#### BIRTH BY THE NUMBERS

Gene Declercq, PhD
Boston University School of Public Health
DHZ Congress
Hannover, Germany
September 3, 2016



### Presentation will involve both existing data and material from unpublished studies.

Slides not involving unpublished data will be posted and available to download for free at:

www.birthbythenumbers.org

Please do not take pictures of the data slides!

#### What we will be looking at:

Comparing U.S. and German women's health

• How well are the U.S. and Germany maternity care systems doing in terms of <u>outcomes</u>?

The special case of cesarean section

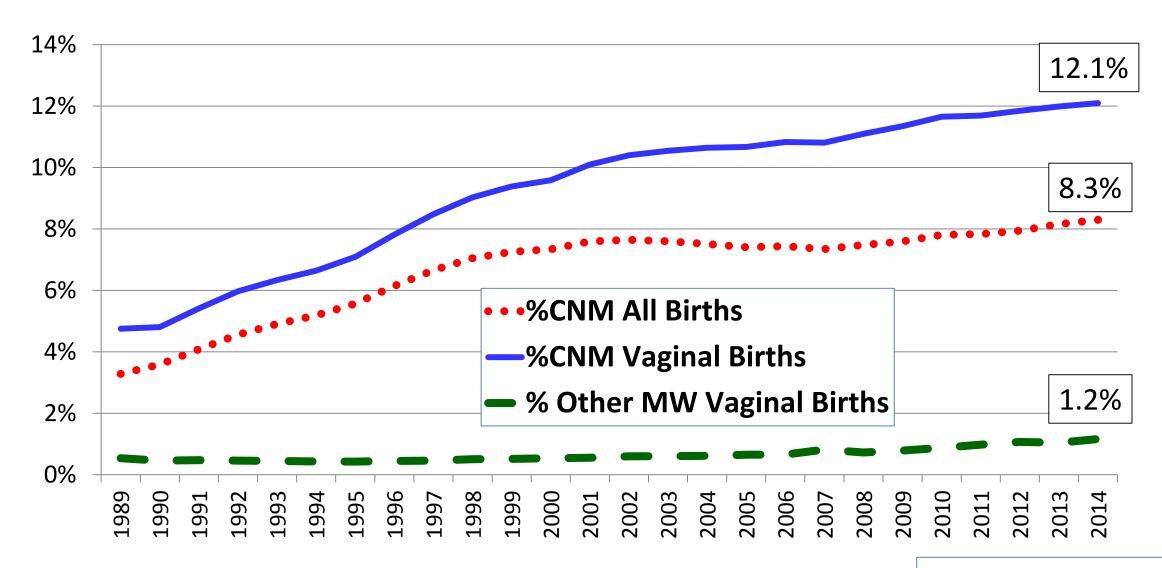
Why looking at data is critical for midwives (sort of)

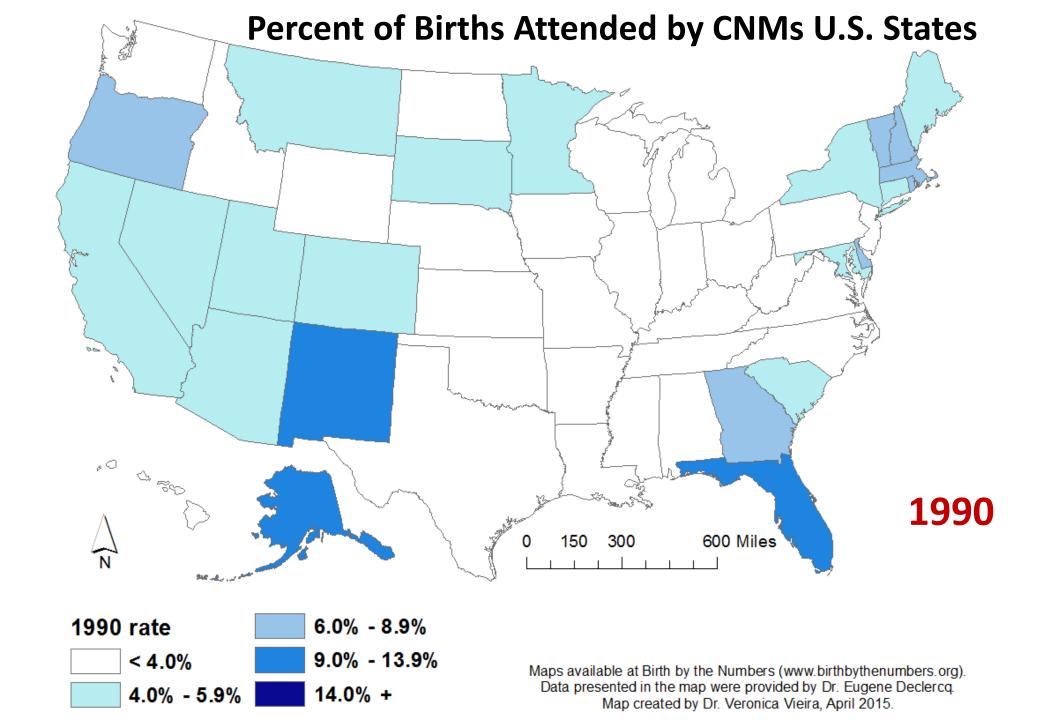
# First, a look at midwifery in the U.S.

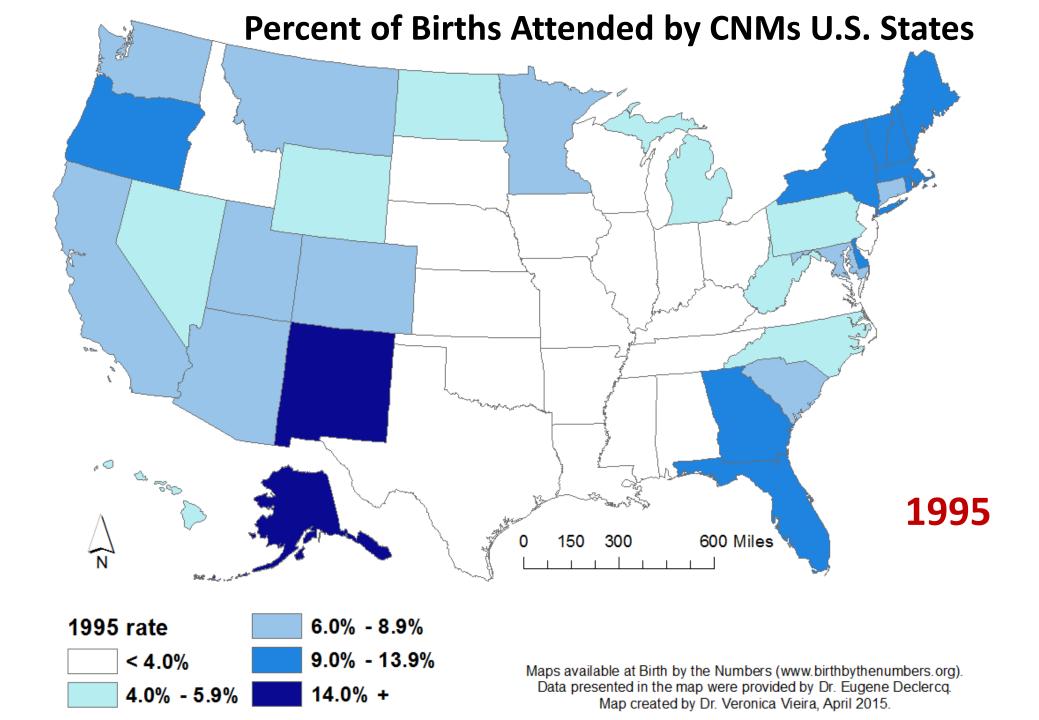
CNM -- certified nurse-midwife (mostly hospital births)

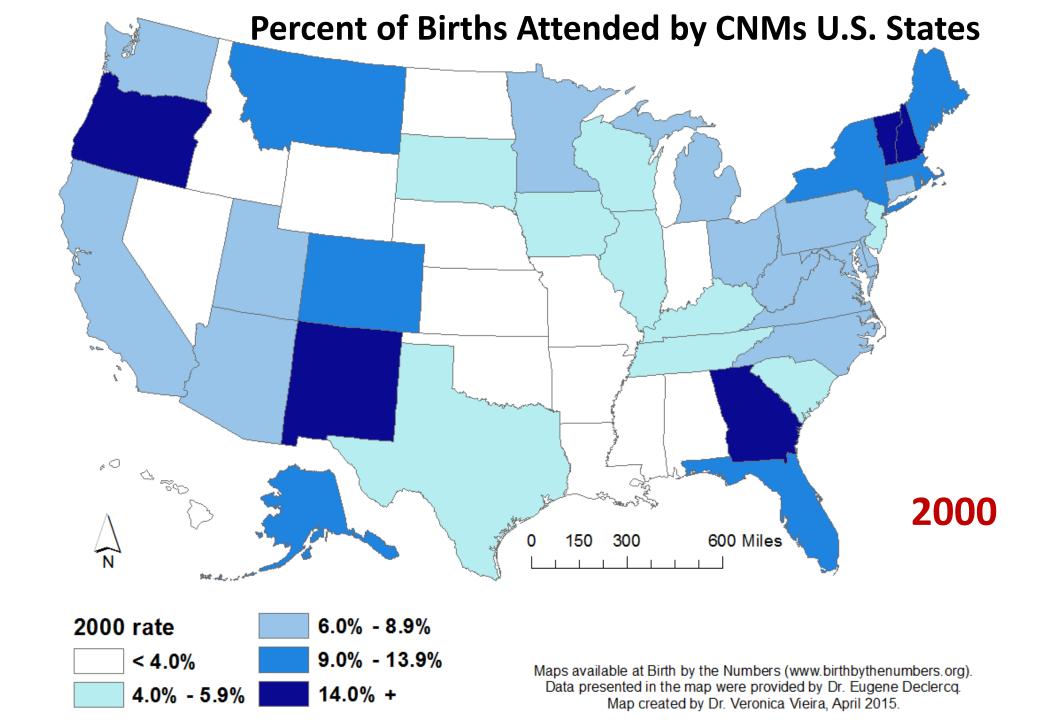
Other midwife – direct entry midwife (home births)

