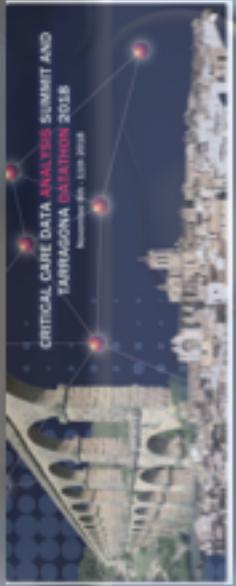


Impact of fluid overload on the evolution of patients with septic shock

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Data Scientist/Statistics-Models: Santiago Frias

Clinician: Christian Villavicencio, Eva Machado, Raquel Carbonell, Diana Gil, Laia Labad.



OBJECTIVE

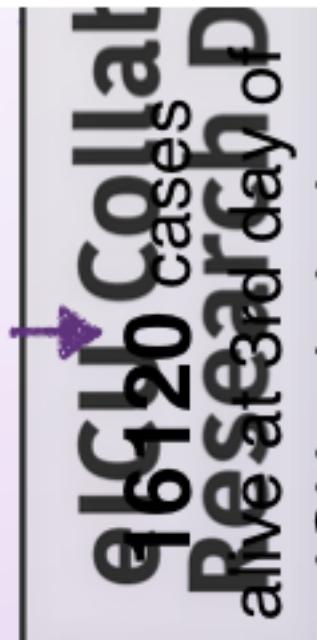
Find a cut-off value of Volume gain after the third day of admission in ICU, which triggers a worse prognosis, in patients with septic shock.



WORK

METHO

32100 cases
1. Geographic DataB^{ase}:

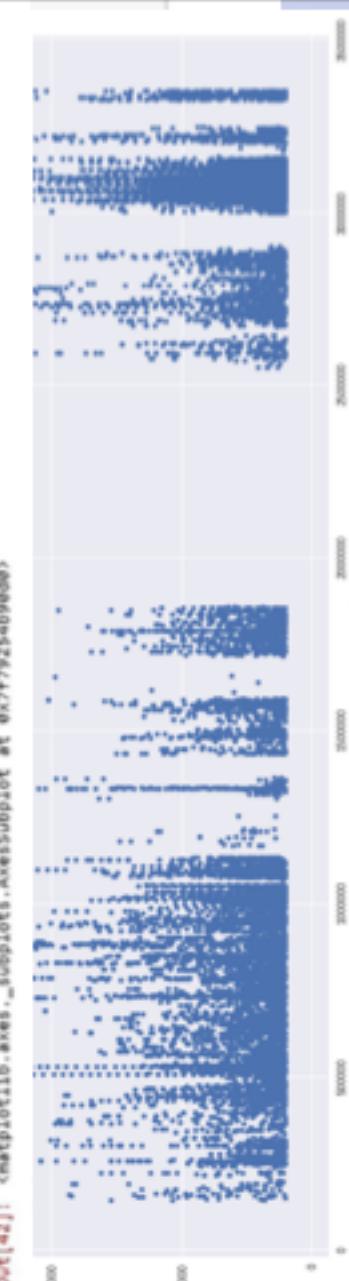
 **ICU** **collat**
6120 **cases**
3rd day of
alive at
ICU admission

Data for patients registered on Septic Shock Diag with almost near of 3 days

```
In [0]: consulta = run_query("SELECT patientunitstayid,activeupondischarge,diagnosisoffset FROM [physionet-data:e1_cu_crd.diagnosis] WHERE LOWER(diagnosisstring) LIKE '%septic shock%' AND diagnosisoffset > 4000 ORDER BY patientunitstayid,activeupondischarge,diagnosisoffset")
```

```
In [0]: consulta
```

```
In [42]: # Scatter plot de correlación entre eje x, eje y, eliminados pacientes de los que no tenemos datos de tres días
consulta.plot(figsize = [20,16], kind='scatter',x='patientunitstayid',y='diagnosisoffset')
```

```
Out[42]: 
```

