

**Supplementary Table 2. Summary of characteristics of included studies**

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>1</sup>	Abad et al. (2016)	Iran; Tehran	Pregnant women, N = 413; and newborns	Pregnancy (full term)	Longitudinal	Energy based pollution - Electromagnetic fields	Energy-based pollution - Observational/field data	Embryo - Abortive outcome Fetal/newborn - Birth weight and/or length - Preterm birth
<sup>2</sup>	Abelt et al. (2017)	USA; New York City	Pregnant women and newborn pairs (singleton births), N = 103,484	Pregnancy (full term)	Cohort retrospective	Neighbourhood built and natural environment features - Access to green/blue features (blue)	Neighbourhood built and natural environment features - Satellite measures - Model data	Fetal/newborn - Birth weight and/or length - Preterm birth
<sup>3</sup>	Acevedo et al. (2012)	Colombia; Cartagena	Pregnant women and child pairs (0 to 2 years), N = 326	Pregnancy (full term) Child (to 2 years)	Cohort prospective	Air pollution - Particulate matter Neighbourhood built and natural environment features - Proximity to pollution sources Residential living conditions - Dwelling - Indoor conditions (sanitation)	Air pollution - Self-reported data (questionnaire) Neighbourhood built and natural environment features - Self-reported data (questionnaire) Residential living conditions - Biomarkers - Self-reported data (questionnaire, dust samples)	Infant and child - Respiratory condition/disease (allergic) - Skin conditions (allergic)
<sup>4</sup>	Agudelo-Castaneda et al. (2017)	Brazil; Porto Alegre	Children (0 to 5 years), N = not reported	0 to 5 years	Cross-sectional	Air pollution - Other air pollutants (outdoor)	Air pollution - Stationary data (air quality monitors)	Child - Respiratory condition - Indicators of health risk (cancer)
<sup>5</sup>	Aminzadeh et al. (2010)	Iran; Ahvaz	Pregnant women newborn pairs (live births), N = 47075	Time of birth	Cross-sectional	Atmosphere - Temperature	Atmosphere - Stationary data (monitoring stations)	Fetal/newborn - Congenital developmental abnormalities

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>6</sup>	Anabitarte et al. (2020)	Spain; Donostia-San Sebastian	Pregnant women and newborns, N = 441	Pregnancy (1st and 2nd trimesters)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Gases</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Satellite measures</li> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
<sup>7</sup>	Anthopoulos et al. (2011)	USA; Winston-Salem, Durham, Greensboro, Raleigh, Charlotte	Pregnant women and newborns (singleton live births), N = 127,049	Pregnancy (full term)	Cross-sectional	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Residential segregation</li> </ul>	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
<sup>8</sup>	Arroyo et al. (2016)	Spain; Madrid	Pregnant women and newborns (singleton live births), N = 298,705	Pregnancy, 7 days prior to birth (any trimester)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Noise</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Stationary data (noise monitors)</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
<sup>9</sup>	Arroyo et al. (2019a)	Spain; 46 cities (the capital of each province)	Pregnant women and newborn pairs (live births), N = 1,594,991	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
<sup>10</sup>	Arroyo et al. (2019b)	Spain; 46 cities (the capital of each province)	Pregnant women and newborn pairs (preterm births <37 weeks).	Pregnancy (full term)	Cross-sectional	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
11	Asta et al. (2019)	Italy; Rome	Pregnant women and newborn pairs (singleton births), N = 56,576	Pregnancy (3rd trimester)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Heat</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green space</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Indoor conditions (crowding)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul> Neighbourhood built/natural environment conditions <ul style="list-style-type: none"> <li>- Model data</li> <li>- Satellite measures</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
12	Auger et al. (2011)	Canada; Montreal and Quebec City	Pregnant women and newborns pairs (live singleton births), N = 707,215	Pregnancy (full term)	Cohort retrospective	Energy based pollution <ul style="list-style-type: none"> <li>- Electromagnetic fields</li> </ul>	Energy based pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
13	Bai et al. (2018)	China; Hefei	Children aged 0 to 18 years	0 to 14 years	Cross-sectional	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> <li>- Humidity</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Child and adolescent <ul style="list-style-type: none"> <li>- Respiratory disease/conditions (infectious)</li> </ul>
14	Barat et al. (2017)	Iran; Tehran	Children under 5 years, N = 18	0 to 5 years	Qualitative study	Residential living conditions <ul style="list-style-type: none"> <li>- Indoor conditions (risk of injuries at home)</li> </ul>	Residential living conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Physical injuries</li> </ul>
15	Barba-Vasseur et al. (2017)	France; Besancon and Dijon	Pregnant women and newborn pairs, N = 1506 (n=302 cases and n=1204 controls)	Pregnancy (1st trimester)	Case-controlled	Air pollution <ul style="list-style-type: none"> <li>- Gases</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Noise</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Energy-based pollution <ul style="list-style-type: none"> <li>- Observational/field data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
16	Bastek et al. (2015)	USA; Philadelphia	Pregnant women and live singleton newborn pairs, N = 817	Not available	Cohort prospective	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Quality of neighbourhood environment</li> <li>- Community population characteristics</li> <li>- Quality of social environment</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Administrative records (geocoded)</li> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
17	Bose et al. (2017)	USA; Boston	Pregnant women and child (0 to 6 years) pairs (singleton live births), N = 752	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Child <ul style="list-style-type: none"> <li>- Respiratory disease/conditions (allergic)</li> </ul>
18	Bose et al. (2019)	Mexico; Mexico City	Pregnant women, N = 397 and child (4-5 yrs) pairs, N = 397 (full term live births)	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Child <ul style="list-style-type: none"> <li>- Mental health and sleep disorders (sleep)</li> </ul>
19	Britton et al. (2013)	USA; specific cities not reported	Pregnant women and newborn pairs (singleton live births); African American (N = 400,718), Mexican-origin (N = 552,382)	Pregnancy (full term)	Cross-sectional	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Residential segregation</li> </ul>	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
20	Bueno et al. (2013)	Brazil; Curitiba	Children (<5 years), N not reported	0 to 5 years	Cross-sectional	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Quality of neighbourhood environment (sustainable development indicators)</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Death</li> </ul>
21	Buxton et al. (2020)	Mexico; Mexico City	Pregnant women and newborn pairs (N = 1216)	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
22	Cao et al. (2016)	China; Wuhan and Xiaogan	Pregnant women and newborns (singleton live births), N = 1184	Pregnancy (full term)	Cohort prospective	Chemical and metal exposure - Chemical exposure (indoor)	Residential living conditions - Biomarkers - Self-reported data (questionnaires)	Fetal/newborn - Birth weight and/or length - Preterm birth
23	Capobussi et al. (2016)	Italy; Como	Pregnant women and newborns (live births), N = 44,541	Pregnancy (full term)	Cohort prospective	Air pollution - Particulate matter - Gases	Air pollution - Model data	Fetal/newborn - Birth weight and/or length - Preterm birth
24	Casey et al. (2016)	USA; Pennsylvania	Pregnant women and newborn pairs (singleton births), N = 16,913	Pregnancy (full term)	Cohort prospective	Neighbourhood built and natural environment features - Access to green/blue features	Neighbourhood built and natural environment features - Model data - Satellite measures	Fetal/newborn - Birth weight and/or length - Preterm birth - Newborn general health (Apgar)
25	Cassidy-Bushrow et al. (2020)	USA; Detroit	Pregnant women and newborn pairs (singleton births), N = 7,961	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Preterm birth
26	Chang et al. (2015)	USA; Atlanta	Pregnant women and newborn pairs (singleton births), N = 175,891	Pregnancy (2nd trimester)	Cohort prospective	Air pollution - Particulate matter	Air pollution - Personal monitors	Fetal/newborn - Preterm birth
27	Chang et al. (2018)	South Korea; Seoul, Cheon-an and Ulsan	Pregnant women and child (0 to 3 years) pairs, N = 383	Pregnancy (2nd trimester)	Cohort prospective	Air pollution - Gases	Air pollution - Stationary data (air quality monitors)	Child - Neurodevelopmental disorders or conditions (behavioural)

