

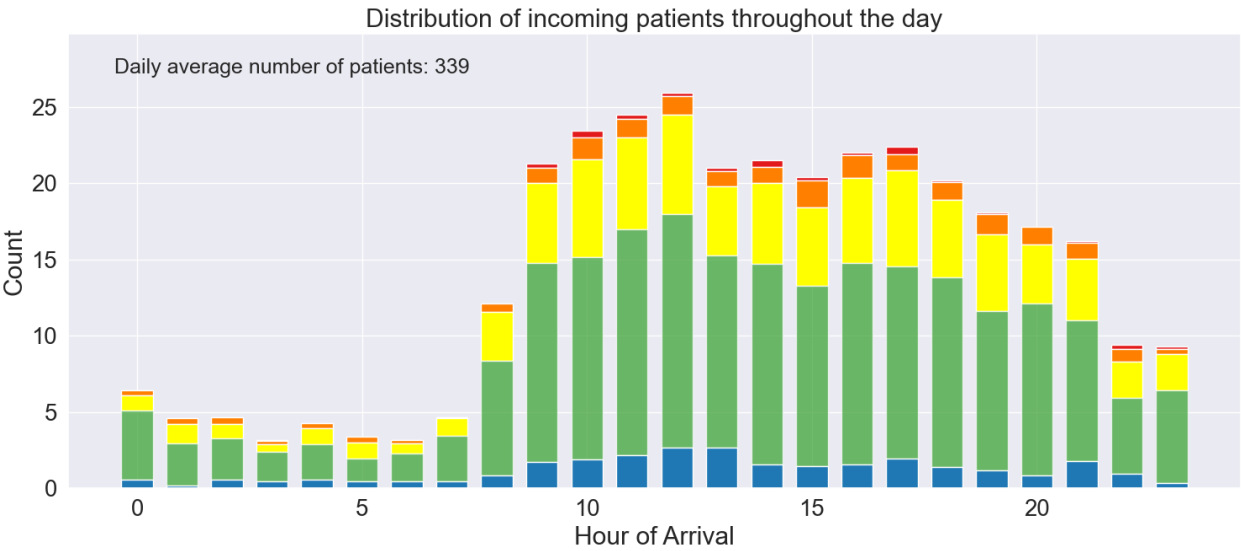
# Emergency Department Simulator

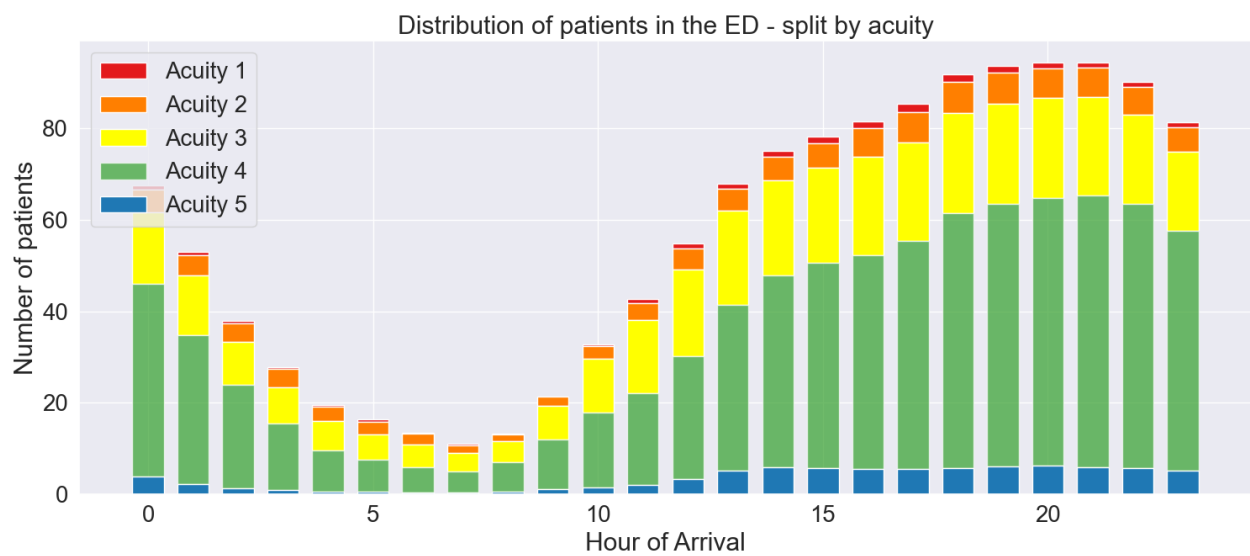
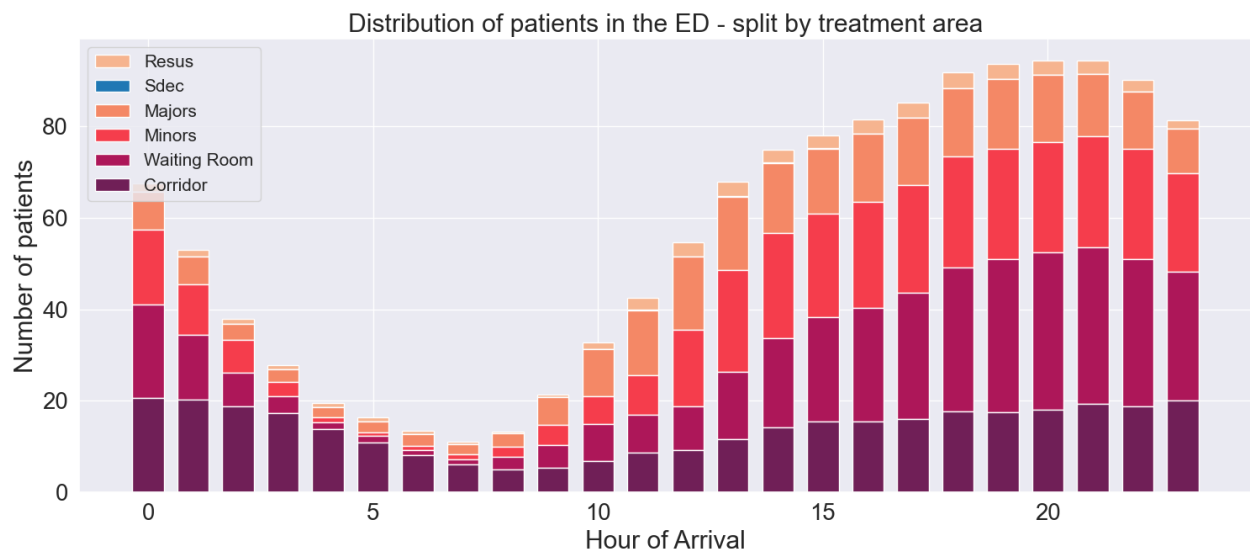
## Setup

Type of ED: Custom  
Daily Attendance = 335 patients  
Number of doctors = 16 doctors  
Number of sdec\_doctors = 10 sdec\_doctors  
Number of rat\_doctors = 2 rat\_doctors  
Number of nt\_doctors = 2 nt\_doctors  
Resus cubicles = 5 cubicles  
SDEC cubicles = 10 cubicles  
Majors cubicles = 26 cubicles  
Minors cubicles = 25 cubicles  
Waiting room capacity = 40 seats  
Days to run simulation = 14.0 days