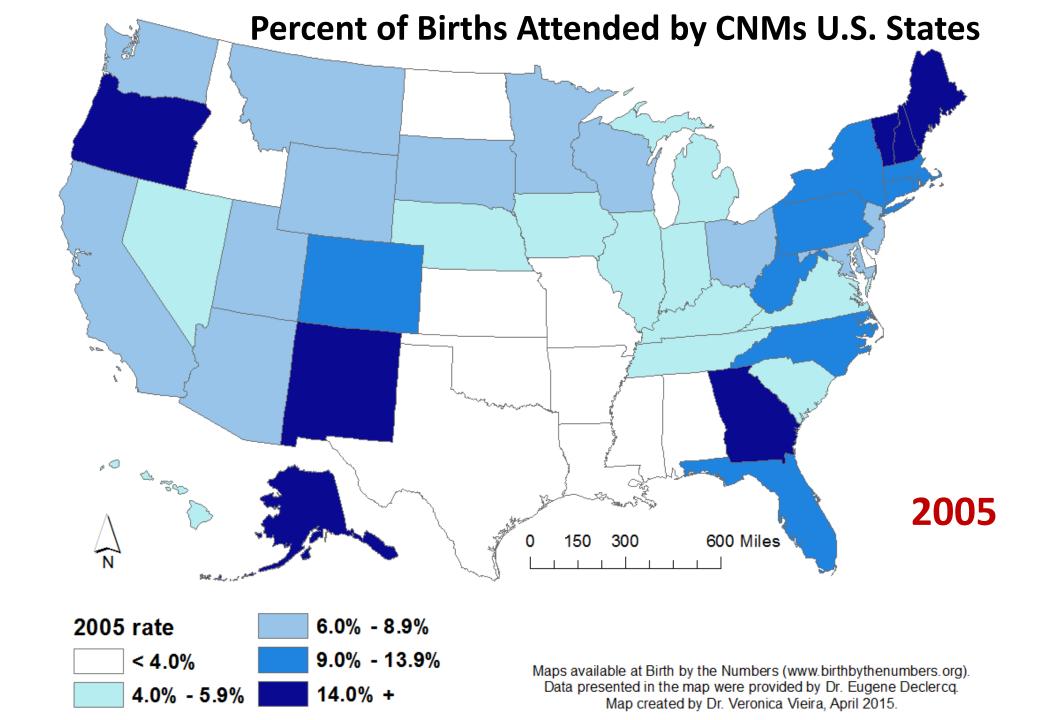
#### Midwife Attended Births 1989-2014

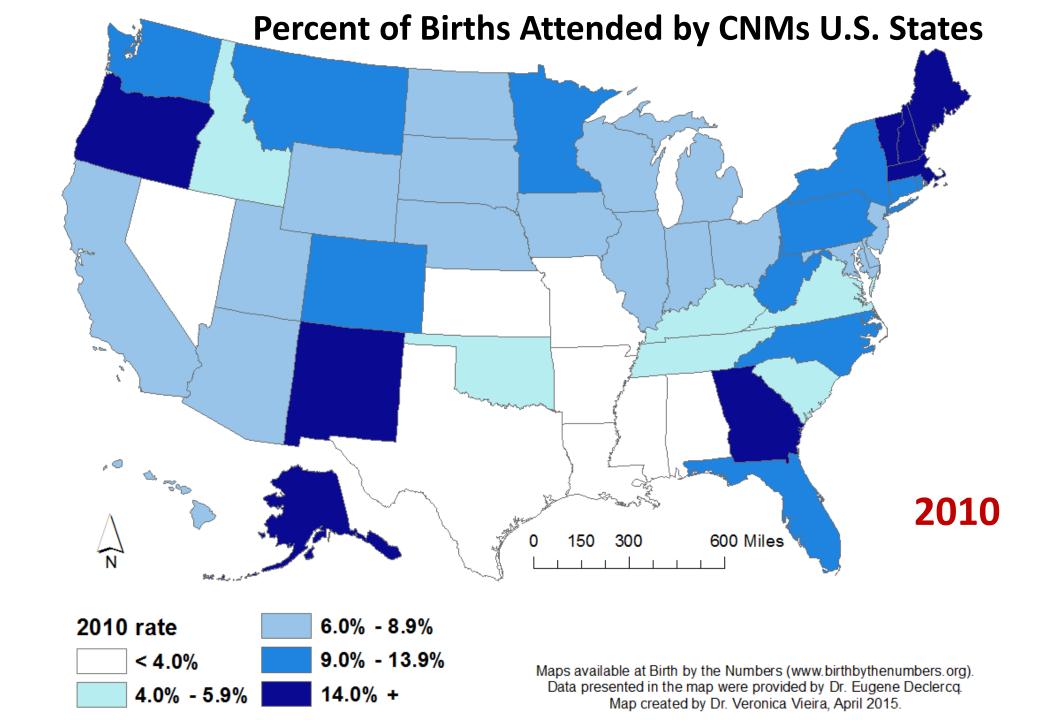


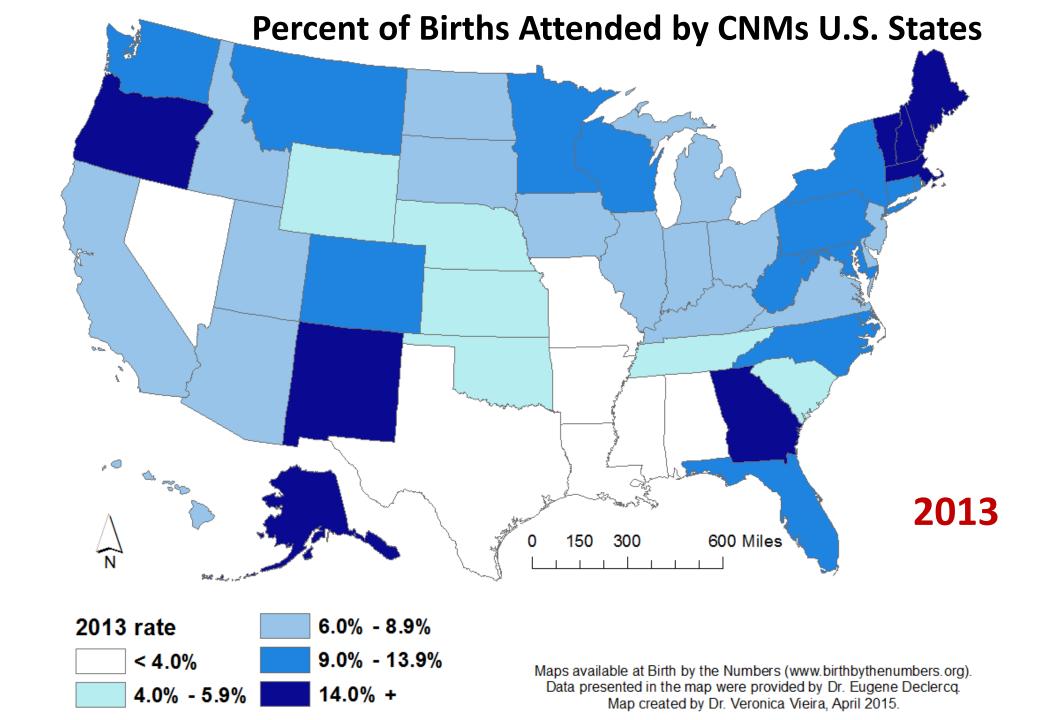






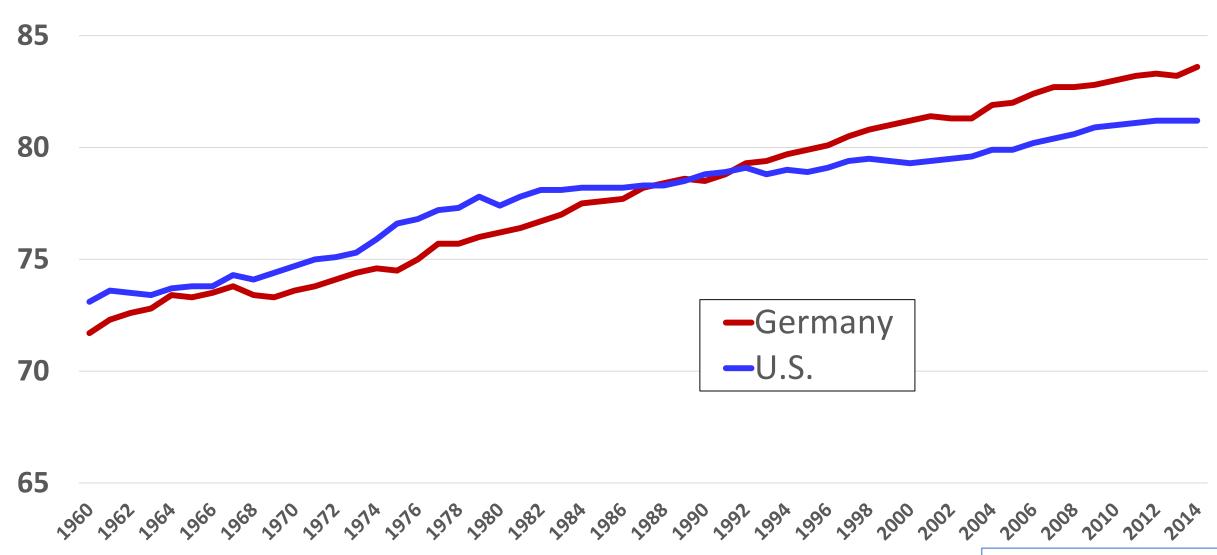






## Comparing U.S. and Germany in General

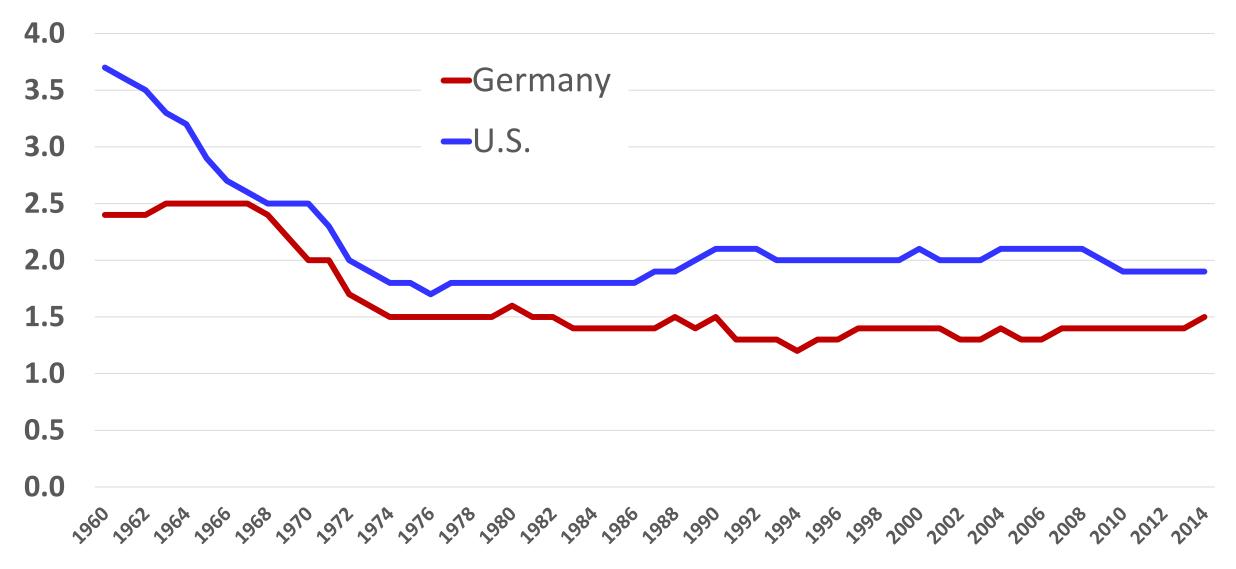
### Female Life Expectancy, U.S. and Germany, 1960-2014



Source: OECD Health Data 2016

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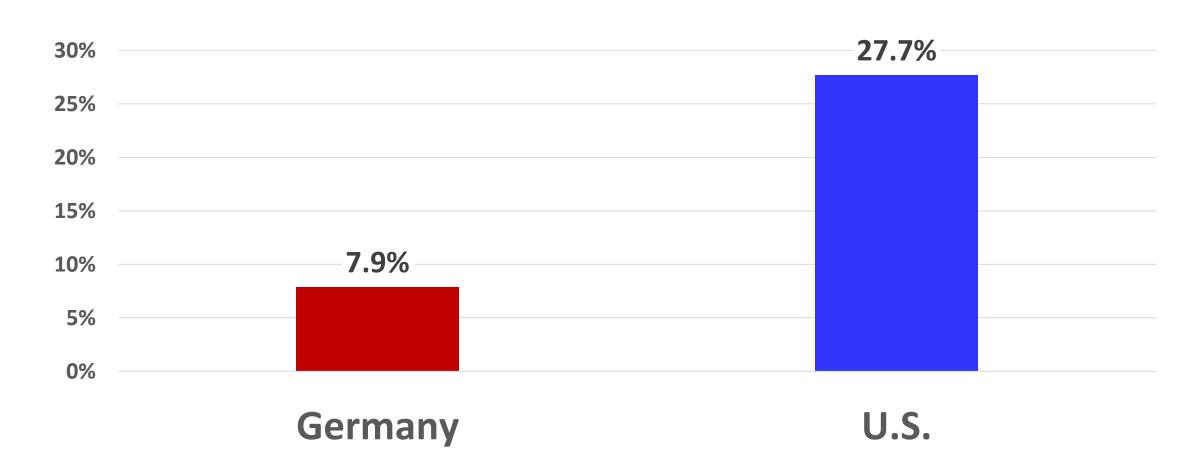
#### Fertility Rates\* U.S. and Germany, 1960-2014



