

Passport of the RICD dataset

Name of the open dataset:

The RICD Dataset (Russian Intensive Care Dataset) is a Russian dataset of intensive care unit patients.

Description of the open dataset:

We present the first open patient dataset in Russia, developed on the basis of advanced principles and methods used in international open dataset projects, such as "eICU Program "from Philips Healthcare," MIMIC-IV "and "MIMIC-III". The developed innovative dataset includes information on 7,730 hospitalizations of 5,115 patients in one medical center (Federal Research and Clinical Center of Intensive Care and Rehabilitation), including 3,291 hospitalizations in intensive care units.

The dataset contains medical and demographic data of patients, information about their movement within the institution, diagnoses, data on therapy, laboratory results, scores on scales, vital monitored parameters in dynamics, and hospitalization outcomes.

The RICD dataset allows for in-depth analysis and research of clinical practices in the field of anesthesiology-resuscitation and intensive care, as well as the development of clinical decision support tools and the application of machine learning methods to solve diagnostic problems and improve patient outcomes. Due to the accessibility and detailed structuring of data, the dataset will become a useful tool for both scientific and practical tasks in the field of anesthesiology-resuscitation and intensive care medicine

Owner of the open dataset:

Federal Research and Clinical Center of Intensive Care and Rehabilitation

Responsible person:

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Responsible person's email address:

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Hyperlink (URL) to open data

<https://fnkcurr-dataset.ru/>

Format of the open dataset:

Tables in the .csv format (frictionless data); metadata in the .json format; dataset in the .db format; dataset in the .pbix format (PowerBI).

Current version: 1.0

Description of the structure of the open dataset

The total number of records in all tables is 14,356,553.

Key fields: new_patient_id (modified patient ID), new_hosp_id (modified medical history ID).

The created dataset consists of 16 linked tables:

1. all_patients (7,730 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
sex	Patient gender	-
body	Weight at admission	kg
height	Patient's height at admission	cm
BMI	Body mass index at admission	kg/m2
age	Patient's age at admission	years
patient_condition	Patient's condition at admission	-
transfer	Fact of transfer from another institution	-
adm_year	Year of admission	-
admission_department	Admission department	-
discharge_department	Discharge department	-
ICU_patients	ICU patient	-
length_of_stay	Length of stay	days
fatal_outcome	Fatal outcome	-

2. ICD10_diagnoses (1,058,929 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
document_type	Document type	-
diagnosis_type	Diagnosis type	-
ICD_10	ICD-10 code	-

3. therapy_prescriptions (550,880 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
prescription_rus	Prescription in Russian	-
prescription_eng	Prescription in English	-
Time (12:00_am-11:00_pm)	Evaluation time of execution/assignment status	V assigned + completed X canceled – failed

4. clinical_notes (304,680 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-

patient_condition	Patient's condition at the time of assessment	-
ICD_10	ICD-10 codes	-

5. monitoring_data (12,198,188 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
parameter	Monitored parameter*	-
unit	Units	-
hour	Evaluation time	-
value	Value	-

***Vital parameters:** saturation (SpO2), temperature, respiratory rate, heart rate, diastolic BP, systolic BP, mean AP, body mass, glucose, respiratory volume, central venous pressure, BIS, EtCO2.

***Fluid parameters:** fluid intake per os, diuresis, enteral feeding, infusion, liquor, stool/stoma, other intake, other output, gastrostoma, drainages volume, nasogastric tube/vomit, cystostomy.

6. all_scales (19,297 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
scales	Scales* and evaluation results	-

***Scales:** CRS-R, APACHE II, CHA2DS2-VASc, DRS, FIM, FOUR, GRACE, HAS-BLED, NIHSS, POSSUM, SAPS II, SOFA, Barthel, Waterlow (pressure ulcer risk), Geneva score, Glasgow coma scale, Classification of surgical and anesthesia risk (MNOAR), Ashworth scale, Caprini (DVT/PE risk), Palliative performance scale, Rehabilitation routing scale, Rivermead mobility index, Modified Rankin scale, Wells' Criteria for DVT

7. detailed_sofa (14,859 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
report	Text Conclusion	-
sofa_score	SOFA score	-
FiO2 %	FiO2 %	%
PaO2	PaO2	mmHg
PaO2/FiO2	PaO2/FiO2	-
mechanical_ventilation	Mechanical ventilation	-
platelets	Platelets	10 ^ 9/L
GSC_score	Glasgow Coma Scale Score	-
bilirubin	Bilirubin	umol / L
systolic_AP	Systolic blood pressure	mm.hg
diastolic_AP	Diastolic blood pressure	mm.hg
mean_AP	Mean blood pressure	mm.hg

vasoactive_drugs	Use of vasoactive drugs	-
creatinine	Creatinine	umol / L
daily_diuresis	Daily diuresis	ml

