



Women Rock IT  
IT is a world of possibilities.



261/44

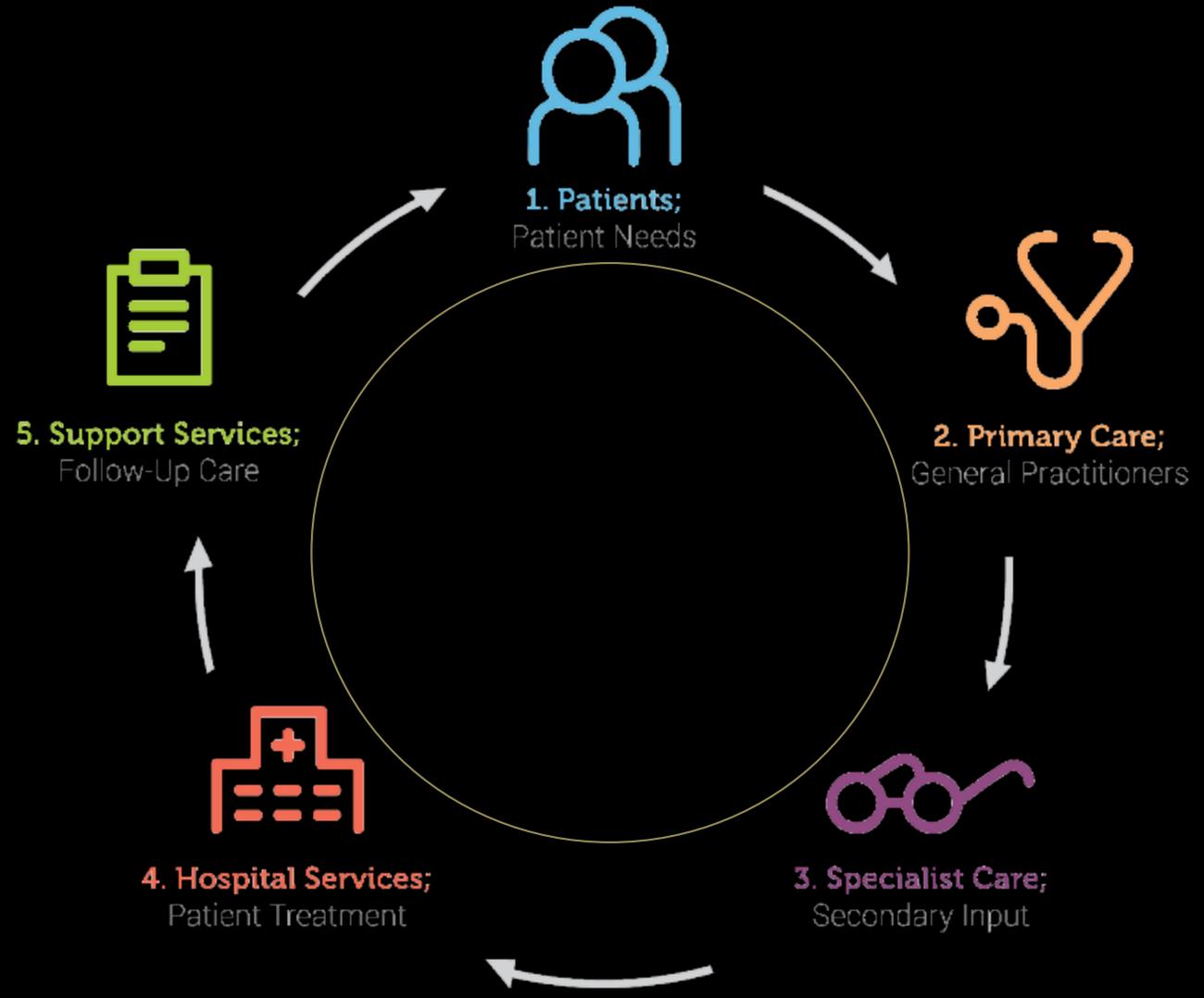
Oct. 22  
Tuesday

**Dr. Nimmi Ramanujam**

Founder of Calla Imaging and  
Professor at Duke University



# Pay Less, Expect More?



**Nimmi Ramanujam, Ph.D.**  
Director, Global Women's Health Technologies  
Robert Carr Professor of Biomedical Engineering  
Duke University, Durham, NC

# The First Paradox - Access

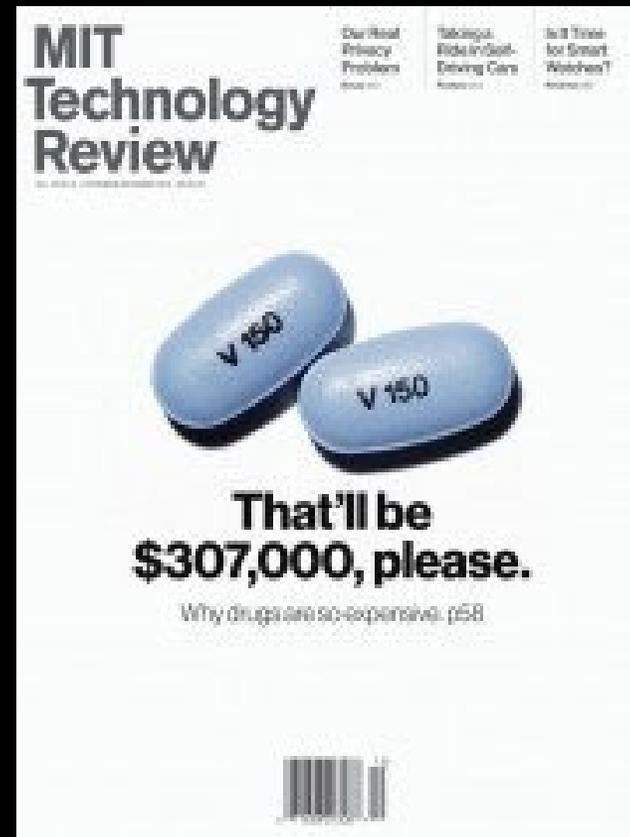
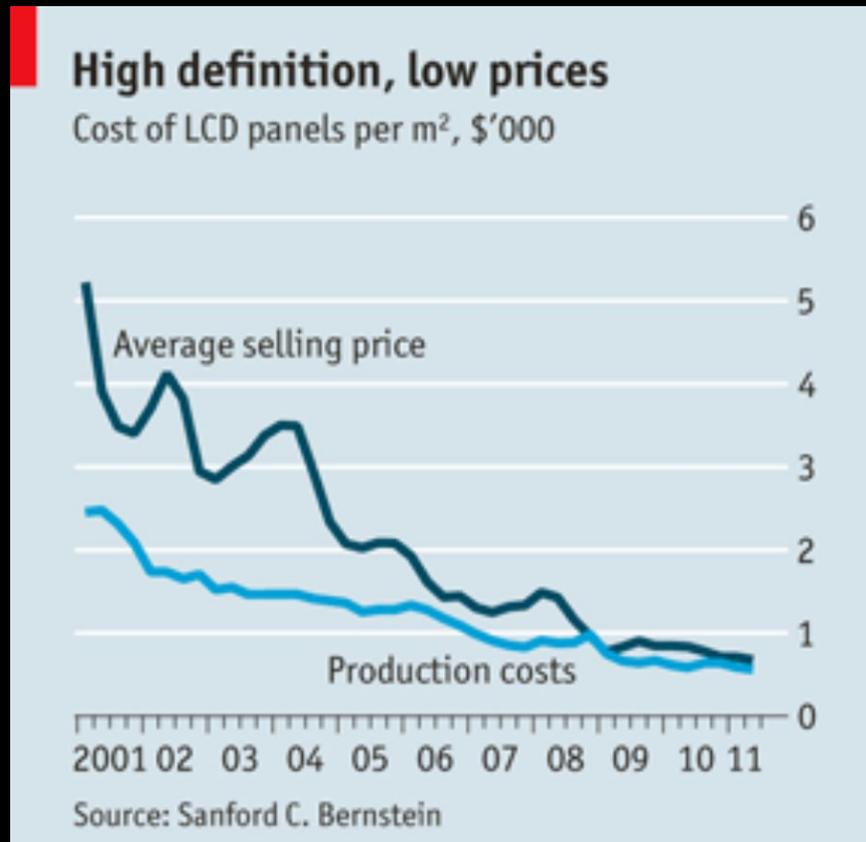


