April 2007 DUNC Meeting
Oregon EPHT Network Content – Draft Indicators

The following 15 indicators were presented at the Seattle EPHT Meeting and are now in draft form and available on the Oregon EPHT website for review.

Air Quality - - - number days rated unhealthy, population percent in areas exceeding standards, PM 10, PM 2.5, ozone

Birth Defects - - prevalence of 12 birth defects

Blood Lead - - children < 36 months of age tested by community risk category

Hospitalization - monthly and annual asthma admissions, annual age-adjusted asthma rate, myocardial infarction rate

Vital Statistics - perinatal mortality, neonatal mortality, infant mortality, and pre-term singleton birth rates

Additional vital statistics indicators are being created for low birth weight, post-neonatal mortality, gender ratio, and female fertility. Cancer indicators are being drafted for leukemia, non-Hodgkin lymphoma, and liver, bladder, kidney, thyroid brain and other nervous system cancers. Water quality indicators of contaminant levels in finished water are being developed for arsenic, TTHM, HHA, lead, nitrates, and microbial levels. Drafts for the additional indicators and How To Guides should be available for evaluation in the next few months.

Air Quality Indicator – Number of days & person-days of which air was rated very unhealthy, unhealthy, and unhealthy for sensitive groups	
Measure	Population and the number of days where air was rated as “unhealthy for sensitive groups”, “unhealthy”, and “very unhealthy”. Total number of person-days in counties and MSAs with monitors that had air which was very unhealthy, unhealthy, and unhealthy for “sensitive groups”.
Geographic Area	Counties with Air Monitoring Data MSAs with Air Monitoring Data State-wide total of person-days from all counties in the states
Time Period	Calendar year
Limitations Of The Measure	The data for this indicator only represents MSAs and counties that have air monitors and tends to reflect urban air quality. The total number of days in each category does not provide information regarding the severity (max concentrations) of potential exposures. This composite AQI indicator and reported totals do not identify the pollutants of concern–that is, it does not show which pollutant(s) are causing the days to be ranked in one of the unhealthy categories, or which ones have decreased and are responsible for an improvement in the AQI.
Data Resources	EPA Air Data Website http://www.epa.gov/air/data/
Related Sets Of Data	% of Population in Counties and MSAs with monitors where concentrations of ozone and PM exceeded the EPA National Ambient Air Quality Standard and the CA Standards, Annual Average PM2.5 Concentrations, Average Ozone Season Concentrations.
Appropriate Use Of Indicator	This indicator can be utilized to inform policy makers and the public regarding the number of days of unhealthy air pollution concentrations and the number of people potentially affected in areas for which monitoring data are available. Caution: This indicator is not a surrogate measure of exposure and therefore should not be linked with health data. Use of this indicator in such manner can lead to spurious results.

Air quality Indicator – Percent population living in counties & MSAs with monitors living in areas that exceed EPA, NAAQS & CA standards	
Measure	Percent of population in counties and MSAs with monitors
Geographic Area	Counties with Air Monitoring Data; MSAs with Air Monitoring Data
Time Period	Calendar year
Data Resources	EPA Air Explorer http://epa.gov/mxplorer/index.htm
Limitations Of Data Resources	Data for $PM_{2.5}$ is unavailable prior to 1999. The relationship between ambient concentrations and personal exposure is largely unknown and variable depending upon pollutant, activity patterns, and microenvironments.
Related Sets Of Data	HP2010; Asthma Hospitalizations; Number Of Persons In Each MSA, County And State-Wide Number Of Total Person-Days Of Air Which Was Rated Very Unhealthy (Purple), Unhealthy (Red), And Unhealthy For Sensitive Groups (Orange).
Appropriate Use Of Indicator	This indicator can be utilized to inform policy makers and the public regarding the percent of population in Counties and MSAs with monitor that exceed the EPA NAAQS or CA Standards at least once during the year. Caution: This indicator is not a surrogate measure of exposure and therefore should not be linked with health data. Use of this indicator in such manner can lead to spurious results.

