THE ARIADNE
LABS STORY

Our Impact: Year Three

THE ARIADNE STORY

Modern day health care can be a labyrinth that all too often results in more suffering for patients and families. We believe the answers lie in understanding how systems fail and developing simple solutions that produce better, more compassionate care. We are named for the Greek goddess Ariadne, who showed Theseus the way out of the Minotaur's maze with a simple thread. We discover and spread practical, affordable, and scalable tools that improve the delivery of care at the most critical health moments in people's lives.

JAMES SACHETTA

From the Executive Director

Ariadne Labs began in 2012 with a sense of urgency about the state of global health care. Health-care systems are broken. They routinely show gaps in care that result in unnecessary harm, suffering, and cost at some of the most critical and vulnerable moments in people's lives. We chose three of the most fundamental of these moments—childbirth, surgery, and serious, life-limiting illness—as our starting focus. Today, Ariadne Labs has proved that it is possible to discover and spread relatively simple innovations in clinical practice that can save lives and reduce suffering at remarkable scale. From rural India to South Carolina, we have established that broken systems of care delivery are tractable—that innovations in practice can improve lives in multiple fields—as much as any drug or device.

The pivotal insight is that clinicians and patients need innovations that make it easier to give and receive the right care—whether that innovation is a checklist, a smartphone app, or a human being playing a new role. Ariadne Labs has brought leaders together from multiple disciplines to uncover gaps in care, produce solutions to solve them, and test them at progressively larger scale across the world. That has led to the launch of early-stage projects in multiple areas, from reducing unnecessary cesarean sections in the United States to improving the ability of primary health-care practitioners in low- and middle-income countries to deliver effective outpatient care.

We produce not only innovative tools but also innovative ideas that change lives. Our research is shaping global policy in multiple areas. Last year, for instance, we helped establish, in work published in *The Lancet*, that 5 billion people worldwide lack access to safe, affordable surgical care and that providing a package of 40 essential surgical procedures is as cost-effective as many vaccines—findings that are changing World Bank and World Health Organization policy priorities. Our recent research on cesarean

delivery rates in the *Journal of the American Medical Association* found no reductions in maternal and child deaths beyond 19 percent, galvanizing attention to the markedly higher rates observed in many countries.

We have invested in an active community of nearly 50 associate faculty who are leveraging our network, teaching, and resources to advance their own work in improving health-care delivery. They have joined our collaborations with other organizations and initiatives to extend the impact of our tools and ideas. This year, our partnership with the Centers for Disease Control and Prevention led to the release of a primary care checklist to reduce prescription opioid addiction and overdose which got nationwide coverage. I also joined with U.N. Secretary General Ban Ki-moon, WHO Director General Margaret Chan, Bill Gates, German Chancellor Angela Merkel, President Ellen Johnson Sirleaf of Liberia, and other country leaders at the United Nations to launch a new partnership to improve global primary care through better measurement and transparency. In addition, Ariadne Labs is one of the founding organizations behind the Massachusetts Coalition on Serious Illness Care, whose goal is to increase the percentage of adults in the Commonwealth who have designated and informed health care proxies.

The demand for our work continues to grow. We are entering a period of significant infrastructure investment to meet the need. I am grateful for the critical support that we've gotten from our donors and partners in preparing us for this next phase. It is sometimes pretty daunting thinking about the growth we anticipate in the next few years. But then, I remember all the amazing people and supporters we have working with us.

Thank you all.

Yours,
Atul Gawande

About Us

Our mission is to create scalable solutions that produce better health care at the most critical moments in people's lives, everywhere.

From start-up to scale-up

In just three years, Ariadne Labs has established itself as a leading global health systems innovation center. Our teams have produced a pipeline of research and scalable tools that are improving care for millions of individuals in three areas: childbirth, surgery, and serious illness. As we delivered results on every continent this past year, we began laying the groundwork to expand our innovation model to new projects where we can make a difference in quality of care.

As a joint center of Brigham and Women's Hospital and the Harvard T.H. Chan School of Public Health, Ariadne Labs leverages the resources and expertise of Boston's top medical and academic communities. We have quickly grown to more than 75 physicians, public health researchers, and experts in technology and data, implementation science, and program management. Nearly 50 associate faculty from across Harvard University contribute to our research and innovation.

