

# Development of Infants Born to COVID-Positive Mothers

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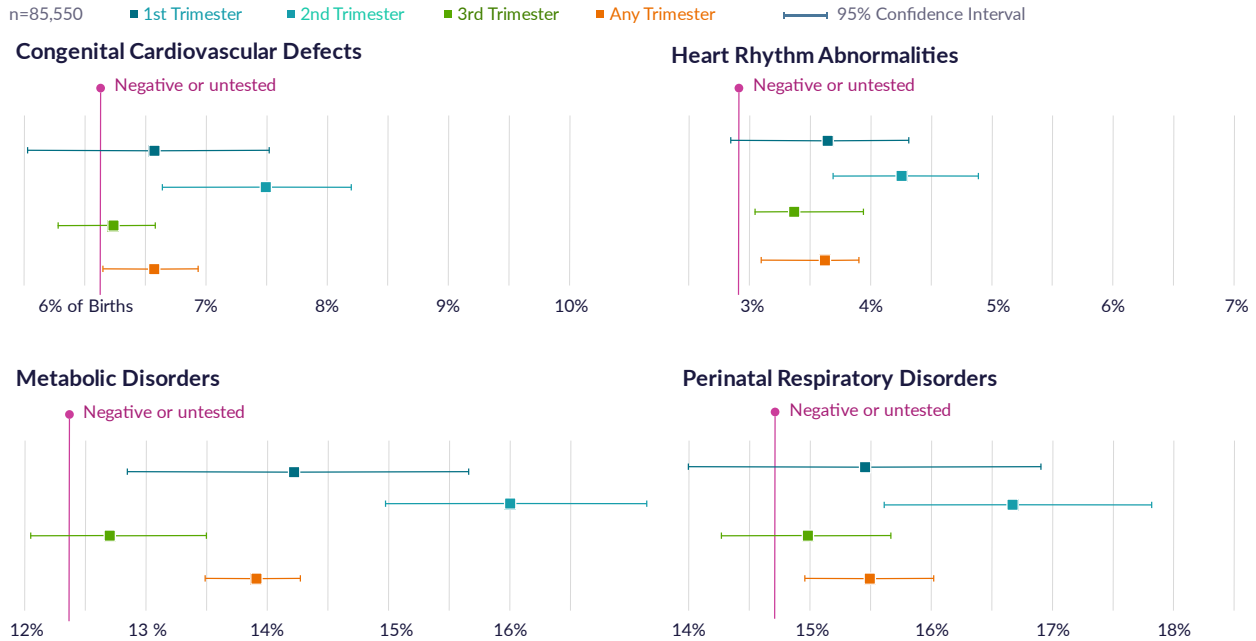
## Key Findings:

- COVID-19 infection during pregnancy does not appear to affect an infant's growth (height, weight, head circumference, and length-to-weight measurements) in the first year of life.
- However, babies born to women who had a COVID-19 infection during pregnancy showed slightly elevated rates of congenital cardiovascular defects, heart rhythm abnormalities, metabolic disorders, and perinatal respiratory disorders.

Recent studies have shown that COVID-19 diagnoses in pregnant women are not associated with higher rates of in utero fetal developmental diagnoses or poor outcomes in the first six to eight weeks of life.<sup>1,2</sup> We investigated first-year infant outcomes for 17,110 babies born to women who tested positive for COVID-19 during pregnancy (2,379 first trimester infections, 4,459 second trimester infections, and 10,272 third trimester infections) and compared them to 68,440 babies born to women who did not have a positive test or diagnosis. We assessed growth and 46 different developmental and congenital disorders for babies in their first year of life.

We found that in utero exposure to COVID-19 had no effect on an infant's growth, including height, weight, head circumference, and length-to-weight measurements. However, babies born to women with COVID-19 during pregnancy experienced congenital cardiovascular defects, heart rhythm abnormalities, metabolic disorders, and perinatal respiratory disorders at a slightly elevated rate compared to babies born to women who did not have COVID-19 during pregnancy. Rates of these conditions were most significantly elevated for babies born to women who were infected during the second trimester.

# Impact of COVID-19 In Utero Exposure on Developmental or Congenital Disorders in Infants



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Figure 1. The percentage of infants diagnosed with different conditions in their first year by COVID-19 positivity during pregnancy status and timing. Data for all conditions assessed (including those not shown above) can be found in the appendix.

