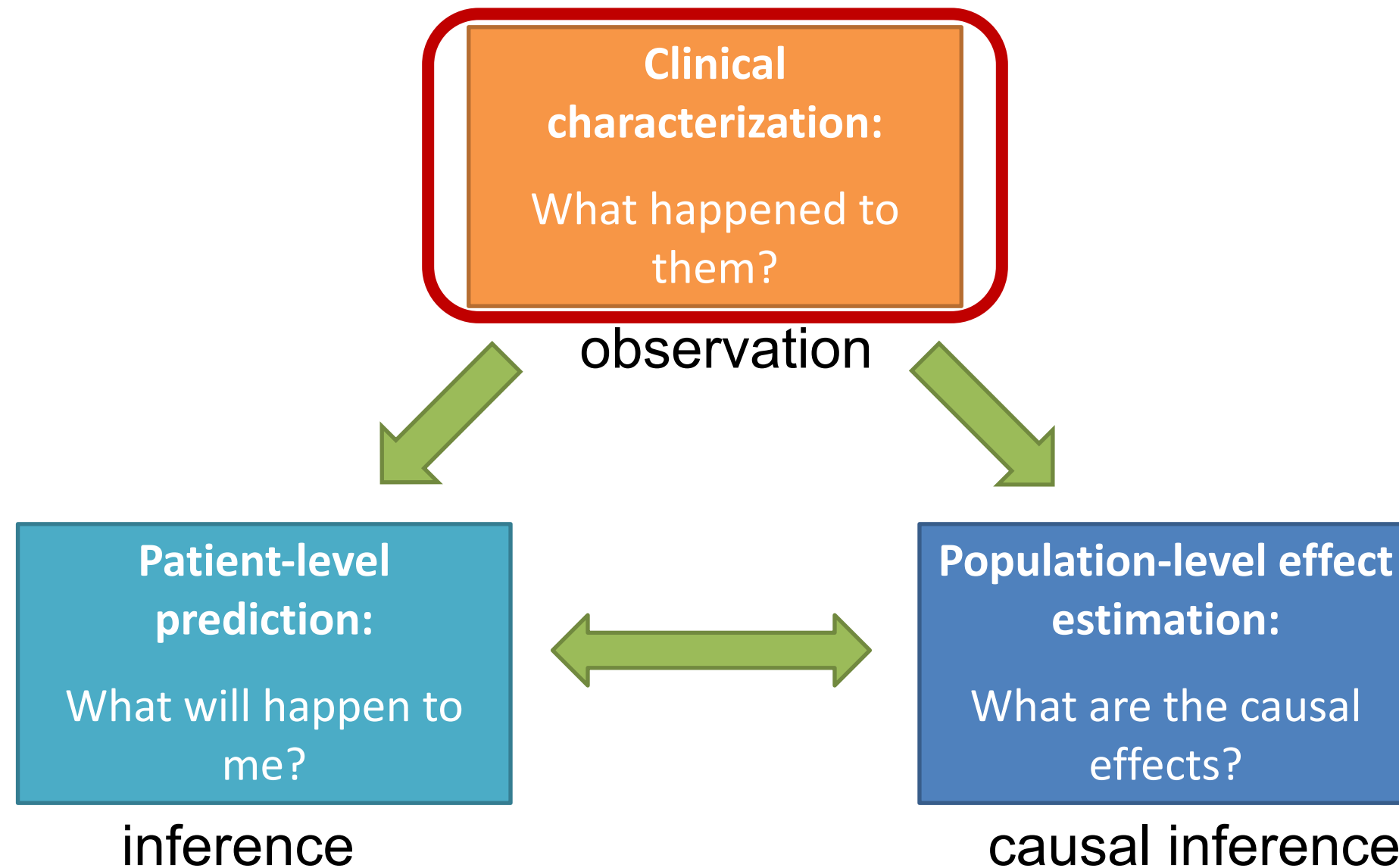


Characterizing Health Associated Risks, and Your Baseline Disease In SARS-COV-2 (CHARYBDIS)

