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Re: Estimated Federal Savings of State Option to Provide Coordinated Care for Medicaid Enrollees with High-Risk Pregnancies and Births

Summary

Avalere Health has estimated the savings to the federal government of a legislative proposal that would amend Title XIX of the Social Security Act (SSA)¹ by adding Section 1947: State Option to Provide Coordinated Care for Medicaid Enrollees with High-Risk Pregnancies and Births. This new section would allow a state; at its option under a state plan amendment, to provide for medical assistance to eligible individuals for maternal-fetal and neonatal care who select a designated birthing network² for purposes of providing the individual with pregnancy-related services.

Participating providers in the designated birthing network would be eligible for shared savings if Medicaid spending associated with eligible individuals in the program was below a baseline expectation. The new provision would also require that all participating providers report quality measures on a monthly basis to be eligible for Medicaid reimbursement, and within three years of enactment the Secretary shall survey states pertaining to the quality of patient services and performance reporting. This section would take effect on October 1, 2012.

We estimate this proposal would decrease federal spending by approximately \$186 million over the 2012-2021 period. We estimate modest participation by states, managed care organizations (MCOs), and individual providers over the ten year period. This savings estimate takes into account changes in Medicaid enrollment expansion as a result of the Affordable Care Act (ACA), as well as higher proposed Federal Medical Assistance Percentage (FMAP) rates.

Table 1: Estimated Change in Federal Spending

	Outlays, by Fiscal Year, in Billions of Dollars										2012-2016	2012-2021	
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
Total change in federal spending	*	*	*	*	*	*	*	*	*	*		0.1	0.2

Note: * indicates less than \$50 million

¹ Social Security Act, Title XIX. Grants to States for Medical Assistance Programs.

http://www.ssa.gov/OP_Home/ssact/title19/1900.htm

² Birthing network may include a designated provider or a team of health care professionals. See "Background" for more information.

Background

In a recent report published by the Institute of Medicine (IOM) titled “Preterm Birth: Causes, Consequences, and Prevention”, researchers examined the literature and data about what is currently known about the causes and outcomes related to pre-term birth.³ Regarding the causes of pre-term labor (PTL), the IOM identifies certain medical conditions such as chronic hypertension, diabetes, infections, and stress.⁴ In addition, a woman’s medical history, such as a pre-term birth in previous pregnancy, a family history of pre-term birth, or if the woman herself was born pre-term may also increase the risk.⁵ Furthermore, the IOM report indicates that many of the factors associated with pre-term birth occur together, particularly in minority women or those who have low socioeconomic status.

Over the past several years, Medicaid has become the largest financier of maternal-related services.⁶ As the rate of pre-term births⁷ increases, Medicaid may be disproportionately impacted and states may look for innovative approaches to reduce the financial burden associated with these high-cost services. As a result of these trends, the Administration and the Congress have recently increased focus on this population and the potential impact to federal and state budgets. In March 2010, Congress passed the Patient Protection and Affordable Care Act, which included various provisions related to maternal and child health services, such as *Section 2301 Coverage for Freestanding Birth Center Services* and *Section 2951 Maternal, Infant, and Early Childhood Home Visiting Programs*. In addition to these provisions, the Centers for Medicare & Medicaid Services (CMS) have stressed the importance of creating patient care communities where health care services are coordinated across a spectrum of providers. Such models of care delivery include patient-centered medical homes and health homes for Medicaid enrollees with chronic conditions.

The American Telemedicine Association (ATA) asked Avalere Health to develop a federal cost estimate for a legislative proposal that would coordinate care for high-risk/high-cost Medicaid pregnancies. Specifically, the proposal would allow states, at its option as a State Plan Amendment (SPA)⁸, to provide for coordinated medical assistance to eligible Medicaid enrollees for maternal-fetal and neonatal care who select a “birthing network”⁹ for purposes of providing the individual with pregnancy-related services. Participating providers in the designated birthing network would be eligible for shared savings if Medicaid spending associated with eligible individuals in the program was below a baseline expectation and they report monthly to the state on all applicable measures for determining the quality of the maternal-fetal and neonatal services. This proposal would also require that within three years of enactment, the Secretary shall survey states pertaining to the quality of patient services and performance reporting.