JAMES SACHETTA

Advance global health care with scalable solutions

The BetterBirth Program, a checklist and coaching intervention, was tested in more than 60,000 live births, and early results show the program is dramatically improving childbirth care for women.

The Primary Healthcare Performance Initiative launched at the United Nations General Assembly with unprecedented support from world leaders committed to strengthening primary care. As a collaborator in this initiative, Ariadne Labs is working to identify key indicators of primary-care-system health in order to develop interventions that will strengthen the quality of care.

The Safe Surgery Checklist continued to spread to operating rooms worldwide, with significant global support from Lifebox, a non-profit founded to improve surgical care and support our checklist implementation efforts worldwide.

Advance U.S. health care with scalable solutions

The Safe Surgery Program was implemented in health facilities throughout South Carolina with substantial impact.

The Serious Illness Care Program delivered strong preliminary findings from a randomized controlled trial at the Dana-Farber Cancer Institute and is now being adopted by a number of health systems around the world.

Expand a pipeline of new innovation projects

We actively invested in a pipeline of new projects:

- **Primary health care improvement**
- **Cancer care delivery of the future**
- **Quality management during health system mergers and acquisitions**
- **Hospital labor-floor design and management**
- **Communication in long-term acute care hospitals**

Strengthen the arc of discovery, testing and implementation

Expert teams in informatics and in implementation and improvement science drove excellence in our research and program delivery. Two new platforms for project incubation and spread are in development.

Pulse, an innovative, real-time data collection and feedback system, and a **new call-center model** for longitudinal followup were both developed at Ariadne and piloted successfully in India. We are now exploring ways to adapt them for use in other areas of public health research.

Enhance financial infrastructure

We strengthened our financial systems and decision-making structures to meet the growing demand for financial transparency and efficient financial management. We are well positioned to manage an increasingly diverse revenue stream and support an expanding project pipeline.

Our Core Programs

Powerful interventions for critical moments

In the past year, we've seen significant advancements across our portfolio of core programs. Our tools for childbirth, surgery, and serious illness have resulted in measureable improvements in patient care, and are now being adopted by private sector partners, governmental organizations, and health systems worldwide. At the same time, we are fostering cross-disciplinary innovation between programs to provide better care for even more people.

> "Our goal, ultimately, is the frontline adoption of processes, tools, and systems that end suffering and actually make people's lives better."
> —Dr. Atul Gawande

1 CHILDBIRTH

When health systems fail during childbirth, the results can be devastating: complications, injury, and death for women and infants. We are researching solutions and developing interventions that target the spectrum of failures, from under-treatment where best practices in childbirth are not routinely practiced, to over-treatment where many women are undergoing unnecessary major surgery.

In the area of under-treatment, our **BetterBirth Program** couples the WHO's **Safe Childbirth Checklist** of 28 evidence-based, best practices in childbirth with peer-to-peer coaching and data feedback to frontline workers. The BetterBirth approach is being tested in a randomized controlled trial in Uttar Pradesh, India. Supported by the Bill & Melinda Gates Foundation, the trial is implemented in partnership with Population Services International, the WHO, the Governments of India and Uttar Pradesh, Community Empowerment Lab and

Jawaharlal Nehru Medical College, Belgaum. BetterBirth underscores the importance of frontline behavior change interventions to improve childbirth care. With support from the John D. and Catherine T. MacArthur Foundation, we are working with the WHO to encourage checklist adoption worldwide.

Projects in incubation: Often overlooked in maternal health are the problems of over-treatment. In just one generation, C-section rates have skyrocketed, and for many healthy women, unnecessary surgery is causing significant harm. With support from the Robert Wood Johnson Foundation, the Rx Foundation and other partners, our childbirth team is examining why the facility a woman chooses for birth appears to be one of her greatest risk factors for surgery. Our early work suggests that the facility design and management may influence the care women receive in substantial ways.

