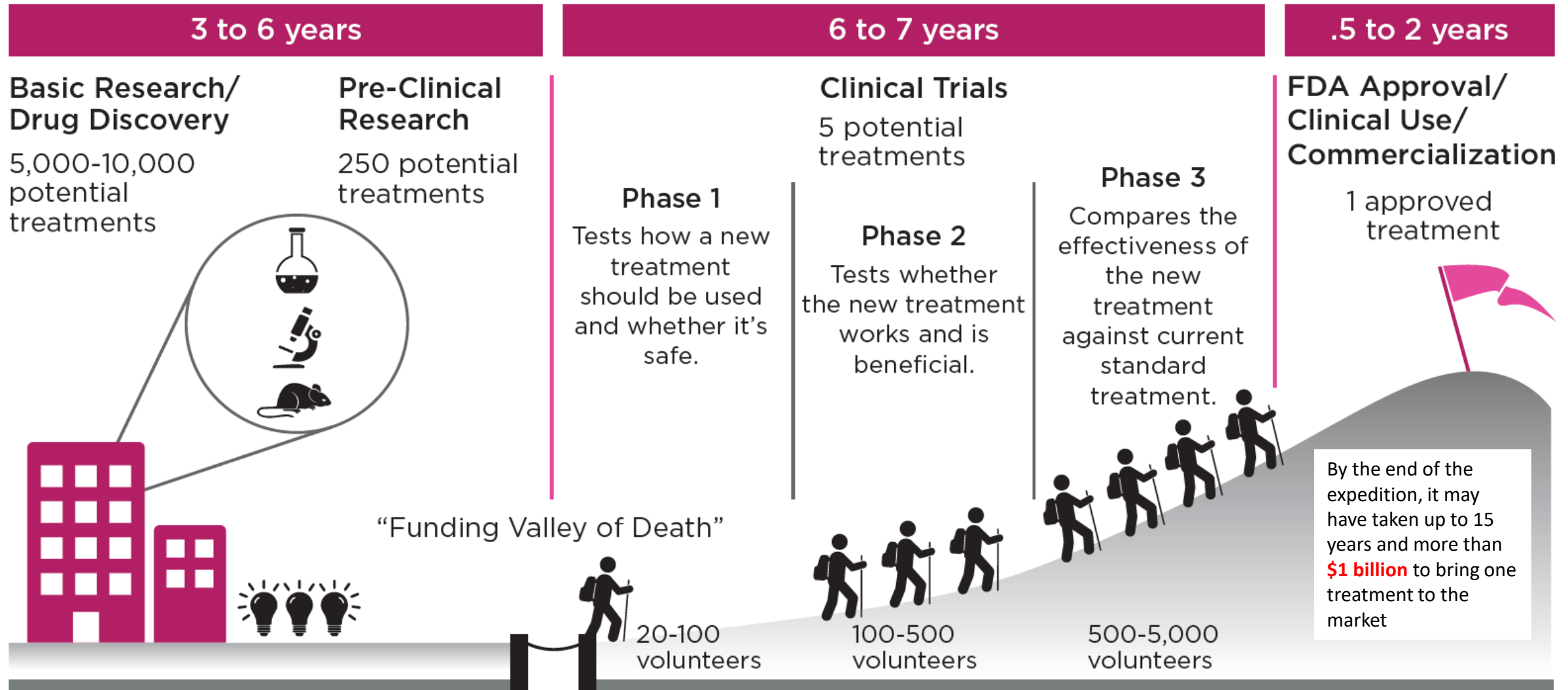




## **Going beyond bibliometrics: A system to track the progress and impact of biomedical research funded by Komen**

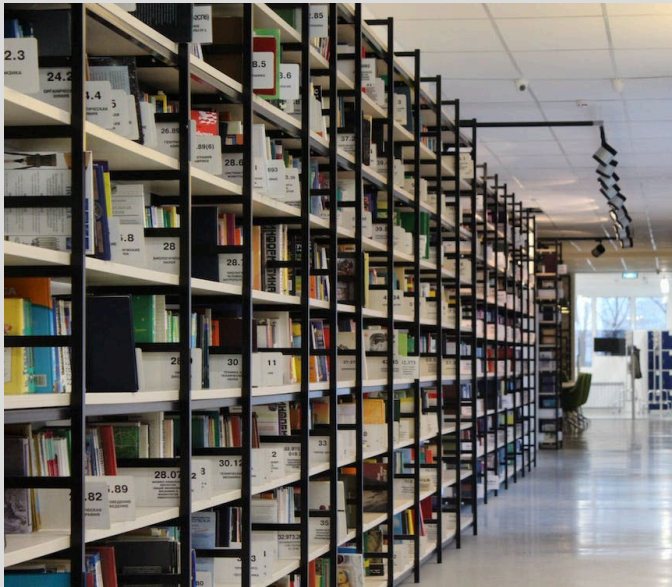
Amy Dworkin, Ph.D. and Kari Wojtanik, Ph.D.

# Moving from the bench to bedside



# Traditional Metrics

used to assess outcomes and impact of biomedical research focus on outcomes that are mainly of interest to the **academic community**



**Publications**



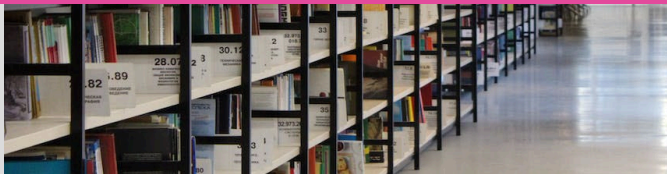
**Citations**



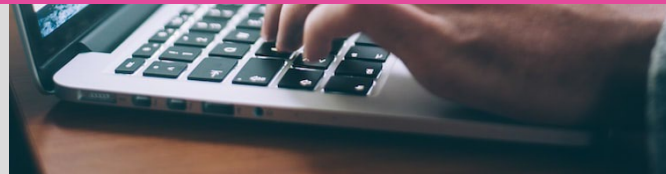
**Follow up on  
grant funding**

# Traditional Metrics

Do not measure **IMPACT** on  
scientific progress or societal  
