**Data Set:**

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| --- | --- |
| Cohort Identification | Patients in the MIMIC-IV dataset  Undergoing CRRT  Identified with  mimic\_icu.chartevents  itemid = 227290  ===  For analysis cohort, it will be done on a per-filter basis, i.e. each CRRT patient may generate >1 row in the final dataset |
| Outcome Variable | Primary outcome: CRRT Filter Clotting  Mimiciv\_icu.chartevents  itemid=224146  value=’Clotted’  Raw 1235 events  ====  Secondary outcome: Time to any clotting observation  (We did not have time to do this in the datathon)  Composite of CRRT filter clotting  AND clots observed in chamber  itemid = 224146  value IN ('Clots Increasing', 'Clot Increasing', 'Clots Present')  ===  Censorship  itemid = 224146  Value = 'Discontinued'  ===  Time duration  Denote in HOURS To round DOWN to the nearest hour |
| Input Variables | Clinical parameters   |  |  | | --- | --- | | Age | Anchor\_age from mimic\_hosp.patients | | Sex | Gender from mimic\_hosp.patients | | Weight | 226512 -- Admit Wt from chartevents  If null, to use FIRST 224639 -- Daily Weight from chartevents | | Race | Select race from mimic\_hosp.admissions |   Vital Signs parameters (to aggregate mean in 12h before AND 12h after initiation separately)  mimic\_icu.chartevents, itemid =   |  | | --- | | AVG(case when itemid in (220045) and valuenum > 0 and valuenum < 300 then valuenum else null end) as heart\_rate  AVG(case when itemid in (220179,220050) and valuenum > 0 and valuenum < 400 then valuenum else null end) as sbp   AVG(case when itemid in (220180,220051) and valuenum > 0 and valuenum < 300 then valuenum else null end) as dbp  AVG(case when itemid in (220052,220181,225312) and valuenum > 0 and valuenum < 300 then valuenum else null end) as mbp  AVG(case when itemid in (220210,224690) and valuenum > 0 and valuenum < 70 then valuenum else null end) as resp\_rate  ROUND(        AVG(case when itemid in (223761) and valuenum > 70 and valuenum < 120 then (valuenum-32)/1.8                when itemid in (223762) and valuenum > 10 and valuenum < 50  then valuenum else null end)      , 2) as temperature   AVG(case when itemid in (220277) and valuenum > 0 and valuenum <= 100 then valuenum else null end) as spo2 |     Laboratory parameters (to aggregate mean in 12h before AND 12h after initiation separately)  mimic\_hosp.labevents, itemid =   |  | | --- | | 50862, -- ALBUMIN | CHEMISTRY | BLOOD | 146697  50930, -- Globulin  50882, -- BICARBONATE | CHEMISTRY | BLOOD | 780733  50893, -- Calcium  50912, -- CREATININE | CHEMISTRY | BLOOD | 797476  50902, -- CHLORIDE | CHEMISTRY | BLOOD | 795568  50971, -- POTASSIUM | CHEMISTRY | BLOOD | 845825  50983, -- SODIUM | CHEMISTRY | BLOOD | 808489  51006  -- UREA NITROGEN | CHEMISTRY | BLOOD | 791925  50931, -- GLUCOSE | CHEMISTRY | BLOOD | 748981  51221, -- hematocrit  51265, -- platelets  51301  -- WBC  50861, -- Alanine transaminase (ALT)  50863, -- Alkaline phosphatase (ALP)  50878, -- Aspartate transaminase (AST)  50885, -- total bili  50883, -- direct bili  51196, -- D-Dimer  51214, -- Fibrinogen  51237, -- INR  51274, -- PT  51275 -- PTT  50813 -- lactate  50818 -- pco2  50820 -- pH  50821 -- pO2  Dropped as quite a lot of missing values  50889 -- crp  51003 -- Troponin T |     Drugs ((to