

Reexamining the Organization of Perinatal Services Systems

A Preliminary Report



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Johns Hopkins University
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We appreciate the dedication and commitment of these individuals, and thank them for all of their input and participation.

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Introduction

Like many components of the health services system, the organization of perinatal services in the United States has changed over the past decade. There is concern that these changes may have important effects on maternal and newborn morbidity and mortality, but little documentation exists regarding the nature of or reasons for the changes.

The objectives of the project reported here are to 1) describe the current organization of the system of perinatal health services in selected States; 2) describe who and/or what is influencing the design and operation of the system; and, 3) explore the perceived impact(s) of the current system on perinatal health care. This report provides preliminary descriptive information about the status of the organization of perinatal health services systems in 11 States. This work is part of a larger effort to assess the organization of perinatal service systems at both the State and local level, and the factors currently influencing them. Over the coming months, data from 200 surveyed communities will be analyzed in conjunction with the state system information.

Approach

States were selected for this assessment to reflect variation with respect to level of infant mortality, managed care penetration, geographic location, history of regionalization and governmental public health structure (i.e., nature and degree of centralization). With one exception, States were not selected if considerable information was already published about the State system (see Johnson and Little 1999). The 11 States included in this assessment are: Arkansas, Colorado, Connecticut, Georgia, Indiana, Missouri, New Jersey, Oregon, Virginia, Washington and Wisconsin.

Telephone interviews were conducted with representatives of the Maternal and Child Health (MCH) programs in each of the 11 State Health Departments using a general interview guide. Other related human services agency representatives familiar with the organization of perinatal health services in the State participated in many of these interviews. Additional materials, such as reports, documents describing guidelines for care or levels of hospitals, and State regulations, were obtained to supplement the interview data. A more detailed discussion of the methods is presented in Appendix A.

Following the interviews, summaries were prepared to describe the organization of perinatal health services, perinatal services and systems financing, data sources and accountability mechanisms related to perinatal health and services systems, and changes, challenges and opportunities related to perinatal care in each State. These summaries were shared with the States for review of accuracy. The revised versions, based on comments from State staff, are reported here.

To provide a backdrop to the interview and document review information, other data sources were used to describe the health and health services context for each State. Data about the characteristics of the State's birth population were obtained from the 1998 Final Report of Natality Data from the National

Center for Health Statistics (NCHS) (Ventura, et al., 2000). Data on the infant mortality rate were taken from the Final Report of Mortality Data from NCHS, the most recent data available at the time of this report (Hoyert, et al., 1999). Information about the structure of the health department in each State was obtained from Fraser (1998). Finally, there were two primary sources for data on managed care programs and penetration in each State: Joffe (1998) and Ketsche, et al. (1999). When other sources are used for a given State, references are provided. Appendix A provides a more complete description of the data drawn from each of these sources.

The situation with managed care in most States is very fluid and the data on managed care are presented for one point in time based on available information. Moreover, managed care penetration is reported differently by different sources of data. Finally, the observations of State MCH staff, while likely reflecting the overall picture of environmental influences including managed care statewide, are in some cases not based on empirical data, nor do they represent how changes in the health care environment may be affecting access to perinatal health care and organization of the system at the local level.

General Observations

In general, perinatal services are organized to meet the local needs of health care providers and clients specific to each State. Nevertheless, some common features of these systems were noted across the 11 States, revealed in summary tables. These observations are preliminary, and will be subsequently supplemented with the community-level information described in Appendix A.

Even when regulations for the organization of services exist, communication and interactions among providers and facilities are substantially influenced by historical, established relationships. In the absence of regulations, such relationships are the glue that holds the perinatal system together. Second, all 11 States have some process, whether formal or informal, to designate the level of obstetric and newborn care provided in facilities, although the focus is often on newborn care. This process most commonly involves self-designation and is based on the capabilities of the facility to care for increasingly complex complications in the mother or the newborn. There is variability, nonetheless, in the number of levels that are designated—ranging from two to six across the 11 States—as well as in their definitions.

All of the States examined here now require some or all Medicaid enrollees to receive prenatal and obstetric care from managed care organizations (MCOs), with some flexibility for exceptions in geographic areas where managed care providers are limited in supply. The move to managed care, however, has seemingly not affected the organization of perinatal services to the extent anticipated. While certain of the historical relationships among providers may have been disrupted by the proliferation of managed care, these changes are not perceived by those we interviewed as having affected in any significant way access of high-risk mothers or newborns to specialized care.

A Look into Arkansas

There were 36,685 births among the 546,148 women of reproductive age (15-44 years) in Arkansas in 1998. While overall 77.8 percent of mothers began prenatal care in the first trimester, only 67.6 of non-Hispanic Black and 61.6 percent of Hispanic mothers did so; 82 percent of non-Hispanic White women received early care in 1998. Arkansas is faced with the high infant mortality rate of 8.7 infant deaths per 1,000 live births, much greater than the U.S. rate of 7.2 in 1997. Concomitantly, the State had a high low birth weight (LBW) rate of 8.9 percent in 1998 (13.9 among non-Hispanic Black infants) compared to the U.S. rate of 7.6 (13.2 for non-Hispanic Black births); 1.7 percent of births (2.8 for non-Hispanic Black births) were very low birth weight (VLBW) compared with 1.4 percent (3.1 percent for births to non-Hispanic Black women) for the nation.

The Arkansas Department of Health (ADH) is a centralized State agency that oversees public health operations in all seventy-five counties of the State through six bureaus, ten regional area offices and ninety-five local health units. The Title V Block Grant is administered by the Maternal and Child Health (MCH) Section of the ADH Bureau of Public Health Programs (BPHP) (Arkansas Title V Block Grant, 1998).

Arkansas has low managed care penetration. Most national managed care plans that formerly had a presence in Little Rock have since left. HMO market penetration in 1997 was low at 9.7 percent, and PPO market penetration was 19.2 percent. Managed care penetration is limited statewide for both the private and public sectors. Facility-based Health Maintenance Organizations (HMOs) are not common; most managed care is provided through provider networks and primary care case management. The Arkansas Medical Society helped private community physicians form provider organizations in rural areas, such that they now can negotiate with large employers. About eight or nine such physician organizations exist covering approximately two-thirds of the State geographically.

The Organization of Perinatal Services

Perinatal services in Arkansas are informally organized statewide based on long-standing provider and facility relationships that have evolved over the past 16 or so years. While no formal guidelines for facility designation or referrals exist, over seventy-five percent of VLBW babies in 1996 were born in hospitals with a Neonatal Intensive Care Unit (NICU), reaching the State goal for that year. The development of this informal "system" began in the early 1980's with an annual training conference hosted by the University of Arkansas for Medical Sciences (UAMS). The ADH shared the responsibility for convening perinatal providers by hosting this conference every other year for several years. Recently, however, UAMS plans and conducts this workshop with participation from ADH. Essentially all key Arkansas players in the perinatal care arena attend these meetings at which referral patterns, care guidelines, and other issues relevant to the delivery and organization of perinatal services in the State are discussed and problems addressed.

Perinatal services, particularly subspecialty services, are clustered in the Little Rock metropolitan area, which is situated at the geographic center of the State. There is no official definition or process related to designation of levels of care, but the traditional three-level framework is used in discussions about perinatal services, particularly with regard to neonatal intensive care. Somewhere between 60 and 75 hospitals statewide provide maternity services. Three hospitals in Little Rock have neonatal intensive care units, with Children's Hospital receiving the most referrals. There are moderate size (level II-type) hospitals in 3 of the 4 corners of the State that have obstetricians and pediatricians on staff, but no consistent neonatal medicine capacity. These "Level II's" may, for example, ventilate a baby for 12 to 24 hours to assess its condition, for example, but if a greater intensity of care is needed, the baby is transported to subspecialty hospitals in Little Rock. In the northeast corner of the State, seriously ill infants are referred to Memphis, Tennessee for specialty or subspecialty care. The number and type of Arkansas' hospital birthing facilities has not changed in recent years.

In this informal perinatal system, the ADH plays several active roles. The MCH section staffs the statewide Governor's Perinatal Advisory Board (PAB). Created in 1988 by statute, the Perinatal Advisory Board reviews trends in health and perinatal activities and recommends actions to improve maternal and infant health and health care. The PAB also serves as the oversight body for the State Infant Mortality Review program (Arkansas Title V Block Grant, year). The board meets twice a year, and is perceived to be an "effective forum for the health department to get feedback from experts around the State." Its members are diverse, reflecting all geographic areas of the State, and all relevant stakeholders, including the hospital association, AAP Chapter, ACOG section, AAFP Chapter, Medicaid, Administration for Children and Youth, UAMS, and the State's Area Health Education Centers (AHECs). The PAB produces a report every other year (consistent with the legislative calendar) that includes extensive information on health status and services, and recommendations for system improvements (followed-up on by the MCH section staff).

The professional medical societies are very active in the organization of perinatal services, including the Family Practice Academy (Family Practice Section of the Medical Society) as well as the State's American Academy of Pediatrics (AAP) chapter and American College of Obstetricians and Gynecologists (ACOG) section and the hospital association. The State's "health community" is very close-knit, and much gets done because people have worked together in so many ways over the years.

Professional education has been used as a tool over the years to evolve and sustain appropriate referral patterns and appropriate use of tertiary facilities. The MCH section routinely collaborates with UAMS and others in educational conferences and other training, through which much of the informal policy and perinatal system practice is determined. As noted above, there is an annual statewide conference. In addition, the AHECs routinely reach providers throughout the State. They have satellite links to 19 locations, and many providers (family practitioners, obstetricians, pediatricians, and nurse practitioners) participate.

The MCH section also works with the Campaign for Healthier Babies, a program to improve birth

outcomes by encouraging pregnant women to obtain early and continuous prenatal care. These activities include a media campaign, the “Happy Birthday Baby Book,” a book of coupons that correspond to the months of pregnancy, and the *Babies and You* work-site education program. The Campaign's core coalition consists of the ADH, the Arkansas Department of Human Services, Arkansas Advocates for Children and Families, UAMS Medical Center, the Arkansas High Risk Pregnancy Program, the Arkansas Chapter of the March of Dimes and Arkansas Children's Hospital. They host regional conferences, visit hospitals, and conduct Grand Rounds to keep providers updated on emerging concerns and new developments in both policy and practice.

The MCH section is also a participant in the Arkansas Center for Health Improvement, a fairly new entity that serves as the State's health advisory board. The Center works with the university system, managed care organizations, and other constituencies. The ADH's Center for Health Statistics also plays a major role influencing the delivery of perinatal services in Arkansas, as described below.

Perinatal transport services do not operate under formalized arrangements. Children's Hospital in Little Rock has a helicopter that is widely used. Most transport, however, is by ambulance, managed through the State's EMS system. The MCH section reports that transport services are generally perceived to be adequate.

Significant geographic variability exists in terms of back-up obstetrical care for high-risk pregnancies. Moreover, continuity of care is of particular concern in the rural areas of the State. With its significant concentration of specialty and subspecialty care resources, Little Rock provides clinics for women with medically high-risk pregnancies. Communities with specialists in obstetrics/gynecologists and Pediatrics also exist in regions of the State located one to three hours driving distance from Little Rock. Hospitals in these communities provide care for moderately at-risk mothers and infants. In other communities, many women receive their prenatal care from family practice physicians. Referral to specialty care in these cases is dependent on the practice routines and preferences of the community physician.

Services and Systems Financing

The ADH funds the provision of direct perinatal health services. Prenatal care for low-income women living significant distances from the Little Rock area is provided through public health departments, community health centers (about 30 statewide), and AHECs. Approximately 45 nurse practitioners “circuit-ride” to local health department prenatal clinics in 68 of the State's 75 counties. The MCH section has developed a maternity record that incorporates risk assessment and care planning consistent with assessed risk. Two obstetricians (the MCH director and another) in the ADH provide consultation for these nurse practitioners and assist with referrals to specialty centers, as appropriate. Approximately one-third of all pregnant women in Arkansas receive some of their prenatal care from a local health unit each year. No funds are specifically allocated for maintenance of a perinatal services system beyond the support of these clinics, the

resources used to staff the Governor's Perinatal Advisory Board, and funds that support the annual educational conferences.

Approximately 48 percent of all births in Arkansas annually are paid for through Medicaid. Arkansas has a 1915(b) waiver and has implemented a statewide primary care case management (PCCM) program known as "ConnectCare." Participation in ConnectCare is mandatory for persons eligible for Medicaid based on TANF or TANF-related categories, SSI/SSI-related categories, and PWP/SOBRA. Beneficiaries in this program must choose a primary care physician to coordinate their care. Following passage of the 1989 Omnibus Budget Reconciliation Act (OBRA '89) statutory changes in the welfare program, Medicaid increased financial eligibility criteria for pregnant women in Arkansas and infants to 185 percent of the federal poverty level. Two years later, however, this decision was reversed due to Medicaid budget shortfalls. Financial eligibility criteria is currently set at 133 percent federal poverty level.

Arkansas requires targeted case management (generally limited to medical as opposed to social case management) for Medicaid-eligible pregnant women, provided by a woman's physician or nurse practitioner. Beyond the PCCM program, Medicaid services are paid for on a fee-for-service basis. ADH, through a memorandum of agreement with Medicaid, establishes guidelines for maternity, family planning, and child health services provided by the local health units. Otherwise, ADH does not participate in standard-setting efforts by Medicaid related to perinatal care.

Medicaid has set reimbursement rates at about 80 percent of Usual and Customary Rates, which is about the same as payment rates within the commercial sector. Reimbursement rates are reported not to limit private sector involvement in providing care to Medicaid beneficiaries.

The PCCM FFS arrangement has had a significant, positive impact on the health department's resources and women's access to care. Medicaid pays for care coordination and other enhanced services in the health department and UAMS clinics. It reimburses local health departments for enhanced prenatal services, including case management/care coordination, and a special package of educational services. The local health departments also are reimbursed by Medicaid for identifying and enrolling eligible women, and for linking them with a PCCM. This arrangement is perceived by the MCH section to be an effective partnership. The volume of health department-provided prenatal care has not decreased noticeably, a trend noted in many other States. There has, however, been a decline in visits to local health departments for EPSDT services; the MCH section presumes that the reason for this decline is that children are increasingly receiving their care in the private sector.

Data Sources and Accountability Mechanisms

The ADH's Center for Health Statistics analyzes hospital discharge and PRAMS data. It also links birth and death certificates (birth certificates are electronic in some facilities), and link Medicaid data (available

sporadically) with birth certificates. Data are analyzed at the State agency by county, and are shared with the local health departments. Public reporting of county-level data is difficult, because certain counties have only one hospital, and pinpointing the hospital of delivery is too transparent. Specific attention is given to concerns related to timing of entry into prenatal care. Currently, the health department does not receive data from any managed care plans, and, to the best of their knowledge, neither do other public agencies.

Another important source of data is the Arkansas Reproductive Health Monitoring System (ARHMS). This system has been in operation for about 15 years, funded through a variety of sources including the CDC, the State health department, and UAMS. A large CDC grant was obtained in 1997, extending ARHMS to become a Center for Birth Defects Research and Prevention. The Center identified the Arkansas neural tube defect rate as one of the highest in any State. As a direct result of these findings, the State is conducting a vigorous public awareness campaign for the use of folic acid. The campaign is a joint project of UAMS, ADH, March of Dimes, and several private companies.

The MCH section directs significant attention to perinatal services monitoring through their data analysis and dissemination activities. The ADH recently hired an epidemiologist, and is putting more resources into building data infrastructure. It has begun several projects that include evaluating the Campaign for Healthier Babies and compiling perinatal health status indicators into a county resource book. Other projects include linking the Medicaid claim files to birth certificate files to enable an evaluation of the births paid for by Medicaid and linking the ADH Management Information System data to birth certificates to enable an evaluation of patients obtaining prenatal care at clinics of the ADH (Arkansas Title V Block Grant, 1998).

Facility and hospital care monitoring occurs primarily through the Joint Committee on Accreditation of Healthcare Organizations process. The State Facilities Services Division of ADH reviews 5 hospitals on an annual basis, and conducts reviews when a complaint arises. Obstetrical Department staff in most hospitals meet monthly and review concerns related to perinatal care.

In the last four years, the State began implementing ASPIRE, a strategic planning process undertaken at the local level. The core public health functions were reviewed, and attention was drawn to data needs. It is hoped that major data initiatives will evolve with more resources.

There is a significant movement in the State to promote community/county needs assessments. Assessments were implemented first in Boone County, using tools originally developed for use in Missouri and adapted for Arkansas. Seven counties will begin this process once the Boone County pilot is complete. Two of the seven planned county assessments will be conducted under the auspices of the TANF Transition Employment Assistance (TEA) coalition, and five under the direction of the health department. Since each county has a TEA coalition, many health departments are looking to these entities to provide structure and leadership for making decisions related to community-based systems of care. All TEA Coalitions have a strong interest in adolescent pregnancy and parenting in that the State Department of Human Services

counts these health concerns as a high priority for use of newly realized funds. Many of these coalitions also have a local interest in perinatal services for teens and other pregnant women.

Changes, Challenges and Opportunities

With respect to clinical care, the perinatal services system is reported to be “stable,” in that no major changes have occurred altering referral or care patterns. Corporate shifts, mergers, and buyouts of hospitals are occurring, but there are few problems related to hospital closures or other similar issues.

The State MCH section is concerned about several specific women’s and perinatal health issues. The LBW rate has not changed, and remains high, at 8.9 percent of births in 1998. Screening for chlamydia is now occurring at family planning and prenatal care visits, and screening data will be used to assess performance on reducing the rate of preterm births. Substance abuse among pregnant women is a serious concern in Arkansas, but resources for treatment historically have been very limited. State funds were recently allocated to enhance availability and access to treatment services for pregnant women. Postneonatal death rates are higher than would be expected, even with a decline in SIDS deaths. Of concern is the continued existence of diarrheal disease among infants, in particular, those living in the Mississippi Delta area. Focused education and provision of electrolyte solutions has been undertaken with assistance from CDC. A new statewide Infant Mortality Review initiative supported by the federal Maternal and Child Health Bureau is under way.

Further, the population of immigrants is growing, composed largely of Spanish speaking people, particularly Mexicans. The health department is developing customized services for this population, using translators and bi-lingual nurses and nurse practitioners.

A Look Into Colorado

In Colorado, 59,577 births occurred in 1998 to the 886,562 women of reproductive age (15-44). The overall percentage of women who began prenatal care in the first trimester was 82.2 percent in 1998; it was 87.9 percent among non-Hispanic White women, 76.2 percent among Black non-Hispanic women and 68.3 percent among Hispanic mothers. Colorado had an infant mortality rate in 1997 of 7.0, similar to the U.S. rate. The State, LBW rate, however, was 8.6 in 1998, much higher than the U.S. rate of 7.6 (a rate of 13.3 for infants of non-Hispanic Black mothers); the VLBW rate of 1.3 percent (3.0 for infants of non-Hispanic Black mothers) was similar to the U.S. rate.

Colorado's Department of Public Health and Environment (DPHE), the Family and Community Health Services Division, is responsible for administering the State's Maternal and Child Health Block Grant and, thus, accountable for perinatal health within the State. The Department is decentralized, with much of the public health activity directed at the county level. The State Maternal and Child Health (MCH) program makes Title V monies available in selected areas for agencies such as local health departments or community nursing agencies to conduct work including (but not limited to) needs assessments on perinatal care within their communities. Local areas also seek funding from other sources for needs assessments related to perinatal health care.

Managed care has a strong presence in Colorado; the HMO market penetration rate in 1997 was 34 percent, and the PPO penetration rate, 23 percent. It is growing at a moderate rate, with an average yearly growth rate of 24 percent for HMOs from 1995 to 1997. Mandatory Medicaid managed care was implemented about 4 years ago, and 75 percent of all enrollees must be in managed care plans by July 2000. Currently, 60-65 percent of all Medicaid clients are estimated to be in managed care plans, but this figure varies geographically based on the availability of managed care providers. In rural areas, managed care's penetration is almost non-existent, although there is a plan which includes all community health centers in rural areas.

The Organization of Perinatal Services

There is an informal organization of perinatal services in Colorado and limited involvement of the State MCH program, whether through legislation, policies, regulation or coordination. The perinatal services system is primarily driven by established relationships and referral patterns among individual providers, market forces, and managed care organizations (MCOs).

The Colorado Perinatal Care Council (CPCC) was established in 1976 by Governor Lamm in response to a DPHE recommendation in the 1975 Colorado Health Systems Plan Framework, and plays a major role today in planning and coordinating statewide perinatal health care delivery. Hospitals (levels I, II and III), professional organizations, and consumers are represented on the CPCC. In addition to hospitals, CPCC has a diverse and representative membership of health care providers, educators, ancillary health workers such as a registered dietitian and social workers, consumers, university faculty, and insurance representatives. CPCC receives its primary funding from voluntary contributions based on the number of

births in each hospital. The State health department provides some support for the infrastructure of the perinatal health system in the form of a coordinator from the CPCC who is housed in the MCH office.