 #OHDSICOVID19
Characterization Study Group



Complementary evidence to inform the patient journey

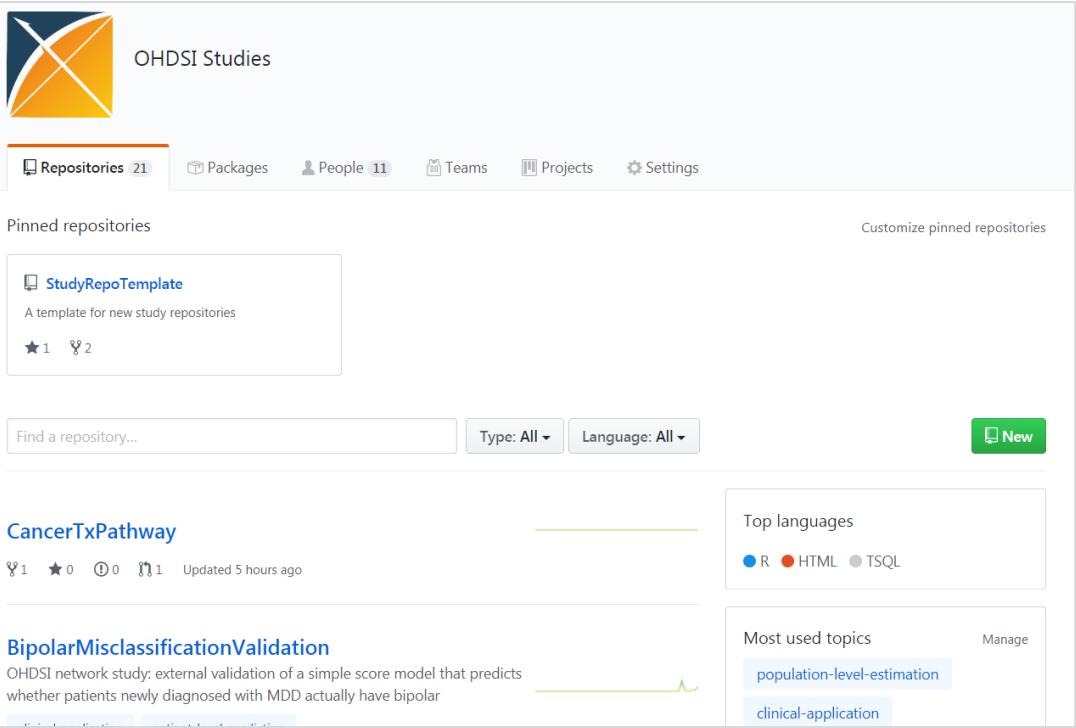




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github.com/ohdsi-studies/

The comparative safety of first-line disease-modifying antirheumatic drugs in rheumatoid arthritis: a multinational cohort network study

About Explore results

These research results are from a retrospective, real-world, observational study to estimate the population-level effects of conventional synthetic disease-modifying antirheumatic drugs among patients with rheumatoid arthritis. This web-based application provides an interactive platform to explore all analysis results generated as part of this study, as a supplement to abstracts and a full manuscript currently in development for submission to scientific conferences and a peer-reviewed journal. During abstract and manuscript development and the subsequent review period, these results are considered under embargo and should not be disclosed without explicit permission and consent from the authors.

Below is the abstract of the manuscript that summarizes the findings:

Objective: Recent systematic reviews and guidelines acknowledge a lack of data on the comparative safety of disease modifying antirheumatic drugs (DMARDs). We assessed the comparative risk/s associated with first-line disease modifying antirheumatic drugs (DMARDs) in rheumatoid arthritis (RA).

Design: Multinational network cohort and meta-analysis.

Settings: Routine health data from 8 databases (5 US, 1 UK, 1 Germany, and 1 Spain) mapped to a common data model.

Participants: New users of monotherapy DMARD after RA diagnosis at age 18+.

Interventions: The four most commonly used first-line DMARDs: Methotrexate (MTX), Hydroxychloroquine (HCQ), Sulfasalazine (SSZ), and Leflunomide (LEF).

Main outcome measures: Adverse events of interest included leukopenia, infection, myocardial infarction, stroke, and cancer. Cox regression after propensity score stratification was used to estimate hazard ratios (HRs) for the risk of each event according to drug use, with MTX as reference. Negative control outcomes were used to estimate confounding-free calibrated HR (cHR). Findings were meta-analysed where $P < 40\%$.