**OUTCOMES**



**Publications**



**Citations**



**Follow up on  
grant funding**



# Focus is shifting

to the impact a piece of research has on the scientific community and society



**Changes in health outcomes**



**Paradigm, practice, and guideline changes**



**Policy changes**

# Focus is shifting

to the impact a piece of research has on the scientific community and society

High Impacts Tracking System

Search Results

[Back to Search](#) [Screen Help](#) [HITS Help](#)

[Save Search](#) [Batch Tag](#) [Add Batch Portfolio](#) [Export Grants](#)

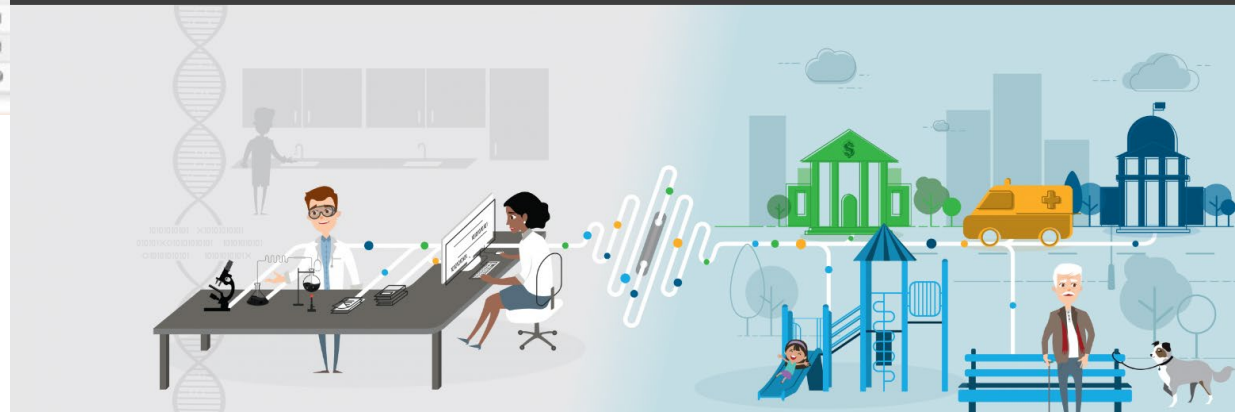
Key: PR=Progress Reports, FPR=Final Progress Reports, PN=Program/Signature Notes, UN=User Notes

