



# Infertility

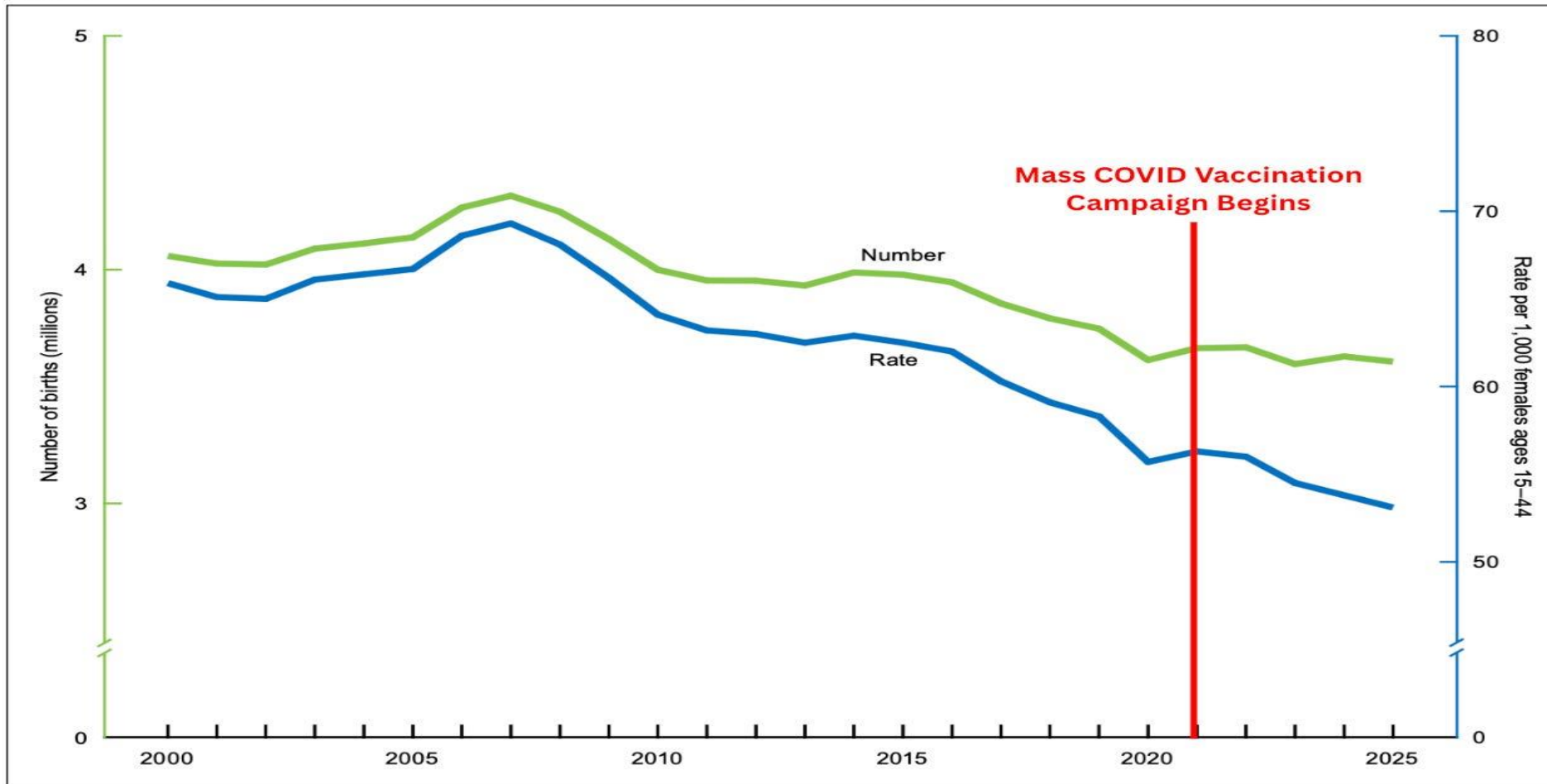
DR. KIMBERLY BISS

IMA SENIOR FELLOW, OBSTETRICS AND GYNECOLOGY

6/3/2026

## Births: Provisional Data for 2025

Figure 1. Number of live births and general fertility rate: United States, final 2000–2024 and provisional 2025



SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

RATE →  
53.1 births / 1K

Births → 3.61m

23% drop  
since 2007

5.7% drop  
since 2021

In US deaths  
are now  
exceeding  
births

# Infertility



# Infertility

## CAUSES

Anatomical

Systemic

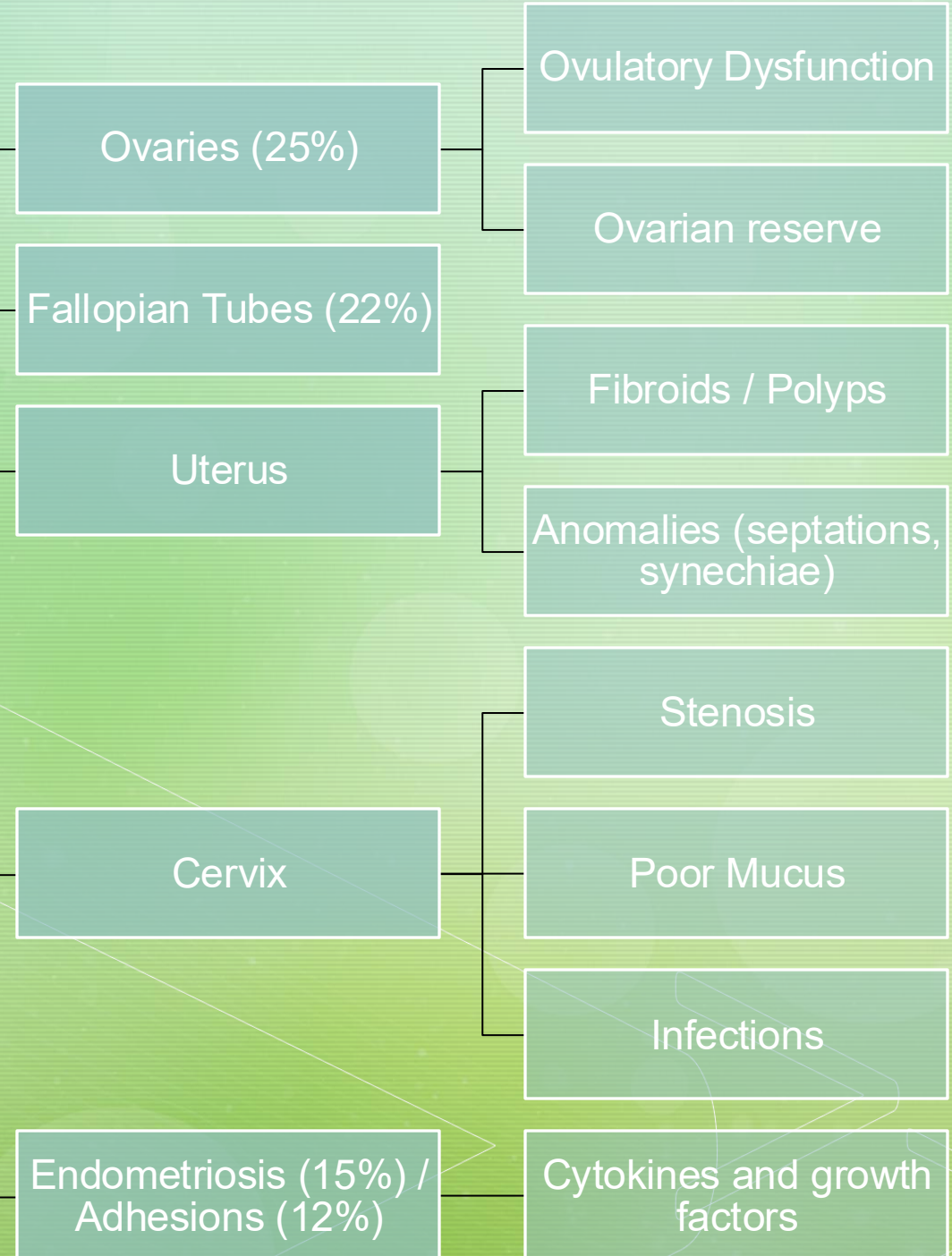
Genetic

Lifestyle and  
Exposures

Unexplained

# Infertility Female

## ANATOMICAL



# Infertility Female

## Ovulatory Dysfunction

Pituitary

- Stress / Exercise / Eating Disorder
- High Prolactin / lactation / tumors
- Trauma / Sheehan Syndrome
- Autoimmune