2 SURGERY

Our best-recognized research is in the field of surgery. Since partnering with the World Health Organization to develop the **Safe Surgery Checklist** as the global standard of care, we have demonstrated its effectiveness by cutting deaths in half in a global trial. We have developed training and spread strategies, including the launch of the first comprehensive Safe Surgery Implementation Guide, that have expanded checklist use to at least 100 million of the 300 million operations performed globally each year.

Our newest focus is spreading the checklist to ambulatory surgery centers, where most surgery is performed. In partnership with the Agency for Healthcare Research and Quality (AHRQ) and the American Hospital Association's Research and Educational Trust, the Safe Surgery team is working in more than 500 **ambulatory surgery centers** across the U.S. to put the checklist into practice.

The success of the Safe Surgery Checklist inspired the creation of the **Operating Room Crisis Checklists** to address emergencies that occur during surgery. To date, more than 100 early adopters have implemented this portfolio of checklists. With support from the AHRQ, we are studying implementation approaches across facilities to develop an OR Crisis Checklist implementation toolkit based on lessons learned.

Through **Lifebox**, a nonprofit spin-off launched to implement the Safe Surgery Checklist, we are making significant strides in improving surgery in low-income countries. To date, Lifebox has delivered lifesaving pulse oximetry technology and training in more than 100 countries. In 2015, we expanded our work in India and Ethiopia and began redesigning oxygen finger probes to be more reliable for babies.

EHTISHAM HUSAIN (OPPOSITE PAGE, LEFT); DARREN KEMPER / CORBIS (RIGHT)
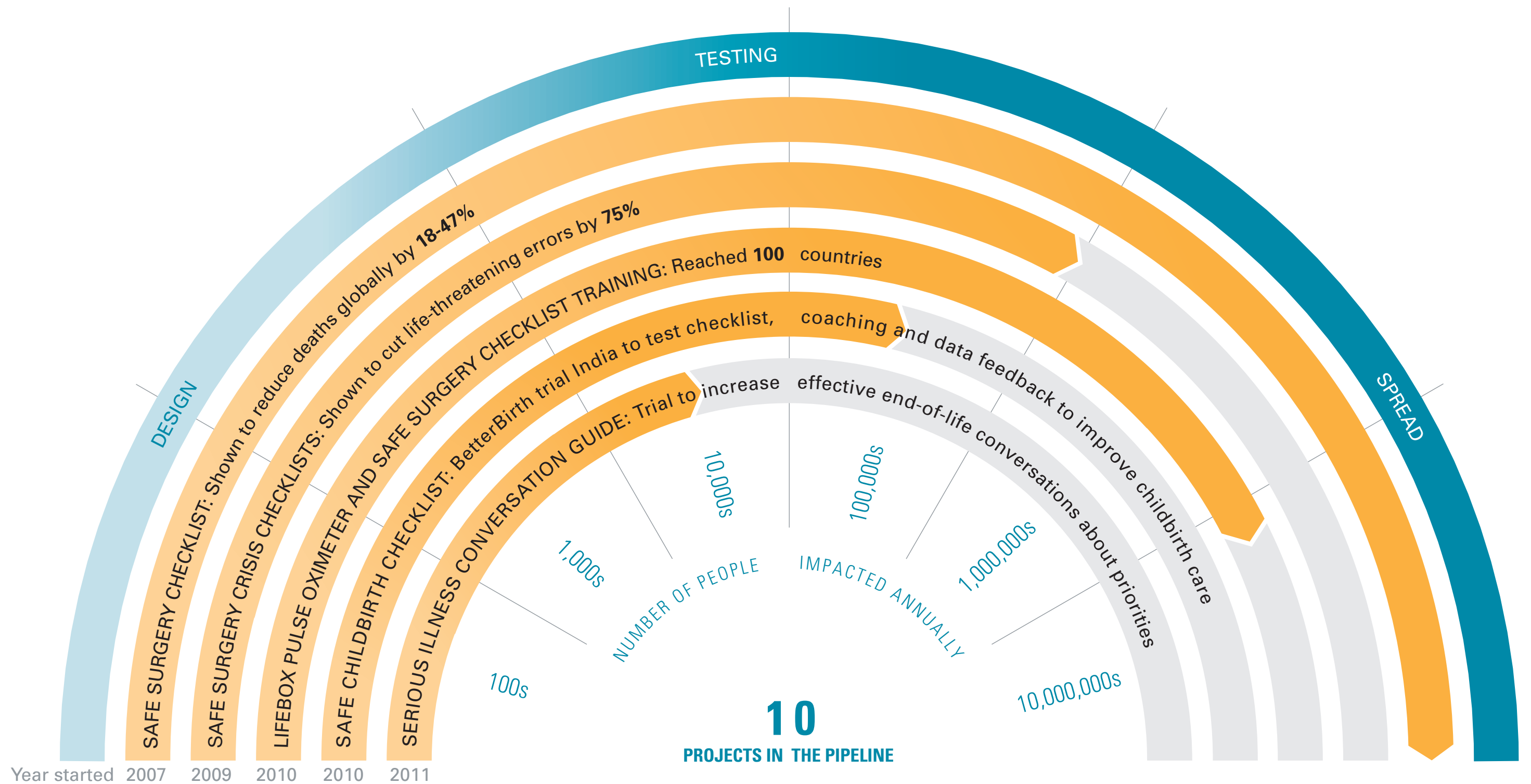
3 SERIOUS ILLNESS CARE