These data come from Cosmos, a HIPAA-defined Limited Data Set of more than 180 million patients from 190 Epic organizations including 1,123 hospitals and more than 22,500 clinics, serving patients in all 50 states and Lebanon. This study was completed by two teams that worked independently, each composed of a clinician and data scientists. The two teams came to similar conclusions.

## References

1. Flaherman VJ, Afshar Y, Boscardin WJ, et al. Infant outcomes following maternal infection with severe acute respiratory syndrome coronavirus 2 (SARS-COV-2): First report from the Pregnancy Coronavirus Outcomes Registry (priority) study. *Clinical Infectious Diseases*. 2020;73(9). doi:10.1093/cid/ciaa1411
2. Son M, Gallagher K, Lo JY, et al. Coronavirus disease 2019 (COVID-19) pandemic and Pregnancy Outcomes in a U.S. population. *Obstetrics & Gynecology*. 2021;138(4):542-551. doi:10.1097/aog.0000000000004547

## Data Definitions

Term	Definition
<b>Infant's First Year</b>	Time from infant's birth through an encounter between months 10 and 14 with either a Z00.1* ICD-10-CM code, a CPT code of 99381, 99382, 99391, or 99392, or an encounter type of "Well Child."
<b>Babies Born During the Pandemic</b>	Babies born from April 1, 2020, through November 30, 2021, with a link to their mother's record and documented gestation date. The

	babies must have had one or more encounters between months 10 and 14 with either a Z00.1* ICD-10-CM code, a CPT code of 99381, 99382, 99391, or 99392, or an encounter type of “Well Child.”
<b>In Utero Exposure to COVID-19</b>	Babies Born During the Pandemic whose mother had a positive lab result for COVID-19 or a diagnosis for COVID-19 (ICD-10-CM code U07.1 or SNOMED-CT code 840539006) between the date of gestation and the date of birth.
<b>COVID Infants Population</b>	Babies Born During the Pandemic with In Utero Exposure to COVID-19 who are individually matched 1:4 with babies in the Control Population with matching U.S. Census Region, Residence SVI Quartile, and Maternal Age (with 3-year bands).
<b>Control Population</b>	Babies Born During the Pandemic without In Utero Exposure to COVID-19 who are individually matched 4:1 with babies in the COVID Babies Population with matching U.S. Census Region, Residence SVI Quartile, and Maternal Age (with 3-year bands).
<b>Conditions of Infancy</b>	<p>We investigated instances of the following diagnoses being documented on a baby in their first 14 months [Disease Category (ICD-10-CM code)]:</p> <ul style="list-style-type: none"> <li>• Adrenal Disorders (E27*)</li> <li>• Anemias (D55*, D56*, D57*, D58*, D59*, D6*, D70*, D71*, D72*, D73*, D74*, D75*, D76*, D77*)</li> <li>• Cancers (C*, D0*, D1*, D2*, D3*, D4*)</li> <li>• Cerebral Infarction (I63*)</li> <li>• Cerebral Palsy (G80*)</li> <li>• Congenital Brain/Spine Defect (Q00*, Q01*, Q02*, Q03*, Q04*, Q05*, Q06*, Q07*)</li> <li>• Congenital Cardiovascular Defects (Q20*, Q21*, Q22*, Q23*, Q24*, Q25*, Q26*, Q27*, Q28*)</li> <li>• Congenital Cleft Palate (Q35*, Q36*, Q37*)</li> <li>• Congenital Digestive Disorders (Q38*, Q39*, Q40*, Q41*, Q42*, Q43*, Q44*, Q45*)</li> <li>• Congenital Ear Malformations (Q16*, Q17*)</li>   <li>• Congenital Liver, Gallbladder, Bile Duct Malformations (Q44*)</li> <li>• Congenital Eye Malformations (Q10*, Q11*, Q12*, Q13*, Q14*, Q15*)</li> <li>• Congenital Respiratory Defects (Q30*, Q31*, Q32*, Q33*, Q34*)</li> <li>• Developmental Delays (F84*, R62*)</li> <li>• Diabetes (E10*)</li> <li>• Intraoperative and Postprocedural Complications and Disorders of the Respiratory System (J95*)</li> <li>• Motor Disorders (F82*)</li> <li>• Myocarditis / Cardiomyopathy (I40*, I41*, I42*, I43*)</li> <li>• Nutritional Deficiencies (E50*, E51*, E52*, E53*, E54*, E55*, E56*, E58*, E59*, E60*, E61*, E63*, E64*)</li> </ul>

