Burden and characteristics of COVID-19 in France during 2020 based on national hospital database

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CONTEXT

Coronavirus disease (**Covid-19**) is an infectious disease caused by the SARS-CoV-2 virus.
The disease can cause symptoms ranging from mild to critical. Early estimates indicated that 2.9% of infected individuals were hospitalized and 0.5% died. Older individuals, men, and patients with metabolic, respiratory or cardiovascular comorbidities appear to be at higher risk of requiring hospitalization or intensive care if they have COVID-19, and to be at higher risk of dying.
A retrospective study based on a national **French** hospitalized claims database (**PMSI**) over the year **2020** has been performed to support Covid-19 patient's description but also to describe the disease management with a dedicated focus on **ventilation status** and finally to describe **the health care resource use** and the **economic impact** for treatment of Covid-19 in outpatient patients with more than one risk-factor for severe Covid-19.

OBJECTIVES & METHOD

- The main objective was to describe **patient's characteristics** hospitalized for Covid-19 and their level of intensity of care .
- The secondary objectives were to describe the **disease management** of Covid-19 according to the ventilation status, the health care resource use for and economic impact of Covid-19 disease management in hospital.

This retrospective observational study identified people with Covid-19 in the PMSI through hospitalisation diagnosis codes in 2020. **3 ventilation status** were identified based on CCAM procedures : without and with oxygen support (O_2), with non-invasive ventilation (NIV), and with mechanical ventilation (MV). Due to underreporting of medical procedure related to oxygen support, status "without O_2" was combined to O_2 status. In case of several status in the same stay, the most severe was kept.

Risk factors were identified through ICD10 codes, DRG and age.

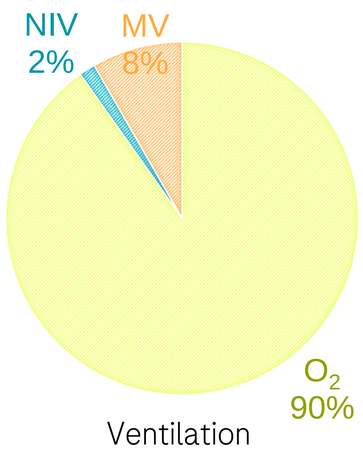
Rehospitalizations were estimated for 1st wave stays (from January to June). A minimum delay of 14 days between 2 stays was applied (to exclude transfer).

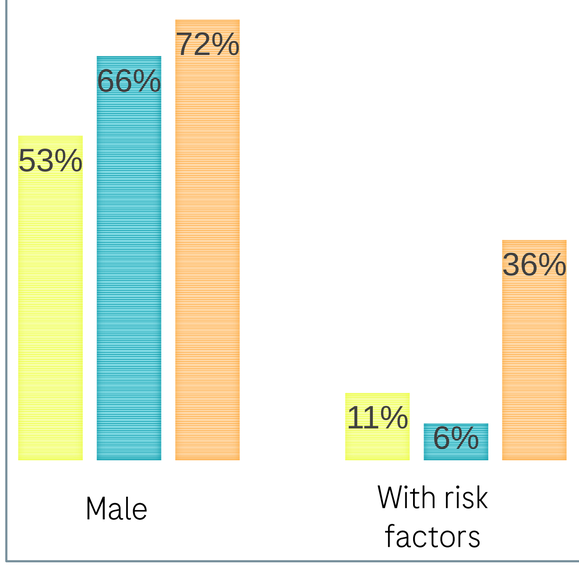
Cost estimation was performed based on health insurance perspective.