Air quality Indicator – **Ambient concentrations of particulate matter < 10 microns in diameter** (average of all 24 hour PM10 average values)	
Measure	Microgram per cubic meter (u/m^3)
Geographic Area	County (values from each monitor averaged each day
Time Period	Year
Data Resources	EPA Air Quality Systems Monitoring Data, State Air Monitoring Data
Limitations of the Measure	This measure provides a general indication of the overall trend in annual PM10 concentrations. It may be affected by density and placement of monitors, and coverage will vary. It does not directly reflect exposure. Certain geographic areas, such as those near construction sites, are likely to have higher values.
Limitations of the Data	Air monitoring data provides information regarding concentrations at the specific location of each monitor. Considerable within county variation in concentrations will likely exist but will not be captures in this measure.
Related Measures	Asthma and other respiratory diseases

Air quality Indicator – **Ambient concentrations of particulate matter < 2.5 microns in diameter** (average of all 24 hour PM 2.5 average values)	
Measure	Microgram per cubic meter (u/m^3)
Geographic Area	County (values from each monitor averaged each day)
Time Period	Year
Data Resources	EPA Air Quality Systems Monitoring Data, State Air Monitoring Data
Limitations of the Measure	This measure provides a general indication of the overall trend in annual PM2.5 concentrations. It may be affected by density and placement of monitors, and coverage will vary. It does not directly reflect exposure. Certain geographic areas, such as those near busy roads, are likely to have higher values.
Limitations of the Data	Air monitoring data provides information regarding concentrations at the specific location of each monitor. Considerable within county variation in concentrations will likely exist but will not be captures in this measure.
Related Measures	Asthma and other respiratory diseases

Air quality Indicator – **Ambient concentrations of ozone** (average of daily 8 hour maximums for the six month ozone season)	
Measure	Parts per million (ppm)
Geographic Area	County (values from each monitor averaged each day)
Time Period	Ozone season (six months)
Data Resources	EPA Air Quality Systems Monitoring Data, State Air Monitoring Data
Limitations of the Measure	This measure provides a general indication of the overall trend in annual ozone concentrations. It may be affected by density and placement of monitors, and coverage will vary. It does not directly reflect exposure. However, ozone tends to be a regional rather than a localized pollutant, so measurement at the county level is informative.
Limitations of the Data	Air monitoring data provides information regarding concentrations at the specific location of each monitor. Considerable within county variation in concentrations will likely exist but will not be captures in this measure.
Related Measures	Asthma and other respiratory diseases

Birth Defects Indicator – **Prevalence of birth defect X per 10,000 live births**	
Measure	Prevalence of birth defect ‘X’ per 10,000 live births. When supported by sufficient data volume, prevalence will also be calculated stratified by maternal age and race/ethnicity.
Derivation of Measure(s)	Denominator is composed of all live-born infants in geographic region of interest, during a calendar year. Numerator is composed of all live-born infants, fetal deaths (where available), and terminations (where available) with birth defect ‘X’ in geographic region of interest, during a calendar year.
Geographic Scale	State, county, census tract (scale will vary by birth defect, depending on prevalence and confidentiality/data suppression guideline)
Time Period	Annually
Use of the Measure	Twelve birth defects have been prioritized by the Birth Defects Content Work Group Team. • Anencephaly • Spina bifida • Hypoplastic left heart syndrome • Tetralogy of Fallot • Transposition of the great arteries (vessels) • Cleft lip with or without cleft palate

	• Cleft palate • Hypospadias • Gastroschisis • Upper limb deficiencies • Lower limb deficiencies • Trisomy 21 (stratification by maternal age, <35, >35) Procedure for calculating prevalence is the same for all the birth defects. Once the input data are appropriately prepared, prevalence will be calculable for all defects at the same time.