[http://cantonasylumforinsaneindians.com/history\\_blog/tag/missouri-state-hospital-no-2/](http://cantonasylumforinsaneindians.com/history_blog/tag/missouri-state-hospital-no-2/)

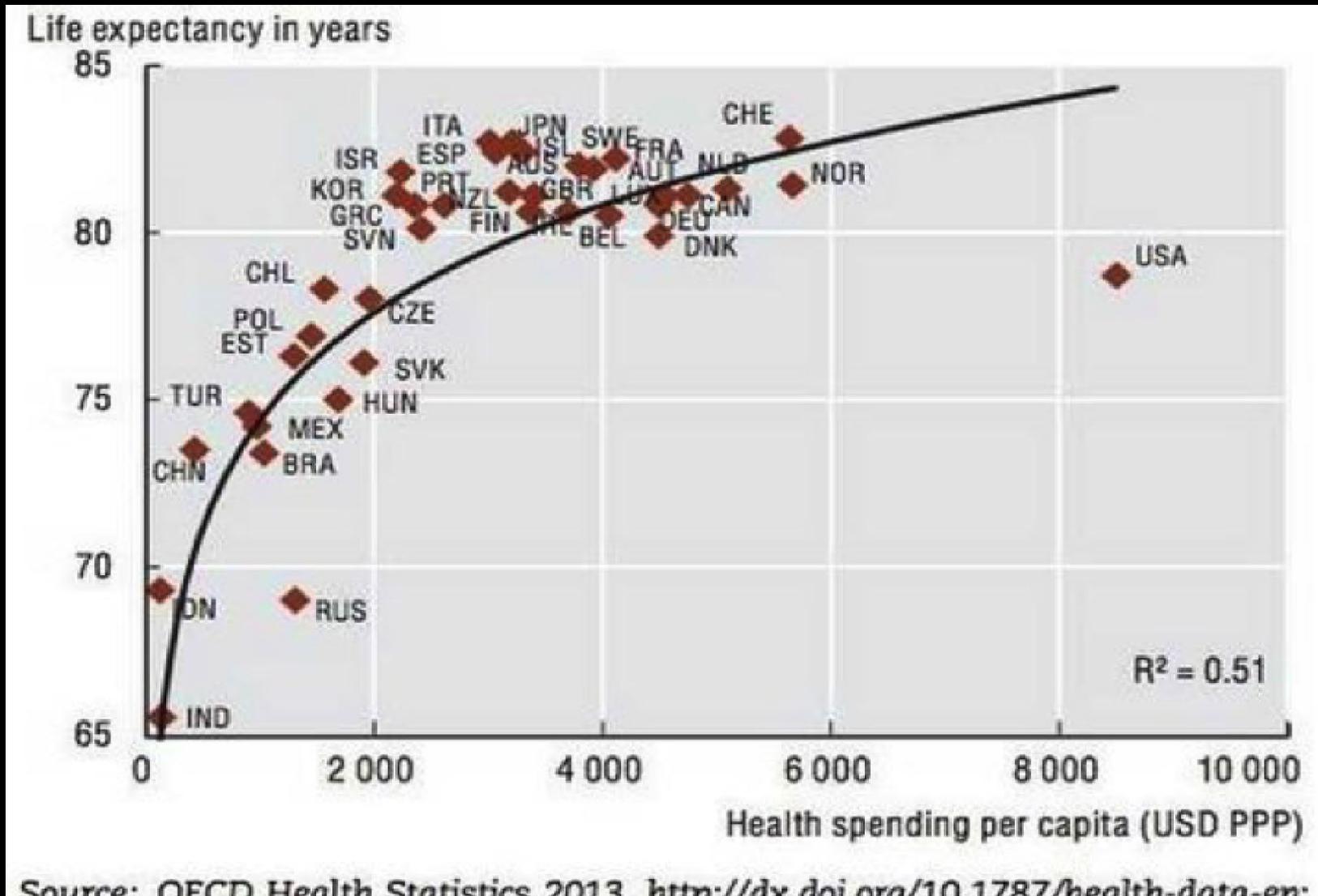


<http://myhealthspin.com/what-type-of-hospital-room-do-you-want/>

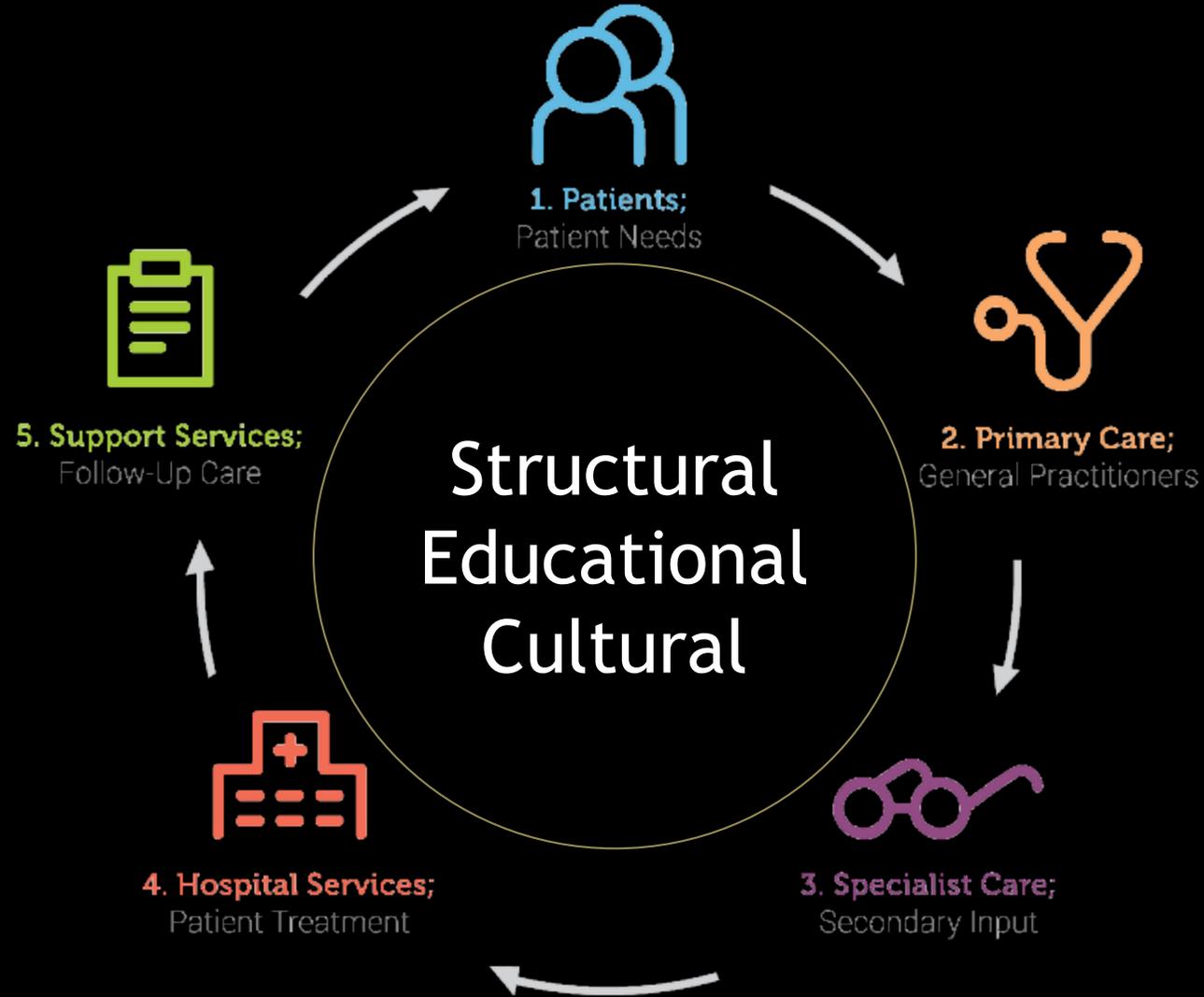
