



# Contraceptive Microarray Patch (MAP) Development at FHI 360

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Treatment Action Group Webinar

Community Engagement on Microarray Patches

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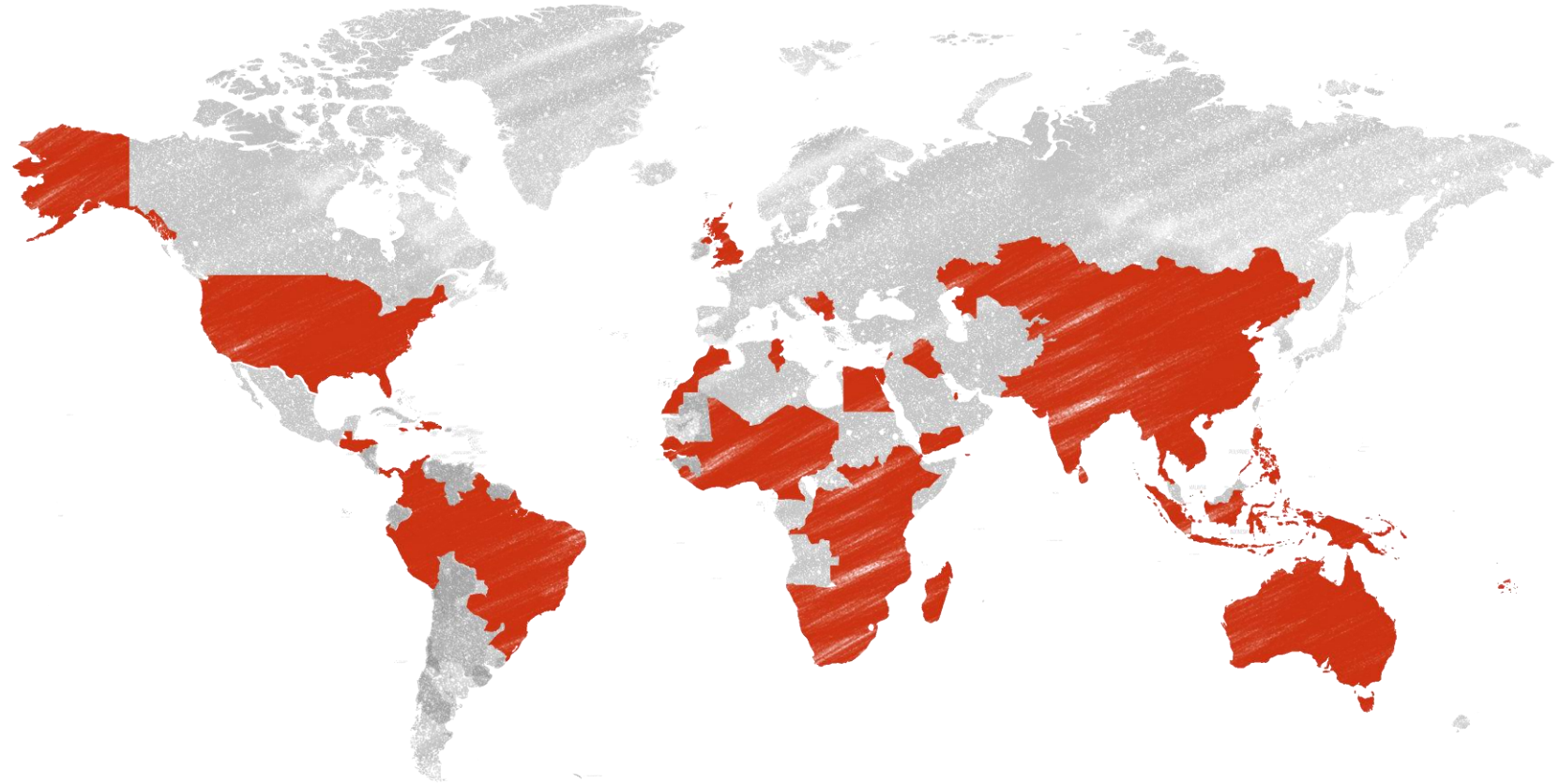
# FHI 360 is a Global NGO working in 60+ countries

## Vision

We are working to create a world where opportunity is within reach for all people.

