Skills building session
Linh Nguyen
Elfira Nacia
Aaron Brose

Introduction to Data Interpretation and Application

The value of data in advocacy

EVIDENCE-BASED ADVOCACY

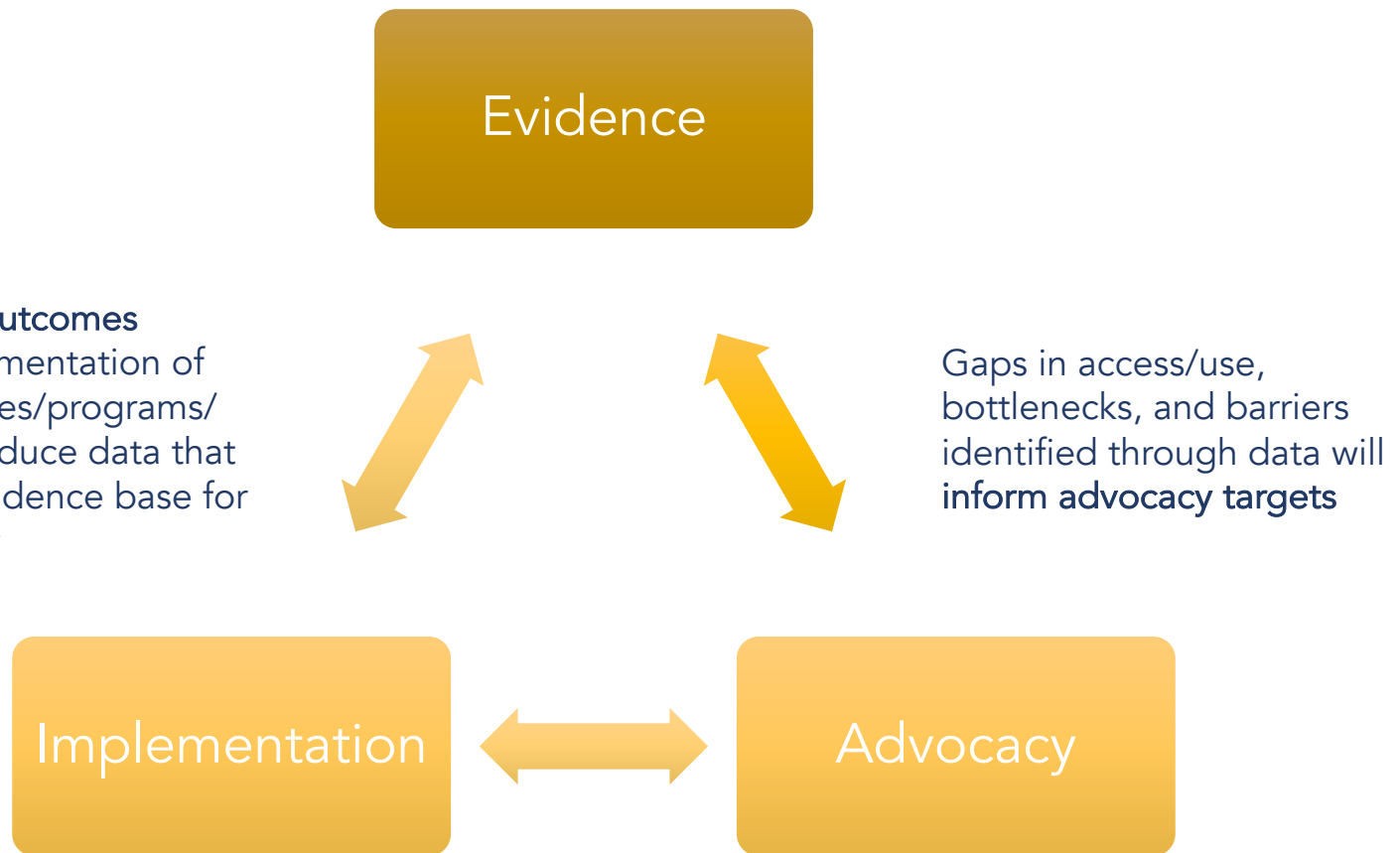**Monitoring of outcomes** following implementation of improved policies/programs/funding will produce data that will form the evidence base for future advocacy

Gaps in access/use, bottlenecks, and barriers identified through data will **inform advocacy targets**

Evidence

Implementation

Advocacy

Key considerations when looking at data

- What do the data say?
  - What does each indicator tell you? About whom? Describing what time period?
- Look for data anchors to contextualize the data, and think in relative terms:
  - How do the data compare to national/subnational benchmarks?
  - Are the #s low, high, or average?
- Look at trends:
  - How have the data moved over time? (Think relative to the timing of the intervention.)
- What are the data's relevance or significance to AFP advocacy?

Let's look at PMA2020 data, for example

KEY FAMILY PLANNING INDICATORS

Select Family Planning Indicators Across Recent Surveys (Women in Union and All Women, Ages 15–49)				
	(IDHS) 2012		PMA2015/	
	All Women	Women in Union	All Women	Women in Union
Contraceptive Prevalence Rate (CPR)				
All Methods CPR	45.7	61.9	47.1	61.1
Modern Method Use mCPR	42.7	57.9	45.8	59.5 ⬆
Long Acting CPR	7.9	10.6	10.3	13.2 ⬆
Total Unmet Need*	8.4	11.4	11.2	14.4 ⬆
For Limiting	5.1	6.9	6.1	7.9
For Spacing	3.3	4.5	5.1	6.5
Total Demand	54.1	73.2	58.2	75.5 ⬆
Demand Satisfied by Modern Method (%)	79.0	79.0	78.7	78.8

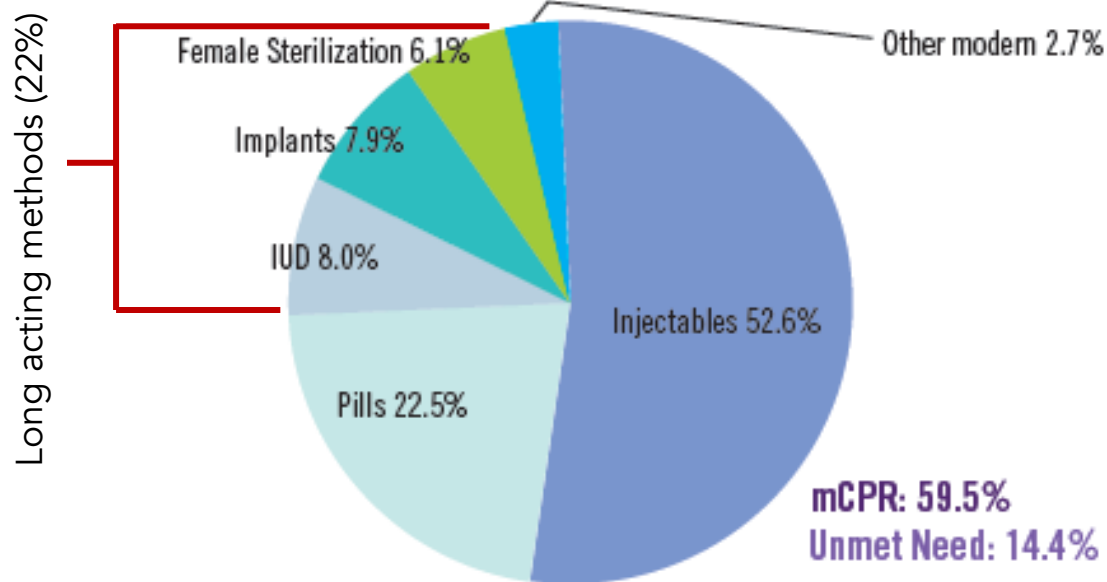| Fertility Indicators (All Women)		
	IDHS 2012	PMA2015/ID-R1
Total Fertility Rate	2.6	2.3
Adolescent Birth Rate (per 1000, age 15-19)	48.0	48.4
Recent Births Unintended* (%)	13.6	16.0 ⬆
Wanted Later	6.5	12.1
Wanted No More	7.1	3.9