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
28	Chastang et al. (2015)	France; Bordeaux, Clermont-Ferrand, Paris, Marseille, Strasbourg, and Reims	Primary school aged children (ages 8-14 years) (N = 5,221)	Pregnancy (full term) and children (1 year and at time of study)	Cross-sectional	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter (tobacco smoke)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Neurodevelopmental disorders or conditions (behavioural)</li> </ul>
29	Chen et al. (2018)	China; Shanghai, Nanjing, Chongqing, Changsha, Urumqi, and Taiyuan	Children (mean age 4.6 years), N = 30,759 residing in rural/suburban and urban areas	0 to 5 years	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Child <ul style="list-style-type: none"> <li>- Respiratory diseases or conditions (allergic)</li> </ul>
30	Cherian et al. (2018)	USA; Baltimore, Boston, New York and St Louis	Pregnant women and child (1 to 7 years) pairs, N = 442	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Quality of social environment (social stress)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Respiratory disease/conditions (allergic)</li> </ul>
31	Chiu et al. (2017)	USA; Boston	Pregnant women and child pairs (singleton births $\geq$ 37 weeks gestation), N = 239	Pregnancy (full term)	Cross-sectional	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Child <ul style="list-style-type: none"> <li>- Endocrine, nutritional or metabolic conditions</li> </ul>
32	Choi et al. (2018)	South Korea; Seoul, Anyang, Ansan, Jeju	Pregnant women and newborn pairs, N = 116	Pregnancy (full term)	Cross-sectional	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Chemical (pesticides)</li> </ul>	Residential living conditions <ul style="list-style-type: none"> <li>- Biomarkers</li> <li>- Self-reported data (questionnaires)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Indicator of health risk</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
33	Christian et al. (2017)	Australia; Perth	Children (4 to 6 years), N = 23,395	0 to 5 years	Cohort retrospective	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> <li>- Quality of neighbourhood environment</li> <li>- Access to services (child-relevant)</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Outdoor conditions</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> <li>- Satellite measures</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Observational/field data</li> </ul>	Child <ul style="list-style-type: none"> <li>- Indicators of health risk</li> <li>- Neurodevelopmental disorders or conditions (developmental maturity)</li> </ul>
34	Cowell et al. (2018)	USA; New York City	Pregnant women and newborn pairs, N = 327	Pregnancy (2nd trimester)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul> Chemical and metal exposure <ul style="list-style-type: none"> <li>- Chemical exposure</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Indoor conditions (sanitation)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul> Chemical exposure <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Indicators of health risk</li> </ul>
35	Cowell et al. (2019)	USA; Boston	Pregnant women and infant pairs, N = 237	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Cardiovascular conditions/functioning</li> </ul>
36	Cowell et al. (2020)	USA; Boston and New York City	Pregnant women and newborn pairs, N = 100	Pregnancy (full term)	Cross-sectional	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Heavy metals</li> <li>- Other metals</li> </ul>	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Biomarkers</li> <li>- Self-reported data (questionnaires)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Indicators of health risk</li> </ul>
37	Cusack et al. (2017a)	USA; Houston, San Antonio, Dallas and Austin	Pregnant women and newborns, N = 3,026,603 (births)	Pregnancy (full term)	Cohort retrospective	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> <li>- Satellite measures</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
38	Cusack et al. (2017b)	USA; Austin and Portland	Pregnant women and newborns, N = 179,072	Pregnancy (full term)	Cohort retrospective	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> <li>- Satellite measures</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
39	Cusack et al. (2018)	Canada; Vancouver, Edmonton, Winnipeg and Toronto	Pregnant women and newborn pairs, N = 2,510	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Gases</li> <li>- Particulate matter</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Noise</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> <li>- Quality of neighbourhood environment</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Neighbourhood built/natural environment conditions <ul style="list-style-type: none"> <li>- Model data</li> <li>- Satellite measures</li> <li>- Administrative units</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
40	da Paz et al. (2012)	Brazil: Sao Paulo	Infants (0 to 2 years), N = 817	0 to 2 years	Cross-sectional	Residential living conditions <ul style="list-style-type: none"> <li>- Dwelling</li> <li>- Indoor (sanitation)</li> </ul>	Residential living conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaire)</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Digestive system conditions (infectious disease)</li> </ul>
41	Dadvand et al. (2014)	Spain; Barcelona	Pregnant women and newborn pairs (singleton births full term $\geq 37$ weeks), N = 6438	Pregnancy (full term)	Cross-sectional	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Heat</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Noise</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Model data</li> <li>- Satellite measures</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
42	Darrow et al. (2011)	USA; Atlanta	Pregnant women (at least 37 weeks gestation) and newborn pairs (singleton births), N = 406,627	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
43	Dastoorpoor et al. (2020)	Iran; Ahvaz	Pregnant women and newborn pairs, N = unclear	Pregnancy (full term)	Time series	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Death</li> </ul>



Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
44	Davila Cordova et al. (2020)	Peru; Lima	Children (< 5 years), N = 3,099,438	1 week prior to presenting to a health center for respiratory disease	Time series	Air pollution - Particulate matter	Air pollution - Stationary data (air quality monitors) - Model data	Child - Respiratory diseases/conditions
45	de Assis Araujo et al. (2020)	Brazil; Rio de Janeiro	Pregnant women and newborn pairs (live births), N = 117	Pregnancy (3rd trimester) Infant (0 to 6 months)	Cohort prospective	Chemical and metal exposure - Heavy metals	Chemical and metal exposure - Biomarkers	Fetal/newborn - Indicators of health risk
46	de Lima et al. (2014)	Brazil; Sao Jose dos Campos	Pregnant women and preterm infants, N = 769	Pregnancy (up to 30 days before preterm birth)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Preterm birth
47	De Roos et al. (2020)	USA; Philadelphia	Children (0 to 18 years): 0 to <2, N = 4473 2 to <5, N = 11200 5 to <12, N = 14256 12 to <18, N = 5111	Same day of hospital presentation and up to 5 days lagged	Case-crossover	Air pollution - Particulate matter	Air pollution - Stationary data (air quality monitors)	Child and adolescent - Respiratory diseases/conditions
48	Debbink et al. (2011)	USA; Detroit and Michigan	Pregnant women and newborn pairs (singleton live births), N = 109,238	Pregnancy (full term)	Cohort retrospective	Neighbourhood community conditions - Residential segregation (racial)	Neighbourhood community conditions - Model data	Fetal/newborn - Intrauterine growth restriction - Birth weight and/or length - Preterm birth
49	Dedele et al. (2017)	Lithuania; Kaunas	Pregnant women and newborn pairs (N = 3,292)	Pregnancy (1st trimester)	Cohort retrospective	Air pollution - Gases	Air pollution - Model data	Fetal/newborn - Birth weight and/or length - Preterm birth

