

### 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** 

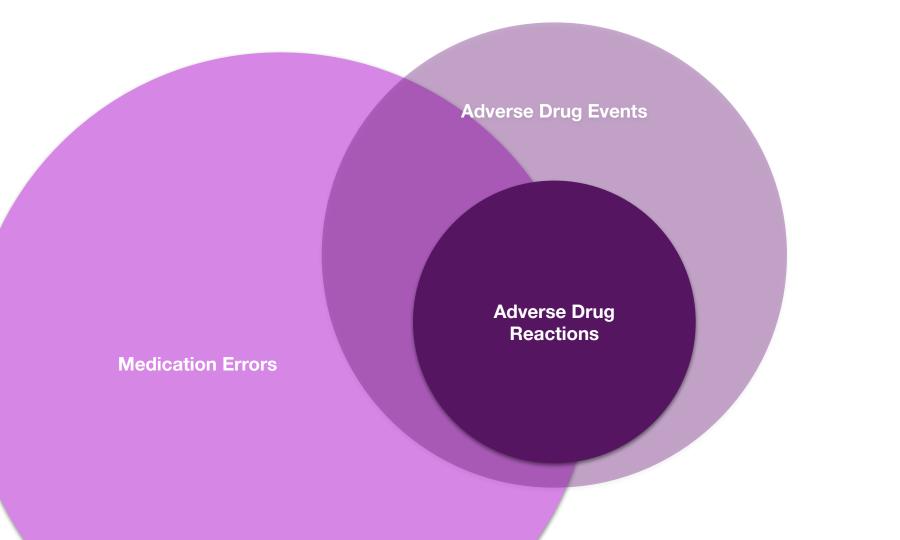
**Prevention** 

**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

Risk Group: patients on 5 or more medications

Aged 65+

52M

will double by 2060

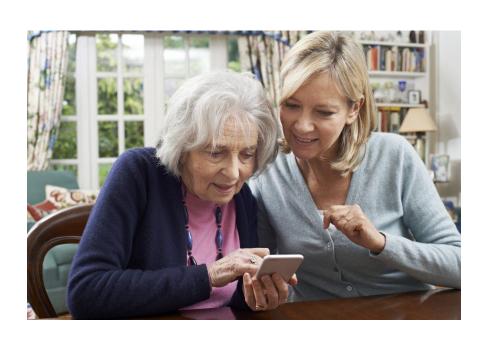
### RxID Solutions: Dispensing (camera stack integration)



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

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**FDA** approved **NDC** 

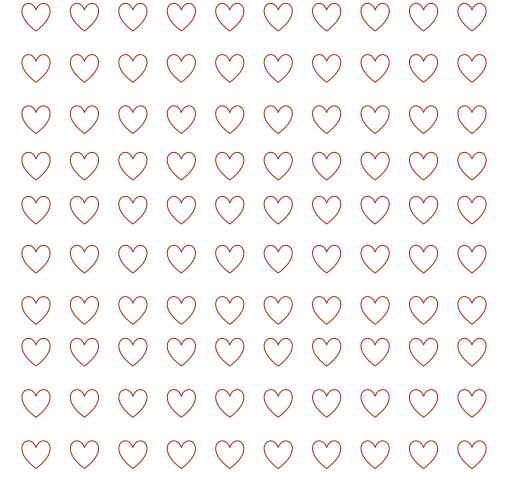
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**Lot Number** 

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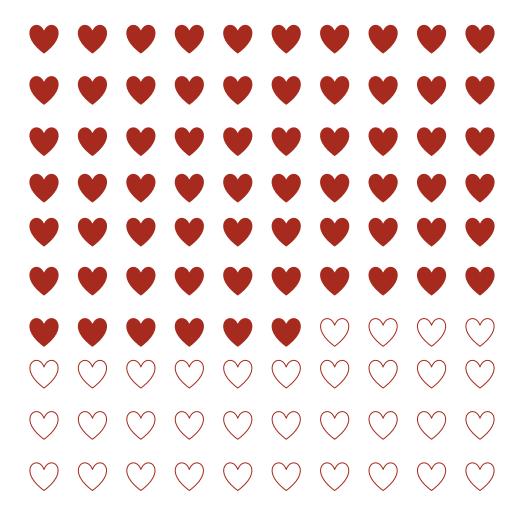
15 NDCs in v1

### RxID15 Results:



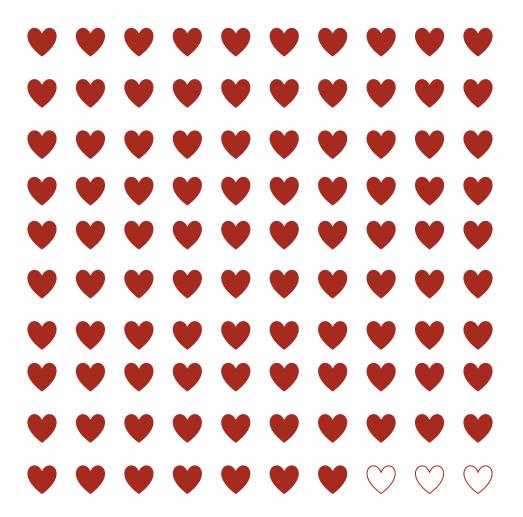
RxID15
Results:

66%



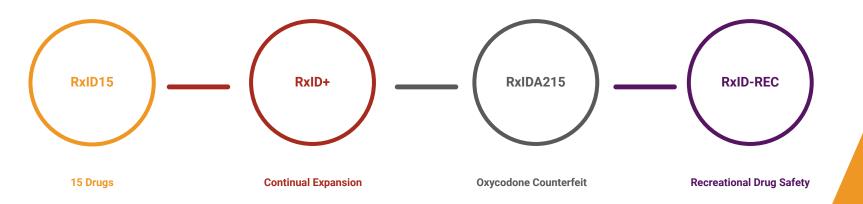
RxID15
Goal

97%



### Bigger, Better, Faster, More

#### **Transfer Learning | Larger Datasets | Cloud Compute**



### Demo



Thank You

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### **Acknowledgments**

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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