- Neurologic Inflammatory Conditions (G00\*, G01\*, G02\*, G03\*, G04\*, G05\*, G06\*, G07\*, G08\*, G09\*, G10\*, G11\*, G12\*, G13\*, G14\*, G81\*, G82\*, G83\*)
- Other Congenital Malformations (Q\*)
- Other Diseases of the Pleura (J90\*, J91\*, J92\*, J93\*, J94\*)
- Perinatal Cardiovascular Disorders (P29\*)
- Perinatal Disturbances to Cerebral Status (P91\*)
- Perinatal Metabolic Disorders (P19\*)
- Perinatal Respiratory Disorders (P22\*, P23\*, P24\*, P25\*, P26\*, P27\*, P28\*)
- Pulmonary Hypertension (P29.30\*, I27.2\*, I27.0\*)
- Scholastic Disorders (F81\*)
- Speech Difficulties (R47\*)
- Speech Disorders (F80\*)
- Congenital Genital Defects (Q50\*, Q51\*, Q52\*, Q53\*, Q54\*, Q55\*, Q56\*)
- Congenital Musculoskeletal Defects (Q65\*, Q66\*, Q67\*, Q68\*, Q69\*, Q70\*, Q71\*, Q72\*, Q73\*, Q74\*, Q75\*, Q76\*, Q77\*, Q78\*, Q79\*)
- Congenital Skin Malformations (Q80\*, Q82\*, Q84\*, Q85\*)
- Congenital Urinary System Malformations (Q60\*, Q61\*, Q62\*, Q63\*, Q64\*)
- Gait Difficulty (R26\*)
- Hearing Loss (H90\*, H91\*)
- Heart Murmurs (R01\*)
- Heart Rhythm Abnormalities (R00\*)
- Jaundice (P55\*, P57\*, P58\*, P59\*, R17\*)
- Kidney Failure (N17\*, N18\*, N19\*)
- Malabsorption (K90\*)
- Malnutrition (E40\*, E41\*, E42\*, E43\*, E44\*, E45\*, E46\*)
- Metabolic Disorders (E70\*, E71\*, E72\*, E73\*, E74\*, E75\*, E76\*, E77\*, E78\*, E79\*, E80\*, E83\*, E84\*, E85\*, E86\*, E87\*, E88\*)
- Other Mental, Behavioral, and Neurodevelopmental Disorders (F\*)
- Seizures (G40\*)

**Adjusted 95% Confidence Interval** Due to the number of conditions studies, we used [the Bonferroni correction](#) to adjust to a 95% confidence interval.

**Table 1: Impact of COVID-19 In Utero Exposure on Developmental or Congenital Disorders in Babies (1<sup>st</sup> Trimester)**

Condition	Control		First Trimester					
	Pos.	Neg.	Total	Pos.	Neg.	Odds Ratio	CI Low	CI High
Adrenal Disorders	132	68,308	2,379	7	2,372	1.53	0.43	5.48
Anemias	5,319	63,121	2,379	169	2,210	0.91	0.69	1.19

