

Supplementary appendix 1

Data processing

Missing or erroneous data (e.g. dates that were outside of the study range or temperatures that were outside of physiologic range) were reviewed by the site physician investigator. Missing CFS was imputed as 6 (severe frailty) for LTC residents and 5 (moderate frailty) for retirement home residents based on local LTC admission criteria and published frailty estimates [4,5]. Missing frailty or functional data from community dwelling patients were estimated by the physician investigator based on available data. If relevant information was not documented in the chart, we did not impute missing frailty data from community dwelling patients because of the diverse range of frailty levels [6].

List of relevant variables

Case report form 1: Demographics and presentation

1. **Study ID** [unique sequential integer]
2. **Age** [number, integer, plus unknown option]
3. **Sex** [female, male, other]
4. **Hospital** [dropdown menu: Sunnybrook, St. Johns rehab, Sunnybrook LTC, St. Michaels, St. Joseph's Toronto, Providence rehab, Providence LTC, Mount Sinai, Toronto General Hospital, Toronto Western Hospital, Toronto Rehab, Baycrest rehab, Baycrest LTC, other]
5. **Place of residence prior to COVID-19 diagnosis** [home, rehab, retirement home, LTC, shelter, hospital, other institution, unknown]
6. **Was the patient transferred to acute care?** [dropdown: Yes – emergency department without admission, Yes – admitted to acute care, No, unsure]
7. **Date of admission** [date or not transferred to acute care]
8. **Date of diagnosis (first positive COVID-19 test)** [date]
9. **Did the patient have a SARS-CoV-2 variant detected?** [yes/no]
 - a. **If yes, enter the variant detected. Enter the genetic mutation or geographic origin as indicated in the lab report.** [free text]
10. **Did the patient receive any dose of a COVID-19 vaccine?** [yes/no]
 - a. **Date of first dose**
 - b. **Date of second dose**
 - c. **Name of vaccine** [Pfizer/Biontech, Moderna, Astrazeneca, Janssen/J&J, Novavax, other]
11. **Did the patient require ICU stay?** [Yes/no/unsure]
 - a. **Did the patient require ventilator?** [yes/no/unsure]
 - b. **Did the patient wean off the ventilator?** [Yes/no/unsure]
 - c. **How many days was the patient in ICU?** [textbox]
12. **Admission diagnosis** [textbox]
13. **Why was the patient tested for COVID?** [checkbox matrix: Sick contact, residential home screening, symptoms, travel, unclear]

14. **What symptoms did the patient present with?** [checkbox matrix: fever (temp >37.8 [30]), cough, shortness of breath, malaise, nausea, sore throat, diarrhea, vomiting, rhinorrhea/congestion, myalgia, headache, chills, dizziness, tachycardia (heart rate >90), chest pain, abdominal pain, conjunctivitis, increased sputum production]
15. **What geriatric syndromes did the patient present with?** [checkbox matrix: delirium/confusion, anorexia, weakness, falls, weight loss, functional decline, incontinence]
16. **Describe symptoms if the options above do not capture patient presentation.** [free text]
17. **Onset of symptoms to COVID-19 testing** [text field]
18. **What was the maximum temperature measured in the emergency department or facility where COVID-19 was diagnosed?** (Use highest temperature within 2 days of positive swab) [textbox]
19. **Lymphocyte count, ferritin, lactate dehydrogenase, aminotransferase, C-reactive protein and D-dimer on COVID diagnosis** (Use labs within 5 days of first positive COVID swab) [textbox]
20. **Chest X-ray finding on COVID diagnosis** (Use CXR within 5 days of first positive COVID swab) [dropdown: no infiltrates, unilateral infiltrates, bilateral infiltrates, not done, uninterpretable]
21. **Was there a fracture on admission?** [Yes/no]
 - a. Where was the fracture? [checkboxes: hip, vertebral, wrist, other femur/tibia, humerus, pelvic, skull, face, rib]
 - b. Did the fracture require surgery? [yes/no]
22. **Did the patient have a history of the following?** [checkbox matrix: dementia, MCI, falls (at least 1 fall in past 12 months), heart failure, coronary heart disease (myocardial infarction), COPD, renal failure, dialysis, alcohol abuse, atrial fibrillation, diabetes, hypertension, stroke, active cancer]
23. **Baseline ADL:** needs help with [checkbox yes/no/unsure: bathing, dressing, toileting, transfers, walking, feeding]
24. **Baseline IADLs:** needs help with [checkbox yes/no/unsure: driving, banking, cooking, shopping, housekeeping, medications]
25. **Frailty:** clinical frailty scale (9-point scale) [integer]
26. **Baseline mobility:** [walks without gait aid, walks with walker, walks with cane, wheelchair, bedbound]
27. **Was the patient's goals of care known at time of COVID-19 diagnosis?** [yes/no/unsure]
 - a. **What was the patient's code status (at time of COVID-19 diagnosis)?** [DNR, only for intubation, full code, not known]
 - b. **Did the patient have a palliative care plan prior to COVID-19 diagnosis?** (includes keywords like 'palliative' or 'comfort care') [yes/no/unsure]