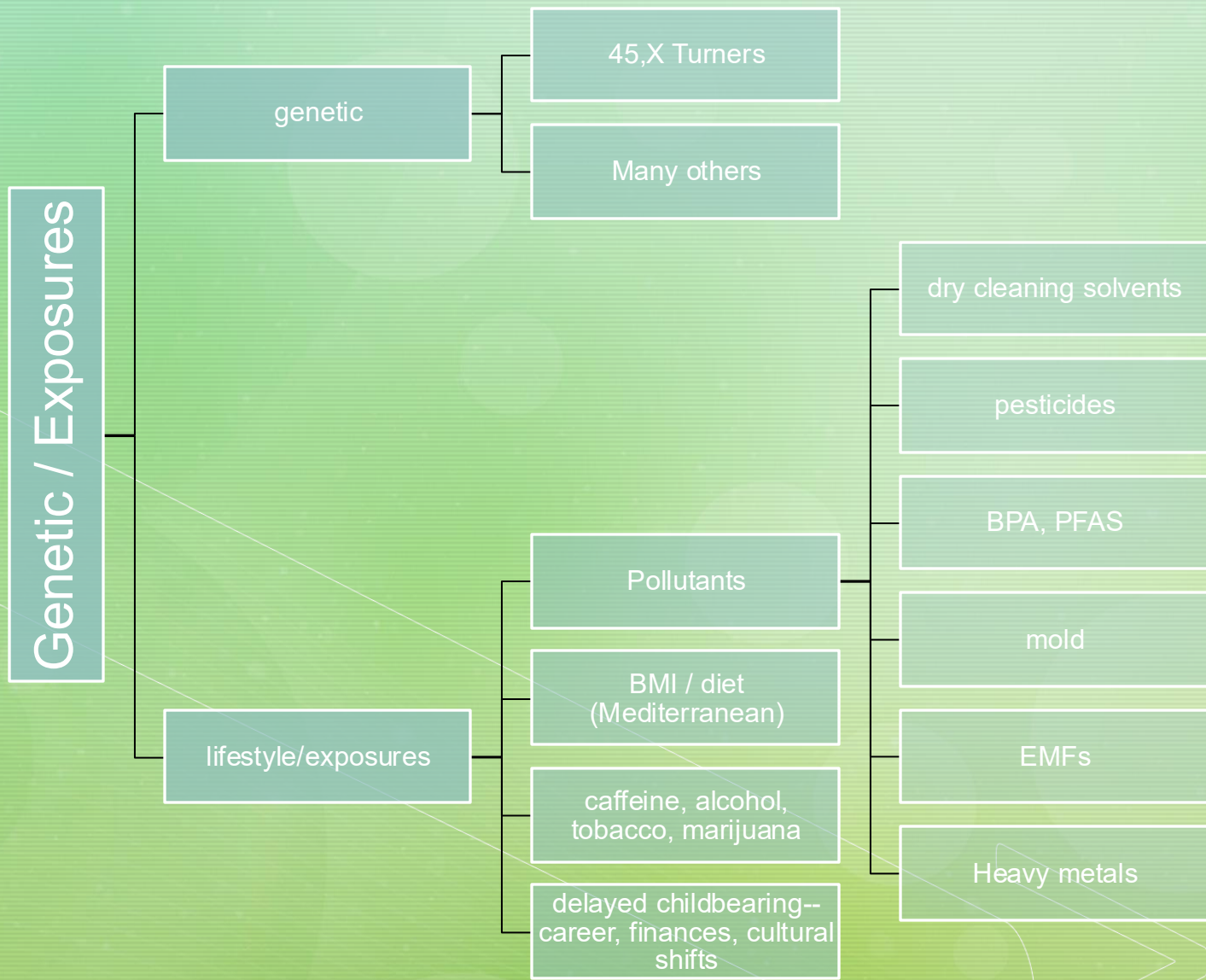
Ovary

- PCOS
- Ovarian Reserve / POF
- Tumors
- Exposures: Chemo, XRT, Drugs, Contraception

Systemic

- Thyroid / Adrenal
- Chronic liver / kidney disease / Celiac
- Autoimmune (SLE, MG)

# Infertility Female



# Infertility Male

## Anatomical

Testicular (70-80%)

Pituitary

Cryptorchidism

FSH / androgen receptor defects

Myotonic Dystrophies

Infection (mumps / TB / Leprosy / GC / CT)

Heat

Tumors

Sperm Transport (2-5%)

Vas, Epididymis, Ejaculation

Varicocele (Left)

Tumors

Trauma / Infarction

Autoimmune

Infiltrative (sarcoid, hemosiderin)

Drugs (psychotropic, opioids)

Sperm

Quantity

Oligospermia <15mil

Azoospermia zero

Motility

Asthenozoospermia

# Infertility Male

## Systemic

Endocrine (5-15%)

CKD, Malnutrition

Anti-sperm  
antibodies

Drugs

Pituitary

Hyperprolactinemia

Adrenal (Cushing's,  
CAH)