Results: In total, 247,511 participants were included: 141,647 (57%) MTX, 73,286 (30%) HCQ, 16,521 (7%) SSZ, and 16,057 (6%) LEF. LEF appeared associated with reduced risk of leukopenia (cHR 0.68 95% CI 0.41-1.13) and pancytopenia (0.51, 0.24-1.06), and with reduced risk of cancer (0.77, 0.53-1.12) compared to MTX. SSZ may be associated with increased risk of leukopenia (1.43, 0.96-2.15), but with a lower infection risk (cHR 0.76, 0.58-0.97 for serious, cHR 0.73, 0.62-0.86 for any). HCQ was associated with a reduced risk of stroke (0.68, 0.79-0.98).

Conclusions: Compared to MTX, leukopenia is 40% more common with SSZ, and 30% less with LEF. Infections (both serious and overall) appear to be about 25% less frequent in users of SSZ. HCQ in turn is associated with a 12% reduction in risk of stroke. These findings will inform personalized first-line treatment for newly diagnosed RA patients worldwide.

Below are links for study-related artifacts that have been made available as part of this study.

- The full study protocol is available at: <https://github.com/ohdsi-studies/EhdenRaDmardsEstimation/tree/master/documents>
- The full source code for the study is available at: <https://github.com/ohdsi-studies/EhdenRaDmardsEstimation>

The comparative safety of first-line disease-modifying antirheumatic drugs in rheumatoid arthritis: a multinational cohort network study

About Explore results



data.ohdsi.org



Snapshot of the OHDSI COVID-19 Data Network



USA (12)	EUROPE (9)	ASIA-PACIFIC (3)
Columbia University (NY – EHR)	CPRD (UK – EHR)	HIRA (South Korea – Administrative Claims)
Department of Veterans Affairs (National – EHR)	DA Germany (Germany – EHR)	DCMC (South Korea – EHR)
HealthVerity (Claims linked to diagnostic testing)	HM Hospitales (Spain – Hospital Billing)	Nanfang Hospital (China – EMR)
IQVIA Hospital Charge Datamaster (National – Hospital charge data)	IPCI (Netherlands – EHR)	<div>Together, OHDSI has studied:</div> <ul style="list-style-type: none">• >16.88m patients tested for SAR-COV-2• >4.53m patients diagnosed or tested positive for COVID-19• >886k patients hospitalized with COVID-19
IQVIA Open Claims (National – Administrative Claims)	LPD France (France – EHR)	
Optum EHR (National – EHR)	LPD Italy (Italy – EHR)	
Optum SES (National – EHR linked to Socio-economic data)	SIDIAP (Spain – EHR)	
Premier (National – Hospital Billing)	SIDIAP-H (Spain – EHR Hospital linkage)	
Stanford University (CA – EHR)	Hospital del Mar (Spain – EHR)	
Tufts University (MA – EHR)		
University of Colorado Anschutz Medical Campus (CO – EHR)		
University of Washington Medicine COVID Research Dataset (WA – EHR)		



Characterizing Health Associated Risks, and Your Baseline Disease In SARS-COV-2 (CHARYBDIS)

- 1) Describe the baseline demographic, clinical characteristics, treatments, symptoms and outcomes of interest among individuals with COVID-19 overall and stratified by sex, age and specific comorbidities
- 2) Describe characteristics and outcomes of influenza patients between September 2017 and April 2018 compared to the COVID-19 population



Why CHARYBDIS?

- Many published characterization studies
 - Small sample size
 - Few countries
 - Granularity of information
 - Hospital settings

Clinical and virological data of the first cases of COVID-19 in Europe: a case series

Francois-Xavier Lescure*, Lila Bouadma*, Duc Nguyen, Marion Parisey, Paul-Henri Wicky, Sylvie Behillil, Alexandre Gaymard, Maude Bouscambert-Duchamp, Flora Donati, Quentin Le Hingrat, Vincent Enouf, Nadhira Houhou-Fidouh, Martine Valette, Alexandra Mailles, Jean-Christophe Lucet, France Mentre, Xavier Duval, Diane Descamps, Denis Mahy, Jean-François Timsit, Bruno Lina*, Sylvie van-der-Werf*, Yazdan Yazdanpanah*

Summary
Background On Dec 31, 2019, China reported a cluster of cases of pneumonia in people at Wuhan, Hubei Province. The responsible pathogen is a novel coronavirus, named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). We report the relevant features of the first cases in Europe of confirmed infection, named coronavirus disease 2019 (COVID-19), with the first patient diagnosed with the disease on Jan 24, 2020.