Grant Number	PI Name	Project Title	Institute	FY
R01ES007138	John Smith	Human Exposure to Bisphenol A during pregnancy	Stanford University	2011
R01ES001839	Thomas Wilson	Repair of Carcinogenic Damaged DNA in Human Chromatin	Harvard University	2010
R01ES003095	David Goodman	Benzo(a)pyrene Mutagenic Mechanisms	Washington University	2009
P42ES001834	James Dellinger	Semi-Volatile PCBs: Sources, Exposures, Toxicities	University of Arizona	2011
R03ES017606	Sharon Haley	Childhood Dioxin Exposure & Energy Homeostasis Dysregulation	University of Rochester	2011
T32ES007034	Pamela Voorhes	Molecular Pathways to Pathogenesis in Toxicology	University of Minnesota	2009

Washington University in St. Louis

## Translational Science Benefits Model

[ABOUT THE MODEL](#) [INDICATORS](#) [CASE STUDIES](#) [TOOLKIT](#) [OUR PARTNERS](#) [CONTACT US](#)



# Komen's Product Tracking System

## Internal Classification/Tracking System

Classify grants by:

1. Product potential
2. Stage in research pipeline



# What is 'Product Potential'?

- **Hard Products**
  - Drugs, devices, diagnostic tests, etc.
- **Soft Products**
  - Drug targets, potential biomarkers, risk genes, etc.



# Products

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## High Level Product Categories

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Behavioral Intervention

Biomarker

Community Education Material

Database/Registry/Repository

Device/Technologies

Drug Target

Guidelines or Frameworks

Healthcare Delivery Tool or Method

Novel Therapy (preventive or treatment)

Nutritional Supplement/Diet/Intervention

Risk factors (endogenous/exogenous)

Software/Analytical Tool

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# Product Stages

## Stages

Stage 1a: Basic Research – Discovery/Target Identification

Stage 1b: Basic Research – Validation

Stage 1c: Basic Research –Prototype Development and Drug Design

Stage 2a: Preclinical Testing - Discovery

Stage 2b: Preclinical Testing - Validation

Stage 2c: Prototype Development and Drug Design

Stage 3a: Phase 0 Clinical Trial (pilot)

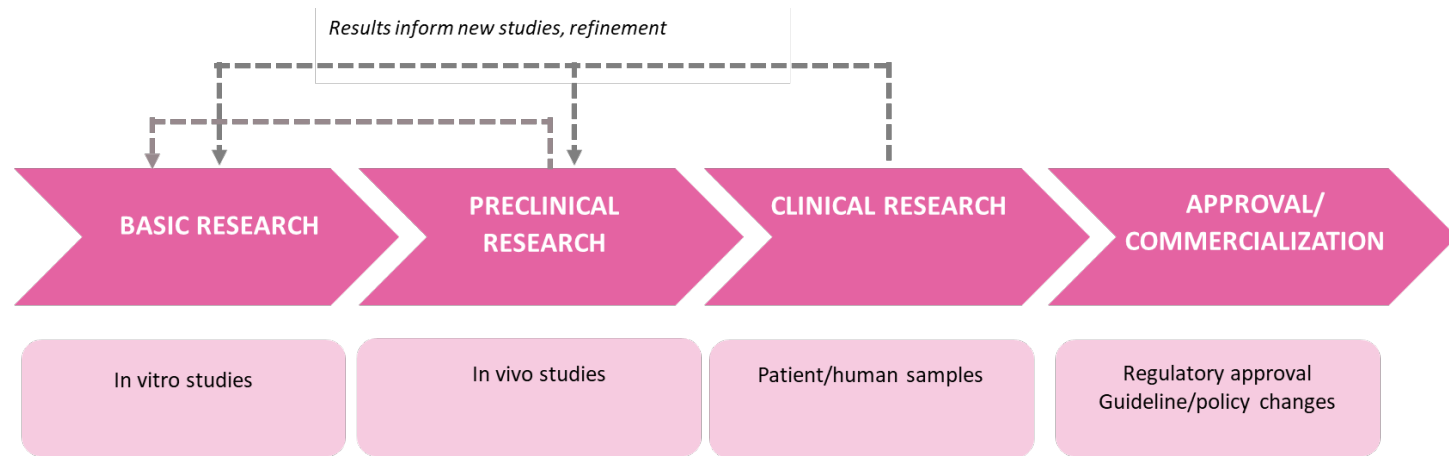
Stage 3b: Phase I Clinical Trial

Stage 3c: Phase II Clinical Trial

Stage 3d: Phase III Clinical Trial

Stage 3e: Observational Trial, Repository or Data Gathering through interviews, focus groups or patient databases