## Number of incoming patients / patients in the ED and distribution throughout the day

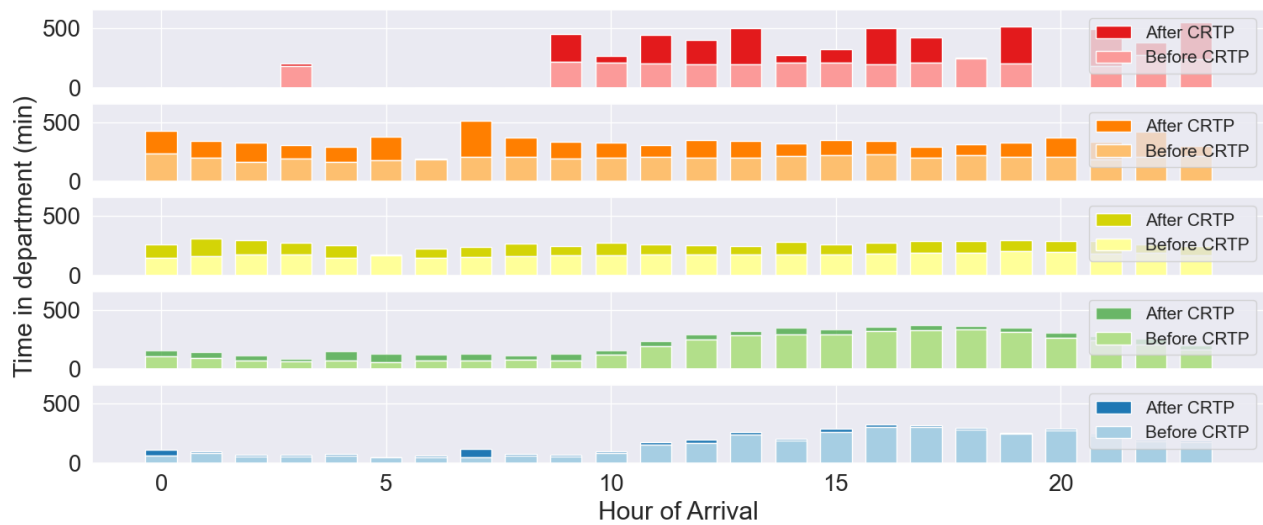
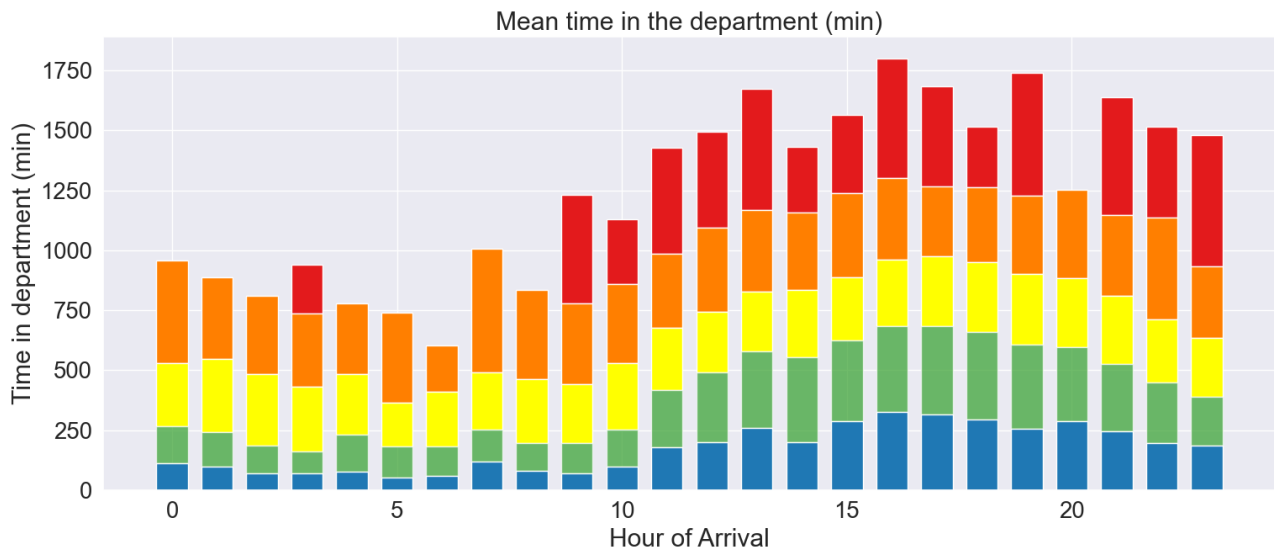
	Acuity 1	Acuity 2	Acuity 3	Acuity 4	Acuity 5
Percentage	0.88%	5.5%	24.65%	60.68%	8.29%
Daily number	3	18	83	203	28