<sup>\*</sup> Children per women aged 15 to 49 years old

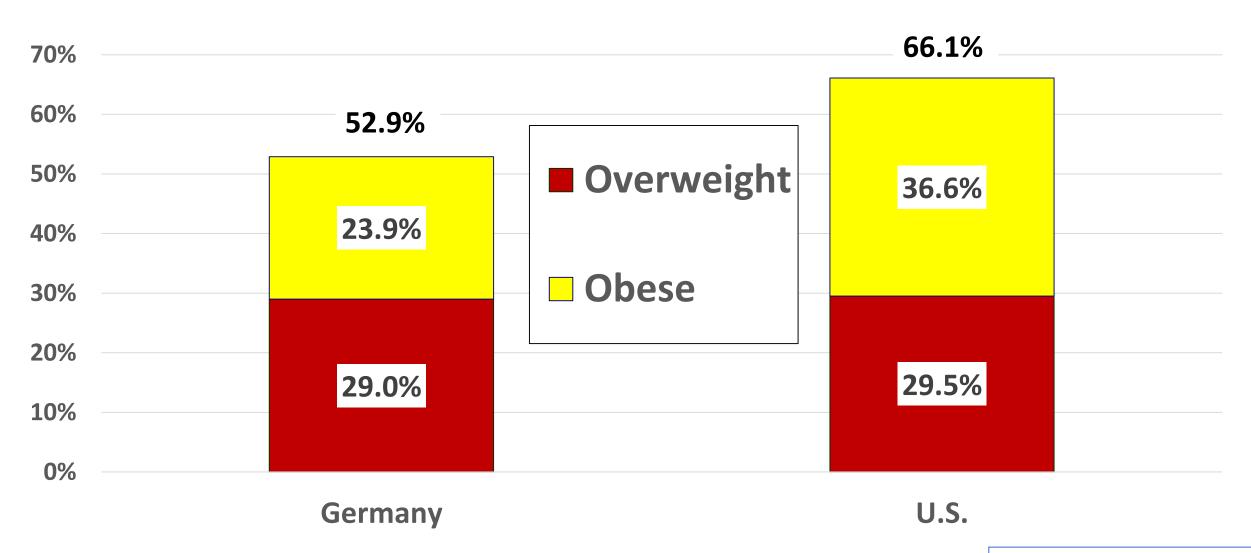
Source: OECD Health Data 2016

### Skipped a Drs Appt. in Last Year Because of Costs, U.S. & Germany, 2013



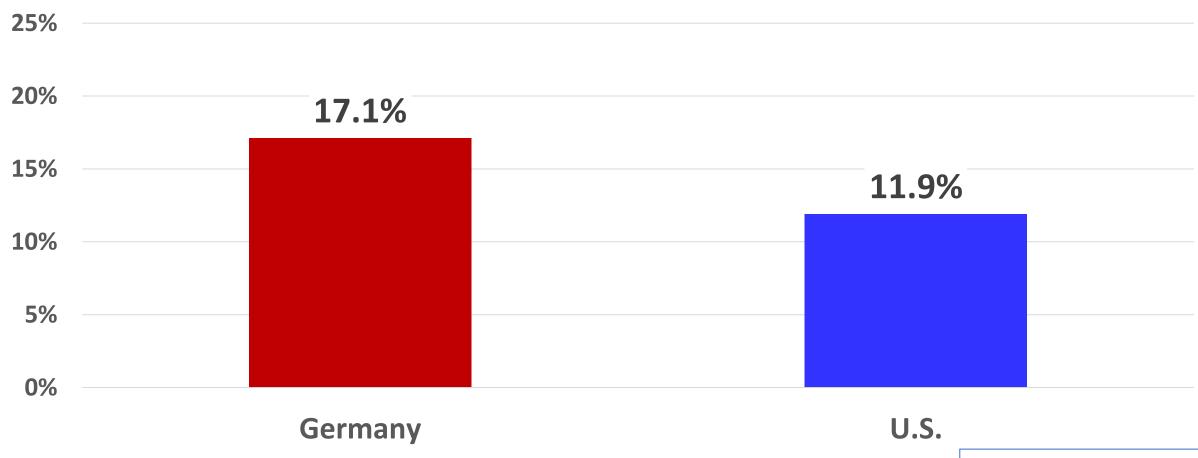
Source: OECD Health Data 2016

#### Female Overweight and Obesity, 2013



Source: OECD Health Data 2016

#### Female 15+ Daily Smokers, 2013

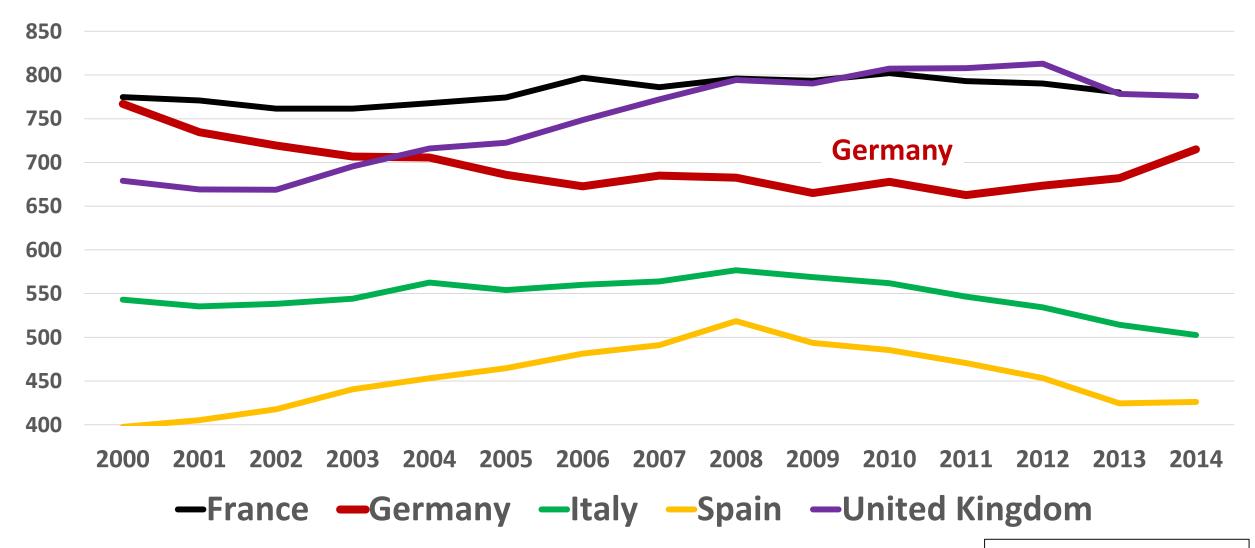


Source: OECD Health Data 2016

BirthByTheNumbers.org

# Putting German and U.S. Outcomes in a Comparative Context

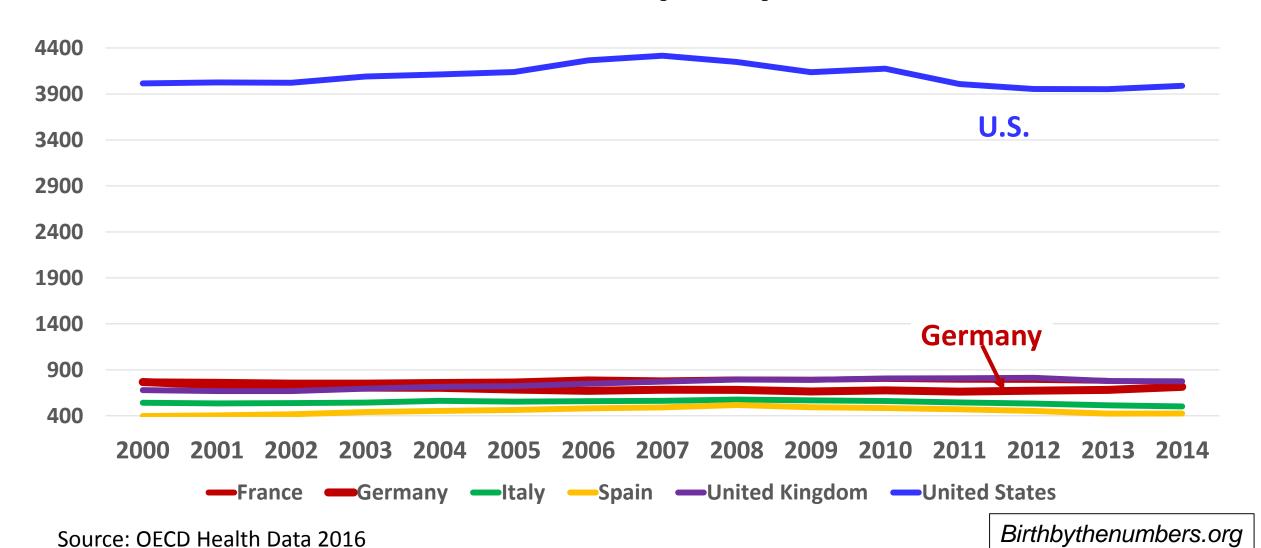
### Births in Major European Countries, 2000-2014 (000)



Source: OECD Health Data 2016

Birthbythenumbers.org

#### Births in Major European Countries & U.S., 2000-2014 (000)



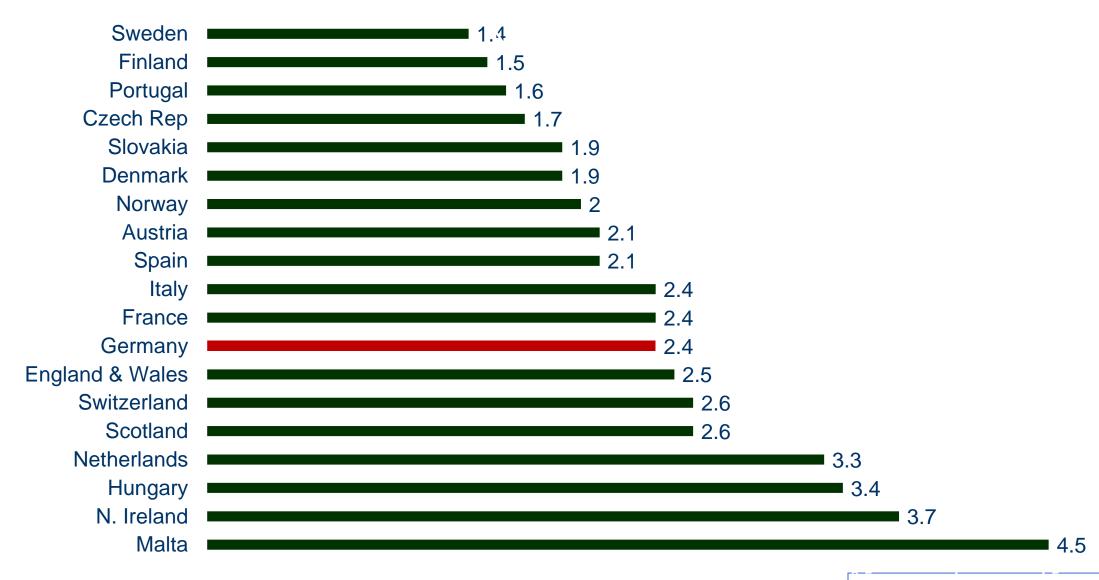
# How well are the U.S. and Germany doing?

# How Do we Compare Outcomes? Neonatal Mortality Rate

Infant Deaths in First 28 days X 1,000

> Live Births

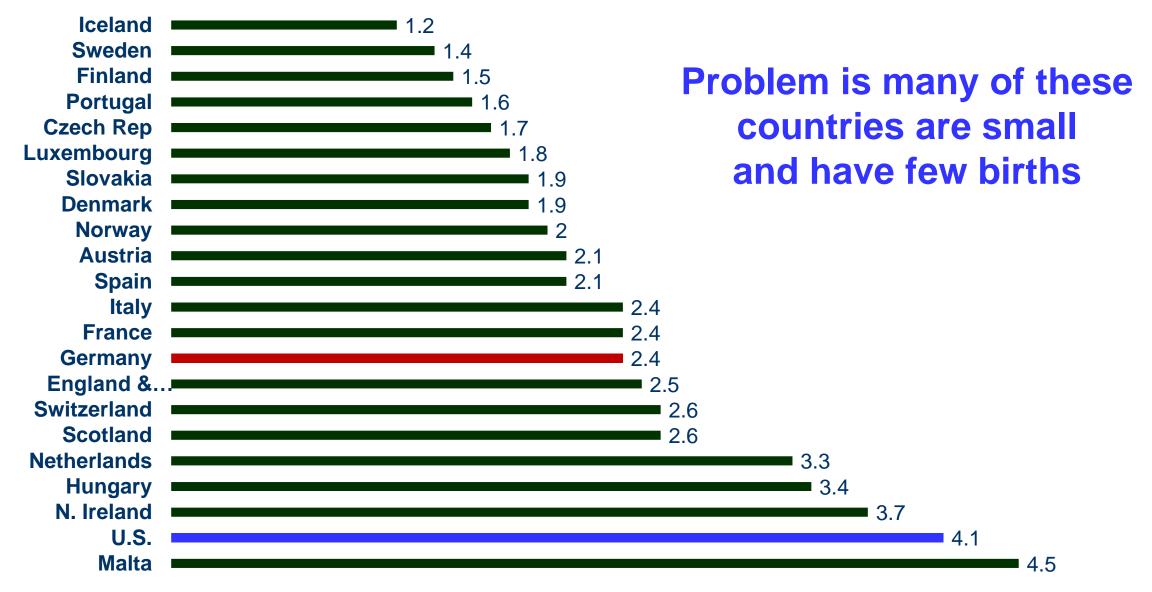
#### Neonatal Mortality in Europe & U.S., 2010



Source: Euro-Peristats

BirthByTheNumbers.org

#### Neonatal Mortality in Europe, 2010



Source: Euro-Peristats & U.S. NCHS.

BirthByTheNumbers.org

# What's a Fair Comparison for the US & Germany?

In the most recent year available (2014):

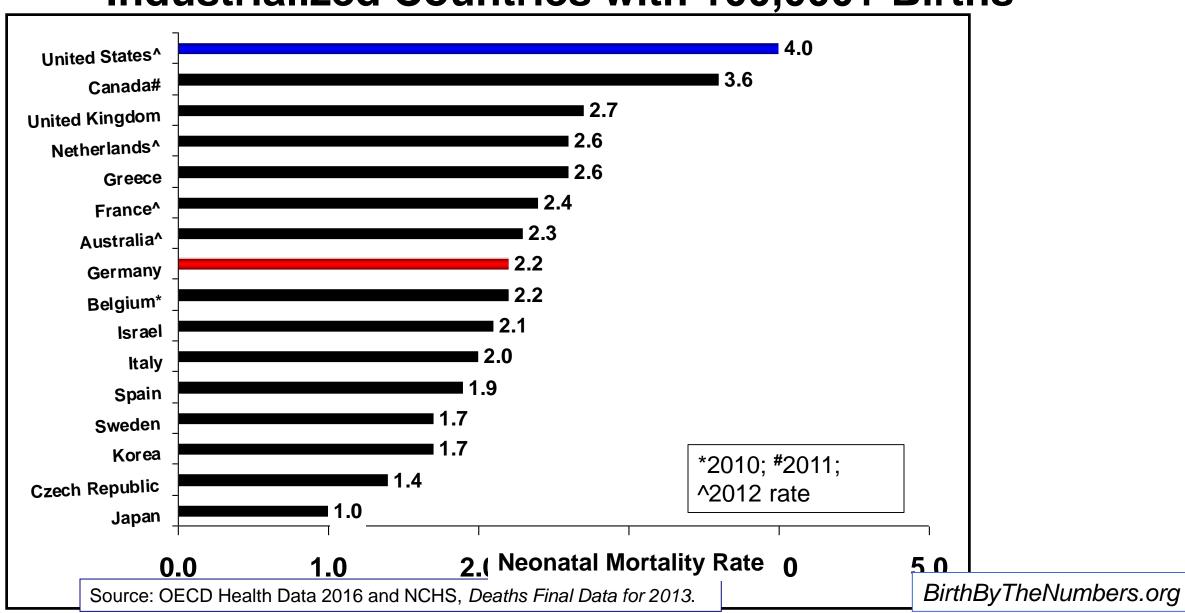
Countries with at least 100,000 births

 Countries with a Gross Domestic Product per capita of at least \$20,000 in US dollars.

#### **Defining Countries to Compare with the U.S. & Germany**

16 Comparison Countries (SOURCE: OECD, Health Data 2016 & State of World's Children, 2016)	2014 Total Births (000)	2014 Total exp. health – PC, US\$ PPP	2013-14 % Births by Cesarean
Australia	318	\$44,706	32.8
Belgium	126	\$41,595	20.5
Canada	387	\$43,038	27.3
Czech Republic	107	\$28,963	26.1
France	780	\$37,617	20.8
Germany	682	\$43,282	30.9
Greece	100	\$25,523	
Israel	171	\$32,713	15.4
Italy	514	\$34,781	36.1
Japan	1,033	\$36,225	
Korea	485	\$33,089	36.7
Netherlands	171	\$46,749	
Spain	424	\$32,546	
Sweden	114	<b>0.4.4.500</b>	
United Kingdom	779	\$38,743	
United States	3,953	\$52,592	32.5

Neonatal Mortality Rates (per 1,000 births), 2013, Industrialized Countries with 100,000+ Births



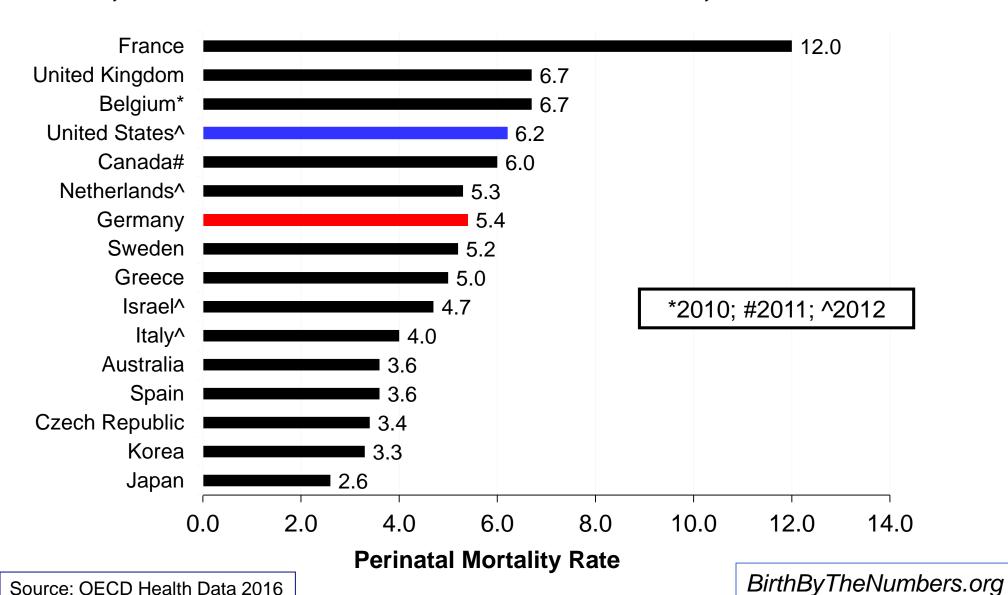
### How are Germany & the U.S. doing relative to comparison countries?