Methods In this case series, we followed five patients admitted to Bichat-Claude Bernard University Hospital (Paris, France) and Pellegrin University Hospital (Bordeaux, France) and diagnosed with COVID-19 by semi-quantitative RT-PCR on nasopharyngeal swabs. We assessed patterns of clinical disease and viral load from different samples (nasopharyngeal and blood, urine, and stool samples), which were obtained once daily for 3 days from hospital admission, and once every 2 or 3 days until patient discharge. All samples were refrigerated and shipped to laboratories in the National Reference Center for Respiratory Viruses (The Institut Pasteur, Paris, and Hospices Civils de Lyon, Lyon, France), where RNA extraction, real-time RT-PCR, and virus isolation and titration procedures were done.

Findings The patients were three men (aged 31 years, 48 years, and 80 years) and two women (aged 30 years and 46 years), all of Chinese origin, who had travelled to France from China around mid-January, 2020. Three different clinical evolutions are described: (1) two paucisymptomatic women diagnosed within a day of exhibiting symptoms, with high nasopharyngeal titres of SARS-CoV-2 within the first 24 h of the illness onset (5.2 and 7.4 log₁₀ copies per 1000 cells, respectively) and viral RNA detection in stools; (2) a two-step disease progression in two young men, with a secondary worsening around 10 days after disease onset despite a decreasing viral load in nasopharyngeal samples; and (3) an 80-year-old man with a rapid evolution towards multiple organ failure and a persistent high viral load in lower and upper respiratory tract with systemic virus dissemination and virus detection in plasma. The 80-year-old patient died on day 14 of illness (Feb 14, 2020); all other patients had recovered and been discharged by Feb 19, 2020.

Interpretation We illustrated three different clinical and biological types of evolution in five patients infected with SARS-CoV-2 with detailed and comprehensive viral sampling strategy. We believe that these findings will contribute to a better understanding of the natural history of the disease and will contribute to advances in the implementation of more efficient infection control strategies.

Introduction The 2019-nCoV infection caused clusters of severe respiratory illness similar to severe acute respiratory syndrome coronavirus and was associated with ICU admission and high mortality. Major gaps in our knowledge of the origin, epidemiology, duration of human transmission, and clinical spectrum of disease need fulfilment by future studies.

Clinical features of patients infected with coronavirus in Wuhan, China

Chaolin Huang*, Yeming Wang*, Xingwang Li*, Lili Ren*, Jianping Zhao*, Yi Hu*, Li Zhang, Guohui Zhenshun Cheng, Ting Yu, Jian Xia, Yuan Wei, Wenjuan Wu, Xuelei Xie, Wen Yin, Hui Li, Min Liu, Y Guangfa Wang, Rongmeng Jiang, Zhancheng Gao, Qi Jin, Jianwei Wang*, Bin Cao*

Summary
Background A recent cluster of pneumonia cases in Wuhan, China, was ca 2019 novel coronavirus (2019-nCoV). We report the epidemiological, clinical, lab and treatment and clinical outcomes of these patients.

Methods All patients with suspected 2019-nCoV were admitted to a designated collected and analysed data on patients with laboratory-confirmed 2019-nCoV next-generation sequencing. Data were obtained with standardised data collection International Severe Acute Respiratory and Emerging Infection Consortium Researchers also directly communicated with patients or their families to as data. Outcomes were also compared between patients who had been admitted those who had not.

Findings By Jan 2, 2020, 41 admitted hospital patients had been identified as h infection. Most of the infected patients were men (30 [73%] of 41); less than h including diabetes (eight [20%]), hypertension (six [15%]), and cardiovascular 49.0 years (IQR 41.0–58.0). 27 (66%) of 41 patients had been exposed to Huan was found. Common symptoms at onset of illness were fever (40 [98%] of 41 pat fatigue (18 [44%]); less common symptoms were sputum production (11 [28] haemoptysis (two [5%] of 39), and diarrhoea (one [3%] of 38). Dyspnoea develop time from illness onset to dyspnoea 8.0 days (IQR 5.0–13.0). 26 (63%) of 41 pa had pneumonia with abnormal findings on chest CT. Complications include (12 [29%]), RNAemia (six [15%]), acute cardiac injury (five [12%]) and secondary were admitted to an ICU and six (15%) died. Compared with non-ICU patients, of IL2, IL7, IL10, GSCF, IP10, MCP1, MIP1A, and TNFα.

