We are going to apply everything we learned in the last three lessons to this mini-project (capstone exercise). Before starting this project, please review what you have learned and follow the same workflow.

A. Data and files

The data for this project is real clinical trial data from OUCRU that has been published. It should be similar to what you usually encounter in your department. In this exercise, we have four data files and one statistical plan file.

1. **“2-10-2020-\_03TS\_V1\_Data.xls”** contains most of the information and serves as our main dataset. Detailed explanations of each variable in this dataset can be found in the statistical plan file (**“03TS analysis plan V1.5 November 2020 Accept changes.docx”**).
2. **“03TS\_Randlist.csv”** contains the allocation of treatment arms. Explanations of the four treatment arms can be found in the sheet called "dictionary" in the same file.
3. **“Protocol violations, exclusions, withdrawals.xlsx”** contains information about violations, exclusions, and withdrawals.
4. **“03TS analysis plan V1.5 November 2020 Accept changes.docx”** provides guidance on where to find specific variables.

B. Objectives  
In this exercise, you need to:

I. Prepare data for each population: **IT-ITT population**, **IM\_ITT population**, **IT\_PP population**, **IM\_PP population**, and **IM\_ALL population**.

(Note: Use **“03TS\_Randlist.csv”** to retrieve the allocation of the first 272 participants, and use **“Protocol violations, exclusions, withdrawals.xlsx”** to filter the data for each corresponding population: **IT-ITT population**, **IM\_ITT population**, **IT\_PP population**, **IM\_PP population**, and **IM\_ALL population**.)

**II. Create tables for each population**

**a. Summary of baseline characteristics**  
Baseline characteristics should be summarized as follows:

* For numeric data: Report the median along with the 1st and 3rd quartiles, as well as the lowest and highest values.
* For categorical data: Report the count (**n**) and percentage (**%**).

No formal statistical comparison of baseline characteristics between the two study arms will be performed.

The following baseline characteristics will be summarized:

1. Patient details: sex, age (**ENR.**AGE **ENR.**SEX), BMI (**ADM**.WEIGHT/(**ADM**.HEIGHT)2)
2. Past medical history:

**ADM**.HYPERTENSION, **ADM.**MYOCARDIALINFART, **ADM.**ANGINA, **ADM**.PERIVASCULAR, **ADM.**CHRONICPUL, **ADM**.CONNECTIVETISSUE, **ADM**.MILDLIVER, **ADM**.HEMIPLEGIA, **ADM**.DIAWITHCHRONIC, **ADM**.SEVERELIVER, **ADM**.AIDS, **ADM**.CARDIACFAILUREIII, **ADM**.CARDIACFAILUREIV, **ADM**.CEREBROVASCULAR, **ADM**.SEVERERESP, **ADM**.PEPTICULCER, **ADM**.DIABETES, **ADM**.SEVEREKIDNEY, **ADM**.MALIGNANCY, **ADM**.TUMOUR, **ADM**.DEMENTIA, **ADM**.COMORBIDITYOTH1, **ADM**.COMORBIDITYOTH2

1. Recent surgery **ADM**.ELECTIVESURGERY, **ADM**.EMERGENCYSURGERY
2. Patient history

* Duration of illness (**ADM.**TIMETOADM)
* Incubation period (**ADM**.INCUBATIONPERIOD)
* Period of onset (**ADM**.INCUPERIODONSET)
* Wound (**ADM.**WOUND 1=deep, 2 – superficial/other)
* Difficulty breathing on admission (**ADM**.DIFFBREATH)
* Ablett Score on admission (**ADM**.ABLETT, values I, II, III or IV)
* ASA Score (**ADM**.ASA, values 1,2 3 or 4)
* Maximum temperature during 1st day (**ADM**.MAXTEMP)
* Respiratory Rate (**ADM**.RESP)
* FiO2 (**ADM**.FIO2)
* SpO2 (**ADM**.SPO2)
* PAO2 (**ADM.**PAO2)
* PH (**ADM**.PH)
* Platelet count (**ADM**.PLT)
* White blood cell count (**ADM**.WBC)
* Haematorcrit (**ADM**.HCT)
* Max HR (**ADM**.MAXHR)
* Min HR (**ADM**.MINHR)
* Max SBP (**ADM.**MAXSBP)
* Worst DBP (**ADM**.WORSTDBP)
* Worst SBP (**ADM**.WORSTSBP)
* Vasopressors (**ADM**.VASO)
* Bilirubin (**ADM**.BILI)
* Sodium (**ADM**.NA)
* Potassium (**ADM**.K)
* Creatinine (**ADM**.CREAT)
* Acute Renal failure **(ADM**.RENALFAILURE)
* Specific severity scores will be calculated from the above variables (See Appendix for details) Tetanus Severity Score, SOFA score, APACHE II score

1. Adverse Events

Adverse events (AE) have been derived by study physicians who were blind to the treatment allocations. We consider “any adverse event” as well as each AE separately. Tables will be generated to summarize the proportion of individuals with the adverse event, tabulating adverse events by grade (I-IV) and whether these events were judged to be related or possibly related to the treatment intervention. [AE.SAE DATA SHEET SAE\_GRID\_AE.CTCAENAME, SAE\_GRID\_AE.CTCAEGRADE, POSRELUNREL , “POSREL” or “REL”]. The following events will be excluded from adverse event reporting AE.SAE DATA SHEET: SAE\_GRID\_AE.CTCAENAME = “Nasogastric tube”; “Urinary Catheter”; “Tracheostomy”; “Mechanical ventilation” and “ANSD”

Tables will be generated separately for severe adverse events for IT-ITT, IM-PP, IM-ITT, IM-PP and IM-ALL,[AE.SAE DATA SHEET SAE\_GRID\_SAE. SAECATEGORY]. Comparisons of the proportions will be done with the chi-square test for independence; if the expected number is <= 1 in at least one of the cells, Fisher’s exact test is used. AE and SAE data will be supplied as a separate file [AE.SAE DATA SHEET].

**III. Plot histogram to summarize:**

Total dose of pipecuronium during hospital stay for patients who are ventilated (VENT. VENSTART=Y) (sum of the values of DAILY\_DAILY.PIPECURONIUM per patient over the days) (not mentioned in protocol)

• Duration of pipecuronium during hospital stay in patients who are ventilated (VENT. VENSTART=Y) (length of DAILY\_DAILY.PIPECURONIUM per patient) (not mentioned in protocol). The value is zero for those that did not receive pipecuronium.

• Total dose of diazepam during hospital stay (DAILY\_DAILY.DIAZEPAMIM, + DAILY\_DAILY.DIAZEPAMORAL, (not mentioned in protocol)

• Total dose of midazolam during hospital stay (DAILY\_DAILY.MIDAZOLAM) (not mentioned in protocol)

• Total dose of benzodiazepines during hospital stay [as diazepam equivalent dose] calculated as total DAILY\_DAILY. DIAZEPAMIM, + DAILY\_DAILY.DIAZEPAMORAL + (4.17\*( DAILY\_DAILY.MIDAZOLAM)) (sum of the values per patient; not mentioned in protocol)

• Total duration of benzodiazepines (DAILY\_DAILY.DIAZEPAMIM, DAILY\_DAILY.DIAZEPAMORAL , DAILY\_DAILY.MIDAZOLAM)) (length of the column per patient; not mentioned in protocol).