#### **Perinatal Mortality Rate**

Fetal deaths + deaths in the first week X 1,000

Live births + fetal deaths

### Perinatal Mortality Rates (per 1,000 births), 2013, Industrialized Countries 100,000+ Births



#### **Maternal Mortality Ratios**

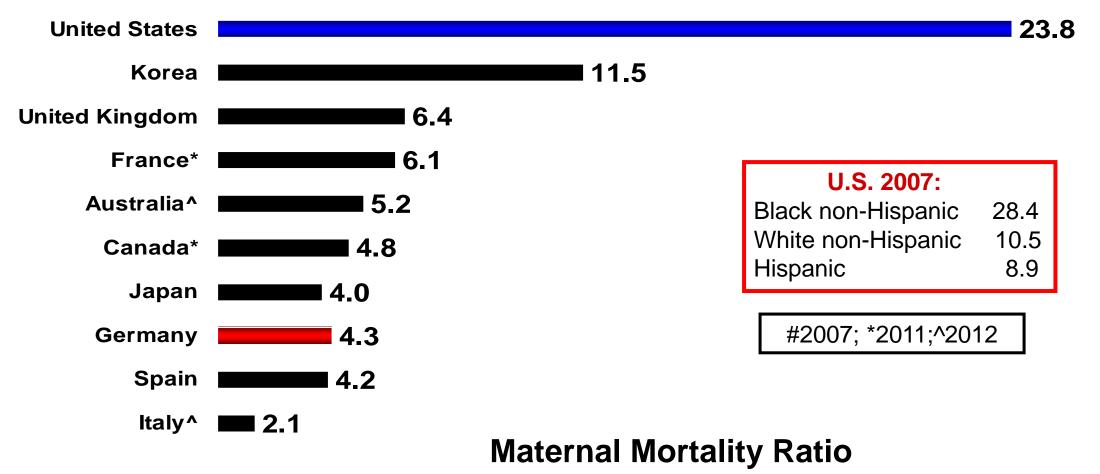
#### **Maternal Mortality Ratio**

Maternal Deaths\* all causes X 100,000

Live births

\* Deaths in pregnancy and up to 42 days postpartum

### Maternal Mortality Rates, (per 100,000 births), 2013, Industrialized Countries with 300,000+ births

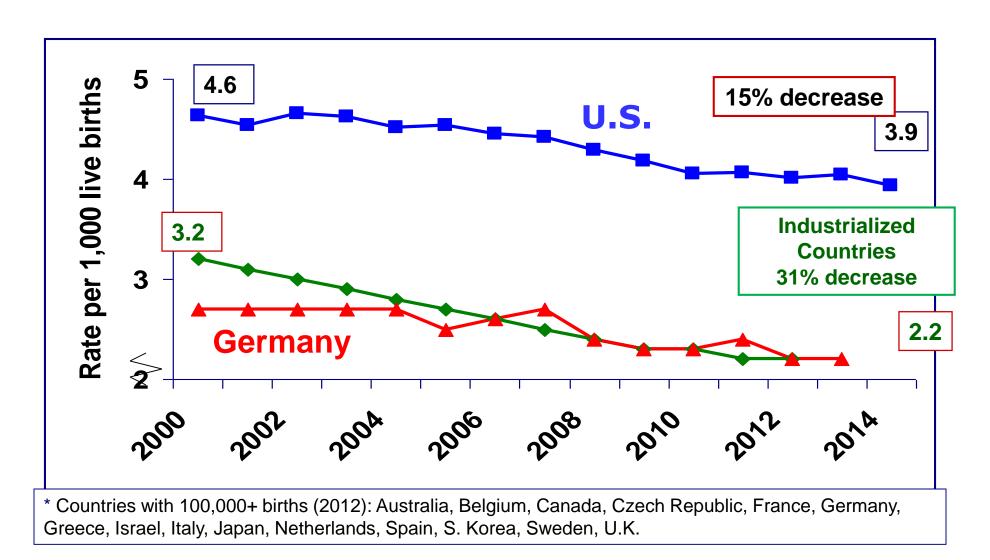


1

Sources: OECD Health Data 2016; Macdorman OBGYN, 2016.

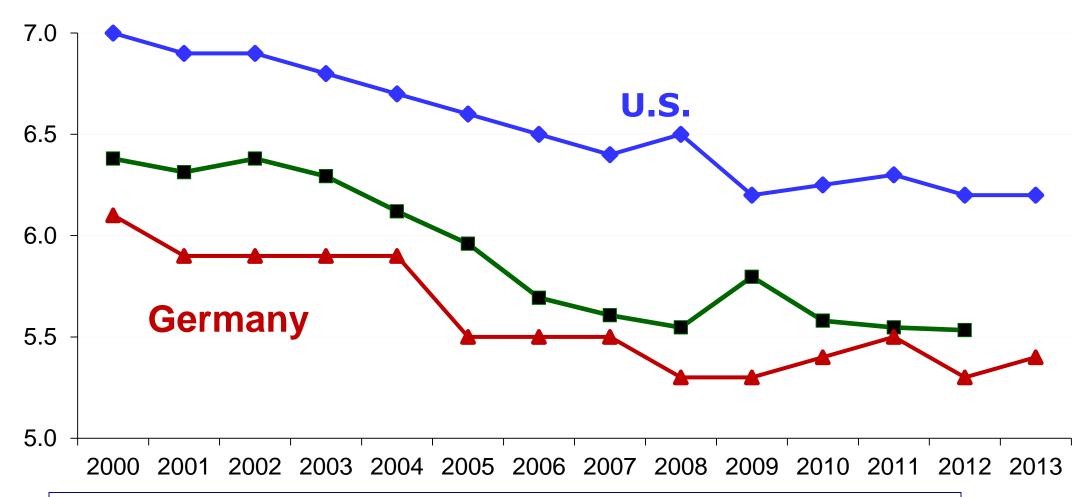
# **Examining Trends**over Time

### Neonatal Mortality Rate (per 1,000 births), 2000-2014, U.S., & Ave. for Industrialized Countries\*



Source: OECD Health Data, 2016

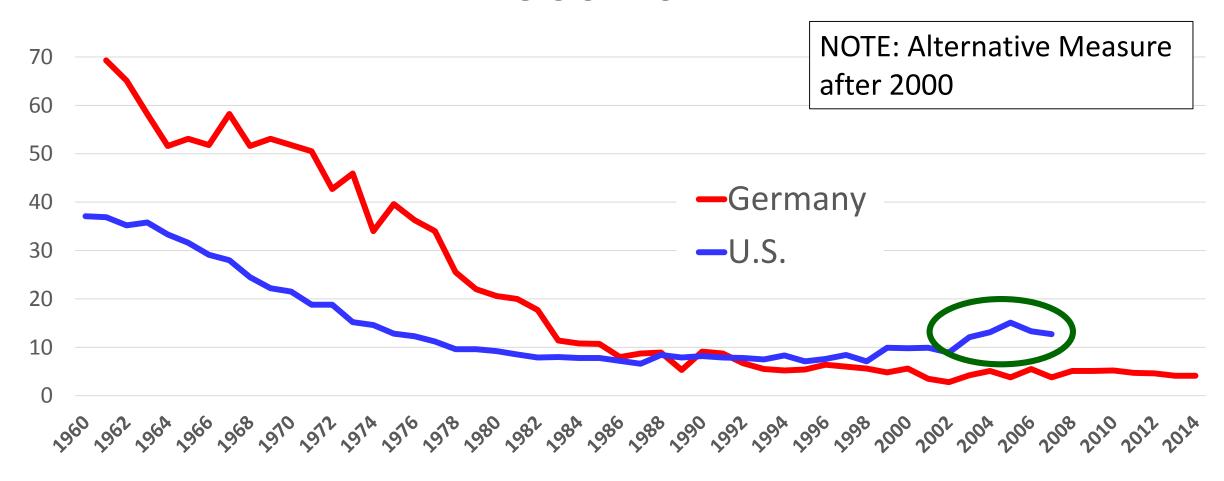
### Perinatal Mortality Rates (per 1,000), 2000-2013, U.S., Germany & Ave. for Industrialized Countries\*



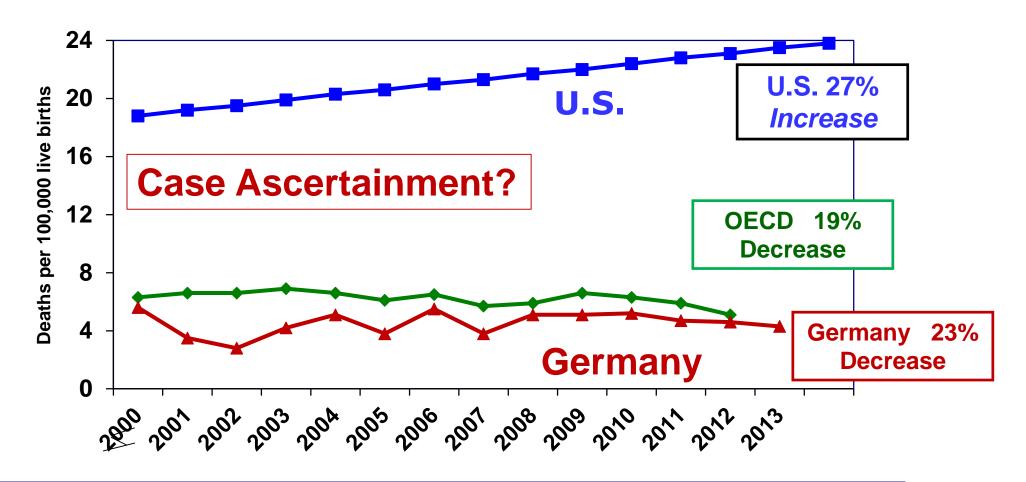
<sup>\*</sup> Countries with 100,000+ births (2012): Australia, Belgium, Canada, Czech Republic, France, Germany, Greece, Israel, Italy, Japan, Netherlands, S. Korea, Spain, Sweden, United Kingdom

BirthByTheNumbers.org

### Maternal Mortality Rates U.S. and Germany, 1960-2014



### Maternal Mortality Ratios (per 100K births), 2000-2013, U.S., Germany & Comparable Countries \*



<sup>\*</sup> Countries with 300,000+ births (2012): Australia, Canada, France, Germany, Italy, Japan, S. Korea, Spain, United Kingdom

Sources: OECD Health Data 2016; MacDorman et.al., OBGYN, 2016;

NOTE: US rates unofficial

Birthbythenumbers.org

## So how are we doing?

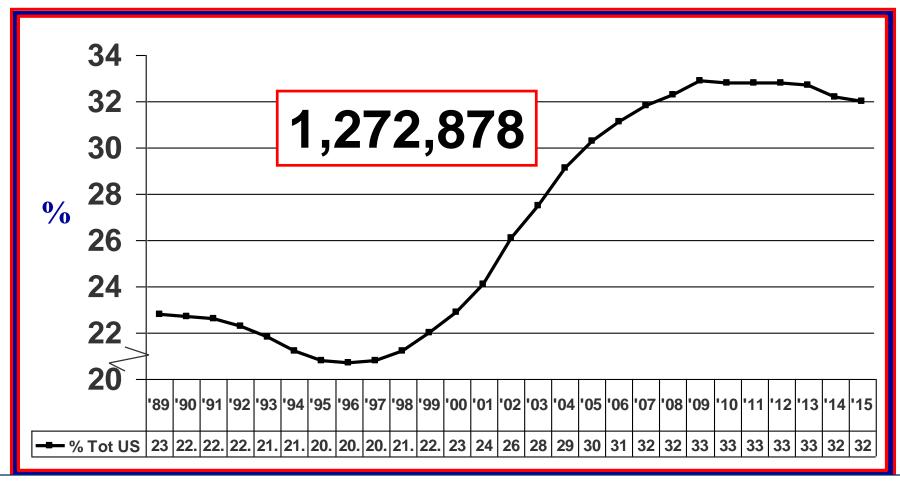
- Germany generally doing well, U.S. near the bottom
- Argument that US is more diverse doesn't account for it
- Trend: General improvement in US, Germany
- Germany does as well or better than comparison cntries
- U.S. begins slightly behind and falls further behind
- Maternal mortality rising in U.S.

## What about process?

The Case of Cesarean Section

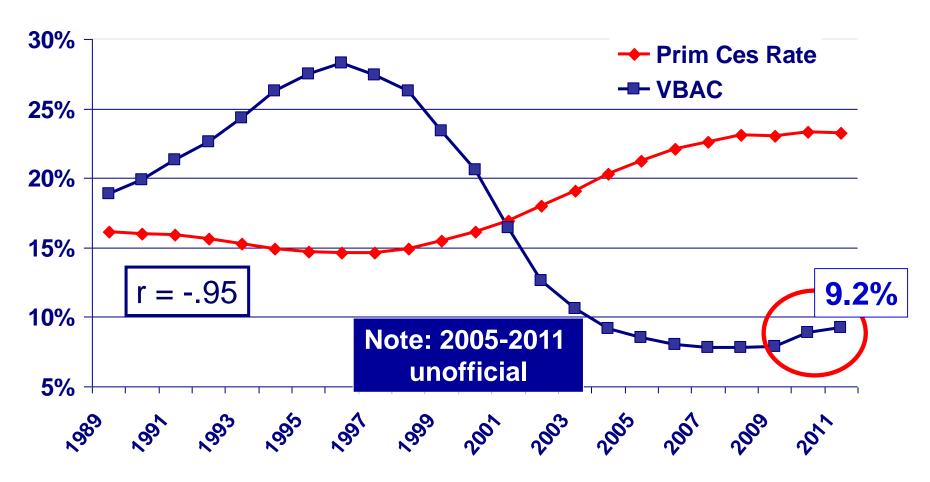
First the U.S.

## US Cesarean Rates, 1989-2015



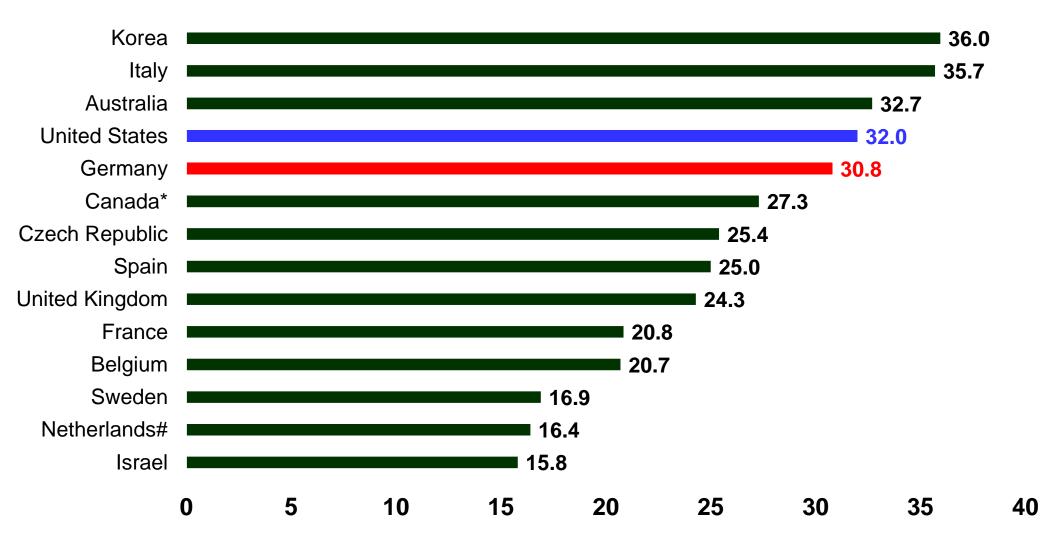
If the 2015 cesarean rate was the same as in 1996, there would have been 449,000 fewer cesareans in the U.S. in '15.