# The Second Paradox - Cost



# The Third Paradox - Health

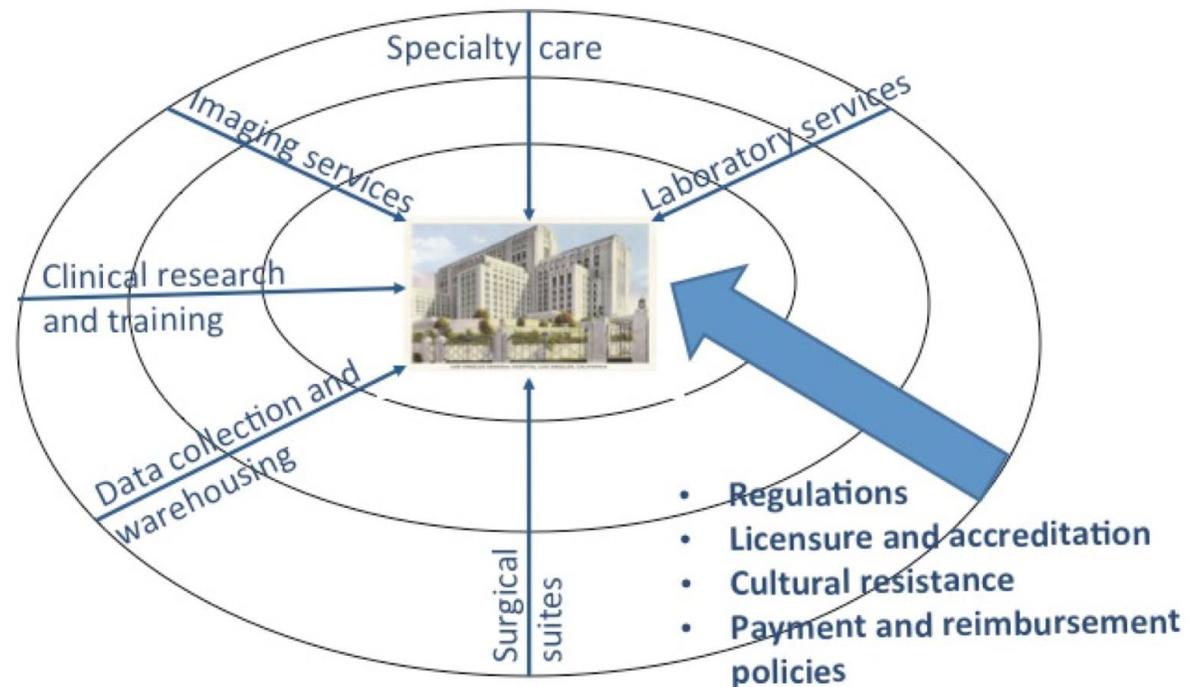


# Barriers to Health Care

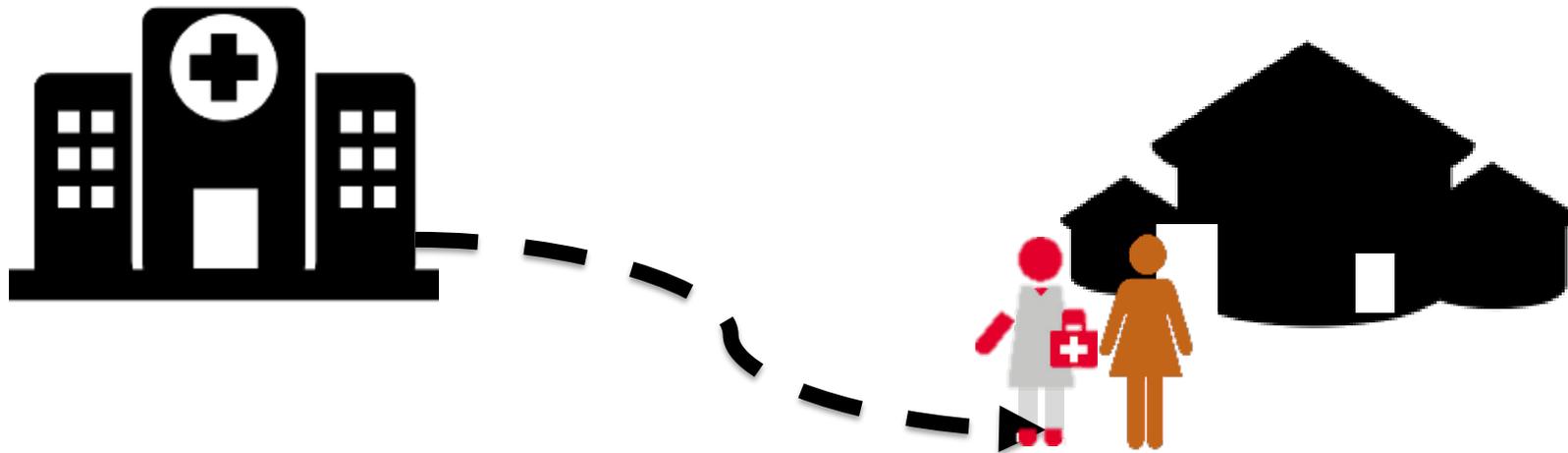


# Disruptive Innovation – A New Model for Health Care?

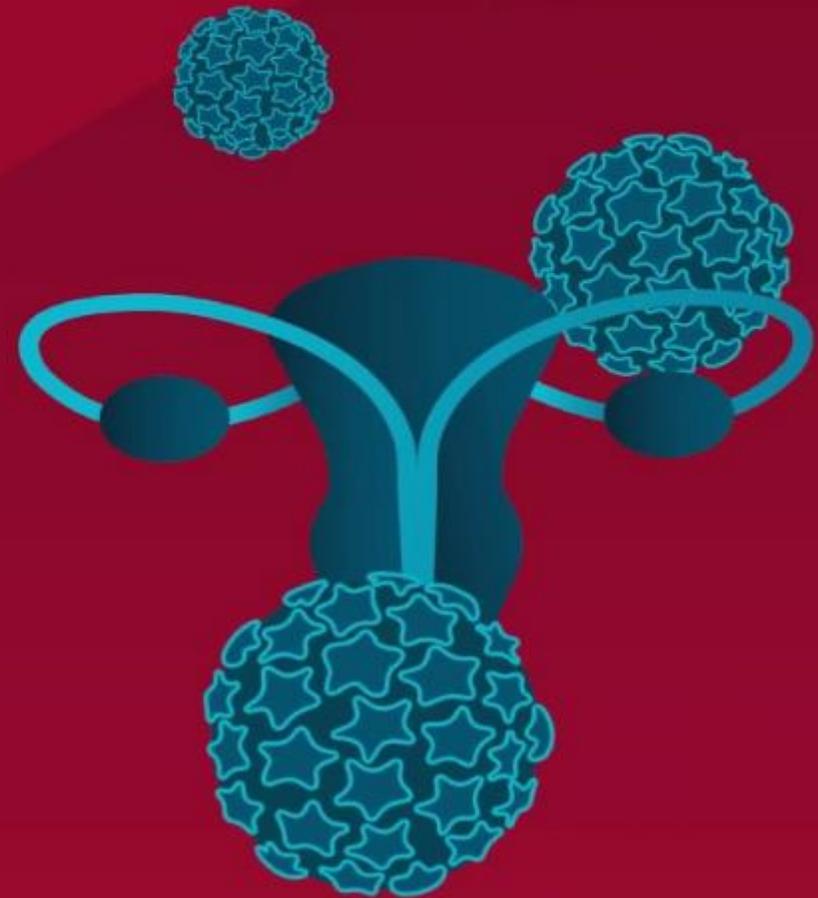
Plugging new technologies into old business models has caused health care costs to rise rather than fall