A major activity of the CPCC is the development and periodic revision of guidelines for levels of obstetric and newborn care. The levels of care in Colorado follow the traditional definition in which a Level I facility provides basic care, Level II offers specialty care, and a Level III facility covers subspecialty care. Designation of level of care is voluntary, although a subcommittee of CPCC assists in the identification of Level II and III facilities. Hospitals that choose are asked to complete a designation questionnaire based mainly on the AAP/ACOG *Guidelines for Perinatal Care*. They then self-designate a specific level. Each participating hospital submits this information to a CPCC subcommittee, which agrees or disagrees with their designation, and recommends changes needed to meet the criteria for the self-designated level, as necessary. Because this process is voluntary, there is some blurring of the distinctions between Level II and III facilities. The CPCC currently designates 17 hospitals as Level II facilities, and 9 as Level III facilities.

Specialized perinatal services tend to be clustered in the larger metropolitan areas, particularly in Denver and Colorado Springs. Colorado's nine tertiary centers receive referrals from the entire State, depending on the complexity of the mother's or newborn's condition. Level II facilities in Colorado receive referrals from the surrounding geographic areas. Patients from Grand Junction requiring tertiary care also may be sent to Denver, or to Salt Lake City, Utah, although referrals to the latter are infrequent. Patients from surrounding States (Montana, South Dakota, Wyoming, Nebraska and Kansas) are referred to facilities in Colorado. These out-of-State referrals are based on provider-to-provider relationships.

Each facility establishes policies and procedures for the transition of care between providers and institutions. Geographic barriers are a concern, especially with regard to access to risk-appropriate care. High-risk care is available to women if they can drive to it, and if they have a payer source. EMS is extensively involved in ground transports. Air transports are arranged by the receiving institution.

Problems with access to perinatal care were noted for undocumented women and low-income women. Cultural barriers were also noted for Hispanic women, the largest minority group in Colorado, particularly with regard to obtaining prenatal care in the absence of complications.

Services and Systems Financing

The Colorado DPHE has no role with regard to perinatal care provided by commercial managed care or coverage of care by commercial indemnity insurance. There is also no insurance legislation or State guidelines or regulations relating to the content or coverage of perinatal care. The State MCH program, however, has been involved in the evolution of the Medicaid managed care program and the coverage of perinatal care within it.

The Colorado Medicaid program instituted mandatory managed care about five years ago. There are six managed care organizations (MCOs) that provide clinical prenatal care to enrolled women. In areas of the State where managed care plans and providers are available, Medicaid enrolled women must be in capitated managed care plans. Fee-for-service arrangements, however, are allowed in areas where managed care plans are not available. Women are required to choose a primary care gatekeeper or an HMO to receive benefits. The Medicaid eligibility criteria in Colorado is the federally mandated 133 percent of the federal poverty level.

Medicaid managed care instituted some minimal guidelines in contracts regarding perinatal care. State MCH staff participated in drafting these guidelines, but report that the guidelines are not as strong as they had hoped. While MCH staff expressed concerns about quality of care, managed care representatives focused more on financing. However, a mechanism for quality assessment (QA) was developed in Medicaid, and the Medicaid office is currently conducting a QA perinatal study evaluating risk assessment and referrals.

The State evaluates HMOs using Medicaid HEDIS measures such as the month of pregnancy a woman initiates prenatal care, the number of prenatal visits she completes and her outcome of pregnancy (including gestational age and birth weight). MCOs are concerned about being assessed negatively based on women who enter into care late in their pregnancies. Late entry into care may be due in part to some systemic problems with the third-party enrollment broker system that the Medicaid program initiated in 1998. Under this system, before a woman can be fully enrolled in an HMO, she needs to complete the Medicaid enrollment process. The Medicaid certification process sometimes takes 4-6 weeks, even in the best of circumstances, when a woman actively follows through the process.

Case management is a benefit of Medicaid for high-risk women, under the program called "Prenatal Plus." The Prenatal Plus Program is designed to complement medical care by addressing psychosocial and behavioral risk. Prenatal Plus is a program that reimburses case management services for pregnant women at risk for low birth weight. "Special Connections" also is a Medicaid program, which provides case management and outpatient treatment for substance-using pregnant women. The State has undertaken efforts to educate providers about the Prenatal Plus Program, and increase provider enrollment in it. One MCO has recently signed a Memorandum of Understanding to participate in the Prenatal Plus Program, another is close to doing so, and talks have begun with a third MCO.

Although Medicaid reimbursement for the medical components of prenatal care and labor and delivery is generally considered to be adequate, State MCH staff are very concerned about the viability of the Prenatal Plus Program, because payments only cover 33-38 percent of the costs of services, and providers cannot continue to function at this level of reimbursement. Local sites currently have to pick up the remainder of the costs.

With the implementation of Medicaid managed care, the University of Colorado has steadily been losing

its client base and referral function as women, provided with more options, are increasingly using private providers for perinatal care. Another hospital in Denver has made in-roads into the University's historic outreach function: one perinatologist there has marketed the hospital's services, particularly to patients from Wyoming. The University is trying to retain its current and recover its former clientele, which is important to its training function.

Data Sources and Accountability Mechanisms

The State has many data sources currently used to inform programmatic activities. Vital statistics data are used to specify Title V block grant indicators, and to assess birth weight specific mortality, and the occurrence of very low birth weight (VLBW) births by birth site to evaluate whether or not these high-risk births occur in facilities with the appropriate level of care. Linked birth and infant death certificates are also used for child mortality and maternal mortality reviews. Hospital discharge data provide the most detailed information about births occurring at appropriate levels of care; a separate "complications database" is available. The hospital discharge database is not currently linked to vital records, but will be in the coming year. Colorado participates in PRAMS, and just received the first year of data from the system. The State plans on incorporating these data into the State planning process, and is working with the health statistics unit to distribute PRAMS data to a wide audience. Although the State participates in BRFSS, no information is obtained from the survey related to perinatal health.

Data from MCOs or other insurance companies are not routinely collected. More use is recently being made of Medicaid data (especially by the demographer for the MCH office). These data are being linked to vital statistics data, although there have been some problems regarding this linkage. Studies of perinatal health have been conducted in the State and include one on the cost of births among Medicaid patients participating in Prenatal Plus, and another using more sophisticated analyses to determine the multiple causes of LBW in Colorado. The DPHE is looking more and more towards conducting statewide analyses, using county-specific data.

Changes, Challenges and Opportunities

The organization of the perinatal system in Colorado is reported to be based on established provider relationships. It is considered to be volatile in that shifts in market forces, particularly due to managed care, influence these provider relationships. The organization of perinatal services, as noted earlier, is largely focused on the newborn, and care for the mother is seen as important primarily as it relates to the newborn's health. Further, there are questions about maternal transports versus transporting newborns. In particular, there is concern among MCH staff that maternal transports, although occurring, may not be a priority, and that barriers to transport still exist. Also, because of the loose, unregulated nature of the system, State MCH staff also express some concerns about both medical and psychosocial care, and a

lack of appropriate referrals. The medical aspects of care are often addressed but the psychosocial ones may not be.

State MCH staff also have concerns regarding low-income and undocumented or non-citizen women's financial access to perinatal care. Medicaid eligibility for pregnant women reaches only 133 percent of the federal poverty line, and is not likely to increase unless the State is federally mandated to do so. Further, the number of undocumented immigrant clients in Colorado is increasing, resulting in questions of how to pay for their health care since Title V dollars cover a limited number of patients for prenatal care only, and Medicaid emergency care covers only deliveries. The health department is encouraging the establishment of community funded resources, and encouraging local communities to work with employers to fund maternal and child health care for their employees. Continuation of the Prenatal Plus Program is also uncertain because of the low levels of reimbursement for services provided as part of the program.

The State has recently undertaken a study to evaluate the causes of LBW. In addition, statewide efforts have been initiated by the Colorado Gynecological and Obstetrical Society to prevent preterm births. This effort addresses the medical aspects of preterm births through education of providers, brochures for patients, and a public service campaign. The Colorado Gynecological and Obstetrical Society has a website on preterm birth prevention <<http://www.cdphe.state.co.us/hs/gis/preemie.asp>> linked to the Colorado health department.

A Look Into Connecticut

In Connecticut there were 43,820 births among the 714,845 women of reproductive age (15-44) in 1998. Overall, 88 percent of mothers began prenatal care in the first trimester. The percentage of early users was much greater among non-Hispanic White women (91.3 percent) than for non-Hispanic Black (79.4 percent) or Hispanic (78.2 percent) mothers. Connecticut had an infant mortality rate of 7.2 infant deaths per 1,000 live births in 1997, the same as the rate for the nation. The State also had a LBW rate of 7.8 (13.3 for non-Hispanic Black births), similar to the U.S. rate of 7.6, but its VLBW rate of 1.7 (3.8 for non-Hispanic Black births) was higher than the U.S. figure of 1.4 percent.

The Connecticut Department of Public Health's Bureau of Community Health, Division of Family Health Services, administers the State's Title V Maternal and Child Health Block Grant Program. It is a decentralized agency, with much of the authority for health located at the local level.

Connecticut has a moderate amount of managed care. HMO market penetration in 1997 was 37.6 percent, and PPO penetration was 13.0 percent; the yearly rate of growth of managed care penetration from 1995 to 1997 was 33.7 percent.

The Organization of Perinatal Services

In the 1970s, a voluntary system of regionalized perinatal services in the northern tier of Connecticut, called the University of Connecticut Regional Network Perinatal Program (UNICORN), was developed at and coordinated by the University of Connecticut Health Center (Richardson 1995). The UNICORN program was formally disbanded in the early 1990s. Although this system no longer exists formally, its historical remnants remain, undergirding the current organization of perinatal services in the State. Today, however, the system is increasingly influenced by managed care contract arrangements.

As part of UNICORN, leaders from the University of Connecticut Health Center and John Dempsey Hospital convened providers and representatives from facilities to adopt standards of perinatal care and principles of systems organization and to establish referral arrangements. The northern part of the State (based around Hartford and Dempsey Hospitals) initiated this process, and the southern tier (Yale, New Haven) joined a bit later. The two Hartford-based hospitals served as the "hub" of the informal system. The central role of these two hospitals was lost in the early 1990s when, as noted above, the program was formally disbanded in large part because the initiating director left the program.

Connecticut has 31 birthing facilities, of which 30 are acute care hospitals and one is a birthing center. This number has remained constant for some time. There is no formal designation of levels of care among these facilities, although there is self designation of levels based on general national standards of practice, and the traditional three levels of care. The Connecticut Department of Public Health licenses hospitals, but does not specifically license obstetric services or NICUs. There are a number of specialty centers, the largest of which are Hartford and Yale, New Haven Hospitals. Bridgeport also has a tertiary center.

Standards of care developed by UNICORN were adopted by all the institutions to various degrees over the active phase of the project (1970s and early 1980s). There is no ongoing monitoring of implementation of these standards, however. Nonetheless, referral patterns and standards remain consistent with agreements that developed through that effort, guided by understandings between hospitals.

There are no formal arrangements for regionalization or collaboration among Connecticut's neighboring States, although depending on managed care contracts, some care may be provided in New York or Massachusetts. This care is often arranged by a doctor's special waiver request to a managed care organization (as appropriate). Usually the managed care organizations (MCOs) prefer to keep service provision in the State, although some plans do have tri-State arrangements.

The State public health department "does not have much of a role" in organizing the perinatal services system, and this has been the case for some time. According to the MCH Director, this situation is due in part to the fact that the health department is not involved in direct care, and thus is hesitant to be directive about perinatal systems. Most of the State health department's influence occurs through information and educational activities in collaboration with the State chapters of the American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics (AAP) (for example, the MCH program co-sponsors conferences at which they share educational materials and make presentations), and through analysis of vital statistics data.

Other groups that are very influential in the perinatal health care arena include the professional medical societies, as well as the Connecticut Hospital Association, which is a strong lobbying group. The University of Connecticut Health Center and Yale have long provided leadership.

A system of transport was established with UNICORN in the 1970s, which includes protocols and procedures and periodic educational sessions. It appears to continue to be functioning consistent with the practices and procedures established early on. Payment for transport is through third party insurance. Transport neither was nor currently is monitored by the State. Discussions are currently being held about back transport, and whether a baby should be transported back to a local hospital or directly home. Since managed care plans have to pay for transport if they transfer a baby to a hospital, they more routinely discharge directly to home, whenever possible. EMS does not appear to be formally involved at the State level in these transport arrangements, although State staff suspect that it is at the local level.

The percent of births with very low birth weight for 1996 who were delivered at facilities for high-risk deliveries and neonates was 82.2. Given relatively constant percentages in recent years, only small improvements are expected in the near future.

Across Connecticut, access to care is a challenge in both rural and urban areas. Because of low population concentrations, there are rural areas where provider access is scarce or inconsistent due to buyouts of small hospitals or MCO contract changes, and where it may sometimes be difficult to determine

relationships among facilities. It is possible that, in some parts of the State, pregnant women have to travel some distance to find a participating physician. Transportation becomes a barrier, especially if a car is not available. Public transportation for these areas is nearly non-existent, and sometimes there may be only one taxi company for the entire county.

Services and Systems Financing

By statute, the State is responsible for providing “subsidized nongroup health insurance products for pregnant women” (Sec. 19a-7c) and “Medical Assistance for Needy Pregnant Women and Children” (Sec. 17-134u). Connecticut has a statewide Medicaid managed care program, in which all persons with TANF/TANF-related, SSI/SSI-related (with family eligibility) and SOBRA Medicaid eligibility must enroll in an HMO. The State HMO contract requires participating plans to provide non-emergency transportation, screening for high-risk pregnancies, and outreach to pregnant women who have not been to the doctor in three months. In addition, all HMOs have voluntarily implemented special pregnancy programs, similar to those provided for their commercial enrollees.

Expanded prenatal care services are built into the Medicaid managed care contracts. Arrangements with public providers who offer enhanced services (such as community health centers and Visiting Nurse Associations) are encouraged in the Medicaid program. The State is not significantly involved in monitoring the system, although a small study related to perinatal care was conducted by Qualidime, a peer review organization. A Medicaid Managed Care Council, legislated at the initiation of Medicaid managed care, focuses primarily on issues related to all aspects of Medicaid managed care. Special attention has been given by this group to oral health and behavioral health, but not to perinatal care.

Medicaid managed care reimbursement rates appear to be “higher than in many other States nationally,” which probably reflects the high cost of living in the State. As a general rule, there is no fee-for-service in Medicaid, but some special populations (e.g., children who are wards of the State) and some services (Zero to Three Infants and Toddlers program services, oral health services) are carved out.

The MCH staff of the health department run several targeted programs to improve the health of pregnant women and their infants, in collaboration with local providers. Health services have not been delivered directly by the public health agency for over twenty years, but grants are given to local health departments to develop enabling and wrap-around services. The State’s Healthy Choices for Women and Children (HCWC) program provides access to primary and secondary prevention services related to the risks of alcohol, tobacco and other drug use. The larger community health centers offer comprehensive perinatal programs, which provide medical care during the prenatal and postpartum period often using a midwifery model, and include case management, nutrition, psychosocial, and other enabling and support services.

The Infant Mortality Action Plans Programs, started in the mid 1980s, are located in different sites with the

highest infant mortality rates in Connecticut, to address community-level issues to decrease infant mortality, by bringing local health leadership together. They were transitioned in the late 1990s to become the State's FIMR program, focusing on the development and integration of the local public health infrastructure in the community. The State's Fetal and Infant Mortality Review programs, operating in seven high-risk communities, are expected to play an important role as they develop further.

Data Sources and Accountability Mechanisms

Connecticut gives priority to MCH surveillance through activities such as Pregnancy Related Maternal Mortality Review, Fetal and Infant Mortality Review, and vital statistics data collection and analysis. Title V funds support an epidemiologist in the Office of Program Planning and Evaluation. Most analyses undertaken focus on using vital statistics data to report Title V performance indicators. In addition, the health department reviews some hospital discharge data, called CHIME. These data are owned by the Connecticut Hospital Association, and the State health department's access is limited to the data that it purchases. The Connecticut Medical Society has a longstanding arrangement with the State health department to conduct maternal mortality case reviews. There is no PRAMS in the State, since the State was unable to provide matching dollars and the staffing required by CDC. Connecticut does, however, add perinatal-specific questions to their in the Behavioral Risk Factor Surveillance System survey.

Changes, Challenges and Opportunities

The entire health care market in Connecticut appears to be in a state of flux due to the growth of managed care, as well as to mergers and buyouts among Connecticut's hospitals. In terms of perinatal services, this uncertainty raises several points of concern. First, it is possible that with hospital buyouts, there ultimately may be fewer hospitals delivering babies, a concern in terms of access to risk-appropriate care, as well as training of providers. As noted above, access to care, especially in rural areas, already appears to be a problem. Despite the very fluid situation, the MCH program staff do not perceive that patterns of care have changed significantly. No specific strategies are being developed by public health at the State level to address anecdotal concerns; they are watching for documentation of the existence of systems problems.

Some local providers and constituents have been vocal advocates about issues specific to perinatal care, and greater awareness of relevant issues among legislators has been noted. Some new legislation was drafted concerning newborn hearing screening, newborn HIV screening, and perinatal HIV screening of women. Nevertheless, according to the MCH Director, "perinatal health issues are simply not a priority at this time." The Connecticut Department of Health has identified the prevention of mortality and morbidity related to cancer, cerebrovascular disease, cardiovascular disease, and injuries as priority areas. In addition, the elderly, women, and multicultural health have been targeted as areas of special interest.

A Look Into Georgia

Among Georgia's 1,820,952 women of reproductive age (15-44 years), 122,368 births occurred in 1998. Overall, 86.4 percent of mothers began prenatal care in the first trimester, but only 79.4 percent of non-Hispanic Black and 78.2 percent of Hispanic mothers did so, compared with 91.4 percent of non-Hispanic White women. The infant mortality rate in Georgia was 8.6 infant deaths per 1,000 live births in 1997, much higher than the U.S. rate for that year. The State also had a higher LBW (8.5 percent) and VLBW rate (1.8 percent). However, the respective rates for non-Hispanic Black mothers (LBW 12.7 percent and VLBW, 3.0 percent) were close to the U.S. rates.

Georgia's Division of Public Health has a decentralized structure, with significant activity occurring at the local health department level; direction, coordination and monitoring activities occur at the State level. The State's Title V Block Grant is administered through the Department of Human Resources, Division of Public Health (DPH), Family Health Branch (FHB). Much of the organization of perinatal health services is coordinated under the auspices of the Women's Health Section. DPH is still in the Department of Human Resources, but may ultimately become part of a new department. The State created a new Department of Community Health in 1999, which combined all of the "health care purchasers" -- the Medicaid, State Health Planning, and the State Insurance Agencies -- in an effort to facilitate planning.

Managed care plans in Georgia operate primarily in the Atlanta area. Penetration is low overall, but the FHB staff expect it may increase. In 1995, HMO penetration was 8.2 percent statewide (versus 20 percent nationwide). In 1990, there were two HMOs in the State; as of August, 1998, there were 18 HMOs, with 1.6 million enrollees. An additional 2.2 million individuals were enrolled in other managed care plans (PPO use is high in Georgia's rural areas) (ANF/Urban Institute, Highlights, December 1998). Notwithstanding this overall expansion of managed care, some managed care organizations (MCOs) are reported to have dropped out of the State market of late.

The Organization of Perinatal Services

Regionalization of perinatal care has a relatively long history in Georgia, going back to 1972, with enactment of legislation establishing the Council on Maternal and Infant Health to serve in an advisory capacity to the Department and Board of Human Resources. A formalized regional system of perinatal services was developed soon thereafter based on the first edition of *Toward Improving the Outcome of Pregnancy*.

The Council on Maternal and Infant Health (also referred to as the M and I Council) issues the document "Recommended Guidelines for Perinatal Care in Georgia." In May 1999, the Council released the second edition of these guidelines, which are "intended to be a blueprint for a State perinatal health care system. . . [that] must provide for coordination and direction at the State level and for responsibility for problem solving at the local level." These Guidelines detail a "strategy for action" for the perinatal regionalized system, specific recommendations for clinical care throughout a woman's reproductive course from

preconception to postpartum care (for both the woman and infant), hospital guidelines, transport guidelines, and specifications for levels of care, including definitions, organization, facilities and personnel. In addition to creation of standards, specified statutory roles of the Council include providing oversight of implementation of the standards, establishing indices to determine system effectiveness, and aiding State agencies in coordination with local community efforts related to maternal and infant health concerns. The Council implements some of these roles through a variety of vehicles, such as guidelines dissemination. Oversight of standards, however, has long been opposed by the State's Hospital Association.

The FHB of DPH officially identifies six of the State's subspecialty institutions as Regional Perinatal Centers (RPC). These RPCs receive funding from the DPH and have specific responsibilities for working with the other hospitals and providers in their geographic catchment area related to outreach, transport, nutrition/WIC services, and perinatal education for basic and specialty birthing facilities. The centers also operate developmental follow-up clinics for graduates of their NICUs.

Originally, four regional perinatal centers were designated with defined geographic catchment areas based on the concentration of births statewide; a fifth area and center was added within a few years. In 1994, a sixth center was designated in the southwest corner of the State. The six regions include the cities and their surrounding areas of Albany, Atlanta, Augusta, Columbus, Macon and Savannah.