# Primary Cesarean and VBAC Rates, U.S., 1989-2011



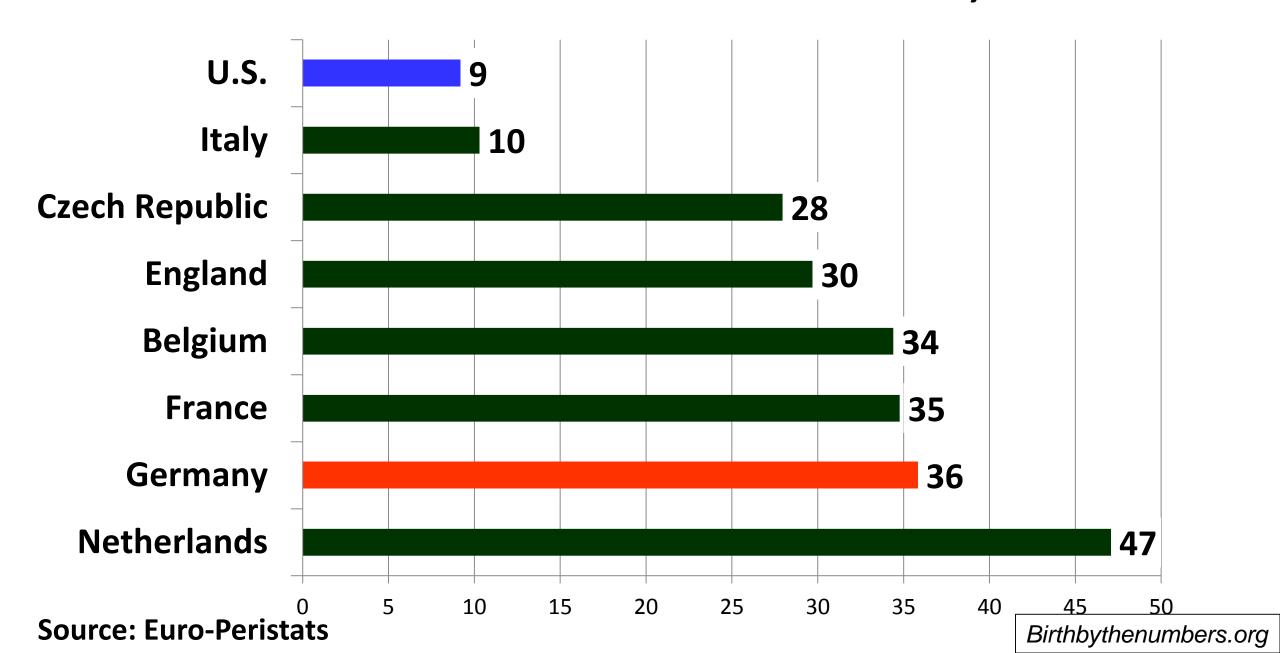
Source: NCHS. Annual Birth Reports & Vital Stats

# Cesarean Rates (%) in Industrialized Countries\* with 100,000+ Births, 2014

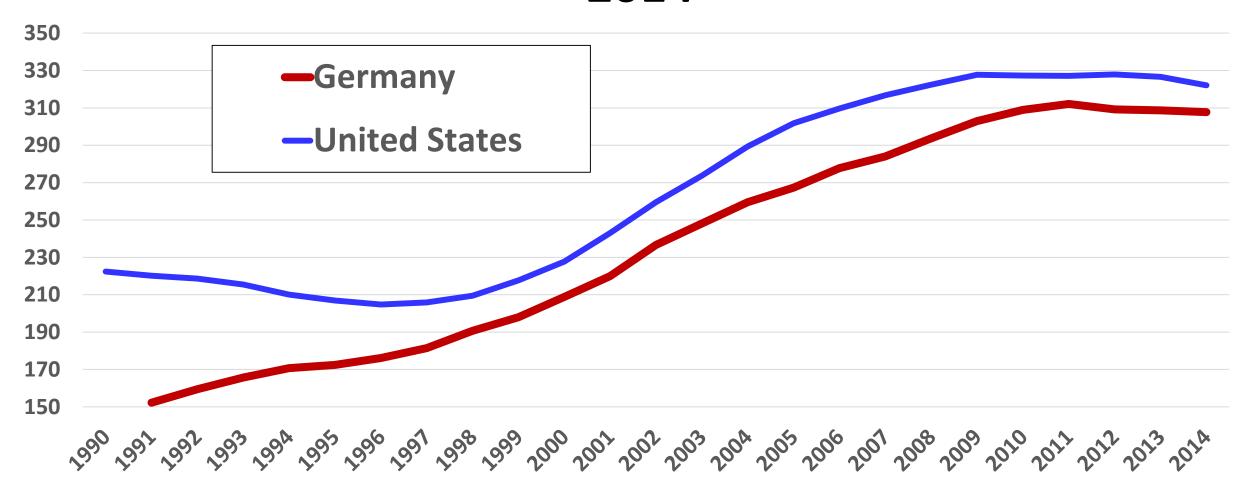


<sup>\*</sup> No data on cesarean rates in Greece and Japan

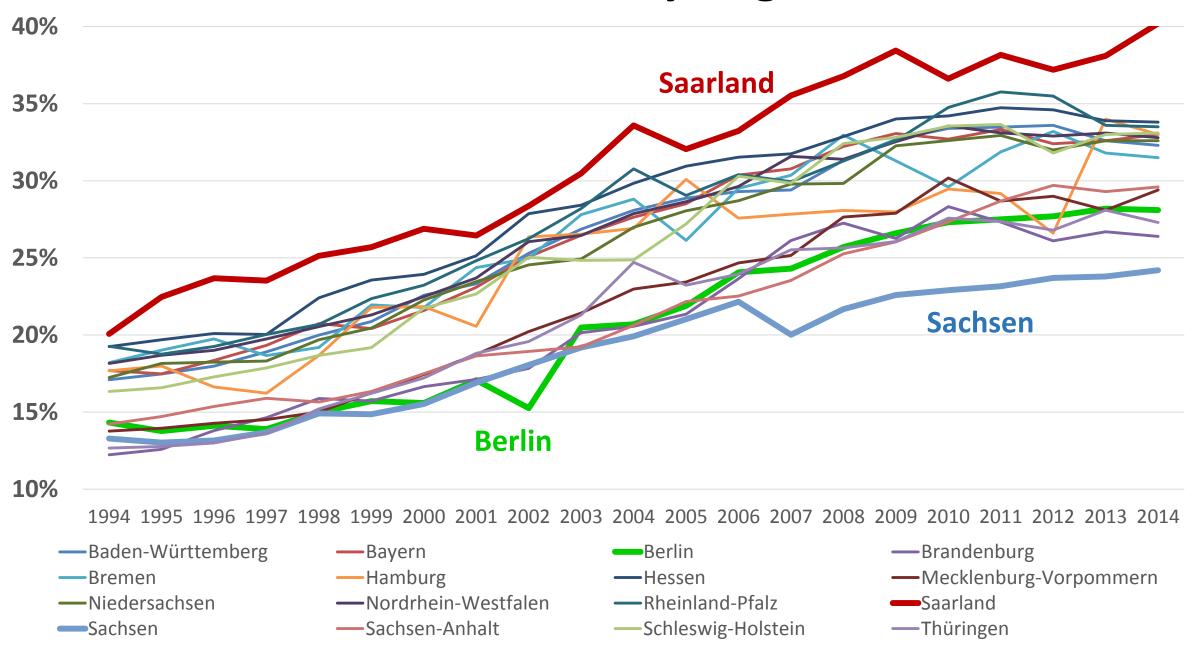
## VBAC Rates Industrialized Countries, 2010



# Trends in Overall Cesarean Rate (per 1,000) 1990 – 2014



## German Cesarean Rates by Region, 1994-2014



Gene, that graph was great, but wouldn't it clearer if you showed us maps of these changes over time?



#### 1994 Rates

< 20.0%

20.0% - 24.9%

25.0% - 29.9%

30.0% - 32.9%

33.0% - 35.9%

36.0% +

birthbythenumbers.org



#### **1995 Rates**

< 20.0%

20.0% - 24.9%

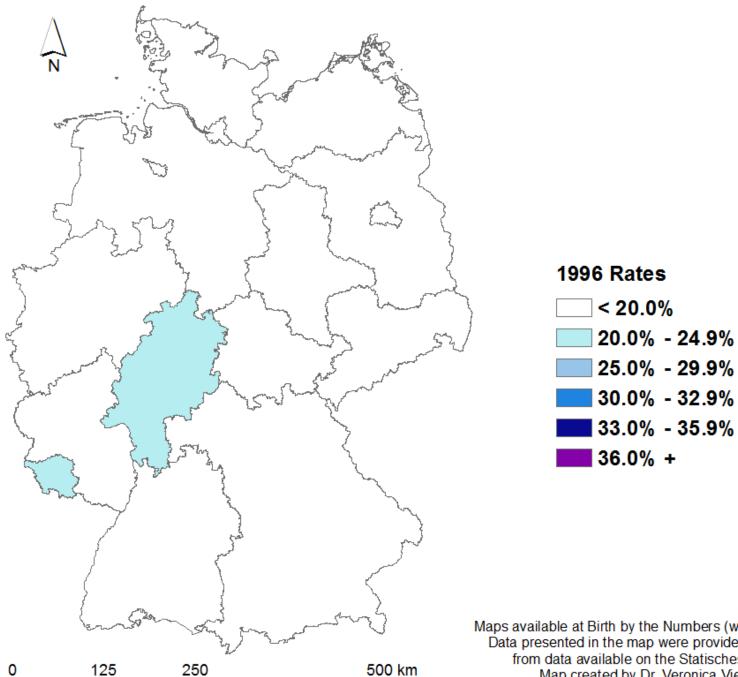
25.0% - 29.9%

30.0% - 32.9%

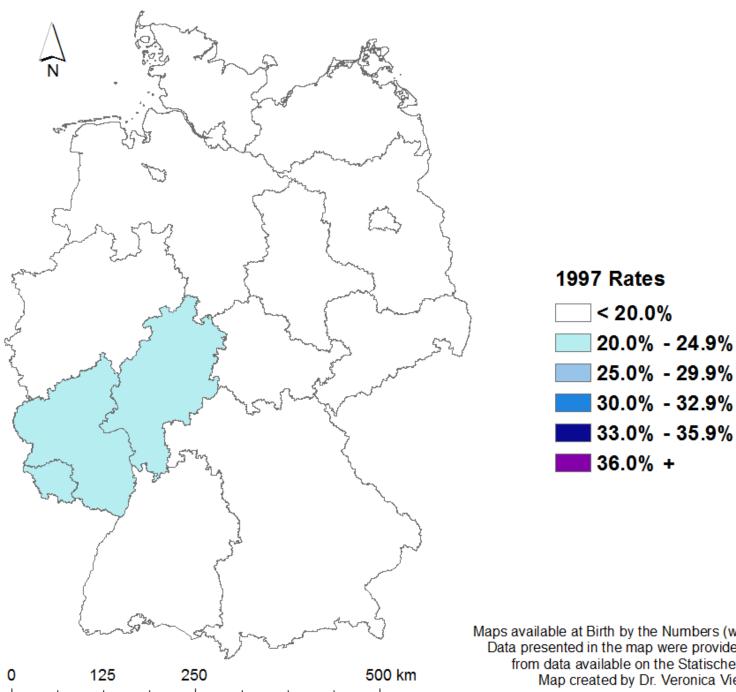
33.0% - 35.9%

36.0% +

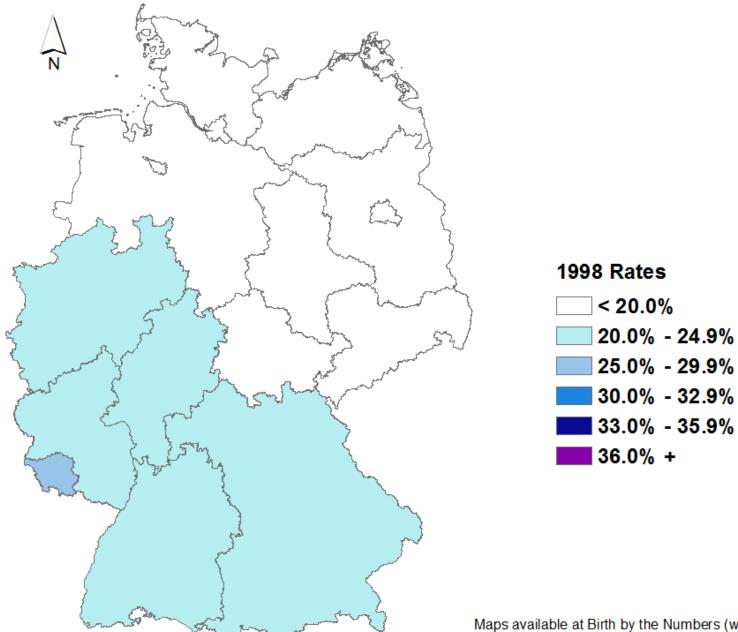
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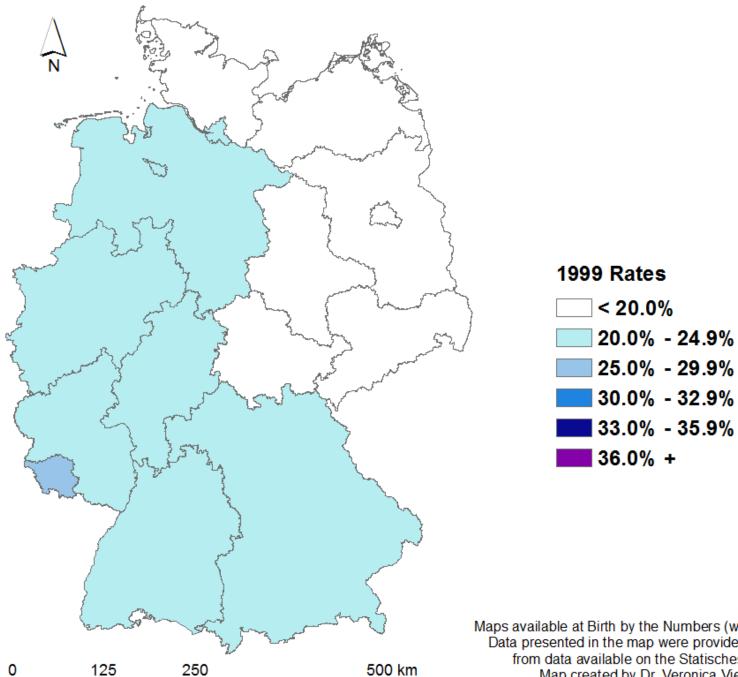
birthbythenumbers.org