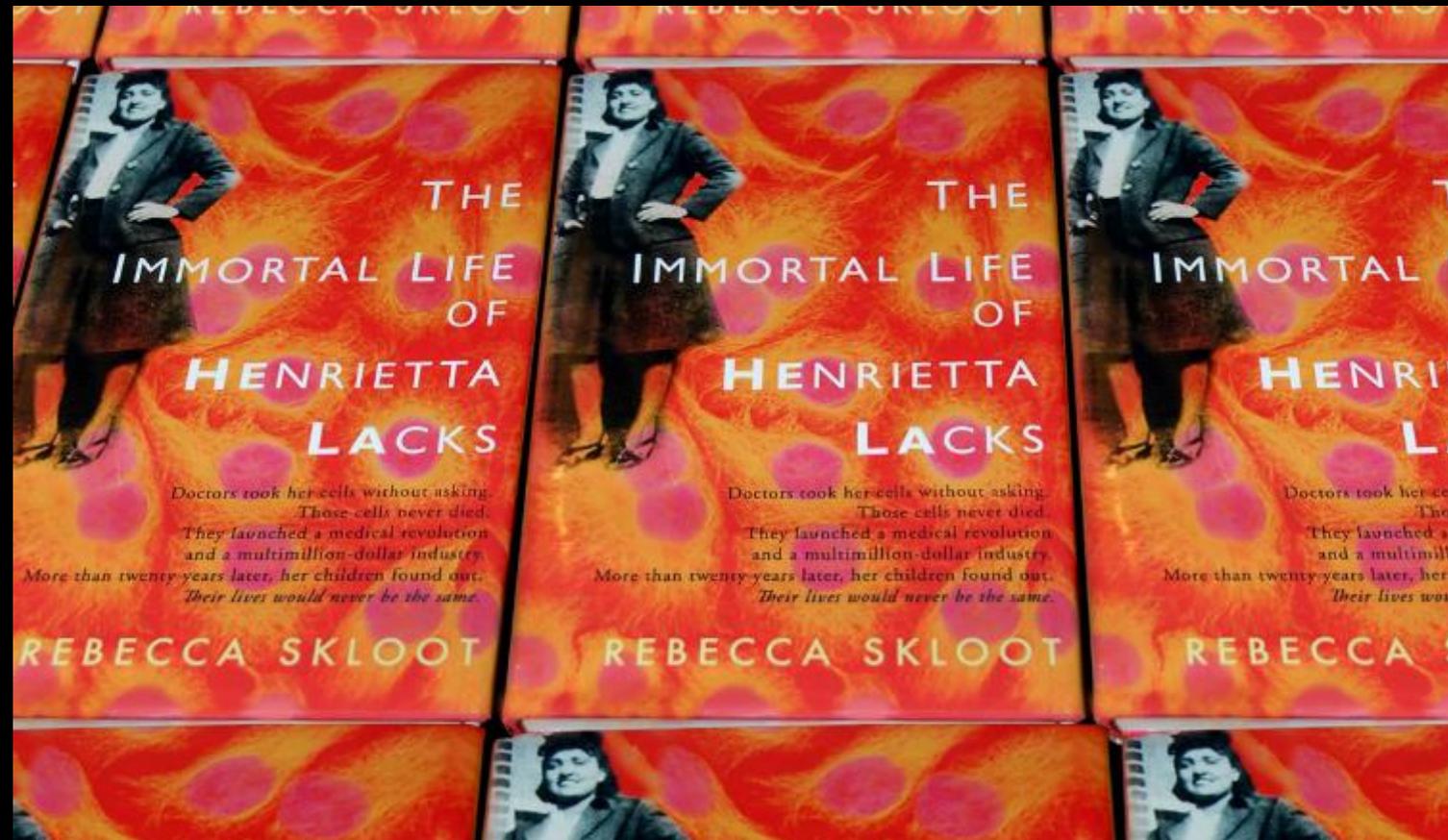
# Disruptive Innovation for Cervical Cancer Prevention