Cancers	3,918	64,522	2,379	120	2,259	0.87	0.64	1.20
Cerebral Infarction	29	68,411	2,379	1	2,378	0.99	0.03	28.22
Cerebral Palsy	71	68,369	2,379	4	2,375	1.62	0.30	8.81
Congenital Brain/Spine Defect	882	67,558	2,379	34	2,345	1.11	0.62	1.98
<b>Congenital Cardiovascular Defects</b>	<b>4,212</b>	<b>64,228</b>	<b>2,379</b>	<b>156</b>	<b>2,223</b>	<b>1.07</b>	<b>0.81</b>	<b>1.41</b>
Congenital Cleft Palate	157	68,283	2,379	10	2,369	1.84	0.63	5.38
Congenital Digestive Disorders	5,383	63,057	2,379	197	2,182	1.06	0.82	1.36
Congenital Ear Malformations	633	67,807	2,379	27	2,352	1.23	0.64	2.36
Congenital Eye Malformations	1,954	66,486	2,379	74	2,305	1.09	0.74	1.62
Congenital Genital Defects	2,688	65,752	2,379	107	2,272	1.15	0.83	1.61
Congenital Muscularskelatal Defects	9,747	58,693	2,379	368	2,011	1.10	0.91	1.33
Congenital Respiratory Defects	1,470	66,970	2,379	67	2,312	1.32	0.87	2.00
Congenital Skin Malformations	8,512	59,928	2,379	311	2,068	1.06	0.86	1.30
Congenital Urinary System Malformations	1,120	67,320	2,379	38	2,341	0.98	0.56	1.69
Developmental Delays	7,770	60,670	2,379	275	2,104	1.02	0.82	1.27
Developmental disorders	19	68,421	2,379	1	2,378	1.51	0.05	44.35
Diabetes	10	68,430	2,379	1	2,378	2.88	0.09	90.86
Gait Difficulties	457	67,983	2,379	26	2,353	1.64	0.84	3.20
Hearing Loss	1,503	66,937	2,379	52	2,327	1.00	0.62	1.59
Heart Murmurs	4,659	63,781	2,379	183	2,196	1.14	0.88	1.48
<b>Heart Rhythm Abnormalities</b>	<b>2,000</b>	<b>66,440</b>	<b>2,379</b>	<b>86</b>	<b>2,293</b>	<b>1.25</b>	<b>0.86</b>	<b>1.80</b>
Intraoperative and postprocedural complications and disorders of the respiratory system	134	68,306	2,379	6	2,373	1.29	0.33	5.10
Jaundice	30,960	37,480	2,379	1,073	1,306	0.99	0.87	1.14
Kidney Failure	219	68,221	2,379	10	2,369	1.31	0.45	3.82
Malabsorption	2,548	65,892	2,379	105	2,274	1.19	0.85	1.67
Malnutrition	438	68,002	2,379	18	2,361	1.18	0.53	2.62
<b>Metabolic Disorders</b>	<b>8,475</b>	<b>59,965</b>	<b>2,379</b>	<b>338</b>	<b>2,041</b>	<b>1.17</b>	<b>0.96</b>	<b>1.43</b>
Motor Disorders	2,741	65,699	2,379	114	2,265	1.21	0.87	1.67
Myocarditis / Cardiomyopathy	74	68,366	2,379	3	2,376	1.17	0.17	8.11
Neurologic Inflammatory Conditions	171	68,269	2,379	5	2,374	0.84	0.19	3.75
Nutritional Deficiencies	1,049	67,391	2,379	44	2,335	1.21	0.73	2.02
Other Congenital Malformations	1,554	66,886	2,379	57	2,322	1.06	0.67	1.66
Other Mental, Behavioral, and Neurodevelopmental Disorders	1,569	66,871	2,379	48	2,331	0.88	0.54	1.43
Other Perinatal Complications	290	68,150	2,379	8	2,371	0.79	0.24	2.58
Other diseases of the pleura	1,554	66,886	2,379	57	2,322	1.06	0.67	1.66
Perinatal Cardiovascular Disorders	3,444	64,996	2,379	128	2,251	1.07	0.79	1.46
Perinatal Disturbances to Cerbral Status	368	68,072	2,379	15	2,364	1.17	0.49	2.80

Perinatal Metabolic Disorders	221	68,219	2,379	6	2,373	0.78	0.20	3.05
<b>Perinatal Respiratory Disorders</b>	<b>10,065</b>	<b>58,375</b>	<b>2,379</b>	<b>368</b>	<b>2,011</b>	<b>1.06</b>	<b>0.88</b>	<b>1.28</b>
Pulmonary Hypertension	240	68,200	2,379	9	2,370	1.08	0.35	3.31
Seizures	269	68,171	2,379	8	2,371	0.86	0.26	2.79
Speech Difficulties	82	68,358	2,379	3	2,376	1.05	0.15	7.29
Speech Disorders	952	67,488	2,379	36	2,343	1.09	0.62	1.91
Suppurative and necrotic conditions of the lower respiratory tract	9	68,431	2,379	0	2,379	0.00	-	-

