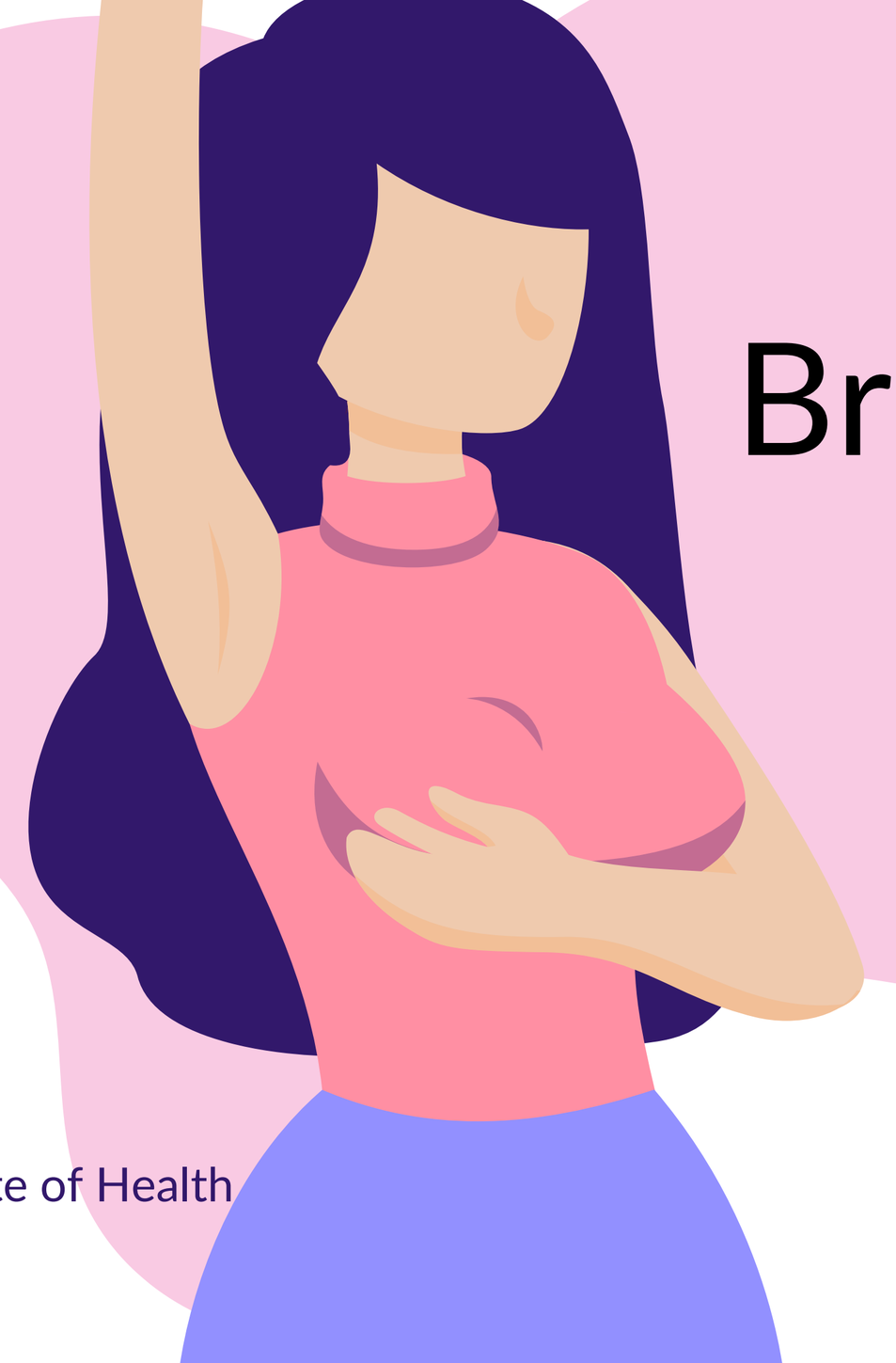


Breast Cancer: Diagnosis

National Institute of Health

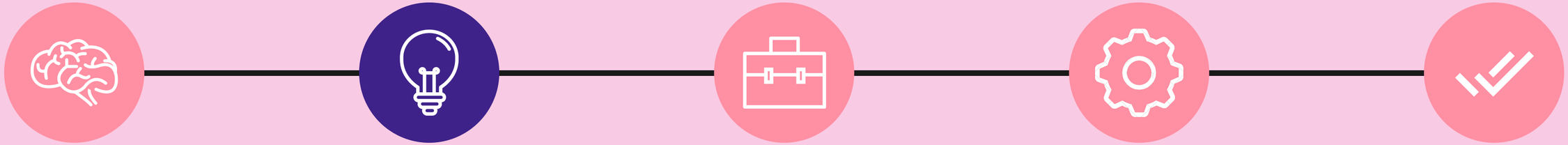
Ogo Ndugba

2

Data & Methods

4

Limitations



1

The Problem

3

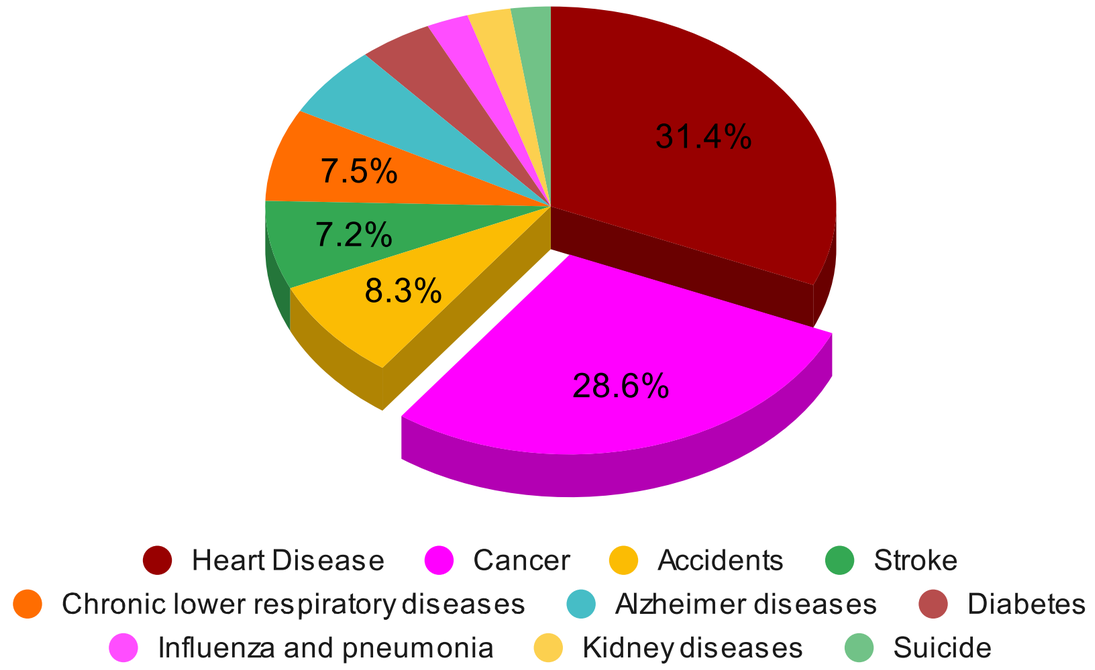