## Mission

FHI 360 advances equity, health and well-being through data-driven, locally led solutions — so that humanity thrives.



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# Product Development and Introduction (PDI) Goal

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To expand knowledge about and access to desirable, affordable, quality, voluntary family planning options that better meet people's changing needs and desires throughout their reproductive lives, with a **focus** on developing and introducing **innovative contraceptive technologies** in **LMICs**.



Technical Expertise



Partnership



Cutting-Edge Science



Advocacy for Choice



Photo Credit: Mbuto Machili, FHI 360



Photo Credit: Brenda Fitzsimons, courtesy of Photoshare

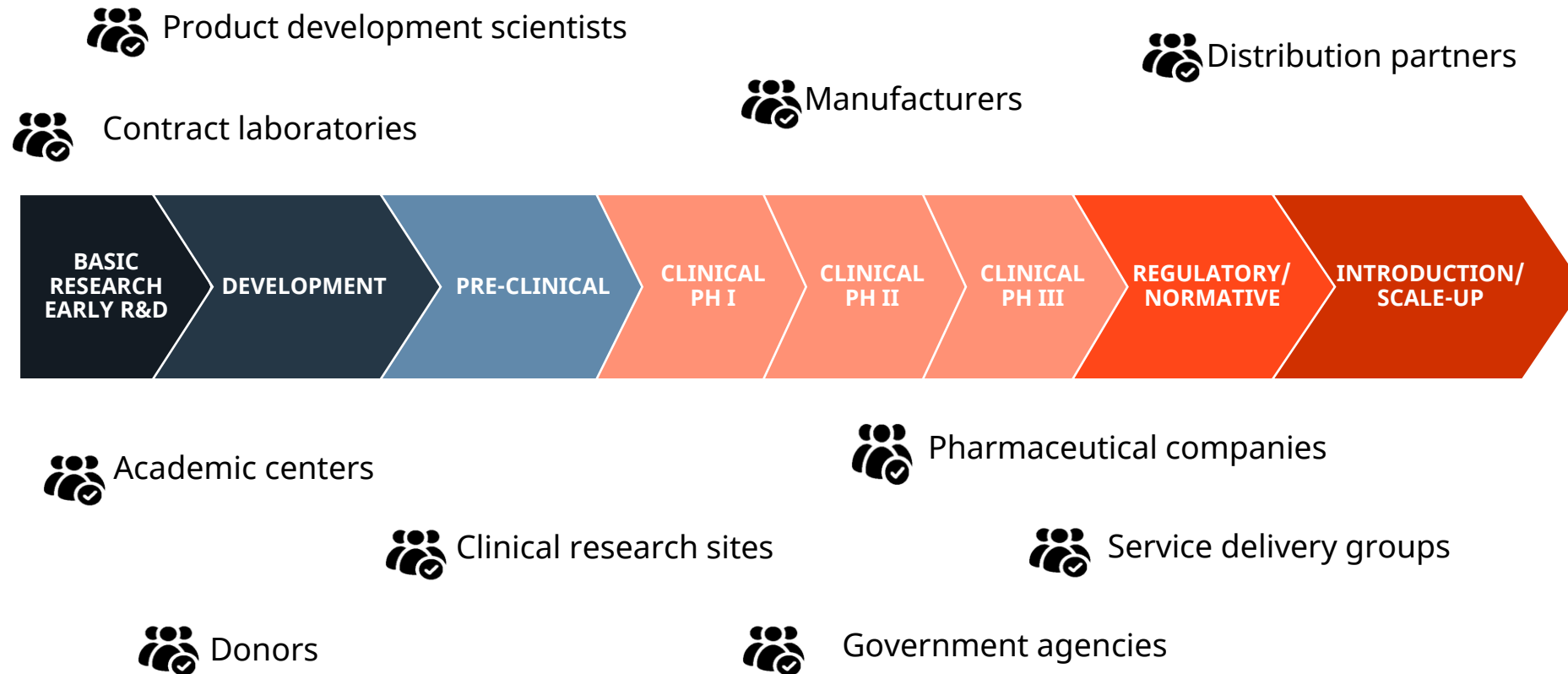
# Beginning with the End in Mind

- Focus on users' needs and desires
- Understand relevant delivery contexts and issues
- Make evidence-based decisions and learn from past research
- Keep cost in focus to ensure global access

