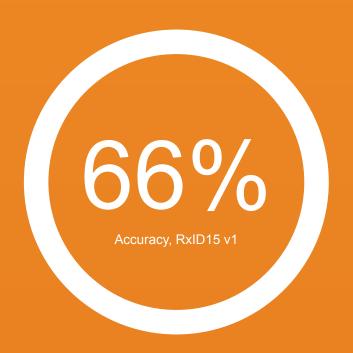


RXID

Increasing Medication Safety with Image Recognition using Deep Learning

Alphonso Woodbury

RxID drives wellness and saves money



Top 5 Causes of Death USA 2017

Heart Disease Cancer

Medical/Medication Errors

Respiratory Stroke

Diagnosis

Treatment

Prevention

Other

Medical Errors Occur:

Any clinical setting, by any individual, during any stage of a patient's care

Diagnosis

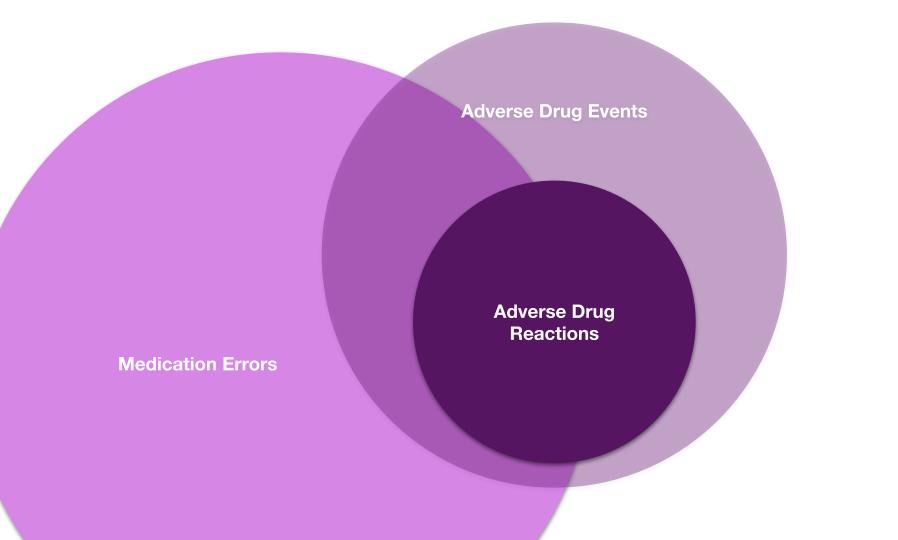
Treatment

Prevention

Other

Adverse Drug Event

Any preventable event that may cause or lead to inappropriate medication use or patient harm



1 or more Meds

At least 5 Meds

82%

29%

Risk Factors (USA)

Multiple Chronic Conditions

Aged 65+

103M

52M

will double by 2060

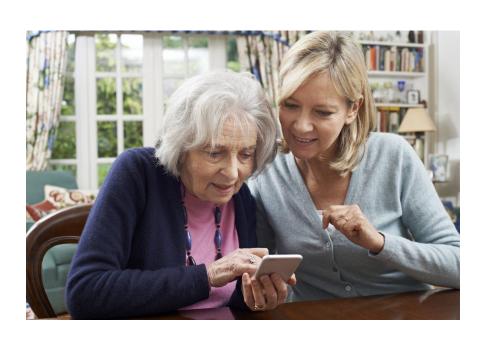
RxID Solutions: Dispensing (camera stack integration)



Retail and automated pharmacy dispensing validation

Pharmacist fatigue

RxID Solutions: Patient/Caregiver (smartphone app)



- Visual impairment
- Drug change
- Recalls
- Mixed meds

RxID Solutions: Emergency (smartphone app)



Quick identification during an accidental or intentional overdose How does RxID...

