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Using Paper Based Registries in Studying The Health Effect of Air Pollution: Case of Beirut

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Introduction

- Lebanon relies on paper based records in the healthcare department
- Electronic health records are superior to paper based records in terms of long-term storage and manipulability
- Establishing guidelines by which electronic systems are created and data is cleaned and sorted is critical given the importance of health records in epidemiological and eco-epidemiological studies

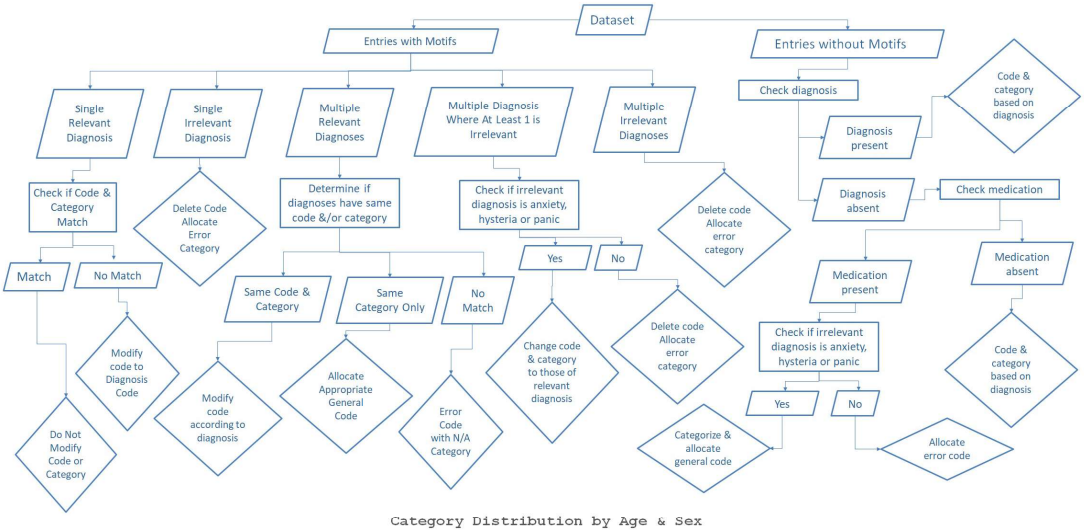
Objectives

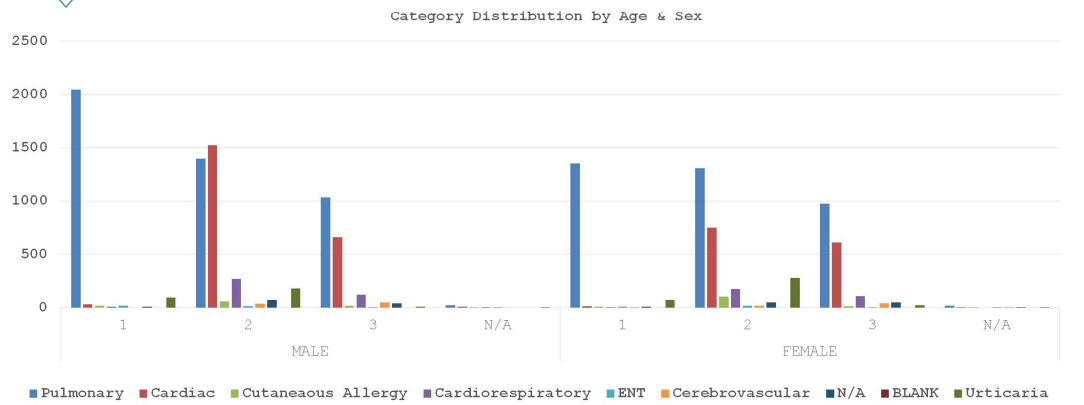
- To describe the process by which an electronic database was creased from emergency department admissions
- To describe the algorithm used to clean the dataset & sort the data by allocating code & disease categories

Methods

- Extract data related to date of presentation, patient demographics and heath complaints
- Sort demographic data and allocate codes to age and gender
- Analyze health complaint data and allocate the appropriate ICD10 code and category according to the sorting algorithm
- Allocate appropriate error codes to error values to allow for future error analysis

Results





Codes		
G00 - G09	G45 - G46	J90 - J94
H60- H95	I00 - I52	L50 - L54
I00 - I99	I20 - I24	T886
I60 - I62	I63 - I64	0
J00 - J98	J00 - J99	L50
J12 - J18	J20 - J22	N/A
J40 - J47	J45 - J46	BLANK

Categories				
Pulmonary	Cardiac	Cutaneous Allergy	ENT	Cardio respiratory
Cerebro vascular	Urticaria	N/A	BLANK	MISC. ACCIDENT
MISC. ALLERGIC	MISC. ANDRO	MISC. COMBINED	MISC. ENDO	MISC. GASTRO
MISC. HEMATO-ONCO	MISC. INFECTIOUS	MISC. MUSK	MISC. NEURO	MISC. OBGYN
MISC. PSYCH	MISC. SUBST. ABUSE	MISC. SURGICAL	MISC. UNINDENTIFIED	MISC. URO

Categories		Codes	
Pulmonary	8770	G00 - G09	0
Cardiac	4159	G45 - G46	10
Cutaneous Allergy	369	H60 - H95	83
Cardiorespiratory	729	I00 - I52	953
ENT	83	I00 - I99	2109
Cerebrovascular	165	I20 - I24	1779
N/A	240	I60 - I62	0
Blank	0	I63 - I64	155
Urticaria	665	J00 - J98	393
Misc. Accident	26	J00 - J99	3775
Misc. Allergic	30	J12 - J18	1442
Misc. Andro	2	J20 - J22	1125
Misc. Combined	2	J40 - J47	597
Misc. Endo	12	J45 - J46	1416
Misc. Gastro	171	J90 - J94	69
Misc. Hemato-Onco	28	L50 - L54	362
Misc. Immuno	1	T886	7
Misc. Infectious	5		
Misc. Musk	387	0	0
Misc. Neuro	1		
Misc. OBGYN	3	N/A	240
Misc. Psych	595		
Misc. Subst. Abuse	12	BLANK	1357
Misc. Surgical	3		
Misc. Unidentified	69	L50	665
Misc. Uro	10		
Genders		**Age Groups**	
M	9175	1	3922
F	7320	2	8041
Missing	0	3	4473
N/A	40	Blank	101
Total Number of Entries		16537	

- The information is categorized based on the cleaning & sorting algorithm
- Categorization was performed on a day, month, astronomical season & year basis
- Categorization by age & gender were performed by allocating the appropriate codes
- ICD10 codes & categories were allocated
- Counts were established for each variable, code & category
- The data graphed for better visualization

Conclusion

- Paper-based health record systems are disadvantageous for data extraction & health data analysis in the context of epidemiological studies
- Cleaning & sorting of data to generate an electronic record allows for high fidelity data analysis of health records

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