Thyroid

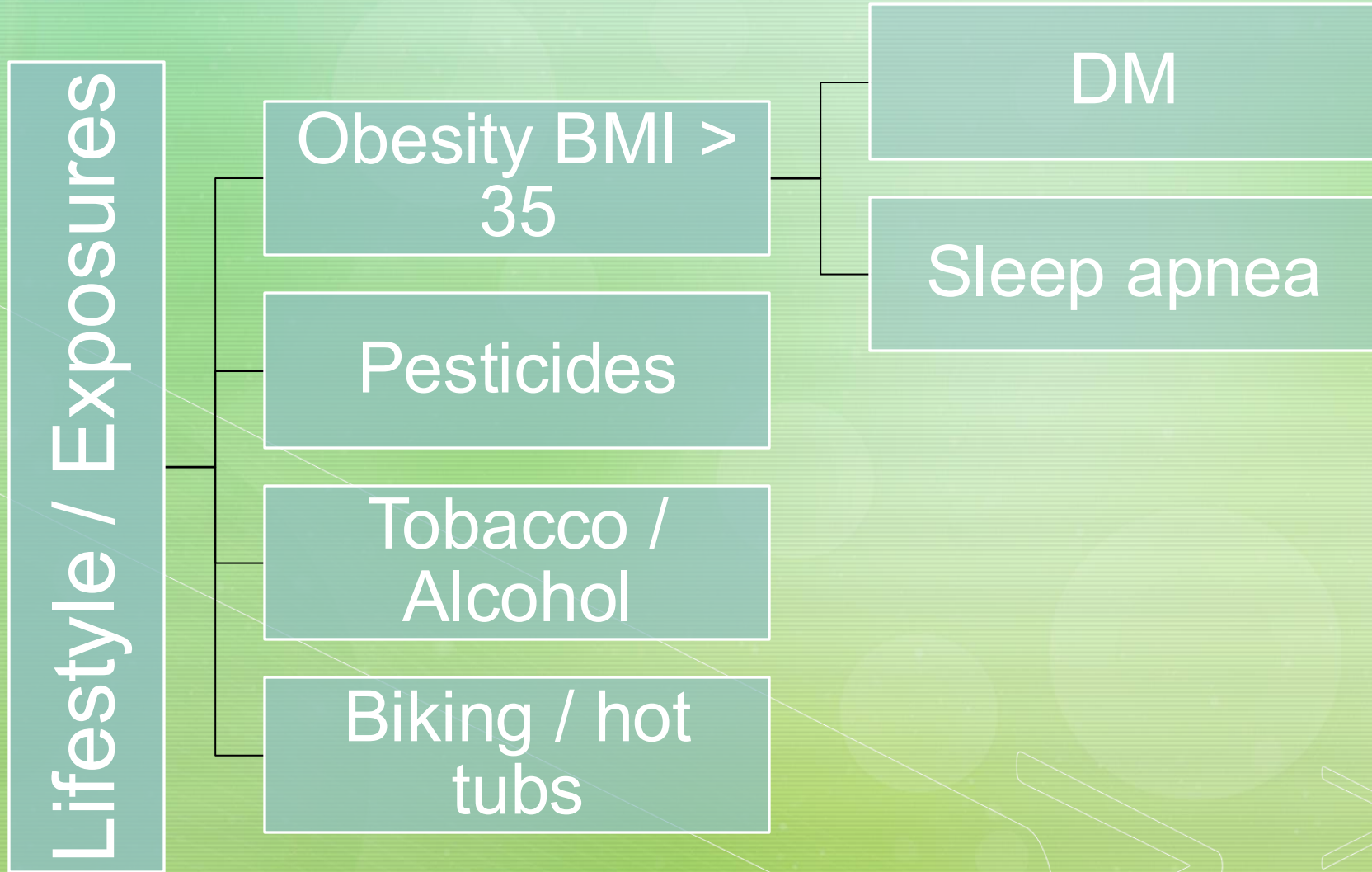
Chemo / radiation

Antiandrogens

Sulfasalazine

?? Marijuana

# Infertility Male



# What happened in 2021????



# Pfizer RAT Biodistribution of Lipidnanoparticles

Report Number: 185350

Sample	Total Lipid concentration (µg lipid equivalent/g [or mL]) (males and females combined)							% of Administered Dose (males and females combined)						
	0.25 h	1 h	2 h	4 h	8 h	24 h	48 h	0.25 h	1 h	2 h	4 h	8 h	24 h	48 h
Lymph node (mandibular)	0.064	0.189	0.290	0.408	0.534	0.554	0.727	--	--	--	--	--	--	--
Lymph node (mesenteric)	0.050	0.146	0.530	0.489	0.689	0.985	1.37	--	--	--	--	--	--	--
Muscle	0.021	0.061	0.084	0.103	0.096	0.095	0.192	--	--	--	--	--	--	--
Ovaries (females)	0.104	1.34	1.64	2.34	3.09	5.24	12.3	0.001	0.009	0.008	0.016	0.025	0.037	0.095
Pancreas	0.081	0.207	0.414	0.380	0.294	0.358	0.599	0.003	0.007	0.014	0.015	0.015	0.011	0.019
Pituitary gland	0.339	0.645	0.868	0.854	0.405	0.478	0.694	0.000	0.001	0.001	0.001	0.000	0.000	0.001
Prostate (males)	0.061	0.091	0.128	0.157	0.150	0.183	0.170	0.001	0.001	0.002	0.003	0.003	0.004	0.003
Salivary glands	0.084	0.193	0.255	0.220	0.135	0.170	0.264	0.003	0.007	0.008	0.008	0.005	0.006	0.009
Skin	0.013	0.208	0.159	0.145	0.119	0.157	0.253	--	--	--	--	--	--	--
Small intestine	0.030	0.221	0.476	0.879	1.28	1.30	1.47	0.024	0.130	0.319	0.543	0.776	0.906	0.835
Spinal cord	0.043	0.097	0.169	0.250	0.106	0.085	0.112	0.001	0.002	0.002	0.003	0.001	0.001	0.001
Spleen	0.334	2.47	7.73	10.3	22.1	20.1	23.4	0.013	0.093	0.325	0.385	0.982	0.821	1.03
Stomach	0.017	0.065	0.115	0.144	0.268	0.152	0.215	0.006	0.019	0.034	0.030	0.040	0.037	0.039
Testes (males)	0.031	0.042	0.079	0.129	0.146	0.304	0.320	0.007	0.010	0.017	0.030	0.034	0.074	0.074
Thymus	0.088	0.243	0.340	0.335	0.196	0.207	0.331	0.004	0.007	0.010	0.012	0.008	0.007	0.008