* Indicator measurement based on different questions posed in the DHS and PMA2020
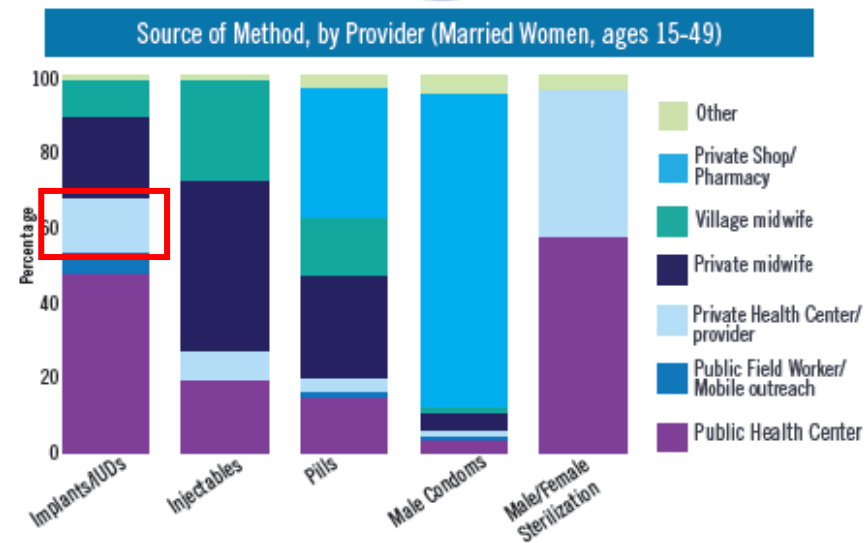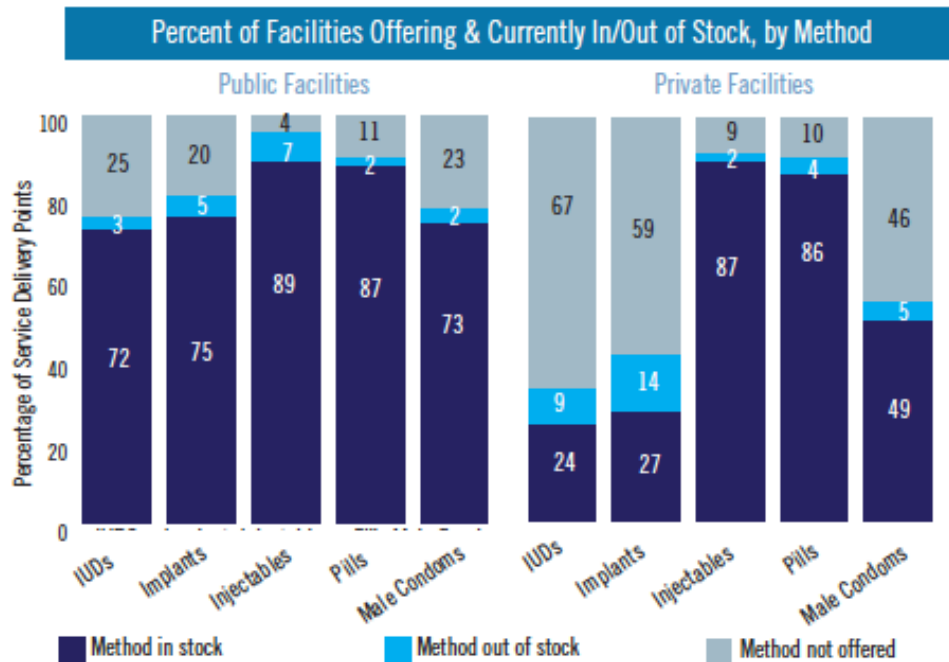
Key takeaways:

Method Mix Data

Current Modern Method Mix Among Contraceptive Users in Union

- Female Sterilization 6.1%
- Implants 7.9%
- IUD 8.0%
- Pills 22.5%
- Injectables 52.6%
- Other modern 2.7%

Long acting methods (22%)

mCPR: 59.5%
Unmet Need: 14.4%

Key takeaways:

Contraceptive stock in facilities, PMA

Percent of Facilities Offering & Currently In/Out of Stock, by Method

Public Facilities — Private Facilities

Method in stock · Method out of stock · Method not offered

Percent of Public Facilities Offering at Least 3 or 5 Modern Contraceptive Methods, by Facility Type		
Facility Type	3 or more methods (n=635)	5 or more methods (n=428)
Hospital	94.5	81.8
Health Center	98.1	72.8
Sub-health Center	75.7	28.8
Village Health Post	73.0	20.3
Delivery Post	81.8	18.2
Total	90.3	60.9

Source of Method, by Provider (Married Women, ages 15-49)

Other · Private Shop/Pharmacy · Village midwife · Private midwife · Private Health Center/provider · Public Field Worker/Mobile outreach · Public Health Center

Key takeaways:

Comparing data to assess trends
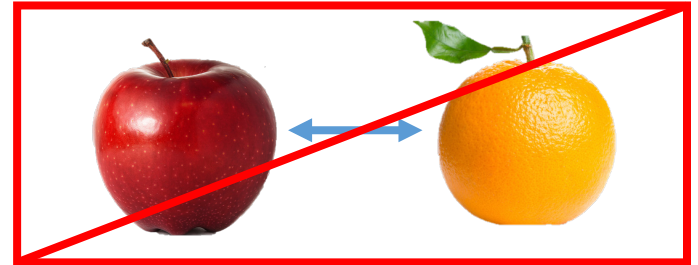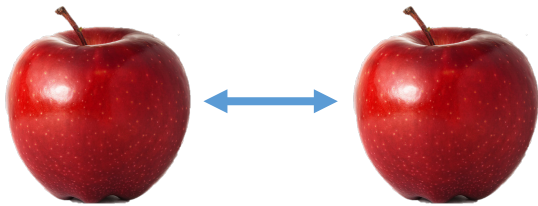
- Make sure you are comparing apples to apples.
  - Ask yourself:
    - What's the data source for each data point that you're comparing? Are there major differences in the population that have been sampled?
      - Differences in age, marital status, location of sampling (public vs. private facilities), etc.
    - Do the indicators share the same denominator?
    - Do they cover the same reporting periods?
    - Are there seasonal fluctuations that should be accounted for?

Potential threats to data comparability

| Indicator 1	Indicator 2	Issues	Possible Corrections
CPR in 2015	mCPR in 2016	CPR includes all methods, including traditional. mCPR includes modern methods only.	If the breakdown on % women of reproductive age (WRA) using contraception by method is provided, sum the %s for modern methods to get the mCPR, so that you can compare only mCPRs. *Note: You can only do this type of summation if the %s share the same denominator (e.g., WRA).*
mCPR (all women) in 2015	mCPR (married women) in 2016	Not all mCPRs are describing the the same population. Be sure you know and are explicit about the denominator of the mCPR you're analyzing or reporting on.	If the absolute #s are provided for users of each method, along with the total # WRA and/or total # married women, you could manually recalculate the values.
# new contraceptive users in 2016	# new contraceptive users in 2017 (to date)	If data are being reported for a current year which is not completed, take note of the months for which data are being reported. You may be comparing data that spans a full 12 months in one year vs. <12 months in another year.	A few options are: 1) Shift the reporting period so that they cover the same # of months, depending on the latest month of available data. (Ex: Oct-Sep instead of Jan-Dec) 2) Calculate and report a monthly average for that year instead. 3) Report on users in a pre-intervention vs. post-intervention time period (same # months)

Potential threats to data comparability

Indicator 1	Indicator 2	Issues	Possible Corrections
Method mix %s	% use, by method (prevalence)	These 2 metrics have different denominators. Method mix %s describe the proportion of **current contraceptive users** using each method (the %s collectively add to 100). % use by method (or method prevalence) is the % of **WRA** (or married WRA) that are using each method.	If you have the absolute # users of each method, you can sum to get total # current users. Then, you can take # users of each method and divide by the total # current users to get method mix proportions (from method prevalence rates).

Making sense of raw data

Districts	2012	2013	2014	2015	2016*
District A (2012)	$28,644	$77,523	$102,863	$173,575	$160,242
District B (2012)	$80,113	$95,897	$98,881	$102,670	$122,407
District C (2015)			$27,273	$44,637	$48,418
District D (2015)			$196,182	$158,636	$172,273
District E (2016)				$60,417	$150,745
District F (2016)				$103,711	$255,441
District G (2016)				$7,945	$42,447
All 7 AFP Districts	**$108,757**	**$173,421**	**$425,198**	**$651,592**	**$951,974**

Tip #1:
Create **graphical representations** of your data, to help you spot trends and magnitudes of changes.