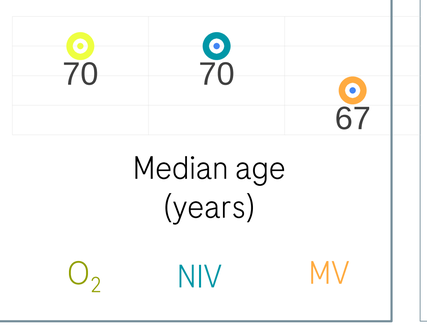
RESULTS

Patients characteristics

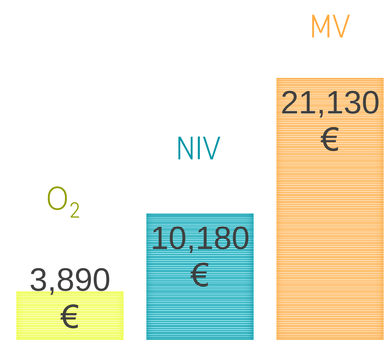
199,455 PATIENTS | 238,582 Hospitalisations

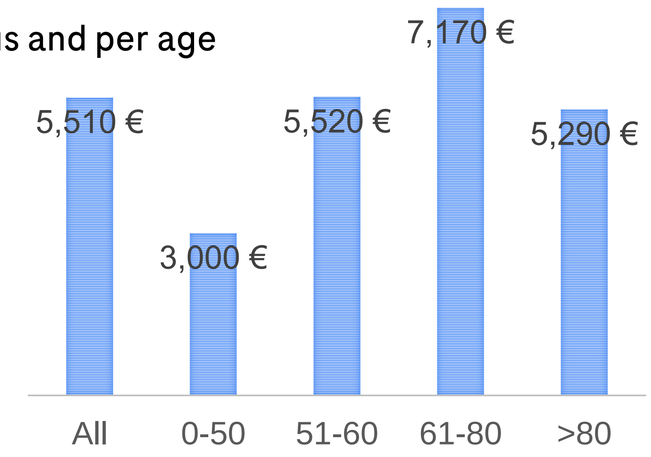




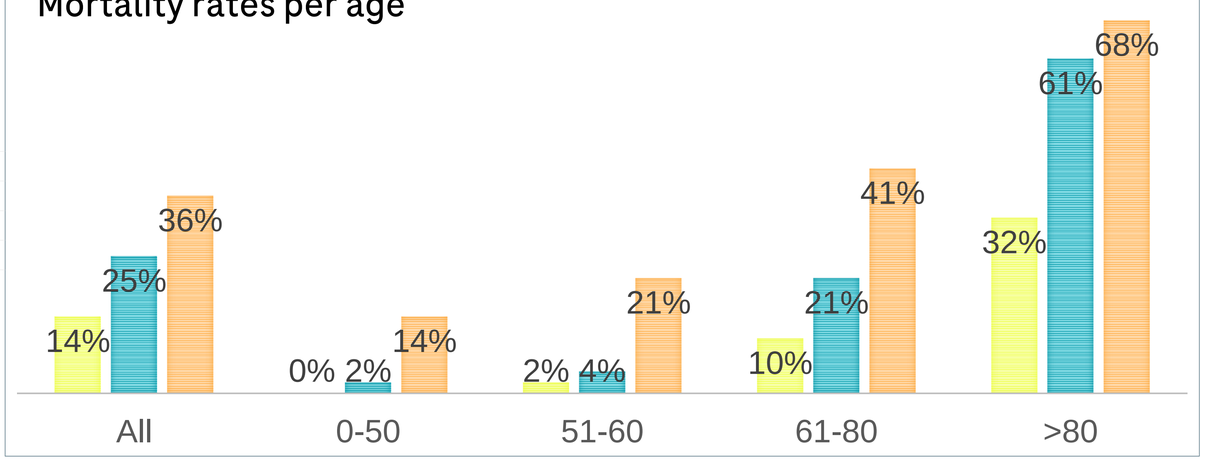


Mean cost per ventilation status and per age





Mortality rates per age



CONCLUSION

Age, sex and risk factors increased the severity of ventilation support, cost and mortality rates. Elderly people had less MV support, shorter length of stay and lower cost. The mortality rate in elderly population was higher.

In this study, requirement for low-flow oxygen support was largely under-reported, due to many reasons: lack of impact of O_2 support on stay valorisation, not specified in the registry, and overload of work leading to enter only the most valuable information in the database. This under-reporting could also apply, to a much lesser extent to non-invasive ventilation, as such procedure is associated with increased stay cost.