Findings

5

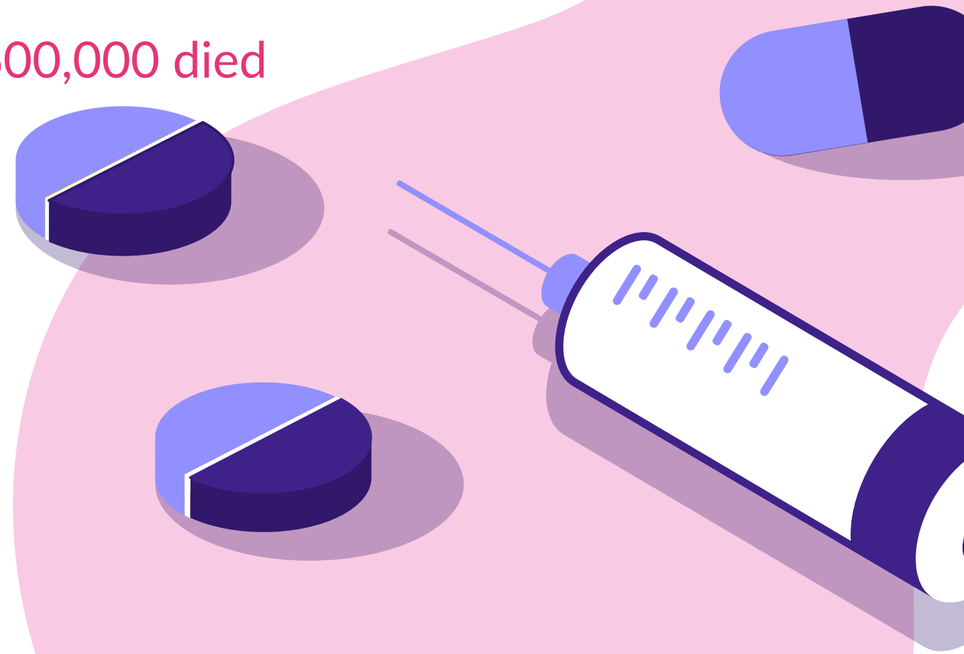
Next Steps

THE PROBLEM

Prevalence of Cancer in the U.S. (2019)



- 1,752,735 new cases of cancer
- 599,589 people died of cancer
- 18,000,000 globally
- 9,600,000 died