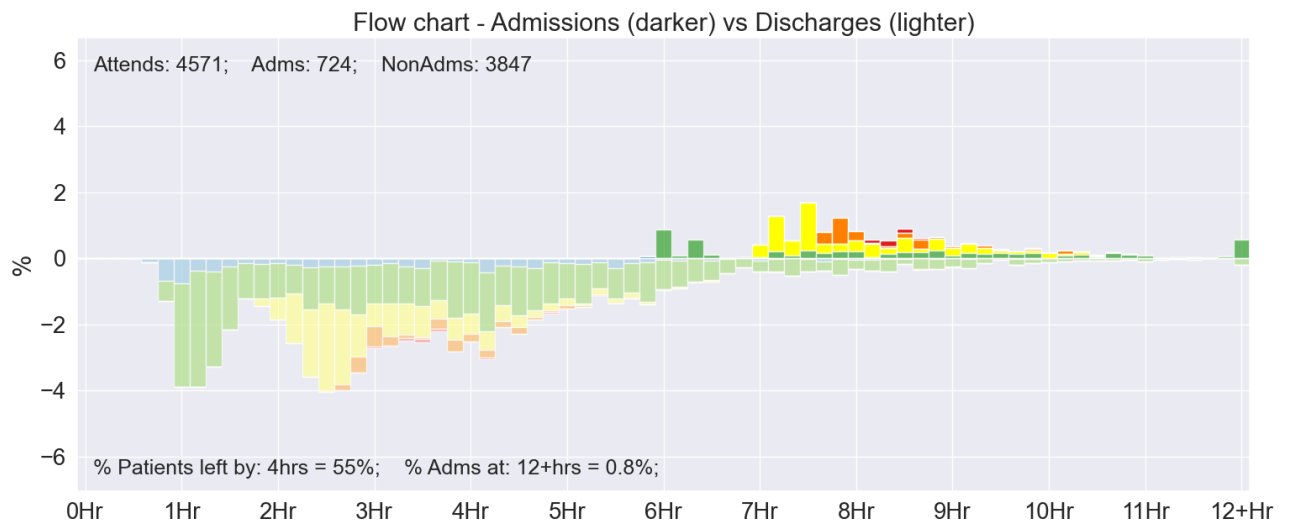


### Main metrics regarding time spent in the department depending on acuity

	Acuity 1	Acuity 2	Acuity 3	Acuity 4	Acuity 5
Mean time $\pm$ std	383 $\pm$ 149	338 $\pm$ 147	270 $\pm$ 142	266 $\pm$ 164	200 $\pm$ 124
Longest time	639	698	656	935	615
Time to see doctor - mean $\pm$ std	20 $\pm$ 28	22 $\pm$ 33	32 $\pm$ 29	140 $\pm$ 107	128 $\pm$ 102
Mean number left / day	0	0	0	5	0