The Serious Illness Care Program offers a compassionate, patient-centered approach to care that focuses on realistic and gentle communication between clinicians and seriously ill patients to identify and support patient goals and wishes. Our randomized controlled trial of the program at the Dana-Farber Cancer Institute has produced early findings that the program results in more, earlier and better conversations about care goals and that these conversations significantly lower patient anxiety and depression.

The success of the program has sparked interest among health systems worldwide. We launched a broad partnership in 2015 with **Blue Cross Blue Shield of Massachusetts** and began implementing the program at **Lowell General Hospital**. In addition, we are now working with the **National Health Service of England** on a pilot for preparation of a national rollout.

To facilitate spread of the Serious Illness Care Program, we wrote the first **Serious Illness Care Implementation Guide** and launched a redesigned **Serious Illness Conversation Guide** with a new question that was developed based on learning from research conducted among African-American communities in South Carolina on the acceptability of the guide. We found that the Conversation Guide helps overcome barriers to advanced care planning in communities heavily impacted by negative health-care experiences.

In a collaboration between serious illness and surgery, we published the **first national recommendations** for a communication intervention that can be used by surgeons with seriously ill older patients who have emergency surgical conditions. The recommendations aim to help surgeons provide care that is aligned with patient goals and values.

To view and download our tools, visit: **ariadnelabs.org** ▪ *Safe Childbirth Checklist* ▪ *Safe Childbirth Checklist Implementation Guide* ▪ *Safe Surgery Checklist* ▪ *Safe Surgery Implementation Guide* ▪ *Operating Room Crisis Checklists* ▪ *Serious Illness Conversation Guide*

TESTING

DESIGN

SPREAD

SAFE SURGERY CHECKLIST: Shown to reduce deaths globally by **18-47%**

SAFE SURGERY CRISIS CHECKLISTS: Shown to cut life-threatening errors by **75%**

LIFEBOX PULSE OXIMETER AND SAFE SURGERY CHECKLIST TRAINING: Reached **100** countries

SAFE CHILDBIRTH CHECKLIST: BetterBirth trial India to test checklist, coaching and data feedback to improve childbirth care

SERIOUS ILLNESS CONVERSATION GUIDE: Trial to increase effective end-of-life conversations about priorities

