

Introduction

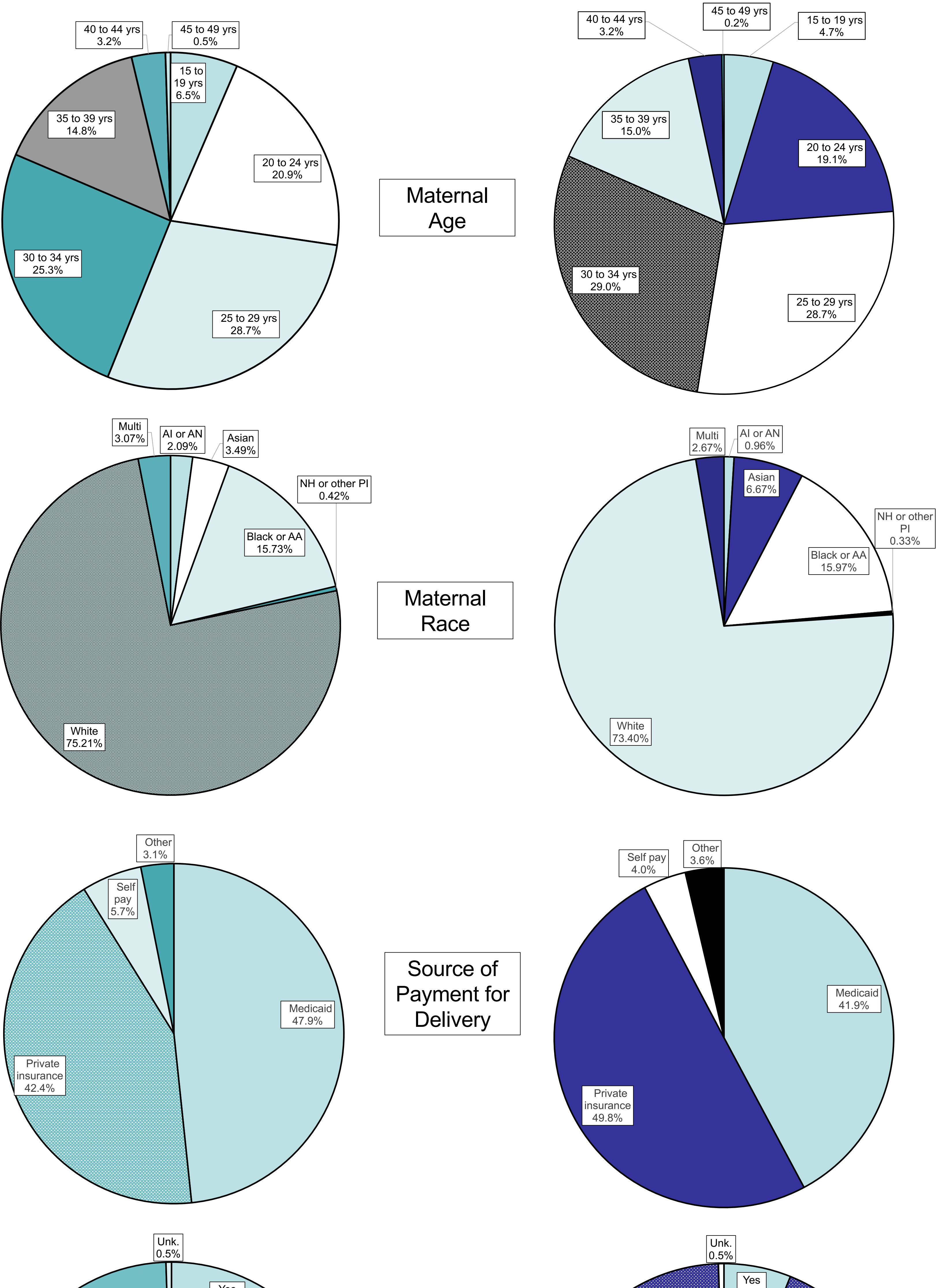
- Limb reduction defects (LRDs) are congenital anomalies which occur when there is a shortening or absence of an upper or lower limb which occurs during limb bud development in a fetus.
- Limb development begins around the 6th week of gestational age, with the upper limb appearing slightly before the lower limb [1] with growth of upper and lower limbs continuing through the second trimester.
- In the US, LRDs are one of the most common major birth defects and occur in approximately 1 out of every 1943 births [2].
- Limb Reduction Defects (LRDs) are congenital anomalies shown to be associated with maternal peripartum tobacco use.
- Here we investigate dose-dependence of limb reduction defects related to quantity of maternal peripartum smoking in relevant gestational periods.