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
50	Deguen et al. (2018)	France; Paris	Pregnant women and newborn pairs (preterm births, <37 weeks), N = 4,871	Pregnancy (Perinatal)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Gases</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (socioeconomic status)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
51	Deguen et al. (2020)	France; Paris	Pregnant women and newborns (singleton births), N = 86,877	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (socioeconomic status)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> <li>- Death</li> </ul>
52	Diaz et al. (2016)	Spain; Madrid	Pregnant women and newborns (singleton births), N = 298,705	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Noise</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Energy-based pollution <ul style="list-style-type: none"> <li>- Observational/field data</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
53	Dos Reis et al. (2017)	Brazil; Volta Redonda City	Pregnant women with newborns, N = 12,541	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> <li>- Humidity</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
54	Dostal et al. (2013)	Czech Republic; Ostrava	Children (0 to 5 years), N = 1,535	0 to 5 years	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Other air pollutants (outdoor)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Death</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
55	Duarte et al. (2010)	USA; 18 cities	Child (3 years), N = 1,997	0 to 3 years	Longitudinal	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Quality of neighbourhood environment</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Dwelling</li> <li>- Indoor conditions</li> </ul>	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> <li>- Observational/field data</li> </ul>	Child <ul style="list-style-type: none"> <li>- Endocrine, nutritional or metabolic conditions</li> </ul>
56	Dunea et al. (2016)	Romania; Targoviste	Infant/child (0 to 2 years, N = 21 Child (3 to 5 years), N = 55 Child (6 to 10 years), N = 35	0 to 10 years	Longitudinal	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Respiratory disease/condition (allergic)</li> </ul>
57	Edwards (2014)	USA; Washington DC	Pregnant women and infants (<1.3 years) (live and still birth), N = not specified	Pregnancy (full term)	Cohort retrospective (ecological)	Chemical and metal exposures <ul style="list-style-type: none"> <li>- Heavy metals</li> </ul>	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Sample collection from environmental media</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Death</li> <li>- Indicators of health risk</li> </ul>
58	Fang et al. (2020)	China; Tianjin	Pregnant women and newborn pairs (live births), N = 10,738	Pregnancy (full term)	Longitudinal	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
59	Fang-Hua et al. (2020)	China; Liaoning Province	Pregnant women and newborns (live and still births), N = 11036	Preconception and pregnancy (1st trimester)	Case-control	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Congenital developmental abnormalities</li> </ul>
60	Fleisch et al. (2017)	USA; Boston	Pregnant women and newborn pairs (singleton live births), N = 1,418	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Quality of neighbourhood environment</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Cardiovascular conditions/functioning</li> <li>- Endocrine, nutritional or metabolic conditions (biochemical markers)</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
61	Franca et al. (2018)	Brazil; Sao Paulo	Children with juvenile idiopathic arthritis, N = 66 (up to about 6 years old) (age- and sex-matched controls, N = 124)	Pregnancy (full term) Child (to diagnosis)	Case-controlled	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> <li>- Stationary data (air quality monitors)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Musculoskeletal diseases</li> </ul>
62	Gern et al. (2012)	USA; Boston, Baltimore, New York City, St Louis, Madison	Infants ( $\leq 1$ year) N = 800 (n=515 inner-city; n=285 suburban)	Infants ( $\leq 1$ year)	Cohort prospective	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Geographic region (inner city)</li> </ul>	Residential living conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Respiratory disease/conditions (allergic)</li> </ul>
63	Ghasemi-Tehrani et al. (2017)	Iran; Isfahan	Pregnant women and newborns, N = 312	Pregnancy (1st trimester)	Cross-sectional	Air pollution <ul style="list-style-type: none"> <li>- Other air pollutants (perceived)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
64	Gianicolo et al. (2014)	Italy; Brindisi	Pregnant women and newborns (0-28 days), N = 189	Pregnancy (1 <sup>st</sup> trimester)	Case-controlled	Air pollution <ul style="list-style-type: none"> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Congenital developmental abnormalities</li> </ul>
65	Giordano et al. (2010)	Italy; Rome	Pregnant women and child (0-24 months) pairs, N = 160	Pregnancy (full term)	Case-controlled	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Chemical exposure (endocrine disrupting chemicals)</li> <li>- Heavy metals</li> </ul>	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> <li>- Biomarkers</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Congenital developmental abnormalities</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>66</sup>	Giorgis-Allemand et al. (2017)	Netherlands; Amsterdam, Hungary; Gyor Sweden; Stockholm, England; Bradford, Denmark; Copenhagen, France; Nancy and Poitiers, Italy; Rome	Pregnant women with singleton births, N = 71,493	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> <li>- Humidity</li> <li>- Atmospheric pressure</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
<sup>67</sup>	Giurgescu et al. (2012)	USA; Chicago	Pregnant women and newborns, N = 72 (33 with preterm birth, 39 with full-term birth)	Pregnancy (full term)	Cross-sectional (comparative)	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Quality of neighbourhood environment</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Quality of social environment (crime)</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> <li>- Administrative units (geocoded)</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> <li>- Administrative units (geocoded)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
<sup>68</sup>	Gouveia et al. (2018)	Mexico; Mexico City Chile; Santiago Brazil; Sao Paulo and Rio de Janeiro	Children and adolescents (1 to 14 years), N = 10,673	Over 8 years	Time series retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Child and adolescent <ul style="list-style-type: none"> <li>- Respiratory disease/condition</li> <li>- Death</li> </ul>
<sup>69</sup>	Grafova et al. (2019)	Russia; Moscow	Pregnant women and infants (live births), N not provided)	Pregnancy (full term)	Cohort retrospective	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (socioeconomic status)</li> </ul>	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Death</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
70	Grazuleviciene et al. (2015)	Lithuania; Kaunas	Pregnant women and newborn pairs (singleton births), N = 3292	Pregnancy (full term)	Cohort prospective	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> <li>- Satellite measures</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> <li>- Birth weight</li> </ul>
71	Grossman (2019)	USA; Chicago, New York and Philadelphia	Pregnant women and newborns (singleton births), N not provided)	Pregnancy (full-term)	Cross-sectional (comparative)	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Residential segregation (empowerment zones)</li> </ul>	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units (geocoded)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
72	Gulson et al. (2014)	Australia; Sydney	Children (<5 years), N = 108	0 to 5 years	Longitudinal	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul> Chemical and metal exposure <ul style="list-style-type: none"> <li>- Heavy metals</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Biomarkers</li> </ul> Chemical and metal exposure <ul style="list-style-type: none"> <li>- Biomarkers</li> <li>- Sample collection from environmental media</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Indicators of health risk</li> </ul>
73	Guo et al. (2019)	China; Dongguan, Foshan, Guangzhou, Huizhou, Jiangmen, Shenzhen, Zhaoqing, Zhongshan, and Zhuhai	Pregnant women and newborn pairs (singleton live births), N = 1,098,600	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
74	Gurgel et al. (2016)	Brazil; Aracaju, Salvador, Recife, and Maceio	Infants and children (0 to 24 months), N = 507	0 to 24 months	Cross-sectional	Atmosphere <ul style="list-style-type: none"> <li>- Rainfall</li> <li>- Temperature</li> <li>- Humidity</li> </ul>	Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Respiratory condition/disease</li> </ul>
75	Hao et al. (2019)	China; Huangshi	Pregnant women and newborn pairs (singleton births), N = 4,194	Pregnancy (full term)	Cross-sectional (comparative)	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
76	Harris et al. (2011)	Ecuador; Quito	Children (18 to 42 months), N = 821	1.5 to 3.5 years	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Respiratory conditions/disease (infectious)</li> <li>- Endocrine, nutritional or metabolic conditions</li> </ul>
77	He et al. (2018)	China; Zhengzhou	Pregnant women and newborns pairs, N = 527	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Indicators of disease risk (cord blood)</li> </ul>
78	He et al. (2020)	China; Yulin	Children (0 to 6 years) N = 229	0 to 6 years	Cohort retrospective	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Heavy metals</li> <li>- Other metals</li> </ul>	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Sample collection from environmental media</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Indicators of health risk (lead)</li> </ul>
79	Hoeppner et al. (2017)	Australia; Brisbane, Perth, Melbourne  New Zealand; Auckland	Infants (2 to 12 months), N = 3,876	2 to 12 months	Cohort retrospective	Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> <li>- Humidity</li> <li>- Atmospheric pressure</li> </ul>	Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Respiratory disease/condition (infectious)</li> </ul>
80	Hunt et al. (2011)	USA; Syracuse	Infants (<1 year), N = 103	<1 year	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Sample collection from environmental media</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Respiratory disease/condition (allergic)</li> </ul>
81	Huynh et al. (2011)	Vietnam; Ho Chi Minh City	Children (4 to 5 years), N = 526	4 to 5 years	Cohort prospective	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (socioeconomic status)</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to services/facilities</li> <li>- Access to green/blue features</li> </ul>	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> <li>- Neighbourhood built and natural environment features</li> <li>- Self-reported data (questionnaires)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Endocrine, nutritional or metabolic conditions</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>82</sup>	Huynh et al. (2013)	USA; New York City	Pregnant women and newborn pairs (singleton births), N = 126,165	Pregnancy (full term)	Cohort retrospective	Neighbourhood community conditions - Community population characteristics (socioeconomic status)	Neighbourhood community conditions - Administrative units	Fetal/newborn - Preterm birth
<sup>83</sup>	Hystad et al. (2014)	Canada; Vancouver	Pregnant women and newborn pairs (singleton births) N = 64,705	Pregnancy (full term)	Cohort retrospective	Air pollution - Gases - Particulate matter Energy based pollution - Noise Neighbourhood built and natural environment features - Access to green/blue features - Quality of neighbourhood environment	Air pollution - Model data (land use regression) Energy-based pollution - Model data Neighbourhood built and natural environment features - Model data - Satellite measures	Fetal/newborn - Birth weight and/or length - Preterm birth
<sup>84</sup>	Ileka-Priouzeau et al. (2015)	Canada; Quebec City	Pregnant women and newborn pairs (singleton births, N = 1,430 (small for gestational age, n=330; control, n=1,100)	Pregnancy (3rd trimester)	Case-controlled	Chemical and metal exposure - Chemical exposure	Chemical and metal exposure - Sample collection from environmental media - Model data - Self-reported data (questionnaires)	Fetal/newborn - Birth weight and/or length
<sup>85</sup>	Iniguez et al. (2016)	Italy; Rome, Spain; Valencia	Children (<15 years), N not reported	0 to 5 years	Time series retrospective	Atmosphere - Temperature	Atmosphere - Stationary data (monitoring stations)	Child - Respiratory diseases or conditions (hospitalisations) - Digestive system conditions (hospitalisations)
<sup>86</sup>	Itagaki et al. (2019)	Japan; Fukushima	Pregnant women and child (2 years) pairs, N = 236	Pregnancy (full term) Child (0 to 2 years)	Cross-sectional	Energy based pollution - Radiation	Chemical and metal exposure - Self-reported data (questionnaires)	Child - Neurodevelopmental disorders or conditions (behavioural)



Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>89 87</sup>	Janevic et al. (2010)	USA; New York City	Pregnant woman and newborn (singleton live births) pairs, N = 517,994	Pregnancy (full term)	Cohort retrospective	Neighbourhood community conditions - Community population characteristics (socioeconomic status)	Neighbourhood community conditions - Model data - Administrative units (geocoded)	Fetal/newborn - Birth weight and/or length - Preterm birth
<sup>88</sup>	Jedrychowski et al. (2011a)	Poland; Krakow	Pregnant women and child pairs, N = 224	Pregnancy (from 2nd trimester) Child (0 to 5 years)	Longitudinal prospective	Chemical and metal exposure - Heavy metals	Chemical and metal exposure - Biomarkers	Infant and child - Skin conditions (allergic) - Indicators of health risk
<sup>89</sup>	Jedrychowski et al. (2011b)	Poland; Krakow	Pregnant women and child pairs (singleton births), N = 322	Pregnancy (from 2nd trimester) Child (0 to 5 years)	Longitudinal prospective	Air pollution - Particulate matter	Air pollution - Personal monitor	Infant and child - Skin conditions (allergic)
<sup>90</sup>	Jedrychowski et al. (2013)	Poland; Krakow	Pregnant woman and child pairs (singleton births), N = 214	Pregnancy (full term) Child (0 to 7 years)	Longitudinal	Air pollution - Particulate matter (indoor)	Air pollution - Personal monitors - Self-reported data (questionnaires)	Child - Respiratory disease/conditions (infectious)
<sup>91</sup>	Jedrychowski et al. (2010)	USA; New York City; Poland; Krakow	Pregnant women and newborn pairs (singleton births) N = 481	Pregnancy (from 2nd trimester)	Cohort prospective	Air pollution - Particulate matter	Air pollution - Personal monitor	Fetal/newborn - Birth weight and/or length - Preterm birth
<sup>92</sup>	Jerzynska et al. (2017)	Poland; Lodz City	Pregnant women and child pairs, N = 455	Pregnancy (full term) Child (0 to 2 years)	Longitudinal prospective	Air pollution - Other air pollutants (outdoor)	Chemical and metal exposure - Biomarkers	Infant and child - Skin conditions (allergic) - Indicators of health risk
<sup>93</sup>	Johnson et al. (2016)	USA; New York City	Pregnant women and newborns (singleton births), N = 258,296	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Preterm birth

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>94</sup>	Jones et al. (2019)	USA; New York City	Mothers living in NYC boroughs, N = 940,597, Counties <_ 200km, N = 1,233,568; Counties <_ 100km, N = 309,653; Infants, N = unclear.	Pregnancy (full term)	Longitudinal (quasi-experimental)	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
<sup>95</sup>	Junaid et al. (2018)	India; Chennai	Pregnant women and child (< 24 months) pairs, N = 100 (n=50 with cleft lip, cleft palate or both; n=50 control)	Pregnancy (full term)	Case-controlled	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Congenital developmental abnormalities</li> <li>-</li> </ul>
<sup>96</sup>	Jung et al. (2014)	USA; New York City	Pregnant women and children (<7 years), N = 363)	Pregnancy (prenatal) Child (5 to 6 years), for 2 weeks	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Other air pollutants (outdoor)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Respiratory diseases or conditions (allergic)</li> <li>- Endocrine, nutritional or metabolic conditions</li> </ul>
<sup>97</sup>	Jung et al. (2019)	Taiwan; Taichung	Children (<5 years), N = 184,604	0 to 5 years	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Respiratory diseases or conditions (allergic)</li> </ul>
<sup>98</sup>	Karlen et al. (2012)	Sweden; Norrköping and Linköping	Infants, N = 2,448	0 to 1 year	Cohort prospective	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (socioeconomic status)</li> </ul>	Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Indicators of health risk</li> </ul>
<sup>99</sup>	Kihal-Talantikite et al. (2013a)	France; Lyon	Deceased infants, N = 715	Pregnancy (full term)	Cohort retrospective	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> </ul>	Built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> <li>- Administrative units</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Death</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>100</sup>	Kihal-Talantikite et al. (2013b)	France; Lyon	Infants, N = 715	Pregnancy (full term)	Cohort retrospective	Energy based pollution - Noise Neighbourhood community conditions - Community population characteristics (socioeconomic status)	Energy based pollution - Model data Neighbourhood community conditions - Administrative units (geocoded)	Infant - Death
<sup>101</sup>	Kioumourtzoglou et al. (2019)	USA; Boston, and Israel; Tel Aviv	Pregnant women with live births, N = 164,022	Pregnancy (full term)	Cohort retrospective	Air pollution - Gases	Air pollution - Model data - Stationary data (air quality monitors)	Fetal/newborn - Death (inferred by changes in the number of live births-identified)
<sup>102</sup>	Krieger et al. (2020)	USA; New York City	Pregnant women and newborn pairs (singleton births), N = 528,096	Pregnancy (full term)	Cohort retrospective	Neighbourhood community conditions - Residential segregation	Neighbourhood community conditions - Administrative units (geocoded)	Fetal/newborn - Preterm birth
<sup>103</sup>	Kyle et al. (2011)	England; London	Children (0 to 14 years), N = 24481	0 to 14 years	Cohort retrospective	Neighbourhood community conditions - Community population characteristics (socioeconomic status)	Neighbourhood community conditions - Administrative units	Infant and child - Respiratory disease/condition
<sup>104</sup>	Lakshmanan et al. (2015)	USA; Boston	Pregnant women and newborns (singleton births), N = 670	Pregnancy (full term)	Cohort prospective	Air pollution - Particulate matter	Air pollution - Stationary data (air quality monitors) - Model data	Fetal/newborn - Birth weight and/or length

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
105	Lara-Valencia et al. (2012)	Mexico; Hermosillo	Pregnant women and infant pairs, N = 46,778	Pregnancy (Full term)	Cohort retrospective	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to services/facilities (health care)</li> <li>- Access to green/blue space</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Dwelling</li> <li>- Indoor conditions (sanitation/crowding)</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (socioeconomic status)</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Administrative units</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Observational/field data</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> <li>- Observational/field data</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Death</li> </ul>
106	Lavigne et al. (2017)	Canada; Ontario	Pregnant women and newborn pairs (singleton births) N = 225,234	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
107	Lavigne et al. (2018)	Canada; 31 cities	Pregnant women and newborn pairs (singleton births), N = 196,171	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
108	Lavigne et al. (2020)	Canada, Toronto	Pregnant women and child pairs (singleton births), N = 653,702	Pregnancy (full term) Child (0 to cancer diagnosis <6 years)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Child <ul style="list-style-type: none"> <li>- Neoplasms</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
109	Levallois et al. (2012)	Canada; Quebec City	Pregnant women and newborns (term with birth weights <10th percentile, n=571; controls with birth weights >10th percentile, n=1925)	Pregnancy (full term)	Case-controlled	Chemical and metal exposure - Chemical exposure	Chemical and metal exposure - Self-reported data (questionnaires) - Sample collection from environmental media - Administrative records - Administrative units (geocoded)	Fetal/newborn - Birth weight and/or length
110	Li et al. (2016)	China; Hefei	Children (0 to 14 years) diagnosed with bacillary dysentery, N = 6511	0-14 years old	Cohort retrospective	Atmosphere - Temperature	Atmosphere - Stationary data (monitoring stations)	Infant, child adolescent - Digestive system conditions (infectious)
111	Li et al. (2018)	China; Shiyan and Jingzhou	Pregnant women and newborns (singleton live births), N = 16,035	Pregnancy (4 weeks before birth)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Preterm birth
112	Li et al. (2019a)	China; Changzhou	Pregnant women and preterm newborn pairs, N = 2709	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Birth weight - Preterm birth
113	Li et al. (2019b)	China; Changzhou	Pregnant women and newborns, N = 2,709	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Birth weight and/or length - Preterm birth
114	Liang et al. (2014)	China; Haikou	Pregnant women and newborns (singleton births), N = 64,100.	Pregnancy (full term)	Case-controlled	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Congenital developmental abnormalities

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>115</sup>	Liang et al. (2018)	China; Dongguan and Shenzhen	Pregnant women and newborn pairs (singleton births), N = 904,795	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
<sup>116</sup>	Liang et al. (2019a)	China; Dongguan, Foshan, Guangzhou, Jiangmen, Shenzhen, Zhongshan and Zhuhai	Pregnant women and newborn pairs (singleton vaginal live births, (N = 628,439)	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
<sup>117</sup>	Liang et al. (2019b)	China; Dongguan, Foshan, Guangzhou, Huizhou, Jiangmen, Shenzhen, Zhaoqing, Zhongshan, and Zhuhai)	Pregnant women and newborn pairs (singleton births), N = 1,455,026	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
<sup>118</sup>	Liu et al. (2012)	USA; New York City	Pregnant women and Children (5 to 6 years), N = 224	Pregnancy (3rd trimester) Child (5 to 6 years)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter (pesticide)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Personal monitors</li> </ul>	Child <ul style="list-style-type: none"> <li>- Respiratory disease/condition</li> </ul>
<sup>119</sup>	Liu et al. (2019a)	China; Yinchuan	Pregnant women and newborn pairs (singleton births), N = 38,961	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Congenital developmental abnormalities</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>120</sup>	Liu et al. (2019b)	China; Urumqi, Beijing, Taiyuan, Nanjing, Shanghai, Chongqing & Changsha	Children (3-6 years). N = 35,807	Pregnancy (full term)	Cross-sectional	Residential living conditions - Dwelling	Residential living conditions - Self-reported data (Questionnaires)	Fetal/newborn - Birth weight and/or length - Preterm birth
<sup>121</sup>	Lovasi et al. (2011)	USA; New York City	Pregnant women and child pairs, N = 266	Pregnancy (2 <sup>nd</sup> and 3 <sup>rd</sup> trimester)	Cohort retrospective	Air pollution - Particulate matter Neighbourhood built and natural environment features - Quality of neighbourhood environment Residential living conditions - Indoor conditions Neighbourhood community conditions - Community population characteristics (sociodemographics) - Community population characteristics (socioeconomic status) Chemical and metal exposure	Air pollution - Self-reported data (questionnaires) Neighbourhood built and natural environment features - Administrative units (geocoded) Residential living conditions - Self-reported data (questionnaires) Neighbourhood community conditions - Administrative records Chemical and metal exposure - Biomarkers	Child - Neurodevelopmental disorders or conditions
<sup>122</sup>	Luong et al. (2020)	Vietnam; Ho Chi Minh city	Children (<5 years), N = 11,416	0 to 5 years	Time series	Air pollution - Particulate matter	Air pollution - Stationary data (air quality monitors)	Child - Respiratory disease/condition (infection)
<sup>123</sup>	Maciel-Ruiz et al. (2019)	Mexico; Mexico City	Pregnant women and newborn pairs, N = 106	Pregnancy (3rd trimester)	Cohort prospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Indicators of health risk
<sup>124</sup>	Maponga et al. (2013)	Zimbabwe; Kadoma	Children (< 5 years), N = 109	0 to 5 years	Case-controlled	Residential living conditions - Indoor (sanitation) - Outdoor (sanitation)	Residential living conditions - Self-reported data (questionnaires) - Sample collection from environmental media	Child - Digestive system conditions