Stage 4: Regulatory Review / Commercialization



A Komen grantee, using an in vivo model to study the prediction of late recurrence and metastases before they develop.

This grant's potential product is coded as an:

- **MBC detection biomarker**
- **Stage 2b: Preclinical Testing Validation**



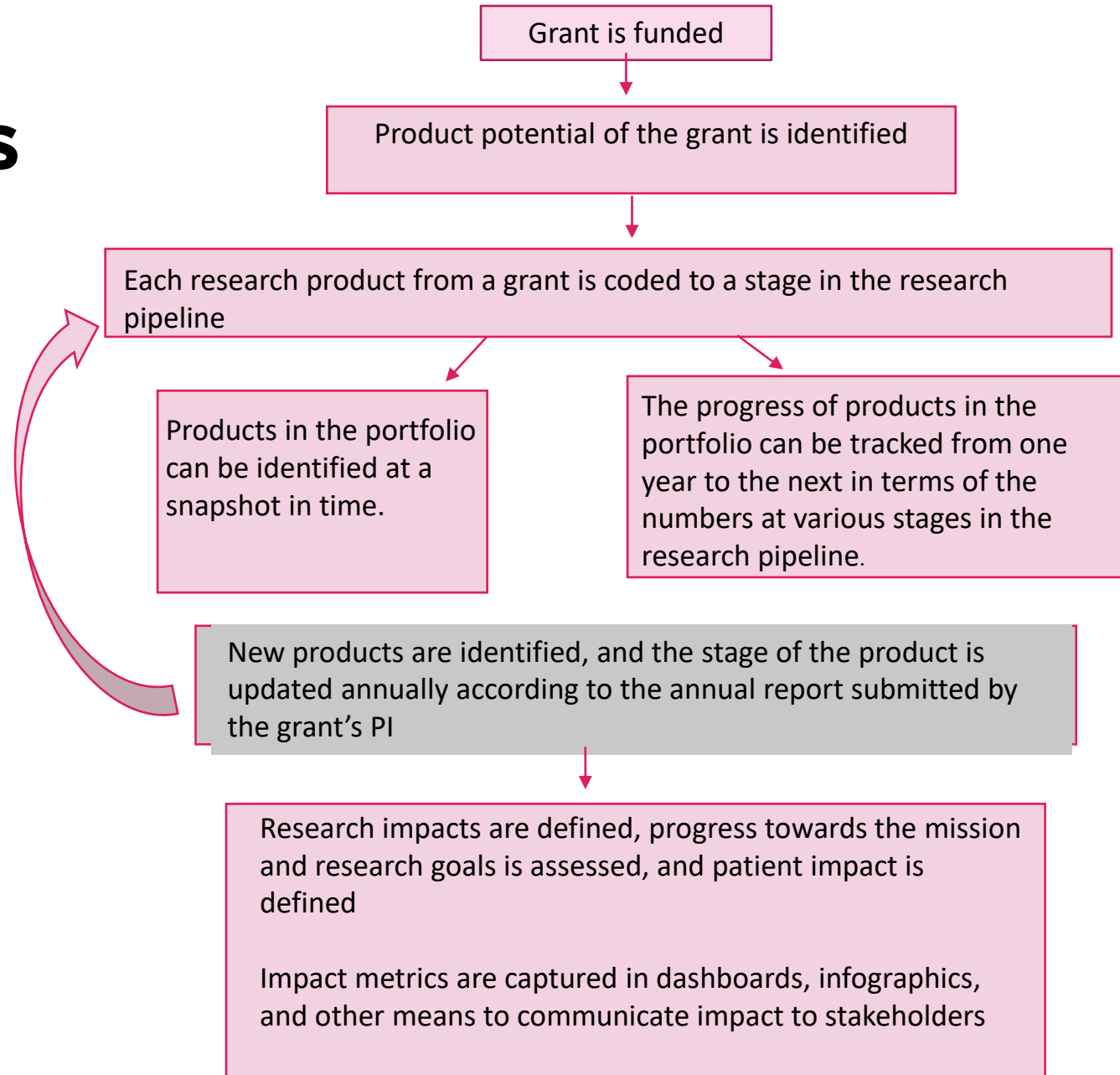
A Komen grantee is evaluating drivers of symptom severity and under-recognition in patients from minority backgrounds to optimize treatments for these patients while minimizing toxic side effects.