**Cervical cancer is caused by  
human papillomavirus (HPV),  
a common sexually  
transmitted infection**

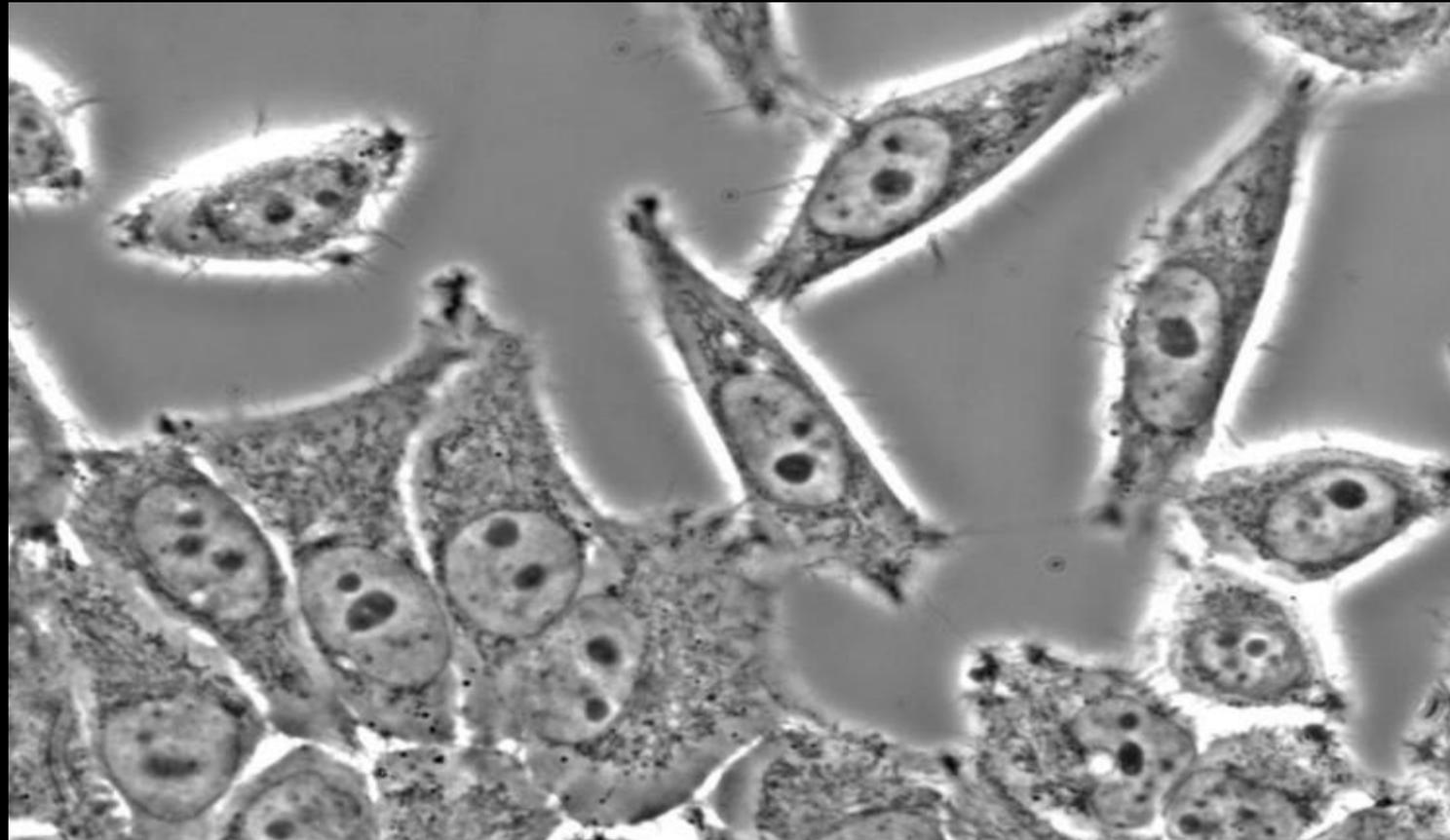


# The Immortal Life of Henrietta Lacks





# Henriettas Cervical cancer Cells





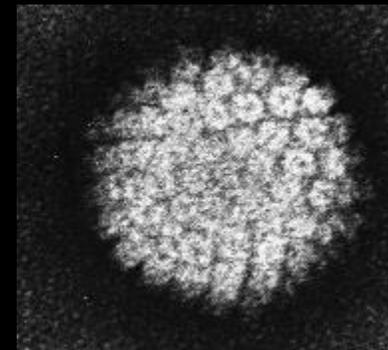
George Papanicolau 1883-1962



Hans Hinselmann 1884-1959



Harald Zur Hausen  
1936-Present

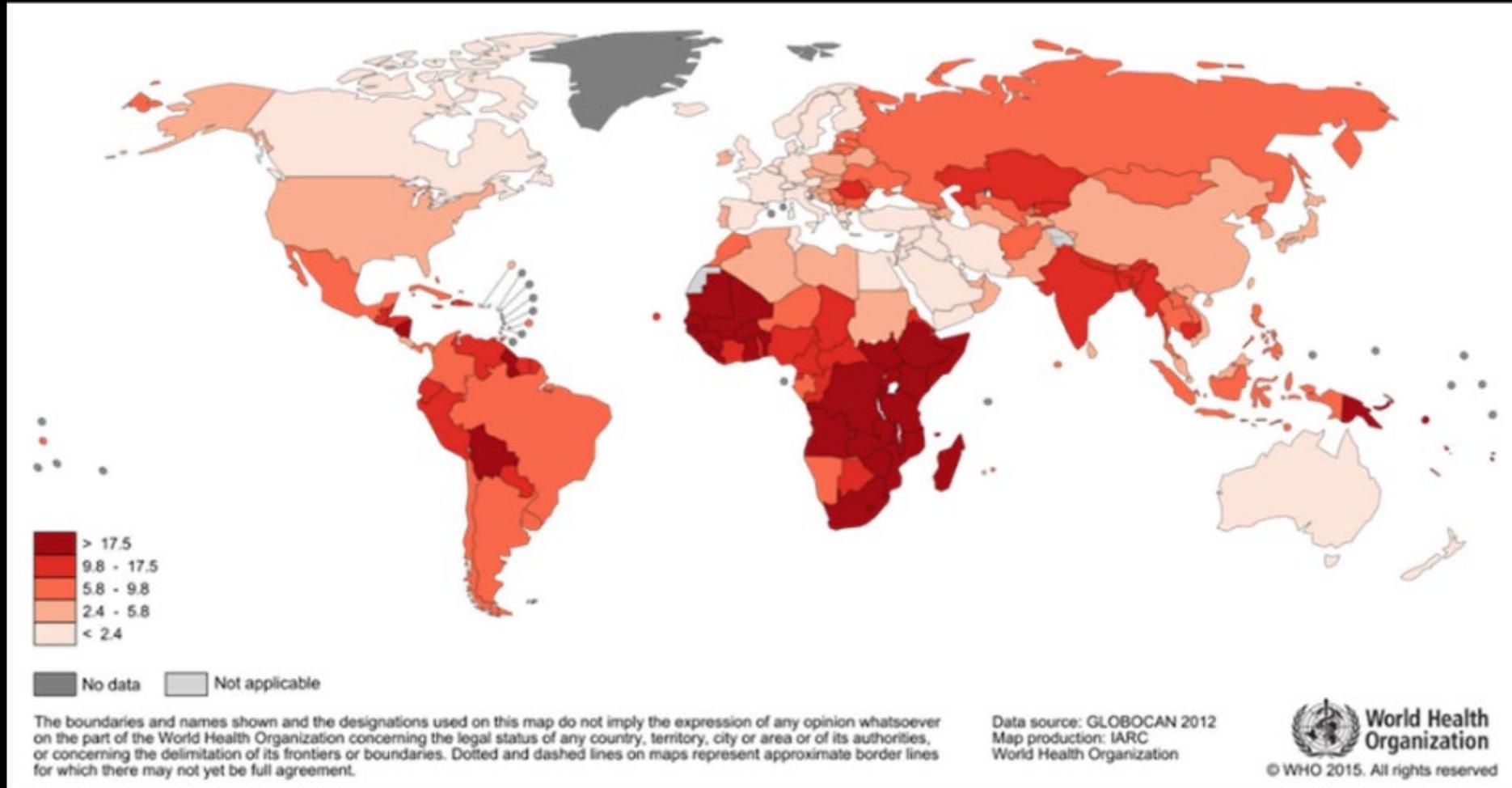


HPV Virus



A woman dies of cervical cancer every 2 minutes, globally