# Successful partnership are the core of our model

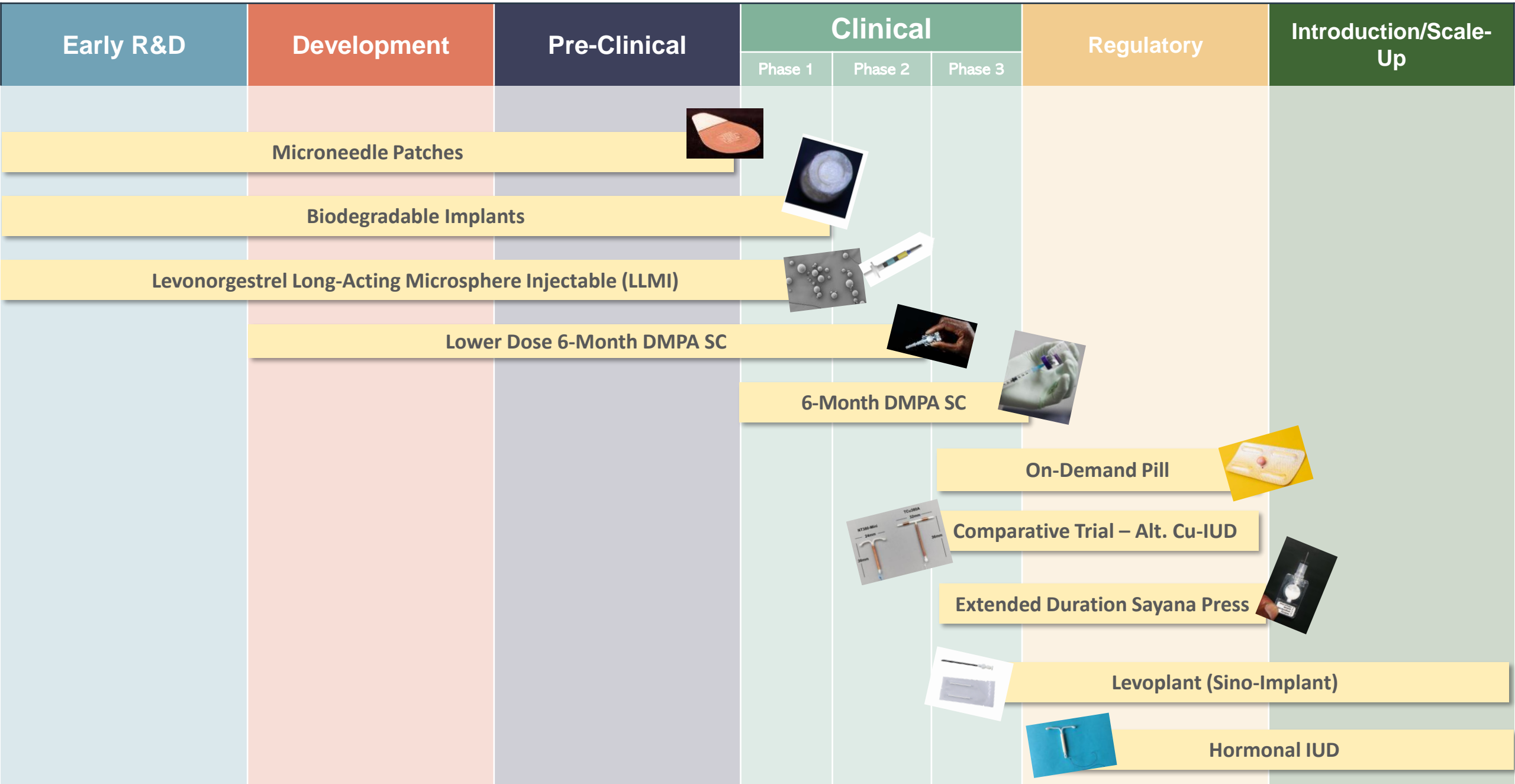


We engage nearly 100 organizations and consultants globally, and actively manage each project to advance product development goals





# FHI 360 Contraceptive Product Development Portfolio by Development Stage



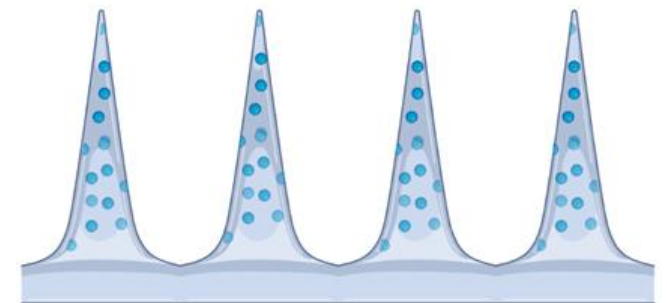
# Contraceptive MAP Value Proposition

- Truly innovative, discreet, user-controlled method
- Potential for self-administration or administration by minimally-trained personnel
- Less painful than existing injectable products
- Small packaging simplifies storage and distribution
- No sharps waste eliminates potential for needle reuse



# Contraceptive MAPs

- Collaboration with Georgia Tech
- Biodegradable microneedles (MNs) loaded with levonorgestrel (LNG)
- Upon application, MNs break away from patch, embed in skin, and slowly-release LNG over the target duration of 3-6 months
- Considerations for prototype development
  - Formulation for extended drug release of LNG
  - Sharp tips and mechanical strength for insertion into skin
  - Patch backing that facilitates rapid separation from MNs
  - Acceptable size of MN and patch that can accommodate dose of LNG





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# User Preferences for a Contraceptive MAP

Evidence from India and Nigeria

# Study Design



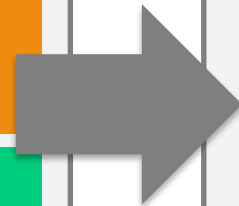
## Qualitative Phase

### INDIA

- 10 focus groups, 44 women
- 10 interviews with women
- 10 interviews FP providers

### NIGERIA

- 10 focus groups, 50 women
- 10 interviews with women
- 10 interviews FP providers