↓
? **Defining non-acute**
n=2526 patients

Patients with septic shock alive at third day from
ICU-admission

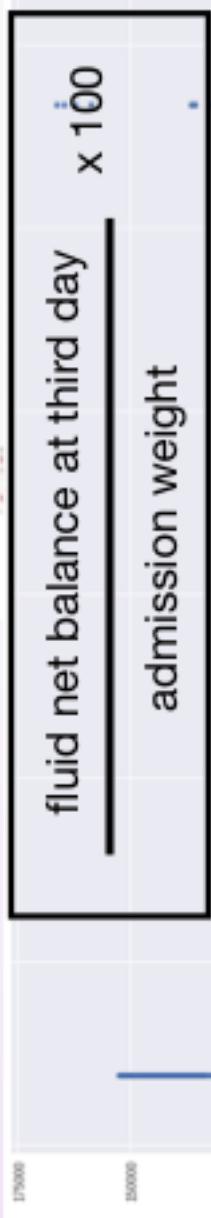
WORK

METHO

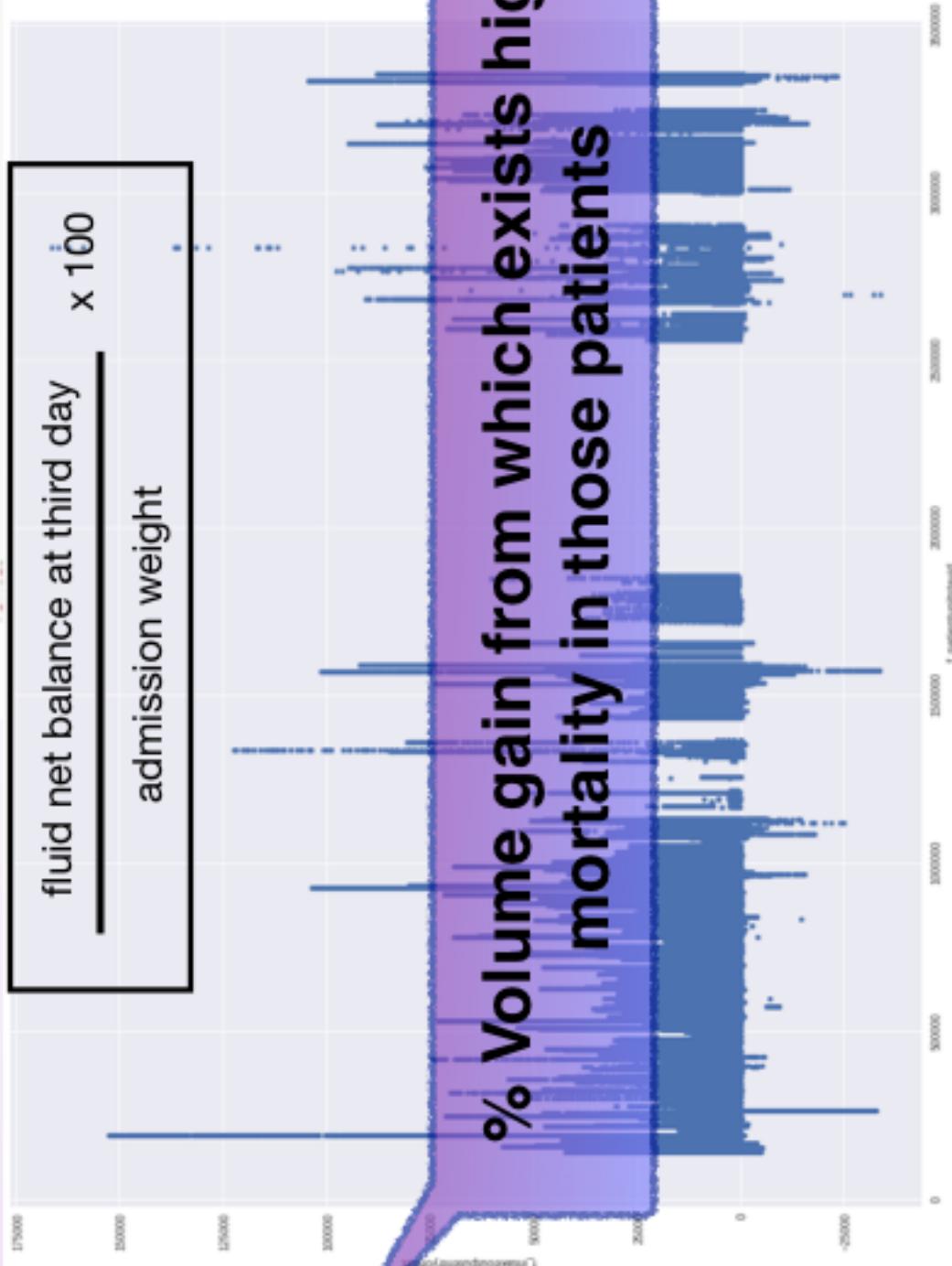
3. Determinant **D**cut-off:

Intake Output Balance events to calculate overload. Cleaned Data

```
In [8]: consulta = run_query("SELECT f.patientunitstayid + f.nettotal, f.intakeoutputentryoffset FROM [datathon-t4  
pregna-2018]team_18.intakeoutput AS f ON (f.patientunitstayid <= 0) AS C_202N [physionet-data/icu_crd.intakeoutput]  
tstayid + f.patientunitstayid) WHILE f.nettotal < 50000 BY f.patientunitstayid, f.intakeoutputentryid
```



% Volume gain from which exists high mortality in those patients



wonk

METHO



4. Determinant Variables:

Demographics:

- Age.
- Sex.
- Weight.

Source of sepsis:

- Respiratory.
- Urinary
- Soft tissues.