The regional perinatal centers heretofore have operated independently of Georgia's 19 public health districts. The staff of the Women's Health Section within the FHB, however, are currently working to link operation of these two entities in order to build capacity at the regional level so that more regional level planning can occur. Service patterns statewide currently depend on hospital and payor (managed care) contract arrangements. The FHB staff have worked hard (and effectively) over the past few years to adapt the configuration and definition of the regional schema to address many changing needs and issues, related to increase in managed care, increase in the number of Medicaid providers, and increase in Medicaid payments. The shift has been greatest in the Atlanta metropolitan region.

Georgia identifies its hospitals according to three levels of perinatal care: Basic, Specialty (relates to neonatal component specifically), and Subspecialty (includes "wrap around" services above and beyond the capability for special procedures, including transport, educational components, social support, nutrition services, etc.). Designation of level of care is by self-assessment. The office of State health planning provides a survey using the Maternal and Infant Health Council guidelines as the tool to measure services. There are approximately 103 birth facilities statewide; about 19 are designated as subspecialty and 20 as specialty hospitals. Not all facilities within a single category, however, have the same capabilities. Moreover, a significant oversupply of hospital beds is noted in the Atlanta area, as well as a high concentration of subspecialty facilities.

RPC affiliations affect high-risk patient referral patterns. Each RPC operates two 24-hour consultation and referral hotlines; one for maternal concerns, and the other specific to neonatal inquiries. In addition, the

RPCs have agreements with basic and specialty hospitals in their regions related to transports of mothers and infants. Use of the EMS system for perinatal transports is the preferred means of transport, in part because extensive guidelines are in place for them. On occasion, however, private ambulance companies are used; these companies have generally not been known to adopt or implement the guidelines. On average, 2000 neonatal and 1800 to 2000 maternal transports take place each year. Transport data (and oversight) are only available within areas surrounding the six perinatal centers.

The FHB in the DPH has maintained a leadership role since the inception of the State's organized perinatal care system, exercising its influence through the funding and contractual arrangements with the RPCs. The FHB, based on the authority established under these contracts, uses the "Recommended Guidelines for Perinatal Care in Georgia" to articulate core requirements for the RPCs, and is working to enhance and expand RPC quality assessment roles. Although the "Recommended Guidelines for Perinatal Care in Georgia" serve as standards for the RPCs, they are not used as official standards for all birthing facilities.

Beyond the staff of the FHB, many other organizations and entities play major roles in the organization of perinatal services. The Council on Maternal and Infant Health, which includes 17 individuals (physicians, nurses, hospital administrators, educators and consumers) appointed by the Governor, serves as a focal point for much but not all collaboration. The Council makes recommendations and serves as an advisory council to the divisions and departments around maternal and infant health issues. While the MCH staff report that the Council was not very active in the 1970s and 1980s, it has become much more so of late. The Council meets monthly, and has an Executive Director and one staff member. FHB staff recently collaborated with the Council and its staff to update the perinatal guidelines to be consistent with current technology and other contemporary perinatal care concerns.

The Council has forged strong relationships with professional and organizational constituencies. While neither the FHB staff, the Hospital Association nor the State's Healthy Mothers, Healthy Babies Coalition are members of the Council, they and others routinely attend and participate in Council meetings. The Hospital Association, the March of Dimes, and the Healthy Mothers, Healthy Babies Coalition have a strong voice in deliberating perinatal care issues. Neither the State Medical Association nor its obstetrical and gynecological section, however, are proactive in this arena institutionally. Nonetheless, there is significant interaction among the members of these organizations on an individual, interpersonal basis; much of this interaction involves relationships established through the RPCs.

While the guidelines for RPCs apply equally across the State, access to care in general varies geographically. There is a limited array of services and expertise of providers in some areas, even for performance of cesarean deliveries. The capabilities of Basic level hospitals are limited, and this is especially a concern in the Southwest corner of the State, where all facilities (except the newest RPC) are classified as the basic level.

Services and Systems Financing

As noted above, the Georgia DPH funds the RPCs for system administration and coordination and some clinical services. Over the years, funds supporting the RPCs have been allocated from various sources, including the Title V MCH Block Grant. Most recently, State funds (\$20 million in 1999) have been matched with Medicaid dollars (at a 60/40 rate for services) to support the RPCs through the provision of inpatient services, outreach education, transport, and administration of the system.

Medicaid eligibility for pregnant women was expanded to 200 percent of the federal poverty level in March 1999. More than half (55 percent) of all births in Georgia are now covered by Medicaid. However, there is concern about the disincentives for referral of Medicaid-enrolled high-risk pregnant women to subspecialty centers, as a global fee is paid to the physician who performs the delivery. This is especially a concern if neonates are transported when a maternal transport may have been more appropriate.

Overall Medicaid reimbursement cuts (an estimated \$85 million, or 13 percent, in the past several years) to medical providers have resulted in a decrease in the number of physicians accepting Medicaid patients.

However, substantial increases in the reimbursement for obstetric services in 1996, coupled with decreased rates in private insurance plans, have resulted in a shift in obstetric care for Medicaid clients from public hospitals and clinics to private providers. (Georgia title V Block Grant, year)

Two 1915(b) waivers have made Medicaid managed care programs mandatory in Georgia for women and children eligible by virtue of their welfare eligibility status. However, poverty-level eligible pregnant women are excluded from both the primary care case management and HMO requirements.¹ HMOs are required to cover perinatal (and primary care) case management, which includes social case management, provided by a range of providers (ANF/Urban Institute, Highlights, December 1998). Pregnant women, eligible for Medicaid managed care through differing mechanisms, receive different scopes of benefits, services and care.

Georgia's Title V program has developed an intervention focused on postpartum home visits (paid for by Medicaid) through which both maternal and neonatal assessments are conducted. The MCH program staff developed guidelines and training for these assessments. Since Medicaid is paying for the program for their clients, the MCH staff hope that "demand" will result in the statewide application of this intervention for all women, regardless of their source of insurance coverage.

A Child Health Tracking System called "Children First" has also been developed. This program is linked with the health department, with the intent of identifying high-risk infants (all types of risk, not just medical)

¹In State fiscal year 1998, 42 percent of the Medicaid recipients were pregnant women and children not receiving cash assistance. [ANF/Urban Institute, Highlights, December 1998]

and providing appropriate follow-up. The program helps families get the services their children need for good health and development. Aimed at Georgia's children from birth through the early years of life, Children First is a family-centered, community-based effort designed to promote early identification of all children with conditions that place them at risk for poor health and/or developmental outcomes. It also is designed to assist families in linking their children to a primary health care provider where they will receive periodic comprehensive health assessments, developmental monitoring, referral to appropriate services and service coordination; and to generate data necessary for planning and developing programs to improve the health, social and educational outcomes of Georgia's children.

Data Sources and Accountability Mechanisms

Data are highly valued in Georgia, but the Family Health Branch staff considers this to be a priority area for improvement. Staff say they are “data rich and information poor,” without the analytic capacity to work on developing useful reports. To address this perceived deficiency, the Family Health Branch employed a CDC assignee for the past several years who worked to consolidate available data sets at the State level.

Many data sources useful for monitoring the system of perinatal care are available, including: vital statistics, PRAMS, Family Planning Program data, and transport data. The FHB has access to Medicaid data, but there has been limited analysis of these data to date. Moreover, only two-month periods of hospital discharge data are available to the FHB each year. Therefore, little analyses of these data has been undertaken to date. The MCH program staff do not have access to HEDIS or other managed care data. The State participates in the Behavior Risk Factor Surveillance System survey, and has recently added family planning and intimate partner violence modules.

The FHB now has some expanded epidemiological capacity in the newest regional center. Recently, this RPC developed regional-specific analyses and convened stakeholders for a two-day summit. Data analysis illustrated to the local stakeholders that the problems they perceived as major contributors to poor perinatal health outcomes (e.g., adolescent childbearing) were not those revealed through analysis of empirical data. This summit was reported to have energized the constituency, and the FHB hopes to use the results in southwest Georgia as a model for analysis and sharing of data in the other regions. The FHB also is recruiting two data specialists for the perinatal area, one data manager, and one statistician. They anticipate that the additional personnel will help greatly.

Of particular note with respect to system monitoring, a CDC/World Health Organization collaborative study, based on a longitudinal database of births in the Atlanta area over a 10 year period, determined expected rates of fetal and infant mortality. These rates were then compared to rates across the State. Women's health was found to be a major contributing factor to poor birth outcomes. The CDC/WHO group also looked at some limited MCO data. The raw data from the study could not be shared with DHR, so further analyses were not possible.

Changes, Challenges and Opportunities

Georgia's perinatal services system has undergone several changes over the past few years. A sixth regional center was established, and efforts are being made to link the RPCs with the DPH's health districts. While enabling legislation for the Maternal and Infant Council calls for standards development and implementation oversight, there has long been opposition to governmental promulgation of formal standards of perinatal care, primarily from the State's Hospital Association. Thus, the system operates on guidelines (considered to be less legally binding). FHB staff would like to see a certification process put in place to make hospital level designation as well as other features of the system more consistent and accountable statewide.

As noted above, the Medicaid global fee structure is perceived as a pressing problem. FHS staff anticipate that negotiations underway with Medicaid in this regard can and will result in resolution in the near future.

The recently released findings from the CDC/WHO study of births revealed the need for an increased emphasis on women's health. The MCH program decided, based on this information, to establish Regional Perinatal Coordinator positions to work with the area data in the RPCs (and health districts). This arrangement was piloted in the Columbus region, and resulted there in a new focus on interconceptional health, as well as more traditional issues of concerns such as SIDS. The State also has established goals for women's health, which are to improve health status, services, and the health system and, in turn, the quality of life for women and their families. These goals drive the high level activity that surrounds the organization of perinatal services in Georgia.

A Look Into Indiana

In Indiana, there were 85,122 births among the 1,323,826 women of reproductive age (15-44) in 1998. Overall, 79.9 percent of mothers began prenatal care in the first trimester, 65.3 percent among non-Hispanic Black, 64.7 percent among Hispanic and 82.6 percent among non-Hispanic White mothers. The infant mortality rate (8.2 deaths per 1,000 live births in 1997) in Indiana was higher than the rate for the U.S. . The States's LBW rate of 7.9 percent (13.5 for non-Hispanic Black infants) in 1998 is comparable to the U.S. rate of 7.6 as is its VLBW (1.4 percent overall and 2.9 for infants of Black non-Hispanic mothers).

Maternal and Child Health Services (MCHS) within the Indiana State Department of Health supervises the administration of Title V funds. In fiscal year 1997, MCHS supported direct preventive and primary medical services to pregnant women, new mothers and infants by funding grants to 14 agencies that provided these services in 18 counties, to 10,767 pregnant women and 11,848 infants under one year of age.

The penetration of managed care in Indiana is low. HMO market penetration in 1997 was 13.2 percent and PPO penetration, 27.6 percent; the average annual rate of growth in managed care from 1995 to 1997 was 26.4 percent.

The Organization of Perinatal Services

Within the last five years, there has been unprecedented growth in the organization of perinatal services in Indiana. Before 1994, there were many innovative perinatal programs, but little linking of information or goals of these programs in a systematic way. Fragmentation of effort was a serious problem. In 1994, MCHS staff sponsored a series of town meetings on women's and perinatal health. One statewide and several regional task forces evolved from these meetings. These task forces developed recommendations for the Indiana Strategic Perinatal Plan for the 21st Century, which was approved by the State Health Commissioner in 1996. As a result, the Indiana Perinatal Network (IPN) was established with funds from MCHS.

The Indiana Perinatal Network is a 501(c)3 nonprofit organization that works with the State Perinatal Advisory Board (PAB) of about 50 members. The PAB evolved from one statewide task force for the Indiana Strategic Perinatal Plan. Also established as an outgrowth of the plan were county and multi-county Regional Perinatal Advisory Boards. Because the culture of Indiana's State politics avoids creating laws, rules, regulations or other requirements, no legislative, regulatory or policy mandates were used to promote this initiative. The intent of the boards and the perinatal network is to "lead by consensus."

Determination of the level of care and service provision for Indiana facilities historically has been based on the traditional levels of care: basic, specialty, and subspecialty care. Indiana University Medical Center in Indianapolis is the major sub-specialty center in the State. However, there are now about eight to ten areas

outside of the metropolitan Indianapolis region that contain facilities with neonatologists and perinatologists. These facilities are located in the more populated counties of Lake, Allen, St. Joseph, Madison, Vanderburgh, Marian, Tippecanoe, Delaware and Porter. Throughout the State, there are five self-declared Level III facilities and 35 self-declared Level II facilities.

The existing loosely organized system of referral and hospital designation is based on informal relationships among providers and facilities. Recently, facilities have begun to voluntarily participate in a new hospital survey initiative supported by the Indiana Perinatal Network (IPN) and based on the second edition of *Toward Improving the Outcome of Pregnancy*. The hospital survey is perceived by the MCHS program staff as an excellent educational intervention for hospitals through which facilities can evaluate themselves more critically and realistically in terms of their perinatal services capacity and capabilities. A subcommittee of the PAB is now reviewing results of the first fielding of the survey, and will use these results to develop a consensus statement regarding levels of care.

MCHS program staff play a significant role in the organization of perinatal services, including sponsoring needs assessments, working on planning, supporting the establishment of the IPN and Advisory Boards, providing funding, technical assistance, and monitoring outcomes. The MCHS staff Medicaid Director sits on the State's Medicaid Managed Care Quality Improvement Committee and Clinical Advisory Committee. Additional mechanisms are used by the MCHS program to influence the system. For example, they have a program which provides free pregnancy tests, through which information about Medicaid eligibility and the importance of prenatal care is disseminated.

The IPN developed and adopted a *Perinatal Care Guide* in 1998. Guidelines include medical care, education and counseling recommendations. The Network also is working on a *Baby First-Right From The Start* media campaign, which focuses on lowering infant mortality rates. A grant to the Indiana Chapter of March of Dimes (and now to the IPN) enabled the hiring of three regional Perinatal Facilitators and a part-time media staff person to implement the campaign. The IPN also received funds through a MCH Providers Partnership Grant with the American College of Nurse-Midwives to develop a consensus document on "access to quality care providers." An "on-line magazine" also has been created to help providers statewide keep current on policy, research and practice issues, at <http://www.cpdx.com/ipom>.

Other constituent organizations, such as the March of Dimes, actively collaborate in the organization of perinatal services in the State. During FY '98, the Indiana Healthy Mothers, Healthy Babies and National Perinatal Association chapters voted to change by-laws and to merge with the IPN, Inc. The Network now functions as chapters of both the National Perinatal Association as well as the National Healthy Mothers, Healthy Babies Coalition. A spin-off organization—the Indiana Perinatal Health Planning Group—was formally established to enable individuals, institutions and groups to lobby legislatively. IPN solicits and receives non-governmental funds to further promote the recommendations of the Perinatal Advisory Committee established by MCHS.

A transport system for newborns based on informal relationships among providers and facilities is well-established in the State. Some back transport is conducted, as at times, babies, once stabilized, are sent back to rural hospitals to grow. MCHS and the IPN staff also want to promote more attention to maternal transport, and encourage appropriate practices in this regard. MCHS contacts perceive that the recent hospital survey has begun to raise awareness on the part of providers about this issue. There is some co-management of patients between perinatologists and rural physicians.

Although there are no formal agreements or arrangements for care of Indiana residents in other States or vice versa, there is some cross-over near the State's borders. For example, women and newborns from Gary, Indiana often seek services in the Chicago area. Women in Fountain or Warren counties in Indiana at times go to Illinois, women from South Bend may go into Michigan, some women from Indiana's Clark and Floyd counties travel to Louisville, Kentucky, and others from parts of southeast Indiana travel to Cincinnati, Ohio. The Medicaid program will consider a waiver request from providers who choose to deliver or refer out-of-State. Some Indiana-based hospitals and managed care organizations (MCOs) have established cross-State referral patterns; regional advisory boards are beginning to explore these out-of-State referrals more closely.

Currently, access to (and in some instances quality of) care is compromised by disparities across geographic areas; less densely populated areas have fewer providers. Many providers performing deliveries in the rural areas are family practice physicians. Free-standing birthing centers and lay midwives are not licensed by the State. The transportation system is a challenge, especially for poor women in rural areas enrolled in Medicaid who may have to travel further in order to find participating providers. Women enrolled in managed care at times have to change providers mid-pregnancy as a result of changes in networks or employment; this problem is reported to occur primarily in the commercial insurance market

Services and Systems Financing

MCHS allocates \$410,000 from the Title V block grant for the Indiana Perinatal Network. In addition, MCHS recently received \$190,000 in State funds from the cigarette tax to add to resources for building the perinatal system. The money is to be spent on prenatal care.

Indiana's Hoosier Healthwise Program is a Medicaid Managed Care program based on a 1915(b) waiver. Pregnant women must receive medical services through Primary Care Case Management (PCCM) or Risk-Based Managed Care (RBMC) (i.e., a Health Maintenance Organization), although most select the risk-based managed care. RBMC has higher reimbursement, less paperwork, and payment is delivered in a more timely manner. Medicaid primary care providers sign an agreement with the State, and the State covers targeted case management services for pregnant women that include home visits and social case management services. Fee-for-service options are available under the Medicaid program through PCCM.

MCHS staff report that Indiana's Medicaid program covers about 50 percent of all the State's deliveries. Reimbursement rates for obstetrical care are reported to be good, but pediatricians are less satisfied. Physicians are reported to bolster their reimbursements through "careful use of CPT code strategies." As a result, MCH staff are concerned that the reimbursement system "does not reinforce the appropriate referral" of high-risk babies.

Data Sources and Accountability Mechanisms

The results of an MCH needs assessment was the basis for the perinatal initiative in 1994. In addition, the March of Dimes conducts an independent needs assessment every few years. Linked birth and infant death certificate data are extensively used by State staff, and a number of items have recently been added to the standard birth certificate. A detailed *Perinatal Data Book* is produced and disseminated yearly by the Indiana Department of Health. Geographic Information Systems (GIS) mapping technology is now being used to identify and target areas with high infant mortality and morbidity rates; this information is shared with communities. The Medicaid program is conducting a study with a perinatal focus, and will share the results with MCHS program staff. PRAMS was discontinued in Indiana in 1994 because the health department could no longer support the required data staff.

There is no routine linking of Medicaid and birth certificate data at this time. Indiana participates in BRFSS, but there are no specific questions asked regarding perinatal issues. The sample size would have to be increased to obtain these data.

Fetal and Infant Mortality Reviews (FIMRs) have been operating in five counties (Allen, Elkhart/St. Joseph, Lake, Vanderburgh and Marion), supported with a mix of Federal Healthy Start, State and local funds. Network staff identified common themes from the FIMR projects' data (over 500 cases), and prepared a "Lessons Learned" report that was used as the basis for an educational packet for providers and a video for consumers. Recurring concerns were found with respect to: preterm labor (50 percent of cases); smoking (40 percent of cases); late entry into prenatal care (25 percent of cases); decreased fetal movement (20 percent of cases); and inadequate weight gain during pregnancy (50 percent of cases). Specific recommendations for each issue of concern, as well as infant sleep positioning, are being promoted.

The Indiana Hospital Association has not actively disseminated hospital discharge data, although this situation may be changing. Reports are prepared internally and then shared with the health department. Further, the Department of Health (through a Maternal and Child Health Bureau, State Systems Development Initiative Grant) is supporting a pilot project in Elkhart and St. Joseph counties (and Marshall county under a separate agreement), in which vital statistics data are electronically linked with hospital discharge data. These data will ultimately be linked with individual providers' clinical records. The pilot has been very successful, but more funding will be needed to support continuation and replication of the

project. Also, hospitals' objections to publication of reports utilizing the linked data will have to be addressed in order to move forward with expansions.

Changes, Challenges and Opportunities

The system of perinatal care services in Indiana currently is very fluid in terms of facility operations and designation. MCHS staff noted that perhaps the timing was right for their major perinatal planning efforts. If there had been a clearly defined, rigid organizational system in place, then Indiana may have had more difficulty in adapting to the changes introduced by managed care into the health care market. The IPN seems to have good momentum going, and is becoming a stable structure for the State. Establishment of the Perinatal Plan, the Advisory Boards and the Network are seen as a positive changes.

MCHS staff have addressed several specific concerns about the health of women in the State, including unintended pregnancies, sexually transmitted diseases (there was a syphilis outbreak recently in Marion county), and the health of pregnant women in prison. An additional specific challenge noted is the need to bolster the health system capacity to competently serve the growing population of Hispanic women in the State. MCHS and other units of the State health department are addressing this issue by preparing translated materials and encouraging use of translators by providers. Other health care concerns include implementation of recently passed Universal Newborn Hearing Screening legislation, prevention of neural tube defects in newborns through folic acid intake (a multimedia campaign is targeting this issue), and reduction of teenage pregnancy. Indiana RESPECT is a statewide education campaign to decrease teen pregnancy, consisting of community-based education programs and a statewide multimedia campaign.

A major force in perinatal care right now in Indiana is managed care. Contracts as well as hospital buyouts appear to be changing existing service networks. The inclination is for hospitals to try to increase their services in order to be more competitive in the marketplace and maintain their patient base. More facilities are self-designating at the specialty level. MCHS is not sure what the ultimate impact of these shifts will be, but hopes to be able to use the joint Network/Board structure to exert a positive influence.