Lead Indicator – Children <36 months tested	
Measure	Percent of children tested for lead poisoning prior to 36 months of age by community risk category.
Derivation of Measure(s)	Birth year cohort to calculate the percent of children with at least one blood lead test prior to age 36 months by ZIP code. Assign each zip code a "risk" category. The first "at risk" variable evaluated will be the percent of housing units built prior to 1950 (data available from US 2000 census). States can also look at other variables both individually and combined which these variables may include such variables as percent of children living under poverty, educational attainment, and race.
Geographic Scale	Zip Code and Community Risk Category
Time Period	Repeat for each birth year cohort
Use of the Measure	The development of a single analytic method to assess blood lead testing among children living in high risk communities for elevated blood lead levels will inform multiple users to identify populations that are not being adequately tested and improve testing; allow for a better understanding of what the blood lead surveillance data represents when interpreting number of elevated blood lead levels reported; and allow for comparison across states which can be used to target interventions (especially CDC, EPA, HUD). Parents and community members will be able to view the tracking network webpage and learn if their community is at risk and the percentage of children being tested. There will be a public health message which will help interpret the results and provide more information on lead sources and prevention.

Asthma Indicator – Monthly number of asthma hospital admissions	
Measure	Monthly number of hospital admissions for asthma (ICD 493)
Derivation of Measure	Inpatient hospital admission cohort to calculate the monthly number of hospital admissions with a principal discharge diagnosis of ICD-9-CM 493 by ZIP code. States can also look at other variables both individually and combined. These variables may include such variables as number of residents living under poverty, ethnicity, and race.
Geographic Scale	Zip code
Time Period	Repeat for each year cohort
Use of the Measure	The development of a single analytic method for number of asthma hospital admissions among persons living in state will inform multiple users: Department of Environmental Conservation will be able to identify populations that are living in high ozone areas, and allow for a better understanding of what the asthma surveillance data represents when interpreting number of hospital admissions; It will allow for comparison across states which can be used to target interventions (especially CDC and EPA); public and concerned community members will be able to view the tracking network webpage and learn if their community is at risk and the monthly number of asthma hospital admissions. There will be a public health message which will help interpret the results and provide more information on asthma prevention. It will address the following surveillance functions: How many hospitalizations for asthma occur in every month? Is there a seasonal trend to asthma hospitalizations? What's the distribution of asthma hospitalization by place of residence, by primary or secondary diagnosis, or by payor? How do hospitalizations for asthma differ between geographic areas (e.g. zip code, county, state, region)?
Limitations of the Measure	The analysis will use the ZIP code of the resident at the time of the hospital admission and residents may move and their exposure level may change with their move to another area. There are limitations when using zip code as geographic scale: A zip code area is not homogenous; numbers may be too small in rural areas. This measure does not account for other causes (triggers) of asthma. Residents maybe exposed to higher ozone levels in neighboring ZIP Codes (work location, school, day care).
Data Sources	State hospital discharge data for information on residents, who were admitted, and their age, race, ethnicity, and ZIP Code.
Limitations of Data	State hospital discharge data: Need to obtain permission to use. Only persons experiencing severe asthma events are hospitalized. Therefore, hospitalizations for asthma are only one piece of a larger picture that describes asthma burden. VA, IHS, and institutionalized (prison) populations are excluded. In-state residents who are hospitalized in surrounding states would not be included unless states have hospitalization data sharing agreements. Residents of one state may be hospitalized in a neighboring state and not captured in hospital data for the state where an exposure occurred. Practice patterns and

	payment mechanisms may affect diagnostic coding and decisions by health care providers to hospitalize patients. Does not have an address for all patients admitted. Sometimes mailing address of patient is listed as the residence address of the patient. Patients may be exposed to environmental triggers in multiple locations, but hospital discharge geographic information is limited to residence. Will need to be de-duplicated using a standardized method.