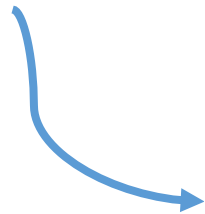**Total Family Planning Budget Allocations in AFP Districts**

FP Budget Amount (in USD)

	2012	2013	2014	2015	2016
All 7 AFP Districts	$108,757	$173,421	$425,198	$651,592	$951,974
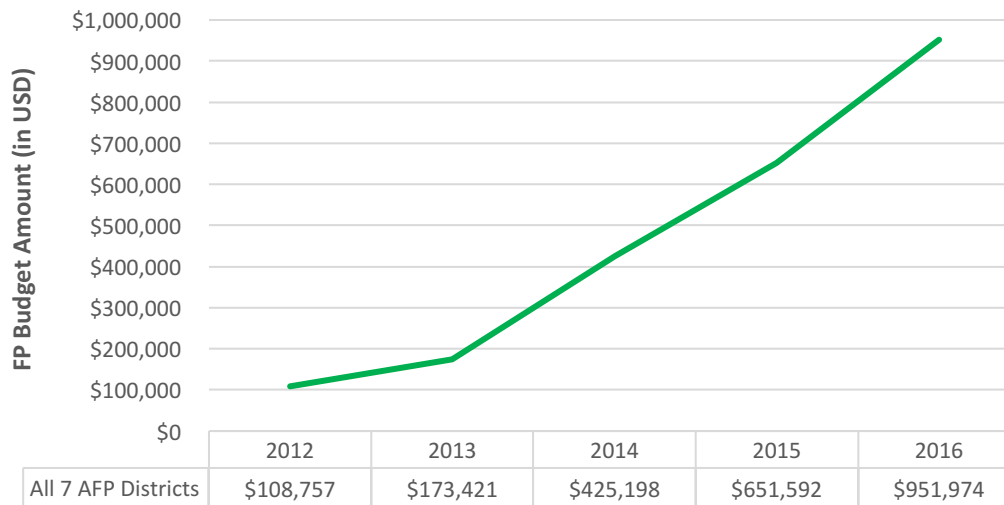
How would you interpret this information?

Delving further into the data

Districts	2012	2013	2014	2015	2016*
District A (2012)	$28,644	$77,523	$102,863	$173,575	$160,242
District B (2012)	$80,113	$95,897	$98,881	$102,670	$122,407
District C (2015)			$27,273	$44,637	$48,418
District D (2015)			$196,182	$158,636	$172,273
District E (2016)				$60,417	$150,745
District F (2016)				$103,711	$255,441
District G (2016)				$7,945	$42,447
All 7 AFP Districts	**$108,757**	**$173,421**	**$425,198**	**$651,592**	**$951,974**

Family Planning Budget Allocations in AFP Districts
(excluding districts that began advocacy in 2016)

FP Budget (in USD)

	2012	2013	2014	2015	2016*
District A	$28,644	$77,523	$102,863	$173,575	$160,242
District B	$80,113	$95,897	$98,881	$102,670	$122,407
District C			$27,273	$44,637	$48,418
District D			$196,182	$158,636	$172,273

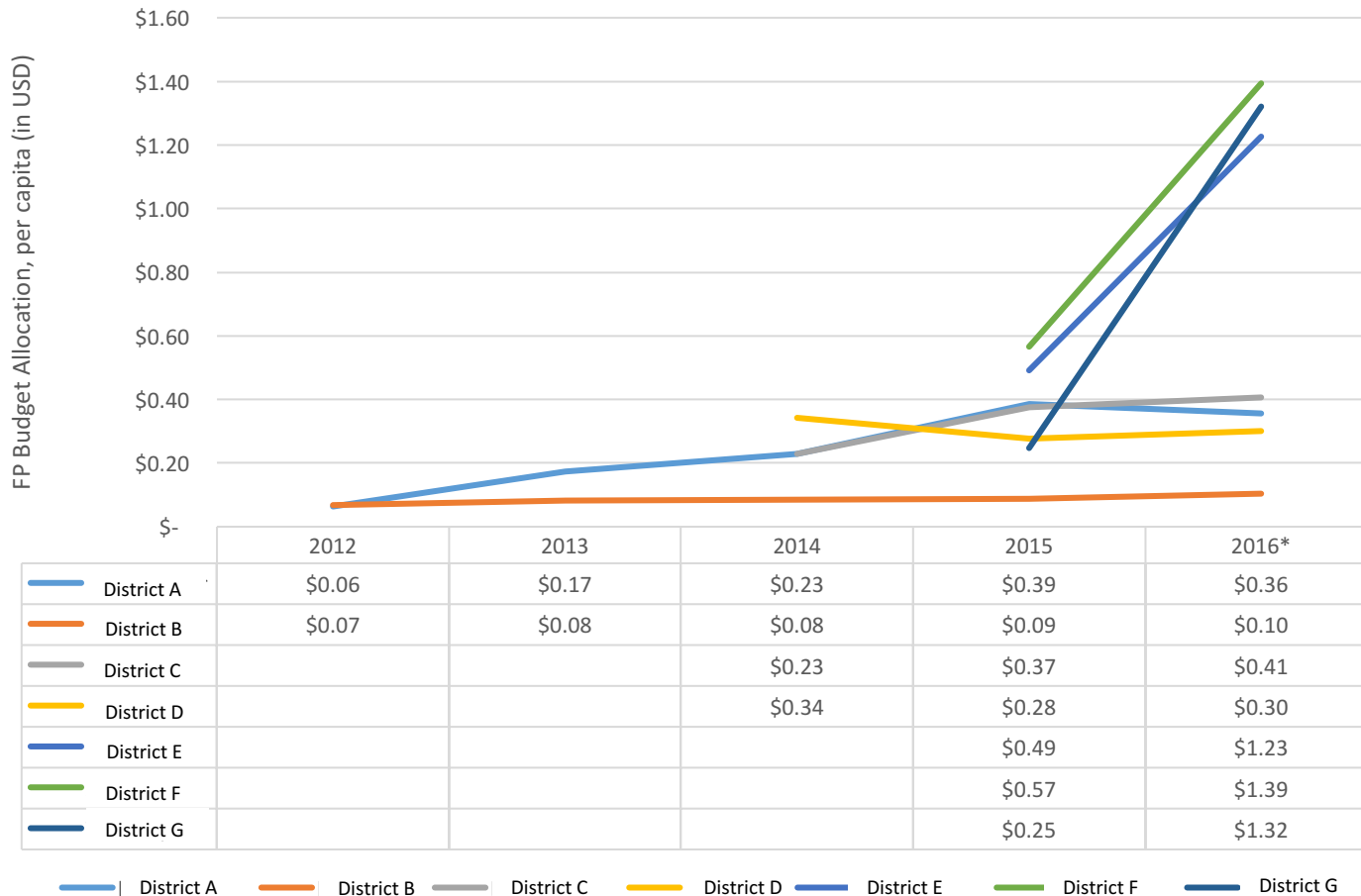District A   District B   District C   District D
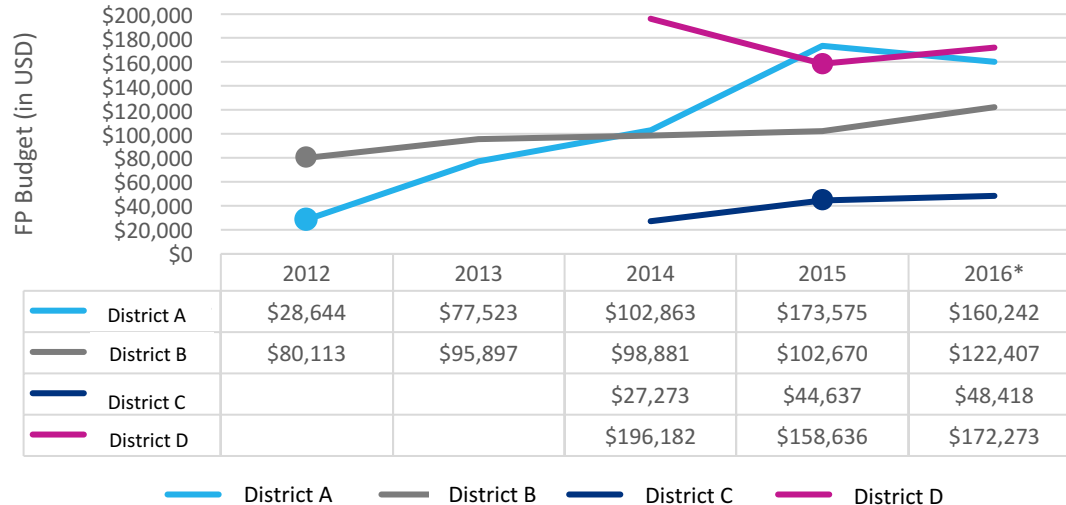
Now what do you take away from this?

What questions remain?