This grant's potential product is coded as a:

- **Clinical healthcare delivery tool**
- **Stage 3e: Observational Trial, Repository or Data Gathering through interviews, focus groups or patient databases**



# Methods





# How we use the data

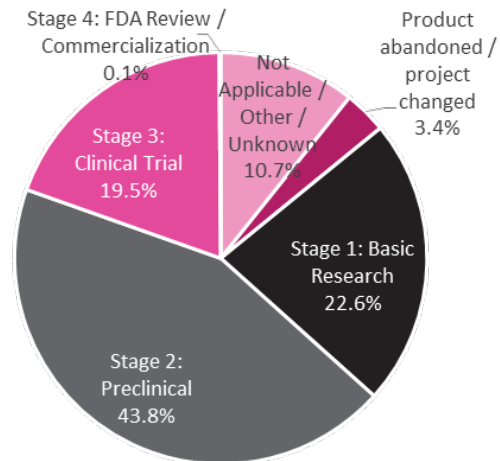
- How we are progressing toward our Mission and goals
- Share progress and metrics with stakeholders
- Identifying promising technologies, treatments, and strategies that have immediate potential for further development or commercialization

# Using the Data

## Snapshot in time

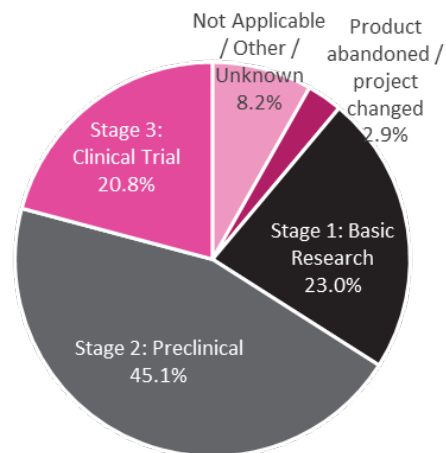
a. Total products

Product Type	Number of Products
Technologies	52
Treatment	144
Biomarkers	149
Drug Targets	198
Risk Factors	23



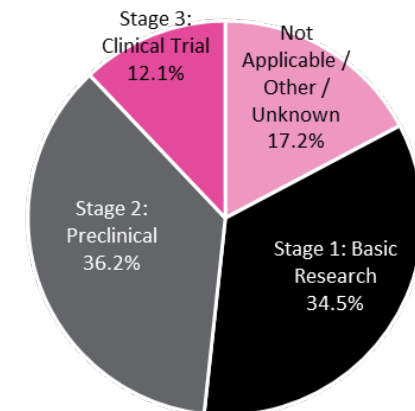
b. Products associated with active grants

Product Type	Number of Products
Technologies	27
Treatment	80
Biomarkers	79
Drug Targets	85
Risk Factors	16



