

RXID

Increasing Medication Safety with Image Recognition using Deep Learning

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RxID drives wellness and saves money



Top 5 Causes of Death USA 2017

Heart Disease Cancer

Medical/Medication Errors

Respiratory Stroke

Diagnosis

Treatment

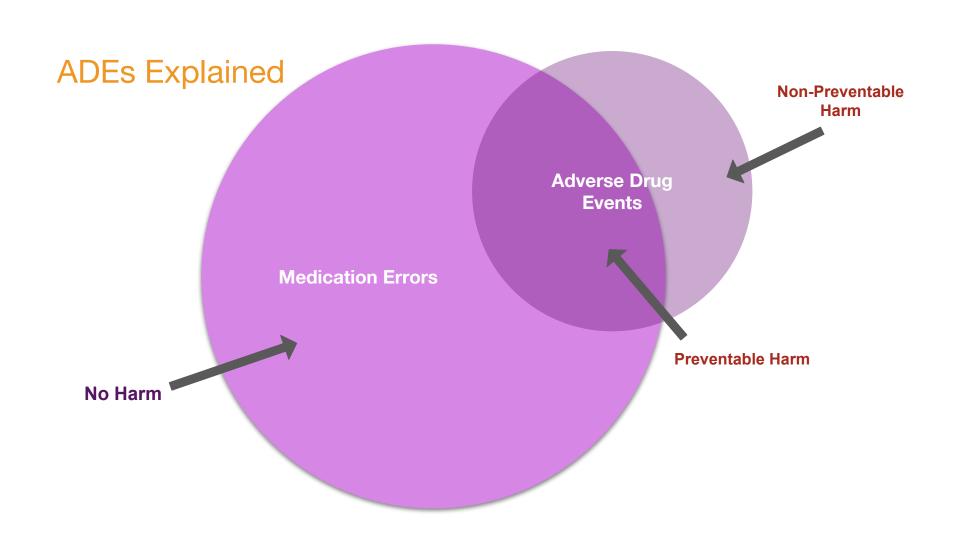
Prevention

Other

Medical errors occur in any clinical setting, by any individual, and during any stage of a patient's care

Adverse Drug Event

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



Multiple Chronic Conditions

103M

High-risk group: patients on 5 or more medications

Aged 65+

52M

will double by 2060

RxID Solutions: Dispensing Validation



 Camera stack integration to catch errors before reaching pharmacist

RxID Solutions: Patient/Caregiver Support



A smartphone app to assist with:

- Visual impairment
- Drug change
- Recalls
- Mixed meds

RxID Solutions: Emergency Intervention



Quick pill identification during an health crisis

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

CLEOCIN 75MG



INDERAL LA 160MG



HYDROXYZINE HCL 10MG GABAPENTIN 300MG





HCTZ 50MG



FLUOXETINE 40MG



HYOMAX-DT 0.375MG





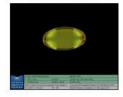
OLANZAPINE 2.5MG CLARITHROMYCIN 250MG



GLIPIZIDE ER 10MG



BENZONATATE



IBUPROFEN 600MG



HYZAAR 100-12.



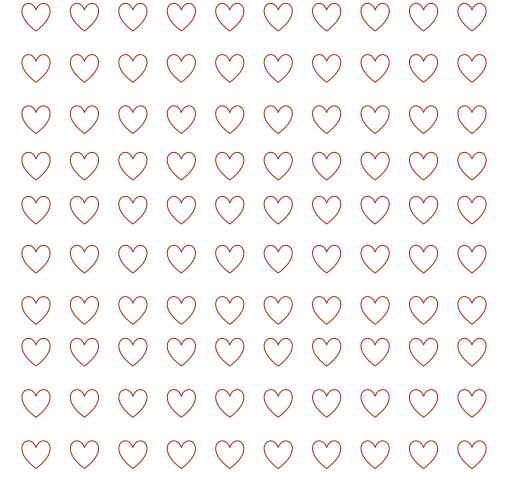
INDOMETHACIN



HYOMAX-FT 0.125MG

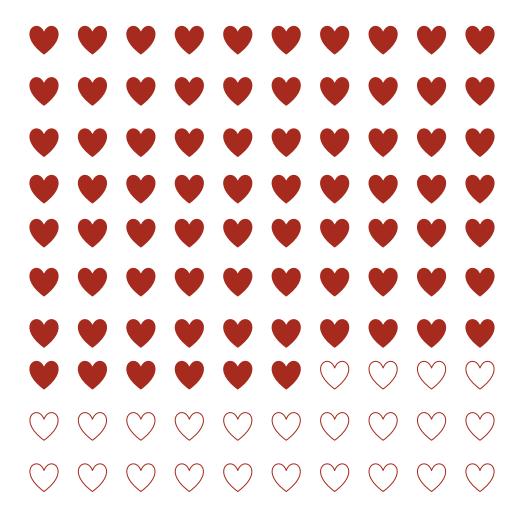


RxID15 Results:



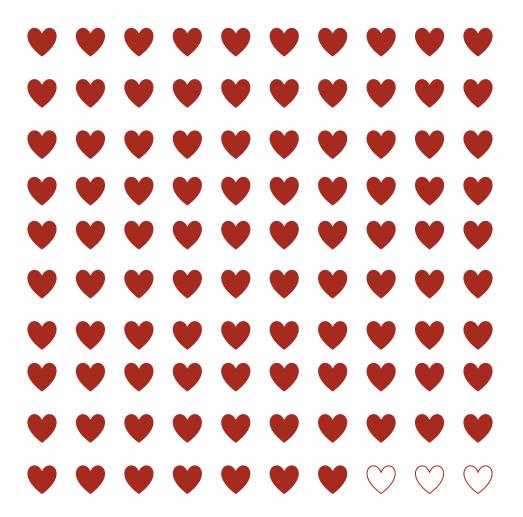
RxID15
Results:

76%



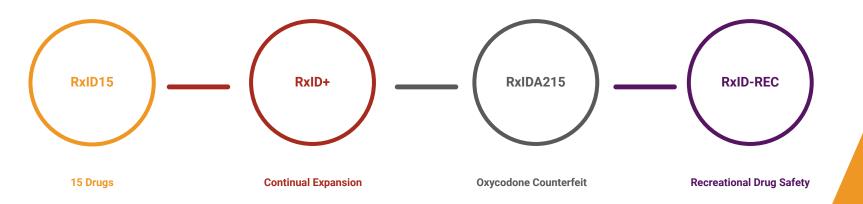
RxID15
Goal

97%



Bigger, Better, Faster, More

Transfer Learning | Larger Datasets | Cloud Compute





Thank You

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References & Acknowledgments

Ref 1

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