³ Butler, Adrienne, et al. “Preterm Birth: Causes, Consequences, and Prevention”. Institute of Medicine. July 2006

⁴ *Ibid.*

⁵ *Ibid.*

⁶ “Children and Pregnant Women in Medicaid and CHIP”, session brief dated November 17, 2011 (MACPAC analysis of HCUP 2009 data)

⁷ The Institute of Medicine defines “pre-term births” as births that occur before 37 weeks gestation.

⁸ Plans are not required under this proposal to offer these prenatal services. However if a state wishes to offer medical assistance under this proposals section of Title XIX of the Social Security Act, a state has the option to submit a State Plan Amendment to CMS. If the SPA is approved by CMS the state will be able to collect federal matching funds for the services outline in this proposal.

⁹ Birthing network services are defined as “(i) comprehensive care coordination; “(ii) health promotion;“(iii) a call center to offer 24-hour physician support for consultations with maternal-fetal medicine specialists, when requested, regarding patient management issues;“(iv) newborn screening, including for heart defects and to reduce newborn hospital readmissions; (iv) patient and family support (including authorized representatives);“(v) referral to community and social support services, if relevant; and“(vi) use of health information technology to link services and provide monitoring, as feasible and appropriate”.

The legislative proposal uses a shared savings approach to encourage provider adoption, as well as a higher contribution from the federal government in the first two years to encourage state adoption. Any demonstrated savings from care coordination for Medicaid enrollees with high-risk pregnancies (e.g., reduced neonatal intensive care unit (NICU) services or maternal physician visits) relative to a pre-determined baseline expectation would be divided equally between the providers in the birthing network and the federal and state government. Of the amount distributed to providers, 90 percent would be financed by the federal government for the first eight quarters after enactment. Starting in the third year, any shared savings payments to providers would be financed at a state's normal FMAP rate.

Data Sources

We used the following data sources to develop our estimates:

- Butler, Adrienne, et al. "Preterm Birth: Causes, Consequences, and Prevention". Institute of Medicine. July 2006
- "Factsheet: Medicaid and Children". American Academy of Pediatrics. July 10, 2011
- "Children and Pregnant Women in Medicaid and CHIP", session brief dated November 17, 2011 (MACPAC analysis of HCUP 2009 data)
- Hall, Elinor, MPH, Michelle Berlin, MD, MPH "Using Medicaid to Support Preterm Birth Prevention: Five Case Studies". 2004
- "Increase in Preterm Labor Has Health Plans Scrambling for Solutions". Managed Care Outlook. April 1, 2011
- Morrison, John, MD, et al. "Telemedicine: Cost-Effective Management of High-Risk Pregnancy ". Managed Care. November, 2001. 10(11):42-6, 48-9
- Birnie, Erwin, et al. "Cost-minimization analysis of domiciliary antenatal fetal monitoring in high-risk pregnancies". Obstetrics and Gynecology. June 1997. 89(6):925-9
- Zuckerman, Stephen, et al. "Trends In Medicaid Physician Fees, 2003-2008". Health Affairs. April 28, 2009. 3(2009): w510-w519
- Pérez-Ferre, Natalia, et al. "A Telemedicine system based on Internet and short message service as a new approach in the follow-up of patients with gestational diabetes". Diabetes Research and Clinical Practice. February 2010. 87(2)
- Gibson, MD, et al. "Hypertension and Pregnancy". eMedicine. October 2011
- Discussion with Tina Benton, Program Director of the University of Arkansas for Medical Sciences - Antenatal and Neonatal Guidelines, Education and Learning System (ANGELS). October 2011
- National Diabetes Information Clearinghouse, National Diabetes Statistics, 2011
- Consumer Price Index (CPI), CBO March 2011 Medicaid Baseline
- U.S. Census Bureau. The 2012 Statistical Abstract: Births, Deaths, Marriages, & Divorces: Birth. Retrieved November 16, 2011