Interpretation The 2019-nCoV infection caused clusters of severe respiratory illness similar to severe acute respiratory syndrome coronavirus and was associated with ICU admission and high mortality. Major gaps in our knowledge of the origin, epidemiology, duration of human transmission, and clinical spectrum of disease need fulfilment by future studies.

Introduction The 2019-nCoV infection caused clusters of severe respiratory illness similar to severe acute respiratory syndrome coronavirus and was associated with ICU admission and high mortality. Major gaps in our knowledge of the origin, epidemiology, duration of human transmission, and clinical spectrum of disease need fulfilment by future studies.

ORIGINAL ARTICLE

Covid-19 in Critically Ill Patients in the Seattle Region — Case Series

Pavan K. Bhatraju, M.D., Bijan J. Ghassemieh, M.D., Michelle Nichols, M.D., Richard Kim, M.D., Keith R. Jerome, M.D., Arun K. Nalla, Ph.D., Alexander L. Greninger, M.D., Sudhakar Pipavath, M.D., Mark M. Wurfel, M.D., Ph.D., Laura Evans, M.D., Patricia A. Kritek, M.D., T. Eoin West, M.D., M.P.H., Andrew Luks, M.D., Anthony Gerbino, M.D., Chris R. Dale, M.D., Jason D. Goldman, M.D., Shane O'Mahony, M.D., and Carmen Mikacenic, M.D.

ABSTRACT

BACKGROUND

Community transmission of coronavirus 2019 (Covid-19) was detected in the state of Washington in February 2020.

METHODS

We identified patients from nine Seattle-area hospitals who were admitted to the intensive care unit (ICU) with confirmed infection with severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). Clinical data were obtained through review of medical records. The data reported here are those available through March 23, 2020. Each patient had at least 14 days of follow-up.

CORRESPONDENCE



Clinical Characteristics of Covid-19 in New York City

TO THE EDITOR: The world is in the midst of the coronavirus disease 2019 (Covid-19) pandemic,^{1,2} and New York City has emerged as an epicenter. Here, we characterize the first 393 consecutive patients with Covid-19 who were admitted to two hospitals in New York City. This retrospective case series includes adults 18 years of age or older with confirmed Covid-19

col and structured abstraction tool (details are provided in the Methods section in the Supplementary Appendix, available with the full text of this letter at NEJM.org).

Among the 393 patients, the median age was 62.2 years, 60.6% were male, and 35.8% had obesity (Table 1). The most common presenting symptoms were cough (79.4%), fever (77.1%),

THE NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Clinical Characteristics of Coronavirus Disease 2019 in China

W. Guan, Z. Ni, Yu Hu, W. B. Du, L. Li, G. Zeng, K. S. Li, Jin-lin Wang, Z. Jian-ming Wang, J. Liu, and N. Zhong. for the C

Clinical characteristics of COVID-19 in 104 people with SARS-CoV-2 infection on the *Diamond Princess* cruise ship: a retrospective analysis

Sakiko Tabata*, Kazuo Imai*, Shuichi Kawano, Mayu Ikeda, Tatsuya Kodama, Kazuyasu Miyoshi, Hirofumi Obinata, Satoshi Mimura, Tsutomu Kadera, Manabu Kitagaki, Michiya Sato, Satoshi Suzuki, Toshimitsu Ito, Yasuhide Uwabe, Kaku Tamura

COVID-19, which is a newly discovered coronavirus disease, was first reported in China in December 2019, and has since spread to many other countries. We report the clinical characteristics of COVID-19 in 104 people with SARS-CoV-2 infection on the *Diamond Princess* cruise ship, a retrospective analysis.

Methods Th who were ad data, and ra whichever c and sympto oxygen satu on admission end of obs asymptoma

Findings An 54 (52%) we COVID-10, : as being as hydrogenas but develop the observat with patient! 73 years [IQ nine [21%] c

Interpretati on



Lancet 2020; 395: 1054-62

Published Online March 9, 2020
[https://doi.org/10.1016/S0140-6736\(20\)30566-3](https://doi.org/10.1016/S0140-6736(20)30566-3)

See [Comment](#) page 1014
This online publication has been corrected. The corrected version first appeared at [thelancet.com](#) on March 12, 2020

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Department of Clinical Laboratory (J Xiang MS), and GCP Center (X Wu MS), Jinyintan Hospital, Wuhan, China;

Department of Pulmonary and Critical Care Medicine, Wuhan Pulmonary Hospital, Wuhan,

Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study

Fei Zhou*, Ting Yu*, Ronghui Du*, Guohui Fan*, Ying Liu*, Zhibo Liu*, Jie Xiang*, Yeming Wang, Bin Song, Xiaoying Gu, Lulu Guan, Yuan Hui Li, Xudong Wu, Jiuyang Xu, Shengjin Tu, Yi Zhang, Hua Chen, Bin Cao

Summary

Background Since December, 2019, Wuhan, China, has experienced an outbreak of coronavirus disease (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Epidemiologic and clinical characteristics of patients with COVID-19 have been reported but risk factors for mortality and a clinical course of illness, including viral shedding, have not been well described.

Methods In this retrospective, multicentre cohort study, we included all adult inpatients (≥18 years old) with laboratory-confirmed COVID-19 from Jinyintan Hospital and Wuhan Pulmonary Hospital (Wuhan, China) who had been discharged or had died by Jan 31, 2020. Demographic, clinical, treatment, and laboratory data, including serial samples for viral RNA detection, were extracted from electronic medical records and compared between survivors and non-survivors. We used univariable and multivariable logistic regression methods to explore the risk factors associated with in-hospital death.

Findings 191 patients (135 from Jinyintan Hospital and 56 from Wuhan Pulmonary Hospital) were included in this study, of whom 137 were discharged and 54 died in hospital. 91 (48%) patients had a comorbidity, with hypertension being the most common (58 [30%] patients), followed by diabetes (36 [19%] patients) and coronary heart disease (15 [8%] patients). Multivariable regression showed increasing odds of in-hospital death associated with older age (odds ratio 1.10, 95% CI 1.03–1.17, per year increase; p=0.0043), higher Sequential Organ Failure Assessment (SOFA) score (5.65, 2.61–12.23; p<0.0001), and d-dimer greater than 1 µg/mL (18.42, 2.64–128.55; p=0.0033) on admission. Median duration of viral shedding was 20.0 days (IQR 17.0–24.0) in survivors, but SARS-CoV-2 was detectable in non-survivors. The longest observed duration of viral shedding in survivors was 37 days.

Interpretation The potential risk factors of older age, high SOFA score, and d-dimer greater than 1 µg/mL could be used by clinicians to identify patients with poor prognosis at an early stage. Prolonged viral shedding provides the rationale for a strategy of isolation of infected patients and optimal antiviral interventions in the future.

Funding Chinese Academy of Medical Sciences Innovation Fund for Medical Sciences; National Science Foundation of China; Distinguished Young Scholars; National Key Research and Development Program of China; The Beijing Science and Technology Project; and Major Projects of National Science and Technology on New Drug Creation and Development.



Why CHARYBDIS?

- But many unanswered questions:
 - Who gets tested, infected and hospitalized?
 - Age and gender
 - Most frequent comorbidities
 - Treatment history
 - What are their symptoms and outcomes?
 - How different is COVID-19 from influenza?

COVID-19 PATIENT TRAJECTORY

Presentation
of symptoms

Tested for
COVID-19

Tested positive or
diagnosed with
COVID-19

Hospitalization

Hospitalization
requiring intensive
services

Death

Demographics
Conditions
Drugs
Health service utilization



CHARYBDIS – Target cohorts

Persons tested for SARS-CoV-2

Persons tested positive for SARS-CoV-2

Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test

Persons hospitalized with a COVID-19 diagnosis record or a SARS-CoV-2 positive test

Persons hospitalized and requiring intensive services with a COVID-19 diagnosis record or a SARS-CoV-2 positive test

Persons with influenza diagnosis or positive test 2017-2018

Persons hospitalized with influenza diagnosis or positive test 2017-2018

Persons hospitalized with influenza diagnosis or positive test and requiring intensive services 2017-2018

COHORT DEFINITIONS AVAILABLE AT:

<https://atlas.ohdsi.org/>



CHARYBDIS – Stratification factors

COVID-19 and...

- Asthma
- Cancer
- Cardiac Outcomes
- Chronic Kidney Disease
- COPD
- Elderly
- End-Stage Renal Disease
- Gender Differences
- Heart Disease
- Hepatitis C
- HIV infection
- Hypertension
- Immune Disorders
- Obesity
- Pediatrics
- Pregnant Women
- Tuberculosis
- Type 2 Diabetes
- Dementia
- Gender

... And more!