Asthma Indicator – Annual age adjusted rate of asthma hospital admissions	
Measure	Annual age adjusted rate of hospital admissions for asthma (ICD 493)
Derivation of Measure	Inpatient hospital admission cohort to calculate the annual age adjusted rate of hospital admissions with a principal discharge diagnosis of ICD-9-CM 493 by ZIP code. States can also use other variables, individually and combined, such as number of residents living under poverty, ethnicity, and race.
Unit	Rate per 10,000 residents
Geographic Scale	State
Time Period	Repeat for each year cohort
Use of the Measure	The development of a single analytic method for number of asthma hospital admissions among persons living in state will inform multiple users: Department of Environmental Conservation will be able to identify populations that are living in high ozone areas, and allow for a better understanding of what the asthma surveillance data represents when interpreting number of hospital admissions. It will allow for comparison across states for targeted interventions (especially CDC and EPA). Public and concerned community members will be able to view the tracking network webpage and learn if their community is at risk and the annual age adjusted rate of asthma hospital admissions. There will be a public health message which will help interpret the results and provide more information on asthma prevention. It will address the following surveillance functions: Are there disparities in asthma hospitalizations by factors such as age, race/ethnicity, gender, education, and/or income? Which populations are in need of targeted interventions?
Limitations of the Measure	The analysis will use the State of the resident at the time of the hospital admission and residents may move and their exposure level may change with their move to another area. There are limitations when using State as geographic scale: A state is a large entity with many geographical and socio-economic variations, being over smooth, state rate may not show the clusters or pockets, where there is a need for intervention. This measure does not account for other causes (triggers) of asthma. Residents maybe exposed to higher ozone levels in certain areas of the state that will not be possible to see in state wide annual age adjusted hospital admissions rate.
Data Sources	State hospital discharge data for information on residents, who were admitted, and their age, race, ethnicity. US Census for population and other socioeconomic variables
Limitations of Data	State hospital discharge data: Need to obtain permission to use. Only persons experiencing severe asthma events are hospitalized. Therefore, hospitalizations for asthma are only one piece of a larger picture that describes asthma burden. VA, IHS, and institutionalized (prison) populations are excluded. In-state residents who are hospitalized in surrounding states would not be included unless states have hospitalization data sharing agreements. Residents of one state may be hospitalized in a neighboring state and not captured in hospital data for the state where an exposure occurred. Practice patterns and payment mechanisms may affect diagnostic coding and decisions by health care providers to hospitalize patients. Does not have an address for all patients admitted. Sometimes mailing address of patient is listed as the residence address of the patient. Patients may be exposed to environmental triggers in multiple locations, but hospital discharge geographic information is limited to residence. Will need to be de-duplicated using a standardized method. Census data: Only available every 10 years and does not provide smaller geographical level information.

Asthma Indicator – Annual number of asthma hospital admissions	
Measure	Annual number of hospital admissions for asthma (ICD 493)
Derivation of Measure	Inpatient hospital admission cohort to calculate the annual number of hospital admissions with a principal discharge diagnosis of ICD-9-CM 493 by ZIP code. States can also look at other variables both individually and combined. These variables may include such variables as number of residents living under poverty, ethnicity, and race.
Geographic Scale	Zip Code
Time Period	Repeat for each year cohort
Use of the Measure	The development of a single analytic method for number of asthma hospital admissions among persons living in state will inform multiple users: Department of Environmental Conservation will be able to identify populations that are living in high ozone areas, and allow for a better understanding of what the asthma surveillance data represents when interpreting number of hospital admissions. It will allow for comparison across states which can be used to target interventions (especially CDC and EPA). Public