# Cervical Cancer Mortality

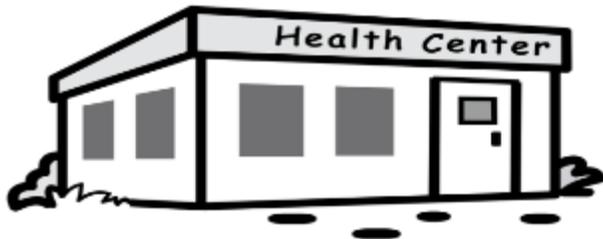


# Why Women Die?



**Screening**

**At the health centre**



**Diagnosis**

**At the district hospital**



**Treatment**

**At the central hospital**







**Clinical Colposcope**  
**50-150 lbs**  
**\$5,000-\$15,000**



*Introducing the*

# Pocket Colposcope

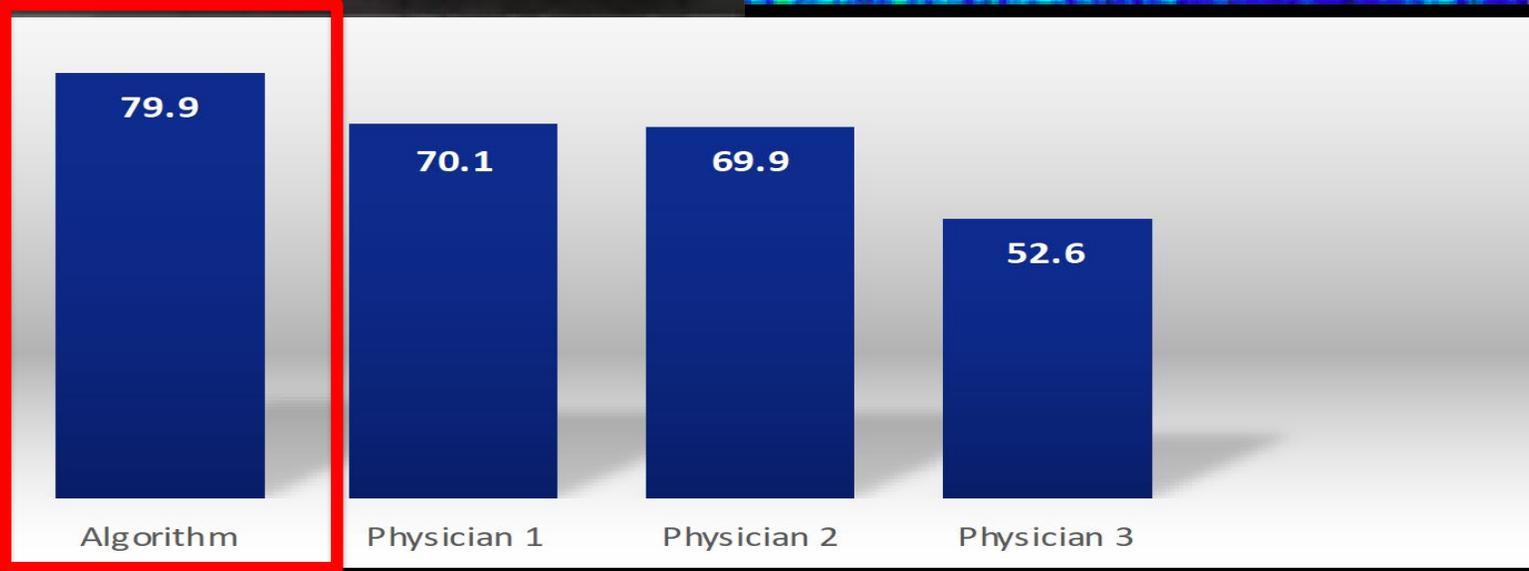
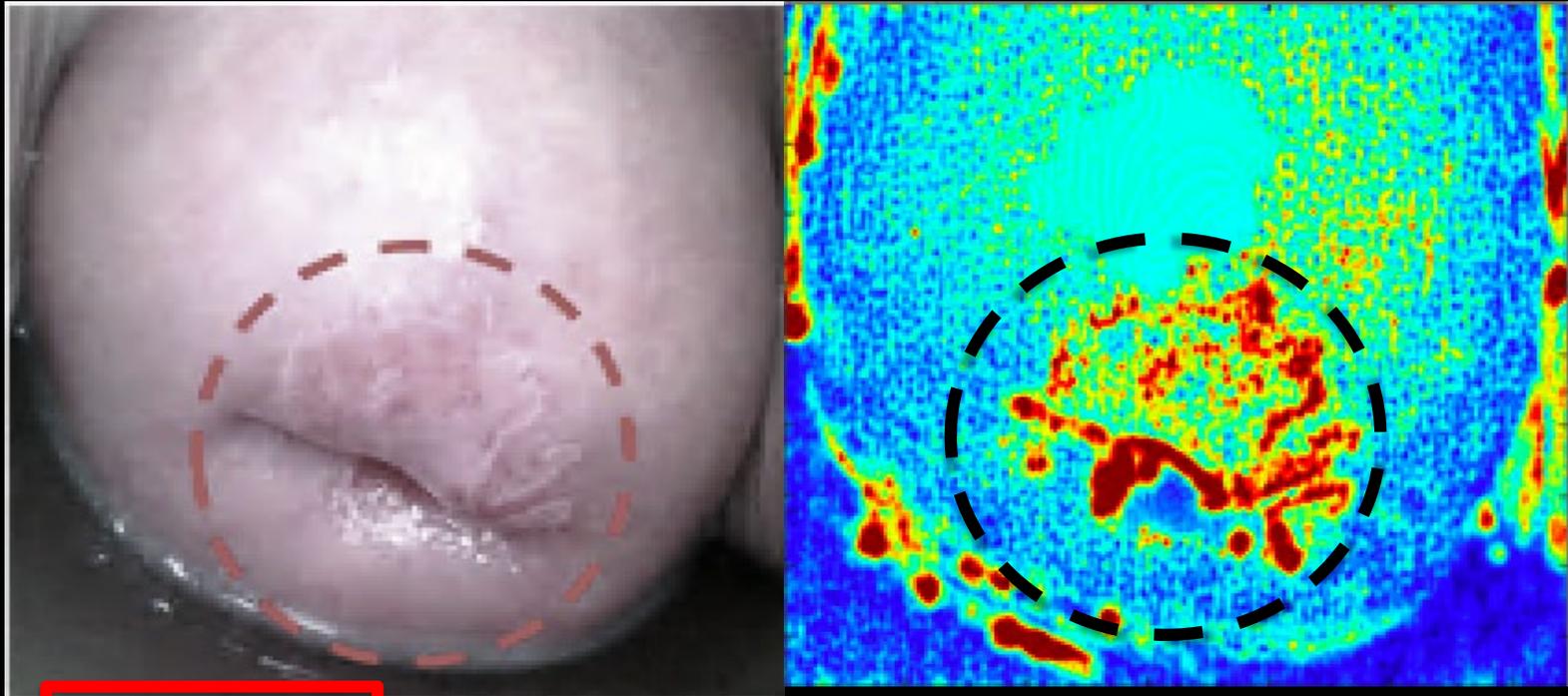
*The new instrument  
with the potential to  
revolutionize cervical  
cancer screening in  
low-resource settings.*