8. complete_blood_count (43,584 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
WBC	White Blood Cells	10 ⁹ /L
RBC	Red Blood Cells	10 ¹² /L
HGB	Hemoglobin	g/L
HCT	Hematocrit	%
MCV	Average red blood cell volume	fl
MCH	Average red blood cell content	pg
MCHC	Mean red blood cell hemoglobin concentration	g/l
RDW	Red blood cell distribution width by volume	%
RDW-SD	Standard deviation of red blood cell distribution width by volume	fl
PLT	Platelets	10 ⁹ /L
PCT	Thrombocrit	%
MPV	Average platelet volume	fl
PDW	Platelet distribution width by volume	%
NEU%	Neutrophil percentage	%
NEU	Absolute neutrophil count	10 ⁹ / L
LYM %	Percentage of lymphocytes	%
LYM	Absolute number of lymphocytes	10 ⁹ / L
MONO %	Percentage of monocytes	%
MONO	Absolute number of monocytes	10 ⁹ / L
EOS %	Percentage of eosinophils	%
EOS	Absolute number of eosinophils	10 ⁹ / L
BASO %	Percentage Basophil percentage	%
BASO	Absolute basophil count	10 ⁹ / L
NRBC%	Percentage of normoblasts	%
NRBC #	Absolute number of normoblasts	10 ⁹ /L
%RETIC	Percentage of reticulocytes	%
RETIC	Absolute number of reticulocytes	10 ⁹ /L
IRF	Immature reticulocyte fraction	%
MRV	Average reticulocyte volume	fl
band_neutrophil	Band neutrophils	%
segmented_neutrophil	Segmented neutrophils	%
ESR	Erythrocyte sedimentation rate	mm/h

9. urinalysis (37,307 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
urine_color	Urine color	-

clarity/turbidity	Urine transparency	-
specific_gravity	Relative density	rel.units
PH	pH of urine	-
protein	Protein	mmol/ L
glucose	Glucose	mmol/ L
nitrites	Nitrites	-
ketones	Ketones	mmol/L
bilirubin	Bilirubin	umol / L
ascorbic_acid	Ascorbic acid	mmol/ L
urobilinogen	Urobilinogen	umol / L
squamous_epithelial_cells	Squamous epithelium	-
transitional_epithelial_cells	Transient epithelium	-
WBCs	WBCs	-
RBCs	RBCs	-
bacteria	Bacteria	-
hyaline_casts	Hyaline cylinders	-
nonclassified_casts	Unclassified Cylinders	-
mucus	Slime	-

10. blood_biochemistry (65,882 records)

Field	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
HbA1C_NGSP	Glycated hemoglobin method NGSP	%
troponin	Troponin (I, T)	pg/mL
total_bilirubin	Total bilirubin	µmol/L
direct_bilirubin	Direct bilirubin	µmol/l
total_protein	Total protein	g/l
albumin	Albumin	g/l
prealbumin	Prealbumin	g/l
urea	Urea	mmol/L
creatinine	Creatinine	µmol/L
glucose	Glucose,	mmol/l
triglycerides	Triglycerides	mmol/l
cholesterol	Cholesterol	mmol/l
HDL	high-density Lipoprotein	mmol/l
LDL	low density Lipoprotein,	mmol/l
atherogenic_coefficient	atherogenic coefficient	-
VLDL	Very-low-density lipoprotein	mmol/l
magnesium	Magnesium	mmol/l
calcium	Calcium	mmol/l
phosphorus	Phosphorus	mmol/l
iron	Iron	µmol/l
latent_iron_binding_capacity	Latent iron-binding capacity of serum	µmol/l
transferrin	Transferrin	mg/dL
potassium	Potassium	mmol/l
sodium	Sodium	mmol/L

procalcitonin	Procalcitonin	ng/mL
chlorides	Chlorides	mmol/L
LDH	lactate dehydrogenase	U/L
ALT	alanine aminotransferase	U/L
AST	aspartate aminotransferase	U/L
GGT	Gamma-glutamyl transferase	U/L
alkaline_phosphatase	Alkaline phosphatase	E/l
amylase	Amylase	Unit/l
CRP	C-reactive protein	mg/l
uric_acid	Uric acid	µmol/L
rheumatoid_factor	Rheumatoid factor	U/mL
cholinesterase	Cholinesterase	U/L
creatine_kinase	Creatine kinase	U/L
anti_streptolysin_O	Antistreptolysin O	U/mL
HBDH	Hydroxybutyrate dehydrogenase	U/L
CK_MB	creatinine kinase MB	U/l
APO_A1	Apolipoprotein A1	g/l
APO_B	Apolipoprotein In	g/l
APO_B_APO_A1_ratio	the Ratio of Apob/ApoA1	-
ferritin	Ferritin	µg/l