Slicing the data in different ways

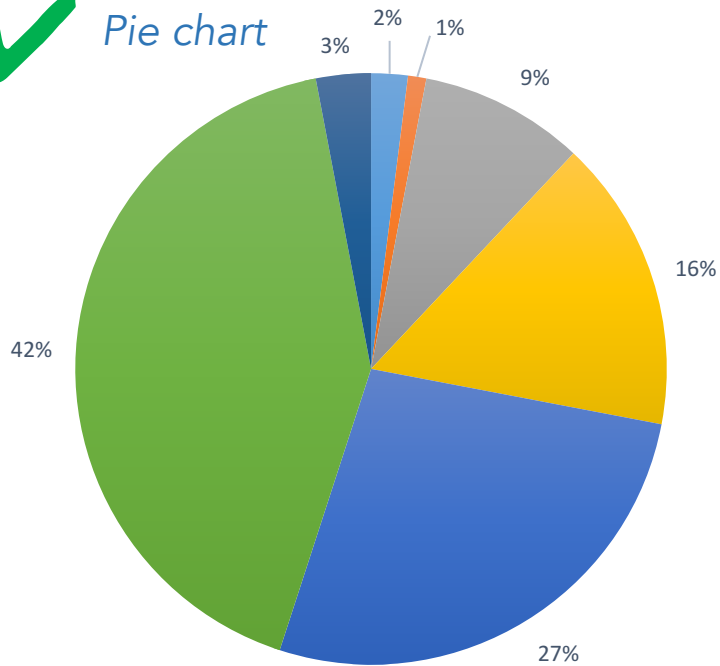### Family Planning Budget Allocations (Per Capita) in AFP Districts

	2012	2013	2014	2015	2016*
District A	$0.06	$0.17	$0.23	$0.39	$0.36
District B	$0.07	$0.08	$0.08	$0.09	$0.10
District C			$0.23	$0.37	$0.41
District D			$0.34	$0.28	$0.30
District E				$0.49	$1.23
District F				$0.57	$1.39
District G				$0.25	$1.32

Legend: District A, District B, District C, District D, District E, District F, District G

Tip #3: Try **normalizing** the data.

When dealing with absolute #s, such as budget allocations, you can improve comparability of numbers by normalizing them. This can typically be done by **dividing by the population size**, which will give you a "per capita" value.

How to visualize data: PROPORTIONS

Ex: Contraceptive method mix among current users

Pie chart ✔

2%
1%
9%
16%
3%
42%
27%

■ Female sterilization ■ Male sterilization ■ IUD ■ Implants ■ Injectables ■ Pills ■ Other modern

✔ *Stacked bar chart*

District B

District A

0%   20%   40%   60%   80%   100%

■ Female sterilization   ■ Male sterilization   ■ IUD
■ Implants   ■ Injectables   ■ Pills
■ Other modern
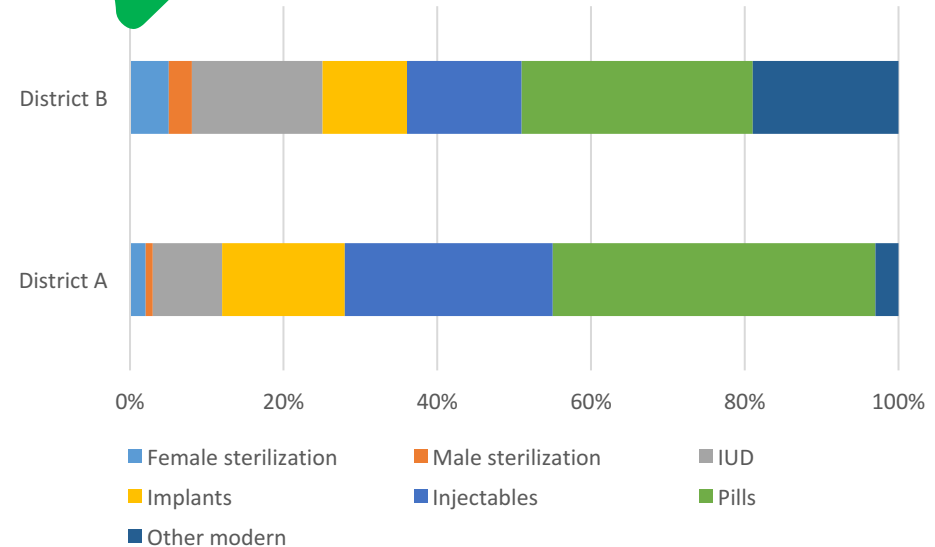
Clustered bar chart

✖

50
40
30
20
10
0

District A   District B

■ Female sterilization   ■ Male sterilization
■ IUD   ■ Implants
■ Injectables   ■ Pills

How to visualize data:
RATES, ABSOLUTE NUMBERS

Number of new users in May 2016, by contraceptive method
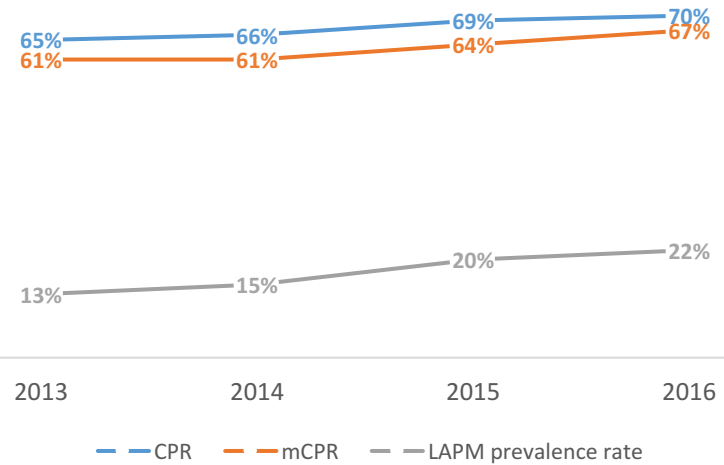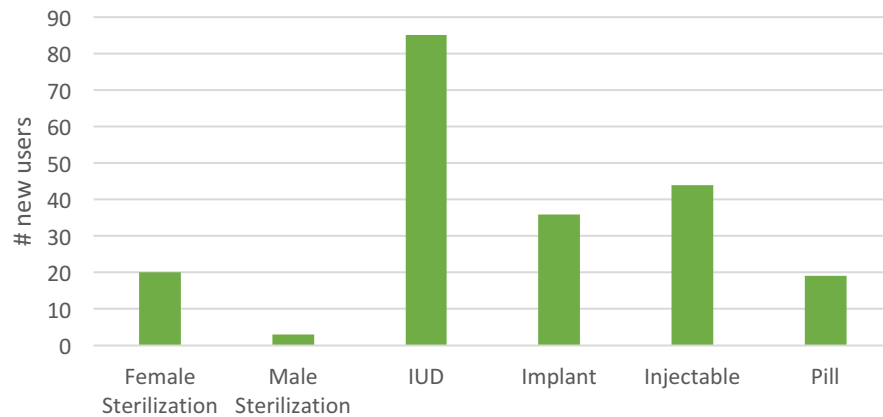
Contraceptive Prevalence Rates, by Method, 2014-2016
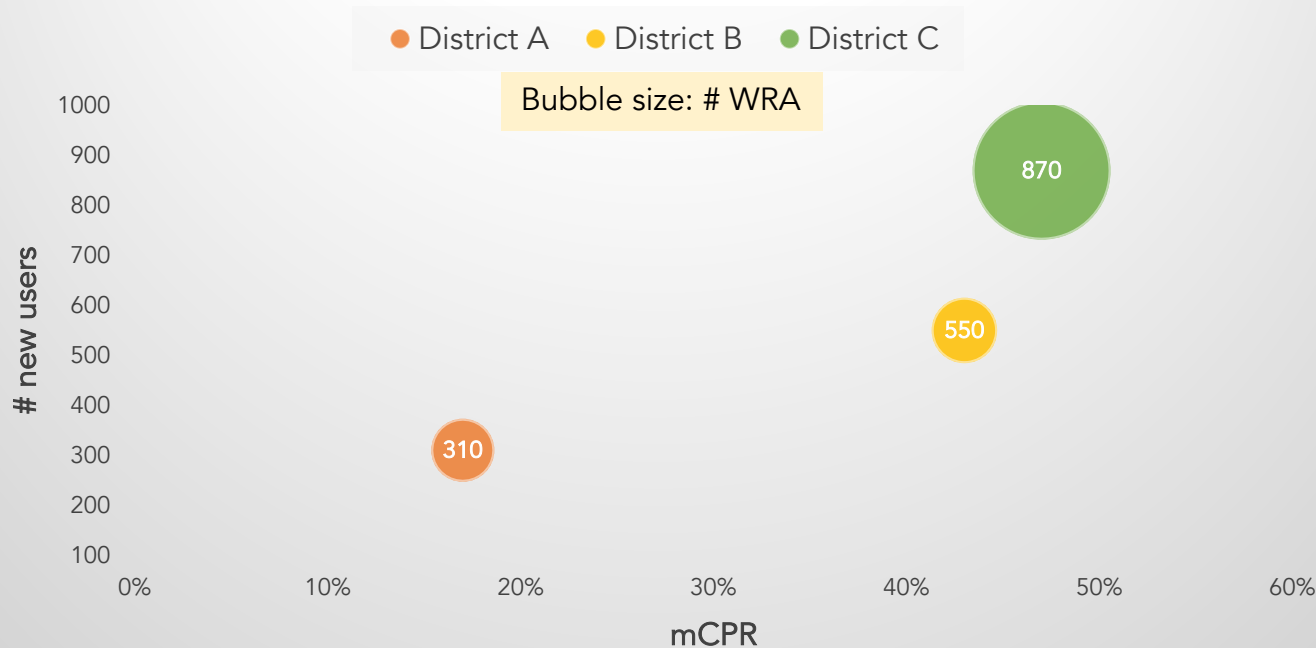
How to visualize multiple variables at once