Thyroid	0.155	0.536	0.842	0.851	0.544	0.578	1.00	0.000	0.001	0.001	0.001	0.001	0.001	0.001
Uterus (females)	0.043	0.203	0.305	0.140	0.287	0.289	0.456	0.002	0.011	0.015	0.008	0.016	0.018	0.022
Whole blood	1.97	4.37	5.40	3.05	1.31	0.909	0.420	--	--	--	--	--	--	--
Plasma	3.97	8.13	8.90	6.50				--	--	--	--	--	--	--
Blood:Plasma ratio <sup>a</sup>	0.815	0.515	0.550	0.510				--	--	--	--	--	--	--

# Effects on Sperm:

Multicenter Study > *Andrology*. 2022 Sep;10(6):1016-1022. doi: 10.1111/andr.13209.

Epub 2022 Jun 27.

## Covid-19 vaccination BNT162b2 temporarily impairs semen concentration and total motile count among semen donors

Itai Gat <sup>1 2 3</sup>, Alon Kedem <sup>2 3 4</sup>, Michal Dviri <sup>5</sup>, Ana Umanski <sup>1</sup>, Matan Levi <sup>4</sup>, Ariel Hourvitz <sup>2 3</sup>, Micha Baum <sup>3 6</sup>

Affiliations + expand

PMID: 35713410 PMCID: PMC9350322 DOI: 10.1111/andr.13209

- Andrology Unit at Shamir Medical Center in Tzrifin, Israel
- Sperm concentration decreased by 15.4% 75-125 days after vaccination
- Total Motile Sperm count decreased by 22.1% 75-125 days after vaccination

# Pregnancy

> [Am J Obstet Gynecol.](#) 2024 Jan 31:S0002-9378(24)00063-2.  
doi: 10.1016/j.ajog.2024.01.022. Online ahead of print.

## "Transplacental Transmission of the COVID-19 Vaccine mRNA: Evidence from Placental, Maternal and Cord Blood Analyses Post-Vaccination"

Xinhua Lin <sup>1</sup>, Bishoy Botros <sup>1</sup>, Monica Hanna <sup>2</sup>, Ellen Gurzenda <sup>1</sup>,  
Claudia Manzano De Mejia <sup>1</sup>, Martin Chavez <sup>3</sup>, Nazeeh Hanna <sup>4</sup>

Affiliations + expand



PMID: 38307473

DOI: [10.1016/j.ajog.2024.01.022](https://doi.org/10.1016/j.ajog.2024.01.022)

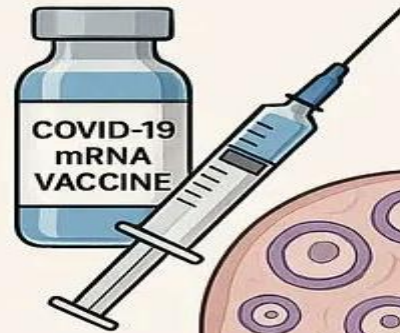
# Effects on Ovaries

Article

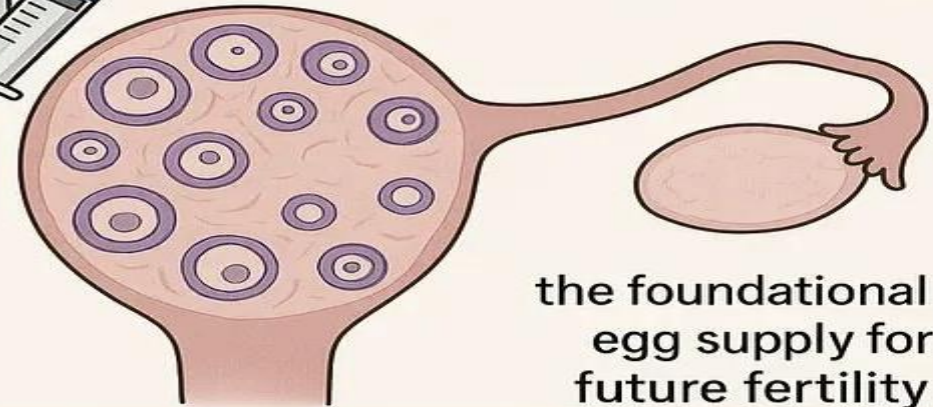
## Impact of mRNA and Inactivated COVID-19 Vaccines on Ovarian Reserve

