

SAN DIEGO MOTHERS' MILK BANK

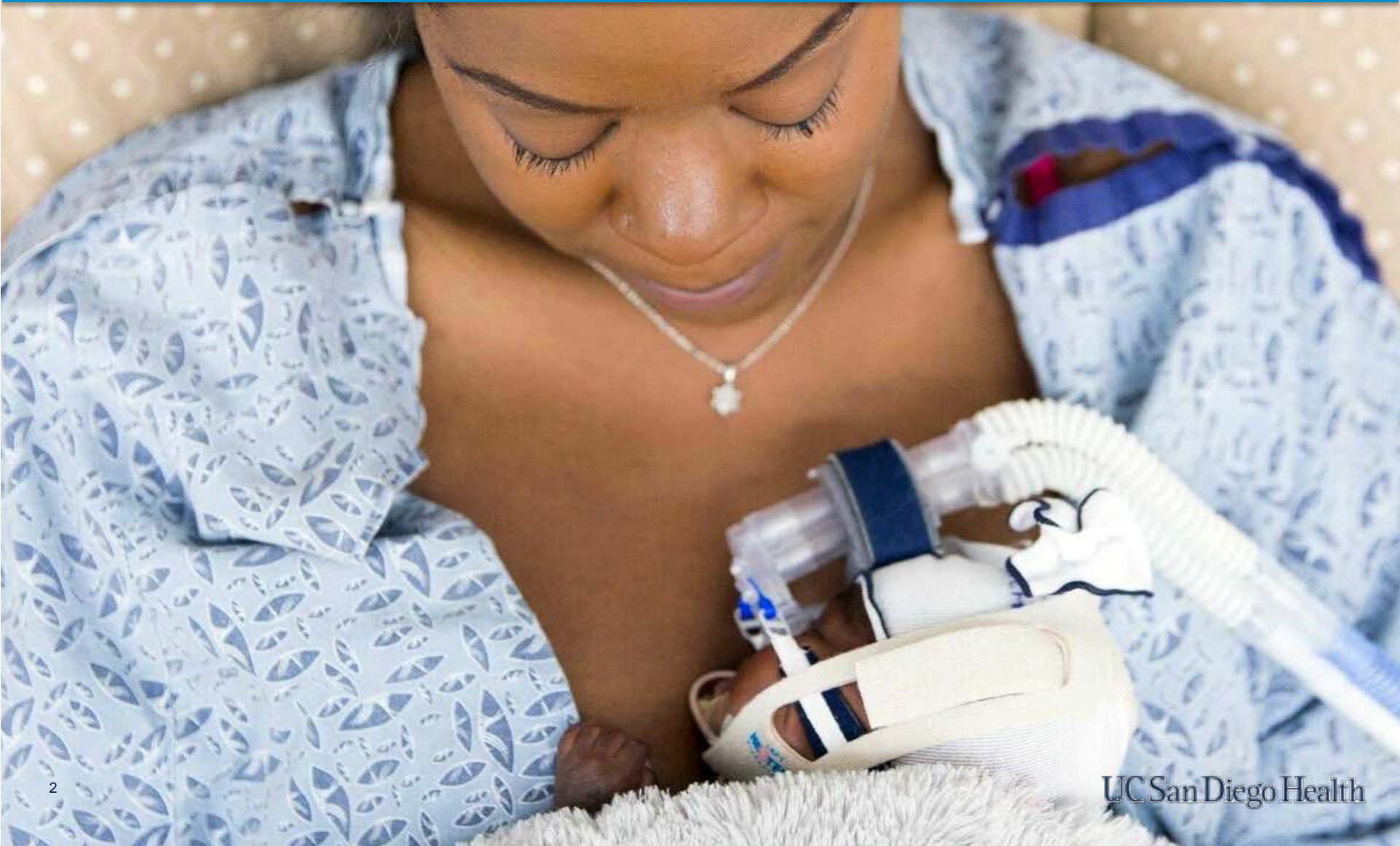
A Developing Milk Bank Opening 2019

UC San Diego Health

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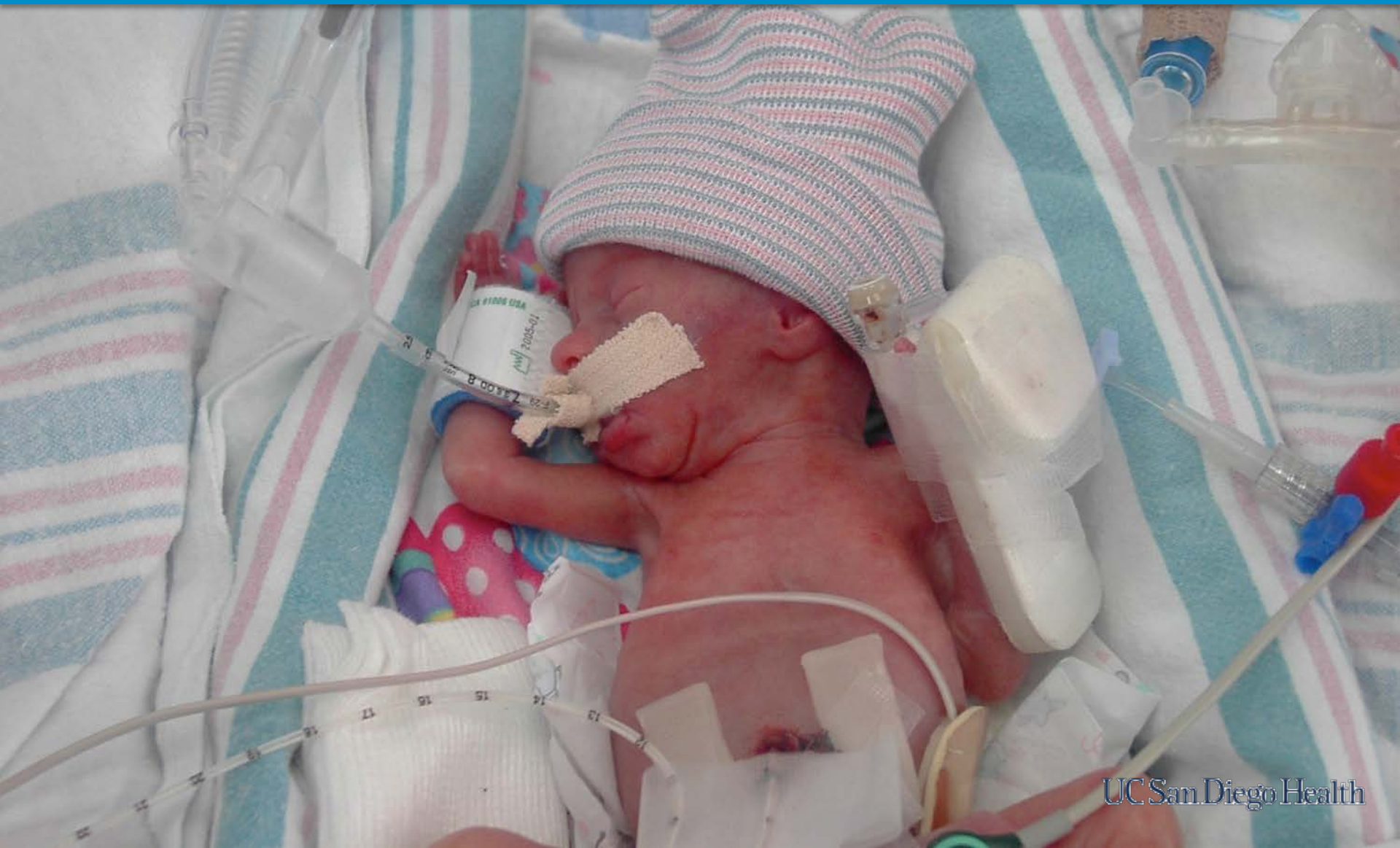
How Do We Improve The Health Of Our Most Fragile Infants?



Each Year 50,000 Very Low Birthweight Infants Are Born In The US



What We Feed Them Makes a BIG Difference!