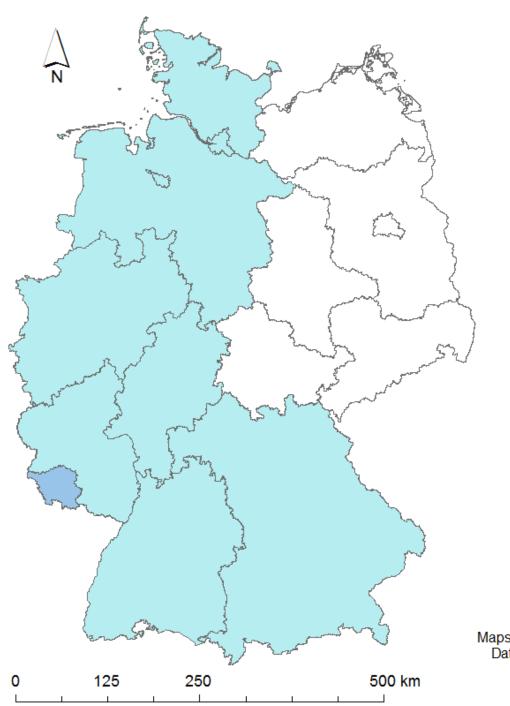
125

250

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#### 2000 Rates

< 20.0%

20.0% - 24.9%

25.0% - 29.9%

30.0% - 32.9%

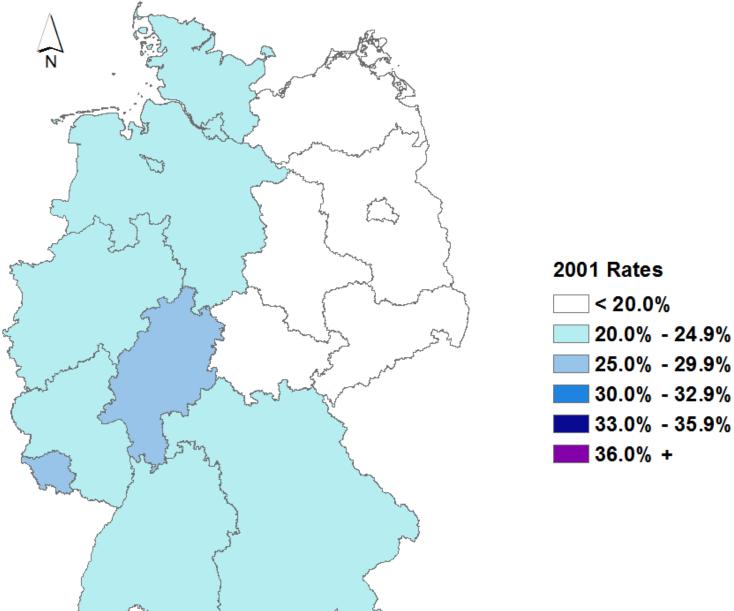
00.0 /0 - 02.3 /0

33.0% - 35.9%

36.0% +

birthbythenumbers.org

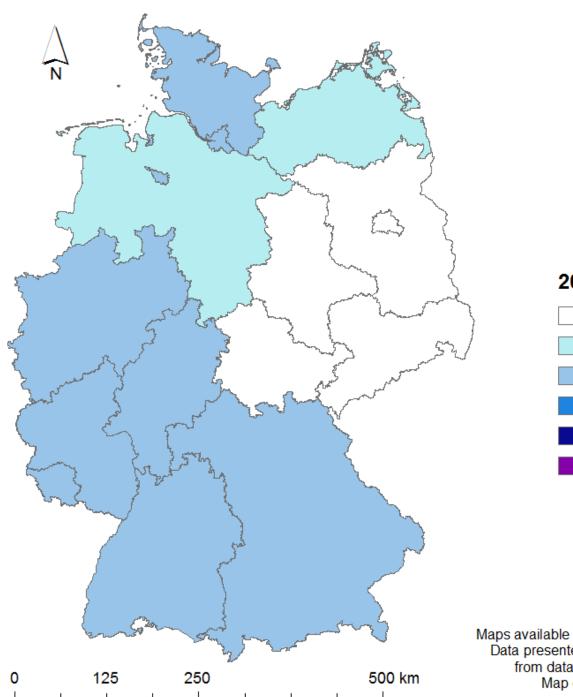




125

250

birthbythenumbers.org



#### 2002 Rates

< 20.0%

20.0% - 24.9%

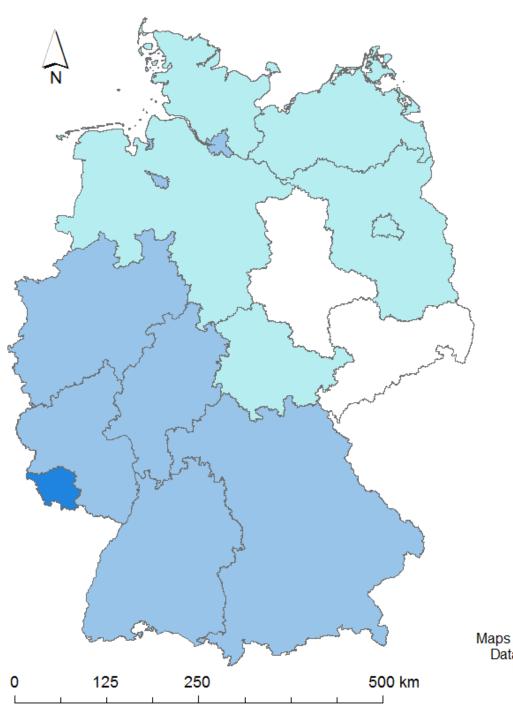
25.0% - 29.9%

30.0% - 32.9%

33.0% - 35.9%

36.0% +

birthbythenumbers.org



#### 2003 Rates

< 20.0%

20.0% - 24.9%

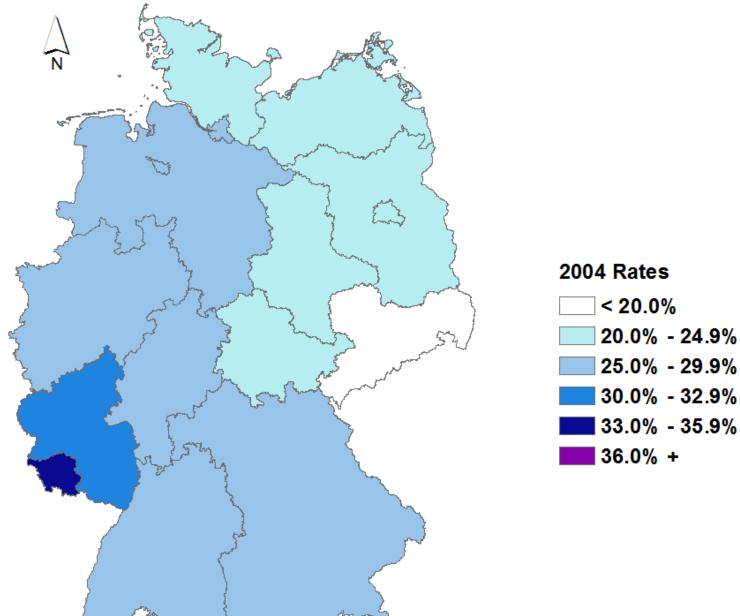
25.0% - 29.9%

30.0% - 32.9%

33.0% - 35.9%

36.0% +

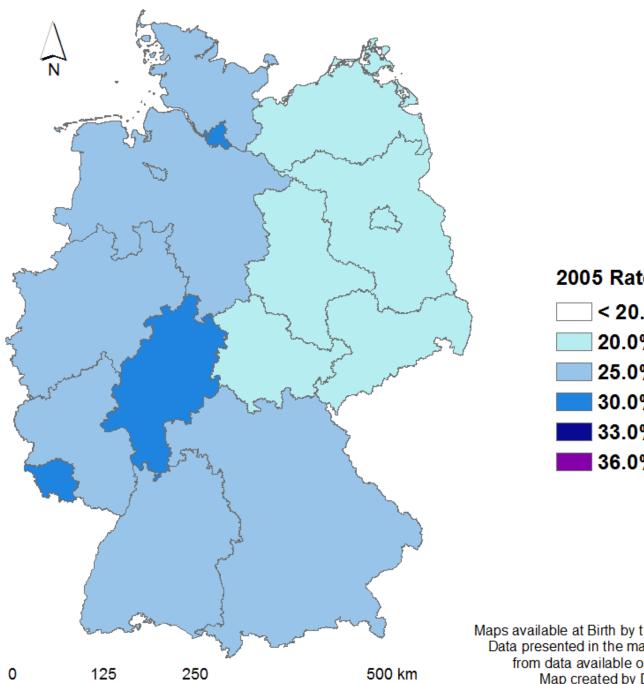
birthbythenumbers.org



125

250

birthbythenumbers.org



2005 Rates

< 20.0%

20.0% - 24.9%

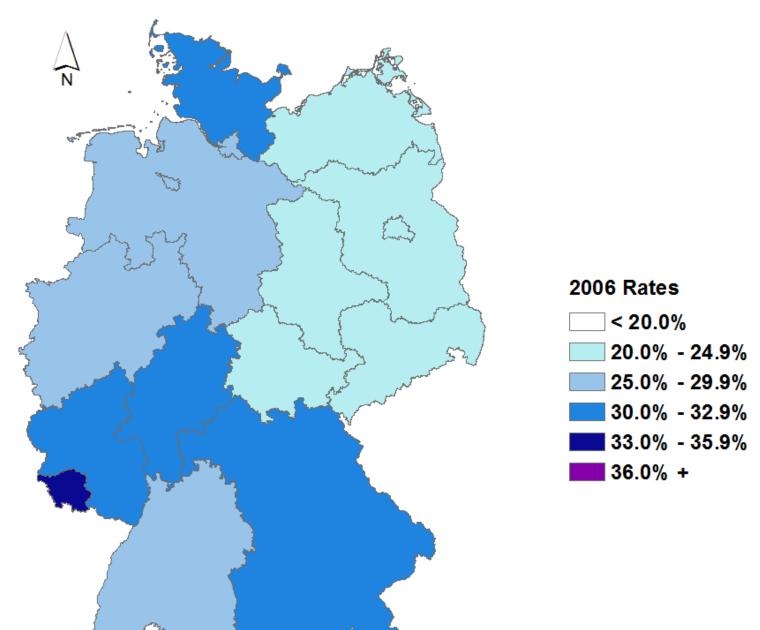
25.0% - 29.9%

30.0% - 32.9%

33.0% - 35.9%

36.0% +

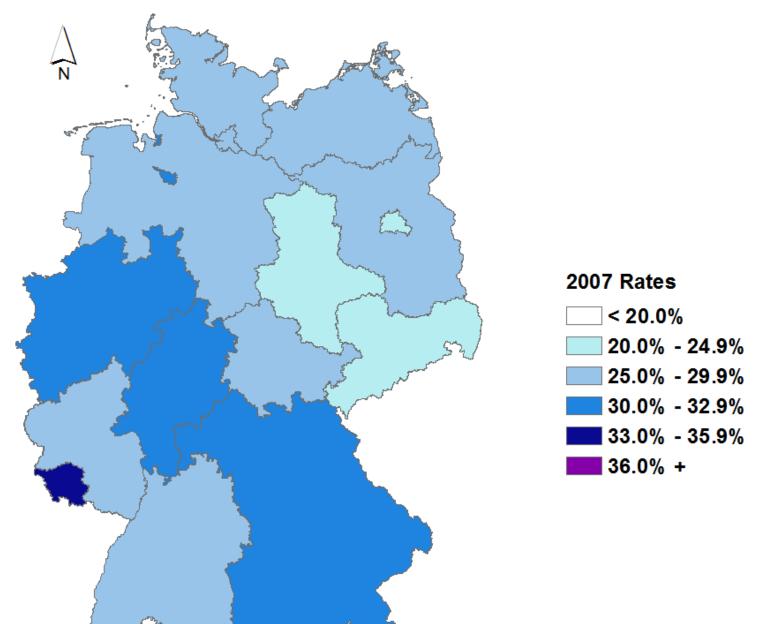
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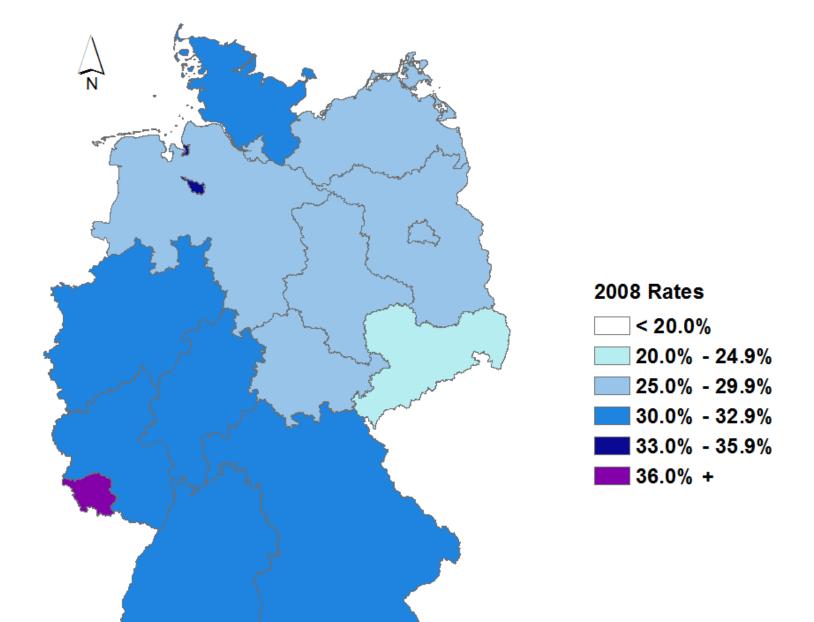
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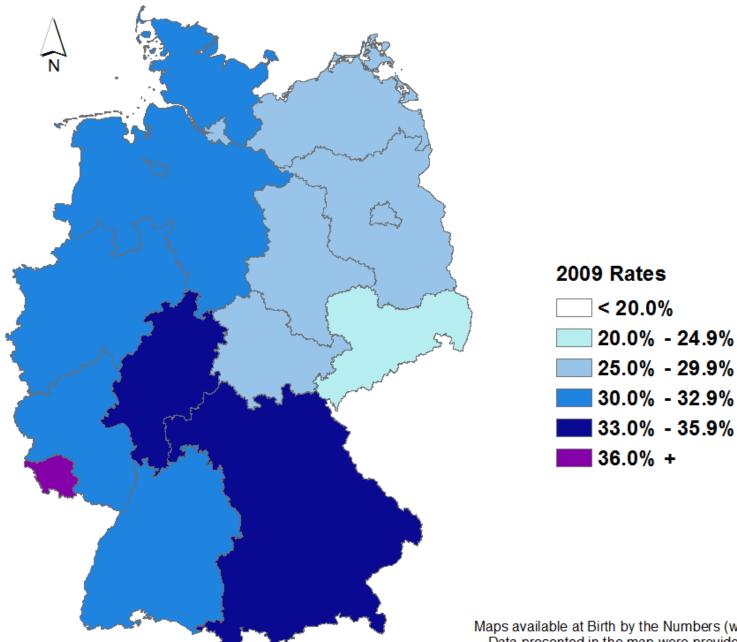
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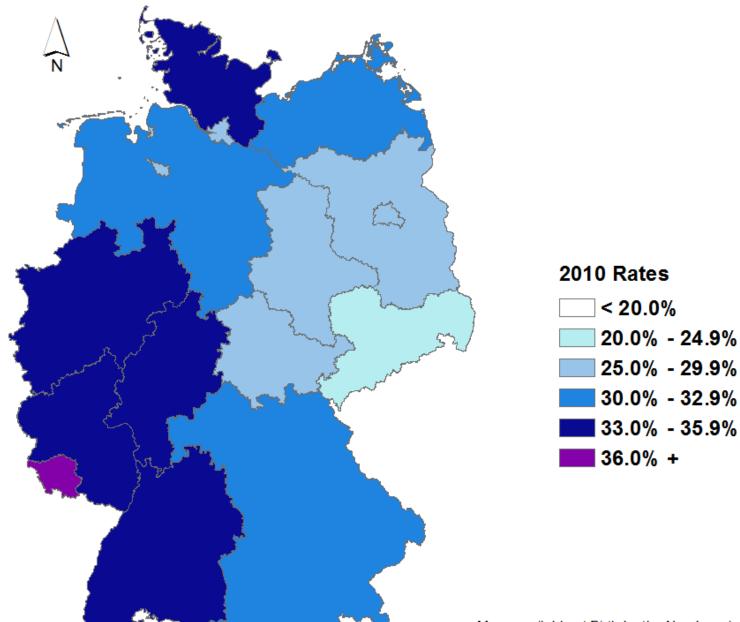
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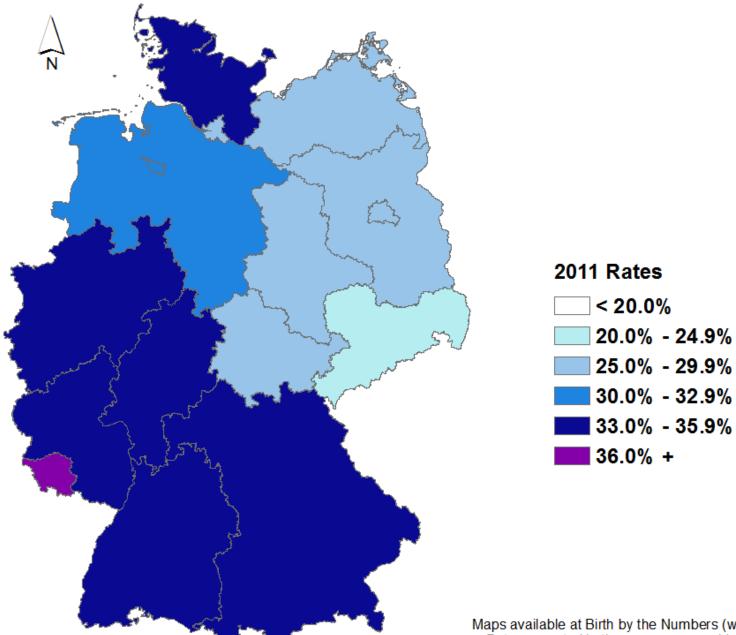