## Quantitative Phase

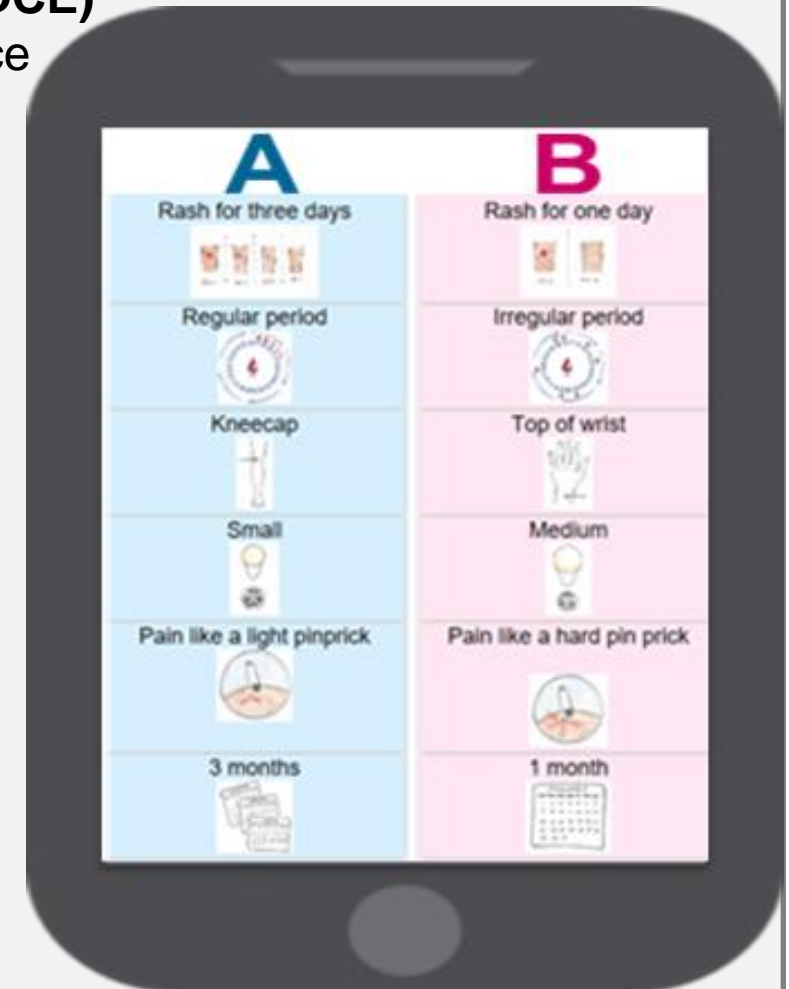
**Discrete Choice Experiment (DCE)**  
to quantify the relative importance  
of MAP attributes

### INDIA, N=496

- 22% never used a method
- 28% sterilized, never used
- 50% ever used a method

### NIGERIA

- Sample 1, N=530**  
50% never used a method
- Sample 2, N=416**  
50% never used a method



# Study Design: Characteristics/topics discussed in the *qualitative phase*

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- Perceived benefits/drawbacks
- Size
- Administration (self vs provider)
- Pain
- Potential skin reaction
- Location of application
- Wear time
- Frequency of administration
- Side effects
- Packaging
- Disposal
- Storage
- Cost
- Potential for discreet use