Appendix 2: Delirium CRF

To be completed for cases with identified delirium.

1. **Study ID** [unique sequential integer]
2. **Date of delirium onset** [date]
3. **Was there a geriatric consultation during this hospitalization?** [Yes/no/unsure]
4. **Hospital location when delirium first occurred** [emergency department, ward, long term care, rehab, ICU]
5. **How many times did the patient's room change during COVID infection?** [textbox]
(We will batch inquiry for decision support because this has to be extracted by them)
6. *Baseline risk factors*
 - a. **Does the patient have pre-existing behaviours or agitation?** [Yes/no/unsure]
 - b. **Is the patient on the following types of medications prior to admission?**
[Yes/no checkboxes: Antipsychotics, benzodiazepines, trazodone, opioids, cholinesterase inhibitors]
7. *Characteristics of delirium*
 - a. **Did delirium occur before or after classic COVID symptoms?** [Before, after, same time, unsure]
 - i. **If delirium occurred after COVID symptoms, after how many days of COVID symptoms did delirium start?** [dropdown menu: <2 days, 2-5 days, >5 days, uncertain]
 - b. **Motor subtype** [hyperactive, hypoactive, mixed, no subtype]
 - c. **Agitation/aggression** present during hospitalization or COVID duration [yes/no/unsure]
 - d. **Psychosis** (hallucinations/delusions) present during hospitalization or COVID duration [yes/no/unsure]
8. *Treatment of delirium*
 - a. **Were physical restraints used at any point during hospitalization?** [yes, no, unsure]
 - b. **Were antipsychotics used at any point during hospitalization?** [Yes – standing, yes – PRN, no, unsure]
 - i. **Name the antipsychotic(s) used** [checkboxes for haloperidol, risperidone, quetiapine, loxapine, olanzapine, aripiprazole, ziprasidone, etc]
 - ii. **What was the total daily dose of the antipsychotic medication(s)?**
[textbox matrix]
 - c. **Were other sedative medications used at any point during hospitalization?**
[Checkbox matrix: benzodiazepine, gabapentin/pregabalin, trazodone, anticonvulsants, propofol, dexmedetomidine, Nozinan, other]
 - d. **Were any of the following analgesics used at any point during hospitalization** (e.g. acetaminophen, opioids)? [checkbox yes/no/unsure: acetaminophen, oral NSAIDs, topical NSAIDs (Voltaren, Pennsaid), opioids, gabapentin/pregabalin, nabilone, tramadol]
 - e. **Were any of the following nonpharmacologic interventions used?** [checkbox matrix: deprescribing offending medication, identify underlying cause, address oxygenation/toileting, others]
 - f. **Was family/caregivers present in person at any time during the hospitalization?** [Yes/no/unsure]