11. urine_biochemistry (1,389 records)

Field	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
Ca+24	Calcium in daily urine	mmol/day
Cl+24	Chlorides in daily urine	mmol/day
CREAT24	Creatinine in the daily urine	mmol/day
GLU24	Glucose in the urine daily	g/day
K+24	Potassium in daily urine	mmol/day
Mg24	Magnesium in daily urine	mmol/day
Na+24	Sodium in daily urine	mmol/day
urine_albumin_24h	Albumin in the urine daily	µg/day
24h_urine_urea	Urea in the urine daily	mmol/day
urea_in_urine	Urea in the urine	mmol/day
nitrogen_loss_per_day	nitrogen Loss per day	g/day
phosphorus24	Phosphorus in daily urine	mmol/day
urine_volume	urine Volume in 24 hours	l/day
urine_glucose	Glucose in the urine	mmol/l
microalbumin	Microalbumin in the urine	mg/l
microalbumin24	Microalbumin in daily urine	mmol/day
total_protein_urine	Total protein in urine	g/day
PROT24	Protein in the urine daily	mg/day
urine_calcium	Calcium in the urine	mmol/L
urine_magnesium	Magnesium in the urine	mmol/L
uric_acid_urine	Uric acid in the urine	mg/l
urine_sodium	urine Sodium	mmol/l
urine_phosphorus	Phosphorus in the urine	mmol/l
urine_chlorides	Chlorides in the urine	mmol/l
urine_potassium	Potassium in the urine	mmol/l

urine_amylase	Amylase in the urine	U/L
urine_creatinine	Creatinine in the urine	mg/l

12. coagulation_profile (33,727 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
anti-Xa	Anti-Xa	U/ml
PT_seconds	Prothrombin Time	sec
quick_test _prothrombin_time	Quick test prothrombin time	%
prothrombin_ratio	Prothrombin ratio	-
international_normaliz ed_ratio	International normalized ratio	-
fibrinogen_calculated	Calculated fibrinogen	g/l
fibrinogen_Clauss	Clauss fibrinogen	g/l
activated_partial_thro mboplastin_time	Activated partial thromboplastin time	sec
thrombin_time	Thrombin time	sec
D-dimer	D-dimer	mg/L

13. acid_base_balance (6,185 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
A-aDO2	Alveolar-arterial oxygen gradient	mmHg
temperature_corrected _pH	temperature-corrected venous pH	-
temperature_corrected _pO2	venous temperature-corrected pO2	mmHg
respiratory_index	Respiratory index	-
pH	Venous pH	-
pH_arterial	Arterial pH	-
pCO2	pCO2 venous	mmHg
pCO2_arterial	Arterial pCO2	mmHg
pCO2_capillary	Capillary pCO2	mmHg
temperature_corrected _pCO2	temperature-corrected pCO2 venous	mmHg
pO2	pO2 venous	mmHg
pO2_arterial	Arterial pO2	mmHg
Na+	Sodium	mmol / L
K+	Potassium	mmol / L
Ca++	Calcium	mmol / L
Glu	Glucose	mmol / L
Hct	Hematocrit	%
Lac	Lactate	mmol / L
total_hemoglobin	Total hemoglobin	g / L

sO2_arterial	Arterial oxygen saturation	%
BE(B)	Base excess (venous blood)	mmHg
Beeef	Base excess (extracellular fluid)	mmol / L
paO2/pAO2	paO2/pAO2	-
%FiO2	%FiO2	%
HCO3-_std	Standard HCO3-_std	-
HCO3-	HCO3-	mmol / L
P/F Ratio	P/F Ratio	-
temp	Temperature	C

14. antibiotic_resistance (6,794 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
microorganism	Microorganism (pathogen)	-
biological_material	Biological material	-
antibiotics (MIC)*	Estimation of the minimum inhibitory concentration for each antibiotic	-
antibiotics (RSI)*	Evaluation of antibiotic resistance in the R, S and I	R (Resistant) S (Sensitive) I (Intermediate)