### Percentage of admitted and discharged patients as a function of the time spent in ED



List of model input parameters:

```
{
  "Acuity_Percentages": {
    "Acuity 1": 0.88,
    "Acuity 2": 5.50,
    "Acuity 3": 24.65,
    "Acuity 4": 60.68,
    "Acuity 5": 8.29
  },

  "Sim_Parameters": {
    "daily_num_patients": 335,
    "num_doctors": 16,
    "num_sdec_doctors": 10,
    "num_rat_doctors": 2,
    "num_nt_doctors": 2,
    "max_resus": 5,
    "max_sdec": 10,
    "max_majors": 26,
    "max_minors": 25,
    "max_waiting_room": 40,
    "sdec_Percentage": 1,
    "ambulance_vs_nonambulance_Percentage": 31.57,
    "ac12_ambulance_Majors_vs_Resus_Percentage": 50,
    "ac12_nonambulanceNonResus_MajorsDirect_Vs_WR_Percentage": 50,
    "a12_nonambulance_resus_vs_non_resus_Percentage": 50,
    "a3_AmbulanceMHPatient_Percentage": 1.9,
    "a3_NonAmbulance_MHPatient_Percentage": 1.9,
    "sdec_opening_hour": 8,
    "sdec_closing_hour": 20
  },

  "Target_Parameters": {
    "W": {
      "mean_target": 212,
      "std_target": 0.0
    },
    "S": {
      "mean_target": 212,
      "std_target": 0.0
    }
  },

  "Target_Parameters_Default_Values": {
```

```
"W": {
  "mean_target": 120,
  "std_target": 60.0
},
"S": {
  "mean_target": 30,
  "std_target": 15.0
}
},
```

```
"Bed_Occupancy": {
  "80": {
    "mean_bed": 90,
    "std_bed": 0.0
  },
  "85": {
    "mean_bed": 90,
    "std_bed": 0.0
  },
  "90": {
    "mean_bed": 90,
    "std_bed": 0.0
  },
  "95": {
    "mean_bed": 90,
    "std_bed": 0.0
  }
},
```

```
"Bed_Occupancy_Default_Values": {
  "80": {
    "mean_bed": 30,
    "std_bed": 30.0
  },
  "85": {
    "mean_bed": 120,
    "std_bed": 60.0
  },
  "90": {
    "mean_bed": 480,
    "std_bed": 120.0
  },
  "95": {
    "mean_bed": 600,
```

```
    "std_bed": 240.0
  }
},

"Doctor_Times": {
  "acuity 1":{
    "time_assess_nt": {
      "mean": 3,
      "stdev": 0.0
    },
    "time_assess_rat": {
      "mean": 3,
      "stdev": 0.0
    },
    "time_wait_mh": 0,
    "time_assess": 15,
    "time_treat": 110,
    "time_discharge": {
      "mean": 45,
      "stdev": 0.0
    }
  },
  "acuity 2":{
    "time_assess_nt": {
      "mean": 3,
      "stdev": 0.0
    },
    "time_assess_rat": {
      "mean": 3,
      "stdev": 0.0
    },
    "time_wait_mh": 0,
    "time_assess": 15,
    "time_treat": 90,
    "time_discharge": {
      "mean": 35,
      "stdev": 0.0
    }
  },
  "acuity 3":{
    "time_assess_nt": {
      "mean": 3,
      "stdev": 0.0
    },
```

```
"time_assess_rat": {
  "mean": 3,
  "stdev": 0.0
},
"time_wait_mh": 120,
"time_assess": 10,
"time_treat": 65,
"time_discharge": {
  "mean": 25,
  "stdev": 0.0
}
},
"acuity 4":{
  "time_assess_nt": {
    "mean": 3,