A related problem is provider selection in the Medicaid managed care program. If a woman does not select a provider, the auto-assignment process takes a long time, and entry into care is delayed. Some strategies to address this problem have included working with Medicaid MCOs, providing free pregnancy test sites, and prenatal care coordination. However, it appears that more work will be needed by State and regional boards. Also, the State does not implement presumptive eligibility; this is seen as a barrier because some managed care plans are hesitant to provide care to women without having seen their Medicaid cards, which are often delayed. MCHS staff are concerned that the impact of outreach efforts are compromised by recent changes that no longer allow for direct reimbursement to providers such as perinatal care coordinators, nurse practitioners and midwives.

Although some problems have been cited with Medicaid managed care, the State's rate of early entry into

prenatal care has remained stable. The MCHS staff monitor the Indiana Helpline (established in 1988) and find that there appear to be less problems with Medicaid enrollment since the program shortened and streamlined its application process. Moreover, unlike other States, MCHS-funded, hospital-based prenatal clinics are doing well in garnering Medicaid reimbursements, so much so that many no longer require Title V funds. These providers enroll clients directly into Medicaid, use electronic billing, have physicians on-site at least 20 hours per week and have sophisticated business practices.

A Look Into Missouri

In 1998, 75,358 births occurred among Missouri's 1,198,060 women aged 15 to 44 years. The overall percentage of mothers who began prenatal care in the first trimester was 86.1 in 1998; the percentage was greater among non-Hispanic White women (86.1 percent) than for non-Hispanic Black (74.5 percent) or Hispanic (77.7 percent) mothers. Missouri had an infant mortality rate of 7.6 per 1,000 in 1997 and a LBW rate of 7.8 in 1998, both slightly higher than the U.S. rates, but the overall VLBW, 1.4 percent, was the same as the U.S. rate. The LBW rate was very high for births to non-Hispanic Black mothers (14.1 percent), as was the VLBW rate of 3.2 percent.

Within the Missouri Department of Health, the Division of Maternal, Child and Family Health (MCFH) is the State agency responsible for the State's Title V program. The Division established an Office of Women's Health in Federal FY 1997 to focus attention on health issues affecting women across their life span. The office, previously located within the Bureau of Family Health, has been moved to the Office of the Director, with direct responsibility to the Division Director. Missouri's health department has a centralized structure, with autonomous local health departments.

The State has a moderate level of managed care, in terms of both HMO market penetration (29.4 percent in 1997) and PPO penetration (26.6 percent in 1997), and an average annual growth rate between 1995 and 1997 of 27.8 percent.

The Organization of Perinatal Services

The perinatal health services system in Missouri is loosely organized at the regional level and focuses primarily on health care for the newborn. Coordination in geographic areas is based on working relationships among providers and facilities; some are based on established, historical relationships and others result from managed care networks. These geographic areas generally surround the major metropolitan areas of St. Louis, Kansas City, Springfield, and Columbia. In other parts of the State (referred to hereafter as out-State Missouri), relationships are most often established between a hospital in the area and the geographically closest tertiary hospital, or with one of the tertiary hospitals in St. Louis. Managed care organizations (MCOs) in the State are generally organized around the specific geographic area of their client base.

There is no legislation authorizing or promoting the organization of perinatal care nor do any regulations exist in this regard. The State plays a role in the designation of levels of care in hospitals, although it has little authority to enforce appropriate designation.

Hospitals are self-designated as Level I, II or III, based on traditional definitions of levels of care. Self-designation of the level of care is primarily based on the obstetric level of the facility. The Annual Licensing Survey of Missouri Hospitals (a cooperative project of the Missouri Hospital Association, Missouri Department of Health, and the American Hospital Association) provides a mechanism for evaluating these

self-designations. It contains questions related to levels of perinatal care of facilities along with the perceived level of care, but also includes many other items not related to perinatal care as it is directed at all possible hospital services. The survey is unrelated to licensure of hospitals.

The content of the hospital survey questionnaire related to perinatal care is based on the *Guidelines for Perinatal Care* of the American College of Obstetricians and Gynecologists (ACOG) and American Academy of Pediatrics (AAP). Questions regarding newborn care include the number of neonatologists, the subspecialties available, and the technical ability to take care of very small or very sick babies including respiratory equipment and pediatric subspecialties such as cardiac surgery. The Missouri Bureau of Health Data Analysis staff within the Center for Health Information Management and Epidemiology use the results of the survey to evaluate the designation of each hospital and follow up with questions, if necessary. They may also seek an evaluation by a neonatologist in one of the Level III hospitals if they are unsure of the appropriate level to designate a particular hospital.

The Missouri Department of Health does not mandate hospitals to be classified by levels of care, in part because of past unsuccessful attempts to do so. There also are no plans in the near future to mandate classification of these levels. To do so would require legislative involvement and the arduous task of gaining support of professional societies, hospitals, and hospital associations which is seen as a more complex task than the Department of Health wishes to take on at this time.

Two other States are involved in perinatal referrals and transports with hospitals in Missouri. Illinois includes the Level III hospitals in St. Louis as part of its perinatal health care system. Transfer of newborns to Memphis, Tennessee occurs from Southeast Missouri, although no formal relationship is established.

In the late 1970s and 1980s, a perinatal advisory committee was organized by the Director of the Division of Health. Its focus was largely on paying for care, including transportation, of pregnant women and infants with high-risk medical conditions. It was disbanded at the same time that Missouri expanded both eligibility for and coverage of pregnancy care in its Medicaid programs.

A revised Emergency Medical Services (EMS) Act was implemented in the past year which now requires that the entire ambulance service be licensed. Regulations address all aspects of the service including the qualifications and duties of the medical director. The Bureau of Emergency Services validates this licensure through annual site visits, which began last year. The act did not, however, include policies specifically related to the transport of high-risk pregnant women or newborns.

Legislation was passed in Missouri in 1996, effective July 1, 1997 that expanded the role of advanced practice nurses (APNs) giving them greater independence and limited prescription authority. As such, they also can now become Medicaid providers. This legislation has increased the number of providers available in rural areas. APNs also have begun to staff neonatal units since this legislation was passed.

Community Health Centers (CHCs) are integral providers of perinatal services. CHC's contract directly with managed care organizations. Some CHC's have formed health maintenance organizations (MCOs) which contract with the Division of Medical Services to provide Medicaid managed care services.

There is geographic variation in access to risk-appropriate care across the State related largely to the kinds of providers that are available in a given geographic area. It is also related to economics and the presence of a large HMO. Southeast Missouri, where rates of poor pregnancy outcomes and poverty are high, has historically had limited access to high-risk care for the newborn, as there is no tertiary center in this area. As a result, this area also is perceived to be worse off with regard to the receipt of care by mothers and their infants in appropriate facilities, although State staff have no empirical documentation of this concern. A neonatologist has recently been recruited in Poplar Bluff and Cape Girardeau to address unmet needs in Southeast Missouri.

Services and Systems Financing

There is no on-going funding of infrastructure for the perinatal system in Missouri. Some Title V money is used to support prenatal care for uninsured pregnant women, along with funds from local public health agencies. Maternal and newborn transport costs are primarily covered by third party payment, including Medicaid, but there are also some district ambulance boards that support some transports (not specific to mothers or newborns) in their district. Availability of these funds varies, however, across districts.

There are no State regulations or guidelines related to private insurance fee schedules for varying levels of perinatal care for private insurance; private insurance guidelines are written only for timely payment for care. The fee schedule for Medicaid reimbursement, however, is based on levels of care including procedure codes and medical criteria; that is, for some procedures, only specialists can be reimbursed.

In 1997, general legislation was passed, effective in the summer of 1998, regarding MCO network adequacy and access, as measured by distance in miles. Missouri also has legislation that covers 48-hour postpartum hospital stays for mothers and newborns. The Missouri Department of Insurance received data from insurance companies last summer to monitor this legislation and expects to obtain these data soon as well. There is, however, no legislation or regulations regarding contracts or guidelines for care or for accountability for MCOs specific to perinatal care.

In locations where managed care providers are available, Missouri Medicaid requires enrollment in a managed care program. These locations include the St. Louis metropolitan area, Central Missouri, and Western Missouri, which includes Kansas City and the surrounding area. Women and newborns may receive care from fee-for-service providers in areas where there are no MCOs.

Approximately 40 percent of births are covered by Medicaid. About 48-49 percent of the entire Medicaid

population is served through managed care arrangements; for pregnant women and newborns on Medicaid, 50 percent are served through managed care arrangements. A barrier to implementation of Medicaid managed care has been the lack of managed care providers in rural areas where exceptions must be made.

Medicaid managed care has numerous contractual requirements but few are specific to perinatal care. Risk appraisal is required for all pregnant women, and case management is available for women identified at high-risk, but it is optional based on client preferences. Involvement in the case management program also is voluntary for providers. To participate, fee-for-service providers must enroll in the program and meet enrollment requirements. Medicaid maintains a list of providers enrolled in the case management program for referral of high-risk mothers from non-participating providers. Women enrolled under the Medicaid for Pregnant Women eligibility category are eligible for family planning and sexually transmitted disease services up to two years postpartum.

The Medicaid global pregnancy care fee can be billed when one provider renders all of the pregnancy care, which includes: five (or more) consecutive individual prenatal visits, routine urinalysis testing during the prenatal period, all care for pregnancy-related conditions, i.e. nausea, vomiting, cystitis, vaginitis, etc., completion of a risk appraisal, initial hospital visit, delivery and postpartum care. Two visits and/or consultation may be provided by other practitioners.

Some hospital systems and neonatologists are reported to be unhappy with reimbursement for care from Medicaid. State staff, however, perceive this problem to be due in part to facilities not being at the appropriate level to care for the very sick newborn, and accordingly, not being reimbursed for that care.

As noted above, fee-for-service providers give care to women in areas where there is no Medicaid managed care. Physician manuals are available, which outline how to bill for services and the services they need to deliver. The manual is available to providers on Medicaid's Internet website, at <<http://www.medicaid.stte.mo.us>>.

Data Sources and Accountability Mechanisms

Missouri has a long history of use and analysis of vital statistics data. Hospital discharge data are mandatory in all Missouri hospitals, and these data are linked for mothers and newborns. They are also matched with linked birth and infant death certificate data. Perinatal care information acquired from the Annual Licensing Survey of Missouri Hospitals (mentioned above) is used to define level of perinatal care and to determine, in conjunction with data from the birth certificate, the percentage of VLBW babies born in hospitals by level of care. These data have also been used to evaluate changes in the site of birth of VLBW infants, as reported in the study published by Yeast, et. al (1998). Consumer reports are periodically prepared using these data; the last report about obstetrics was issued in 1993.

The data from the annual hospital survey about neonatal service capabilities also are used to evaluate birth weight specific outcomes by self-designated levels of hospital care. As noted above, in situations where the self designation does not appear to match the results of the survey, follow-up is done by State Bureau of Health Data Analysis staff.

The Division of Medical Services in the Department of Social Services is responsible for monitoring Medicaid managed care plans. Annual site visits are performed and annual reports are required from participating plans. The Department of Health monitors selected indicators from birth certificate data to track the impact of moving to managed care on a quarterly basis. There is some evidence that there has been an increase in the use of prenatal care in terms of both adequate and early care by women enrolled in Medicaid since managed care was implemented. Birth certificate data also have been useful in showing hospitals or providers where care can be improved.

The Department of Health receives data on selected HEDIS indicators, as well as member satisfaction data from managed care plans. Indicators have included the rate of prenatal care in the first trimester, cesarean delivery rate, and vaginal birth after cesarean delivery rate. The department has also recently published consumer guides to commercial Medicaid and Medicare managed care plans.

The Missouri Department of Health maintains a website containing profiles of MCH indicators by county, at <http://www.health.state.mo.us/GLRequest/profile.html>. This website also includes county resident data and the proportion of VLBW infants born in the appropriate hospital for each county (a Title V needs assessment indicator). These analyses are generally performed above and beyond the requirements of the Title V needs assessments.

Missouri has utilized the Behavioral Risk Factor Surveillance System (BRFSS) to obtain information regarding folic acid use.

Changes, Challenges and Opportunities

The perinatal system is described by the State MCH staff as generally secure, with a long track record of stable relationships and provision of excellent care. The one exception to stable relationships is the Kansas City area where there has been an increase in the number of neonatologists. Many trained at the university are now being hired by local hospitals. A Level II center has been newly designated in the area because of the availability of a neonatologist, despite the low volume of births there.

Hospitals in out-State Missouri are reported to feel financially threatened if they do not align or establish a relationship with a larger hospital; they cannot survive in the current climate unless they do so. Small hospitals have closed in the State over the last decade or so and another small hospital recently indicated plans to do so. In some instances, the relationships established may involve a new owner, but are not

formal; for example, Barnes Jewish Christian Hospital has established relationships with a number of out-State hospitals, but none are formal or contractual.

A major systems concern of State MCH staff in Missouri is the lack of clear definition of levels of care for their hospital survey. This is due in part to the self-designation of a given hospital. It is assumed that the more precisely defined levels can be determined, the less the variability within levels or ability of hospitals to blur distinctions. For example, some facilities that self-designate as Level II hospitals may be doing so largely for marketing purposes. This also may be a result of the increasing numbers of neonatologists available to oversee the nurseries in these hospitals.

Fragmentation of services for women and infants remains a problem in Missouri. An initiative through the Governor's office, "Show Me Results," is addressing this fragmentation and attempting to coordinate publicly funded programs, starting with services to reduce teenage pregnancy. Another service-related problem noted by State MCH staff is the lack of access to appropriate care for women living in rural areas and in the inner cities of Missouri's large cities, particularly St. Louis and Kansas City. Neonatologists have been recruited in three rural communities: two in Southeast Missouri and one in the Southwest. Infant mortality reduction programs have been implemented in five counties in the State's Bootheel region, Kansas City and St. Louis to address the high infant mortality rate in these areas.

As a result of Medicaid managed care, the private sector is now providing more care to low-income mothers and infants and less is being provided through State or local health department programs. This makes some money available for care to uninsured women as well as for greater attention to implementing the major public health functions of assessment, assurance and accountability by the State. As noted above, there is some preliminary evidence that use of prenatal care may have improved since the move to managed care for pregnant Medicaid enrollees. There are also anecdotal reports that implementation of global prenatal reimbursement effective July 1, 1987 may have helped with physician participation in Medicaid, although it is not clear if the actual number of Medicaid providers has increased.

Two major continuing concerns noted by State MCH staff are racial disparities in maternal and infant health and increases in preterm and LBW births. The infant mortality rate for infants born to African-American women is 2.7 times the rate for infants of White women. Maternal mortality rates among African-American women were abnormally high in 1995 and 1996 (seven deaths) with rates reverting back to prior levels in 1997 and 1998 (one and three deaths respectively). Inadequate prenatal care continues to be more common among African-American women. Preterm birth rates have been increasing in Missouri in part because of an increase in multiple pregnancies, but they have increased among singletons as well. There has also been a rise in cesarean deliveries among women with VLBW births. More research is needed to determine the reasons for these increases.

A Look Into New Jersey

In New Jersey, there were 114,550 births among the 1,781,493 women of reproductive age (15-44) in 1998. The overall percentage of women who received early prenatal care in 1998 was 81.6 percent. Non-Hispanic White women (89.6 percent) were much more likely to begin care in the first trimester than non-Hispanic Black (65.1 percent) or Hispanic (71.0 percent) women. New Jersey's infant mortality rate was 6.3 in 1997, lower than the rate for the nation. The State's LBW rate was 7.8 percent (13.3 for non-Hispanic Black infants), and its VLBW, 1.6 percent (3.4 for non-Hispanic Black infants), rates slightly higher than the U.S. figures.

New Jersey's health department is decentralized. The Title V program is administered by the Division of Family Health Services (DFHS) within the Department of Health and Senior Services (DHSS).

The managed care penetration rate in New Jersey is moderate. The HMO penetration rate in 1997 was 28.1 percent, and the PPO penetration rates was 18.7 percent. HMO growth was rapid in the late 1990s, growing at a annual rate of 53.1 percent from 1995 to 1997.

The Organization of Perinatal Services

A formal system of perinatal care is organized in New Jersey into seven regions, each with a Maternal and Child Health Consortium. These consortia were established in 1988 with funding from the Robert Wood Johnson Foundation to enhance referral networks in the State and increase the number of women receiving prenatal care. Each region must have at least 10,000 births per year. The basis for clustering into the seven regions is historic referral patterns and geographic contiguity. The consortia are the central organizational structures for perinatal care in each area and are responsible for implementing State policy.

Historically, there were three sets of regulations governing the organization of perinatal care in New Jersey: certificate of need for regionalized perinatal services, maternal and child health consortia licensing standards and hospital licensing standards. While the standards for the levels of perinatal care were first implemented between 1979 and 1981, the three sets of regulations were adopted by the Health Care Administration Board of New Jersey in 1992. Certificate of need established rules to be used when applying for a certificate of need in the provision of perinatal care and included the establishment of MCH consortia and six levels of perinatal care. The MCH Consortia licensing described the responsibilities of the consortia. Hospital licensing first included the standards for normal obstetric and newborn care and later for the provision of intermediate and intensive care. On February 1, 1999, the three sets of regulations were formally merged into one; they are effective through December 7, 2001.

The role of the State DHSS in the organization of perinatal services in New Jersey is one of oversight and monitoring of the implementation of the regulations. In the development of the regulations, the State involved the major stakeholders, including academic centers that also had a strong interest in the organization, and attempted to balance their needs with the needs of the State.

The MCH consortia are private, non-profit organizations responsible for: development of comprehensive perinatal plans with an emphasis on prevention; development of a region-wide system of quality assurance through periodic data collection and analysis; coordination and monitoring of a maternal and newborn transport system; development of discharge planning for infants and infant follow up and coordination; provision of professional education to all perinatal and pediatric service providers in their region and a mechanism to assess its effectiveness; and development of a system to resolve conflicts in the area. They are also responsible for development of a preterm labor prevention program, including patient education and support services.

All hospitals that provide perinatal care in a region must be part of the consortium. The consortium must include equal representation of hospital providers, non-hospital providers and consumers. In the smaller regions, all hospitals in the region are represented on the Board of Trustees of the consortium. In one large region, not all hospitals are represented because there are too many; all hospitals are, nevertheless, represented on committees of the consortia. Each consortium must have an executive director, data analyst, nurse consultant and outreach worker on staff.

Hospitals can choose their designation of the level of perinatal care based on licensure standards. The New Jersey DHSS must, however, approve the designation, using the regulations for levels of care. There are six levels of hospital care included in the regulations, although only five are relevant to perinatal care (the sixth includes specialty acute care children's hospitals). The five levels from lowest to highest degree of intensive care include: community perinatal center (CPC)- birthing center; CPC - basic; CPC - intermediate; CPC - intensive; and Regional Perinatal Center (RPC). Within each consortia, there is a minimum of one RPC; five regions have two RPCs and one has three. In the entire State, there are 5 CPC birthing centers, 15 CPC basic facilities, 36 CPC intermediate facilities, 7 CPC intensive facilities, and 13 RPCs.

Each hospital within a consortium must have a letter of agreement with a RPC. This letter must include transport-related issues, including the size and medical conditions of newborns that can be cared for there. The letter also outlines communications, including both consultation and referral, between facilities. A birthing center must also have an affiliation with a hospital in close proximity as well as one with an RPC. Despite several levels of care, there is generally not a hierarchy of services in the chain of referrals in an area, other than referrals to a RPC from any other level of hospital. There is some geographic variation in care across consortia areas, but this variation is not related to access but rather to the number of RPCs and other facilities in the area.

The State regulations include the specific components of care that are organized by levels of care. These generally apply to inpatient care but are intended to extend to ambulatory care as well. For example, every hospital is required to have a HealthStart clinic following the expansion of the scope of services provided to pregnant women in the Medicaid program. Private obstetricians, nevertheless, are primarily affected by the regulations at the point of hospital admission.

There are no interstate agreements laid out in the regulations for perinatal care. There may be relationships among tertiary centers in other States, particularly between hospitals in Philadelphia and New York City and New Jersey hospitals, but they are not included in the regulations and are largely informal. Some New Jersey hospitals may care for Pennsylvania or Delaware residents, especially in the southernmost counties.

At the State level, a standing committee dealing with perinatal health and health care is composed of the executive directors of each consortium and the MCH State program. This committee was responsible for developing the most recent regulations and has been influential in obtaining FY 2000 State funds to reinstate prenatal care for legal immigrants. In general, when a problem arises related to the organization or regulations for perinatal care, the State convenes a meeting of this committee.

Transport of mothers and newborns is usually covered by third party payers. Some charity care may be written off by the RPCs and reimbursed through other payments. Reciprocal relationships involving forward and back transport are included in the letter of agreement between a RPC and the community hospitals in a consortium. EMS is not involved with arranging transportation.

From the perspective of the consortia, there is a sense of security about the stability of the organization of services following the promulgation of the most recent set of regulations for perinatal care. There was discussion at the time of their most recent revision to increase the minimal numbers of births in each consortium, threatening existing local relationships, but this change was not made. Also, as the consortia have gained more experience, the relationships among providers, for the most part, have become more stable. Managed care does not appear to have much of an impact on the consortia at this time.