	and concerned community members will be able to view the tracking network webpage and learn if their community is at risk and the annual number of asthma hospital admissions. There will be a public health message which will help interpret the results and provide more information on asthma prevention. It will address the following surveillance functions: How many hospitalizations for asthma occur? What's the distribution of asthma hospitalization by place of residence, by primary or secondary diagnosis, or by payor? How do hospitalizations for asthma differ between geographic areas (e.g. zip code, county, state, and region)?
Limitations of the Measure	The analysis will use the ZIP code of the resident at the time of the hospital admission and residents may move and their exposure level may change with their move to another area. There are limitations when using zip code as geographic scale: A zip code area is not homogenous; numbers may be too small in rural areas. This measure does not account for other causes (triggers) of asthma. Residents maybe exposed to higher ozone levels in neighboring ZIP Codes (work, school, day care)
Data Sources	State hospital discharge data for information on residents, who were admitted, and their age, race, ethnicity, and ZIP Code.
Limitations of Data	State hospital discharge data: Need to obtain permission to use. Only persons experiencing severe asthma events are hospitalized. Therefore, hospitalizations for asthma are only one piece of a larger picture that describes asthma burden. VA, HIS, and institutionalized (prison) populations are excluded. In-state residents who are hospitalized in surrounding states would not be included unless states have hospitalization data sharing agreements. Residents of one state may be hospitalized in a neighboring state and not captured in hospital data for the state where an exposure occurred. Practice patterns and payment mechanisms may affect diagnostic coding and decisions by health care providers to hospitalize patients. Does not have an address for all patients admitted. Sometimes mailing address of patient is listed as the residence address of the patient. Patients may be exposed to environmental triggers in multiple locations, but hospital discharge geographic information is limited to residence. Will need to be de-duplicated using a standardized method.

Myocardial Infarction Indicator – Annual rate of hospital admissions	
Measure	Annual rate of hospital admission for MI (ICD-10-codes for acute MI: 121-122, ICD 9- 410-410.9)
Derivation of Measure(s)	Inpatient hospital admissions by county or zip code) will be used to calculate the annual rate of hospital admissions with a principal discharge diagnosis of ICD 10- codes for acute MI: 121-122 or ICD 9 codes - 410—410.9, Other codes include 411: other acute and sub acute forms of ischemic heart disease, ICD-9 codes 412: old MI, ICD-9: ICD-9 413: angina pectoris and ICD-9 414: includes other forms of chronic ischemic heart disease. (Coronary Heart Disease). States can also look at other subgroups both individually and combined. These variables may include hospitalization rates of those age 65 and over, those living in poverty , by ethnicity (African American , Hispanic, Caucasian) , urban versus rural , areas of increased traffic density, etc
Unit	Rate per 10,000 residents
Geographic Scale	Zip code, county
Time Period	Repeat for each year of admissions
Limitations of the Measure	The analysis will use either county or ZIP code of the resident at the time of the hospital admission. Residents however may move and their exposure level may change. There are limitations when using zip code as geographic scale: A zip code area is not homogenous; numbers may be too small in rural areas. This measure does not distinguish between causes (triggers) of MI; residents maybe exposed at work or while commuting; hospitalizations for any one individual can be multiple and without a unique identifier so will overestimate the population, making the calculation of an incidence rate problematic. With this caveat, hospitalization rates per 10,000 populations can be calculated.
Data Sources	State hospital discharge data for information on residents, who were admitted with age,, race, ethnicity, and ZIP Code variables included. US Census for population and other socioeconomic variables
Limitations of Data	State hospital discharge data: Need to obtain permission to use. No individual identifier or addresses are provided due to confidentiality. Silent MI and sudden cardiac deaths that do not reach the hospital will be omitted. VA, HIS, and institutionalized (prison) populations are excluded In-state residents who are hospitalized in surrounding states would not be included unless states have hospitalization data sharing agreements. Residents of one state may be hospitalized in a neighboring state and not captured in hospital data for the state where an exposure occurred. Practice patterns and payment mechanisms may affect diagnostic coding and decisions by health care providers to hospitalize patients. Does not have an address for all patients admitted, only zip code. Sometimes mailing address of patient is listed as the residence address of the patient. Patients may be exposed to environmental triggers in multiple locations, but hospital discharge geographic information is limited to residence. US Census data: Will need to be de-duplicated using a standardized method and is only available every 10 years