**Table 2: Impact of COVID-19 In Utero Exposure on Developmental or Congenital Disorders in Babies (2<sup>nd</sup> Trimester)**

Condition	Control		Second Trimester					
	Pos.	Neg.	Total	Pos.	Neg.	Odds Ratio	CI Low	CI High
Adrenal Disorders	132	68,308	4,459	15	4,444	1.75	0.71	4.29
Anemias	5,319	63,121	4,459	359	4,100	1.04	0.86	1.25
Cancers	3,918	64,522	4,459	258	4,201	1.01	0.81	1.26
Cerebral Infarction	29	68,411	4,459	3	4,456	1.59	0.22	11.70
Cerebral Palsy	71	68,369	4,459	5	4,454	1.08	0.24	4.96
Congenital Brain/Spine Defect	882	67,558	4,459	74	4,385	1.29	0.87	1.93
<b>Congenital Cardiovascular Defects</b>	<b>4,212</b>	<b>64,228</b>	<b>4,459</b>	<b>333</b>	<b>4,126</b>	<b>1.23</b>	<b>1.01</b>	<b>1.50</b>
Congenital Cleft Palate	157	68,283	4,459	10	4,449	0.98	0.33	2.86
Congenital Digestive Disorders	5,383	63,057	4,459	379	4,080	1.09	0.91	1.31
Congenital Ear Malformations	633	67,807	4,459	46	4,413	1.12	0.67	1.85
Congenital Eye Malformations	1,954	66,486	4,459	143	4,316	1.13	0.84	1.51
Congenital Genital Defects	2,688	65,752	4,459	188	4,271	1.08	0.84	1.39
Congenital Muscularskelatal Defects	9,747	58,693	4,459	673	3,786	1.07	0.93	1.23
Congenital Respiratory Defects	1,470	66,970	4,459	110	4,349	1.15	0.83	1.60
Congenital Skin Malformations	8,512	59,928	4,459	585	3,874	1.06	0.91	1.24
Congenital Urinary System Malformations	1,120	67,320	4,459	90	4,369	1.24	0.86	1.78
Developmental Delays	7,770	60,670	4,459	551	3,908	1.10	0.94	1.29
Developmental disorders	19	68,421	4,459	1	4,458	0.81	0.03	23.65
Diabetes	10	68,430	4,459	0	4,459	0.00	-	-
Gait Difficulties	457	67,983	4,459	47	4,412	1.58	0.95	2.63
Hearing Loss	1,503	66,937	4,459	121	4,338	1.24	0.91	1.70
Heart Murmurs	4,659	63,781	4,459	306	4,153	1.01	0.82	1.23
<b>Heart Rhythm Abnormalities</b>	<b>2,000</b>	<b>66,440</b>	<b>4,459</b>	<b>189</b>	<b>4,270</b>	<b>1.47</b>	<b>1.14</b>	<b>1.90</b>
Intraoperative and postprocedural complications and disorders of the respiratory system	134	68,306	4,459	11	4,448	1.26	0.45	3.54

