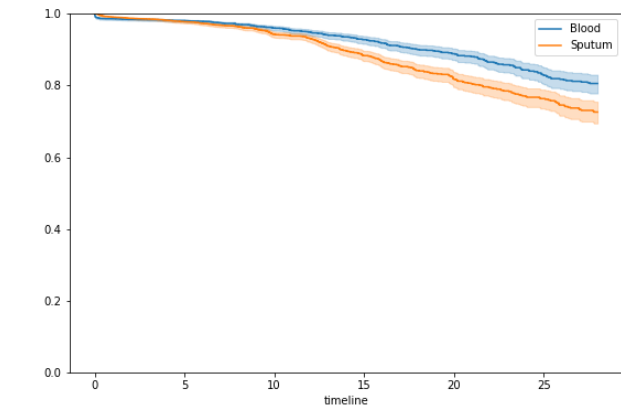


Figure 1



| | Blood | | | | | |
|----------|-------|------|------|------|------|------|
| At risk | 7213 | 4084 | 2021 | 1131 | 705 | 475 |
| Censored | 0 | 2996 | 5001 | 5840 | 6227 | 6418 |
| Events | 0 | 133 | 191 | 242 | 281 | 320 |
| | | | | | | |
| At risk | 7213 | 4078 | 1980 | 1050 | 610 | 399 |
| Censored | 0 | 2994 | 4997 | 5839 | 6218 | 6395 |
| Events | 0 | 141 | 236 | 324 | 385 | 419 |

Infection free survival represented as duration of admission in days on the X-axis, and proportion of admitted patients remaining infection-free in the Y-axis. The blue line represents blood cultures and the orange line represents sputum cultures.

Conclusion. There was a very low incidence of co-infection with SARS-CoV-2 infection at admission. A longer duration of hospitalization was associated with an increased risk of secondary infections. Antimicrobial use far exceeded the true incidence and detection of co-infections in these patients.

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28. Utilizing the Charleston Comorbidity Index as an Independent Predictor for Outcomes in SARS-Cov-2 Positive Patients

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Background. Since COVID-19 was declared a pandemic, it has seemed that the virus is nondiscriminatory causing 3.73 million deaths worldwide. The Charleston Comorbidity Index (CCI) is a scoring system predicting the one-year mortality for patients with a range of comorbid conditions and is widely used as a predictor of prognosis and survival for a range of pathologies. This study aims to assess if there is an impact of comorbidity burden on COVID-19 patients by utilizing their CCI score.

Charleston Comorbidity Index Score

| Charleston Comorbidity Index (CCI) | |
|--|-------|
| Condition | Score |
| Myocardial infarction | 1 |
| Congestive Heart Failure | 1 |
| Peripheral Vascular Disease (including aortic aneurysm >6cm) | 1 |
| TIA or Cerebrovascular disease with mild or no residua | 1 |
| Dementia | 1 |
| Chronic pulmonary disease | 1 |
| Connective tissue disease | 1 |
| Peptic ulcer disease | 1 |
| Mild liver disease without portal HTN | 1 |
| Diabetes without end-organ damage | 1 |
| Hemiplegia | 2 |
| Moderate or severe renal disease | 2 |
| Diabetes with end-organ damage | 2 |
| Tumor without metastases (diagnosed <5years ago) | 2 |
| Leukemia | 2 |
| Lymphoma | 2 |
| Moderate or severe liver disease | 3 |
| Metastatic solid tumor | 6 |
| AIDS | 6 |

Scoring system for Charleston Comorbidity Index (CCI). Plus 1 point for every decade age 50 years and over, maximum 4 points. Higher scores indicate a more severe condition and consequently, a worse prognosis.

Methods. Multicenter, retrospective review of patients diagnosed with COVID-19 from January 2020 to September 2020 throughout the HCA Healthcare system. CCI scores for all COVID-19 positive patients were calculated and logistic regression analysis was performed to predict hospitalization and ICU admission by CCI controlling for age, sex and race. A multinomial regression model was also performed to predict discharge status by CCI controlling for age, sex and race. ROC curves to indicate the CCI cut-off point for each outcome (hospitalization, ICU admission and mortality) was performed, and Youden's Index was used to identify the optimal point.

Results. In the study timeframe, 92,800 patients were diagnosed with COVID-19 and of those, 48,270 were hospitalized. A one-point increase in CCI was associated with higher odds of hospitalization [OR 1.718; 95% CI 1.696-1.74]. The threshold for significance to predict hospitalization was a CCI of 1.5 (AUC 0.804, Youden Index 0.48) with a specificity (73%) and sensitivity (75%). A one-point increase in CCI was associated with 1.444 higher odds of an ICU admission (95% CI 1.134-1.155). A one-point increase in CCI significantly increased the odds of discharge to hospice compared to any discharge other than hospice [OR 1.162; 95% CI 1.142-1.182]. A one-point increase in CCI score was associated with 1.188 higher odds of in-hospital mortality (95% CI, 1.173-1.203) with a CCI threshold of 3.5 having the highest specificity (50.9%) and sensitivity (79.9%) to predict mortality outcome (AUC 0.704, Youden Index 0.31).



Conclusion. In conclusion CCI score is an adequate predictor of hospitalization and in-hospital mortality but less so in predicting ICU admission in COVID-19 positive patients.

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29. Sustained Recovery in Patients Admitted to Hospital With COVID-19

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Background. Several interventional Coronavirus Disease 2019 (COVID-19) studies assess outcomes at day 28, but this follow-up time can be too short, since COVID-19 often cause protracted disease. Further, data on mortality and readmissions after discharge are scarce.

Methods. Patients aged 18-100 years and hospitalized with COVID-19 in Eastern Denmark between March 18th, 2020 and January 12th, 2021, were followed for 91 days after admission. Patients were stratified in a first and second wave, by admissions before or after June 15th, 2020, app. when remdesivir and dexamethasone were introduced as standard of care. Sustained recovery was defined as the first date, achieving 14 consecutive days after hospital discharge without an event of readmission or death. Cumulative incidences of sustained recovery were estimated in both waves and in subgroups based on the patient's maximum level of respiratory support in the first 14 days of admission as a proxy for disease severity. Risk factors for poor outcomes were assessed in a multivariable cox proportional hazards model.

Results. Overall 3,386 patients were included in the study; 1,137 and 2,249 patients were admitted in the first and second wave, respectively (Table 1). The cumulative incidence of sustained recovery at day 91 was higher in the second (0.79, 95% CI: 0.77,0.81) than in the first wave (0.72, 95% CI: 0.70, 0.75) (Fig. 1A). In both waves, those with more severe disease recovered at a slower rate (Fig. 2B). There were no differences in cumulative incidences of readmissions or deaths at day 91 after discharge between the two waves, cumulative incidence (0.20, 95% CI: 0.19,0.21) and (0.11, 95% CI: 0.09,0.12), respectively (Fig 1C, Fig 1D). Male sex, high age, cardiovascular disease, diabetes, chronic pulmonary disease, renal disease, malignancies and neurological disease were associated with lower rates of sustained recovery (Table 2).