ER Triage Tool

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Background

ER Overcrowding

- ER Overcrowding has been major concern in the Healthcare industry over the last 2 decades.
- Overcrowding leads to delayed patient care and lower quality of care
- The average ER wait time in Ontario Canada hospitals is 4 hours

Triage

- Triage is the process of performing an initial rapid assessment of all incoming patients
- A score from 1-5 is assigned to determine the urgency of their need for treatment

Data Science Solution

- The goal of this project is to develop a model that uses the patient’s vital signs and chief complaints to recommend a triage score
- This will assist ER nurses with better decision making
- An analysis of historic patient data will be conducted to identify patterns in the data

Impact

- Reduction of triage time
- Human error will be reduced
- Improved quality of care

Dataset

	Group	Sex	Age	Patients number per hour	Arrival mode	Injury	Chief_complain	Mental	Pain	NRS_pain	...	BT	Saturation	KTAS_RN	Diagnosis in ED	Disposition	KTAS_expert
0	Regional ED	Male	71	3	Private car	injury	right ocular pain	Alert	pain	2	...	36.6	100	2	Corneal abrasion	Discharge	4
1	Local ED	Female	56	12	Private car	injury	right forearm burn	Alert	pain	2	...	36.5	NaN	4	Burn of hand, firts degree dorsum	Discharge	5
2	Regional ED	Female	68	8	119 use	injury	arm pain, Lt	Alert	pain	2	...	36.6	98	4	Fracture of surgical neck of humerus, closed	Ward admission	5

3 rows × 24 columns

Preliminary Exploratory Data Analysis Findings

- Patients with a high triage score are more likely to be injured
- Patients assigned a non emergency triage score usually occurs when ER is more crowded (high number of patients per hour)
- Non emergency patients report a higher Pain level

Next Steps

- Further data cleaning and feature engineering to group the chief complaints will be carried out to improve model performance

- Different algorithms for categorical data will be used to determine best performing model

- Algorithms to be used include Logistic regression, KNN and random forest etc