A Statewide Progestogen Promotion Program in Ohio

Jay D. Iams, MD, Mary S. Applegate, MD, Michael P. Marcotte, MD, Martha Rome, RN, MPH, Michael A. Krew, MD, MS, Jennifer L. Bailit, MD, MPH, Heather C. Kaplan, MD, MSCE, Jessi Poteet, BS, Melissa Nance, MPH, David S. McKenna, MD, RDMS, Hetty C. Walker, RNC-OB, Jennifer Nobbe, BS, Lakshmi Prasad, MPH, Maurizio Macaluso, MD, DrPH, and Carole Lannon, MD, MPH

OBJECTIVE: To promote use of progestogen therapy to reduce premature births in Ohio by 10%.

METHODS: The Ohio Perinatal Quality Collaborative initiated a quality improvement project in 2014 working with clinics at 20 large maternity hospitals, Ohio Medicaid, Medicaid insurers, and service agencies to use quality improvement methods to identify eligible women and remove treatment barriers. The number of women eligible for prophylaxis, the percent prescribed a progestogen before 20 and 24 weeks of gestation, and barriers encountered were reported monthly. Clinics were asked to adopt protocols to identify candidates and initiate treatment promptly. System-level changes were made to expand Medicaid eligibility, maintain Medicaid coverage during pregnancy, improve communication, and adopt uniform data collection and efficient treatment protocols. Rates of singleton births before 32 and 37 weeks of gestation in Ohio hospitals were primary outcomes. We used statistical process control methods to analyze change and generalized linear mixed models to estimate program effects accounting for known risk factors.

RESULTS: Participating sites tracked 2,562 women eligible for treatment between January 1, 2014, and November 30, 2015. Late entry to care, variable interpretation of treatment guidelines, maintenance of Medicaid coverage, and inefficient communication among health care providers and insurers were identified as treatment barriers. Births before 32 weeks of gestation decreased in all hospitals by 6.6% and in participating hospitals by 8.0%. Births before 32 weeks of gestation to women with prior preterm birth decreased by 20.5% in all hospitals, by 20.3% in African American women, and by 17.1% in women on Medicaid. Births before 37 weeks of gestation were minimally affected. Adjusting for risk factors and birth clustering by hospital confirmed a program-associated 13% (95% confidence interval 0.3–24%) reduction in births before 32 weeks of gestation to women with prior preterm birth.

CONCLUSION: The Ohio progestogen project was associated with a sustained reduction in singleton births before 32 weeks of gestation in Ohio.

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Ohio ranks among states with the highest rates of premature birth and infant mortality, the former being the major driver of the latter. More than half of infant mortality[1] occurs in infants born before 32 weeks of gestation. Health leaders in Ohio were therefore keenly interested when in 2012, the Society for Maternal-Fetal Medicine (SMFM) and the American College of Obstetricians and Gynecologists (the College) issued clinical practice guidelines for use of progestogens to reduce the incidence of preterm birth.[2,3] These guidelines were based on large, high-quality randomized placebo-controlled trials[4–7] that reported reductions in singleton preterm birth by approximately one third in women at increased risk who were treated with either 17-α-hydroxyprogesterone

From the Ohio Perinatal Quality Collaborative, Cincinnati Children's Hospital Medical Center, and TriHealth, Cincinnati, The Ohio State University and the Ohio Department of Medicaid, Columbus, Aultman Hospital, Canton, MetroHealth, Cleveland, and Miami Valley Hospital, Dayton, Ohio.

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Corresponding author: Jay D. Iams, MD, 395 West 12th Avenue, Columbus, OH 43210-1267; email: jay.iams@osumc.edu.

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caproate injections[5] or progesterone administered vaginally.[4,6,7] However, evidence of effectiveness has not yet been reported for populations treated outside of these controlled trials. In 2013, in response to a request from the Ohio Department of Medicaid and the Ohio Department of Health, the Ohio Perinatal Quality Collaborative designed a statewide quality improvement project intended to promote prescription of progestogens (a term that includes both 17-α-hydroxyprogesterone caproate and progesterone) to eligible women in Ohio as quickly as possible. We report the design, progress, and outcomes over the first 26 months of this ongoing project.