Services and Systems Financing

The development of the consortia throughout the State was funded by seed money from the Robert Wood Johnson Foundation. Membership dues, based on the number of births, are paid by all participating hospitals to fund on-going infrastructure of the consortia. Neither Title V nor State funds may be used for infrastructure support, although they may go for specific projects. Some consortia have a Healthy Mothers/Healthy Babies grant as a result of their mergers with these coalitions and may have WIC grants as well. Consortia may also go after grants funds. The annual budgets for the consortia range from \$450,000 to \$1.5 million.

New Jersey received a 1915(b) waiver to implement a mandatory Medicaid managed care program, in which pregnant women must enroll in an HMO to receive Medicaid benefits. The phase-in period for this program is nearing completion, and 50 percent of Medicaid deliveries were paid through managed care in 1997. Medicaid contracting HMOs are required to provide NJ "HealthStart" services, as needed, to high-risk pregnant women. These services include comprehensive risk assessment, case coordination, social/psychological services, health and child birth education, nutrition assessment, guidance and

counseling, home visits, and outreach services.

The DHSS certifies providers as qualified HealthStart providers and sets standards for staff capacity. The program is offered in hospital-based clinics, Federally Qualified Health Centers, local health departments, and private obstetric practices. In addition to prenatal services, it also includes services to children (up to age two) determined to be at high-risk for poor outcomes.

There is nothing in the regulations for perinatal care that addresses reimbursement for care. Medicaid has a complicated but comprehensive contract for participating providers who must sign a contract to agree to participate in the program. Current guidelines for MCOs only address the reporting of HEDIS measures. Contracts of MCOs, especially those which contract with Medicaid, generally meet some of the guidelines for HealthStart. There are no specific guidelines for perinatal care provided by commercial MCOs.

Medicaid coverage has shifted from fee-for-service to a phase-in of managed care, with the phase-in period recently ending. As noted above, in 1997, 50 percent of the deliveries of Medicaid enrolled women were through managed care. Only one county in the State currently does not have enough managed care providers to meet capacity. As a safeguard, women can get care from fee-for-service providers where the managed care capacity is not adequate to meet the need.

The Medicaid program is located in the Department of Human Services, which monitors the guidelines for the program. A staff liaison person in the DHSS from Human Services takes complaints about managed care; only a few dozen were voiced in the past year. There does not appear to be any major concerns with the quality of perinatal care provided in Medicaid MCOs. Reimbursement for care depends on the specific services provided. It does not appear to be a concern of most providers, and there have not been many providers dropping out of the program due to low reimbursement.

Data Sources and Accountability Mechanisms

New Jersey has extensive data available from vital statistics following implementation of an electronic birth certificate statewide and expansion of the data collected on the certificate. This expansion includes data that cover the time period from admission to labor and delivery and hospital discharge and includes a more comprehensive list of maternal and newborn complications than contained on the current U.S. standard birth certificate. The State uses these data to look at events at the consortia and hospital levels. Birth defects and hearing screening are monitored through these data as well. They are just now beginning to be used for follow-up of immunizations in infants.

Hospital discharge data are also available for analysis. The State has looked at ambulatory discharge data for children and has linked these data to the electronic birth certificate data. A focus here is on ambulatory sensitive conditions. A small project has also been conducted on maternal mortality. The State participates

in BRFSS, but no special perinatal health questions are included in the survey.

A statewide Total Quality Improvement (TQI) work group has taken the lead in analyzing data related to perinatal health. They have specifically developed a list of indicators, one of which is the site of birth of VLBW infants. The one area where data integration is still needed is for Medicaid. State MCH program staff are working on integrating these data with vital statistics. Some HMO regulations require the reporting of HEDIS measures, but these measure are limited for mothers and newborns.

Consortia are required by regulation to analyze data on mothers and newborns in their area and to access data from member hospitals. Consortia are also required to submit a three year perinatal/pediatric plan that is updated yearly. Some consortia conduct special surveys or focus groups on a case-by-case basis.

Changes, Challenges and Opportunities

The State MCH program staff were concerned that managed care would have a major impact on the organization of perinatal services, but this impact does not appear to be large. There has been some individual reorganization of hospital networks where MCO systems have been implemented, but no major disruptions in relationships or availability of care have occurred. There have been a few instances, however, where a hospital has realigned with another consortium because of these shifting networks.

In general, access to risk-appropriate care is not perceived by State MCH program staff to be a major problem in New Jersey. There may, nevertheless, be problems with outreach and identification of women at risk in the inner cities in the State. As noted above, there is some variation in the composition of the facilities in the seven catchment areas but all facilities are expected to achieve at least the minimum standards of care.

Two primary concerns of State MCH staff related to perinatal health are racial disparities in pregnancy outcomes and rising rates of LBW. Although there has been a decrease in Black infant mortality rates, a statewide committee is focusing on racial disparities. State staff are evaluating the extent to which the rise in LBW rates is due to increases in multiple births. Teen pregnancy remains a problem in New Jersey. The problems noted at the consortia level are similar to those for the State.

With regard to concerns about perinatal care, State MCH program staff recognize the need to develop more culturally competent services. An initiative in the Department of Health is to develop training materials for providers in the field. Child care and transportation remain barriers to accessing care. State staff are also concerned about access to care for undocumented immigrants.

A Look Into Oregon

In Oregon, 45,273 births occurred in 1998 among the 699,737 women of reproductive age (15-44 years). Overall, 80.2 percent of mothers began prenatal care in the first trimester, 82.8 percent among non-Hispanic White and 79.4 percent among non-Hispanic Black women, but only 67.2 percent among Hispanic women. Oregon's infant mortality rate (5.8 infant deaths per 1,000 live births in 1997), LBW rate (5.4 percent overall and 9.8 for non-Hispanic Black infants in 1998), and VLBW rate (0.9 percent for all births, not available for non-Hispanic Black births) were much lower than the respective national figures.

In Oregon, much of the governmental authority related to health occurs at the local level. Oregon's Title V Agency is the Oregon Health Division (OHD), a division of the Oregon Department of Human Resources Services. The OHD is decentralized, with much of the activity and oversight occurring in the local health departments; there is a State statute that specifically identifies the local health department as the public health authority. The State's MCH program staff feel that this devolution of authority is beneficial, in that community needs and interest are addressed, resulting in community buy-in and support. There are 34 local health agencies, serving 36 counties.

Managed care has a large presence in Oregon: there was a 47.3 percent HMO market penetration rate and 16.6 percent PPO penetration rate in 1997. HMOs are growing slowly at this point, at an annual rate of 11.4 percent between 1995 and 1997.

The Organization of Perinatal Services

In the 1980's Oregon undertook considerable efforts to implement regionalization of perinatal care, and to establish three levels of care, as defined by traditional guidelines. The organization of perinatal services, as it loosely exists today in Oregon, is based on what remains of the relationships among facilities and individual providers established under a set of guidelines that are no longer operational. There is no legislation or regulations at the State level authorizing or promoting the organization of perinatal services.

MCH staff indicate that there are probably three geographic catchment areas in the State, although they are not specifically delineated. The levels of perinatal care also are not formally designated; the most recent set of criteria for these designations was written in 1990. Currently at the local level, there is informal self-designation of levels of care of hospitals, based on the number of very low birth weight (VLBW) babies that occur at the facility, and on facility staffing. The State MCH staff identify six hospitals that would be considered as subspecialty or "Level III": three in Portland, serving the metropolitan area; one in Eugene (West Central); one in Medford (Southwest); and one in Bend (Central).

The Oregon Health Division describe its role as a systems facilitator with respect to perinatal care services, rather than a regulator or active intervener. State health division staff collaborate with the Oregon Health Sciences University (OHSU), which provides educational and technical assistance to providers in prenatal clinics in local health departments. OHSU also staffs high-risk prenatal clinics in some counties. Many of

these efforts are made feasible through grant funds contracted to OHSU. State health department staff also assist communities in conducting needs assessments related to perinatal health.

In 1987, with the expansion of Medicaid eligibility, there was a strong impetus for local health departments to provide prenatal care, with 33 of the 34 local agencies doing so. While the minimal Title V funds available for these entities had previously been used to fund infrastructure activities, monies were reallocated to support prenatal care. More recently, with the increase in privatization of care resulting from the introduction of mandatory Medicaid managed care in 1994, federally qualified health centers and only about one-third of local health agencies now provide prenatal care. The State MCH program is hoping to redirect the efforts of local health entities to return to a focus on infrastructure issues. State program staff are working with localities to establish Oregon MothersCare, which includes a central referral mechanism for prenatal care, a formal group that meets on a regular basis to discuss perinatal care, and a toll-free number to inform low-income women where care is available to them. A perinatal care assessment tool (adapted from the Colorado Department of Public Health and Environment and Johns Hopkins University) also has been introduced to local health agencies to promote a greater emphasis on infrastructure building for coordination of care and resource building.

A Technical Advisory Group, composed of key perinatal partners in the community, was convened by the State in collaboration with OHSU. This group, however, is currently not in operation due to changes in the Oregon Health Division administration and the need to reevaluate the purpose and impact of such an organization. Another group involved in perinatal health concerns is the Governor's Maternity Task Force on Perinatal Care, appointed in 1992 to advise to the Governor. Although this group's formal tasks have ceased, one of which was to develop a report card on perinatal health in the State, members continue to collaborate. In fact, the Task Force may evolve into the Oregon Perinatal Health Association (an affiliate of the National Perinatal Association).

The local health agencies also have a Maternal and Child Health Committee of the Conference of Local Health Officials (CLHO). By Oregon statute, advises the Health Division. The CLHO MCH Committee is composed of representatives from several local health agencies. Representatives from this committee also are on the Governor's Task Force. Moreover, Area Health Education Centers (AHECs) are working with OHSU to establish medical telecommunication capabilities for providers in more isolated areas and local health agencies. Many have established local arrangements and systems. For example, Lane, Deschutes, and Marion Counties have local plans to address perinatal needs for women without identified financial resources.

Transport of high-risk mothers and newborns is handled informally by the private sector, facility-to-facility, provider-to-provider. In the last 10 years, maternal transport has been emphasized, especially from some smaller hospitals, but State level monitoring of the appropriateness of maternal transport is not in place. However, the levels of hospitals where VLBW infants are born seem to be appropriate; about 85 percent of such babies born in risk-appropriate hospitals. There are no EMS protocols specifically addressing the

transport of pregnant women, new mothers or their newborns. All patients are transported to the nearest available facility.

Interstate relationships regarding maternal and newborn transport appear to be based on geographic proximity, with an informal system of referrals among providers and facilities across State lines. In the very rural, eastern part of the State, transport to Boise, Idaho may occur, or to Spokane or Walla Walla, Washington. Some residents from Southwest Washington seek care in Portland. High-risk infants born in Washington or California are followed to ensure continuity of care through referrals to local providers and the local health department. In border cities and communities, relationships with their counter parts have been formed by formal and informal agreements. Similar provider practices generally are followed in counties where access to a service may not be available in the county of residence. Geography has a considerable impact on these practices, especially given transportation distances.

Prior to 1994, there were generally established patterns of movement of high-risk newborns in the State. Based on anecdotal reports, State MCH staff suspect that with the influx of managed care associated with the 1115 Medicaid waiver, there have been some disruptions in the historical relationships that formed the basis of the informal system. Managed care organizations (MCOs), however, are noted to be willing to collaborate with local health agencies and to develop innovative approaches to providing perinatal services. Moreover, MCH staff judge that partnerships between public health agencies, private providers, MCOs and the Oregon Medical Assistance Program (OMAP) have been working well.

Services and Systems Financing

Oregon has limited funding to allocate to perinatal health care systems activities. As noted above, the State has a contract with OHSU that supports provider education and technical assistance activities and funds OHSU to conduct high-risk clinics in selected communities. Title V Block Grant funds are also being used to encourage local health agencies to focus on infrastructure building. Otherwise, Title V funds support safety net services for undocumented women and other MCH activities of local health agencies, as determined by local needs.

There is no State legislation regarding contracts, guidelines for or accountability of MCOs for perinatal care in the State. Recently legislation was passed, however, requiring all insurance carriers to provide coverage for all pregnant women. The Oregon Health Division is not involved in regulation of MCOs or commercial insurance plans. General provisions exist with respect to MCOs related to the inclusion of specialists and subspecialists in provider groups. Plans generally limit the number of specialists on their panels for economic reasons. Plans often advertise their reimbursement levels and physician groups independently decide with which MCOs they are willing to affiliate.

One third (32.2 percent) of deliveries in Oregon are covered by Medicaid, and 60 percent are covered

by commercial insurance. Managed care, whether through commercial groups or Medicaid, is a large payer for perinatal services. MCH program staff estimate that half of Oregon's entire population is covered by managed care plans, and only about 10 percent of commercially insured persons receive their health care under fee-for-service arrangements. Seven percent of women have no prenatal care coverage, and Medicaid pays for their deliveries.

A statewide mandatory Medicaid managed care program was implemented under a 1115 waiver in 1994. The program varies by county, depending on the availability of fully-capitated health plans (FCHPs) or primary care case managers (PCCMs). Where FCHP capacity is sufficient, enrollment in the plan is mandatory. The Medicaid program covers maternity case management services, although its actual provision of the services by the FCHP is optional. At this time only two FCHPs contract with local health departments to provide this service. At the time mandatory managed care was implemented, each of the 36 counties in the State had two managed care plans. In the last year, however, several large MCOs started to leave the more isolated areas. To counter this, six rural counties are developing their own MCOs. Moreover, Medicaid remains fee-for-service for about 10 percent of enrolled pregnant women as a safeguard for those who do not have access to managed care (for example, two counties have no MCOs, although one has a primary care clinic). There also is an "open card" option within managed care plans, by which providers can bill on a fee-for-service basis for women who enter into prenatal care late.

Medicaid plans are monitored by the Title XIX agency. The MCH staff indicate that case management services provided to women have been inconsistent across the State. A statewide Maternity Case Management quality improvement project was just completed in a joint effort between OHD and OMAP, as well as county health departments, several MCOs, some private agencies and providers. This project is expected to result in more specific and comprehensive guidelines for service delivery as well as reimbursement criteria.

Current reimbursement in commercial MCOs for prenatal care and labor and delivery services for a normal vaginal delivery is \$4,000. Reimbursement is generally low for services provided in local health departments, and there is a large discrepancy between fee-for-service reimbursement and reimbursement for managed care contracts with health departments. Providers are reported to be displeased about their Medicaid managed care reimbursement rates. Plans have generally not registered complaints, although some have dropped out of the Medicaid program in rural areas.

Data Sources and Accountability Mechanisms

Oregon is very interested in enhancing its collection and use of various routine data sources. The State has a very active vital statistics unit, and recently began participating in PRAMS. The first year of PRAMS has just been completed and the report of these data will soon be available. Hospital discharge data are available, but are seldom used. Some data will soon be available from the pilot Fetal and Infant Mortality

Review projects in 4 rural counties, which are just concluding and will result in a “Lessons Learned” document.

The MCH program reports difficulty in gaining access to, using, and understanding Medicaid data. A CDC-funded project to improve the use of these data has recently begun, and MCH staff hope to link Medicaid and birth certificate data as a result. Another data-specific difficulty stems from the fact that Medicaid managed care plans initially did not have an encounter system to gather data; this problem has since been rectified. Limited encounter data are being collected while the data system is being upgraded to facilitate data availability.

Most routine data are used for reporting on Title V indicators, such as reporting on the appropriate delivery site for VLBW births. State MCH staff hope to begin looking at transfers as well as to clarify definitions of levels of facilities. Plans are being developed for assessment of quality assurance for Medicaid managed care plans, specifically related to perinatal care. However, the State would like to strengthen data elements regarding prenatal care and wrap-around services. The State participates in BRFSS, but the survey does not include perinatal health questions.

Changes, Challenges and Opportunities

Oregon’s State MCH program staff feel that perinatal care has been strengthened over the last five years in part because of greater utilization of certified nurse midwives (CNMs) in community practices and hospitals. In the past 10 years reimbursement of CNMs became equal to that of physicians, positively affecting service delivery at the local level. The State also licenses direct-entry midwives (LDEMs).

A major influence in Oregon’s health care system was initiation of the Oregon Health Plan in 1994. This Medicaid managed care program increased eligibility levels and prioritized health care services to be provided, with perinatal care high on the priority list. While more women are covered under the system, there is concern that implementation of the Oregon Health Plan has eroded the safety net. Local health departments are not statutory providers of last resort, and they are losing their paying (Medicaid) clients, making it difficult for them to continue to serve non-paying clients.

State MCH program staff also noted additional concerns, such as access to wrap-around services (specifically substance abuse and mental health services), appropriateness of the content of care provided, and attention to women’s needs “outside” of health (such as food, housing, transportation, especially given welfare reform). Although lack of drug treatment for pregnant women has been identified as a problem, limited resources have been allocated for treatment. Other concerns highlighted from a FIMR pilot project involve possible limited completion of risk assessments by providers, and inadequate follow-up or referral for risk-appropriate services.

Women living in very rural areas, and on the fringes of Portland, often experience transportation problems that limit access to appropriate perinatal care. Access and health status differ by demographic characteristics. Minority groups have less frequent and later access to care, and poorer outcomes. In some rural communities, there is a high rate of providers who will not participate in Medicaid. Much of the prenatal care throughout the State is provided by family practitioners, some of whom may restrict access to care to after the first trimester. The State has been actively trying to increase the number of prenatal providers available for low-income women, using CNMs and LDEMs to address this problem in part.

Women in Oregon have one of the lowest rates of early entry into prenatal care (Oregon is 40th in the country). State MCH program staff are trying to improve these rates through the Oregon MothersCare project, and to identify women during pregnancy who need follow-up, but resources are limited. There remain, nevertheless, questions about whether or not outreach efforts are effective in bringing women into care. State staff also recognize the need to address domestic violence, and have applied to the CDC for funds for this. A project funded by the Health Care Financing Administration has just started to increase HIV counseling and testing recommendations for pregnant women.

Oregon has a strong system of home visiting in all counties in the State for pregnancy and early childhood. Another division within State government has an early intervention, home visiting service directed at pregnant women and early childhood for the prevention of child abuse and neglect. These entities and local health agencies work collaboratively in the counties where these services exist (about one third of Oregon counties). This “Healthy Start” program models its services after the Hawaii Healthy Start program. Its emphasis is on community collaboration and coordinated planning in addition to direct services to families.

A Look Into Virginia

In Virginia there were 94,351 births in 1998. The number of women of childbearing age, 15 to 44 years, was 1,596,463. The percentage of women with early prenatal care was 85.2 percent in 1998, 90.2 percent among non-Hispanic White women, but only 74.4 percent among non-Hispanic Black and 73.2 percent among Hispanic women. The infant mortality rate in the Commonwealth was 7.8 in 1997. The LBW rate was 7.9 percent (12.6 percent for non-Hispanic Black infants), and the VLBW, 1.7 percent (3.2 percent for infants of non-Hispanic Black mothers). The State rates for all women were slightly higher than the U.S. figures, although the LBW rate for non-Hispanic Black mothers was less than the national percentage.

The state has a centralized health department structure. Within the office of the Virginia Department of Health (VDH), the Maternal and Child Health Services (Title V) Block Grant is managed by the Office of Family Health Services (OFHS). This office is also responsible for facilitating the coordination of perinatal services within the State.

Virginia has a low level of managed care penetration. HMO market penetration in 1997 was 15.6 percent, and PPO market penetration was 25.1 percent. However, the managed care presence is growing; the average yearly rate of growth of the managed care market in the State from 1995 to 1997 was 43.3 percent.

The Organization of Perinatal Services

Virginia's "system" of perinatal services is driven primarily by the competitive public/private environment, and is not mandated at the State level through legislation or executive authority. There are six perinatal hospital centers, self-designated consistent with hospital licensing regulations, and seven State health department-established and funded Regional Perinatal Coordinating Councils (RPCCs). Six of the 11 specialty and subspecialty hospitals in the Commonwealth responded to an RFP to become the lead agency for the RPCCs. One hospital in Roanoke serves as the lead agency for both Regions I and II.

A study authorized by the Perinatal Services Advisory Board (PSAB) in Virginia was conducted in 1990 by the National Perinatal Information Center to resolve problems throughout the State on a voluntary collaborative basis regarding delivery of appropriate perinatal care. This study led to the later formation of the RPCCs. The purpose of the RPCCs is to develop and maintain the community level infrastructure necessary to support the delivery of perinatal services, but they have no authority to direct system organization or operational aspects of clinical perinatal care. Their intent is to establish coalitions that included both the public and private sectors, hospitals and private physicians, community health centers and any other organizations with a vested interest or role in perinatal care. These coalitions are made up of individuals representing health departments, hospitals, private providers and community health organizations.

The RPCCs have been funded by the State health department since 1992, initially through grants, but under contracts since 1997. Through these contracts, a lead agency for the RPCC must be identified, and three specific functions must be undertaken: 1) develop and maintain the RPCC; 2) plan appropriate professional perinatal outreach and education; and 3) conduct at least one fetal and infant mortality review (FIMR). The RPCCs have the latitude to design their activities consistent with the contracts, but they must be responsive to local needs.

There are several methods used in Virginia to designate regions, leading to some confusion about leadership in a given area. The perinatal regions were based upon specialty neonatal care and were developed by the PSAB in the 1980s. The health districts were in existence since well before 1980. The health districts do not correlate, however, with the Planning Districts, which derive from other governmental initiatives. The managed-care industry has developed its own “regions.” No group has been willing to tackle trying to bring all of the stakeholders together to make the geographic designations within the system less confusing. When analyzing data, counties are used and then the data are calculated within the “region” that is applicable to the situation.