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>125</sup>	Mariet et al. (2018)	France; Besancon and Dijon	Pregnant women and newborns (still and live births), N = 506	Pregnancy (full term)	Cohort retrospective	Air pollution - Gases	Air pollution - Model data - Administrative records	Fetal/newborn - Birth weight and/or length
<sup>126</sup>	Matos et al. (2019)	Brazil; Vitoria	Children (0 to 6 years), N = 46,421	0 to 6 years	Cohort retrospective	Air pollution - Particulate matter - Gases Atmosphere - Rainfall - Temperature - Humidity	Air pollution - Model data Atmosphere - Model data	Infant and child - Respiratory disease/condition
<sup>127</sup>	McEachan et al. (2018)	England, Bradford	Children (4 years), N = 13,776	0 to 4 years	Longitudinal	Neighbourhood built and natural environment features - Access to green/blue space	Neighbourhood built and natural environment features - Model data - Satellite measures	Child - Behavioural problems/disorders - Mental health and sleep disorders (mental wellbeing)
<sup>128</sup>	McGuinn et al. (2020)	Mexico; Mexico City	Pregnant women and child (4 to 6 years) pairs, N = 539	Pregnancy (full term)	Cohort prospective	Air pollution - Particulate matter	Air pollution - Model data	Child - Behavioural problems/disorders (Autism spectrum disorder related behaviours)
<sup>129</sup>	Mehta et al. (2013)	Vietnam; Ho Chi Minh City	Infants and children (28 days to 5 years), N = 15,717	0 to 5 years	Case-controlled	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Infant and child - Respiratory disease/condition (infection)



Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>130</sup>	Miranda et al. (2012)	USA; Durham	Pregnant women and newborn pairs (live births (28 to 42 weeks), N = 4,279	Pregnancy (full term)	Cross-sectional	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Quality of neighbourhood environment</li> <li>- Security measures of neighbourhood</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Dwelling (tenure type)</li> <li>- Indoor conditions</li> <li>- Outdoor conditions</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Quality of social environment (crime)</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> <li>- Street survey</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Model data</li> <li>- Street survey</li> <li>- Administrative units</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units (geocoded)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
<sup>131</sup>	Miyake et al. (2010)	Japan; Osaka	Pregnant women and child (0 to 24 months) pairs, N = 756	Pregnancy (full term) Child (0 to 24 months)	Longitudinal	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Proximity to pollution sources</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Respiratory diseases or conditions (allergic)</li> <li>- Skin conditions (allergic)</li> </ul>
<sup>130</sup> , <sup>132</sup>	Mohammadi et al. (2019)	Iran; Sabzevar	Pregnant women and newborns (preterm births), N = 3,140	Pregnancy (3rd trimester)	Time series	Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> </ul>	Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
<sup>133</sup>	Moreira et al. (2020)	Spain; A Coruna, Bilbao, Las Palmas, Madrid, Malaga, Palma Mallorca, Sevilla, Valencia and Zaragoza	Pregnant women and newborns (live births), N = 3,808	Pregnancy (full term)	Time series	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (Monitoring stations)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
<sup>134</sup>	Morrison et al. (2013)	USA; Indianapolis	Children (0 to 5 years), N = 16,232	0 to 5 years	Cross-sectional	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Heavy metals</li> </ul>	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Sample collection from environmental media</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Indicators of health risk</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>135</sup>	Mullin et al. (2019)	Mexico; Mexico City	Pregnant women and newborn pairs, N = 730	Pregnancy (2nd and 3rd trimesters)	Cohort prospective	Chemical and metal exposure - Heavy metals	Chemical and metal exposure - Self-reported data (questionnaires) - Biomarkers	Fetal/newborn - Birth weight and/or length
<sup>136</sup>	Musengimana et al. (2016)	South Africa; Cape Town	Children (< 5 years), N = 58617	0 to 5 years	Cross-sectional	Atmosphere - Temperature	Atmosphere - Stationary data (monitoring stations)	Child - Digestive system conditions (acute diarrhoea)
<sup>137</sup>	Nakhjirgan et al. (2019)	Iran; Tehran	Pregnant women and newborns (live births), N = 2,144	Pregnancy (full term)	Case-controlled	Air pollution - Particulate matter - Gases	Air pollution - Model data	Fetal/newborn - Birth weight and/or length
<sup>138</sup>	Nascimento et al. (2017)	Brazil; Salvador	Pregnant women and newborn pairs (live and stillbirths), N = 34,005	Pregnancy (full term)	Cross-sectional	Neighbourhood community conditions - Community population characteristics (socioeconomic status)	Neighbourhood community conditions - Administrative units (geocoded)	Fetal/newborn - Death Infant - Death
<sup>139</sup>	Ngo (2017)	USA; New York City	Pregnant women and newborn pairs, N = 249,539	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Model data	Fetal/newborn - Birth weight and/or length - Preterm birth - Newborn general health
<sup>140</sup>	Ngo et al. (2016)	USA; New York City	Pregnant women and newborns (live births), total N not provided	Pregnancy (full term)	Time series	Air pollution - Particulate matter - Gases Atmosphere - Temperature	Air pollution - Stationary data (air quality monitors) Atmosphere - Stationary data (monitoring stations)	Fetal/newborn - Birth weight and/or length - Preterm birth
<sup>141</sup>	Nie et al. (2020)	China; Guangdong Province (21 cities)	Pregnant women and newborn pairs, N = 8,042 (congenital heart defects); plus control N = 6,887	Pregnancy (full term)	Case-controlled	Neighbourhood built and natural environment features - Access to green/blue features Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors) Neighbourhood built and natural environment features - Model data - Satellite measures	Fetal/newborn - Congenital developmental abnormalities