The Burden of NEC - Necrotizing Enterocolitis



- 7% of infants born < 1500 gms
- Often happens just when baby is starting to stabilize and feed
- Extremely ill at diagnosis
- Bowel perforations common
- High mortality
- Prolonged IV nutrition
- Poor growth
- Risk of cerebral palsy
- 1% of infants born < 1000 grams lose their entire bowel

Impact Of Donor Milk Availability On Breastmilk Use And NEC Rates

- CPQCC (California Perinatal Quality Care Collaborative) data during 2007-2013 work on NICU human milk feeding project
- 42,532 infants in California NICUs
- DBM use ↑ 38% to 81%
- Breastmilk at DC ↑ 45% to 53%
- NEC rate ↓ 5.7% to 2.9%
- As a hospital implemented DBM use, breastmilk rate increased by 10% and NEC decreased by 2.6%

Milk and Donor Screening

Maternal process:

- Mothers donate voluntarily
- Screening questions
- Extensive secondary screening (like blood donation)
- Blood draw
- OB/Peds physician approval
- 100 ounce minimal donation
- Frozen milk (freezer clean-out)
- No substance use/medication use limited to vits/thyroid

Milk process:

- Shipped to bank frozen
- Thawed
- Analyzed for nutrients
- Pooled with 5 mothers' milks
- Bottled
- Pasteurized
- Cultured for bacteria
- Re-frozen
- Shipped to hospitals
- Price varies (approx \$5/ounce)

What Biologic Properties Are Maintained In PDHM?

Component	Maintained (>90%)	Maintained (50–90%)	Maintained (10–50%)	Abolished (<10%)
Macronutrients	Carbohydrate (Lactose, Oligosaccharides)	Protein Total fat		
Micronutrients	Calcium Copper Magnesium Phosphorus Potassium Sodium Zinc	Iron		
Vitamins	Vitamin A	Folate Vitamin B6 Vitamin C		
Biologically active (immune)	IL-8, IL-12p70, IL-13 TGF- α	IgA, sIgA IgG IGF-1, IGF-2 IGF-BP2,3 IFN- γ IL-1 β , IL-4, IL-5, IL-10 TGF- β Gangliosides	CD14 (soluble) IL-2 Lactoferrin-iron binding capacity Lysozyme	IgM Lymphocytes
Biologically active (metabolism)	Epidermal growth factor Heparin-binding growth factor	Adiponectin Amylase Insulin	Erythropoietin Hepatocyte growth factor	Bile salt-dependent lipase Lipoprotein lipase

Bioactive components are impacted to varying degrees by Holder pasteurization; some components remain intact, while cellular components are completely abolished. Ig, immunoglobulins; IGF, insulin-like growth factor; IFN- γ , interferon- γ ; IL, interleukin; TGF, transforming growth factor.