Hospital licensing regulations promulgated in 1995 identify four levels for neonatal care: 1) Routine; 2) Intermediate; 3) Specialty; and 4) Subspecialty. Hospitals prefer to designate themselves level 3 or 4; almost no hospitals rate themselves as level 1. The northern Virginia area has the highest concentration of level 3 and 4 facilities. About 75 hospitals in the State provide obstetric care, and approximately 11 are specialty or sub-specialty centers: 4 in the Richmond area, 5 in the Fairfax area, and 2 in Eastern Virginia.

The VDHs MCH Program does not play a large role in terms of outlining service delivery patterns, but acts more as a “facilitator.” MCH staff located within the VDH, Office of Family Health Services, Division of Women’s and Infants’ Health (DWIH), work in an advisory capacity, as colleagues, in overseeing the organization of perinatal services throughout the State. In addition, public health maternity clinics (115 in the 35 districts) serve about 20,000 women (at least one visit each) per year.

Two powerful groups in Virginia are the State’s Medical Society and Hospital Association. Obstetricians and neonatologists who are members of the Medical Society exert some influence regarding changes that occur in the State. However, at present perinatal care “is not a priority for these organizations.” Managed care organizations (MCOs) essentially control the marketplace, and the political environment is such that their approach is tacitly or explicitly supported.

Although active in the 1980's, the PSAB was disbanded in favor of the Governor-appointed Maternal and Child Health (MCH) Council. This council was created to improve the health of the Commonwealth’s mothers and children by promoting and improving programs and service delivery systems related to maternal and child health. The Council is chaired by the Secretary of Health and Human Resources and includes the Commissioners of the Department of Health, the Director of the Department of Medical Assistance Services, the Commissioner of the Department of Social Services, the Superintendent of Public

Instruction and the Commissioner of the Department of Mental Health, Mental Retardation and Substance Abuse Services. The Governor appoints other members representing health professions with expertise in MCH, private nonprofit organizations involved in the promotion of MCH, private industry, the religious community, local public officials and hospitals. The goals of the Council are to examine trends and causes of maternal and child morbidity and mortality, review and evaluate the Commonwealth's MCH programs, develop policies, principles and priorities which guide programs and services for mothers and children, promote public and private partnerships or systems of care and coordination of agency efforts in MCH, and advise and report to the Governor and General Assembly annually regarding potential program and policy initiatives in MCH.

The managed care organizations operating in the State have their own approaches to organizing or "regionalizing" perinatal services. MCOs and physician practices (often based on relationships formed when physicians were trained) greatly influence consultation and referral patterns. Regulations, however, require collaborative agreements for protocols for referral and transport between hospitals with different levels of neonatal care, and include guidance for back transport as well. The RPCCs play a major role in negotiating those agreements.

All transport issues are handled at the local level between the local emergency medical services and participating hospitals even if they cross-State lines. Transports appear to operate smoothly between facilities at appropriate levels of care, as reported by State MCH staff. Payment for maternal and newborn transport is mainly through third party insurance and the Emergency Medical Services program. Follow-up of high-risk newborns occurs under the auspices of the Title V CSHCN program's Child Development Clinics sponsored around the State, as well as the Part C early intervention programs.

Referrals and transports cross State lines. In Southwest Virginia, tertiary care is provided in Memphis, Tennessee. A small number of women living along Virginia's southern border may go to Duke Medical Center in North Carolina, while some North Carolina residents from the Duke/Research triangle area may receive care in Lynchburg, VA. There is a reported "influx" of deliveries in the northern Virginia area of women who live in the District of Columbia, and some women come to Virginia from Maryland's St. Mary's County. In northern Virginia, Kaiser Permanente covers three States, and patients are referred across State borders within their system. In Eastern Virginia, some patients from Eastern North Carolina travel to the perinatal centers in the Norfolk area for services

The 1997 General Assembly requested that the Maternal and Child Health Council study the issue of access to perinatal services in rural and underserved areas of the State and provide recommendations to the 1998 General Assembly (House Joint Resolution 617). The DWIH provided staff support to the council for the completion of this report. The Perinatal Subcommittee identified multiple options to improve access to perinatal care in rural and under served areas. The options focus on recruiting perinatal providers to practice in underserved areas, promotion of collaborative practice models in these areas, and strategies to encourage women to seek perinatal services (FY 1998 Title V Block Grant) .

Services and Systems Financing

State resources supporting efforts aimed at the organization of the perinatal health care system are limited to those allocated to the Regional Perinatal Coordinating Councils under contract. The MCH program administers these funding agreements, which total \$875,000 per year. Title V funding supports staff to carry out the activities of the RPCC. The operation of the RPCCs appears to the MCH program staff to be stable, and the State Health Commissioner is reported to be very committed to continued funding.

A phase-in of Medicaid managed care is currently underway in the Commonwealth. There are three types of managed care plans. The “Medallion” plan requires enrollment with a primary care case manager; “Options” requires enrollment in an HMO or a PCCM; and “Medallion II” beneficiaries are required to enroll in HMOs. Persons with eligibility for less than 3 months (which includes some pregnant beneficiaries in the latter part of their pregnancies) are not eligible to participate in the managed care programs; they participate in the fee-for-service program. In areas where there is insufficient managed care penetration, the State has implemented a mandatory PCCM program which requires all Medicaid enrolled women and children to choose a primary care physician to coordinate their health care.

A Virginia Medicaid-funded program of note is “Baby Care,” a program that covers case management services provided by a registered nurse or social worker for high-risk pregnant women and children up to age 2. It also covers expanded prenatal services, including homemaker services, physician ordered bed rest, education classes and nutrition services. Local health departments are the primary providers of “Baby Care” services, but some managed care organizations provide them as well.

Medicaid payment rates for clinical services provided to individual women and infants are reported to be competitive with commercial insurance. There appears to have been a downward adjustment in payment rates in the past few years, both for public and private insurance. MCH program staff indicate that reimbursement rates are not adequate to support services provided. Arrangements for cost-sharing related to physician training may be emerging.

Data Sources and Accountability Mechanisms

Virginia uses vital statistics data for monitoring perinatal health, like other States. Moreover, the Virginia CARES birth defects registry has been in existence since the 1980s. Additional data come from three sources. VISION, a Patient Care Management System for health department clients statewide, provides data on local health department maternity patients. The Resource Mothers program’s Uniform Data Set (UDS) has been operational for a number of years, and provides data about clients such as age, race, marital status, frequency of smoking, infant birth weight, infant compliance with immunizations, school and employment status. Healthy Start grant funding has been allocated to automate the Resource Mothers UDS

and expand it statewide. Also, a FIMR data set has been developed using the National Fetal and Infant Mortality Review Program's system. Virginia does not participate in PRAMS, but does administer the Behavioral Risk Factor Surveillance System questionnaire that includes some questions related to perinatal health risk during pregnancy (folic acid, smoking, nutrition items, etc.).

Virginia Health Information collects patient-level hospital discharge data. Although these data are not routinely shared with staff at the Virginia Department of Health, they can request aggregated data for a nominal fee. Staff from VDH have participated in designing special reports of these data such as one on cesarean deliveries in the Commonwealth.

Virginia developed a Neonatal Outcome Data Set for the purpose of monitoring the 1995 hospital regulations on neonatal care. Staff from DWIH analyze the neonatal outcome data with consultation from RPCC staff. Development of this data set was contentious, and necessitated the assistance of an outside facilitator to assist in the development of consensus among neonatologists. The data are collected as part of the Annual Survey of Hospitals.

Implementation of regulations pertinent to perinatal care is overseen by the Center for Quality Health Care Services and Consumer Protection (CQHCSCP), previously titled the Division of Health Facilities. While hospital designation is outlined in regulations, it is voluntary, and determined by the facilities themselves. The CQHCSCP audits each site and determines whether it concurs with a hospital's self assessment. MCH program staff note that "implementation of the regulations has not been fully appreciated."

As part of the interagency agreement between Medicaid and MCH, the DWIH is to receive data on Medicaid clients. Data sharing has not been seen as a priority by Medicaid, however, and it has been 3 or 4 years since any data have been provided under these arrangements. Very recently, however, MCH and Medicaid staff collaboration has evolved around the conduct of several large Medicaid-funded studies relevant to ensuring accountability for the perinatal population.

In FY 1997, the Division of Women's and Infants' Health contracted with the Center for Pediatric Research, Eastern Virginia Medical School, to complete a study of low birth weight infants. The study design included the use of hospital discharge data to identify the number and costs of low birth-weight births and their geographic distribution (FY 1998, Title V Block Grant).

Each health district develops its own quality assurance program, which is assessed by VDH staff through annual renewal applications for Title V funds and through quarterly reports. The RPCCs assess perinatal health issues by analyzing outcome data and morbidity within the neonatal units. Perinatal outreach professional education is planned annually based on analysis of the data and input from hospital and health department staff.

Changes, Challenges and Opportunities

The health care market appears to be shifting as a result of the movement of managed care into the Commonwealth and may have an impact, as yet undetermined, on the organization and delivery of perinatal services. Multiple hospital mergers and buyouts of smaller hospitals have occurred, some of which have resulted in establishment of new NICUs. For-profit companies have entered regions of Virginia, bought up smaller hospitals and established new NICUs, sometimes in regions with NICUs previously in place. The incidence of these changes, however, appears to have begun to level off about 3 years ago, and the MCH program does not perceive that patterns of care have changed significantly since then.

Several changes are occurring regarding providers of perinatal services. Increasingly, family practitioners are perceived to be performing deliveries, although there are no data available to document numbers. Physicians working within the context of specialty centers are expressing concerns about the effect of family practitioners and mid-level providers entering the perinatal care arena. Family practice physicians, obstetricians and certified nurse midwives have met to discuss a shared-care model as part of a legislative study. Virginia's educational institutions generally support the concept of collaborative education for health professionals, and it is part of Virginia Commonwealth's University's strategic plan.

Provider training is a concern. The number of women delivering in academic medical centers has decreased, due in part to more Medicaid clients receiving care through managed care plans, and in part to an apparent decreasing birth rate. This decrease is anticipated to affect arrangements for medical education, making the training of obstetricians more challenging. As a result, medical schools are increasingly looking to form partnerships with the private sector to ensure an adequate patient base to support training of clinicians.

In Virginia, FIMRs were initially supported through a grant from the National FIMR Program with funds from the Robert Wood Johnson Foundation, and are now a required component of the RPCCs under the recently implemented contract system of funding. The FIMRs were not immediately embraced by all RPCCs, since additional funding was not provided. Since then, however, funding has been bolstered in part by the federal Healthy Start program, and the MCH program is making efforts to secure additional funds to support FIMR efforts statewide.

The Department of Health's current priorities related to perinatal health services and health outcomes for women in the State focus on racial disparities. Major analyses of data about racial and ethnic health disparities were conducted, and, working with the Office of Minority Health, the MCH program has applied for a grant focused on reducing these health disparities. If awarded, this grant project may be used in part to provide additional support for the FIMRs.

In addition to continuing and/or expanding the FIMR in each of the seven RPCCs, the Healthy Start funding

expands the Resource Mothers Program and nutrition services. A public education media program, called “Loving Steps,” is planned in collaboration with Virginia State and Norfolk State Universities. It targets all citizens to support pregnant women to seek early prenatal care and promote healthy behavior during pregnancy, with the goal to produce a healthy start for all babies. Virginia State and Norfolk State Universities conducted the focus groups from which the “Loving Steps” campaign was developed. They also assisted in the field testing of the materials and participated in the review committee, which approved the final products, as developed by the contractor.

A Look Into Washington

A total of 79,663 births occurred among the 1,278,700 women of reproductive age (15-44) in Washington in 1998. While 83.0 percent of all women began prenatal care in the first trimester, only 77.3 percent of non-Hispanic Black and 71.0 percent of Hispanic women did so in 1998; the percentage of non-Hispanic White women who received early care was higher, at 85.8 percent. The infant mortality rate of 5.6 infant deaths per 1,000 live births in 1997, the LBW rate in 1998 of 5.7 percent (10.1 percent for non-Hispanic Black infants) and the VLBW rate of 1.1 percent (2.9 percent for infants of non-Hispanic Black mothers) were all much lower than the respective rates for the nation.

The State has a decentralized public health department structure, with most of the authority located at the local level. Nonetheless, significant monitoring and assurance functions take place at the State level. Washington's Title V program is administered through Community and Family Health in the Department of Health. In 1993, Washington passed a comprehensive health reform bill, mandating health insurance coverage for all. However, major provisions of the act were repealed in 1994 and 1996.

Managed care's penetration in Washington is above average for the country. Nevertheless, although HMO market penetration in Seattle rose from 19 percent in January 1996 to 29 percent in July 1997, this figure is low for a metropolitan area, and low for the West Coast. (Community Report, Seattle, Washington, Winter 1999). The PPO market penetration in Washington was 28 percent in 1997. The average annual growth rate of HMOs was 21 percent from 1995-1997.

Organization of Perinatal Services

"Washington... has a had formal system of perinatal regionalization for over a decade, with relatively well-delineated referral relationships among all maternity units in the State" (Rosenblatt 1996). The most recent framework presented in the second edition of *Towards Improving the Outcome of Pregnancy* (TIOP II) forms the basis for the organization of perinatal activities in the State, and is used as a barometer to assess the current system.

Washington State is formally organized statewide into four regional perinatal catchment areas. These catchment areas are historically based on geography, with particular attention to natural boundaries, like mountains. More recently, some areas have changed based on shifting maternal and neonatal transport patterns related to mergers and buyouts of hospitals and managed care contract changes.

Data on maternal and newborn transports have been used to place hospitals in different catchment areas from historical ones, when appropriate, allowing the system to remain flexible with regard to the needs of patients and providers in the area.

The four regional programs are funded through State contracts with regional centers in each catchment area. The contracts specify the responsibilities of the regional programs for professional education and

outreach as well as needs assessment and planning conducted on a two year cycle. The regional programs also are responsible for organizing and monitoring the provision of perinatal care available within their catchment areas. Reflecting the centers' primary focus on inpatient intrapartum care, staff of the State MCH program believe that decisions with regard to clinical care are best left to the regional centers which are more aware of the medical needs of the communities in their areas.

Three levels of care are defined in Washington, consistent with the traditional definitions of Level I, II and III facilities. These definitions are identified in a document on perinatal levels of care, first developed in 1986 by the State-staffed Perinatal Advisory Committee (PAC), which included participation of the regional centers, Level I and II facilities, and Group Health Insurance Corporation. The document has been revised twice, once in 1988 and again in 1995, and is currently under review.

State statutes (Washington Annotated Code, WACs) and State regulations (Regulatory Code of Washington, RCWs) for perinatal care were enacted in 1989 that outline the guidelines for intermediate care nurseries and neonatal intensive care units (NICUs). Although neonatologists in the State wanted to make stronger guidelines for the qualifications of providers in these nurseries, the guidelines primarily focus on specifications for facilities, such as the numbers of births, numbers of beds, staffing, equipment, laboratory and blood bank facilities, and availability of subspecialists. In addition to levels of care, there are also statutes concerning obstetric care, labor and delivery, newborn screening and obstetric and neonatal patient care services. The State's statutes provide a minimum standard for hospitals to follow to maintain and protect the health of women and their newborns who may encounter the need for hospital health services. Staffing standards include physicians, registered nurses, and others prepared by education and experience to provide obstetrical and neonatal services. Required written policies and procedures are delineated, as well as the need to review and revise them, as needed, at a minimum of every two years. Record keeping (including completion of client chart, birth and death certificates and newborn screening follow-up) also is required. Physical emergency equipment and set-up also are spelled out.

There are currently 10 NICUs in Washington, two of which are in children's hospitals. Eight hospitals also provide obstetric services; one of these is a military hospital. Eight of the ten hospitals are members of the PAC, described below. The hospital licensing division of the Department of Health conducts annual reviews of the scope of services in hospitals and verifies that certificates of need are consistent with the level of perinatal care provided. Review teams, however, may not always include someone with expertise in perinatal health care. If members of the licensing review team have concerns about the levels of care in the hospital, the levels of perinatal care document is reviewed with the hospital and contacts at the State Department of Health and Perinatal Regional Programs (PRPs) are provided to them. It is the hospital's responsibility to follow through with their PRP regarding any issues of concern.

Washington has had a standing Perinatal Advisory Committee (PAC) since 1984. It was established so that the State could obtain information about the quality and scope of perinatal care throughout the State. Its purpose is to improve perinatal outcomes. It is a completely voluntary committee and has no legislative

or administrative authority. Its membership includes the four PRPs and representatives of professional organizations as well as consumer groups such as Healthy Mothers, Healthy Babies and the March of Dimes. No consumers or parents participate as members of the committee, although task forces of the PAC include consumers. The committee's responsibilities center on communication and data support activities. It is staffed by the State MCH program, and produces a work plan every two years. The focus of the current workplan is on monitoring legislation, reimbursement issues related to perinatal care, support of Medicaid quality assessment activities around managed care, domestic violence, and reducing perinatal transmission of infectious illnesses.

The Washington Department of Health, through its contracts with the four PRPs, is responsible for overseeing the administration of the perinatal health care system in the State. As noted above, the regional centers are responsible for overseeing the clinical care that is provided in their catchment area. Moreover, the obstetrical and neonatal clinical nurse specialists at each center meet on a regular basis with representatives from the local health departments in the area and discuss their educational needs with them. Each center has a toll-free telephone number, 24-hour physician and nurse consultation, its own transport team, and produces a quarterly newsletter. Each also is committed to following up with referring physicians within 24 hours of transport.

Each RPC has its own transport team, and distributes quarterly newsletters reviewing maternal and newborn transports. Follow-up of these transports is also made for quality assurance purposes when transported mothers and newborns do not meet the guidelines for transport. Emergency Medical Services (EMS) is not generally involved in transport/back transport of mothers and newborn. Some work has been done, however, to develop transport guidelines for a mother or baby in the course of a planned home birth, and how a licensed home birth provider would transfer care for that person to the EMT.

There are no formal relationships between Washington and neighboring States regarding perinatal care. The regional center in Spokane has received requests from physicians in Idaho for education, consultation and referral. While these are activities that are funded by the center's contract, these contracts relate only to residents of Washington. The low reimbursement rates for Medicaid in Idaho are also a concern. There are about 1200 births annually in Portland to southwestern Washington residents. Washington is working with Oregon to assure that their residents have access to equivalent services covered under Washington's Medicaid Program, known as First Steps (discussed below).

A high priority of the perinatal system is to ensure timely access to care for women. There are hospitals in some geographically isolated counties that perform less than 500 deliveries per year and some with less than 100. They continue to provide obstetric and newborn care, however, in order to assure timely access to care for women in these isolated areas, particularly during the winter months.

From a clinical perspective, the current system of perinatal care in Washington appears to be relatively secure. Nevertheless, at times local politics may need to be addressed, and the State is flexible about

changes in a given catchment area. A priority of the State Health Department is that the regional program meet the needs of their local communities. Because only a portion of the regional centers' activities are funded by the State contracts, the regional centers have considerable autonomy in determining local needs and their responses to them.

Services and Systems Financing

The State contracts with the regional programs are funded with a combination of State appropriations matched with Medicaid dollars. The perinatal program requirements (for example, education, training, consultation) are written into the DOH/Department of Social and Health Services interagency agreement. Funding levels total between \$750,000 and one million dollars annually. There is a 50 percent Medicaid administrative match for 3 of the perinatal regions and a 75 percent match for the fourth perinatal region. The perinatal program historically was funded with Title V dollars, until budget cuts led to a reduction in direct service dollars. In order to do the match on the federal Medicaid dollars, general State fund dollars must be used. Occasionally, Title V dollars have been available to fund some specific activities related to the programs' objectives. Special State funds are also available at times; for example, there are currently designated State allocations for priority treatment of pregnant women with substance abuse problems.

The State has several mechanisms through which it can influence public financing or insurance coverage of the health care received by women. Maternal care access legislation was passed in 1989 providing coverage for medical prenatal care and support services to pregnant women up to 185 percent of the federal poverty level (newborns and children are covered up to 200 percent of poverty) through a program called "First Steps." This coverage also includes access to services for women up to one year postpartum. Although the results of a reproductive health benefits survey show that 90 percent of plans cover prenatal services, only 76 percent of eligible women are enrolled for these benefits. There also is a subsidized State-funded health insurance plan for people who otherwise cannot afford health insurance, or are not offered a group plan by their employer.

Medicaid also offers the Maternity Care Access program which includes case management and wrap around services for women in need. Wrap around services were not initially built into MCO contracts, although a majority of providers offer these services. The Maternity Care Access program specifically provides for these services for Medicaid enrolled pregnant women, and MCO providers bill for them through Medicaid. Case management and wrap around services also are available to women who see fee-for-service providers. An independent women's health advocacy group is undertaking an evaluation of the package of maternity services currently available to women through insurance and managed care.