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
142	Nielsen et al. (2020a)	Canada; 19 major metropolitan areas	Pregnant women and newborns, N = 32,836	Pregnancy (full term)	Cross-sectional	Air pollution <ul style="list-style-type: none"> <li>- Other air pollutants (outdoor)</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Wind</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
143	Nielsen et al. (2020b)	Canada; Edmonton	Pregnant women and infants (4 months), N = 355	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Administrative units (geocoded)</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Digestive system conditions (microbiome)</li> </ul>
144	Nieuwenhuijsen et al. (2019)	England; Bradford, France; Poitiers and Nancy Spain; Gipuzkoa, Sabadell, Valencia Lithuania; Kaunas Norway (city not reported), Greece; Crete	Pregnant women and newborns (singleton births), N = 31,458	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Noise</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> <li>- Humidity</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> <li>- Proximity to pollution sources</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Dwelling</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Energy based pollution <ul style="list-style-type: none"> <li>- Observational/field data</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Administrative units (geocoded)</li> </ul> Residential living conditions <ul style="list-style-type: none"> <li>- Administrative units (geocoded)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
145	Oh et al. (2020)	South Korea; Seoul, Busan, Daegu, Incheon, Gwangju, Daejeon and Ulsan	Children (0 to 3 years), N = 1,259,466	0 to 3 years	Time series	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> <li>- Stationary data (air quality monitors)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Acute infection (otitis media)</li> </ul>
146	Olusanya et al. (2010)	Nigeria; Lagos	Pregnant women and newborns (singleton births), N = 4,314	Pregnancy (full term)	Cross-sectional	Residential living conditions <ul style="list-style-type: none"> <li>- Dwelling</li> <li>- Indoor (sanitation)</li> </ul>	Residential living conditions <ul style="list-style-type: none"> <li>- Administrative records</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
147	Orione et al. (2014)	Brazil; Sao Paulo	Pregnant women and child pairs, n=20 with juvenile dermatomyositis n=56 control	Pregnancy (full term)	Case-controlled	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Skin conditions</li> </ul>
148	Padilla et al. (2014)	France; Lille	Infant deaths between 2000-2009, N = 668	Pregnancy (full term)	Cohort retrospective	Residential living conditions <ul style="list-style-type: none"> <li>- Indoor (crowding)</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (sociodemographics, socioeconomic status)</li> </ul>	Residential living conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Death</li> </ul>
149	Padilla et al. (2016a)	France; Nice	Pregnant women and newborn/infant pairs, N = unclear	Pregnancy (full term)	Cross-sectional	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> <li>- Proximity to pollution sources</li> <li>- Access to services/facilities (health care)</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (socioeconomic status)</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Administrative units</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Death</li> </ul> Infant <ul style="list-style-type: none"> <li>- Death</li> </ul>
150	Padilla et al. (2016b)	France; Paris, Lille, Lyon, Marseille	Pregnant women and newborns, N = unclear	Pregnancy (full term)	Cross-sectional (comparative)	Air pollution <ul style="list-style-type: none"> <li>- Gases</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (socioeconomic status)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Death</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
151	Page et al. (2012)	USA; Pueblo and El Paso	Pregnant women and newborn pairs (singleton births (n=6,717, Pueblo). El Paso (control, n=32,293)	Pregnancy (full term)	Cross-sectional (comparative)	Air pollution - Particulate matter	Air pollution - Model data	Fetal/newborn - Preterm birth
152	Patel et al. (2011)	USA; New York City	Pregnant women and children (0 to 5 years) pairs, N = 593	Pregnancy (full term) Child (0 to 5 years)	Longitudinal	Air pollution - Not specified	Air pollution - Model data	Child - Respiratory disease/condition (allergy)
153	Pearce et al. (2010)	England; Newcastle	Pregnant women and infant pairs (singleton births), N = 90,537	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter	Air pollution - Stationary data (air quality monitors) - Model data	Infant - Death
154	Pearce et al. (2012)	England; Newcastle	Pregnant women and newborn pairs (singleton births), N = 88,679	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter	Air pollution - Stationary data (air quality monitors) - Model data	Fetal/newborn - Birth weight and/or length - Preterm birth
155	Perera et al. (2012)	China; Tongliang	Pregnant women and child (5 years) pairs, N = 122	Pregnancy (full term)	Cohort prospective	Air pollution - Particulate matter - Other air pollutants (outdoor)	Air pollution - Biomarkers	Child - Neurodevelopmental disorders or conditions (learning)
156	Perera et al. (2015)	USA; New York City	Pregnant women (African-American and Dominican) and children (2 years), N = 505	Pregnancy (full term)	Cohort prospective	Air pollution - Other air pollutants (outdoor)	Air pollution - Biomarkers	Child - Neurodevelopmental disorders or conditions (behavioural)

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
157	Perera et al. (2018)	USA; New York City	Pregnant women and child (<9 years) pairs, N = 351	Pregnancy (full term) and child (to 9 years)	Cohort prospective	Air pollution - Other air pollutants (outdoor)	Air pollution - Biomarkers	Child - Neurodevelopmental disorders or conditions (behavioural)
158	Perez-Saldivar et al. (2016)	Mexico; Mexico City	Pregnant women and infant with acute leukemia ( $\leq 24$ months) pairs, N = 195 (plus a control of N = 369)	Pregnancy (full term)	Case-controlled	Chemical and metal exposure - Petroleum - Other carcinogens	Chemical and metal exposure - Self-reported data (questionnaires)	Infant - Neoplasms (acute leukemia)
159	Phatrabuddha et al. (2013)	Thailand, Rayong	Pregnant women with newborns, N = 110	Pregnancy (full term)	Cohort prospective	Air pollution - Gases	Air pollution - Personal monitors - Biomarkers	Fetal/newborn - Birth weight and/or length - Preterm birth - Newborn general health
160	Poeran et al. (2013)	Netherlands; Rotterdam	Pregnant women and newborns (singleton), N = 56,443	Pregnancy (full term)	Cross-sectional	Neighbourhood community conditions - Quality of social environment	Neighbourhood community conditions - Self-reported data (questionnaires)	Fetal/newborn - Preterm birth
161	Poursafa et al. (2016)	Iran; Isfahan	Pregnant women and newborns (singleton live births), N = 233.	Pregnancy (full term)	Cohort prospective	Air pollution - Particulate matter - Gases - Other air pollutants (perceived)	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Indicators of health risk
162	Rahmalia et al. (2012)	France; Poitiers and Nancy	Pregnant women and newborns (< 28 weeks of single foetus), N = 888	Pregnancy (full term)	Cohort prospective	Air pollution - Particulate matter - Gases	Air pollution - Model data - Stationary data (air quality monitors)	Fetal/newborn - Birth weight and/or length

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>163</sup>	Ranganathan et al. (2013)	Australia; Melbourne	Infants, N = 105	Pregnancy (full term)	Longitudinal (observational cohort)	Air pollution - Particulate matter Neighbourhood community conditions - Community population characteristics (sociodemographics)	Air pollution - Self-reported data (questionnaires) Neighbourhood community conditions - Self-reported data (questionnaires)	Infants - Respiratory disease/condition (infectious)
<sup>164</sup>	Rey-Ares et al. (2016)	Argentina; Bariloche, Chile; Temuco	Households with child (< 5 years), N = 926 (n=695 pregnancies, n=1074 children)	0 to 5 years	Cohort retrospective	Air pollution - Particulate matter	Air pollution - Self-reported data (questionnaires)	Child - Respiratory disease/condition
<sup>165</sup>	Ritz et al. (2014)	USA; Los Angeles	Pregnant women with newborns, N = 566	Pregnancy (full term)	Cohort prospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Birth weight and/or length
<sup>166</sup>	Rosa et al. (2017)	USA; Boston Mexico; Mexico City	Pregnant women and newborn pairs (singleton), N = 1,966	Pregnancy (3rd trimester)	Longitudinal	Air pollution - Particulate matter	Air pollution - Model data - Stationary data (air quality monitors)	Fetal/newborn - Birth weight and/or length
<sup>167</sup>	Rosa et al. (2019)	Mexico; Mexico City	Pregnant women and newborn pairs, N = 423	Pregnancy (full term)	Cohort prospective	Air pollution - Particulate matter	Air pollution - Model data - Stationary data (air quality monitors)	Fetal/newborn - Indicators of disease risk
<sup>168</sup>	Rosofsky et al. (2020)	USA; Boston	Children (< 48 months), N = 4,797	Pregnancy (birth) Child (to 48 months)	Cohort retrospective	Air pollution - Particulate matter	Air pollution - Model data	Fetal/newborn - Birth weight and/or length Infant - Endocrine, nutritional or metabolic conditions
<sup>169</sup>	Ruckinger et al. (2010)	Germany; Munich and Wesel	Pregnant women and child (0 to 9 years) pairs, N = 2,862	Pregnancy (full term) Child (birth to 10 years)	Cohort prospective	Air pollution - Particulate matter	Air pollution - Self-reported data (questionnaires)	Child - Neurodevelopmental disorders or conditions (behavioural)

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
170	Rundle et al. (2012)	USA; New York City	Pregnant women and children (5 years, n=422; and 7 years, n=341)	Pregnancy (3rd trimester)	Longitudinal	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Other air pollutants (outdoor)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Personal monitors</li> </ul>	Child <ul style="list-style-type: none"> <li>- Endocrine, nutritional or metabolic conditions</li> </ul>
171	Sadeghi et al. (2017)	Iran; Babol	Pregnant women with singleton preterm births, N = 135 (plus control, N = 150)	Pregnancy (full term)	Case-controlled	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Proximity to pollution sources</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> <li>- Congenital developmental abnormalities</li> </ul>
172	Sarizadeh et al. (2020)	Iran; Ahvaz	Pregnant women and newborn pairs, N = 150,766	Pregnancy (full term)	Time series	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
173	Savitz et al. (2013)	USA; New York City	Pregnant women and newborn pairs (singleton), N = 252,967	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight</li> </ul>
174	Savitz et al. (2019)	USA; New York City	Pregnant women and newborn pairs (singleton births), N = 257,956	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
175	Sbihi et al. (2015)	Canada; Vancouver, Edmonton, Winnipeg, Toronto	Pregnant women and infants (~1 year) with atopy pairs, N = 2,477	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Skin conditions</li> </ul>



Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
176	Sbihi et al. (2016)	Canada; Vancouver	Pregnant women and their children (up to 10 years old), (live singleton births) N =68195	Pregnancy (full term)	Case-controlled	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Child <ul style="list-style-type: none"> <li>- Respiratory disease/condition (allergic)</li> </ul>
177	Schembari et al. (2014)	Spain; Barcelona	Pregnant women and infants born with congenital anomalies, N = 5238	Pregnancy (full term)	Case-controlled	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Congenital developmental abnormalities</li> </ul>
178	Schifano et al. (2016)	Italy; Rome Spain; Barcelona	Pregnant women with singleton births, N = 120,718	Pregnancy (2nd and 3rd trimester)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
179	Sealy-Jefferson et al. (2015)	USA; Detroit	Pregnant women ((African American) and newborn pairs, N = 1411	Pregnancy (full term)	Cohort retrospective	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Quality of neighbourhood environment</li> <li>- Access to services/facilities (food)</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Quality of social environment</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
180	Seo et al. (2010)	South Korea; Seoul, Pusan, Daegu, Incheon, Kwangju, Daejeon, Ulsan	Pregnant women and newborns (full-term singleton births), N = 177,660	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution Stationary data (air quality monitors) <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>181</sup>	Sheffield et al. (2018)	USA; New York City	Infants and children (0 to 4 years), N = 1,002,951	0 to 4 years	Case-crossover (time stratified)	Atmosphere - Temperature	Atmosphere - Stationary data (monitoring stations)	Infant and child - Other acute (hospitalisations)
<sup>182</sup>	Shinzawa et al. (2017)	Japan; Kobe	Children (<3 years), N = 44,595	Pregnancy (full term) Child (0 to 3 years)	Cohort retrospective	Air pollution - Particulate matter	Air pollution - Self-reported data (questionnaires)	Infant and child - Indicator of disease risk (proteinuria)
<sup>183</sup>	Shmool et al. (2015)	USA; New York City	Pregnant women and newborn pairs (singleton), N = 243,853	Pregnancy (full term)	Cohort retrospective	Air pollution - Gases Neighbourhood community conditions - Community population characteristics	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Birth weight
<sup>184</sup>	Siddika et al. (2019)	Finland; Espoo	Pregnant women and newborn pairs, N = 2,453	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Model data	Fetal/newborn - Preterm birth
<sup>185</sup>	Siddika et al. (2020)	Finland; Espoo	Pregnant women and newborn pairs, N = 2,427	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Model data	Fetal/newborn - Preterm birth
<sup>186</sup>	Siniarska et al. (2010)	Poland; Warsaw	Pregnant women and newborn pairs (singleton births), N = 10,631	Pregnancy (full term)	Cross-sectional	Atmosphere - Rainfall - Temperature - Humidity	Atmosphere - Stationary data (monitoring stations)	Fetal/newborn - Birth weight and/or length
<sup>187</sup>	Smith et al. (2020)	England; London	Pregnant women and newborns (live and still births), N = 581,774	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases Energy based pollution - Noise	Air pollution - Model data - Administrative units Atmosphere - Model data - Administrative units	Fetal/newborn - Preterm birth - Death

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
188	Sochacka-Tatara et al. (2018)	Poland; Krakow	Pregnant women and child (<3 years) pairs, N = 218	Pregnancy (full term) Child 0 to 3 years	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Other air pollutants (outdoor)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Biomarkers</li> <li>- Self-reported (questionnaire)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Indicators of health risk</li> </ul>
189	Son et al. (2019)	South Korea; Seoul	Pregnant women and newborn pairs (singleton births), N = 813,820	Pregnancy (full term)	Time series	Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> <li>- Humidity</li> </ul> Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to green/blue features</li> </ul>	Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul> Neighbourhood built/natural environment features: <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
190	Spadea et al. (2020)	Italy; Turin, Reggio Emilia, Modena, Bologna, and Rome	Pregnant women and newborn pairs (singleton births), N = 211,853	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
191	Sram et al. (2013)	Czech Republic; Teplice and Prachatice	Pregnant women and child pairs, N = 1,492	Pregnancy (full term) Child (0 to 10 years)	Cross-sectional (comparative)	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Other air pollutants (outdoor)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Embryo <ul style="list-style-type: none"> <li>- Intrauterine growth restriction</li> </ul> Newborns <ul style="list-style-type: none"> <li>- Indicators of health risk</li> </ul> Child <ul style="list-style-type: none"> <li>- Respiratory disease/condition (infectious)</li> <li>- Endocrine, nutritional or metabolic conditions</li> <li>- Indicators of health risk</li> </ul>
192	Stelmach et al. (2014)	Poland; Lodz	Pregnant women and child (1 year) pairs, N = 501	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> <li>- Model data</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Respiratory disease/condition (allergic)</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
<sup>193</sup>	Sternthal et al. (2011)	USA; Boston	Pregnant women and child (0 to 2 years) pairs, N = 589	Pregnancy Child 0 to 2 years	Cohort prospective	Air pollution - Particulate matter Residential living conditions - Dwelling - Indoor conditions	Air pollution - Model data Residential living conditions: - Self-reported data (questionnaires)	Child - Respiratory disease/condition (allergic)
<sup>194</sup>	Stieb et al. (2019)	Canada; 24 cities	Pregnant women and newborn pairs (singleton), N = 1,001,700	Pregnancy (week prior to delivery)	Cross-sectional	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Preterm birth
<sup>195</sup>	Stingone et al. (2016)	USA; New York City	Pregnant women and child pairs (singleton births), N = 201,559	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Other Air pollution	Air pollution - Stationary data (air quality monitors)	Child - Learning problems/disorders
<sup>196</sup>	Strickland et al. (2019)	USA; Atlanta	Pregnant women and newborn pairs (singleton births), N = 273,711	Pregnancy (full term)	Cohort retrospective	Air pollution - Gases - Particulate matter	Air pollution - Model data - Stationary data (air quality monitors)	Fetal/newborn - Birth weight and/or length
<sup>197</sup>	Sun et al. (2020)	China; Xiaogan	Pregnant women and newborns (singleton births), N = 1,660	Pregnancy (full term)	Cohort prospective	Chemical and metal exposure - Chemical exposure Residential living conditions - Indoor (sanitation conditions)	Chemical and metal exposure - Biomarkers Residential living conditions - Self-reported data (questionnaires)	Fetal/newborn - Birth weight and/or length - Preterm birth
<sup>198</sup>	Talukder (2019)	Bangladesh; urban areas (cities not specified)	Children (< 5 years), N = 10,511	0 to 5 years	Cross-sectional (comparative)	Neighbourhood built and natural environment features - Quality of neighbourhood environment (slum area)	Neighbourhood community conditions - Self-reported data (questionnaires)	Child - Endocrine, nutritional or metabolic conditions
<sup>199</sup>	Tellez-Rojo et al. (2020)	Mexico; Mexico City	Children (9 years or under), N0=1,005, N1=1,233	Exposure over 6 years (between 2006 and 2012)	Cross-sectional (comparative)	Air pollution - Particulate matter	Air pollution - Model data - Stationary data (air quality monitors)	Child - Respiratory disease/conditions

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
200	Trerotoli et al. (2020)	Italy; Apulia region (specific cities not reported)	Pregnant women and newborn pairs, N = 492,537	Pregnancy (full term)	Time series	Residential living conditions <ul style="list-style-type: none"> <li>- Indoor (crowding)</li> <li>- Dwelling (tenure type)</li> </ul> Chemical and metal exposure	Residential living conditions: <ul style="list-style-type: none"> <li>- Model data</li> </ul> Chemical and metal exposure: <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> </ul>
201	van den Hooven et al. (2012)	Netherlands; Rotterdam	Pregnant women and newborn pairs (singleton live births), N = 7,801.	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>
202	van Rossem et al. (2015)	USA; Boston	Pregnant women and infant pairs, N = 1,131	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data</li> <li>- Model data</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Cardiovascular conditions/functioning</li> </ul>
203	Veleminsky et al. (2016)	Czech Republic; Prague and Ceske Budejovice	Pregnant women and newborn pairs, N = 178	Pregnancy (3rd trimester)	Cross-sectional (comparative)	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Other air pollutants (outdoor)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul>	Fetal/Newborn <ul style="list-style-type: none"> <li>- Indicators of disease risk</li> </ul>
204	Vettore et al. (2010)	Brazil; Rio de Janeiro	Pregnant women and newborns (0-3 days old), N = unclear	Pregnancy (full term)	Case-controlled	Residential living conditions <ul style="list-style-type: none"> <li>- Dwelling</li> <li>- Indoor conditions</li> </ul>	Residential living conditions <ul style="list-style-type: none"> <li>- Self-reported data (questionnaires)</li> <li>- Administrative records</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight</li> </ul>
205	Vicedo-Cabrera et al. (2014)	Spain; Valencia	Infants, (N = 20,148)	Pregnancy (3rd trimester and birth)	Time series	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Temperature</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Stationary data (air quality monitors)</li> </ul> Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Preterm birth</li> </ul>
206	Vishnevetsky et al. (2015)	USA; New York City	Pregnant women and child (7 years) pairs, N = 276	Pregnancy (full term)	Cohort prospective	Air pollution <ul style="list-style-type: none"> <li>- Other air pollutants (outdoor)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Biomarkers</li> <li>- Self-reported (questionnaire)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Neurodevelopmental disorders or conditions (learning difficulties)</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
207	Wariri et al. (2021)	Nigeria; Gombe	Pregnant women with singleton stillbirths, N = 159 (plus control of N = 159)	Pregnancy (third trimester)	Case-controlled	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Access to services/facilities (health care)</li> </ul>	Neighbourhood built and natural environment features <ul style="list-style-type: none"> <li>- Self-reported (questionnaire)</li> <li>- Administrative units (geocoded)</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Death</li> </ul>
208	Warrier et al. (2019)	Australia; Melbourne	Infants (<1 year) with cystic fibrosis, N = 122	Pregnancy (full term)	Longitudinal	Atmosphere <ul style="list-style-type: none"> <li>- Rainfall</li> <li>- Temperature</li> <li>- Humidity</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Community population characteristics (socioeconomic status)</li> </ul>	Atmosphere <ul style="list-style-type: none"> <li>- Stationary data (monitoring stations)</li> </ul> Neighbourhood community conditions <ul style="list-style-type: none"> <li>- Administrative units</li> </ul>	Infant <ul style="list-style-type: none"> <li>- Respiratory disease/condition (infectious)</li> </ul>
209	Watkins et al. (2016)	Mexico; Mexico City	Pregnant women and children (0 to 36 months), N = 187	Pregnancy (full term)	Cohort prospective	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Pesticides</li> </ul>	Chemical and metal exposure <ul style="list-style-type: none"> <li>- Biomarkers</li> </ul>	Infant and child <ul style="list-style-type: none"> <li>- Neurodevelopmental disorders or conditions (mental/psychomotor development)</li> </ul>
210	Wendt et al. (2014)	USA; Harris County (specific cities not reported)	Children (1 to 17 years; 1-4 years = 72.5%). (N = 18,289)	Other: 1-17 years	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Particulate matter</li> <li>- Gases</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> <li>- Stationary data (air quality monitors)</li> </ul>	Child <ul style="list-style-type: none"> <li>- Respiratory disease/condition (allergic)</li> </ul>
211	Weyde et al. (2017)	Norway; Oslo	Children (0 to 8 years), N = 1384	Pregnancy (full term) Child (3 to 8 years)	Cohort retrospective	Energy based pollution <ul style="list-style-type: none"> <li>- Noise</li> </ul>	Energy-based pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Child <ul style="list-style-type: none"> <li>- Neurodevelopmental disorders or conditions (behavioural)</li> </ul>
212	Willis et al. (2019)	USA; Portland	Pregnant women and newborns (singleton births), N = 279,051	Pregnancy (full term)	Cohort retrospective	Air pollution <ul style="list-style-type: none"> <li>- Other air pollutants (outdoor)</li> </ul>	Air pollution <ul style="list-style-type: none"> <li>- Model data</li> </ul>	Fetal/newborn <ul style="list-style-type: none"> <li>- Birth weight and/or length</li> <li>- Preterm birth</li> </ul>