Vital Statistics Indicator - Perinatal mortality rate	
Measure	Perinatal mortality rate
Derivation of Measure	Number of fetal deaths at 28+ weeks gestation plus infant deaths up to 7 days old in any given year divided by the number of live births plus fetal deaths in the same year
Unit	Deaths per 1000 live births plus fetal deaths 28+ weeks gestation
Geographic Scale	County
Time Scale	Annual
Use of the Measure	Identifying populations with higher perinatal mortality rates may provide leads on where to look for potential environmental problems. It will assist in targeting outreach with educational and other interventions and improve understanding of geographic variation, time trends, and demographic patterns of perinatal death.
Limitations of the Measure	An important limitation of this health outcome measure is the heterogeneity in its etiology. Environmental hazard and exposure-related causes of perinatal death are only one piece of a puzzle that includes many other factors such as access to and quality of health care, competency in childcare and understanding of injury prevention. It may be reasonable to assume universal reporting of live births in the US; some fetal deaths may be missed in some regions, although the number occurring at 28+ weeks may be negligible. The critical information for the purpose of linking to environmental hazards/exposures is place of residence during pregnancy, which may not be represented by maternal residence at the time of the birth, infant residence at death or maternal residence at time of fetal death. The mother may have lived far from the place she gave birth during part or all of the pregnancy; the infant who died may have been born elsewhere. Though probably not as much a problem as with infant deaths, some perinatal deaths will not have arisen out of the denominator of births during same calendar year. Similarly, some deaths 0-7 days may not be arising out of births in a particular calendar year due to migration across states.
Data Sources	Local, state or national vital statistics systems (birth, death and fetal death records)
Limitations of Data Sources	Need to address confidentiality issues in order to link deaths to births. Data on infant race/ethnicity may be incomplete or inaccurate; use of mother's race/ethnicity to infer child's will introduce some error.
Related Indicators	Infant mortality rate, neonatal mortality rate

Vital Statistics Indicator – Neonatal mortality rate	
Measure	Neonatal mortality rate
Derivation of Measure	Number of infant deaths up to 28 days old in any given year divided by the number of live births in the same year
Unit	Deaths per 1000 live births
Geographic Scale	County
Time Scale	Annual
Use of the Measure	Identifying populations with higher neonatal mortality rates may provide leads on where to look for potential environmental problems. It will assist in targeting outreach with educational and other interventions and improve understanding of geographic variation, time trends and demographic patterns of neonatal death.
Limitations of the Measure	An important limitation of this health outcome measure is the heterogeneity in its etiology. Environmental hazard and exposure-related causes of neonatal death are only one piece of a puzzle that includes many other factors such as access to and quality of health care, competency in childcare and understanding of injury prevention. It may be reasonable to assume universal reporting of live births and infant deaths in the US, however some births/deaths may be excluded due to difficulty in distinguishing a death shortly after birth as a live birth; a death soon after birth might be reported as a fetal death rather than live birth and infant death. The critical data for the purpose of linking to environmental hazards/exposures are place of residence during pregnancy and infant residence at death, which may not be represented by maternal residence at the time of the birth or infant residence at death. The mother may have lived far from the place she gave birth during part or all of the pregnancy. The infant who died may have been born and lived for a major portion of its life far from the place of death. Though probably not as much a problem as with infant deaths, some neonatal deaths will not be arising out of denominator of births during same calendar year. Similarly, deaths may not be arising out of births in a particular calendar year because of migration across states and other geographies.
Data Sources	Local, state or national vital statistics systems (birth, death and fetal death records)
Limitations of Data	Need to address confidentiality issues in order to link deaths to births. Data on infant race/ethnicity may be incomplete or inaccurate; use of mother's race/ethnicity to infer child's will introduce some error.
Related Indicators	Infant mortality rate, perinatal mortality rate