**FDA  
CLEARED**



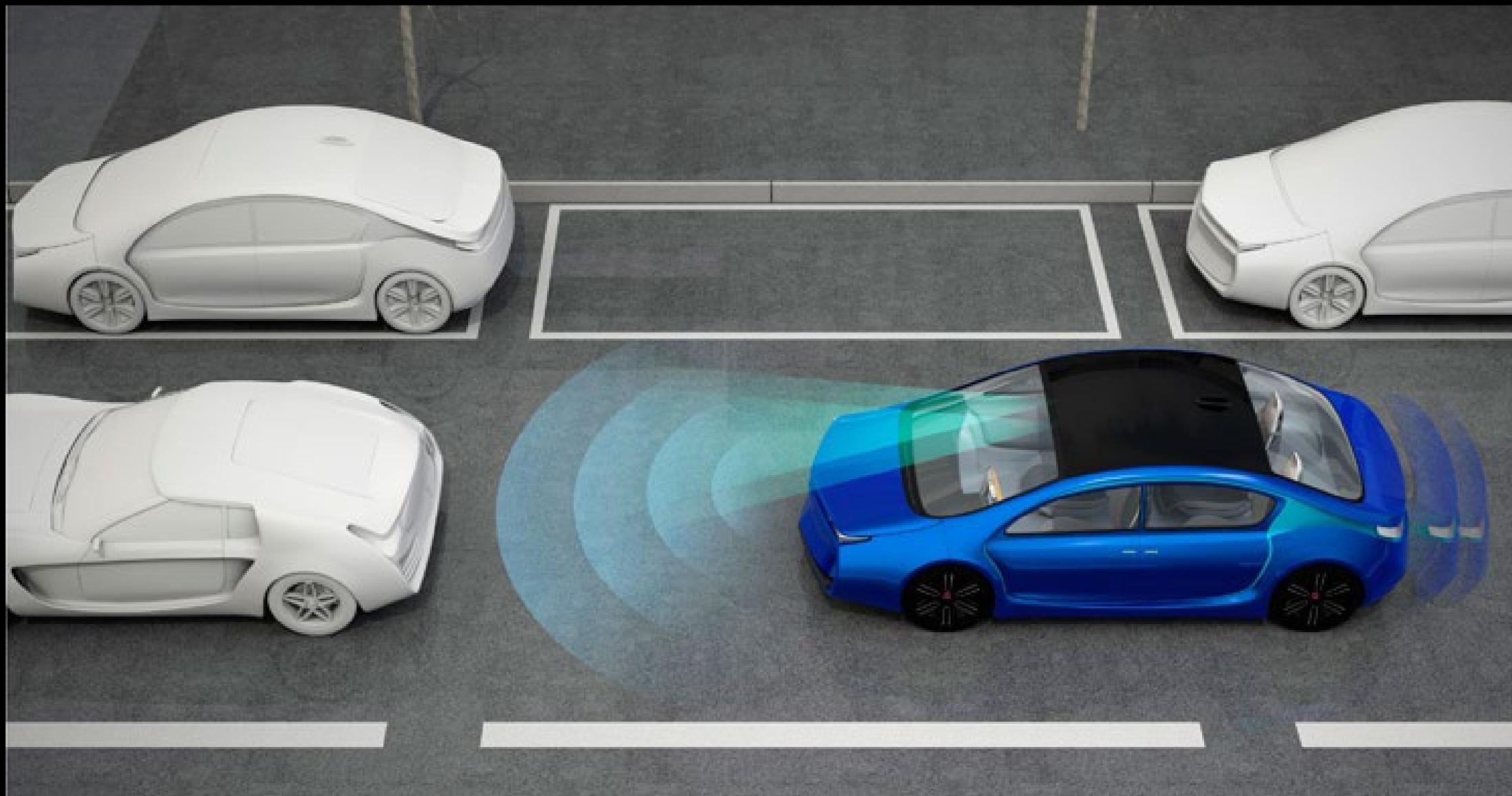
**0.5 lbs  
\$500**

Photo Credit: 3rd Stone Design



# Mobile Health Clinic - Peru







The Speculum



# The Calla Lily

# Callascope





PAIN SCALE

10  
9  
8  
7  
6  
5  
4  
3  
2  
1  
0

Speculum

Callascope

Speculum  
insertion

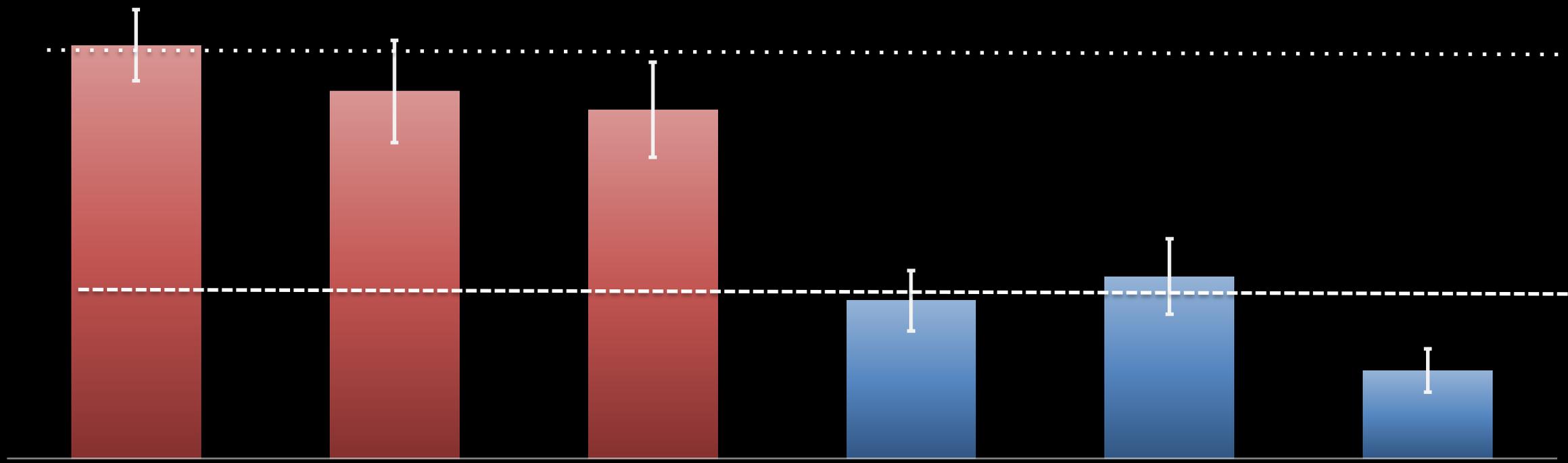
Speculum  
manipulation

speculum  
removal

Callascope  
insertion

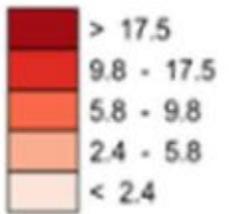
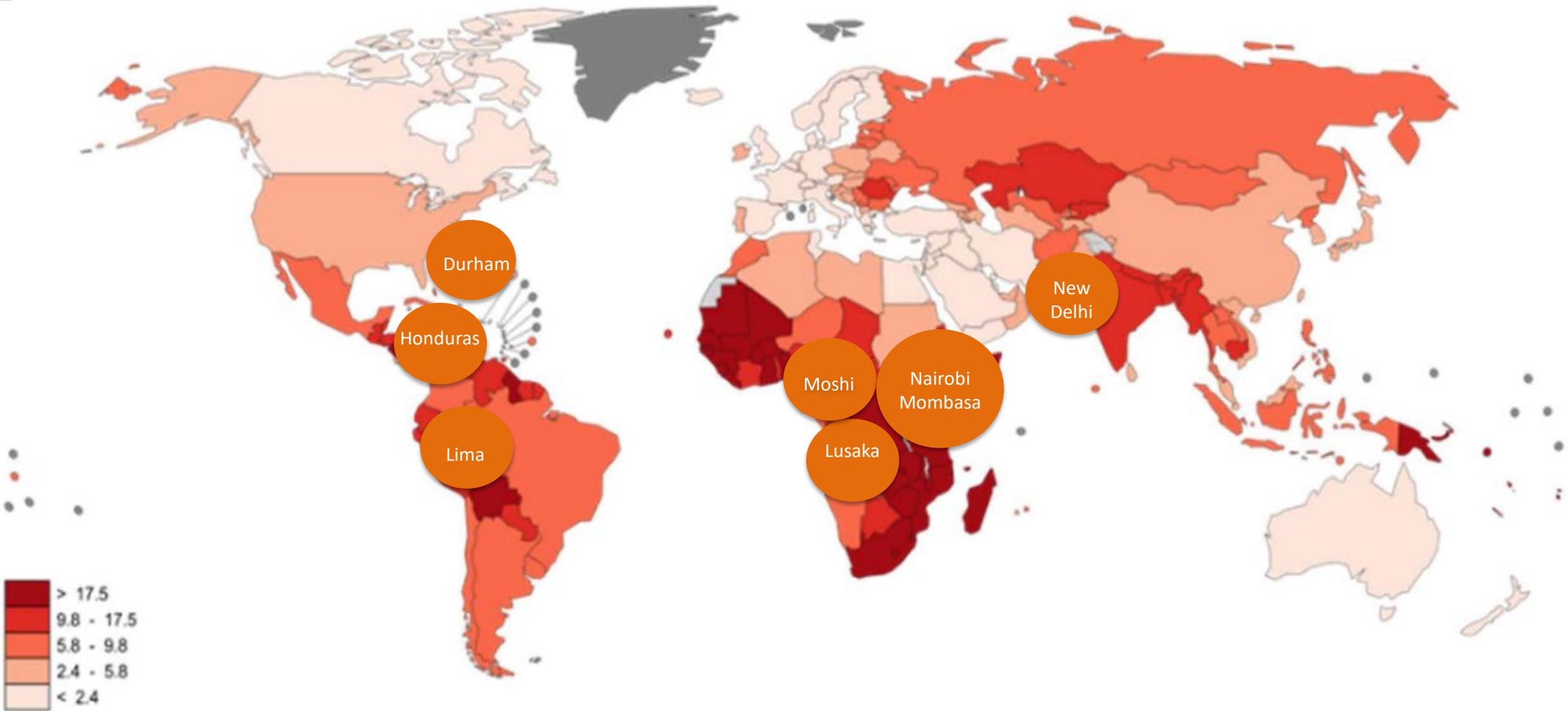
Callascope  
maniulation

Callascope  
removal



# HOPE Ladies - HOPE Project Peru





No data Not applicable

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data source: GLOBOCAN 2012  
Map production: IARC  
World Health Organization



Duke Social Innovators in Training



Everyone is innovating and tinkering....