PHENOTYPE DEFINITIONS AVAILABLE AT:
<https://atlas.ohdsi.org/>



CHARYBDIS – Findings to Date on COVID-19



CHARYBDIS

About

Cohorts

Cohort Counts

Cohort Characterization

Compare Cohort Char.

Database information

Database

HealthVerity, CDM_Premier, >

Cohort

Persons with a COVID-19 diagnosis

Strata

All, with Full 30-day follow u, >

Download

Show 100 entries

Search:

Cohort	Strata	HealthVerity	CDM_Premier_COVID_v1240	CPRD_COVID	DCMC	HIRA	HM Hospitals	NFHC RD	optum_ehr_covid_v1239	SIDIAP_H	SIDIAP	STARR-OMOP	TRDW	VA-OMOP	IPCI	IQVIA_OpenClaims
		Subjects	Subjects	Subjects	Subjects	Subjects	Subjects	Subjects	Subjects	Subjects	Subjects	Subjects	Subjects	Subjects	Subjects	Subjects
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	All	371,153	66,132	2,679	559	7,803	2,089	403	45,508	43,411	124,221	4,788	1,250	25,538	1,417	493,949
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Full 30-day follow up	22,440	3,902	894	162	7,348	17	276	13,690	28,570	81,896	2,703	641	19,196	1,009	243,316
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with < 30-day follow up	348,713	62,230	1,785	397	255	2,072	127	31,818	14,841	42,325	2,085	605	6,340	408	250,633
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Sex = Female	203,731	33,271	1,527	314	4,502	843	197	24,717	24,891	71,680	2,388	1,199	4,374	859	267,537
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Sex = Male	167,422	32,861	1,152	245	3,101	1,246	206	20,791	18,520	52,541	2,398	234	21,163	558	226,333
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Age >= 18	356,610	63,572	2,647	552	7,351	2,078	396	44,480	41,474	119,188	4,803		25,535	1,394	476,331
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Age < 18	14,543	2,560	32	7	251	11	7	1,028	1,937	5,033	185		<5	23	17,618
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Age >= 65	72,735	22,579	1,315	98	1,373	1,257	81	13,332	11,966	31,473	1,380		10,999	483	174,479
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Age < 65	298,418	43,553	1,364	461	6,229	832	322	32,178	31,445	92,748	3,408		14,538	934	319,470
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Black or African American		14,306						10,701			120		8,012		
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with White		28,556						22,674			2,026		13,246		
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Index date: Jan 2020	23	2,380	8		12	<5	<5	6	34	80	51		110	<5	4,063
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Index date: Feb 2020	37	2,560	6	277	1,899	5	261	12	82	241	223		87	<5	3,246
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Index date: Mar 2020	48,024	21,729	404	282	5,263	1,446	139	10,735	23,791	67,452	852		2,124	561	69,665
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Index date: Apr 2020	132,103	32,530	1,884	425		636	<5	20,045	18,294	52,958	1,562		9,881	591	314,366
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Index date: May 2020	190,943	6,081	377		<5			13,746	1,187	3,452	1,434		6,265	170	100,026
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Index date: Jun 2020								960			570		7,024	89	
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent Type 2 Diabetes Mellitus	10,115	10,783	392	108	1,765	271	9	1,091	4,999	9,840	555	179	9,325	248	171,626
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent Type 2 Diabetes Mellitus	361,038	55,349	2,287	451	5,838	1,818	394	44,417	38,412	114,381	4,233	1,071	16,213	1,169	322,323
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent hypertension	16,294	19,008	544	154	1,950	712	19	2,068	11,175	20,995	1,319	307	16,474	379	281,426
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent hypertension	354,859	47,124	2,135	405	5,853	1,377	384	43,440	32,236	103,226	3,469	943	9,064	1,038	212,523
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent chronic kidney disease	2,511	1,180	122	155	243			319	1,498	505	289	107	4,104	102	64,604
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent chronic kidney disease	368,642	64,952	2,557	404	7,360			45,189	41,913	123,716	4,499	1,143	21,434	1,315	429,345
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent end stage renal disease	865	955	7	155	26			409	134		73	70	1,032		18,232
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent end stage renal disease	370,288	65,177	2,672	404	7,577			45,099	43,277		4,715	1,180	24,506		475,177
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent heart disease	9,516	11,533	504	106	1,319	331	7	1,217	8,142	17,718	977	245	12,310	268	220,786
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent heart disease	361,637	54,599	2,175	453	6,284	1,758	396	44,291	35,269	106,503	3,811	1,005	13,228	1,149	273,163
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent malignant neoplasm excluding non-melanoma skin cancer	2,970	3,157	220	32	412	174		460	4,307	8,805	887	106	5,551	152	73,444
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent malignant neoplasm excluding non-melanoma skin cancer	368,183	62,975	2,459	527	7,191	1,915		45,048	39,104	115,416	3,901	1,144	19,987	1,265	420,505
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent Human immunodeficiency virus infection	266	128							82	56	19	14	408		4,653
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent Human immunodeficiency virus infection	370,887	66,004						43,329	124,165		4,769	1,236	25,130		489,296
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent Hepatitis C	374	410			61	8		38	407	647	61	35	1,680		9,905
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent Hepatitis C	370,779	65,722			7,542	2,081		45,470	43,004	123,574	4,727	1,215	23,858		484,044
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent obesity	6,658	7,298	1,011	29	16	92		22,350	14,136	36,527	1,246	325	11,568	283	155,436
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent obesity	364,495	58,834	1,668	530	7,587	1,997		23,158	29,275	87,694	3,542	925	13,952	1,134	336,513
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent Dementia	2,587	3,697	198	6	438	47		225	2,421	6,007	38	29	2,314	48	57,998
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent Dementia	368,566	62,435	2,481	553	7,165	2,042		45,283	40,990	118,214	4,750	1,221	23,224	1,369	435,951
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent tuberculosis				8	24				40	85			27		89
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent tuberculosis				551	7,579				43,371	124,138			25,511		493,860
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent Autoimmune condition	3,478	1,678	285	49	815	81		381	3,556	8,255	418	133	5,142	244	105,239
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent Autoimmune condition	367,675	64,454	2,394	510	6,788	2,008		45,127	39,855	115,966	4,370	1,117	20,396	1,173	388,710
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent chronic obstructive pulmonary disease (COPD) without asthma	3,949	3,335	212		149	113		5,800	6,764	15,811	231	89	6,667	121	68,854
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent chronic obstructive pulmonary disease (COPD) without asthma	367,204	62,797	2,467		7,454	1,976		39,708	36,647	108,410	4,557	1,161	18,871	1,296	425,095
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent Asthma without COPD	4,646	3,972	349	17	1,566	82		2,934	3,134	7,561	521	112	2,970	165	87,164
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	without Prevalent Asthma without COPD	366,507	62,160	2,330	542	6,037	2,007		42,574	40,277	116,660	4,267	1,138	22,568	1,252	406,785
Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation	with Prevalent pre-existing condition of COVID risk factor	17,304	18,402	985	197	2,694	609	18	2,052	14,044	32,850	1,762	353	16,578	471	296,641



