

# DIVINE-datasets

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# Introduction

The **DIVINE-datasets** provides a collection of curated, anonymized datasets derived from the DIVINE project. These datasets include various clinical domains—such as patient demographics, comorbidities, symptoms, laboratory findings, treatments, and outcomes—allowing users to explore and practice different data manipulation and analysis workflows in a realistic setting.

## Available Datasets

This repository includes the following datasets:

Dataset	Description
<code>analytics</code>	Laboratory parameters at hospital admission.
<code>comorbidities</code>	Baseline comorbid conditions and functional indices.
<code>complications</code>	In-hospital complications during COVID-19.
<code>concomitant_medication</code>	Chronic treatments before hospital admission.
<code>demographic</code>	Baseline demographic and lifestyle data.
<code>end_followup</code>	Outcomes and follow-up information.
<code>icu</code>	ICU admissions and critical care interventions.
<code>inhosp_antibiotics</code>	In-hospital antibiotic treatments.
<code>inhosp_antivirals</code>	In-hospital antiviral treatments.
<code>inhosp_other_treatments</code>	Other in-hospital supportive therapies.
<code>scores</code>	Disease severity scores at admission.
<code>symptoms</code>	Clinical symptoms at hospital admission.
<code>vital_signs</code>	Vital parameters and oxygenation data.
<code>vaccine</code>	COVID-19 vaccination status.

## Dataset Descriptions

Each dataset is described below, including its dimensions and variable definitions.

### analytics

Laboratory data collected at hospital admission.

Dimensions: 5813 rows × 9 columns

Variable	Description
<b>record_id</b>	Identifier of each record (anonymized).
<b>covid_wave</b>	COVID-19 wave (Wave 1, Wave 2, Wave 3, Wave 5).
<b>center</b>	Hospital of admission (Hospital A-E).
<b>analytics_available</b>	Availability of laboratory results.
<b>total_leukocytes</b>	Total leukocytes (mil/mm <sup>3</sup> ).
<b>hemoglobin</b>	Hemoglobin (g/dL).
<b>total_lymphocytes</b>	Total lymphocytes (mil/mm <sup>3</sup> ).
<b>d_dimer</b>	D-dimer (pg/L).
<b>c_reactive_protein</b>	C-reactive protein (mg/L).

## **comorbidities**

Information on pre-existing conditions, functional status, and comorbidity indices at admission.

Dimensions: 5813 rows × 37 columns

Variable	Description
<b>record_id</b>	Identifier of each record.
<b>covid_wave</b>	COVID-19 wave (Wave 1–5).
<b>center</b>	Hospital of admission.
<b>sociofunctional</b>	Sociofunctional status.
<b>frailty</b>	Chronic condition classification (No, PCC, MACA).
<b>barthel_score</b>	Barthel functional index.
<b>weight</b>	Weight (kg).
<b>height</b>	Height (cm).
<b>body_mass_index</b>	Body mass index (kg/m <sup>2</sup> ).
<b>dm</b>	Diabetes mellitus type 2.
<b>type_dm</b>	Type of diabetes mellitus.
<b>chronic_lung_disease</b>	Chronic lung disease.
<b>chronic_kidney_disease</b>	Severe chronic kidney disease.
<b>mild_kidney_disease</b>	Mild chronic kidney disease.
<b>renal_therapy</b>	Receiving renal replacement therapy.
<b>heart_disease</b>	Heart failure.
<b>coronary_disease</b>	Coronary heart disease.
<b>myocardial_infarction</b>	Previous myocardial infarction.
<b>hematologic_neo</b>	Hematologic neoplasia.
<b>hematologic_neo_type</b>	Type of hematologic neoplasia.
<b>non_metastatic_neo</b>	Non-metastatic neoplasia.
<b>metastatic_neo</b>	Metastatic neoplasia.
<b>stroke_tia</b>	Stroke or transient ischemic attack.
<b>peripheral_vasculopathy</b>	Peripheral vascular disease.
<b>dementia</b>	Dementia.
<b>mild_liver_disease</b>	Mild liver disease.
<b>severe_liver_disease</b>	Severe liver disease.
<b>connective_tissue_disease</b>	Connective tissue disease.
<b>peptic_ulcer</b>	Peptic ulcer disease.
<b>hemiplegia</b>	Hemiplegia.
<b>hiv</b>	Human immunodeficiency virus infection.
<b>charlson_index</b>	Charlson comorbidity index.
<b>hypertension</b>	Hypertension.
<b>dyslipidemia</b>	Dyslipidemia.
<b>depression</b>	Depression.
<b>ceiling</b>	Therapeutic ceiling of care.
<b>ceiling_dico</b>	Dichotomized therapeutic ceiling of care.

## complications

Complications experienced during hospitalization.

