# RxID

**Increasing Medication Safety with Image Recognition using Deep Learning**

Alphonso Woodbury

# RxID drives wellness and saves money

## 76%

Accuracy, RxID15 v1

**Top 5
Causes of Death
USA 2017**

Heart Disease
Cancer
Medical/Medication Errors
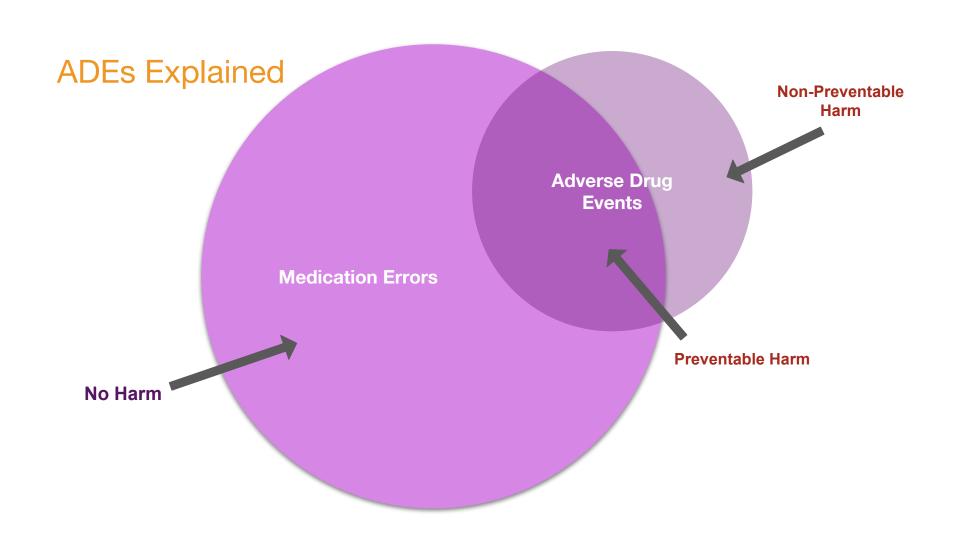Respiratory
Stroke

**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

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FDA approved NDC

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~~Lot Number~~

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15 NDCs in v1

**CLEOCIN 75MG**

**INDERAL LA 160MG**

**HYDROXYZINE HCL 10MG**

**GABAPENTIN 300MG**

**HCTZ 50MG**
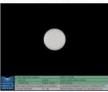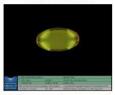
**FLUOXETINE 40MG**

**HYOMAX-DT 0.375MG**

**OLANZAPINE 2.5MG**

**CLARITHROMYCIN 250MG**

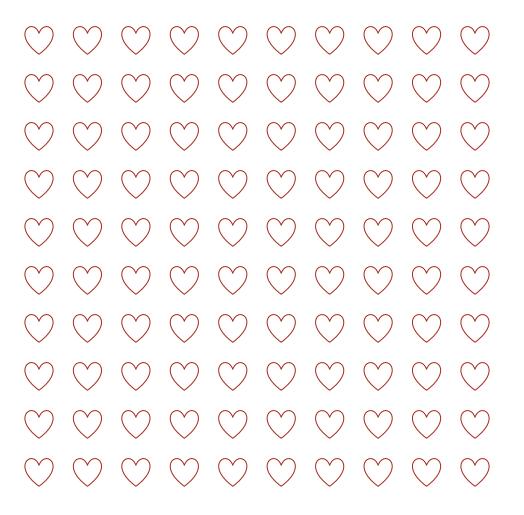**GLIPIZIDE ER 10MG**

**BENZONATATE**

**IBUPROFEN 600MG**

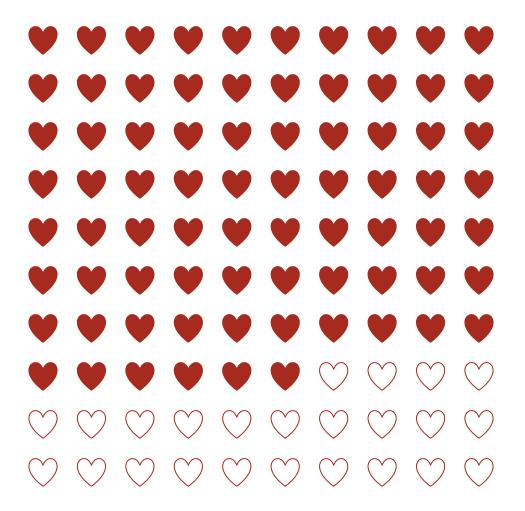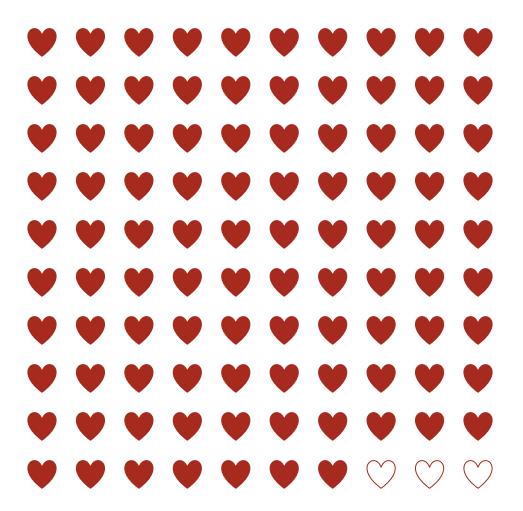**HYZAAR 100-12.**

**INDOMETHACIN**

**HYOMAX-FT 0.125MG**

**RxID15**

# Results:

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**RxID15**
**Results:**

**76%**
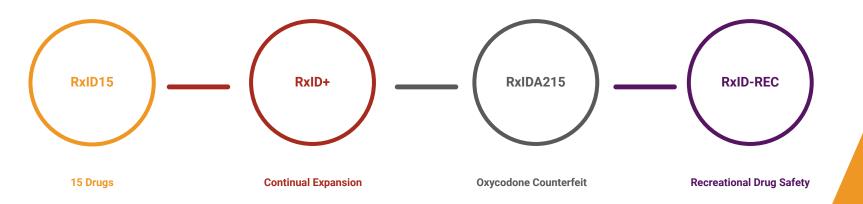
# Bigger, Better, Faster, More

## Transfer Learning | Larger Datasets | Cloud Compute

| RxID15 | RxID+ | RxIDA215 | RxID-REC |
|--------|-------|----------|----------|
| 15 Drugs | Continual Expansion | Oxycodone Counterfeit | Recreational Drug Safety |

# Thank You

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# References & Acknowledgments

Ref 1

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