In 1993, Medicaid mandated managed care for all enrollees. The implementation of this program (called Healthy Options) was phased in on a county-by-county basis with full implementation in place by the end of 1996. Although the number of pregnant women receiving care through fee-for-service Medicaid

arrangements has declined in Washington State from 29,000 in 1993, there are still over 11,000 Medicaid deliveries not occurring under managed care arrangements. This is due in part to possible exceptions under the managed care rules, that include a preexisting relationship with a provider, Native Americans' receiving care from Indian Health Service providers, and geographic residence where choices are limited. A concern of the State based on a recent analysis of vital statistics data, however, is that women receiving care from fee-for-service providers show poorer outcomes than women in managed care even when adjustments are made for a number of confounders.

There are no statutes at the State level regarding the contracts, guidelines for or accountability of managed care organizations for perinatal care. There are also no policies or guidelines related to reimbursement for specialty or subspecialty care. Providers are reimbursed currently based on diagnostic related groups (DRGs). Washington still implements Certificate of Need for neonatal services.

Commercial managed care providers of perinatal care are generally the same providers as for Medicaid's managed care program. Currently, self referral is permitted for accessing reproductive health benefits within the insured's health plan or HMO. Washington State passed the Women's Health Care Access Act to assure such access for women.

Community Health Centers (CHCs) are found in 28 of Washington's 39 counties. The development of the Community Health Plan of Washington has allowed the CHCs to remain viable and competitive with other local health care providers.

The quality of care in the Healthy Options program has been assessed annually since its inception. Initially, appropriateness of care was evaluated intensively by reviewing prenatal records to determine if proper screening had been done and if the elements of care were appropriate. This evaluation showed appropriate care by providers on most issues except for HIV/AIDS screening. The State is now conducting a more focused evaluation of HIV/AIDS screening and postpartum birth control use. They also are evaluating: why some women are being exempted from Healthy Options; how continual eligibility affects outcomes and early access to care; and the effect of case management on outcomes.

As noted above, fee-for-service care is still available to women enrolled in Medicaid but primarily as a safeguard for women who do not have access to a choice of providers in managed care or to be flexible about women's provider preferences. With the advent of Medicaid managed care, for which certification of providers is a requirement, the State Medicaid program staff realized that they did not certify providers under fee-for-service arrangements and are currently working on this.

The Medicaid program in Washington evaluated reimbursement for perinatal care through Medicaid, and deemed it to be adequate. Some providers disagree with this assessment, especially in some rural areas where access to risk-appropriate services is limited. Some MCOs have pulled out of rural areas, although it is not clear whether the reason for doing this is because of low reimbursement, or rather due to the lack

of infrastructure for services in these areas.

Data Sources and other Accountability Mechanisms

The Washington State Health Department has an extensive array of data that it uses to monitor and evaluate changes in perinatal health indicators, as well as a history of reports in the published literature of these data. Matched birth and infant death certificate data files are linked to hospital discharge abstracts into a database called BERD. These data are also linked to Medicaid records. The State also participates in PRAMS and uses these data for population-based surveillance. PRAMS data have been particularly useful in identifying differences with respect to minorities; Hispanics are the largest minority group in the State. Washington State participates in the Behavioral Risk Factor Surveillance System, but the survey does not usually capture a significant proportion of the pregnant, and thus perinatal, population. In different years, however, questions are asked on related topics, for example, HIV testing and counseling, and family planning.

Data on infant mortality, neonatal mortality, perinatal mortality and fetal mortality rates are evaluated annually for each perinatal region. Cesarean deliveries are also evaluated using birth certificate data. Transport information is based on internal reporting from NICUs because of the poor quality of these data on the birth certificate. Transport data, available for about 10 years, are used to evaluate transports within and outside of the catchment areas of each perinatal center. The site of birth is also evaluated for VLBW and LBW infants by hospital, within regions, and across the State. Birth weight specific mortality rates are similarly evaluated, as are NICU costs. Since 1996, NICU costs have been analyzed by the Children's Hospital and Regional Medical Center, using the commercially available database known as HBSI Fathon, which incorporates data reported by all Washington State hospitals. Data are analyzed by NICU (accounting for case/charge mix), by premature infant birth weight groupings, and by specific diagnostic related groups.

The regional perinatal centers are required to provide data to the State every six months on access to care. Data about maternal and newborn transports also are required. As noted above, State MCH staff evaluate these data by listing all hospitals in the catchment area and looking at transport patterns among hospitals; transports within and outside of the catchment area specifically are evaluated. In recent years, some hospitals have been placed in different catchment areas not because of geography but rather because relationships have changed among hospitals.

The State prepared a report on the "Health of Washington State" in 1996, but, besides that report, does not conduct a statewide needs assessment other than the one required by Title V. The contracts with the four regional programs, however, require a needs assessment of their catchment areas be conducted every two years. The State does not define the parameters of this needs assessment, although technical assistance is available. Rather, the State permits the perinatal programs to determine local needs.

Prior to the implementation of Medicaid managed care, encounter data were available for Medicaid enrollees. The Medicaid agency owns the First Steps database and has a part-time director for it. Several

Health Department staff meet monthly with the director to review the data. MCOs do not currently provide encounter data to the Medicaid program; as a result, this important source of data is no longer available. This is a concern, and the development of a tracking code or referencing number is being explored by DSHS, Office of Research and Data Analysis.

As noted above, a number of studies have been conducted in Washington State evaluating the status of perinatal care. The report most relevant to the organization of perinatal services is the one by Powell, et al (1995) showing changes in the designation of hospitals by levels of care and in the percentage of VLBW infants born in Level II and III hospitals. In particular, a rise in the proportion of Level II hospitals has been accompanied by a rise, albeit small, in the proportion of VLBW infants born in these hospitals. There are a number of other publications in the literature about the quality of prenatal care in the State.

Changes, Challenges and Opportunities

Washington State recently used the 10 recommendations outlined in TIOP II as a means to evaluate the functioning of the perinatal health care system in the State. Based on these recommendations, State MCH staff assigned themselves an Apgar score of 5.6, on a scale from 0-10. The system scored the lowest on the recommendation related to improving the availability of perinatal providers. Access and quality of care problems remain in rural areas, and there are continuing concerns about the credentials of some providers in certain geographic areas. The highest scores were assigned for access to risk-appropriate prenatal care, in-patient perinatal care, data documentation and evaluation, and financing of perinatal care.

State MCH staff view the strengths of the Washington system as being based on existing relationships and partnerships, their 'levels of care' document, the strong presence of neonatologists and pediatricians in the system, and the priority "to do the right thing for the right reasons." Weaknesses noted by State MCH program staff include the lack of strong formal regulations, decreasing funding particularly in real federal dollars, and healthcare market changes, which, at times, disrupt current relationships. Changes in contracts of managed care organizations (MCOs), buyouts and hospital mergers have resulted in dramatic changes in the number of births occurring in some hospitals in as little as a one year period. There also have been closures of a number of smaller hospitals.

State staff cite a number of problems which are of priority concern to the MCH program including smoking during pregnancy, domestic violence, HIV screening, substance use, unintended pregnancy and pediatric follow-up. Within the context of perinatal systems, there is a disconnect between the mother and her newborn for health insurance or managed care coverage. In particular, children of mothers with Medicaid coverage may not be recognized as enrolled in the program until after birth. Also, infants with special needs are often followed in the regional centers because they do not have a medical home beyond the NICU because of the high cost of caring for these infants. The magnitude of this problem has only recently been documented.

Washington State has made a strong commitment to providing drug and alcohol treatment for all women, and making pregnant women a priority; 9 million dollars has been allocated by the State for these services. A task force has been formed to examine smoking during pregnancy and ways to address the problem. A Perinatal Partnership against Domestic Violence also has been developed which provides education to perinatal health service providers as well as to the general community about this problem. Unintended pregnancy is being addressed by extending coverage through one year postpartum for women on Medicaid. The State is also focusing on the provision of family planning services and birth control for Medicaid clients at postpartum visits.

A Look Into Wisconsin

In Wisconsin there were 67,450 births among the 1,152,991 women aged 15 to 44 years in 1998. The overall percentage of women beginning prenatal care in the first trimester was 84.5 percent, but it was much higher among non-Hispanic White women (88.0 percent) than among non-Hispanic Black (67.5 percent) or Hispanic (71.9 percent) mothers. Wisconsin had an infant mortality rate of 6.5 in 1997, lower than the U.S. rate for the same year. The LBW rate of 6.5 (13.7 for infants of non-Hispanic Black women), and VLBW rate of 1.2 percent (3.0 for non-Hispanic Black infants) were also lower than the respective national percentages of 7.6 and 1.4 percent.

Wisconsin has very independent local health departments, and the regional public health structure provides much of the direction for local health departments. Despite this structure, the State plays a significant, if “unofficial” role in the coordination of perinatal services systems in the State. The State’s Title V program is administered through the Division of Public Health (DPH), within the Department of Health and Family Services (DHFS).

Wisconsin is characterized by a high rate of individuals with health insurance: employers account for 80 percent of the insured, attributable in part to the strong union presence within the State. In 1997, Wisconsin had a moderate penetration of managed care, with 30.5 percent in the HMO market and 23.7 percent in the PPO market. The presence of managed care is growing slowly, with the average growth rate per year from 1995-1997 at only 14 percent. Wisconsin MCH Program staff indicate that managed care has a large presence in the State, with about 50-60 percent of State residents enrolled in managed care plans.

The Organization of Perinatal Services

According to Wisconsin’s *Criteria for Classification of Hospitals* (June 1990), the organization of regional perinatal services began in the State in the late 1960s, prior to the publication of the first edition of *Toward Improving the Outcome of Pregnancy* (TIOP). Wisconsin was one of the first States in the nation to organize such a system. Curet (1977) described the reason for the success of these early efforts to be due in large part to “the fact that it is a voluntary undertaking and helps in developing solutions to local problems in perinatal care.” These regionalization efforts were based on the location of the perinatal centers in existence at the time and the geographic area surrounding the center. This organization has generally persisted.

In 1981, the Wisconsin Statewide Perinatal Task Force adapted the 1976 TIOP recommendations in their publication, *Toward Improving the Outcome of Pregnancy in Wisconsin*. In their *Criteria for Classification of Hospitals*, a recommendation was made to reduce the levels of care from three (primary, secondary and tertiary) to two (community hospital and perinatal center), in order to minimize confusion regarding appropriate referral and transport protocols. This classification continues. The most recent criteria for classification were developed through consensus of key stakeholders adapting the guidelines of the American College of Obstetricians and Gynecologists (ACOG) and American Academy of Pediatrics

(AAP); they identified the elements of perinatal care and resources, such as personnel and equipment, which should be available.

Today, the organization of perinatal services in Wisconsin is still neither mandated nor legislated. There are also no State level regulations or policies establishing regions or mandating referrals, but there is an organized regional system for referral of high-risk mothers and newborns. As noted above, this system is based on the long history of referral patterns and clinical standards, dating back several decades. In addition to providing clinical care, regional perinatal centers (RPCs) take responsibility for promoting linkages with community providers, outreach education, and participation in research and quality assurance. While these centers are generally responsible for organizing the perinatal health services system in their areas, as originally conceived, they, nevertheless, continue to adapt to changes in the health care environment, as noted below.

There are seven perinatal regions in Wisconsin; each region has at least one perinatal center. The perinatal centers are determined through self designation, based on established criteria. There are four neonatal intensive care units in Milwaukee, two in Madison, and two in LaCrosse. Each remaining region has one. A perinatal center for one region is in Duluth, Minnesota. In the areas where there is more than one center, relationships among facilities are competitive, although some centers may be known for a particular subspecialty. While each region has NICU capacity, only a few have a high-risk obstetrical unit.

Criteria for transport can be found to some extent in the perinatal guidelines, but policy and procedures are established in each center in relation to the needs of community hospitals in their catchment areas. Bi-directional transport occurs among hospitals in these areas. Guidelines on services give less emphasis on ancillary services, and are primarily focused on in-patient and “clinical” out-patient services. Anecdotal reports indicate that many community-based hospitals continue to readily transport high-risk pregnant women and newborns to the perinatal centers, but some may be holding patients longer than in the past.

Several organizations in Wisconsin have “a shared responsibility” for leadership with regard to the system of regional perinatal services. In addition to the RPCs, these organizations include the Wisconsin Association for Perinatal Care (WAPC), the Wisconsin Division of Public Health (WDPH), the University of Wisconsin and other major academic institutions and professional groups, such as the State chapters of ACOG and AAP. The WAPC is a non-profit multi-disciplinary organization, governed by a 38 member Board of Directors. The Board includes RPC representatives, consumers, Perinatal Foundation representatives, members of the Schools of Nursing and Medicine, the WDPH, and the Wisconsin Health and Hospital Association. The WAPC is the primary organization in the State focusing on perinatal care and has always had a membership policy of inclusion. A contact person for each public health agency in the State as well as clinical providers of all disciplines serve as members. The WAPC’s role with regard to perinatal care is one of advocacy, conducting needs assessments, developing guidelines and standards of care (for example, guidelines for levels of care), quality assurance, professional and consumer education, consultation and technical assistance, and coordination and facilitation.

The role of the WDPH is one of close collaboration with other organizations in the State interested in perinatal health. Its functions include setting State policy, regulations, and standards, planning for perinatal health needs, financing of regional systems building, resource development and allocation, and quality assurance. The DPH has authority to carry out these activities from State statute, which indicates that among their duties is “MCH system coordination of services that promotes coordination of public and private sector activities in the areas of MCH programs.” The university and other academic and professional groups are generally involved in research, consultation and technical assistance, continuing education, standard setting and quality assurance. Local health departments have been major players in the development of guidelines for follow-up of NICU graduates and linking them to community services.

A MCH Advisory Committee in the Department of Health and Family Services also is involved in issues related to perinatal health, although its primary focus is looking at the “big picture” of MCH services in the State, as well as Title V programs. More specifically, its subcommittees are organized consistent with a “life cycle” framework in order to provide equitable attention to the entire MCH population. The Advisory Committee includes representatives from the MCH coalition and WAPC. The MCH Coalition, established in 1982, includes organizations interested in MCH; it also has subcommittees developed around periods of the life cycle. It plays more of an advocacy role than the MCH Advisory Committee. In the 1980's, the Coalition primarily looked at the funding distribution of Title V monies, but in the 1990's it has taken a broader view of MCH needs. Although there is some overlap among these groups, they each tend to have different memberships.

Wisconsin works informally with other States in assuring access to risk-appropriate perinatal care for its residents. A relationship exists between Duluth, Minnesota and Wisconsin patients in close proximity. There also is cooperation between Rochester, Minnesota's Mayo Health Care Systems and the perinatal center in LaCrosse. The perinatal center in Madison has received patients from the Freeport, Illinois area.

In general, the relationships among facilities within regions are quite strong, largely because of a strong history of collaboration. Managed care has had some effect, however, on referral patterns, due to changes in provider networks. Economics play a more prominent role in these relations, as has managed care's emphasis on cost effective and evidence-based practice. Yet, MCH staff note that the system has already withstood a number of changes and adapted to them over the past 30 years of its existence.

Services and Systems Financing

Title V monies provide core funding for development and maintenance of the regional system. The DPH supports the system by providing a grant to WAPC for perinatal systems building, which has been renewed through several funding cycles. This grant covers activities related to maintenance of the system (e.g., working on the data system, and promotion of preconception health services and universal newborn hearing screening practices), forums for discussion, and provision of education. WAPC also seeks corporate and foundation funding, and receives dues from its membership. The DPH issued a Request for Proposals (RFP) in May 1999 and has since selected the WAPC as the recipient for the Statewide Perinatal Health

System Building Program. The WAPC is now expected to accomplish a minimum set of Performance Benchmarks within the first nine months of the contract year. They include several collaborative activities working towards a continuum of perinatal services for both pregnant women and their infants, and related educational components for consumers and professionals, among other requirements. Funding for this RFP for the first of five years is \$250,000 of Title V monies, effective January 2000 through December 2000 [RFP General Information Sheets].

There are no specific State guidelines or policies for setting reimbursement rates specific to specialty or subspecialty perinatal care. Managed care organizations (MCOs) determine these within their own organization. The Office of the Insurance Commissioner is responsible for determining the content of insurance policies.

Prenatal care is a Medicaid-funded benefit, and some non-Medicaid eligible low-income women receive services paid for by Title V monies. In addition, some individual clinicians or provider hospitals may use their own resources for non-Medicaid eligible and other uninsured patients. There are no specific guidelines for the scope of services to be provided to commercially-insured patients, regardless of whether the services are from MCOs or fee-for-service (FFS) providers. In practice, Medicaid's scope of services often sets the standard for benefits included under commercial insurance and managed care plans.

Medicaid Managed Care was initiated in 1984, with participation in HMOs required for selected groups. The mandate was originally only in Milwaukee and Dane Counties, then phased in to include additional counties and the entire State by 1997. One-third of counties have both HMO and FFS options, due to uneven distribution of HMOs; that is, requirements for participation in the Medicaid managed care program vary by zip code, so that it is voluntary in some, mandatory in others, and in still others, not available. Native American beneficiaries are exempted from mandated managed care participation.

Medicaid covers case management services for high-risk pregnant women through 60 days postpartum under its prenatal care coordination program. Wisconsin's criteria for the provision of prenatal care coordination services are used to certify facilities wishing to participate in the program.

The State Medicaid program negotiates contracts with MCOs that include some specific components of perinatal care, such as equal access to pregnancy services. There are memoranda of understanding related to establishing a relationship with care coordination providers, NICU cost sharing among hospitals, and strong language regarding continuous newborn Medicaid eligibility. Capitation rates seem to be adequate for managed care plans to participate in the Medicaid program, and are similar to those for commercial carriers.

The regional system is seen as stable, based on the strong relationships developed over more than a 30-year history of collaboration. However, financing will always be a concern since funding is grant-based. Corporate commitments, for example, which fund some WAPC activities are fluid. A difference has been noted in the last two years regarding the kind of activity (now focused more on specific issues) and amount

of funding corporations are willing to provide. Since the WAPC was selected as the recipient of the Statewide Perinatal Health System Building Program RFP, funding is secure for the next five years.

Data Sources and Accountability Mechanisms

The sources of data related to perinatal health in Wisconsin are typical of those available in most States. Vital statistics data are used to evaluate rates of poor pregnancy outcomes, and linked birth and infant death certificates are available. Medicaid files also are linked to birth certificates. Some data, although limited in content, are available from the hospital discharge abstracts database. PC Log—a system developed by the WAPC, the DPH, and a private organization—provides capacity for additional data collection options. This data system is used in most birth hospitals, and allows for the electronic transmission of birth certificates. More data items are included in this system than are found on the standard birth certificate. These data can be accessed and analyzed by individual hospitals for internal quality improvement.

The DPH has access to the hospital discharge database via the Internet. The Division does not participate in PRAMS, and no specific questions related to perinatal health are added to the State's Behavioral Risk Factor Surveillance Survey. Every five years, however, the Bureau of Health Information (within the Division of Health Care Financing) conducts a Prenatal Care Survey with women who have recently given birth, on issues such as access to care. The public report is shared widely, and used within the Bureau of Health Information and Division of Public Health to inform their programmatic and policy decisions.

Regional perinatal centers collect data on transport, but do not have to share them with the State health agency. As a result, there are no statewide data on maternal or newborn transport.

The State has not generally conducted needs assessment activities for perinatal health outside of those mandated by Title V. The DPH performed a mid-course review of Healthy People 2000 objectives around 1995, and WAPC prepared a progress report on the 1990 perinatal task force recommendations. Studies based on Medicaid data have been completed, but are largely for internal use only.

Changes, Challenges and Opportunities

The advent of managed care appears to have had an impact on the organization of perinatal services in Wisconsin in several ways. Referral patterns have changed as a result of managed care networks, but the effect of these changes is undetermined at this time. As noted above, MCOs place a greater emphasis on evidence-based practice, but there is some debate as to whether or not it is being used primarily to identify appropriate clinical care or because of fiscal issues. General concerns are expressed about access to timely prenatal care for pregnant women in MCOs. MCH program staff attempted to influence the design of Medicaid managed care contracts so that all women would be scheduled for a prenatal visit within two weeks of appointment setting, but this policy was ultimately implemented only for high-risk women.

In rural areas, there has been some difficulty accessing clinical and wrap-around services, due primarily to distance and the lack of transportation. When wrap-around services are available, choice is often limited in these areas. Some counties have no hospital or no obstetrician/gynecologist.

The Wisconsin Welfare Reform Program (W2), also appears to have influenced service delivery for and receipt of perinatal care. Because women in W2 are now working in jobs with limited flexibility in hours, clients now have less access to wrap-around services, particularly home visits. Agencies may need to expand their office hours for clients to avail themselves of these services.

The MCH program staff have several concerns regarding women's health status. In particular, the WAPC has introduced a preconceptional care program to increase awareness of the importance of healthy women for a healthy pregnancy. The program addresses both patient and provider education along with the development of guidelines for care. Moreover, WAPC worked collaboratively (with good results) with family planning staff to promote preconception care. In addition, the Division of Health Care Financing (the State's Medicaid program) applied for a Medicaid waiver to expand provision of reproductive health services, but the status of this waiver is unknown at this time. Another health concern, alcohol and tobacco use by pregnant women, has been addressed through task forces, provider education, and collaboration between the DPH and the Division of Supportive Living and focused on care coordination.