- g. **Was family/caregivers present virtually (phone, video chat) at any time during the hospitalization?** [yes/no/unsure]
- h. **Did delirium improve or resolve during the hospitalization?** [Yes/no/unsure]

Appendix 3: Outcomes CRF

1. **Study ID** [unique sequential integer]
2. **Did the patient die in hospital?** [yes/no/not applicable]
 - a. **Date of death** [date or unknown]
 - b. **How many days from admission to death?** [textbox, unsure, not applicable]
 - c. **How many days from symptom onset to death?** [textbox, unsure, not applicable]
 - d. **Cause of death** [textbox]
 - e. **Did the patient die in ICU?** [yes/no/unsure]
 - f. **Did the patient receive palliative care?** [yes/no/unsure]
3. **Where was the patient discharged?** [home, rehab, retirement home, LTC, shelter, hospital, other institution, death, unknown]
4. **Discharge date** [date or unknown]
5. **Did the patient have an in-hospital complication?** [checkbox matrix: falls, physical restraints, aspiration, infection, heart failure, MI, respiratory failure, VTE, medication side effect]
6. **Did the patient participate in a clinical trial?** [yes/no]
 - a. **Which trials or trial drug was the patient on?** [textbox]
7. **Did the patient receive the following medications for treatment of COVID outside of a clinical trial?** [checkbox: hydroxychloroquine, azithromycin, tocilizumab, interferon, IVIG, Lopinavir-ritonavir, steroids, remdesivir]
8. **Was a surgical procedure(s) done in hospital?** [yes/no/unsure]
 - a. **Which procedure(s)?** [textbox]

References

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- [2] Inouye SK, Leo-Summers L, Zhang Y, Bogardus ST, Leslie DL, Agostini J V. A chart-based method for identification of delirium: validation compared with interviewer ratings using the confusion assessment method. *J Am Geriatr Soc* 2005;53:312–8. doi:10.1111/j.1532-5415.2005.53120.x.
- [3] Guan W, Ni Z, Hu Y, Liang W, Ou C, He J, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. *N Engl J Med* 2020:NEJMoa2002032. doi:10.1056/NEJMoa2002032.
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- [5] Government of Ontario. Long-term care overview | Ontario.ca. OntarioCa n.d. <https://www.ontario.ca/page/about-long-term-care> (accessed April 4, 2021).
- [6] Kelly S, O’Brien I, Smuts K, O’Sullivan M, Warters A. Prevalence of frailty among community dwelling older adults in receipt of low level home support: a cross-sectional analysis of the North Dublin Cohort. *BMC Geriatr* 2017;17:121. doi:10.1186/s12877-017-0508-2.

Supplementary table 1: Analysis of dexamethasone's association with various outcomes in the wave 2 vs. entire cohort (including wave 1). The findings were similar.

	Wave 2 only			Waves 1 and 2		
	No Dexamethasone	Dexamethasone	P value	No Dexamethasone	Dexamethasone	P value
	180 (28.5)	451 (71.5)		467 (50.4)	460 (49.6)	
In-hospital death, n (%)	13 (7.4)	168 (37.3)	<0.001	90 (19.4)	172 (37.4)	<0.001
Length of stay, median (IQR)	7.0 (3.0–14.0)	11.0 (7.0–21.0)	<0.001	10.0 (4.0–22.0)	11.0 (7.0–21.0)	0.006
Delirium prevalence, n (%)	66 (37.9)	266 (59.2)	<0.001	225 (48.8)	272 (59.4)	0.002
Delirium incidence, n (%)	29 (16.6)	103 (22.9)	0.103	96 (20.8)	105 (22.9)	0.49
ICU admission, n (%)	20 (11.3)	128 (28.6)	<0.001	80 (17.3)	135 (29.5)	<0.001

IQR = interquartile range; ICU = intensive care unit.