Methods

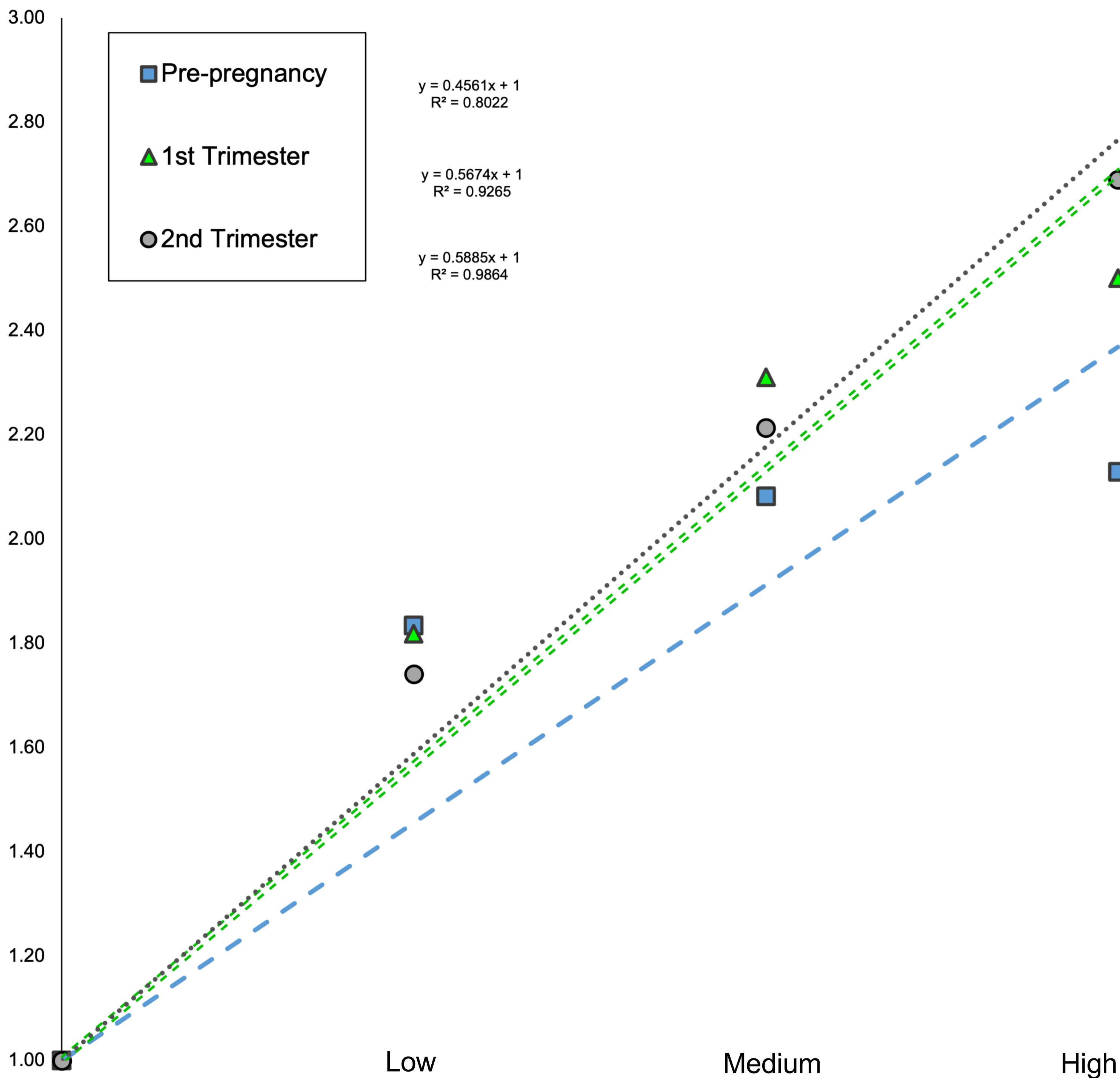
- Population-based data was extracted using the U.S. Natality database, which included maternal demographics, peripartum cigarette use, and presence of congenital defects. [3]
- Data for 22.8 million US births from 2016 to 2021 was examined and exported in aggregate, filtered by the presence of congenital anomaly of 'Limb Reduction Defect' and liveborn infants without limb reduction defects.
- Odds Ratios with confidence intervals were calculated to compare birth records with Limb

Results

Limb Reduction Defects	Population Controls
2,868 live births	22,580,115 live births



Limb Reduction Defects			
	Mantel-Haenszel Summary Odds Ratio		
Number of Cigarettes per day	Pre-Pregnancy	1 st Trimester	2 nd Trimester
0 (Nonsmoker)	Reference	Reference	Reference
1 to 5 cigarettes	1.835	1.819	1.741
6 to 10 cigarettes	2.082	2.311	2.214
11-20 cigarettes	2.129	2.501	2.69
MH χ^2 for linear trend	168.25	198.48	166.08
p-value	<0.0000001	<0.0000001	<0.0000001



Conclusions

Population-based data was used to solidify a dose-dependent relationship between quantity of maternal smoking and birth prevalence of LRDs. Increasing dosage of cigarette in relevant gestational periods suggested an increased likelihood of an infant being born with an LRD. Patients should be counseled that any