Targeting abbreviated medication names with NLP

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Introduction

According to The Joint Commission, medication names should not be abbreviated as misinterpretation may lead to administration of incorrect medication. Computerized order entry use eliminates this problem for orders, but clinical notes and narratives are still filled with abbreviations.

Objectives

Identify abbreviated medication names in clinical narrative, using Natural Language Processing, as a first step towards elimination

Methods

Retrospective chart review of pediatric ED consult notes at a tertiary pediatric center in 2019. We targeted consult notes due to potential differences in expertise between the documenting and reading providers.

Abbreviated, misspelled and true medication names were identified using 2 Natural Language Processing methods:

1. named-entity recognition (NER) using a pre-trained model called MED7
2. Regular Expressions (RegEx) used to identify strings likely to be medications given surrounding text context

Natural Language Processing tools can identify abbreviated medication names.

Libraries of these should be incorporated seamlessly into clinical documentation tools.

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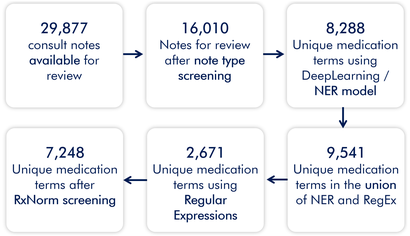
Results



Selected Abbreviated Medication Names Found

Term	Count	Potential Meanings
vanc	101	vancomycin
ctx	98	ceftriaxone, Cytoxan
vanco	67	vancomycin
midaz	62	midazolam
ceftaz	39	ceftazidime
lzp	35	lorazepam
amox	32	amoxicillin
norepi	30	norepinephrine
tazo	20	tazobactam
oxc	20	oxcarbazepine, ofloxacin, oxycodone
oxcarb	18	oxcarbazepine
tacro	16	tacrolimus
vgb	15	vigabatrin
ivmp	14	intravenous methylprednisolone
mmf	14	mycophenolate mofetil, maxillomandibular fixation
acei	14	angiotensin converting enzyme inhibitor, acetylcholinesterase inhibitors
phb	13	phenobarbital
ara-c	11	cytarabine
ruf	11	rufinamide, rectourethral fistula
zns	10	zonisamide, zolmitriptan nasal spray
ino	10	inhaled nitric oxide, internuclear ophthalmoplegia, inhalation, inositol, inotuzumab ozogamicin
clb	8	clobazam, chlorambucil
pip	8	piperacillin, peak inspiratory pressure
mero	8	meropenem
lr	6	lacated ringers, low risk
hts	6	hypertonic saline
vigab	5	vigabatrin
cbz	4	clobazam, carbimazole, carbamazepine
mdz	4	midazolam, metronidazole

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