- Butler, Adrienne, et al. "Preterm Birth: Causes, Consequences, and Prevention". Institute of Medicine. July 2006
- Avalere analysis of state distribution of Medicaid populations

Assumptions and Methodology

- **Determining the number of Medicaid high-risk pregnancies and births:** According to the US Census Bureau, there were 4.2 million births in 2008.¹⁰ We used estimates of births from the Census Bureau to develop the numbers of total births in the US through 2021.¹¹ The American Academy of Pediatrics estimates that Medicaid covers approximately 40 percent of births.¹²

To estimate the number of Medicaid pregnancies that would be affected by this proposal, we determined prevalence rates for four conditions that were associated with high-risk pregnancies: pre-term labor (PTL)¹³, gestational hypertension¹⁴, mild preeclampsia¹⁵, and gestational diabetes mellitus (GDM)¹⁶. Avalere identified these conditions after speaking with a representative of the Arkansas ANGELS program who suggested that these conditions were most relevant to high-risk pregnancies in the Medicaid population. We supplemented this information with a literature review on the causes of and conditions associated with high-risk pregnancies and births.

Based on our literature review, the prevalence of PTL ranges between 20 to 45 percent depending on population demographics. PTL has a disproportionate impact on Medicaid enrollees as they are more likely to have certain PTL risk factors, such as obesity or psycho-social problems.¹⁷ The National Diabetes Information Clearinghouse reported that approximately seven percent of all pregnant women experience gestational diabetes during pregnancy. We applied the same rate to Medicaid pregnant women; however, it's possible that the prevalence of GDM is greater among the Medicaid population. Rates of gestational hypertension and mild preeclampsia are five percent and three percent, respectively.¹⁸

It is important to note that there may be significant overlap between gestational diabetes and the hypertensive conditions, since the conditions share common risk factors^{19,20}, but we were unable to determine the extent of the overlap between these conditions. Conversely, the estimates of the rates between the two hypertensive conditions (i.e., gestational hypertension and mild preeclampsia) come from the same literature source and the rates were reported as mutually exclusive, allowing us to add the counts of patients across these two conditions.

- **Estimating total Medicaid spending for high-risk births:** Based on a report released by the Institute of Medicine (IOM) in July 2006, medical care for pre-term births cost a total of \$16.9

¹⁰ "Increase in Preterm Labor Has Health Plans Scrambling for Solutions". Managed Care Outlook, 2011

¹¹ Census Bureau, National Population Projections

¹² "Factsheet: Medicaid and Children". American Academy of Pediatrics. July 10, 2011.

¹³ "Increase in Preterm Labor Has Health Plans Scrambling for Solutions". Managed Care Outlook, 2011

¹⁴ Gibson, MD, et al. "Hypertension and Pregnancy". eMedicine. October 2011

¹⁵ Summary of the NHLBI Working Group on Research on Hypertension During Pregnancy, 2003

¹⁶ National Diabetes Information Clearinghouse, National Diabetes Statistics, 2011

¹⁷ Hall, Elinor, MPH, Michelle Berlin, MD, MPH "Using Medicaid to Support Preterm Birth Prevention: Five Case Studies". 2004

¹⁸ Gibson, MD, et al. "Hypertension and Pregnancy". eMedicine. October 2011

¹⁹ Gibson, MD, et al. "Hypertension and Pregnancy". eMedicine. October 2011

²⁰ Pérez-Ferre, Natalia, et al. "A Telemedicine system based on Internet and short message service as a new approach in the follow-up of patients with gestational diabetes". Diabetes Research and Clinical Practice. February 2010. 87(2)

billion, with over 85 percent of that cost delivered in early infancy.²¹ Avalere estimates that approximately 75 percent of the cost of early infancy care is due to NICU costs in the first few weeks post-delivery, as NICU costs are disproportionately greater than costs for other post-delivery services, such as follow-up pediatric physician visits.²² Additionally, the IOM reports that maternal delivery costs contributed another \$1.9 billion towards the overall costs of pre-term births.²³ Combined, maternal and neonatal pre-term labor services cost approximately \$10 billion in 2006. We increased this estimate by the Consumer Price Index for health services in urban areas to account for inflation each year through 2021.²⁴