100s
1,000s
10,000s
100,000s
1,000,000s
10,000,000s

NUMBER OF PEOPLE IMPACTED ANNUALLY

10
PROJECTS IN THE PIPELINE

Year started   2007   2009   2010   2010   2011

Scalable solutions around the globe

The innovation pathway represents how we design, test, and spread scalable health-system solutions globally. The Safe Surgery Checklist is now reaching millions of people on every continent, and the Safe Childbirth Checklist, launched in December 2015, is rapidly reaching more countries as our BetterBirth trial delivers promising results. The Serious Illness Care Program has been tested at the Dana-Farber Cancer Institute and is being adopted in major health systems around the world.
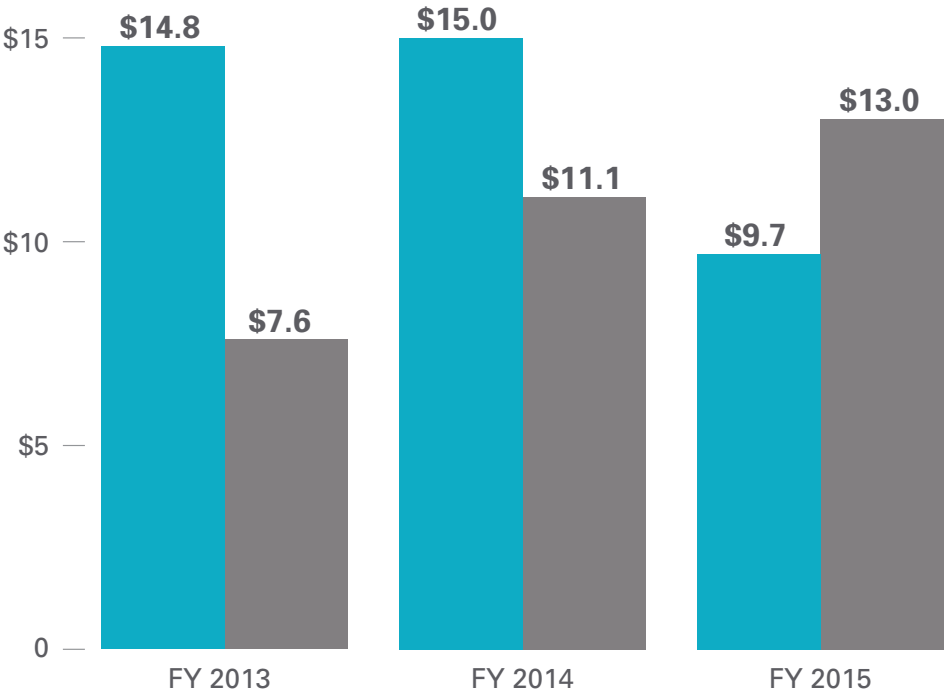
By the Numbers

A year of strategic investment

In FY 2015, Ariadne Labs focused on aligning our leadership, systems, and operations to support anticipated organizational growth as we expand from start-up to scale-up. Following our startup phase of steep growth in years one and two, we made investments in key research and technical staff, as well as administrative and executive staff. As anticipated, we saw a modest year-over-year increase in total spending and decline in total revenues, due in large part to timing of multi-year grant award payments. We are on track for significant increases in revenues in FY 2016 from grants and gifts and undergoing continued organizational expansion.

In millions

Revenue **Expenses**

	FY 2013	FY 2014	FY 2015
Revenue	$14.8	$15.0	$9.7
Expenses	$7.6	$11.1	$13.0

Advisory Board

These individuals are world-class leaders in science, education and business. They support Ariadne Labs by contributing expertise on research priorities, scientific plans, implementation approaches and collaborations.

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Our Supporters

We are grateful to the following individuals and foundations whose generous contributions in FY 2015 help us create better care for everyone, everywhere.

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BLUE CROSS BLUE SHIELD OF MASSACHUSETTS

THE BRANTA FOUNDATION

THE CHARINA ENDOWMENT FUND/ RICHARD L. MENSCHEL, MBA '59, AND RONAY MENSCHEL

DAVID AND MICHELLE EBERSMAN

EMC CORPORATION

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SURGO FOUNDATION

JEFFREY C. WALKER

GWILL E. YORK AND PAUL A. MAEDER

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HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH

MASSACHUSETTS GENERAL HOSPITAL

DANA-FARBER CANCER INSTITUTE

BETH ISRAEL DEACONESS MEDICAL CENTER

BOSTON CHILDREN'S HOSPITAL

MCLEAN HOSPITAL

UNIVERSITY OF CALGARY

NEWTON-WELLESLEY HOSPITAL

HARVARD MEDICAL SCHOOL

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