mCPR and # new users, 2014-2016

Bubble size: # new users
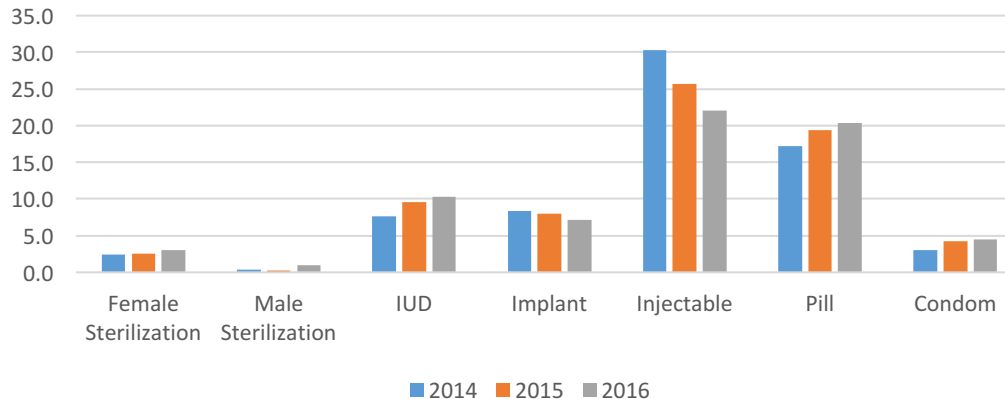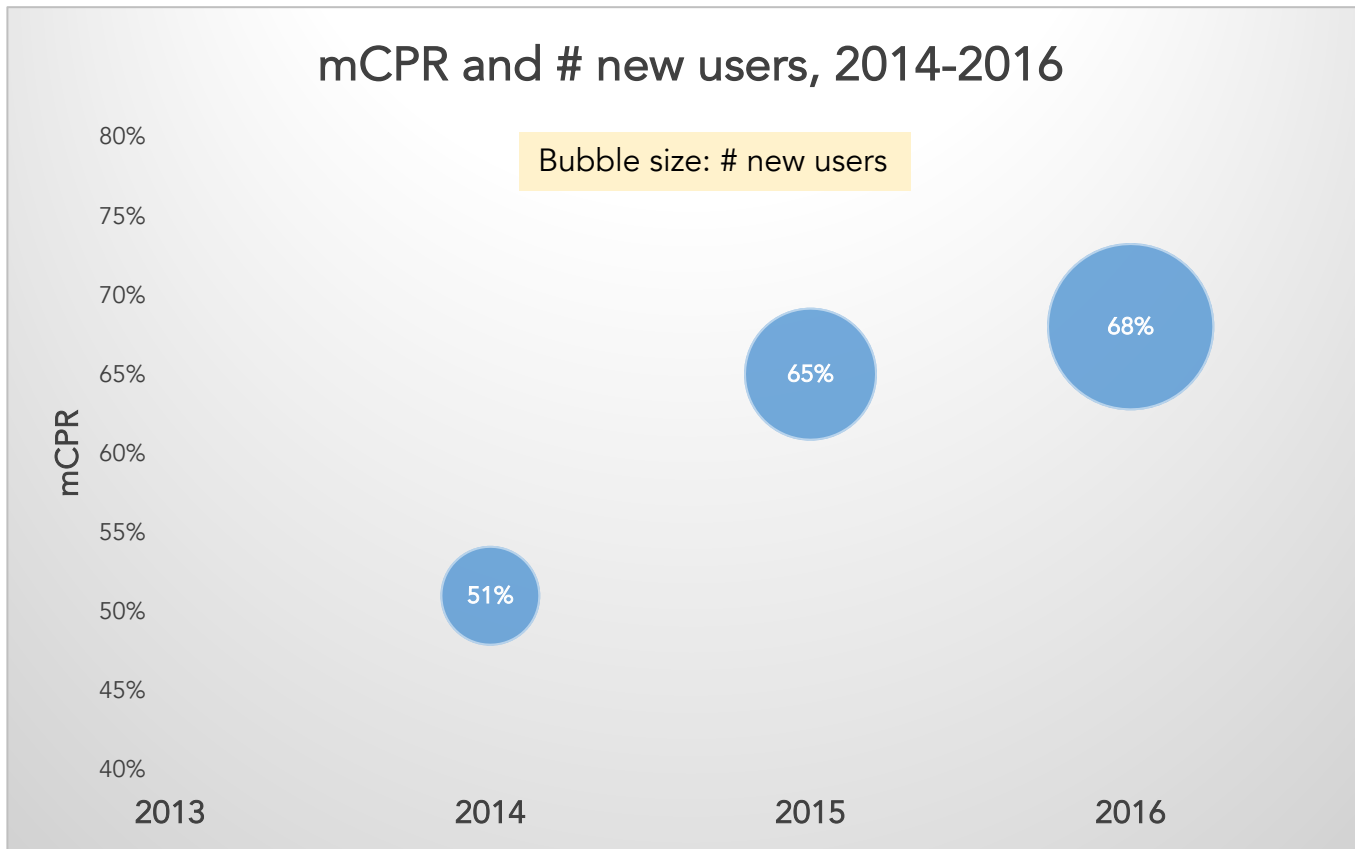
1	x: year
2	y: mCPR
3	z: # new users

	2014	2015	2016
mCPR	51%	65%	68%
# New users	310	550	870

How to visualize multiple variables at once

mCPR, # new users, and WRA for Districts A, B, and C (2016)

● District A ● District B ● District C

Bubble size: # WRA

1	x: mCPR
2	y: # new users
3	z: # WRA

	District A	District B	District C
mCPR	17%	43%	47%
New users	310	550	870
WRA	237,000	255,000	1,135,000

Preparing Effective Graphics

Tips:

- Provide a clear and descriptive title
  - Optional: State the key takeaway in the title

- Label axes appropriately; include units

- Make strategic choices on graph/chart type, colors, order, grouping, etc. so that the visual elements help tell your story

- Visually draw your audience's attention to the parts you want to highlight.

Colors

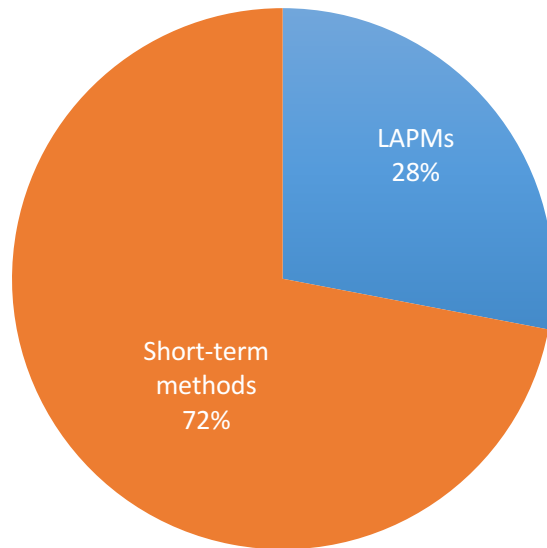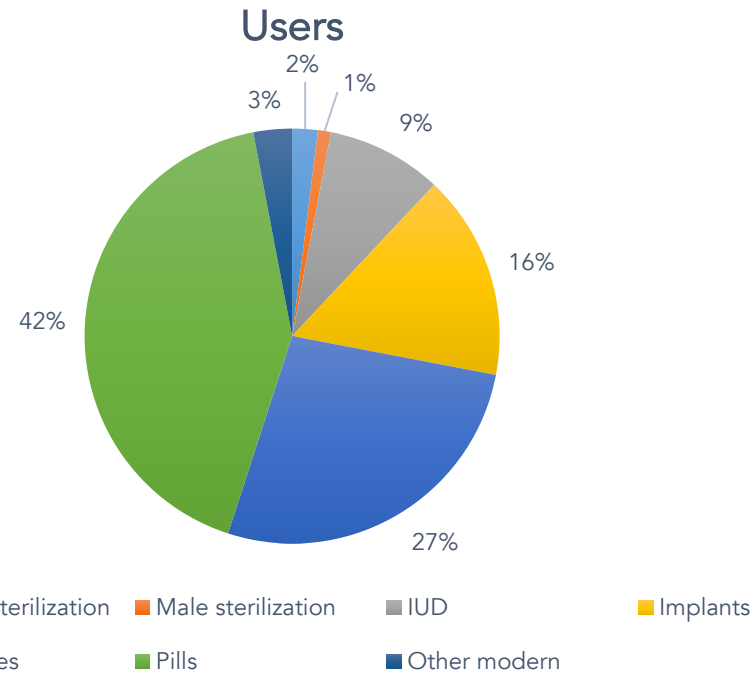What comes to mind when you see the following color schemes?