Dimensions: 5809 rows × 9 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave.
<b>center</b>	Hospital of admission.
<b>comp</b>	Any complication during hospitalization.
<b>kidney_failure</b>	Kidney failure.
<b>mental_status_change</b>	Altered mental status.
<b>nosocomial_infection</b>	Nosocomial infection.
<b>comp_cardiac</b>	Cardiac complications.
<b>comp_respiratory</b>	Respiratory complications.

## concomitant\_medication

Medications taken before hospital admission.

Dimensions: 5813 rows × 11 columns

Variable	Description
<b>record_id</b>	Identifier of each record.
<b>covid_wave</b>	COVID-19 wave (Wave 1–5).
<b>center</b>	Hospital of admission.
<b>statins_pre</b>	Previous treatment with statins.
<b>cortis_pre</b>	Previous treatment with corticosteroids.
<b>acei_pre</b>	Previous treatment with ACE inhibitors.
<b>ara2_pre</b>	Previous treatment with angiotensin II receptor antagonists (ARA-II).
<b>cortis_systemic_pre</b>	Routine use of systemic corticosteroids.
<b>cortis_inhaled_pre</b>	Routine use of inhaled corticosteroids.
<b>anticoagulants_pre</b>	Previous treatment with anticoagulants.
<b>immunosuppre_pre</b>	Previous treatment with immunosuppressants.

## demographic

Baseline demographic and lifestyle characteristics.

Dimensions: 5813 rows × 8 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave (Wave 1–5).
<b>center</b>	Hospital of admission.
<b>sex</b>	Sex at birth.
<b>age</b>	Age at hospital admission (years).
<b>smoker</b>	Smoking status (No, Yes, Ex-smoker).
<b>alcohol</b>	Alcohol consumption (No, Yes).
<b>residence_center</b>	Living in a long-term care facility (No, Yes).

## end\_followup

Patient outcomes and end-of-follow-up information.

Dimensions: 5813 rows × 8 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave (Wave 1–5).
<b>center</b>	Hospital of admission.
<b>clinical_stability_days</b>	Days from hospital admission to clinical stability.
<b>exitus_days</b>	Days from hospital admission to death.
<b>discharge_days</b>	Days from hospital admission to discharge.
<b>discharge</b>	Discharged from hospital (Yes, No).
<b>exitus</b>	Died during hospital admission (Yes, No).

## icu

Information on ICU admissions and interventions during hospitalization.

Dimensions: 5813 rows × 14 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave (Wave 1–5).
<b>center</b>	Hospital of admission.
<b>icu</b>	Admitted to the ICU (Yes, No).
<b>icu_enter_days</b>	Days from hospital admission to ICU admission.
<b>icu_exit_days</b>	Days from hospital admission to ICU discharge.
<b>vent_mec</b>	Received invasive mechanical ventilation (Yes, No).
<b>vent_mec_start_days</b>	Days from hospital admission to start of invasive mechanical ventilation.
<b>vent_mec_end_days</b>	Days from hospital admission to end of invasive mechanical ventilation.
<b>vent_mec_no_inv</b>	Received non-invasive mechanical ventilation (Yes, No).
<b>vent_mec_no_inv_start_days</b>	Days from hospital admission to start of non-invasive mechanical ventilation.
<b>vent_mec_no_inv_end_days</b>	Days from hospital admission to end of non-invasive mechanical ventilation.
<b>sev_pneum</b>	Severe pneumonia (Yes, No).
<b>sev_pneum_days</b>	Days from hospital admission to development of severe pneumonia.

## inhosp\_antibiotics

In-hospital antibiotic treatments administered during COVID-19 hospitalization.

Dimensions: 5809 rows × 17 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave (Wave 1–5).
<b>center</b>	Hospital of admission.
<b>any_antibiotic</b>	Received any antibiotic during hospital stay.
<b>amoxicillin</b>	Treatment with amoxicillin.
<b>amoxicillin_clavulanic_acid</b>	Treatment with amoxicillin/clavulanic acid.
<b>azithromycin</b>	Treatment with azithromycin.
<b>ceftriaxone</b>	Treatment with ceftriaxone.
<b>ciprofloxacin</b>	Treatment with ciprofloxacin.
<b>cotrimoxazole</b>	Treatment with cotrimoxazole.
<b>levofloxacin</b>	Treatment with levofloxacin.
<b>linezolid</b>	Treatment with linezolid.
<b>meropenem</b>	Treatment with meropenem.
<b>piperacillin</b>	Treatment with piperacillin.
<b>piperacillin_tazobactam</b>	Treatment with piperacillin/tazobactam.
<b>teicoplanin</b>	Treatment with teicoplanin.
<b>other_antibiotic</b>	Treatment with another antibiotic.

## inhosp\_antivirals

Antiviral treatments received during hospitalization.