***Antibiotics:** Aztreonam, Amikacin, Amoxicillin/Clavulanate (f), Ampicillin, Gentamicin, Imipenem, Colistin, Meropenem, Nitrofurantoin, Norfloxacin, Piperacillin/Tazobactam, Trimethoprim/Sulfamethoxazole, Fosfomycin with Glucose-6-Phosphate, Cefepime, Cefixime, Ceftazidime, Ceftriaxone, Ciprofloxacin, Ertapenem, Amoxicillin/Clavulanate, Vancomycin, Gentamicin-syn, Daptomycin, Clindamycin, Levofloxacin, Linezolid, Oxacillin, Penicillin G, Rifampin, Streptomycin-synergism, Teicoplanin, Tetracycline, Tigecycline, Tobramycin, Fusidic Acid, Quinupristin/Dalfopristin, Cefoxitin, Erythromycin, Netilmicin, Piperacillin, Cefuroxime, Cefoperazone, Cefotaxime, Amoxicillin, Moxifloxacin, Pristinamycin, Chloramphenicol, BMS-284756, Cefazolin, High-activity Mupirocin, Doxycycline, Mupirocin, Trimethoprim, Clarithromycin, Cefoperazone/Sulbactam, Ofloxacin, Ampicillin/Sulbactam (f), Ceftolozane-Tazobactam, Polymyxin B, Ceftazidime-Avibactam, Kanamycin, Kanamycin-syn, Moxalactam, Ceftaroline, Cefepime/Sulbactam.

15. bacteria_culture_test (6,101 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
biomaterial_rus	Biological material in Russian	-
biomaterial_eng	Biological material in English	-
microorganism*	Microorganism (pathogen)	CFU / ml

***Microorganisms:** A. baum/haem, Chry. indolog, Chrys.meningosept, Pseud. oryzihabit, Ser.liquefaciens, Cory. striatum, Ped. pentosaceus, Staph. schleiferi, Strep. dysgal./ca, Strep. gallolytic, Strep. mitis gr., Strep. parasanguis, Strep. vestibular, G.haemolysan, M.lacunata, Moraxella.sp, A.baum/calc. comp, A.baumannii, A.lwoffii/haemolyt, Acinetobac.sp, Coryn.amycolatum, Coryn.urealytic, Corynebac.sp, Corynebacterium, Bacil.cereus, P.putida, R.radiobacte, Alcalig. faecalis, S.aureus, S.epidermidi, S.haemolytic, S.capitis, S.coh-ss-coh, S.xylosum, Staphyl. carnosus,

S.agalactiae, S.constellatus, Str.anginosus, Str.gordonii, Str.intermedius, Str.mitis, Str.oralis, Str.pneumoniae, Str.sanguinis, Leuconost.pseudom, Achromobacter ssp, B.cepacia CF, Bur.cepacia, Bur.gladioli, S.maltophilii, Sph.paucimob, K.oxytoca, K.pne-ss-oza, K.pne-ss-pne, K.pneu/oxy, Kleb.pneumoniae, E.coli, E.coli urea+, E.cloacae, E.gergoviae, P.mirabilis, P.penn/vulg, P.penneri, P.vulgaris, S.marcescens, S.odorifera1, S.plymuthica, A.caviae, Lact.catenator, H.alvei, P.multocida, C.violaceum, C.davisae, C.lapagei, C.neteri, C.freundii, C.koseri, K.ascorbata, Morganella morgan, P.agglomeran, P.alcalafaci, P.rettgeri, P.rustigian, P.stuartii, E.avium, E.casselifla/gall, E.faecalis, E.faecium, E.raffinosis, M.wisconsens, Klebsiella pneumo, Streptococcus con, Candida albicans, E.aerogenes, Pseudomonas aeruginosa.

16. cerebrospinal_fluid_analysis (1,021 records)

Fields	Description	Optional
new_patient_id	Unique Patient ID	-
new_hosp_id	Unique hospitalization ID	-
post_admission_days	Days since admission	-
post_admission_hours	Hours since admission	-
lymphocytes_csf	Lymphocytes in the cerebrospinal fluid	N/ in the field of view
eosinophils_csf	Eosinophils in the cerebrospinal fluid	N/ in the field of view
neutrophils_csf	Neutrophils in the cerebrospinal fluid	N/ in the field of view
macrophages_csf	Macrophages in the cerebrospinal fluid	N/ in the field of view
monocytes_csf	Monocytes in the cerebrospinal fluid	N/ in the field of view
arachnoid cells_csf	Arachnoid cells in the cerebrospinal fluid	N/ in the field of view
granular spheres_csf	Granular spheres in the cerebrospinal fluid	N/ in the field of view
erythrocytes_csf	Erythrocytes in the cerebrospinal fluid	N/ in the field of view

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