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birthbythenumbers.org

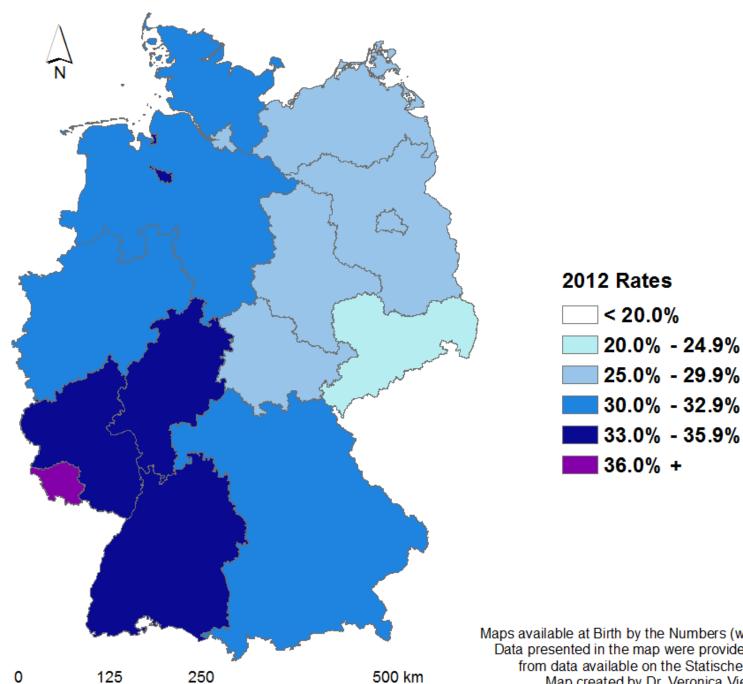




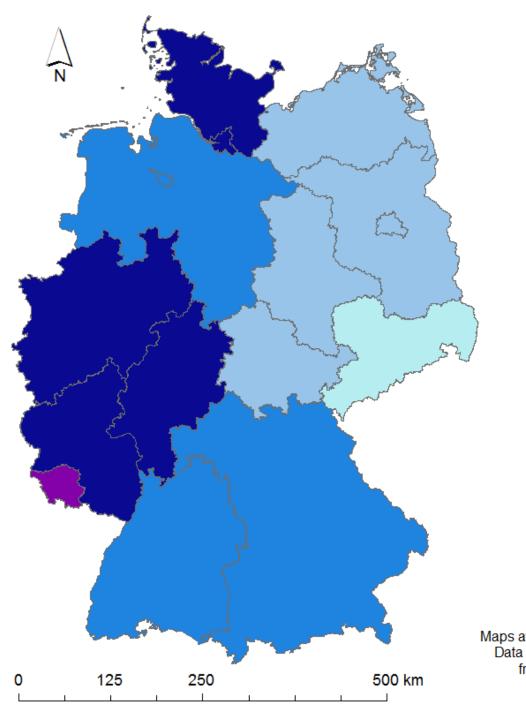
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#### **2013 Rates**

< 20.0%

20.0% - 24.9%

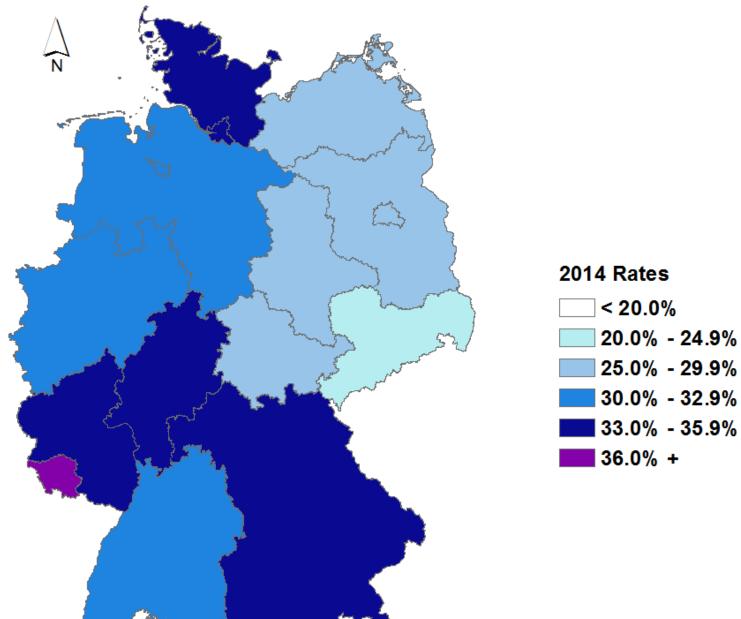
25.0% - 29.9%

30.0% - 32.9%

33.0% - 35.9%

36.0% +

birthbythenumbers.org



125

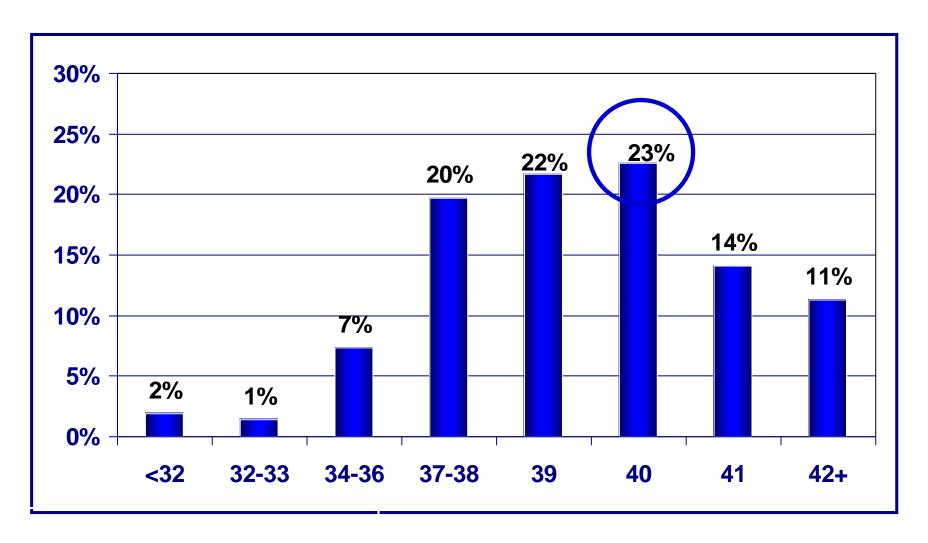
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# Do High Rates of Intervention Matter?

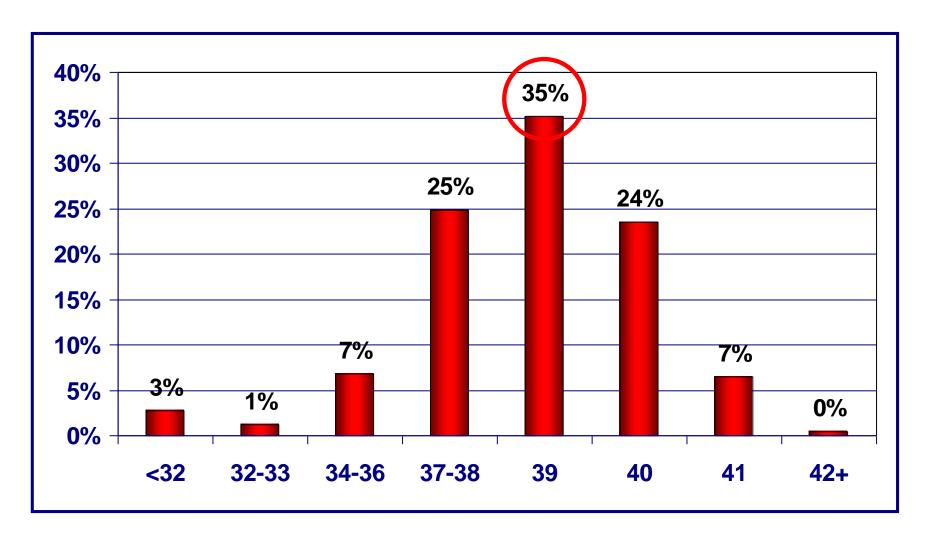
# The Case of the Lost Week of Gestational Age

## Gestational Age, U.S. All Births, 1990



Source: Martin JA, Hamilton BE, Osterman MJK, Curtin S and Mathews TJ. Births: Final data for 2012. National vital statistics reports; vol 62 no 9. Hyattsville, MD: National Center for Health Statistics. 2014.

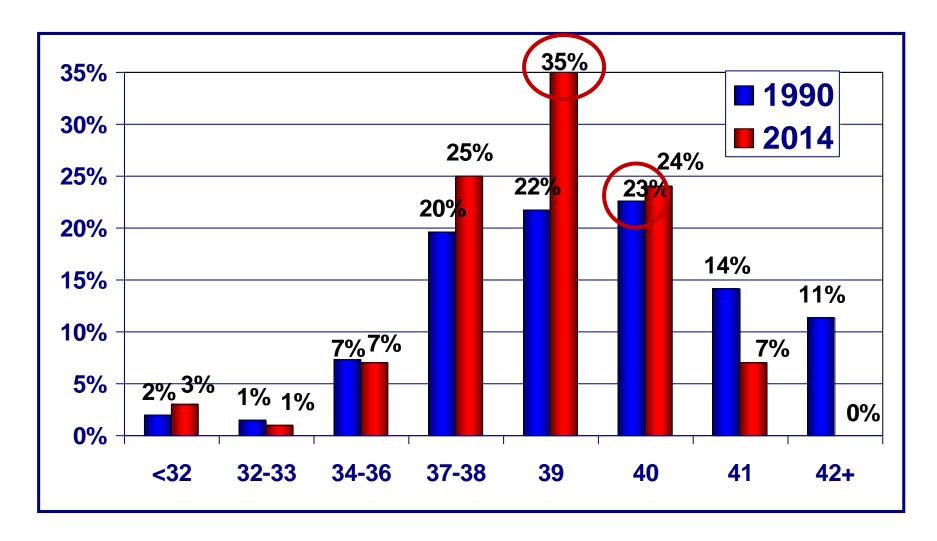
## Gestational Age, U.S. All Births, 2014



Source: Martin JA, Hamilton BE, Osterman MJK, Curtin S and Mathews TJ. Births: Final data for 2012. National vital statistics reports; vol 62 no 9. Hyattsville, MD: National Center for Health Statistics. 2014.

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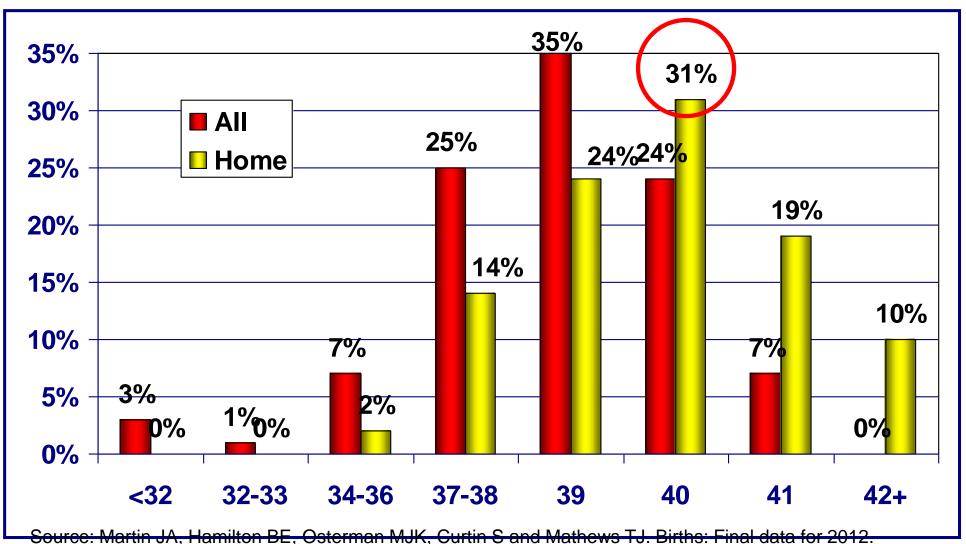
### Gestational Age, U.S. All Births, 1990 & 2014



Source: Martin JA, Hamilton BE, Osterman MJK, Curtin S and Mathews TJ. Births: Final data for 2012. National vital statistics reports; vol 62 no 9. Hyattsville, MD: National Center for Health Statistics. 2014.