Since Medicaid accounts for approximately 40 percent of all births, we applied the Medicaid ratio of births to the total spending estimate for costs associated with pre-term births. We acknowledge that there are two factors that could change this estimate. First, Medicaid traditionally pays less per service than other healthcare payers, which would suggest our estimate is too high. Second, the prevalence of high-risk births in the Medicaid population is higher than average; one analysis found that 46 percent of all Medicaid births were high-risk, compared to only 17 to 22 percent of births in the commercially-insured population.²⁵ This would suggest our estimates would be too low. Combined, we determined using the overall average of 40 percent applied to total costs was a reasonable estimate to determine total Medicaid spending on high-risk births.

- **Estimating the savings associated with more coordinated care used to treat high-risk Medicaid pregnancies with target conditions:** Based on a review of the literature related to the use of telemonitoring for pregnant women, potential cost savings included a reduction in utilization of hospital and physician services. To measure the potential savings from implementing Medicaid birthing networks, we separated the analysis into two categories: (1) savings associated with pre-term births, with particular focus on the costs pertaining to pre-labor, labor, delivery, and post-delivery/NICU days, and (2) savings associated with a reduction in the number of unscheduled physician visits.
 - **Pre-term birth costs:** Some studies report that telemonitoring may reduce the costs of pre-term births by an average of 62 percent²⁶; however, the magnitude of savings is relatively unknown as the majority of the savings are associated with the use of a home uterine activity monitoring (HUAM) device. Research on the HUAM device shows that it may improve a doctor's ability to monitor fetal patterns that could determine if and when a woman is in labor and may lengthen pregnancy to 32 weeks or more, thereby reducing costly NICU days.²⁷

These study findings, however, are considered controversial as other studies have found no benefit in the use of the HUAM device. Due to mixed study results and the potential for other procedures or processes that may improve care coordination and reduce costs, we reduced the estimated savings from the study to approximately 33 percent, as there does appear to be evidence that substantial savings could be found with care coordination for Medicaid

²¹ Butler, Adrienne, et al. "Preterm Birth: Causes, Consequences, and Prevention". Institute of Medicine. July 2006.

²² Avalere analysis of health care spending on pre-term pregnancies and births

²³ Butler, Adrienne, et al. "Preterm Birth: Causes, Consequences, and Prevention". Institute of Medicine. July 2006.

²⁴ Consumer Price Index (CPI), CBO March 2011 Medicaid Baseline

²⁵ Hall, Elinor, MPH, Michelle Berlin, MD, MPH "Using Medicaid to Support Preterm Birth Prevention: Five Case Studies". 2004

²⁶ Telemedicine: Cost-Effective Management of High-Risk Pregnancy, 2001; Cost-Minimization Analysis of Domiciliary Antenatal Fetal Monitor & in High-Risk Pregnancies, 1997

²⁷ *Ibid.*

enrollees who are at risk of pre-term labor. We applied this savings estimate to our estimated annual Medicaid spending on high-risk births.

- **Unscheduled physician visits:** Research studies also report savings due to a reduction in the number of unscheduled physician visits for pregnant women with any of the three other target conditions (GDM, gestational hypertension, and mild preeclampsia).²⁸ Telemonitoring was reported to decrease the average number of unscheduled physician visits by approximately 60 percent for women with gestational diabetes.²⁹

Due to limited available research on the utilization of physician visits for women with gestational hypertension and mild preeclampsia, Avalere applied the same reduction in physician visits (60 percent) to these populations. This reduction in unscheduled physician visits is only relevant for the subset of women who do not otherwise have GDM since the savings with this population is included under the savings estimates for GDM. Lastly, using research conducted by Stephen Zuckerman and colleagues, Avalere estimates the average cost of a Medicaid-covered 30-minute physician visit of about \$58 in 2012.³⁰