Vital Statistics Indicator – Infant mortality rate	
Measure	Infant mortality rate
Derivation of Measure	Number of deaths occurring between the ages of 0-365 days in any given year divided by the number of live births in the same year.
Unit	Deaths per 1000 live births
Geographic Scale	County
Time Scale	Annual
Use of the Measure	Identifying populations with higher infant mortality rates may provide leads on where to look for potential environmental problems. It will assist in targeting outreach with educational and other interventions and improve understanding of geographic variation, time trends and demographic patterns of infant death.
Limitations of the Measure	An important limitation of this health outcome measure is the heterogeneity in its etiology. Environmental hazard and exposure-related causes of infant death are only one piece of a puzzle that includes many other factors such as access to and quality of health care, competency in childcare and understanding of injury prevention. It may be reasonable to assume universal reporting of live births and infant deaths in the US, however some births/deaths may be excluded because of the difficulty in distinguishing a death shortly after birth as a live birth; a death soon after birth might be reported as a fetal death rather than live birth and infant death. The critical information for the purpose of linking to environmental hazards/exposures is place of residence during pregnancy or the first year of life, which may not be represented by maternal residence at the time of the birth or infant residence at death. The mother may have lived far from the place she gave birth during part or all of the pregnancy. The infant who died may have been born and lived for a major portion of its life far from the place of death. Deaths are not necessarily a subset of births, unless they are linked through potentially confidential information such as infant's name, date of birth, place of residence; some deaths will not be arising out of denominator of births during same calendar year. Similarly, deaths may not be arising out of births in a particular calendar year because of migration across states and other geographies.
Data Sources	Local, state or national vital statistics systems (birth, death and fetal death records)
Limitations of Data Sources	Need to address confidentiality issues in order to link deaths to births. Data on infant race/ethnicity may be incomplete or inaccurate; use of mother's race/ethnicity to infer child's will introduce some error.
Related Indicators	Perinatal mortality rate, neonatal mortality rate

Vital Statistics Indicator – Percent of very preterm singleton births	
Measure	Percent of very preterm singleton births
Numerator	Number of live singleton infants born before 32 weeks of gestation to resident mothers
Denominator	Total number of live singleton infants born to resident mothers
Geographic Scale	County/Census tract/Zip code
Measure Of Frequency	Monthly number of very preterm births during the month; Annual number of very preterm births occurring during the calendar year; Monthly proportion/percentage of very preterm births processed during the month; Annual rate and proportion/percentage of very preterm births occurring during the calendar year
Limitations Of The Measure	Uncertainties associated with gestational age estimates: The interval between the first day of the mother's last normal menstrual period (LMP) and the day of birth is one method used to determine the gestational age of the newborn. However, this measurement is subject to error for many reasons, including imperfect maternal recall or misidentification of the LMP due to post-conception bleeding, delayed ovulation, or intervening early miscarriage (Martin et al., 2005). Thus, for the purpose of calculating national statistics of preterm births, these data are being edited for gestational ages that are clearly inconsistent with the infant's plurality and birth weight but substantial inconsistencies in the data still persist (Martin et al., 2005). The National Center for Health Statistics (NCHS) and most state vital records offices report gestational age based on an algorithm that utilizes both the mother's reported last normal menses and clinician's estimate of gestational age. The LMP indicator is used unless its value appears to be inconsistent with birthweight, falls outside likely parameters, or was not reported. If so, the clinical estimate is used. Nationwide in 2004, approximately 5.9% of gestational age values were based on the clinical estimate (Martin et al., 2006). Changes in reporting of the gestational age over time may affect trends in preterm birth rates, especially by race (Martin et al., 2005). These reporting problems may occur more frequently among some subpopulations and among births with shorter gestations. Difficulties of interpreting very preterm birth rates: (1) The very preterm birth rate might be an indicator of pregnancy outcome that does not necessarily inform about the true health risk associated with early birth. Rates of very preterm births based on live