Birthbythenumbers.org

# Gestational Age, U.S. All Births & Planned Home Births that Occur at Home, 2014



National vital statistics reports; vol 62 no 9. Hyattsville, MD: National Center for Health Statistics. 2014

Birthbythenumbers.org

# Is it hopeless?

What can be done

 Evidence – keep an open mind and ask different questions. Don't be afraid of data. Use it to challenge others.

Advocacy – work for change.

# The Case of the Rising Cesarean Rate

## Commonly Used Explanations for the High Cesarean Rate

- Mothers are getting older
- More multiples being born
- Maternal obesity increasing
- Babies are getting bigger
- Mothers are generally less healthy
- Mothers are asking for it

Note what all these have in common – it's not the system's fault it's mothers' fault

# Commonly Used Explanations for the High Cesarean Rate

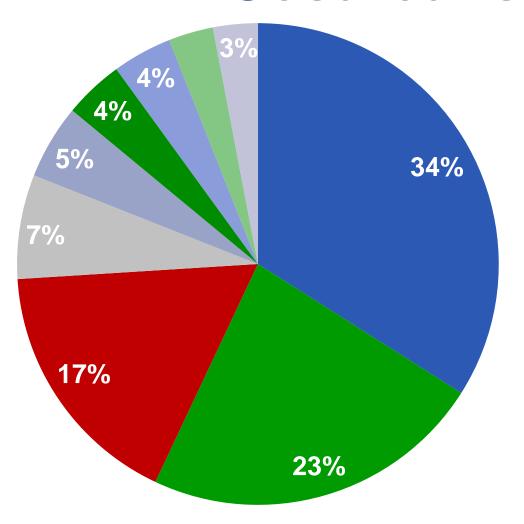
- Mothers are getting older— NO
- More multiples being born NO
- Babies are getting bigger NO!!
- Maternal health is worse: obesity,
  - diabetes & hypertension Some
- Mothers are asking for it NO

If the usual explanations for the rising cesarean rate don't account for the changes what does?

If the usual explanations for the rising cesarean rate don't account for the changes what does?

**Practice Changes** 

# Leading Indications for Cesareans

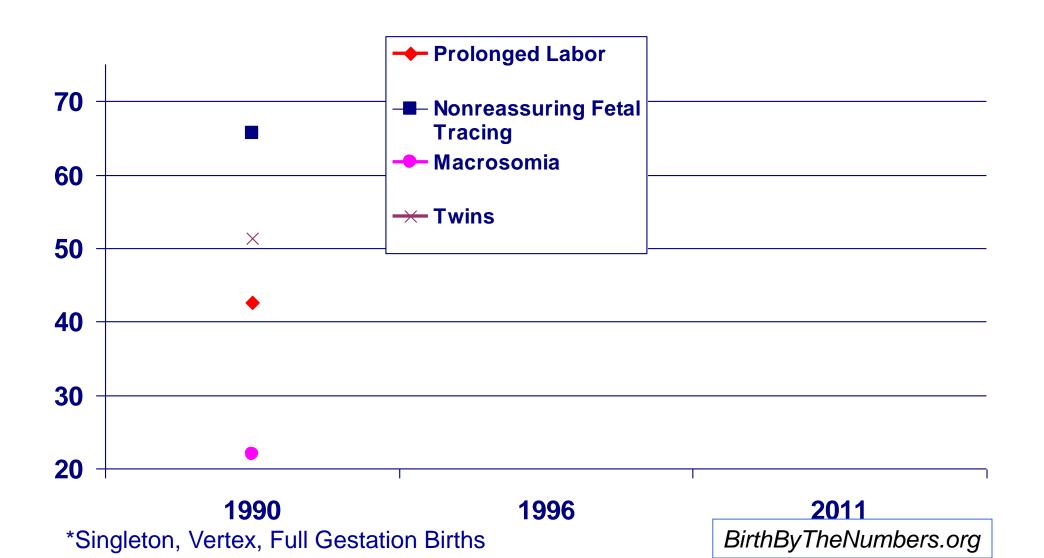


Source: ACOG & SMFM. Safe Prevention of Primary Cesarean Delivery. 3/2014.

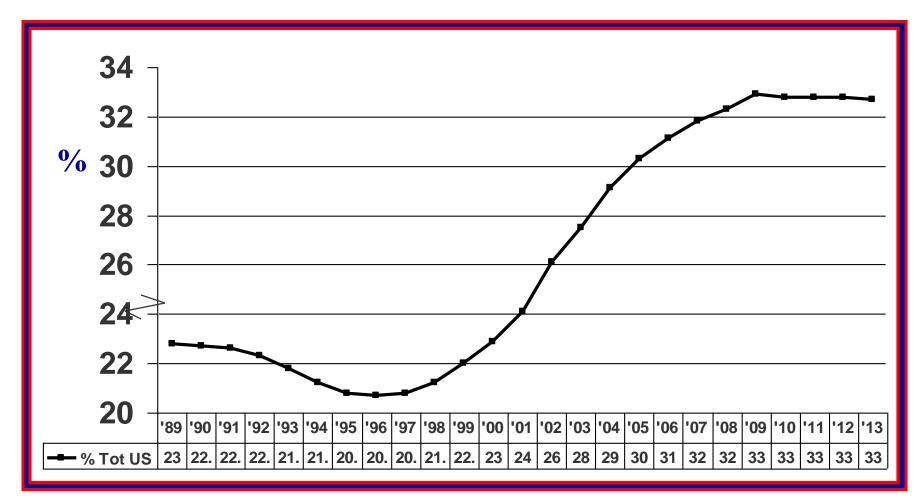
- Labor Arrest
- Nonreassuring fetal tracing
- Malpresentation
- Multiple Gestation
- Maternal-Fetal
- Macrosomia
- Other Obstet.
- Preeclampsia
- Maternal Request

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# Cesarean Rates, Low Risk\*, First-Time Mothers for Medical Risk Factors & Labor Complications

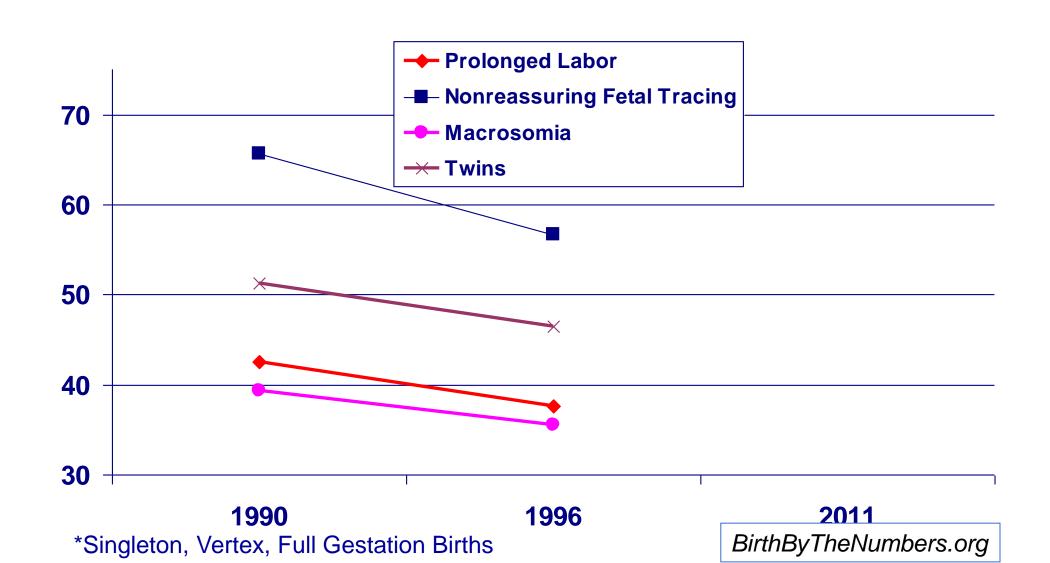


# Revisiting the trend in cesareans in the US for comparison

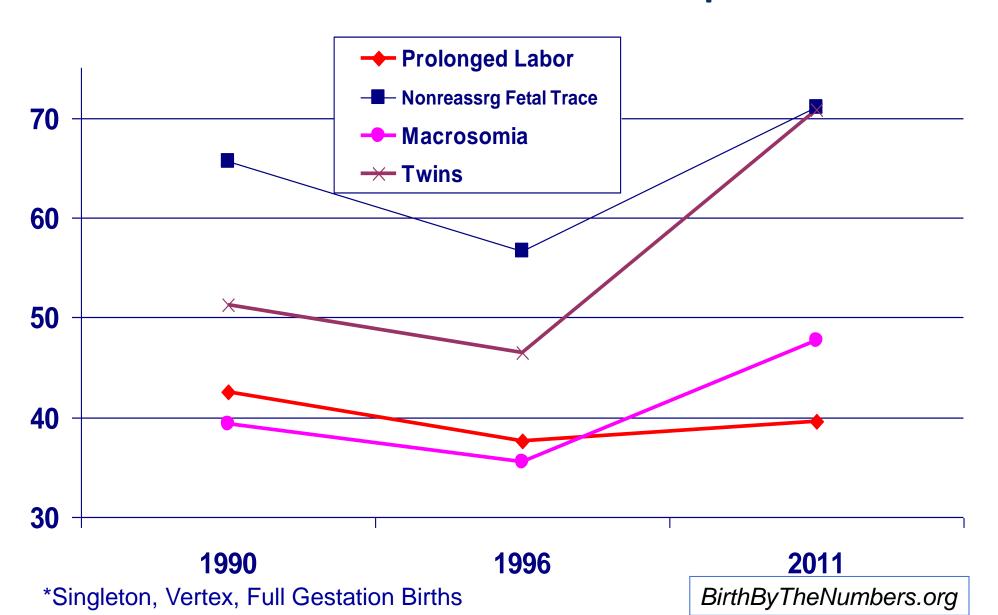


Source: National Center for Health Statistics Annual Birth Reports

# Cesarean Rates, Low Risk\*, First-Time Mothers for Medical Risk Factors & Labor Complications



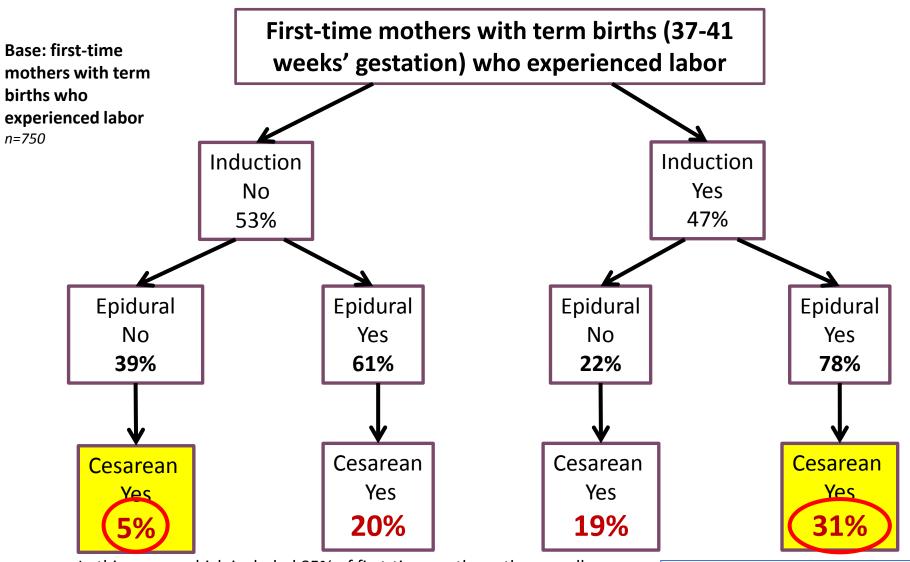
## Cesarean Rates, Low Risk\*, First-Time Mothers for Medical Risk Factors & Labor Complications



# How does a culture of intervention get manifested in a hospital setting?

## Consider the Cascade of Interventions

# Cascade of interventions in first-time mothers with term births who experienced labor



In this group, which included 85% of first-time mothers, the overall epidural rate was 69% and overall cesarean rate was 21%.

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### So how do you change culture?

Evidence and Advocacy

 Good research followed by publicizing that research to clinicians, mothers and families

 Understanding that you have bigger stakes involved in working together than fighting over minor differences

"Facts are stubborn things; and whatever may be our wishes, our inclinations, or the dictates of our passion, they cannot alter the state of facts and evidence."

— John Adams, Massachusetts, 1788

Evidence is a necessary but not sufficient condition for change. The marrying of evidence with thoughtful communication and persistent activism will bring change.

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> Gene Declercq Hannover, 2016





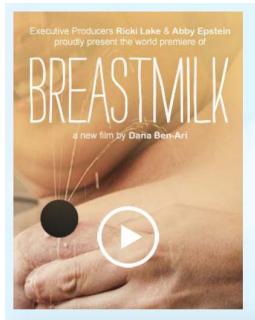
Questions & Comments?

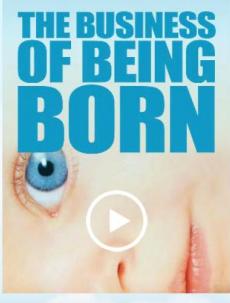
## Childbirth Advocacy Led by Mothers



http://www.choicesinchildbirth.org/

### Childbirth Advocacy Led by Mothers









- DVD of the original The Business of Being Born (view trailer)
- Boxed DVD set including all four episodes of More Business of Being Born
- Adorable, 100% cotton Moby Knot Hat for ages 0-6 months in your choice of dark brown, pink, teal, purple, tan, maroon, or orange! (view colors)
- Paperback copy of Your Best Birth by Ricki Lake and Abby Epstein
- The National Guide to a Healthy Birth



www.thebusinessofbeingborn.com/

#### Organizational Childbirth Advocacy







#### For Health Professionals

**Understanding & Navigating the** Maternity Care System

Transforming Maternity Care **Partnership** 

Choosing a Caregiver

Choosing a Place of Birth

Induction of Labor

Labor Support

Labor Pain

Cesarean Section

**Preventing Pelvic Floor** Dysfunction

VBAC or Repeat C-Section

**Planning Pregnancy** 

Pictures of Your Growing Body & Baby

Milbank Report: Evidence-Based Maternity Care

Listening to Mothers Surveys & Reports

Journey to Parenthood A Pregnancy Book

The Rights of Childbearing Women

**Quotes from Mothers** 

Best Pregnancy Resources A-Z

**Best Pregnancy Books** 

Best Pregnancy Videos

#### Listening to Mothers" III Pregnancy and Birth



Transforming Maternity Care Partnership **Evidence-Based Maternity Care** Resource Directory **Evidence Columns** Systematic Reviews

Milbank Report: Evidence-Based Maternity Care

Listening to Mothers Surveys & Reports

> Pregnancy Resources for Women

The Rights of Childbearing

https://www.childbirthconnection.org/







www.birthbythenumbers.org

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