MATERIALS AND METHODS

The Ohio Perinatal Quality Collaborative is a statewide, voluntary multistakeholder network dedicated to improving perinatal health outcomes. The Collaborative sponsors improvement projects that use a modified version of the Institute for Healthcare Improvement's Breakthrough Series Model, which is designed to overcome barriers and accelerate translation of evidence into practice.[8–10] The Ohio Perinatal Quality Collaborative conducts projects that have generated an authoritative benchmark for best practice based on robust research, that are expected to have significant population effects on perinatal outcomes, that are supported by the clinical community, and that are feasible to test, adapt, implement, and measure. Use of progestogens to reduce premature birth met these criteria in 2012 when the SMFM[2] and the College[3] issued guidelines recommending treatment for women with a prior spontaneous premature birth, a short uterine cervix measured by transvaginal ultrasonography to be 20 mm or less, or both.

The project was initiated in January 2014 after the Cincinnati Children's Hospital Medical Center institutional review board determined that it represented quality improvement, not research, under Department of Health and Human Services policies.[11] Unlike research studies, data collected during a quality improvement project are used openly and may be revised as a project progresses or fails to progress toward achieving goals listed in the Key Driver Diagram. The duration of this project was defined at the outset as 2 years from initiation, to conclusion if unsuccessful, or to "sustain phase" if change was accomplished. The decision to report our progress was made by the authors when there was sustained evidence of significant project-associated change, as defined by the requirements of statistical process control, in the rate of Ohio births at less than 32 weeks of gestation.

The project was designed to influence actions at both systemic and local levels of care. As in previous projects,[12] the largest maternity hospitals and clinics in Ohio were engaged first, because improvement at these sites was expected to influence outcomes for all Ohio births, 52% insured by the Ohio Department of Medicaid. Participation in Ohio Perinatal Quality Collaborative projects is voluntary, supported within each participating site by existing personnel. Sites receive no supplemental funding from the sponsors. System-level stakeholders, including leaders of Ohio Medicaid, medical directors of the five Ohio Medicaid managed care plans, and key representatives of hospitals and pharmacies, were engaged to support the project through identification and elimination of barriers to prescription and receipt of progestogens. Teams that included a designated nurse, physician, and data entry person at 23 prenatal clinics associated with the 20 largest maternity hospitals accounting for approximately half of all Ohio births were recruited to participate in a collaborative effort at the local level of care to promote optimal identification of progesterone candidates by pregnancy history, ultrasound measurement of cervical length, or both followed by prompt initiation of appropriate progestogen treatment.

A Key Driver Diagram (Fig. 1) was created to identify steps needed to reduce preterm births in Ohio. Because neonates born before 32 weeks of gestation account for 52.7% of infant mortality[1] and progestogen prophylaxis has been shown to reduce births before 32–34 weeks of gestation,[5–7,13] we aimed to reduce births before 32 weeks of gestation as measured by the Ohio Birth Registry by 10% (from 1.51% during the 2012–2013 baseline to 1.36%) in all Ohio maternity hospitals. We sought specifically to reduce preterm births before 32 weeks of gestation in women with a previous premature birth because they are readily identified and comprise a majority of those eligible for treatment. We also sought to reduce all premature (less than 37 weeks of gestation) births as reported in the research literature.[5]

Process and outcome data were submitted from each site and reviewed monthly to provide site-specific data to each site and aggregate data from all sites. Teams from each clinic participated in monthly webinars to share processes, problems, solutions that failed or succeeded, and progress toward specific aims with quality improvement and content leaders. Trained quality improvement consultants also worked with clinic sites individually to identify barriers and test changes at the practice