	singleton births may be affected by maternal characteristics; a low very preterm birth rate might indicate a low-risk population and a high very preterm birth rate might be a sign of maternal characteristics that predispose to very preterm birth. (2) The measure is also affected by complex factors that determine which births are classified as very preterm. Among those factors could be systematic practices that alter fetal death rates that are medically induced terminations (Monaghan et al., 2000). When this occurs prior to 32 weeks gestation, and a fetus is terminated that otherwise could have resulted in a live birth, the rate of very preterm births decreases. Conversely, when induced termination does not occur, a very preterm birth may be gained and the rates increase. Therefore, a low very preterm birth rate could indicate high fetal mortality and poor reproductive health of a population or a high abortion rate, whereas a high very preterm birth rate could be a result of advanced technology and life-saving techniques. (3) The measure can be affected by patterns existing within individual subcategories of preterm labor that may be difficult to examine, such as very preterm birth following ruptured membranes, medically indicated very preterm birth, or spontaneous very preterm birth. Recommendations. The very preterm birth rates should be interpreted with caution and ideally the NCHS algorithm should be used in the presentation of gestational age. The very preterm birth rate should be only one of the reproductive outcome measures being monitored and should be accompanied by the infant mortality rate (neonatal and post-neonatal), fetal death rate (???), and morbidity measures. This measure only includes live singleton very preterm births. Proportions of very preterm births among live multiple birth categories may also be informative measures.
Data Resources	Birth certificates' data from Vital Statistics state systems (both numerator and denominator); National Vital Statistics System (NVSS), CDC, NCHS; CDC Wonder: Natality Data Request, CDC http://wonder.cdc.gov/natality.html CDC GIS Reproductive Health Atlas: http://cdcd.gov/reporoductivehealth/gisatlas/index.htm
Limitations Of Data Resources	Although vital statistics data are readily available, high quality, and otherwise useful for various purposes, including public health surveillance, they cannot be correctly interpreted unless various qualifying factors and classification methods are considered (see also "Appropriate Use of the Measure"). The factors to be considered will vary depending of the intended use of the data; however, most of the limiting factors results from imperfections in the original records and they should not be ignored. Yet, their existence does not lessen the value of the data for the purpose of calculating/estimating this measure. The credibility of gestational age estimates needs to be examined. At the minimum, the following data quality attributes should be evaluated: completeness of registration, reporting and quality control procedures, records geocoding procedures and quality, etc. One important limitation of the data is the speed at which data are available. Due to the normal functioning of the Vital Records system, it can sometimes takes weeks and even months after the end of a particular month before all births that occurred during that month are sent to Vital Records by the hospitals, etc. and are processed by them. This is particularly the case for New Mexico resident births that occur out of state. Therefore, for a monthly measure, it makes sense to examine the number of births PROCESSED during the month that are very preterm or moderately preterm (rather than the number of births occurring during the month that are very or moderately preterm). To some degree, this looses the strict temporal aspect of the measure since it is subject to the variability in reporting by individual hospitals which can occur due to staffing shortages and changes in workloads in the various hospital records departments. At Vital Records, the final birth file for a particular calendar year can take four to nine months after the end of the calendar year to close and be made available for epidemiological use. Due to the Vital Records editing process, final data based on the number of New Mexico resident births occurring during the calendar year will not match the monthly process totals. Additionally, due to the continuing nature of the Vital Records collection process, it is not unusual for a birth record to be corrected or amended weeks or months after it was originally processed by Vital Records. Therefore, monthly reports from Vital Records could include uncorrected and pre-amended births; however, most of these births will be corrected or amended once the yearly birth file has closed. Adoptions, which can take months to process, are subject to amendments to the original birth record. It is possible that a birth record arrives at Vital Records with the demographic characteristics of the birth mother (including race/ethnicity, education level, etc.) only to be amended months later and replaced with the demographic characteristics of the adoptive mother instead of those of the birth mother.
Related Sets Of Data	HP2010, Objective 16: Maternal, Infant, and Child Health, 16-11c: Reduce live births at less than 32 weeks of gestation from 2.0% (1998 Baseline) to 1.1% (2010 Target)]. Birth Defects surveillance systems; Developmental disabilities data (e., autism, hearing loss, AHDD); Asthma surveillance data; SES; Ambient Air Quality Data (e.g., particulate matter, ozone); Indoor Air Quality Data - need to be developed (e.g., ETS, VOCs); Safe Drinking Water Quality Data (e.g., disinfection by-products, including THMs, HAAs, and individual HMs; other VOCs; and various endocrine disrupters).
Appropriate Use Of The Measure	This indicator can be utilized to inform public health prevention actions and interventions, policy makers and the public regarding risk factors management and mitigation. Cautions: To Be Developed