

TITLE PAGE

Original Research Article

Network Analysis and Machine Learning for Signal Detection & Prioritization Using Electronic Healthcare Records and Administrative Databases: A Proof of Concept on Drug-induced Acute Myocardial Infarction

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A

Pair_Type	Type1	Type2	C	W_Dr	W_Di	W_F
Drug_Diagnosis	A02AD02	038.19	1	8.50	4.50	13.00
Drug_Diagnosis	A02AD02	188.8	1	10.50	1.50	12.00
Drug_Diagnosis	A02AD02	250.00	4	15.75	4.50	20.25
Drug_Diagnosis	A02AD02	250.70	1	1.50	2.50	4.00
Drug_Diagnosis	A02AD02	276.2	1	8.50	4.50	13.00
Drug_Diagnosis	A02AD02	276.51	1	14.50	4.50	19.00
Drug_Diagnosis	A02AD02	280.0	1	19.50	5.50	25.00
Drug_Diagnosis	A02AD02	285.1	1	5.50	3.50	9.00
Drug_Diagnosis	A02AD02	285.21	1	12.50	4.50	17.00
Drug_Diagnosis	A02AD02	285.9	1	8.50	2.50	11.00
Drug_Diagnosis	A02AD02	332.0	1	14.50	4.50	19.00

B

Pair_Type	Type1	Type2	C	W_Dr	W_Di	W_F
Drug_Drug	C09CA06	C07AB12	4	6.50	5.00	11.50
Drug_Drug	C09CA06	H03AA01	5	6.50	2.50	9.00
Drug_Drug	C09CA06	R03AK06	1	2.50	2.50	5.00
Drug_Drug	C09CA06	A11CC05	3	10.50	3.50	14.00
Drug_Drug	C09CA06	H02AB04	1	5.50	5.50	11.00
Drug_Drug	C09CA06	A02BC03	7	7.00	6.00	13.00
Drug_Drug	C09CA06	N06AB04	1	12.50	1.50	14.00
Drug_Drug	C09CA06	C10AA01	6	10.50	5.00	15.50
Drug_Drug	C09CA06	B01AB05	3	11.50	2.50	14.00
Drug_Drug	C09CA06	B01AC05	6	9.50	5.00	14.50
Drug_Drug	C09CA06	B03AA01	1	8.50	6.50	15.00

C

Pair_Type	Type1	Type2	C	W_Dr	W_Di	W_F
Diagnosis_Diagnosis	410.01	414.01	128	4.75	2.50	7.25
Diagnosis_Diagnosis	410.01	410.71	2	5.00	5.25	10.25
Diagnosis_Diagnosis	410.01	428.1	16	5.50	4.50	10.00
Diagnosis_Diagnosis	410.01	427.31	19	4.50	2.50	7.00
Diagnosis_Diagnosis	410.01	414.8	1	7.50	3.50	11.00
Diagnosis_Diagnosis	410.01	401.9	2	8.00	1.25	9.25
Diagnosis_Diagnosis	410.01	250.00	2	4.00	2.00	6.00
Diagnosis_Diagnosis	410.01	785.52	1	7.50	1.50	9.00
Diagnosis_Diagnosis	410.01	427.81	2	7.00	1.50	8.50
Diagnosis_Diagnosis	410.01	491.21	3	8.50	2.00	10.50

Supplementary Fig. 1 Frequency and weights for node pairs: drug–diagnosis in panel A, drug–drug in panel B, and diagnosis–diagnosis in panel C.