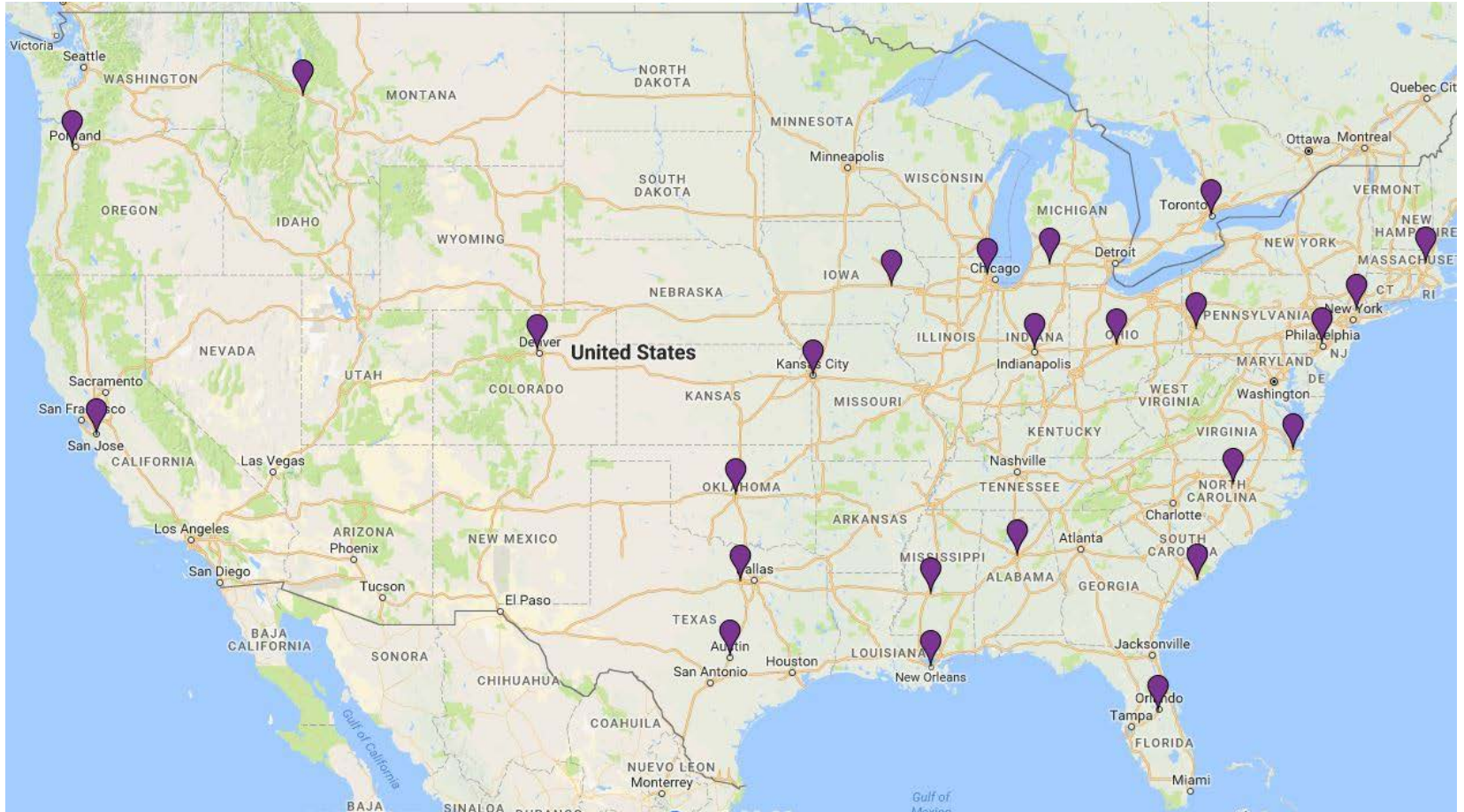
Mothers' Own Milk + Pasteurized Donor Milk
Lead To The Best Outcomes –
But There Is Currently Not Enough Donor Milk To Meet The Need