- **Birthing network participation:** To determine the number of Medicaid births that would participate in this program; we estimated a birthing network adoption rate of one percent in 2012 reaching three percent in 2021. The modest take-up rate is a result of three factors:
 - (1) Since this program is optional and requires each state to submit a state plan amendment, we anticipate wide variation in states' voluntary participation rate. Part of the decision to participate may depend on the size of the Medicaid population in each state.³¹ For example, states with a large number of Medicaid beneficiaries at higher risk for pre-term births may be more willing to find innovative solutions to reduce their Medicaid budgets. Moreover, states with a large rural population may be most interested in finding ways to improve access to primary and specialist care. Conversely, states with large Medicaid-managed care populations may have more managed care organizations (MCOs) already implementing such programs, which would reduce the likely adoption of this program.
 - (2) The high up-front capital cost of creating a birthing network without guarantee of payment creates the largest barrier to adoption, in our opinion. The resources needed to monitor and respond to patients' needs are costs and would be borne entirely by the provider; these providers would then need to demonstrate savings in order to receive any reimbursement to offset these costs. Given the lack of financial resources faced by many physicians, especially those who treat a large Medicaid population, this barrier is likely to be consider prohibitive to many physicians.

²⁸ Pérez-Ferre, Natalia, et al. "A Telemedicine system based on Internet and short message service as a new approach in the follow-up of patients with gestational diabetes". *Diabetes Research and Clinical Practice*. February 2010. 87(2)

²⁹ Zuckerman, Stephen, et al. "Trends In Medicaid Physician Fees, 2003-2008". *Health Affairs*. April 28, 2009. 3(2009):w510-w519; Consumer Price Index (CPI), CBO March 2011 Medicaid Baseline

³⁰ Zuckerman, Stephen, et al. "Trends In Medicaid Physician Fees, 2003-2008". *Health Affairs*. April 28, 2009. 3(2009):w510-w519; Consumer Price Index (CPI), CBO March 2011 Medicaid Baseline

³¹ Avalere analysis of state distribution of Medicaid populations

(3) Despite the potential for shared savings, providers may be reluctant to implement a system that would reduce utilization of physician visits or other procedures and treatments that would otherwise be reimbursed, even at modest Medicaid rates.

- **Shared cost savings estimates and federal FMAP rates:** The proposed legislation suggests a shared savings approach to incentivize providers to participate in this program. We assumed a 50 percent shared savings plan where half of the overall savings would be provided to the providers participating in the birthing network, while the remaining 50 percent would be shared between federal and state governments based on the FMAP rate for that state in the particular year.

Regarding FMAP rates, the proposed legislation suggests an increase in the FMAP rate to 90 percent in the first eight calendar quarters following the implementation of the program. Of the amount distributed to providers, 90 percent would be financed by the federal government for the first eight quarters after enactment. Starting in the third year, any shared savings payments to providers would be financed at a state's normal FMAP.

Avalere assumed that the Medicaid expansion under the Affordable Care Act would have no effect on the FMAP rate nor the overall savings for this program since all low-income pregnant women are currently covered under Medicaid.

Note about potential for longer-term savings

The IOM report noted above analyzes the long-term costs associated with high-cost pregnancies and births, including costs from infancy through early childhood interventions, as well as lost household and labor market productivity associated with four disabling conditions (cerebral palsy, mental retardation, vision impairment, and hearing loss).³² As a result, the long-term potential savings of this proposal may be greater than the cost estimate presented. These long-term savings, however, take place outside the typical ten-year window of federal budget scoring. Savings such as increased future medical costs, reduced productivity, and increased educational costs are beyond the scope of this score.

We have not included any of these potential savings in our federal savings estimates.

³² Butler, Adrienne, et al. "Preterm Birth: Causes, Consequences, and Prevention". Institute of Medicine. July 2006