Enes Karaman <sup>1,\*</sup>, Adem Yavuz <sup>2</sup>, Erol Karakas <sup>3</sup> , Esra Balcioglu <sup>4</sup>, Busra Karaca <sup>5</sup>, Hande Nur Doganay <sup>6</sup>, Koray Gorkem Sacinti <sup>7</sup>  and Orhan Yildiz <sup>8</sup>

### COVID-19 mRNA VACCINE DESTROYS PRIMORDIAL FOLLICLES



% REDUCTION  
**>60%**

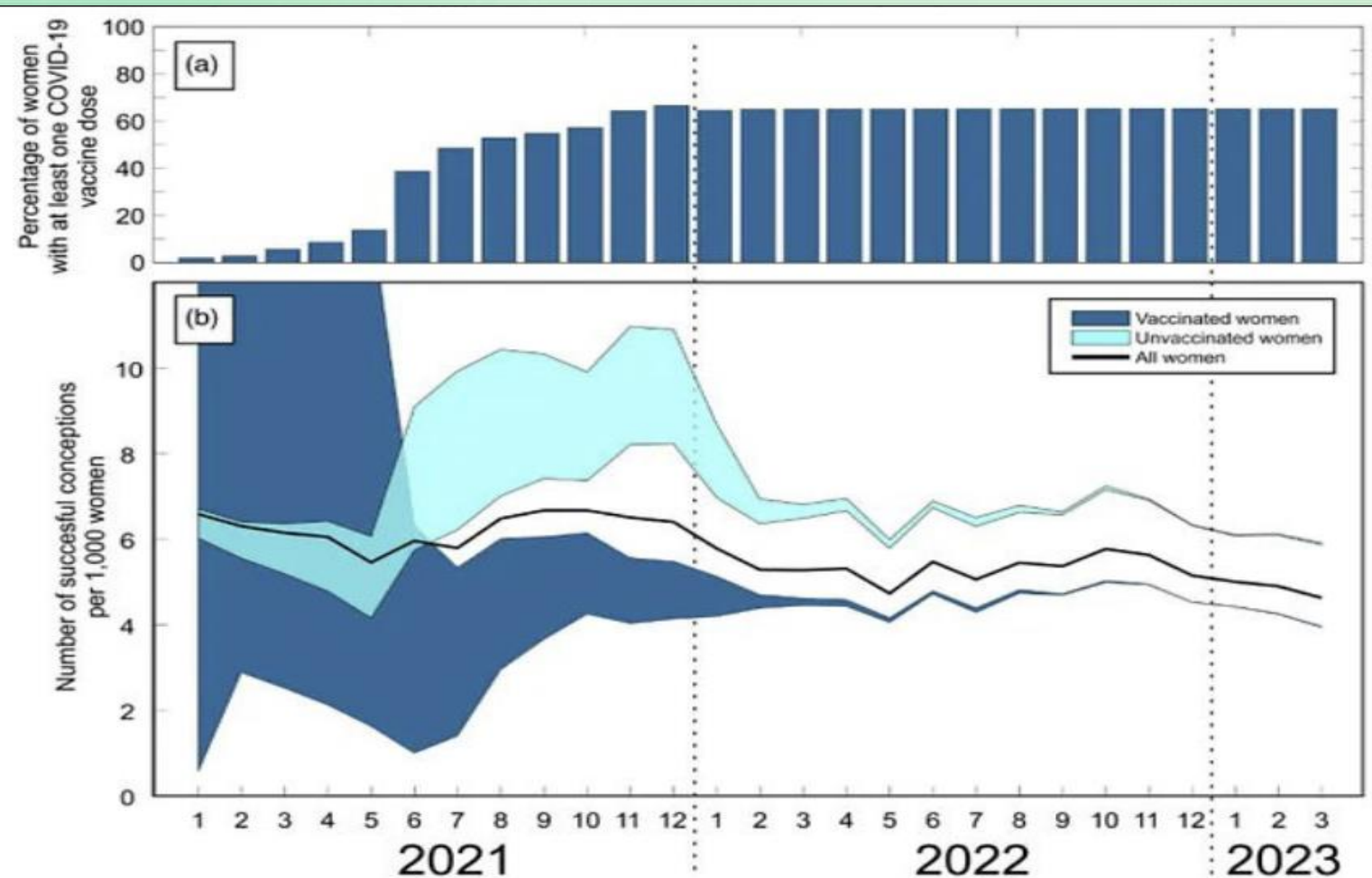


the foundational  
egg supply for  
future fertility

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12031016/>

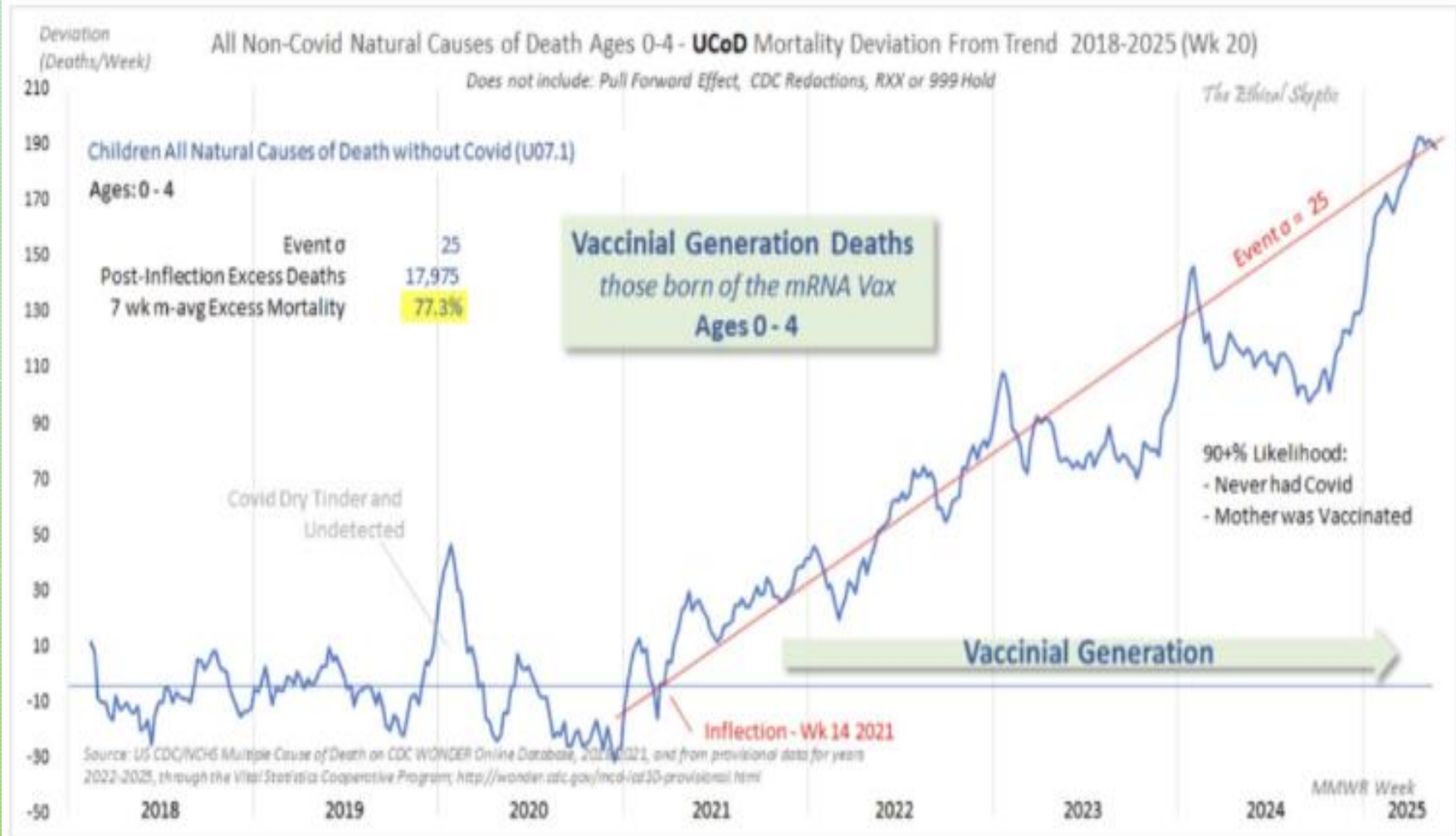
March 2025

# Effects on fertility



**Figure 1.** (a) Histogram showing the percentage of women in the Czech Republic aged 18–39 years who were vaccinated with at least one dose of a COVID-19 vaccine by the end of the respective month (January–December = 1–12 on the abscissa). (b) Estimates of the number of successful conceptions (SCs) per 1000 women aged 18–39 years according to preconception COVID-19 vaccination status, and SC rates for all these women, respectively. The blue-shaded areas in Figure 1(b) show the intervals between the lower and upper bounds for estimates of actual SC rates for women vaccinated (dark blue) and unvaccinated (light blue) before SC. The large initial divergence between the lower and upper bounds for estimated SC rates for vaccinated women was due to the small sample size, as indicated in Figure 1(a).