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
213	Wilunda et al. (2018)	Japan; Kobe	Pregnant women and child (0 to 3 years) pairs, N = 50,734	Pregnancy (full term) Infants (birth to 4 months)	Cohort retrospective	Air pollution - Particulate matter (tobacco smoke)	Air pollution - Self-reported data (questionnaire)	Child - Sensory functions (hearing)
214	Wing et al. (2020)	USA; Los Angeles	Pregnant women and newborns (singleton births), N = 174,186	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter	Air pollution - Model data	Fetal/newborn - Preterm birth
215	Wojtyla et al. (2020)	Poland; 50 cities	Pregnant women and newborn pairs (full term), N = 1,095	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Birth weight and/or length - Newborn general health - Congenital developmental abnormalities
216	Wu et al. (2011)	USA; Los Angeles and Orange Counties	Pregnant women and newborns (singleton births), N = 81,186	Pregnancy (full term)	Case-controlled	Air pollution - Particulate matter - Gases	Air pollution - Model data	Fetal/newborn - Preterm birth
217	Wu et al. (2018)	China; Jinan	Pregnant women and newborns (singleton births), N = 1,845	Pregnancy (full term)	Case-controlled	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Birth weight and/or length
218	Xiong et al. (2019)	China; Changsha, Changde, Yongzhou, and Huaihua	Pregnant women and newborns, N = 153,822	Pregnancy (1 <sup>st</sup> and 3 <sup>rd</sup> trimesters)	Case-controlled	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Congenital developmental abnormalities

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
219	Xu et al. (2015)	China; Xuzhou	Pregnant women and newborn pairs (no syndromic lip/palate cleft, N = 200; plus control of N = 327)	Pregnancy (full term)	Case-controlled	Chemical and metal exposure - Chemical exposure	Chemical and metal exposure - Self-reported data (questionnaires)	Fetal/newborn - Congenital developmental abnormalities
220	Xu et al. (2017)	China; Beijing and Tianjin	Children (<5 years) diagnosed with hand, foot and mouth disease, N = 598,835	0 to 5 years	Time series	Atmosphere - Rainfall - Temperature - Humidity - Atmospheric pressure	Atmosphere - Stationary data (monitoring stations)	Infant and child - Skin conditions (infectious)
221	Xu et al. (2019)	China; Guangdong Province (21 cities)	Children (0 to 5 years), N = 1,048,574	0 to 5 years	Time series	Atmosphere - Rainfall - Temperature - Humidity - Atmospheric pressure	Atmosphere - Stationary data (monitoring stations)	Infant and child - Skin conditions (infectious)
222	Yang et al. (2017)	China; Hefei	Children (0 to 14 years), N = 21,634	0 to 14 years	Cohort retrospective	Atmosphere - Temperature - Humidity	Atmosphere - Stationary data (monitoring stations)	Infant and child - Skin conditions (infectious)
223	Yang et al. (2018)	China; 7 Northeast cities in Liaoning Province (Anshan, Benxi, Dandong, Dalian, Fushun, Liaoyang, Shenyang)	Children (2 to 17 years), N = 59754	0 to 17 years	Cross-sectional	Air pollution - Particulate matter	Air pollution - Model data	Child - Respiratory disease/condition (allergic)



Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
224	Yang et al. (2020)	China; Guangzhou, Zhaoqing, Zhongshan, Dongguan, Huizhou, Jiangmen, Shenzhen, Foshan and Zhuhai	Pregnant women and newborns (singleton live births 20 to 44 weeks gestation), N = 1,455,026	Pregnancy (full term)	Cohort retrospective	Air pollution - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Birth weight and/or length - Preterm birth
225	Yao et al. (2016)	China; Anqing	Pregnant women and newborn pairs (singleton births), N = 16,332.	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Congenital developmental abnormalities
226	Yin et al. (2017)	China; Sichuan Province (18 cities)	Children (0 to 14 years), N = 290,123	0 to 14 years	Time series	Atmosphere - Temperature - Humidity	Atmosphere - Stationary data (monitoring stations)	Infant and child Skin conditions (infectious)
227	Zang et al. (2019)	China; Yancheng	Pregnant women and newborns (singleton births), N = 59,868	Pregnancy (full term)	Cohort prospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Death
228	Zhang et al. (2019)	China; Beijing	Pregnant women and newborn pairs, N = 25,782	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Newborn general health (jaundice)

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
229	Zhang et al. (2020)	China; 14 cities (Shenyang, Dalian, Anshan, Fushun, Benxi, Dandong, Jinzhou, Yingkou, Fuxin, Liaoyang, Panjing, Tieling, Chaoyang, and Huludao)	Pregnant women and newborns (with polydactyly or syndactyly; control of unaffected livebirths), N = 11,150	Pregnancy (1st trimester First, second and third months before conception	Case-controlled	Air pollution - Particulate matter	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Congenital developmental abnormalities
230	Zhao et al. (2011)	China; Guangzhou	Pregnant women and preterm newborn pairs (singleton), N = 7,836	Pregnancy (full term)	Time series	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Preterm birth
231	Zhao et al. (2020)	China, Hohhot	Pregnant women and newborns (live births), N = 69,945	Pregnancy (full term)	Case-controlled	Air pollution - Particulate matter - Gases	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Preterm birth
232	Zhu et al. (2015)	China; Jinan and Qingdao	Children (0 to 5 years), N = 99,749	0 to 5 years	Time series	Atmosphere - Temperature - Humidity - Rainfall - Sunlight exposure	Atmosphere - Stationary data (monitoring stations)	Infant and child - Skin conditions (infectious)
233	Zhu et al. (2016)	China; Shandong Province	Children (0 to 5 years), N = 504,017	0 to 5 years	Time series	Atmosphere - Temperature	Atmosphere - Stationary data (monitoring stations)	Infant and child - Skin conditions (infectious)
234	Zhu et al. (2019)	USA; 9 metropolitan areas in state of Georgia	Pregnant women and newborns (live births), N = 53,094	Pregnancy (full term)	Cohort retrospective	Air pollution - Particulate matter	Air pollution - Stationary data (air quality monitors)	Fetal/newborn - Preterm birth

Ref	Author (year)	Country; City	Population	Exposure period	Study design	Exposure type	Exposure measure	Health outcomes measured
235	Zhuge et al. (2020)	China; 8 major cities: Beijing, Taiyuan, Urumqi, Wuhan, Changsha, Shanghai, Nanjing, and Chongqing	Children (3 to 8 years), N = 41,176	Child (in utero to 7 years)	Cross-sectional	Air pollution - Particulate matter (indoor)	Air pollution - Self-reported data (questionnaires)	Child - Respiratory disease/condition (infectious)

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