CHARYBDIS – Findings to Date on COVID-19

- 12+ manuscripts under review
- 16 validated COVID-19 phenotypes
 - Testing variations
 - Diagnoses codes
 - Hospitalization
 - Intensive care / severe cases
- 85 validated comorbidity phenotypes



<https://data.ohdsi.org/Covid19CharacterizationCharybdis/>



Charybdis 2.0 – Moving Ahead!

- Long term COVID
 - Different windows of follow-up (0-30d, 31-60d, 61-90d, 91-120d)
 - Finding ways to work with colleagues integrating Twitter findings of symptoms and conditions and drug usage
 - Timelines of symptoms (eg tachycardia) and outcomes
 - Treatments, testing, procedures, etc
 - Non-pharmacological interventions
 - Specific cancer types/locations
 - Time from cancer diagnosis to diagnosis of covid19
 - Cancer treatment/s status/history
 - Break down autoimmune diseases
 - Autoimmune disease treatment status/history
 - Socio-economic indicators (where data is available)
 - Smoking, alcohol drinking, lifestyle, etc (where possible)
 - Trial/s eligibility criteria (eg RECOVERY, SOLIDARITY, ACCT..)
 - Vaccine/s history
 - More granularity on respiratory disease (history of and outcome/s)
- ... and much, much more!*



CHARYBDIS and SCYLLA



...and we're creating a second monster!



JOIN the CHARYBDIS team



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Thank you!





Join the Journey

<http://ohdsi.org>