# Effects on the Babies (US)



**Chart 2 – All Natural Causes of Death in Ages 0 to 4 (born to vaccinated-at-any-time Mothers) – a total of 17,975 excess deaths have occurred in this cohort, representing a 77.3% deviation from the legacy trend in this class of mortality. Unlike the narrower infant categories shown in Chart 1, this chart captures all births occurring after the mRNA vaccination rollout. Wonder UCoD query exclusion inside all natural causes of death is shown in [this image](#).**

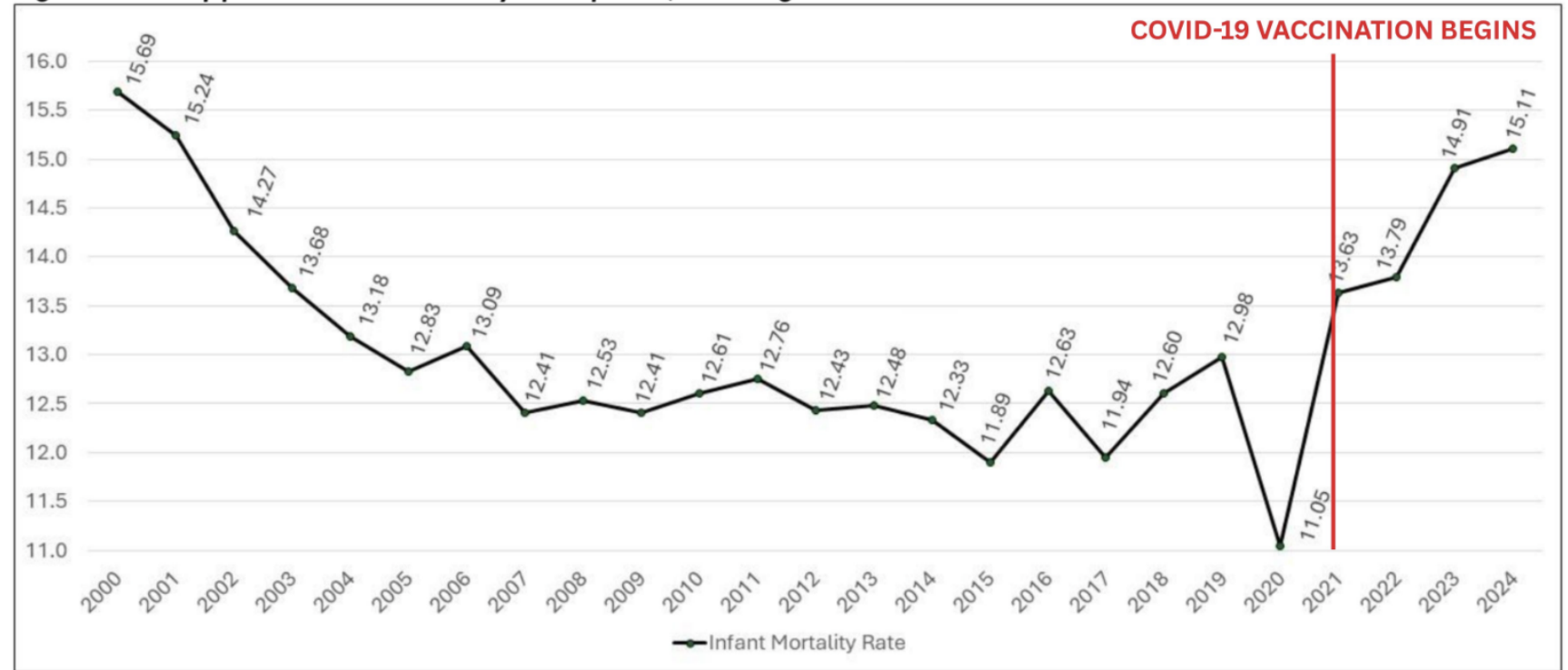


RESEARCH ARTICLE

## Global Implications of Vaccination and Rising Infant Mortality in the Philippines

Sally A. Clark BSc BOccThy <sup>a</sup>, Claire Rogers MSPAS PA-C <sup>b</sup>, Mila Radetich<sup>c</sup>, Nicolas Hulscher MPH <sup>d</sup>, Kirstin Cosgrove BM CCRA <sup>e</sup>, Breanne Craven MSPAS PA-C <sup>f</sup>, M. Nathaniel Mead MSc PhD <sup>g</sup>, James A Thorp, MD <sup>h</sup>

**Figure 2.** Philippines infant mortality rate per 1,000 registered live births 2000-2024



Effects  
on the  
Babies  
(Philippines)