Jaundice	30,960	37,480	4,459	2,192	2,267	1.17	1.06	1.30
Kidney Failure	219	68,221	4,459	19	4,440	1.33	0.61	2.93
Malabsorption	2,548	65,892	4,459	206	4,253	1.25	0.98	1.60
Malnutrition	438	68,002	4,459	22	4,437	0.77	0.37	1.58
<b>Metabolic Disorders</b>	<b>8,475</b>	<b>59,965</b>	<b>4,459</b>	<b>715</b>	<b>3,744</b>	<b>1.35</b>	<b>1.18</b>	<b>1.55</b>
Motor Disorders	2,741	65,699	4,459	196	4,263	1.10	0.86	1.41
Myocarditis / Cardiomyopathy	74	68,366	4,459	7	4,452	1.45	0.39	5.34
Neurologic Inflammatory Conditions	171	68,269	4,459	13	4,446	1.17	0.45	3.01
Nutritional Deficiencies	1,049	67,391	4,459	76	4,383	1.11	0.75	1.65
Other Congenital Malformations	1,554	66,886	4,459	97	4,362	0.96	0.68	1.36
Other Mental, Behavioral, and Neurodevelopmental Disorders	1,569	66,871	4,459	101	4,358	0.99	0.70	1.39
Other Perinatal Complications	290	68,150	4,459	29	4,430	1.54	0.81	2.93
Other diseases of the pleura	1,554	66,886	4,459	97	4,362	0.96	0.68	1.36
Perinatal Cardiovascular Disorders	3,444	64,996	4,459	236	4,223	1.05	0.84	1.32
Perinatal Disturbances to Cerebral Status	368	68,072	4,459	23	4,436	0.96	0.47	1.95
Perinatal Metabolic Disorders	221	68,219	4,459	18	4,441	1.25	0.56	2.81
<b>Perinatal Respiratory Disorders</b>	<b>10,065</b>	<b>58,375</b>	<b>4,459</b>	<b>745</b>	<b>3,714</b>	<b>1.16</b>	<b>1.01</b>	<b>1.33</b>
Pulmonary Hypertension	240	68,200	4,459	17	4,442	1.09	0.48	2.49
Seizures	269	68,171	4,459	20	4,439	1.14	0.53	2.45
Speech Difficulties	82	68,358	4,459	5	4,454	0.94	0.21	4.27
Speech Disorders	952	67,488	4,459	72	4,387	1.16	0.78	1.75
Suppurative and necrotic conditions of the lower respiratory tract	9	68,431	4,459	2	4,457	3.41	0.26	44.72

**Table 3: Impact of COVID-19 In Utero Exposure on Developmental or Congenital Disorders in Babies (3<sup>rd</sup> Trimester)**

Condition	Control		Third Trimester					
	Pos.	Neg.	Total	Pos.	Neg.	Odds Ratio	CI Low	CI High
Adrenal Disorders	132	68,308	10,272	20	10,252	1.01	0.46	2.23
Anemias	5,319	63,121	10,272	862	9,410	1.09	0.96	1.23
Cancers	3,918	64,522	10,272	611	9,661	1.04	0.90	1.21
Cerebral Infarction	29	68,411	10,272	7	10,265	1.61	0.40	6.43
Cerebral Palsy	71	68,369	10,272	7	10,265	0.66	0.18	2.42
Congenital Brain/Spine Defect	882	67,558	10,272	118	10,154	0.89	0.64	1.23
<b>Congenital Cardiovascular Defects</b>	<b>4,212</b>	<b>64,228</b>	<b>10,272</b>	<b>643</b>	<b>9,629</b>	<b>1.02</b>	<b>0.88</b>	<b>1.18</b>
Congenital Cleft Palate	157	68,283	10,272	16	10,256	0.68	0.29	1.61
Congenital Digestive Disorders	5,383	63,057	10,272	816	9,456	1.01	0.89	1.15
Congenital Ear Malformations	633	67,807	10,272	106	10,166	1.12	0.79	1.58