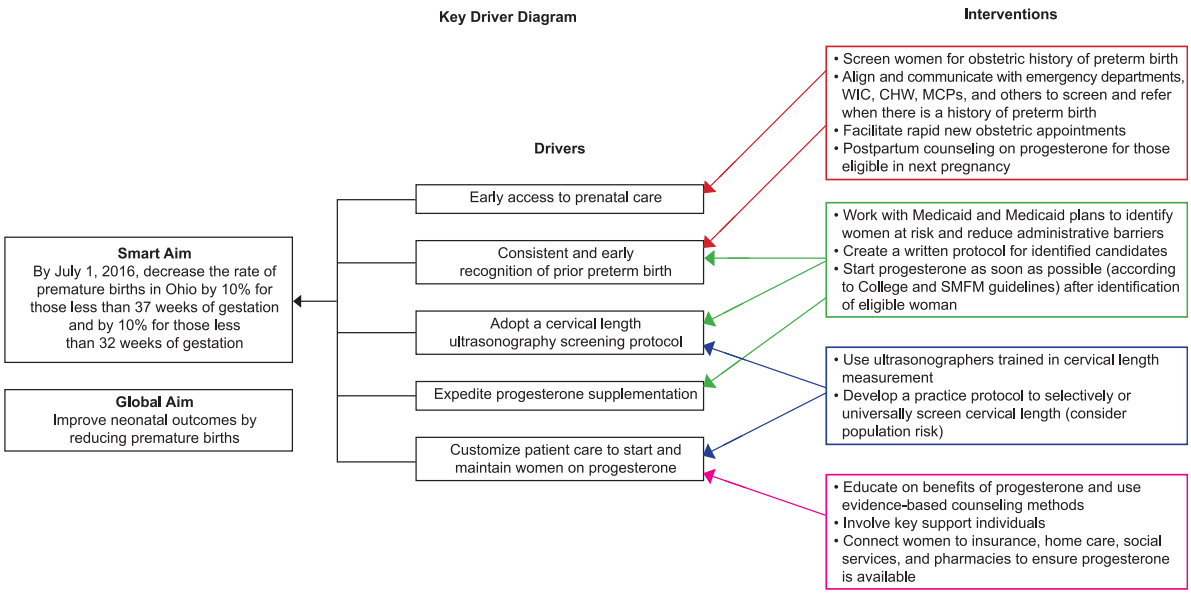

Fig. 1. Key Driver Diagram for the Ohio Progestogen Project. WIC, Women, Infants, and Children; CHW, community health workers; MCP, managed care plan; College, American College of Obstetricians and Gynecologists; SMFM, Society for Maternal-Fetal Medicine.

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level and to inform system-level interventions. Quality improvement staff interacted directly with each site to identify and overcome problems in finding and treating eligible women.

Cognizant of the various interpretations of the published protocols, the project promoted adoption and adherence to site-specific interpretation of these protocols regarding choice of progestogen and ultrasound screening algorithms for a short cervix. In addition to monthly webinars, site teams and system leaders were convened in periodic face-to-face meetings to teach quality improvement principles, review evidence supporting progesterone use, answer questions about interpretation of the College and SMFM protocols, and share strategies used to identify eligible women, initiate progestogen therapy promptly, and eliminate barriers to treatment. Sites were encouraged to use steps listed in Box 1 to promote efficient prescription of progestogens and asked to identify and address local barriers using Plan–Do–Study–Act cycles. The timing and duration of changes made were therefore unique to each participating clinic.

Local Level Intervention

Key drivers (Fig. 1) hypothesized to improve clinics' ability to identify progestogen candidates and initiate treatment promptly included early entry to prenatal care, adoption of a screening algorithm for all prenatal patients that emphasized consistent recognition of progesterone candidates and included a protocol for measurement of cervical length, expedited provision of progestogen treatment, and creation of site-specific, patient-centered protocols flexible in the formulation, cost, and location of progestogen administration (17-α-hydroxyprogesterone caproate is provided for delivery to clinics or patients' homes through different pathways). In this voluntary effort, project leaders