1)

2)

3)

4)

Representing Data in Visually Usable Ways

- What works with this chart?
- What doesn't?
- What could be improved?

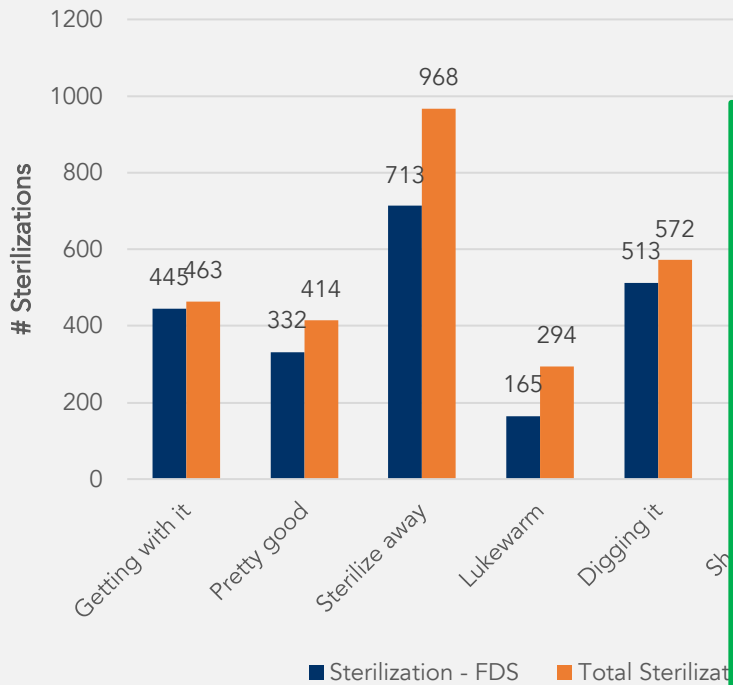**Proportion of Current Contraceptive Users on LAPMs vs. Short-Term Methods**
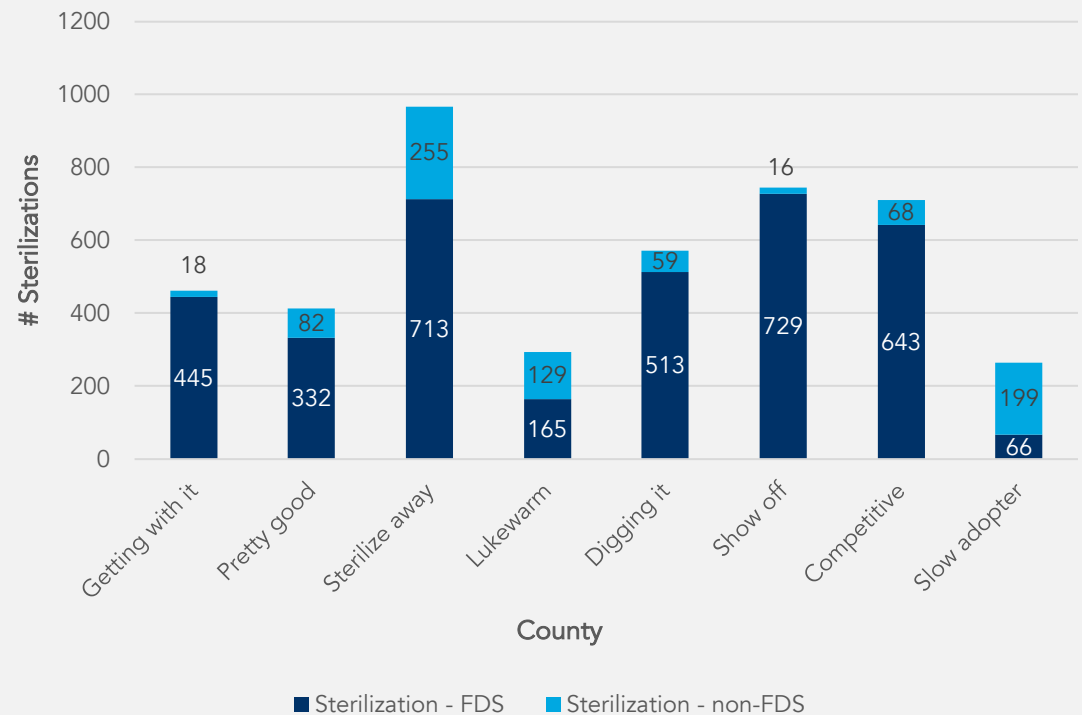

Contraceptive Method Mix Among Current Users

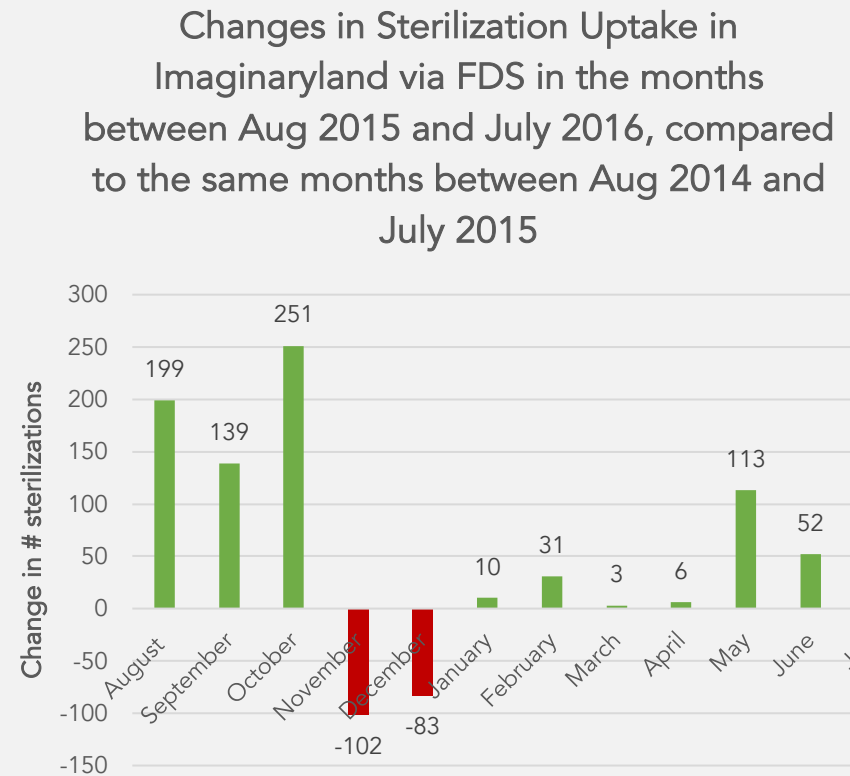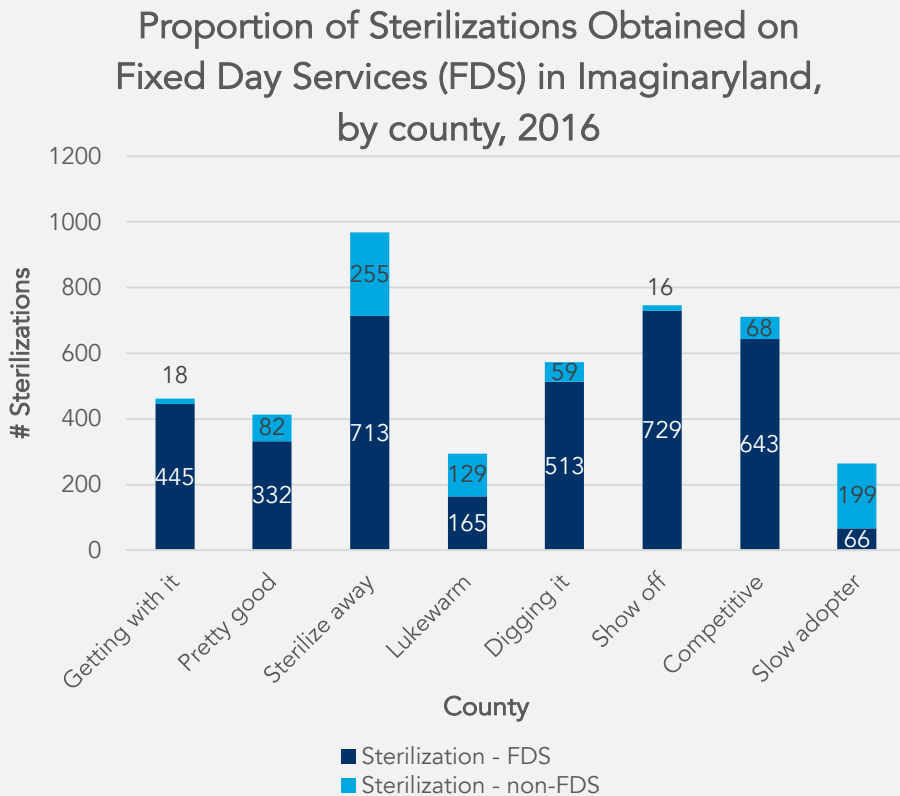# Let's Criticize and Overanalyze