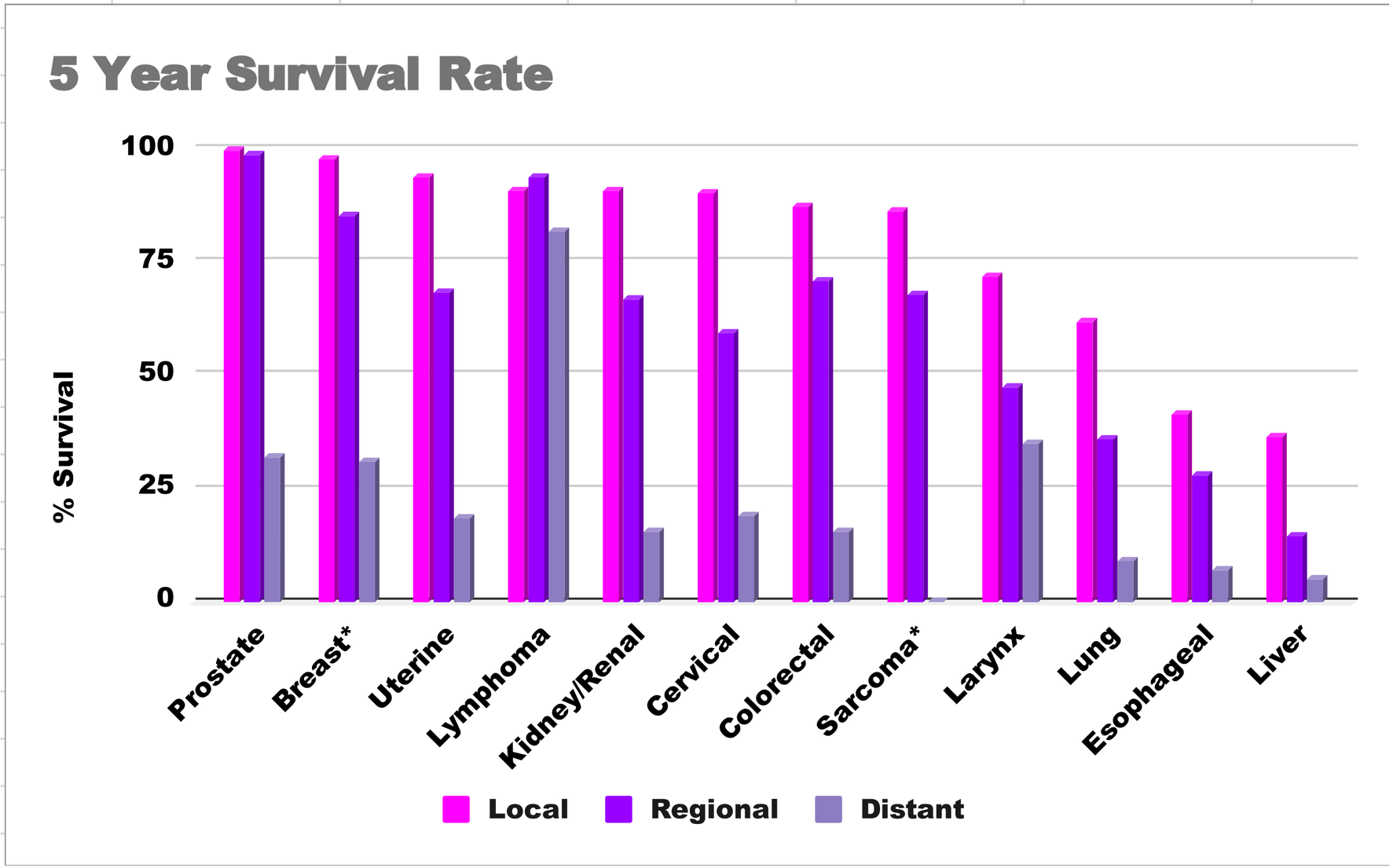


What is cancer?

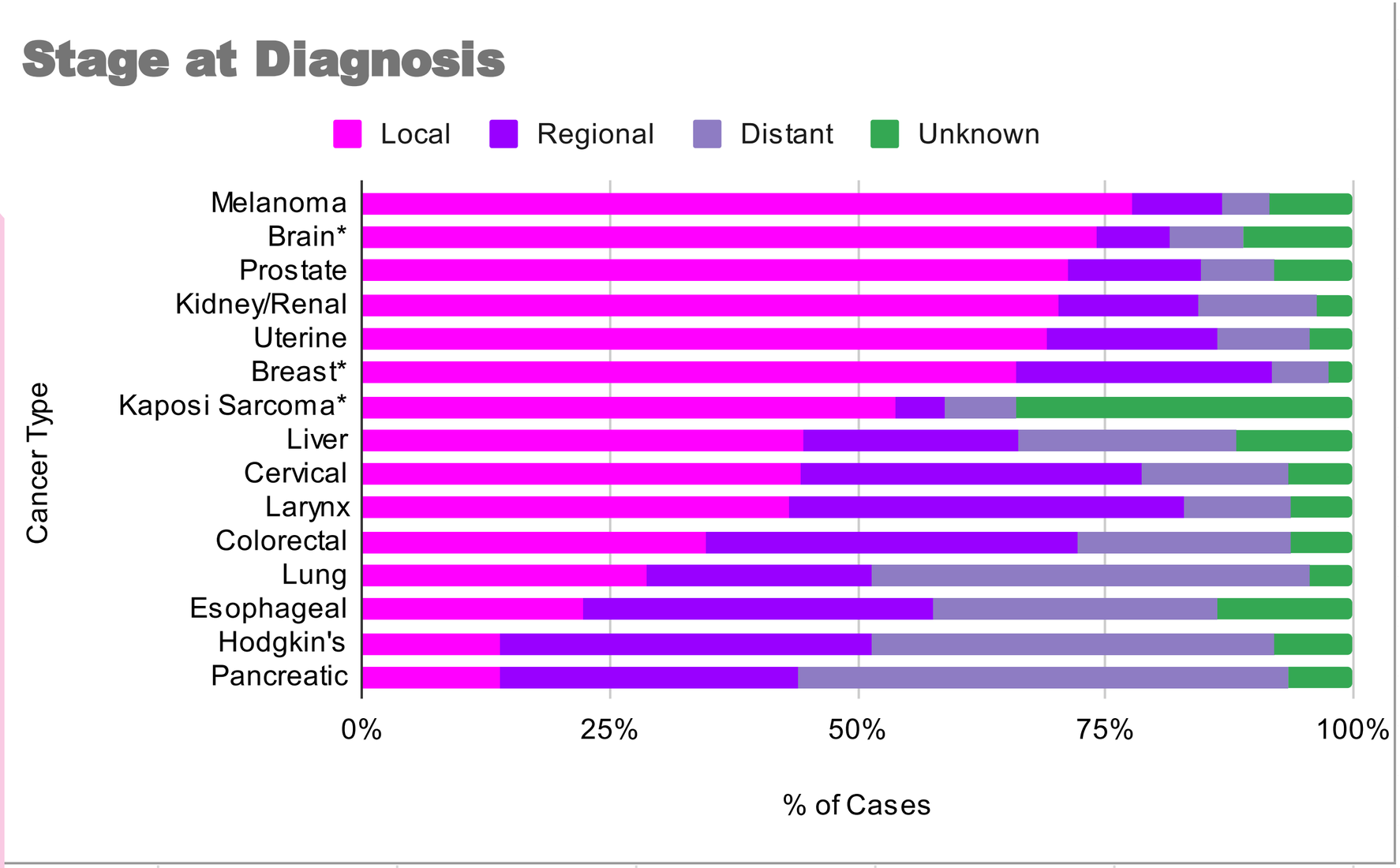
Uncontrolled cell growth

Stages
0 - Precancerous
1 - Small and local
2- Bigger and local
3 - Regional Spread
4 - Spread to other organs