    "stdev": 0.0
  },
  "time_assess_rat": {
    "mean": 3,
    "stdev": 0.0
  },
  "time_wait_mh": 0,
  "time_assess": 5,
  "time_treat": 10,
  "time_discharge": {
    "mean": 10,
    "stdev": 0.0
  }
},
"acuity 5":{
  "time_assess_nt": {
    "mean": 3,
    "stdev": 0.0
  },
  "time_assess_rat": {
    "mean": 3,
    "stdev": 0.0
  },
  "time_wait_mh": 0,
  "time_assess": 5,
  "time_treat": 5,
  "time_discharge": {
    "mean": 5,
    "stdev": 0.0
  }
}
```

```
    }  
  }  
},  
  
"Registration_Times": {  
  "acuity 1": 1,  
  "acuity 2": 1,  
  "acuity 3": 1,  
  "acuity 4": 1,  
  "acuity 5": 1  
},  
  
"Max_Waiting_Times": {  
  "30": 0.56,  
  "60": 0.68,  
  "120": 1.11,  
  "240": 3.11,  
  "300": 2.53,  
  "100000000": 92.02  
},  
  
"Prob_Admission": {  
  "acuity 1": 0.585,  
  "acuity 2": 0.489,  
  "acuity 3": 0.264,  
  "acuity 4": 0.103,  
  "acuity 5": 0.036  
},  
  
"Diagnostic_Tests":{  
  "acuity 1":{  
    "ct_percentage": 21.5,  
    "time_ct_mean": 52,  
    "time_ct_stdev": 0.0,  
    "XRay_percentage": 26.2,  
    "time_XRay_mean": 28,  
    "time_XRay_stdev": 0.0,  
    "blood_percentage": 59.5,  
    "time_blood_mean": 10,  
    "time_blood_stdev": 0.0  
  },  
  "acuity 2":{  
    "ct_percentage": 17.7,
```



```
"time_ct_mean": 87,  
"time_ct_stdev": 0.0,  
"XRay_percentage": 32.9,  
"time_XRay_mean": 54,  
"time_XRay_stdev": 0.0,  
"blood_percentage": 74.9,  
"time_blood_mean": 12,  
"time_blood_stdev": 0.0  
},  
"acuity 3":{  
  "ct_percentage": 12.8,  
  "time_ct_mean": 96,  
  "time_ct_stdev": 0.0,  
  "XRay_percentage": 22.3,  
  "time_XRay_mean": 57,  
  "time_XRay_stdev": 0.0,  
  "blood_percentage": 60.9,  
  "time_blood_mean": 16,  
  "time_blood_stdev": 0.0  
},  
"acuity 4":{  
  "ct_percentage": 4.7,  
  "time_ct_mean": 98,  
  "time_ct_stdev": 0.0,  
  "XRay_percentage": 9.8,  
  "time_XRay_mean": 48,  
  "time_XRay_stdev": 0.0,  
  "blood_percentage": 30.2,  
  "time_blood_mean": 18,  
  "time_blood_stdev": 0.0  
},  
"acuity 5":{  
  "ct_percentage": 1.8,  
  "time_ct_mean": 100,  
  "time_ct_stdev": 0.0,  
  "XRay_percentage": 4.4,  
  "time_XRay_mean": 33,  
  "time_XRay_stdev": 0.0,  
  "blood_percentage": 16.6,  
  "time_blood_mean": 20,  
  "time_blood_stdev": 0.0  
}  
},
```

```
"Time_to_Exit": {  
  "mean": 10,  
  "stdev": 10  
},
```

```
"Hourly_Arrivals": {  
  "0": 6,  
  "1": 4,  
  "2": 4,  
  "3": 3,  
  "4": 3,  
  "5": 4,  
  "6": 4,  
  "7": 6,  
  "8": 13,  
  "9": 20,  
  "10": 23,  
  "11": 25,  
  "12": 25,  
  "13": 22,  
  "14": 21,  
  "15": 21,  
  "16": 21,  
  "17": 21,  
  "18": 20,  
  "19": 17,  
  "20": 16,  
  "21": 14,  
  "22": 10,  
  "23": 8  
}
```

```
}
```