Sterilizations via FDS, by county

How could this chart be improved?

Proportion of Sterilizations Obtained on Fixed Day Services (FDS) in Imaginaryland, by county, 2016

Critical Data Interpretation

Proportion of Sterilizations Obtained on Fixed Day Services (FDS) in Imaginaryland, by county, 2016

Changes in Sterilization Uptake in Imaginaryland via FDS in the months between Aug 2015 and July 2016, compared to the same months between Aug 2014 and July 2015

1) What are the key takeaways from these 2 charts?

2) What additional information do you want to know that are not captured in these charts?

3) What are the pros/cons of the chart on the right (showing change only)?

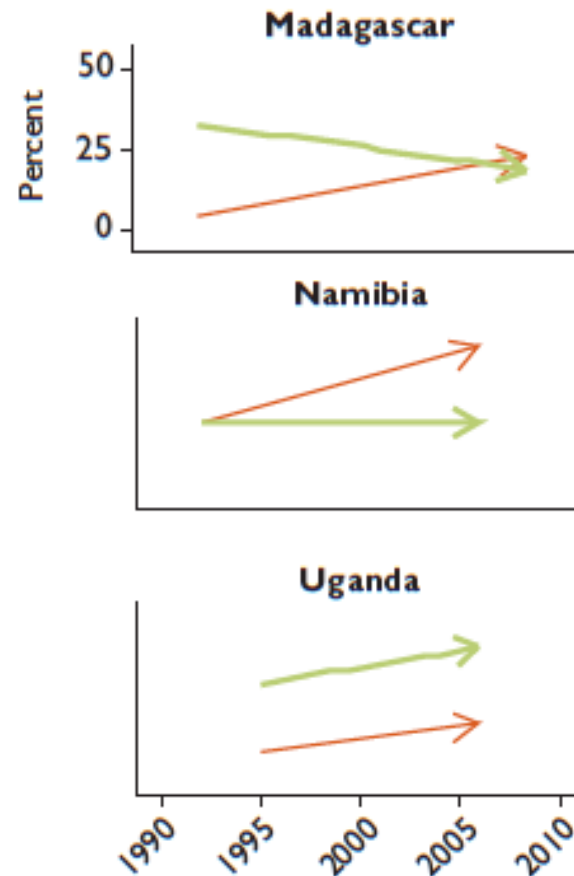# Critical Data Interpretation – mCPR and unmet need

1) What are your initial observations?

2) What do these trend graphs potentially indicate/suggest?

REMINDER:

mCPR $= \dfrac{\#\ women\ using\ a\ modern\ contraceptive\ method}{\#\ women\ of\ reproductive\ age}$

Unmet need $= \dfrac{\#\ women\ not\ using\ contraception}{\#\ women\ who\ do\ not\ want\ to\ become\ pregnant}$

Madagascar

Namibia

Uganda

— Modern contraceptive prevalence rate   — Unmet need

Critical Data Interpretation –
Current & new users for IUDs and implants

LARC Users in AFP Counties, 2015-2016
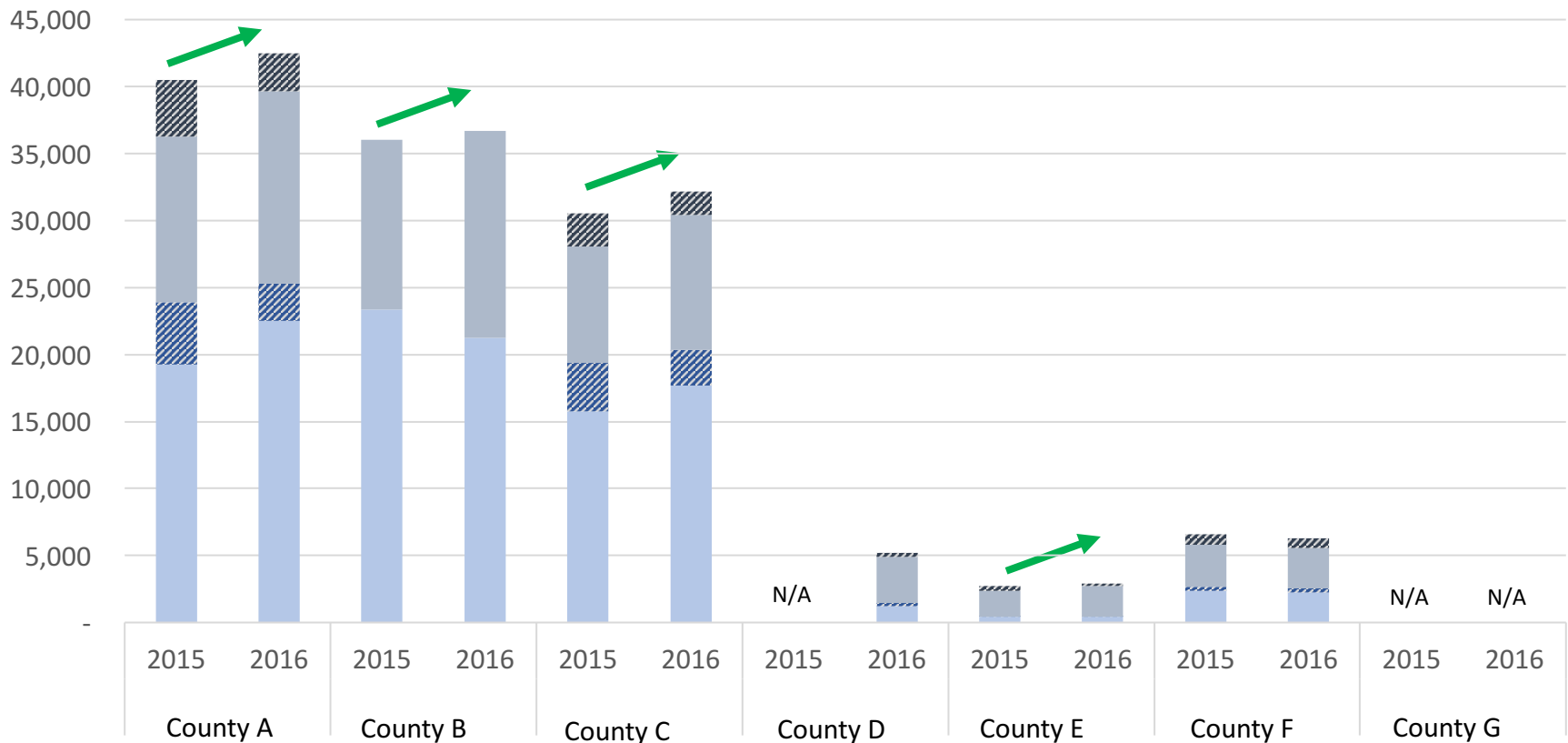
Critical Data Interpretation –
Current & new users for male & female sterilizations