Improve Health Outcomes

Reduce ADEs
Empower patients/caregivers
Accelerate intervention

Save Money

Save Pharmacists time Reduce hospitalizations Lower risk of litigation

RxID Technical Details

Medication image data from the NIH; Original dataset includes over 4000 different medications

Deep learning on a convolutional Neural Network

Trained on 749 images

Focus on Accuracy

Does not require an API call; safe, private, accessible

Limitations

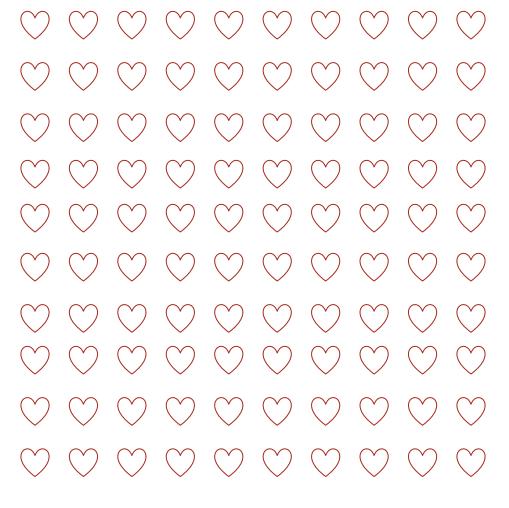
Oral tablets and capsules

FDA approved **NDC**

Lot Number

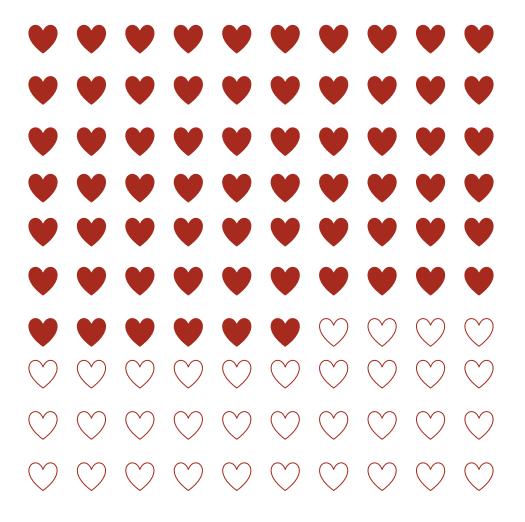
15 NDCs in v1

RxID15 Results:



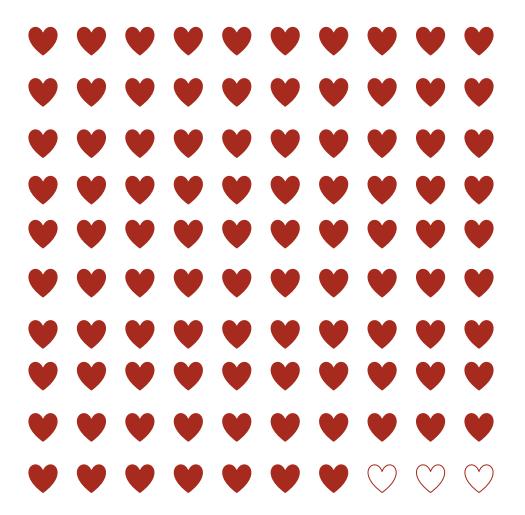
RxID15
Results:

66%



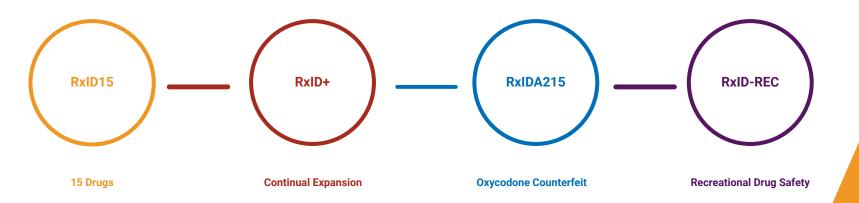
RxID15
Goal

97%



Bigger, Better, Faster, More

Transfer Learning | Larger Datasets | Cloud Compute





Thank You

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Acknowledgments

Ref 1

Ref 1

Ref 1

Ref 1

Ref 1

Ref 1





We were inspired by MobileDeepPill (Michigan State University), which achieved 52 - 97% Accuracy in the 2016 NLM Pill Image Recognition Challenge