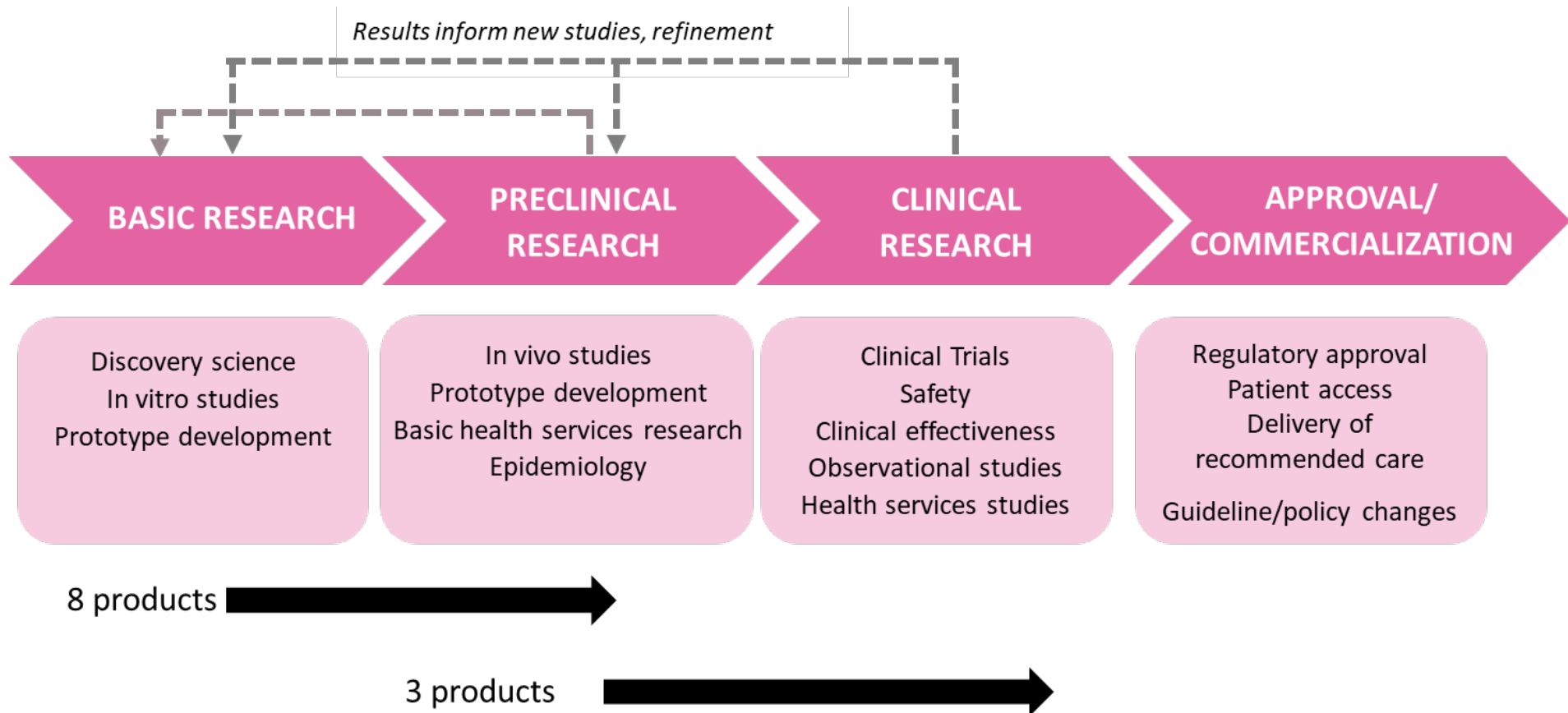
c. New products added in a fiscal year

Product Type	Number of Products
Technologies	6
Treatment	9
Biomarkers	16
Drug Targets	13
Risk Factors	3
Other	11



# Using the Data

## Progress in Research Pipeline





# Using the Data

Quantitatively track the impact of funding against specific goals

## Total Metastatic Breast Cancer Products

PRODUCTS	FY16	FY17	FY18	FY19	FY20	FY21
METASTASIS	141	197	232	263	267	299
RECURRENCE DISCOVERIES	42	51	59	68	69	81
MBC and/or RECURRENCE	147	207	244	279	283	319
TECHNOLOGY for EARLY DETECTION of MBC	3	3	4	6	6	10
NEW TREATMENT FOCUSED ON MBC	27	33	58	63	64	72



Products in each of these areas are based on the coding to the assigned grant, not the product, the assumption is that the grant products align with the grant coding. Products may be assigned to more than one code.

# Using the Data

## Dashboards and Infographics

susan g. komen.

### 2022 RESEARCH FAST FACTS Research Programs: Overview

#### RESEARCH SAVES LIVES

Because of medical research, improvements have been made in early detection and treatment of breast cancer, leading to a 40% decrease in mortality in the U.S. over the past 30 years. There are more than 3.8 million breast cancer survivors in the U.S. today. Despite this tremendous progress, nearly 44,000 breast cancer deaths are predicted for this year in the U.S. alone. Komen's mission is to address the most critical needs of our communities and to continue to invest in scientific research that will ultimately end breast cancer forever.