HUMAN MILK BANKING

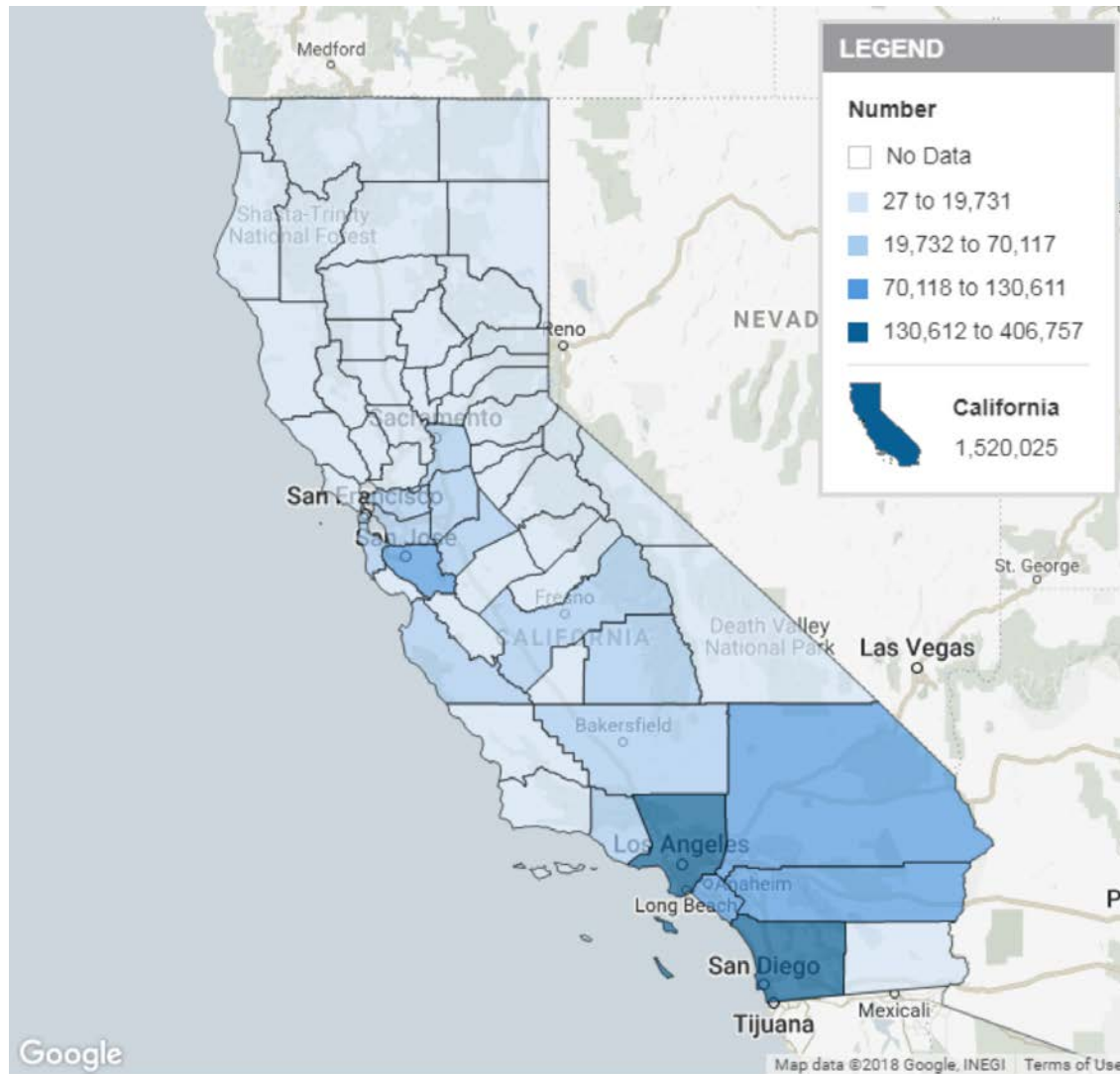
ASSOCIATION OF NORTH AMERICA

Mobilizing the Healing Power of Donor Milk



Child Population, by Age and Gender: 2016; Showing Counties

(Age: 0-2 Years; Gender: Total)



Definition: Estimated population under age 18, by age and gender (e.g., in 2016, an estimated 744,982 girls ages 0-2 lived in California).

Data Source: As cited on kidsdata.org, California Dept. of Finance, Race/Ethnic Population with Age and Sex Detail, 1990-1999, 2000-2010, 2010-2060; U.S. Census Bureau, Current Population Estimates, Vintage 2015 (Jun. 2016).

San Diego & California Breastfeeding Rates

- California WIC 2018
 - 390,000 births
 - Ever BF 93.8%
 - BF at 6 months 66.7% (CDC data)
 - BF at 12 months 40.2% (CDC data)
- San Diego WIC 2018
 - 32,423 births
 - Ever BF = 95.8%
- Five Baby-Friendly Hospitals:
 - UC San Diego Jacobs Medical Center
 - UC San Diego Medical Center- Hillcrest
 - Scripps Memorial Hospital Encinitas
 - Kaiser San Diego
 - Sharp Mary Birch Hospital



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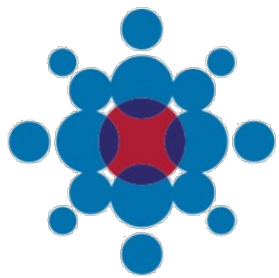
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UC San Diego Health

2016 & 2019 Philanthropic Gifts To UCSD Health To Promote Breastfeeding In San Diego And Open Milk Bank

- Community breastfeeding education
- Drive milk donations
- Ease the process of donation
- Universal access to donor milk for regional premature and ill infants
- Improve donor milk availability for term babies
- Collaborate to drive human milk research
- Use innovative messaging to improve awareness of milk donation

San Diego Blood Bank Partnership



San Diego
Blood Bank

UC San Diego Health

Thank You To Our Generous Milk Donors!



MothersMilk Mobile App



San Diego Mothers' Milk Bank @ UC San Diego Health

Goals:

- **Build our facility!**
- Open and operational Spring 2020
- Reach out to all area hospitals to inform new mothers about MothersMilk app
- Spread the word on social media
- Partner with Mothers' Milk Bank of Austin (Texas) until we open
- Collect milk at the San Diego Blood Bank Gateway Center
- Donate non clinical milk to UCSD's research milk lab