Tubectomy and Vasectomy Users in AFP Districts, 2015-2016
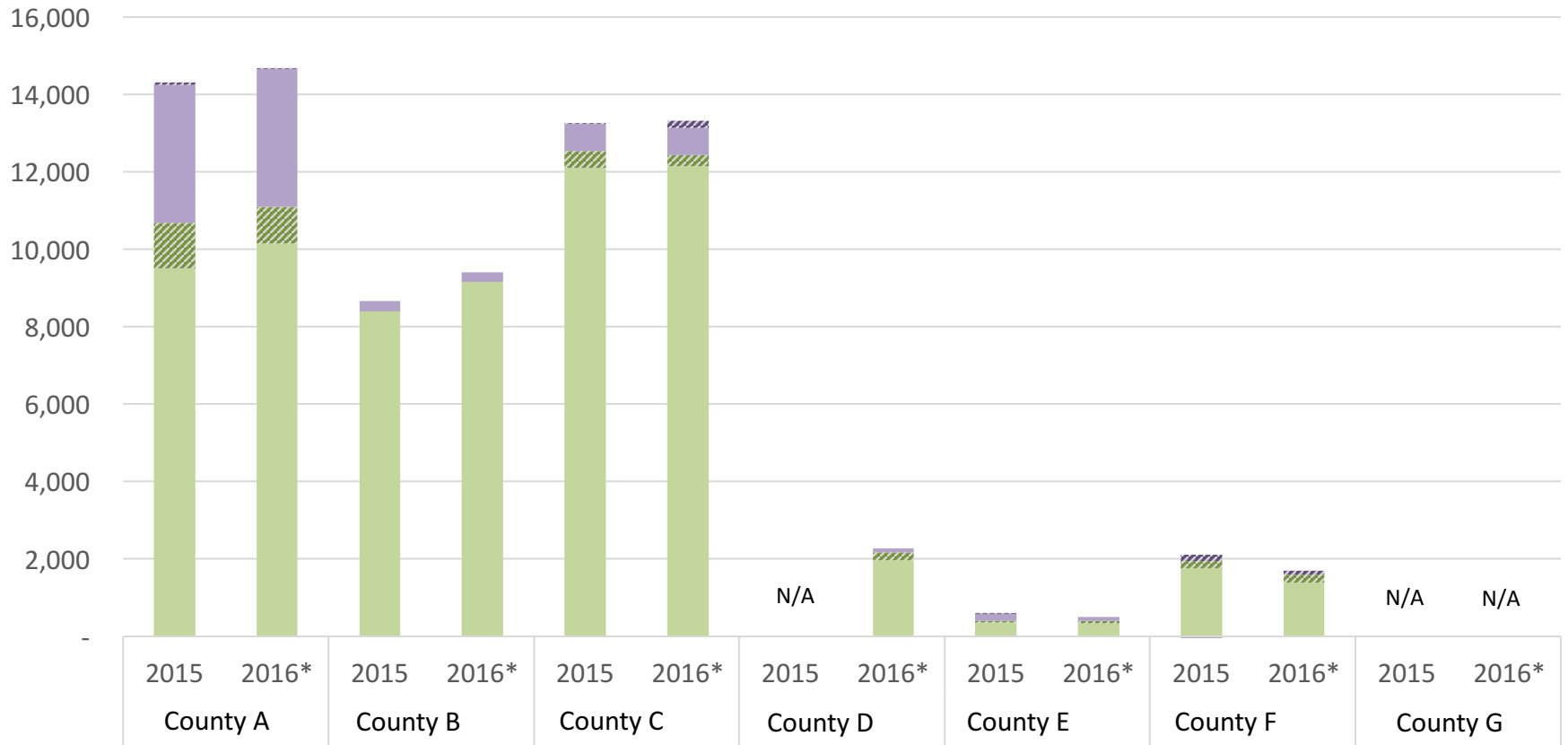
Legend:
- Tubectomy - existing users
- Tubectomy - new users
- Vasectomy - existing users
- Vasectomy - new users

Connecting the dots in data trends

Trend 1	Trend 2	Possible explanations
↑ mCPR	→ TFR	
↑ # LAPM users	↓ mCPR	
↑ CPR	→ mCPR ↓ mCPR	
↑ mCPR	↓ CPR	
→ mCPR	↑ CYP	

Using outcomes and impact data to evaluate your theory of change

Outcome(s)	Impact	Possible explanations
↑ FP budget allocations	small ↑ mCPR ➜ LAPM prevalence	
↑ # midwives CTU trained and certified	➜ mCPR	
↓ stock-outs of IUDs/implants	↓ LAPM prevalence	

Reporting Changes in Data

X_1 (at point a) → X_2 (at point b)

- Increased by x number
  - $X_2 - X_1$
- Increased by x percentage points
  - $X\%_2 - X\%_1$
- Increased by x percent
  - $(X_2 - X_1) / X_1 * 100\%$
- Amount doubled, tripled, etc. in x time
  - X_2 / X_1
- Increased x fold
  - $(X_2 - X_1) / X_1$

What are ways you would describe the following:

1. Budget allocation of $800,000 in year 1 and $2,000,000 in year 2
2. New LAPM users: 50 in month 1 and 80 in month 2
3. mCPR of 34% in year 1 and 62% in year 5

Ways to communicate data more effectively in advocacy

| Statement	Improved statement
In La La Land, the FP budget increased from roughly $28,000 to $77,000 USD between 2012 and 2013.	Since AFP advocacy in La La Land began in 2012, the budget allocation for FP nearly tripled in size from $28,000 to $77,000. This amount was sufficient to finance the hiring of 30 new FP field officers, CTU training for 100 midwives, and/or 5 mass sterilization events.
In the country of "Trumpmania", 500,000 women die of unsafe abortions each year.	In "Trumpmania", 2 women will die every minute as a result of unsafe abortions.
"Alt Facts" state saw a 10% reduction in its FP budget between 2015 and 2016.	"Alt Facts" state suffered a 10% reduction in its FP budget in 2016, despite a 15% growth in its number of young women of reproductive age.
1 million children under the age of 5 will die of pneumonia each year.	Every year, pneumonia claims the lives of more than 1 million children before their fifth birthday — accounting for more child deaths annually than AIDS, malaria, and tuberculosis combined.

How to effectively communicate data and use data to story tell

First: Try to understand your data and the story it tells.

Options:

1) Build up to your main point, weaving in data to make your supporting arguments.

2) Like storytelling, you can also start with a bold/shocking statement with your main point, and then work backwards to support it.

Remember: Data can be used to *illustrate* points that would be otherwise more difficult to express in a statement.

Step 1

Step 2

Step 3

Main point
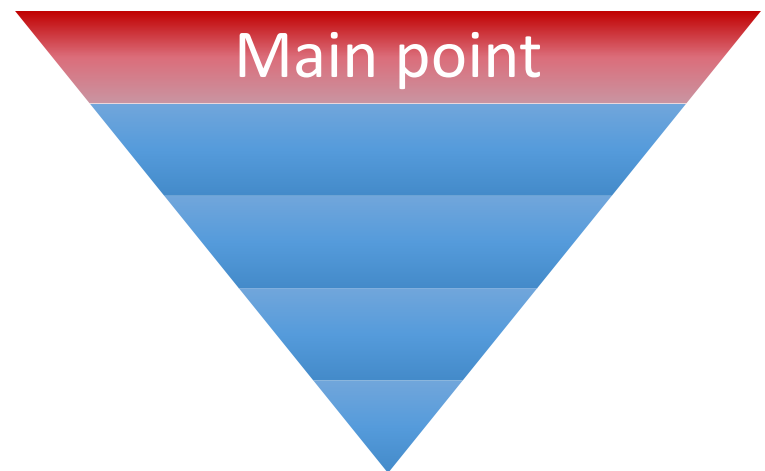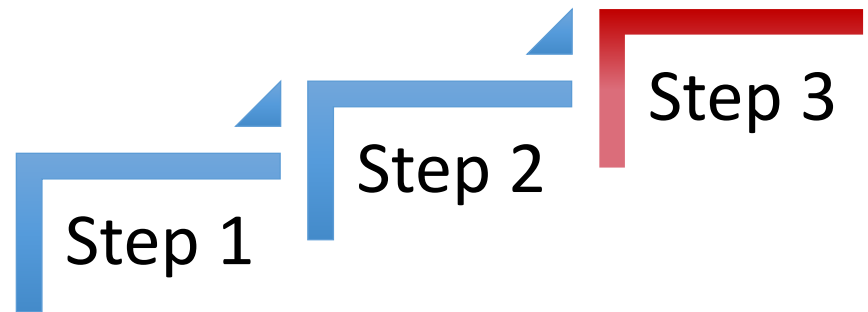
THANK YOU!

Questions?

Feel free to send me any questions you have at:

Linh Nguyen, AFP M&E Program Officer
Email: linh.nguyen@jhu.edu
Skype: linh.nguyen_105