By listening to our patient advocates and working with our scientific advisors, we are setting research priorities that are helping us achieve our mission. These priorities include working together to conquer metastatic breast cancer (MBC), eliminating disparities in breast cancer outcomes and putting Big Data to work for breast cancer patients.

Our research investments are guided by more than 50 leading scientists and advocates, including our [Scientific Advisory Board](#) and [Komen Scholars](#). We fund the [brightest minds](#) who are leading groundbreaking breast cancer research. Our research program is also [patient-focused](#), with patient advocates involved in every step of our process.

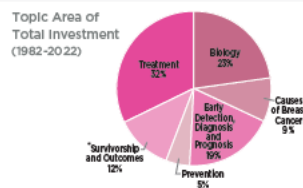
As a global leader in the fight against breast cancer, we have funded research in 47 states and the District of Columbia, and 24 different countries. Our commitment to supporting the most promising, innovative and meaningful breast cancer research will never waver.

Visit the [Fast Facts](#) series to learn more about our research investment on a particular topic.

**OUR RESEARCH INVESTMENT:** Nearly \$1.1 billion in more than 2,700 research grants and more than 530 clinical trials (1982-2022)

#### What are Komen-funded researchers doing right now?

- Testing MBC samples from people treated with a targeted therapy linked to a cancer cell-killing drug to discover ways to prevent drug resistance.
- Evaluating a novel health care navigation intervention designed to facilitate chemotherapy initiation and completion in underserved populations with breast cancer.
- Using artificial intelligence to analyze large, complex datasets to identify biomarkers that will optimize current and future personalized medicine strategies for people with breast cancer.

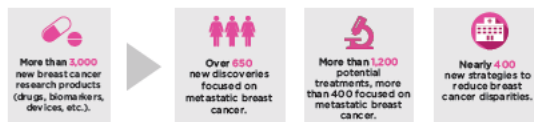


\*Survivorship & Outcomes research focuses on a broad range of areas including management of side effects; support, education and communication strategies for patients, family/caregivers and health care professionals and health care delivery approaches to improve quality of life.

### Research Discoveries in the Pipeline



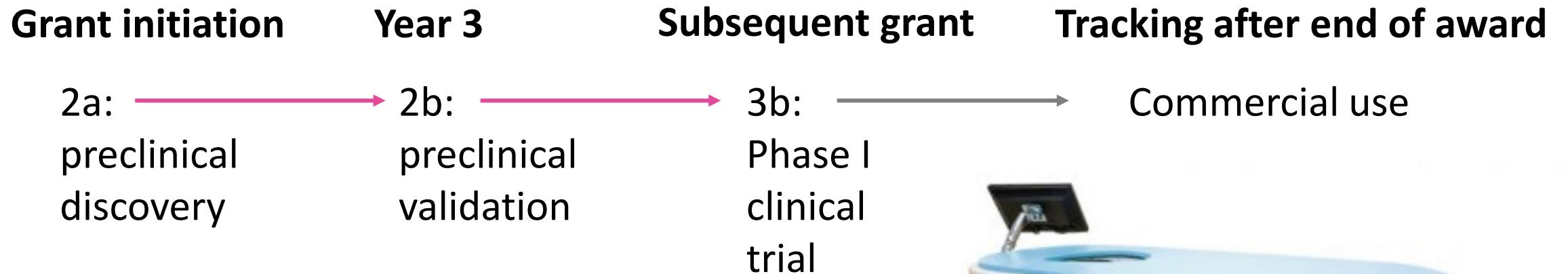
#### Research Discoveries in the Pipeline



Learn More About Breast Cancer | Learn More About Komen-funded Research | Get Involved & Support Komen Research

# Using the Data

## Tracking direct impact for patients





## CAVEATS and LIMITATIONS

**Tracking after the end of a grant term**

**Total number of products in the pipeline increases every year**

How other funders could use

High level product categories are not specific to cancer research

Could be applicable to any health research area

Could customize them to be more specific to their type of research regardless of disease focus



Tracking and reporting metrics in their specific field or therapeutic area



Questions?