Congenital Eye Malformations	1,954	66,486	10,272	281	9,991	0.96	0.77	1.18
Congenital Genital Defects	2,688	65,752	10,272	420	9,852	1.04	0.87	1.24
Congenital Muscularskelatal Defects	9,747	58,693	10,272	1,539	8,733	1.06	0.96	1.17
Congenital Respiratory Defects	1,470	66,970	10,272	205	10,067	0.93	0.72	1.19
Congenital Skin Malformations	8,512	59,928	10,272	1,352	8,920	1.07	0.96	1.18
Congenital Urinary System Malformations	1,120	67,320	10,272	180	10,092	1.07	0.82	1.40
Developmental Delays	7,770	60,670	10,272	1,136	9,136	0.97	0.87	1.08
Developmental disorders	19	68,421	10,272	5	10,267	1.75	0.34	9.17
Diabetes	10	68,430	10,272	1	10,271	0.67	0.02	21.02
Gait Difficulties	457	67,983	10,272	75	10,197	1.09	0.73	1.65
Hearing Loss	1,503	66,937	10,272	247	10,025	1.10	0.87	1.38
Heart Murmurs	4,659	63,781	10,272	733	9,539	1.05	0.92	1.20
<b>Heart Rhythm Abnormalities</b>	<b>2,000</b>	<b>66,440</b>	<b>10,272</b>	<b>349</b>	<b>9,923</b>	<b>1.17</b>	<b>0.96</b>	<b>1.42</b>
Intraoperative and postprocedural complications and disorders of the respiratory system	134	68,306	10,272	15	10,257	0.75	0.30	1.83
Jaundice	30,960	37,480	10,272	4,688	5,584	1.02	0.95	1.09
Kidney Failure	219	68,221	10,272	33	10,239	1.00	0.54	1.86
Malabsorption	2,548	65,892	10,272	434	9,838	1.14	0.96	1.36
Malnutrition	438	68,002	10,272	51	10,221	0.77	0.48	1.26
<b>Metabolic Disorders</b>	<b>8,475</b>	<b>59,965</b>	<b>10,272</b>	<b>1,320</b>	<b>8,952</b>	<b>1.04</b>	<b>0.94</b>	<b>1.16</b>
Motor Disorders	2,741	65,699	10,272	418	9,854	1.02	0.85	1.21
Myocarditis / Cardiomyopathy	74	68,366	10,272	11	10,261	0.99	0.34	2.87
Neurologic Inflammatory Conditions	171	68,269	10,272	20	10,252	0.78	0.36	1.70
Nutritional Deficiencies	1,049	67,391	10,272	193	10,079	1.23	0.95	1.60
Other Congenital Malformations	1,554	66,886	10,272	239	10,033	1.03	0.81	1.29
Other Mental, Behavioral, and Neurodevelopmental Disorders	1,569	66,871	10,272	209	10,063	0.89	0.69	1.13
Other Perinatal Complications	290	68,150	10,272	27	10,245	0.62	0.32	1.20
Other diseases of the pleura	1,554	66,886	10,272	239	10,033	1.03	0.81	1.29
Perinatal Cardiovascular Disorders	3,444	64,996	10,272	526	9,746	1.02	0.87	1.19
Perinatal Disturbances to Cerbral Status	368	68,072	10,272	58	10,214	1.05	0.66	1.67
Perinatal Metabolic Disorders	221	68,219	10,272	33	10,239	0.99	0.54	1.84
<b>Perinatal Respiratory Disorders</b>	<b>10,065</b>	<b>58,375</b>	<b>10,272</b>	<b>1,537</b>	<b>8,735</b>	<b>1.02</b>	<b>0.93</b>	<b>1.13</b>
Pulmonary Hypertension	240	68,200	10,272	38	10,234	1.06	0.59	1.88
Seizures	269	68,171	10,272	54	10,218	1.34	0.82	2.19
Speech Difficulties	82	68,358	10,272	13	10,259	1.06	0.40	2.82
Speech Disorders	952	67,488	10,272	137	10,135	0.96	0.71	1.30
Suppurative and necrotic conditions of the lower respiratory tract	9	68,431	10,272	1	10,271	0.74	0.02	23.77