Fluids Balance:

- Daily Weight.
- Daily fluid balance.
- Cumulative fluid balance.
- Volume gain.

| Out[28]: | admissionweight | admissionheight | gender | age | diagnosisid | saps3day1 | cirrhosis | diabetes | saps3today | saps3yesterday |
|----------|-----------------|-----------------|--------|---------|-------------|-----------|-----------|----------|------------|----------------|
| 75.50 | 172.70 | Male | 27 | 3781507 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75.50 | 172.70 | Male | 27 | 4108080 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64.80 | 162.60 | Male | 53 | 3853742 | 0 | 0 | 1 | 0 | 0 | 0 |
| 64.80 | 162.60 | Male | 53 | 3834782 | 0 | 0 | 1 | 0 | 0 | 0 |
| 86.80 | 165.10 | Female | 66 | 3850876 | 0 | 0 | 0 | 0 | 0 | 0 |
| 86.80 | 165.10 | Female | 66 | 3707280 | 0 | 0 | 0 | 0 | 0 | 0 |
| 86.80 | 165.10 | Female | 66 | 3892141 | 0 | 0 | 0 | 0 | 0 | 0 |
| 121.00 | 193.00 | Male | 16 | 3890667 | 0 | 0 | 0 | 0 | 0 | 0 |

Respiratory variables:

- PaFiO₂.
- PEEP.
- ELWI.
- ADRS.

Gravity scores:

- Simplified Acute Physiology Score (SAPS III).
- Acute Physiology and chronic Health Evaluation (APACHE II).

WON

MEIHO

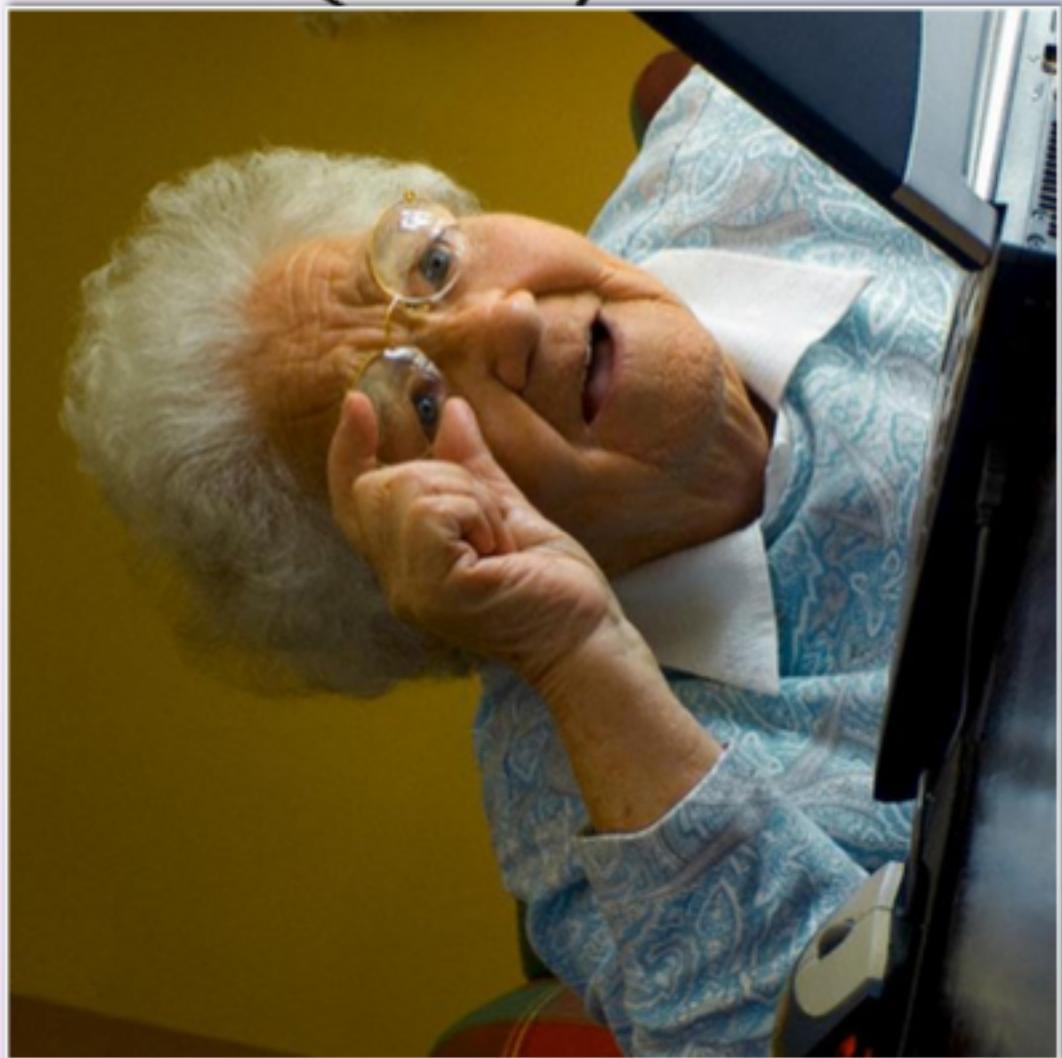
Find
Confounding
Factors

D

5. Pattern



esults





KEEP
CALM
AND
Be a
Team 10 fan