aggregate as yes/no in 12h before AND 12h after initiation separately)   * Antithrombotic: all are from emar except heparin infusion  |  |  | | --- | --- | | Heparin | Dalteparin  Enoxaparin  Heparin (via side port of catheter)  Enoxaparin (Treatment)  Heparin (Impella) â€“ Right ventricle  Heparin (Hemodialysis)  Heparin (Impella)  heparin (porcine) in 0.9% NaCl  heparin (porcine) (bulk)  Heparin (Impella) â€“ Left ventricle  dalteparin (porcine)  Enoxaparin (Prophylaxis)  enoxaparin  Heparin (CRRT Machine Priming)  Heparin Flush CRRT (5000 Units/mL)  Heparin CRRT  Heparin (via Anti-Xa Monitoring)  dalteparin  Heparin LVAD  heparin (porcine)  Heparin  Fondaparinux  Heparin (IABP)  Enoxaparin Sodium | | Heparin infusion | Chartevents  225958  224145  Not Null | | Warfarin | Jantoven  warfarin  Warfarin | | Aspirin | Aspirin-Caffeine-Butalbital  aspirin  aspirin-dipyridamole  Aspirin  Aspirin Low Dose  Aspirin Low-Strength  Dipyridamole-Aspirin  Aspirin (Buffered)  Aspirin EC | | P2Y12 | ticagrelor  clopidogrel  Clopidogrel  Cangrelor  cangrelor  TiCAGRELOR  Prasugrel  Plavix  Brilinta  Effient | | Dipyridamole | aspirin-dipyridamole  Dipyridamole  Dipyridamole-Aspirin | | GP2b/3a | Eptifibatide  Abciximab  Tirofiban | | DOAC | Apixaban  Edoxaban  rivaroxaban  apixaban  edoxaban  Rivaroxaban  Xarelto  dabigatran etexilate  Argatroban  Dabigatran Etexilate  Pradaxa |      * Prothrombotic: highlights are from inputevents  |  |  | | --- | --- | | TXA | tranexamic acid  Tranexamic Acid  Tranexamic Acid Oral Solution  tranexamic acid (bulk) | | DDAVP | Desmopressin Nasal  Desmopressin Acetate | | Vit K | Vitamin K-1  phytonadione (vitamin K1)  Vitamin K1  Mephyton  Phytonadione | | FFP | 220970 --Fresh Frozen Plasma  226367 --OR FFP Intake | | Cryoprecipitate | 225171 --Cryoprecipitate  226371 --OR Cryoprecipitate Intake | | Platelet | 225170 --Platelets  226369 --OR Platelet Intake | | Red Cells | 225168 --Packed Red Blood Cells  225173 --Cell Saver  226368 --OR Packed RBC Intake  226370 --OR Autologous Blood Intake  226372 --OR Cell Saver Intake  220969 --Filtered erytrocytes  221013 --Whole Blood | | IVIG | 227530 --IV Immune Globulin (IVIG) |   Vasopressor drug  mimic\_icu.inputevents  221653 -- dobutamine  221662 -- dopamine  221289 -- epinephrine  221906 -- norepinephrine  221749 -- phenylephrine  222315 -- vasopressin  Dialysis parameters  From Mimic CRRT table  First (crrt\_mode) AS crrt\_mode  , Avg (AccessPressure) AS access\_pressure  , Avg (BloodFlow) AS blood\_flow  , Any (Citrate) AS citrate  , First (DialysateFluid) AS dialysate\_fluid  , Avg (DialysateRate) AS dialysate\_rate  , Avg(EffluentPressure) AS effluent\_pressure  , Avg (FilterPressure) AS filter\_pressure  , Avg HourlyPatientFluidRemoval) AS hourly\_patient\_fluid\_removal  , Avg (ReturnPressure) AS return\_pressure  , Avg (UltrafiltrateOutput) AS ultrafiltrate\_output  , Any(clots) AS clots  , Any(clots\_increasing) AS clots\_increasing |
| Train/test split | Split by PATIENT level first   > stratify by 1, 2, 3+ filters   > 70/30 split each stratum  - Back calculate to ensure even split of clotting events |
| Preprocessing | Censor observation time >120h |
| Missing value | Impute train set median value for vital signs, lab value  Impute zero for medication  RobustScaler |