**Table 4: Impact of COVID-19 In Utero Exposure on Developmental or Congenital Disorders in Babies (Any Trimester)**

Condition	Control		Any Trimester					
	Pos.	Neg.	Total	Pos.	Neg.	Odds Ratio	CI Low	CI High
Adrenal Disorders	132	68,308	17,110	42	17,068	1.27	0.71	2.28
Anemias	5,319	63,121	17,110	1,390	15,720	1.05	0.95	1.16
Cancers	3,918	64,522	17,110	989	16,121	1.01	0.90	1.14
Cerebral Infarction	29	68,411	17,110	11	17,099	1.52	0.47	4.87
Cerebral Palsy	71	68,369	17,110	16	17,094	0.90	0.36	2.24
Congenital Brain/Spine Defect	882	67,558	17,110	226	16,884	1.03	0.80	1.31
<b>Congenital Cardiovascular Defects</b>	<b>4,212</b>	<b>64,228</b>	<b>17,110</b>	<b>1,132</b>	<b>15,978</b>	<b>1.08</b>	<b>0.96</b>	<b>1.21</b>
Congenital Cleft Palate	157	68,283	17,110	36	17,074	0.92	0.50	1.69
Congenital Digestive Disorders	5,383	63,057	17,110	1,392	15,718	1.04	0.94	1.15
Congenital Ear Malformations	633	67,807	17,110	179	16,931	1.13	0.86	1.50
Congenital Eye Malformations	1,954	66,486	17,110	498	16,612	1.02	0.86	1.21
Congenital Genital Defects	2,688	65,752	17,110	715	16,395	1.07	0.93	1.23
Congenital Muscularskelatal Defects	9,747	58,693	17,110	2,580	14,530	1.07	0.99	1.16
Congenital Respiratory Defects	1,470	66,970	17,110	382	16,728	1.04	0.86	1.26
Congenital Skin Malformations	8,512	59,928	17,110	2,248	14,862	1.06	0.98	1.16
Congenital Urinary System Malformations	1,120	67,320	17,110	308	16,802	1.10	0.89	1.36
Developmental Delays	7,770	60,670	17,110	1,962	15,148	1.01	0.93	1.10
Developmental disorders	19	68,421	17,110	7	17,103	1.47	0.34	6.32
Diabetes	10	68,430	17,110	2	17,108	0.80	0.06	10.24
Gait Difficulties	457	67,983	17,110	148	16,962	1.30	0.95	1.77
Hearing Loss	1,503	66,937	17,110	420	16,690	1.12	0.93	1.35
Heart Murmurs	4,659	63,781	17,110	1,222	15,888	1.05	0.94	1.18
<b>Heart Rhythm Abnormalities</b>	<b>2,000</b>	<b>66,440</b>	<b>17,110</b>	<b>624</b>	<b>16,486</b>	<b>1.26</b>	<b>1.08</b>	<b>1.47</b>
Intraoperative and postprocedural complications and disorders of the respiratory system	134	68,306	17,110	32	17,078	0.96	0.50	1.83
Jaundice	30,960	37,480	17,110	7,953	9,157	1.05	0.99	1.11
Kidney Failure	219	68,221	17,110	62	17,048	1.13	0.71	1.82
Malabsorption	2,548	65,892	17,110	745	16,365	1.18	1.02	1.35
Malnutrition	438	68,002	17,110	91	17,019	0.83	0.57	1.21
<b>Metabolic Disorders</b>	<b>8,475</b>	<b>59,965</b>	<b>17,110</b>	<b>2,373</b>	<b>14,737</b>	<b>1.14</b>	<b>1.05</b>	<b>1.24</b>
Motor Disorders	2,741	65,699	17,110	728	16,382	1.07	0.93	1.23
Myocarditis / Cardiomyopathy	74	68,366	17,110	21	17,089	1.14	0.50	2.56
Neurologic Inflammatory Conditions	171	68,269	17,110	38	17,072	0.89	0.49	1.60
Nutritional Deficiencies	1,049	67,391	17,110	313	16,797	1.20	0.97	1.48

Other Congenital Malformations	1,554	66,886	17,110	393	16,717	1.01	0.84	1.22
Other Mental, Behavioral, and Neurodevelopmental Disorders	1,569	66,871	17,110	358	16,752	0.91	0.75	1.11
Other Perinatal Complications	290	68,150	17,110	64	17,046	0.88	0.56	1.39
Other diseases of the pleura	1,554	66,886	17,110	393	16,717	1.01	0.84	1.22
Perinatal Cardiovascular Disorders	3,444	64,996	17,110	890	16,220	1.04	0.91	1.18
Perinatal Disturbances to Cerebral Status	368	68,072	17,110	96	17,014	1.04	0.72	1.52
Perinatal Metabolic Disorders	221	68,219	17,110	57	17,053	1.03	0.63	1.68
<b>Perinatal Respiratory Disorders</b>	<b>10,065</b>	<b>58,375</b>	<b>17,110</b>	<b>2,650</b>	<b>14,460</b>	<b>1.06</b>	<b>0.98</b>	<b>1.15</b>
Pulmonary Hypertension	240	68,200	17,110	64	17,046	1.07	0.67	1.70
Seizures	269	68,171	17,110	82	17,028	1.22	0.80	1.85
Speech Difficulties	82	68,358	17,110	21	17,089	1.02	0.46	2.29
Speech Disorders	952	67,488	17,110	245	16,865	1.03	0.81	1.31
Suppurative and necrotic conditions of the lower respiratory tract	9	68,431	17,110	3	17,107	1.33	0.15	11.96