Racial disparities in infant mortality rates also are a concern. There are currently two federal Healthy Start grants in Wisconsin. One is with the Great Lakes Inter-Tribal Council, which works with several Native American tribes throughout the State. The other is the Black Health Coalition of Wisconsin, focusing on African-American and other minority women populations. Also, an African-American infant mortality reduction work group was established to address this concern.

Table 1. Structure of Authority for States' Perinatal Services Systems

State	Health Department Structure [†]	Formal or Informal System	Authority for System		Regional (# Regions) or Quasi-regional	Basis and/or Area of Clustering of Services
			Legislation	Regulation or Policies		
AR	Centralized	I	No (except advisory board)	Statute: 1988, Perinatal Advisory Board	No	Mainly in Little Rock, geographic center of the state
CO	Very Decentralized	I	No	No	Quasi-regional	Around cities: Denver, CO Springs, Grand Junction
CT	Decentralized	I	No	No	No	UNICORN: CT's northern corridor initiated with Yale now
GA	Decentralized	F	No	Limited: state health planning agency, CON	Six Regional Perinatal Centers (RPCs)	Concentration of births/ population needs
IN	Decentralized	I	No	No	12 to 15 regional boards	Managed care contracts
MO	Centralized	I	No	No	Quasi-regional	Major cities: St. Louis, KC, Springfield, Columbia, MCO networks
NJ	Decentralized	F	Yes	Yes: CON, facility licensure, perinatal consortia, 1992 and revised (3 sets integrated in 2/1999, effective through 12/2001)	Seven regions	Geography/ historic/ concentration of births
OR	Very Decentralized	I	No	No	Quasi-regional; 3 geographic catchment areas	Geography / historical
VA	Centralized	F	No	Yes: 1995 regulations tied to hospital licensure	Six regional perinatal centers; seven RPCCs (1 RPC for 2 RPCCs)	Concentration of births established by PSAB (now MCH Council), location of specialty neonatal care
WA	Decentralized	F	Yes	Yes: WACs (laws) and RCWs (regs), 1989, on facilities and obstetric and newborn services	Four regional areas	Geography / transport patterns / MCO contracts / hospital mergers
WI	Very Decentralized	I	No	No	Seven regions	Geography / historical

[†] This information was taken from Fraser 1998. We added an additional classification of "very decentralized" for Colorado, Oregon and Wisconsin.

Table 2. Definitions of Level of Care for Perinatal Services

State	Levels of Care	
	Levels and Definitions	Designated by Whom and Based on What Criteria?
AR	Not officially designated. In Little Rock, 3 hospitals with NICUs; II's in 3 of 4 corners of the state.	Self-designation based on professional norms
CO	Traditional Levels I, II, III	CO Perinatal Council and a voluntary questionnaire
CT	Traditional Levels I, II, III (Handful of what would be IIIs and "III wannabe's")	Self-designation based on professional norms
GA	Basic, specialty, subspecialty (Traditional Levels I, II, III) 6 Regional Perinatal Centers (Level III)	Formal designation of RPC's self-assessment, checked by state health agency
IN	Basic, specialty, subspecialty (Traditional Levels I, II, III)	Voluntary self-designation through a hospital survey
MO	Traditional Levels I, II, III (recent increase in level III's)	Voluntary self-designation through annual licensing survey of MO hospitals (MHA, DOH, AHA), by obstetrical level
NJ	Five levels: Perinatal Regional Center and community center, intensive, intermediate, basic, and birthing center.	Hospital self designation based on health department licensure
OR	Traditional Levels I, II, III	Informal, unofficial self-designation at the local level
VA	Four levels: routine, intermediate, specialty, subspecialty (a majority of facilities are classified as specialty and subspecialty)	Voluntary self-designation, checked by CQHCSCP (MCOs have their own regionalization scheme)
WA	Traditional Levels I, II, III	Perinatal Advisory Committee "levels of care" document
WI	Two levels: community hospital and perinatal center 14 NICUs in Milwaukee, 2 in Madison, 2 in LaCrosse	Voluntary

Table 3. Agency Involvement and Support of the Organization of Perinatal Services

State	Public Agency Involvement (active, collaborator, limited)	Ongoing State Support of Infrastructure?		Perinatal Advisory Board		
		Y/N	What/How?	Y/ N	State/ Reg.	If yes, name
AR	Active: on Perinatal Advisory Board, CHCs, AHECs	Y	Staff committee, reimburse for expenses	Y	S	Governor's Advisory Board
CO	Limited: on Perinatal Advisory Board	Y	Staff on PCC council	Y	S	CO Perinatal Care Council, 1976
CT	Limited: UConn/UNICORN, Hospital Association, PCA, VNA	N		N	N/A	N/A
GA	Active: contractual relationships with RPCs, provides resources	Y	\$20 M in 1999, State and Medicaid	Y	S	Maternal and Infant Council
IN	Active: needs assessment, funding, technical assistance, monitoring	Y	Title V \$410,000 for Perinatal Network ('99, \$190,000 from cigarette tax)	Y	S	Perinatal Network (also serves as NPA, HMHB local chapter)
MO	Collaborator: state collects/analyzes data	N	Title V \$\$ for prenatal care services	N	N/A	[Used to have PAC in 1970s]
NJ	Active: assures adherence to regulations	N	\$\$ for projects of consortia (past annual budget \$450,000 to \$1.5 M)	Y	S	Dirs. of Consortia
					R	Consortia Boards of Trustees
OR	Limited: hotline to coordinate prenatal care	N	Contract with OHSU; Title V \$\$ - optional	Y	S	TAG, MCH Com., Governor's Maternity Task Force
VA	Collaborator: assists, funds, contracts for/with RPCCs	Y	\$875,000 for operation of RPCCs	Y	S	MCH Council (Gvnr-appointed, currently non-functional)
WA	Active: contracts with 4 PRCs, responsible for administration/oversight	Y	Medicaid matching \$, Title V \$, special DOH \$ (totaling \$750,000 to \$1M)	Y	S	Perinatal Advisory Committee
WI	Collaborator: with WAPC, ACOG, AAP, WPHA, University of Wisconsin	Y	Title V \$\$ to WAPC (\$250,000 for RFP)	Y	S	WAPC; MCH Coalition; MCH Advisory Committee

Table 4. Arrangements for Referral and Transport within the Perinatal Services System

State	Work with Adjacent States? (to/from which states)	Transport Arrangements	Referral/Consultation System?	
			Formal/ Informal	Based On?
AR	To Memphis, TN & Texarkana	Informal; EMS ground transport, helicopter at Children’s Hospital	I	Physician practices
CO	From WY, MT, SD, NE, KS To Salt Lake City, UT	Fixed-wing aircraft at Children’s Hospital Uses EMS system	I	Established relationships, marketing
CT	Due to MCO, some “tri-state” (NY, MA) arrangements	Traditional, established via UNICORN, informal EMS	I	Physician practices
GA	Augusta, GA to South Carolina To Florida, Alabama	Organized through RPCs, uses EMS system	F	Formal 24-hour consultation hotlines
IN	To Chicago, IL; Cincinnati, OH; Michigan; Louisville, KY	Formal arrangements for newborns	I	Physician practices
MO	To Memphis, TN From Illinois	Licensure (in general) district ambulance boards all transport licensed through EMS	I	Physician practices
NJ	From DE, PA To NY, NY & Philadelphia, PA	Limited amount of maternal transport; bi-directional EMS not involved; MOA between hospitals	F	Regulations local relationships
OR	To Idaho, California To and from Washington	Private sector, facility to facility	I	Local relationships
VA	To Memphis, DC From DC, MD, NC	Regions have protocols, RPCCs help, bi-directional	F	Memoranda of Agreement
WA	From Oregon	Formal system, data reviewed every 6 months; bi-directional	F	Toll-free telephone number, 24 hour consultation, local relationships
WI	To IL, Mayo Health Care Systems	Formal, bi-directional transport	I	History/clinical standards, local relationships

Table 5. Availability and/or Use of Data for Monitoring States' Perinatal Services and Systems

State	Data/Monitoring						
	Vital Statistics	Medicaid	Hospital Discharge	PRAMS	Transport	BRFSS	MCOs
AR	X (linked birth & death data)	X	X	X		X	
CO	X (linked birth & death data)	X (linked to vital statistics)	X (also separate complications database)	X			
CT	X		X			X	
GA	X	X (limited)	X (limited)	X	X	X	
IN	X (linked birth & death data)	no	(reports only, pilot link)	(former, discontinued in 1994)			
MO	X	X	X (linked for moms and newborns)		X	X (folic acid)	only for Medicaid members
NJ	X (electronic)	X	X				some HEDIS
OR	X	X (limited)	X (limited)	X			X (limited)
VA	X	X	X			X	
WA	X	X*	X	X	X	sporadic	
WI	X (linked birth & death data)	X (linked to birth data)	X (limited) (access via internet)		X (collected and used by individual RPCs)		

PRAMS: Pregnancy Risk Assessment and Monitoring System.

BRFSS: All states participate in the Behavior Risk Factor Surveillance Survey (BRFSS), but several states add questions related to perinatal issues, as sample size and other constraints allow.

MCOs: Data from Managed Care Organizations.

*WA used to have access to the First Steps Medicaid data, but less data are available since the initiation of Medicaid Managed Care.

Table 6. Additional Information on Data Collection and Use in the States' Perinatal Services System

State	Comments on Data
AR	Arkansas Reproductive Health Monitoring Systems, now CDC-funded Center for Birth Defects Research and Prevention; Perinatal health status indicators county resource book; Working on matching Medicaid and birth certificate files, as well as ADH MIS data to birth certificates.
CO	Hospital discharge data will be linked to vital statistics data.
CT	CT Hospital Association owns hospital discharge data (CHIME), ongoing pregnancy-related maternal mortality review.
GA	Access to family planning program data, and "Children First" program data. "Data rich and information poor": recruiting epidemiological staff, have CDC assignees.
IN	Geographic Information Systems data; Tri-county perinatal databook, based on additional items added to the birth certificate in these 3 counties.
MO	HEDIS
NJ	Statewide Total Quality Improvement Work Group
OR	CDC project to help link and make better use of Medicaid data
VA	Virginia Health Information group (within the Department of Health) VISION: patient care information management system Resource Mothers Uniform Data Set Challenges analyzing the data at various regional levels due to regional overlap: data are usually analyzed at the county or health district levels.
WA	BERD: linked hospital discharge abstracts and matched birth and infant death data; NICU cost analysis studies.
WI	PC log data system: electronic transmission of birth certificates. Prenatal Care survey every 5 years.

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Acronyms

AAFP:	American Academy of Family Physicians
AAP:	American Academy of Pediatrics
ACOG:	American College of Obstetricians and Gynecologists
AHECs:	Area Health Education Centers
BRFSS:	Behavior Risk Factor Surveillance System
CDC:	Centers for Disease Control and Prevention
CHC:	Community Health Center
EMS:	Emergency Medical Services
EPSDT:	Early and Periodic Screening, Diagnosis and Treatment
FFS:	Fee-for-service
FIMR:	Fetal and Infant Mortality Review
FPL:	Federal Poverty Level
HEDIS:	Health Plan Employer Data and Information Set
HMO:	Health Maintenance Organization
MCH:	Maternal and Child Health
MCO:	Managed Care Organization
NICU:	Neonatal Intensive Care Unit
PCCM:	Primary Care Case Management
PPO:	Preferred Provider Organization
PRAMS:	Pregnancy Risk Assessment and Monitoring System
PWP/SOBRA:	Pregnant Women Program/Supplemental Omnibus Budget Reconciliation Act -- States must cover pregnant women with family incomes below 133% of the federal poverty level (and may cover pregnant women up to 185% FPL). Pregnant women remain eligible for Medicaid through the end of the calendar month in which the 60th day after the end of the pregnancy falls.
SIDS:	Sudden Infant Death Syndrome
SSI:	Supplemental Security Income
TANF:	Temporary Assistance for Needy Families
TIOP (I & II):	<i>Toward Improving the Outcome of Pregnancy</i> (see References)

APPENDIX A: METHODS

The State Summaries

The questions addressed in this project included: What is the current status of the organization of perinatal systems in selected States?; What changes have occurred in this system in the past decade or so?; and, What are the underlying reasons for these changes? Project methodology involved preparing summary descriptions of the perinatal health service systems in 11 States using multiple sources of data to inform the State summaries. This approach was taken because of the complex nature of the perinatal system in any given State and the multiple factors that may affect system design, functioning, and/or outcomes. States differ not only in the way that perinatal care is organized, but also the geopolitical organization of its public health structure, its history of regionalization, managed care penetration, and a number of other factors that may affect changes in the organization of a State's system of services for pregnant women and their infants. Our methodology, therefore, was chosen in order to be able to understand observed changes in context.

States were identified for review in a series of discussions between faculty in the Women's and Children's Health Policy Center and staff at the Federal Maternal and Child Health Bureau (MCHB). We sought to examine a set of States that varied along the dimensions noted above, as well as with respect to their demographic profile, level of infant mortality, geographic location, public health structure and the amount of information already available about the state system. Clearly, a State's interest in and ability to be available for interviewing was an important factor in identification of the final set of 11 States. The States of focus for this project therefore included: Arkansas, Colorado, Connecticut, Georgia, Indiana, Missouri, New Jersey, Oregon, Virginia, Washington, and Wisconsin.

The primary source of data for the State summaries was semi-structured telephone interviews with State Maternal and Child Health (MCH) Directors or their designee, along with reports and other written documents describing the perinatal system in the State. The MCH Director in each State was identified from the directory of the Association of Maternal and Child Health Programs. Other representatives of health and other human services agencies or organizations knowledgeable about the perinatal health services system also participated in the interview in several States. In addition, articles published in professional journals and other reports readily available in the public domain or provided by the States were used to supplement interview information.

An interview guide was used to facilitate the interview with the State director or designee and is found in Appendix B. Respondents received a copy of this guide prior to the interview. Interviews were conducted during Summer 1999 by at least two interviewers from those listed here: Dr. Donna Strobino, the Principal Investigator for the project, Ms. Holly Grason, a Co-investigator, Ms. Gillian Silver, the Project Coordinator, and Dr. Ann Koontz, Associate Director for Perinatal Policy at the Division of Perinatal Systems and Women's Health in MCHB.

Background Data

Other sources were used to describe the health and health services context for each state. Data about the characteristics of the State's birth population were obtained from the *1998 Final Report of Natality Data* from the National Center for Health Statistics (NCHS) (Ventura, et al., 2000). Data on the infant mortality rate were taken from the *Final Report of Mortality Data* from NCHS, the most recent data available at the time of this report (Hoyert, et al., 1999). Information about the structure of the health department in each state was obtained from Fraser (1998). Finally, there were two sources for data on managed care penetration in each state: Joffe (1998) and Ketsche, et al. (1999). The specific indicators used are defined below.

Natality Data (1998):

Percentage of mothers with early prenatal care: the number of women with live-born infants who began prenatal care in the first trimester divided by the total number of live births, multiplied by one hundred.

Low birth weight rate (LBW): the number of live-born infants weighing less than 2500 grams at birth divided by the total number of live births.

Very low birth weight rate (VLBW): the number of live-born infants weighing less than 1500 grams at birth divided by the total number of live births.

Mortality Data (1997):

Infant mortality rate: the number of deaths occurring to infants in the first year of life in 1997 divided by the total number of live births in the same year, multiplied by one thousand.

Managed Care Penetration Data:

Health Maintenance Organization (HMO) market penetration: the enrollment in HMOs in 1997 in the geographic area cited as a percent of the total population of said area.

Preferred Provider Organization (PPO) penetration: the enrollment in PPOs in 1997 in the geographic area cited as a percent of the total population of said area.

Health Maintenance Organization (HMO) average growth: average annual percentage increase in enrollment on HMOs in the said area between the years 1995 and 1997.

Local Area Information

A second component of this project is investigation of the organization of the perinatal health services system at the community level. This component has three objectives: 1) to assess the organization of perinatal health services in counties and metropolitan areas with special emphasis on networks of care related to risk-appropriate medical and psychosocial services; 2) to assess the extent of involvement of local health departments in monitoring managed care and other health agencies in relation to perinatal health care and 3) to assess the impact of changes in the health care environment, especially managed care, on

changing networks of perinatal care.

The design for this component is a cross-sectional study of selected counties and metropolitan area across the country. The sample of counties and metropolitan areas was selected for an evaluation of the Fetal and Infant Mortality Review (FIMR) Programs nationwide. Approximately 180 counties and metropolitan areas nationwide with and without FIMR programs or other perinatal service systems initiatives constitute the sample. These areas were selected based on the characteristics of the counties and metropolitan areas with a FIMR in order to reduce variability between areas with and without a FIMR. The presence or absence of a FIMR, the presence or absence of a perinatal systems initiative, the area of the country (Northeast, Southeast, Midwest and West), and population density were used to select the sample. All states were represented in the initial sample, although a few states are not included in the final sample for which interview data are available.

Study participants include the MCH Director or designee or, in small counties without an individual so designated, the most knowledgeable person about perinatal health in the local health agency. Data are obtained from telephone interviews in which respondents were asked about implementation of public health functions related to perinatal health, the organization of hospital-related perinatal services in the area, and changes that have occurred in the perinatal service system in the past 10 years. The interviews were completed on June 16, 2000.

Questions from the interviews with health department respondents represent the following aspects of the perinatal services system and the role of the health department in relation to the system: analysis of data; conduct of needs assessments; existence of coalitions or advisory boards related to perinatal health care and their role in the community; direct or contractual provision of services, particularly wrap around services; uniform record keeping and tracking systems for perinatal clients; promotion of regulations, guidelines or standards for perinatal care; monitoring of managed care and other health agencies; role in convening meetings and professional education; the distribution of hospitals in the area by levels of care; changes in their distribution and reasons for these changes; other changes in the system and reasons for these changes; and the interaction of the health department with other human service agencies and private providers in the community. These data will be used to describe the organization of perinatal health services systems at the local level and the factors that influence it.

APPENDIX B: MCH DIRECTORS' DISCUSSION GUIDE

1. Are perinatal services organized into a system of care in your State?
2. Is there any legislation at the State level authorizing or promoting the organization of perinatal care?
3. Are there any regulations or policies at the State level authorizing or promoting the organization of perinatal care?
4. Is the system or clustering of perinatal services organized on a statewide basis or regional basis? What is the basis for clustering?
5. Does the perinatal system involve designation, mandated or voluntary, of level of hospitals or other facilities which provide perinatal care?
6. Are there requirements related to the specific components of care that are organized or coordinated by levels of care within the system?
7. Are there variations in the system by geographic area or some other criteria? Does it adapt to local or regional needs?
8. Does the organization of the system of perinatal care involve working with adjacent States? If so, how?
9. What is the role of the health department in the organization of the perinatal care system?
10. Is there any on-going infrastructure support or funding to maintain the system for organizing perinatal care? What is this support?
11. How secure is the current system; that is, are there sustainable structures or relationships to sustain the current system? How likely is it that the current system will endure?
12. Have there been any major changes in the organization or functioning of the perinatal health system in the past 5 years? What about in the last 10 years? Describe these changes.
13. What barriers and facilitators have affected the organization or functioning of the perinatal system in the past 5 years? What about in the past 10 years? Were there any key events that affected the system?
14. Is there a standing perinatal advisory committee, board, or group in the State that has a role in the organization of perinatal health system ? (Distinguished from fetal and infant mortality reviews (FIMR))
15. Is there an organized system or mechanism for consultation and referral of high risk mothers and newborns in the State?

16. Is there an organized maternal and newborn transport system in the State? If not, then how does transport take place?
17. Are there guidelines or standards about what constitutes a perinatal system? If yes, who developed these guidelines? Are they monitored, what is monitored, and by whom?
18. Are there any guidelines or policies regarding reimbursement for specialty or subspecialty care of mothers and newborns?
19. Are there any data routinely collected or analyzed regarding the organization of the perinatal system or perinatal services in the State?
20. Has a needs assessment for perinatal care been conducted in the State in the past 5 years, other than the Title V mandated needs assessment? What about in the past 10 years?
21. Have there been any studies in your State evaluating the extent or outcome of the organization of perinatal care/ perinatal system in the past 10 years?
22. Regardless of insurance plan, indemnity or managed care, are there differences across your State in access to perinatal services, particularly with regard to risk-appropriate care and adequacy on the care in meeting guidelines? What about barriers to access and the content of care provided? What are these differences?
23. Is there any legislation at the State level regarding the contracts, guidelines for or accountability of managed care organizations for perinatal care in the State?
24. What is the role of managed care in the State Medicaid program? What guidelines, contractual relationships or accountability procedures regarding perinatal care have been implemented for Medicaid managed care plans? Are there any concerns about the quality of care provided to pregnant women and newborns in Medicaid managed care plans? Are data available about pregnant women and newborns served in Medicaid MCOs? Is reimbursement/capitation to providers by MCOs adequate to meet the needs of low income pregnant women?
25. What is the role of fee-for-service in the State Medicaid program?
26. What is the current role of commercial managed care in the State regarding perinatal care?
27. What currently are the major concerns in your State with regard to the health status of pregnant women and their newborns?
28. What currently are the major concerns in your State with regard to the health care/ services for pregnant women and their newborns?
29. Have there been any other major changes in the organization or delivery of services for pregnant women and newborns in your State in the past 5 years about which you have not already told me? What about the past 10 years?