Dimensions: 5809 rows × 10 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave.
<b>center</b>	Hospital of admission.
<b>any_antiviral</b>	Any antiviral treatment.
<b>hydroxychloroquine</b>	Hydroxychloroquine.
<b>interferon_b</b>	Interferon beta.
<b>kaletra_ritonavir_lopinavir</b>	Kaletra (ritonavir-lopinavir).
<b>remdesivir</b>	Remdesivir.
<b>tocilizumab</b>	Tocilizumab.
<b>other_antiviral</b>	Other antiviral therapy.

## inhosp\_other\_treatments

Other in-hospital supportive or pharmacologic treatments.

Dimensions: 5809 rows × 6 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave.
<b>center</b>	Hospital of admission.
<b>corticosteroids</b>	Corticosteroid treatment.
<b>lmwh</b>	Low-molecular-weight heparin (LMWH) use.
<b>oral_anticoagulants</b>	Oral anticoagulant therapy.

## scores

Disease severity and prognostic indices recorded at admission.

Dimensions: 5813 rows × 10 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave.
<b>center</b>	Hospital of admission.
<b>psi</b>	Pneumonia Severity Index.
<b>group_psi</b>	PSI severity group (1-4).
<b>curb65</b>	CURB-65 score.
<b>group_curb65</b>	CURB-65 group (1-3).
<b>mulbsta</b>	MULBSTA score.
<b>group_mulbsta</b>	MULBSTA risk group (Low, High).
<b>rox_index</b>	ROX index (SpO <sub>2</sub> /FiO <sub>2</sub> / respiratory rate).

## symptoms

COVID-19-related symptoms reported at admission.

Dimensions: 5813 rows × 24 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave.
<b>center</b>	Hospital of admission.
<b>symptoms_days</b>	Days from symptom onset to hospitalization.
<b>rhinorrhea</b>	Rhinorrhea (nasal discharge).
<b>anosmia</b>	Anosmia (loss of smell).
<b>ageusia</b>	Ageusia (loss of taste).
<b>arthromyalgia</b>	Arthromyalgia (joint/muscle pain).
<b>odynophagia</b>	Odynophagia (painful swallowing).
<b>fever</b>	Fever.
<b>cough</b>	Cough.
<b>dyspnea</b>	Dyspnea (shortness of breath).
<b>expectoration</b>	Expectoration.
<b>diarrhea</b>	Diarrhea.
<b>vomit</b>	Vomiting.
<b>nausea</b>	Nausea.
<b>asthenia</b>	Asthenia (weakness).
<b>anorexia</b>	Anorexia (loss of appetite).
<b>cephal</b>	Headache.
<b>chest_pain</b>	Chest pain.
<b>abdominal_pain</b>	Abdominal pain.
<b>confusional_syndrome</b>	Confusional syndrome.
<b>shock_admission</b>	Shock on admission.
<b>bacterial_infection</b>	Bacterial co-infection.

## vital\_signs

Vital parameters, oxygen therapy, and chest imaging at admission.

Dimensions: 5813 rows × 13 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave.
<b>center</b>	Hospital of admission.
<b>temperature</b>	Temperature (°C).
<b>fio2_contributed</b>	Inspired oxygen fraction (%).
<b>syst_blood_press</b>	Systolic blood pressure (mmHg).
<b>diast_blood_press</b>	Diastolic blood pressure (mmHg).
<b>saturation</b>	Oxygen saturation (%).
<b>cardiac_freq</b>	Heart rate (bpm).
<b>supporto2</b>	Oxygen support administered.
<b>normal_radio</b>	Normal chest radiograph.
<b>pleural_effusion</b>	Pleural effusion present.
<b>saturation_fio2</b>	SpO <sub>2</sub> /FiO <sub>2</sub> ratio.

## vaccine

COVID-19 vaccination status at admission.

Dimensions: 5813 rows × 6 columns

Variable	Description
<b>record_id</b>	Record identifier.
<b>covid_wave</b>	COVID-19 wave.
<b>center</b>	Hospital of admission.
<b>vaccine</b>	Vaccinated (Yes/No).
<b>complete_vaccine</b>	Vaccination completeness (None, Partial, Complete).
<b>immune_vaccine</b>	Vaccine-induced immunity (None, Partial, Total).

## Citation

If you use these datasets in your research or teaching, please cite the original study:

Pallarès N., Tebé C., Abelenda-Alonso G., Rombauts A., Oriol I., Simonetti A. F., Rodríguez-Molinero A., Izquierdo E., Díaz-Brito V., Molist G., Gómez Melis G., Carratalà J., Videla S., & MetroSud and DIVINE study groups (2023). *Characteristics and Outcomes by Ceiling of Care of Subjects Hospitalized with COVID-19 During Four Waves of the Pandemic in a Metropolitan Area: A Multicenter Cohort Study*. Infectious Diseases and Therapy, 12(1), 273–289. DOI: 10.1007/s40121-022-00705-w