# Study Design: Attributes and levels included in the *DCE survey*



## Pain at application

- No pain
- Like light pin prick
- Like hard pin prick



## Skin reaction at application

- Rash for one day
- Rash for three days



## Location of application

- Wrist
- Knee
- Top of foot



## Size of cMNP

- Small
- Medium
- Large



## Duration of effectiveness

- One month
- Three months
- Six months



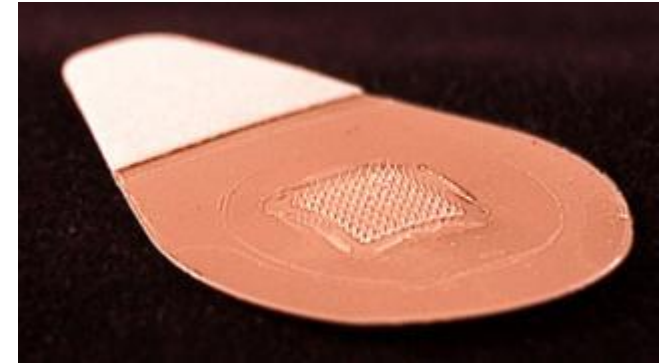
## Effect on menstruation

- No effect
- Irregular period
- Amenorrhea

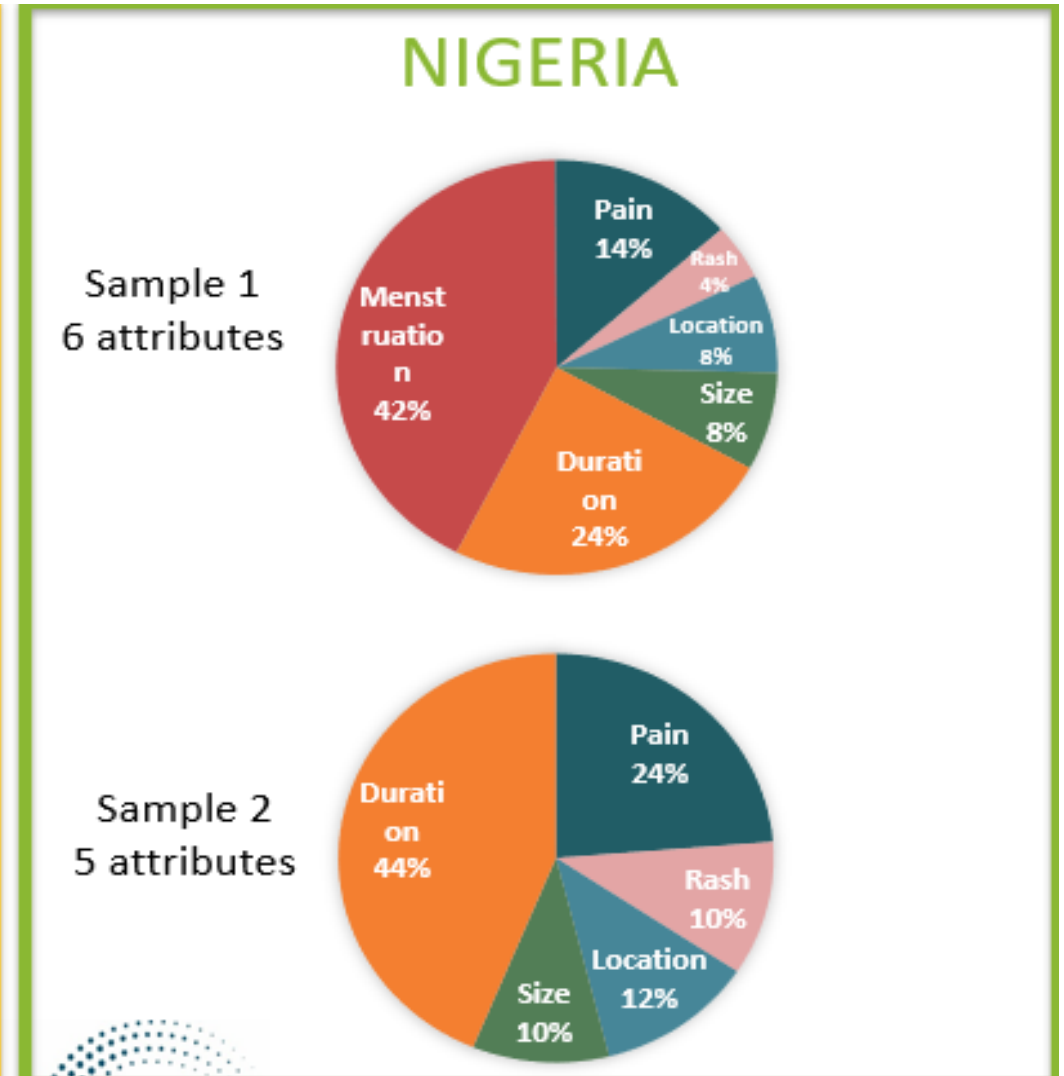
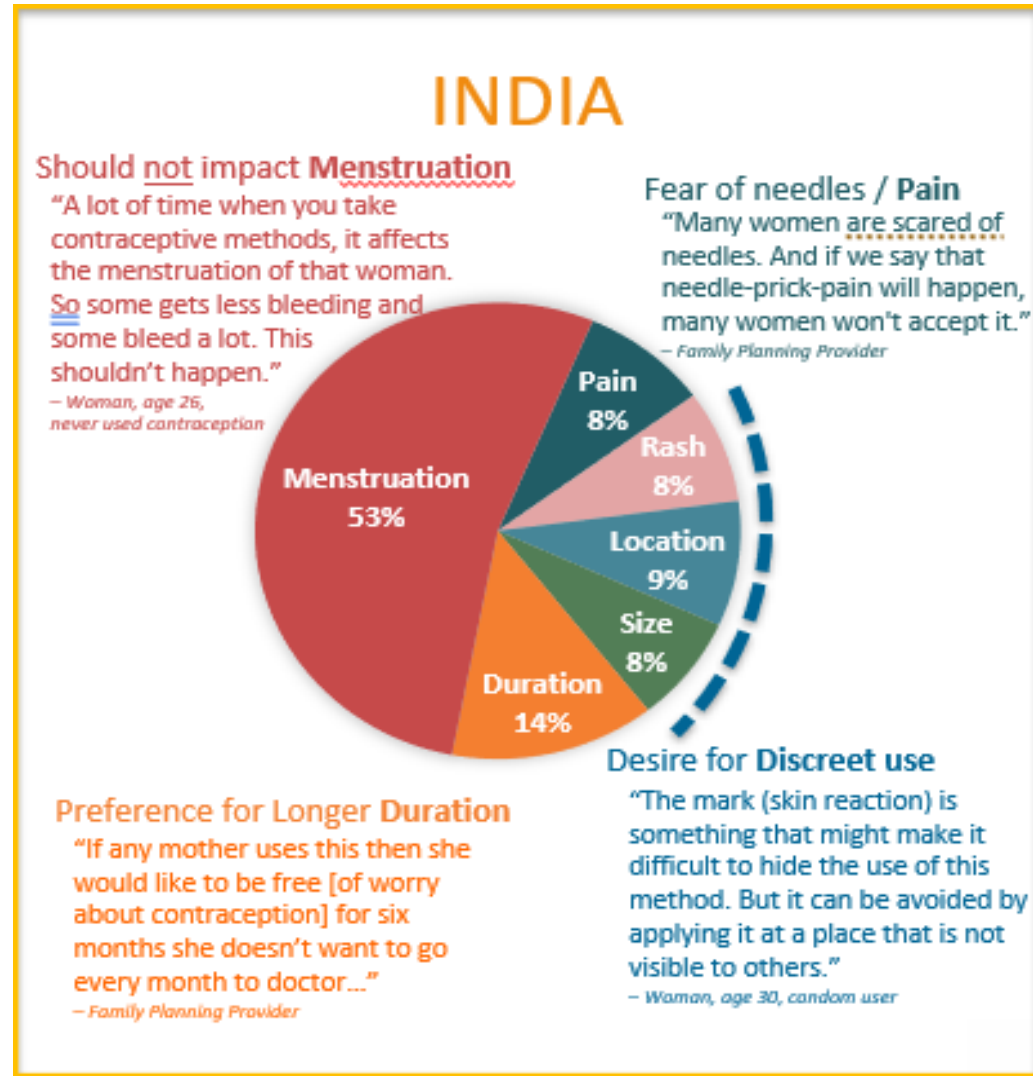
# Qualitative Findings

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- A contraceptive MNP is of interest to women
- Interest in self-use was relatively high, especially in India, but with a preference for application by a provider the first time
- Providers were less supportive of self administration than most women
- Women and providers favored durations at least equivalent to the three-month injectable, and wanted no or minimal side effects
- Views on patch size and location of application were related to the potential for a localized rash and pain, with a desire to permit discreet use and minimize pain



# DCE Findings: Relative Importance of Attributes





# Conclusions

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- A contraceptive MNP **is of interest to women** and may offer women an appealing new contraceptive option.
- Women would prefer a **small, long-acting contraceptive MNP to be applied in a discreet location, which would cause minimal skin reaction, and not affect menstruation.**
- Desire for **no menstrual side effects was the most important driver** of product preference in both contexts, though stronger in India.
- Product developers should **explore formulations** that mitigate potential menstrual side effects and last longer than one month.



# Thank You!

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