Survival Rate



Stage at Diagnosis



Screening

- Breast
- Prostate
- Cervical
- Lung
- Colorectal

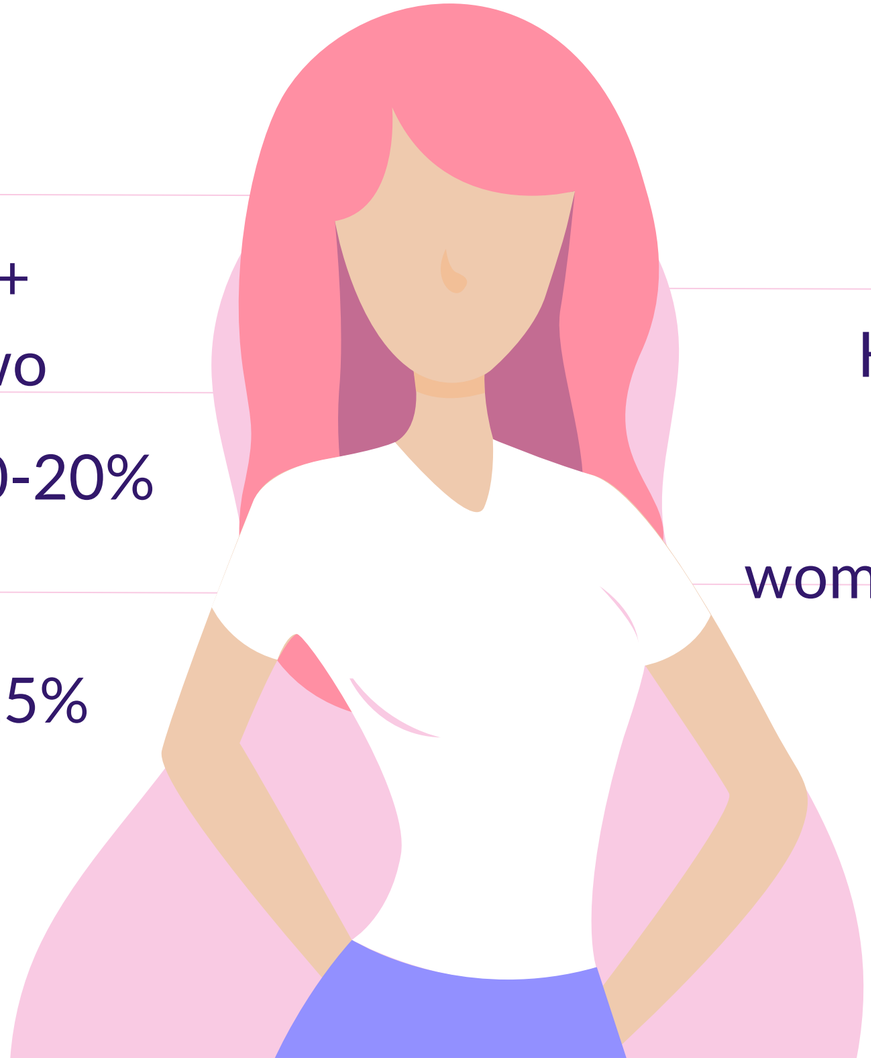
Mammogram

women ages 40+

every year or two

False Postive Rate of 10-20%

False Negative rate of ~ 15%



Higher for: women <50,
women of color,
and
women with dense breast tissue

Create a ML tool

DATA & METHODS

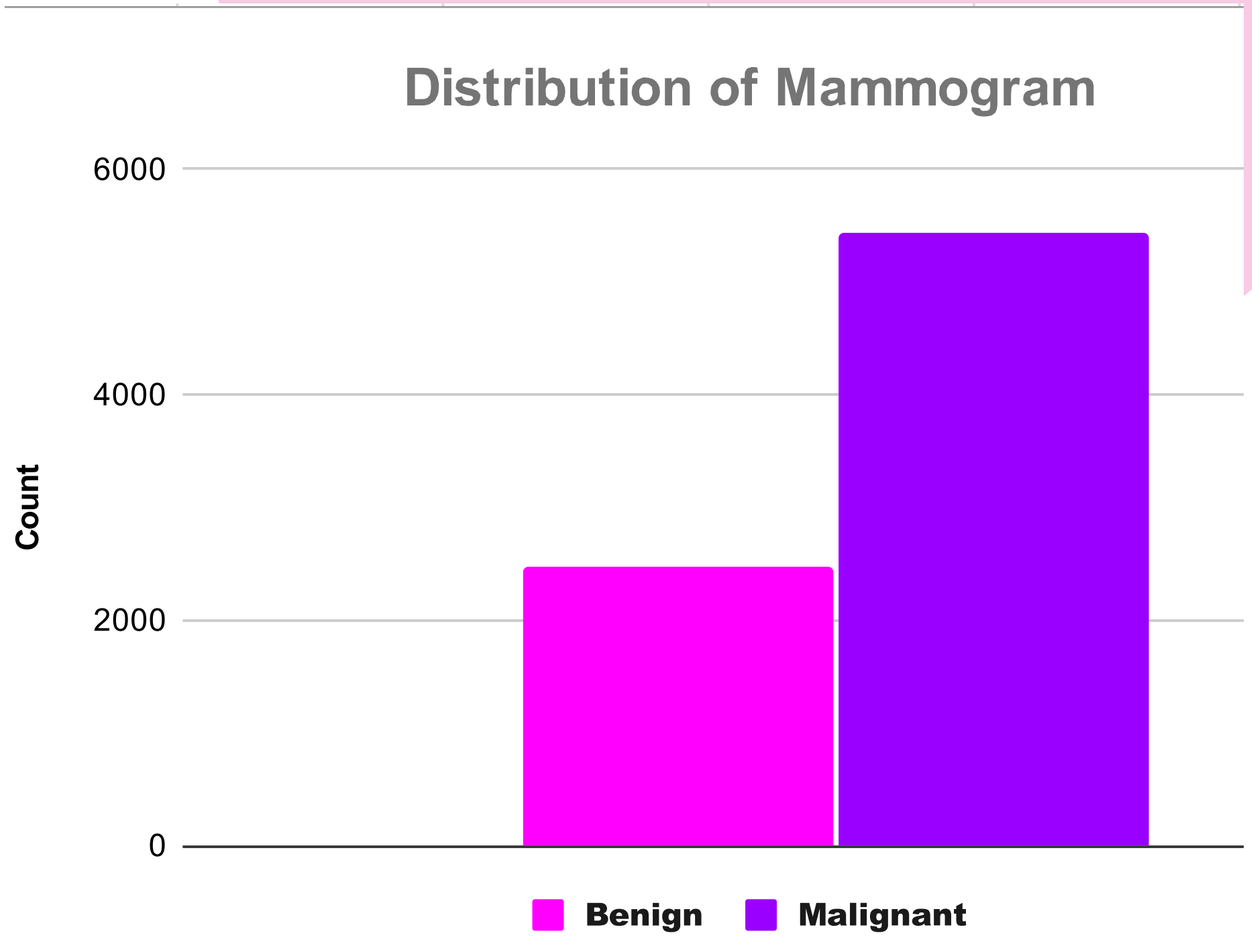
7,911 Images

2,481 Benign

5,430 Malignant

Precision and Recall based benchmarks

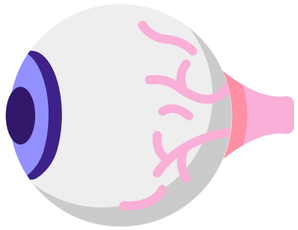
BreakHis



FINDINGS

Final Model Results

Recall: 73.7



Precision: 78.8

LIMITATIONS

Clinical Information

high risk

cancer type

stage

density

metastatic

Dataset Size

Demographic

age at diagnosis

race

NEXT STEPS

Database creation

Combine smaller studies

Research Study

THANK YOU

CONTACT

ogo.ndugba@gmail.com