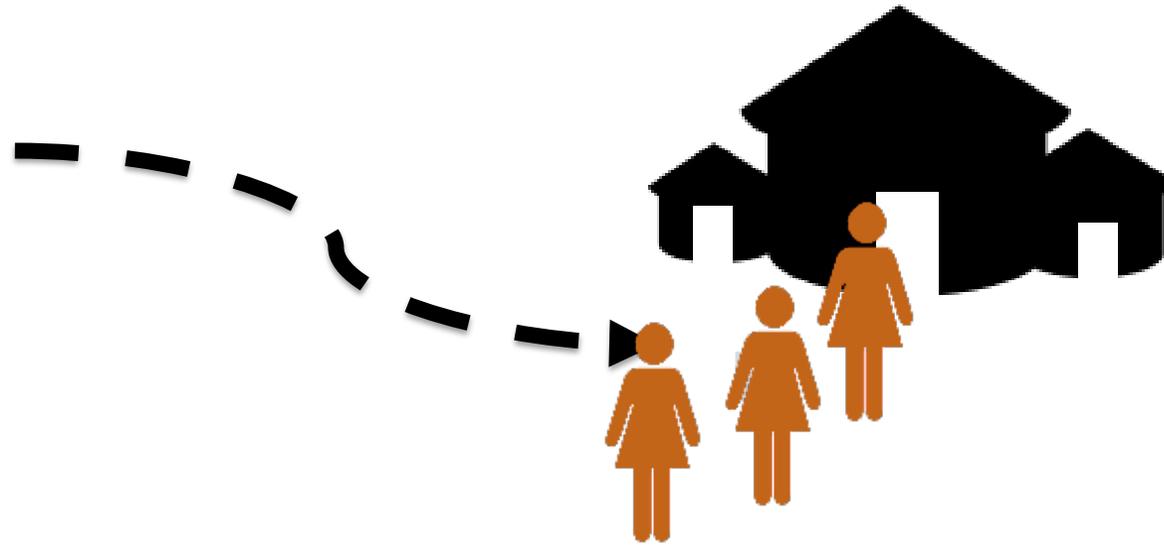
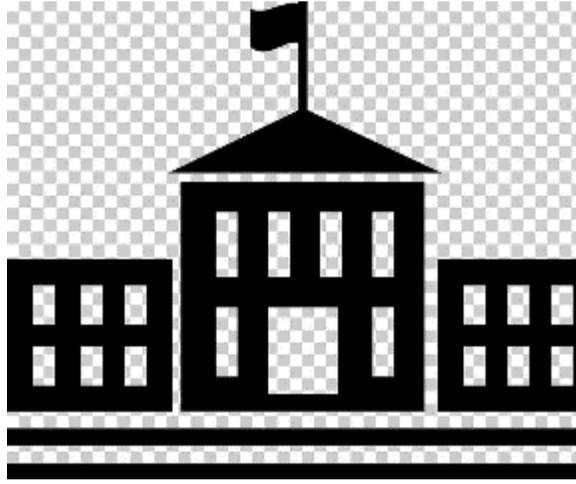


Those who know best the lived experience of global social issues often lack access to the skills, specialized knowledge and power to solve them.



While those who have access to cutting edge education in technology for social innovation are not at the level of the problem.

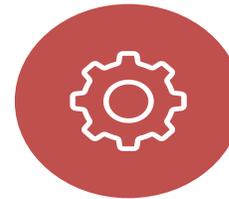
Ignitecreateimpact.com



**Community  
problem  
knowledge**



**Design  
Thinking  
Framework**

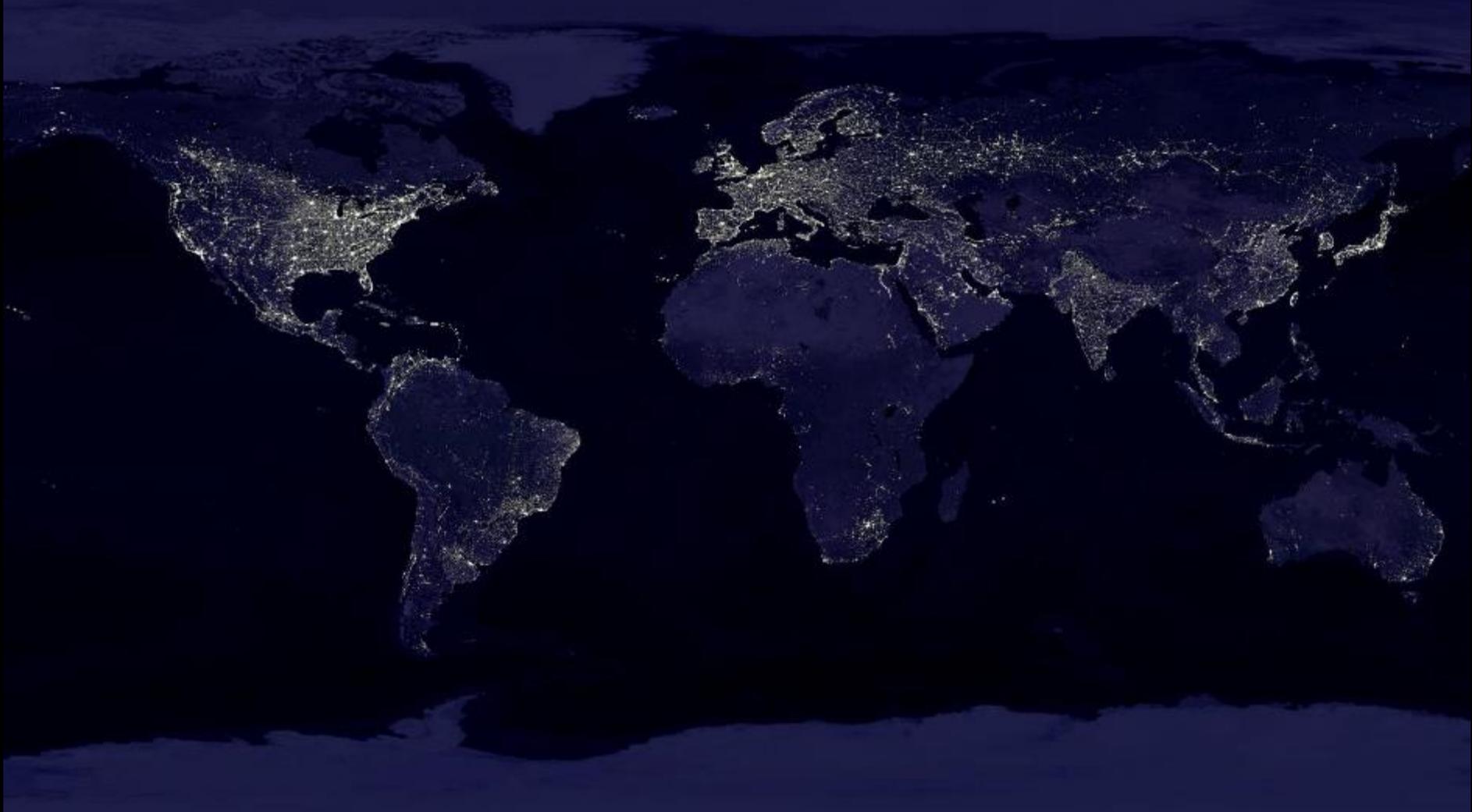


**Enabling  
STEM  
Knowledge**



**Social  
Innovation**

# Light Poverty Globally





# SDG 7 (Clean Energy)



**Social Innovation Program centered on Sustainable Development Goals (SDGs)**



University Trainers, Duke University

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WISER Secondary School, Muhuru Bay, Kenya



Shani, WISER Student Club Leader



**WISER Team wins Regional Competition**

# Reach of Ignite

- 6 years serving communities
- Over 100 university trainers
- Over 1000 girls & women impacted



# Ignite Fellows Create their Own Disruptive Innovations



Gabriela Asturias, B.S.  
Founder, Fundegua  
Fundegua.org



Jen Dietzel, B.S.  
Founder, Flash  
[dukegroups.com/organization/dukeflash](http://dukegroups.com/organization/dukeflash)



Libby Dotson, B.S.  
Lead Curator,  
Invisible Organ Art Exhibit  
[TheCallacampaign.com](http://TheCallacampaign.com)

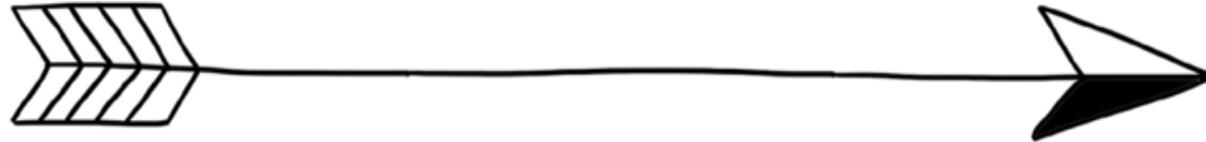


Andrea Kim, B.S.  
Director  
Invisible Organ  
Documentary  
[IgniteCalla.com](http://IgniteCalla.com)

# Why you should be a Disruptive Innovator!!

INNOVATION

DISRUPTION



DOING THE SAME  
THINGS A BIT  
BETTER

DOING NEW  
THINGS

MAKING THINGS THAT  
MAKE THE OLD THINGS  
OBSOLETE