Box 1. Steps Toward Efficient Identification and Prescription of Progestogens

- Adopt a uniform interpretation of the 2012 American College of Obstetricians and Gynecologists and Society for Maternal-Fetal Medicine guidelines for prescription of progestogens.
- Use a prompt system to identify women eligible for progestogen.
- Accelerate first prenatal visits for women who might be candidates for progestogens.
- Do routine early dating scans for all new pregnant patients.
- Adopt a uniform protocol to perform ultrasound cervical length screening, including at least one ultrasonographer credentialed or trained to do transvaginal ultrasound measurement of cervical length.
- Use a log to track prescription and receipt of progestogens.
- Designate a progestogen "navigator" to monitor and address problems with administration.

determined that variation among sites in the interpretation of published protocols to identify (eg, criteria for defining a prior spontaneous preterm birth) and treat (eg, injectable 17-α-hydroxyprogesterone caproate or vaginal progesterone in various formulations) should be accommodated to emphasize finding and treating eligible women as the principal project goals. Women defined by their clinicians as eligible for progestogen prophylaxis were recorded as "treated" when a progestogen was prescribed after 16 and before 24 6/7 weeks of gestation.

System-Level Intervention

Practice patterns and barriers identified from site-level data were used to design systemic efforts to create and test a uniformly effective process for communication, prescription, payment, delivery, and administration of progestogens to eligible women. An experienced nurse coordinator at a central site was designated to receive, document, and, when possible, assist sites to remove patient-specific barriers to timely receipt of progestogen prescriptions. Beginning in March 2015, barriers reported to the Ohio Department of Medicaid were discussed with medical directors of the five Ohio Medicaid managed care plans in monthly meetings with Collaborative faculty and staff and senior Medicaid staff to create a common pathway for prescription and administration of progestogen accepted by all the plans. The project also sought to raise awareness among pregnant women, prenatal care providers, and Medicaid eligibility staff of the relation between preterm birth and infant mortality, the existence of a safe and effective intervention, the importance of early entry to prenatal care, and maintenance of eligibility to allow screening and timely access to the full course of medication. Population-specific educational materials were developed for patients, practitioners, clinics (available at opqc.net), and county-eligibility workers.

Data about women eligible for progestogen were collected at sites by clinic-employed abstractors and were shared with the Ohio Perinatal Quality Collaborative under data-sharing agreements with the Collaborative and the Cincinnati Children's Hospital Medical Center. Sites documented the reason for eligibility; gestational age at entry to care; whether progestogen was offered, accepted, or declined; the interval between recognition and prescription; whether progestogen prescription was issued before 20 weeks of gestation; and the formulation prescribed for eligible women seen at their clinic. These data were used to characterize the treated population, to facilitate monitoring the receipt of progestogen, and to support learning about barriers to progestogen administration, but were not used to determine outcomes. The Collaborative data center returned site-specific and aggregate data monthly to assist clinics in tracking women eligible for progestogen administration.

The primary outcomes, rates of all liveborn singleton births regardless of cause before 32 and 37 weeks of gestation for all Ohio births and in participating hospitals, were obtained from the Ohio Department of Health Vital Statistics Integrated Perinatal Health Information System (the Ohio Birth Registry). We also looked specifically at the rate of preterm births before 32 and 37 weeks of gestation in women who had a prior preterm birth, the largest group of women eligible for progestogen prophylaxis. The Collaborative received approval from the Ohio Department of Health institutional review board (#2010-42, original date of review November 23, 2010, renewal February 3, 2012), including permission to obtain Vital Statistics files monthly to perform analyses at the hospital, regional, and state levels. The deidentified, summarized birth file is obtained from the Ohio Department of Health by the Perinatal Quality Collaborative using a secure restricted-access process. Integrated Perinatal Health Information System data are used to track birth outcomes in aggregate for participating sites, to relate trends seen in participating sites to preterm birth rates for all Ohio births over the course of the project, and to review data according to maternal race (African American compared with all others), insurance status (Medicaid compared with all others), and hospital of delivery (participating compared with nonparticipating). The Collaborative has worked with the Ohio Department of Health Vital Statistics staff and birth registrars at Ohio maternity hospitals since 2009 to improve the accuracy and timeliness of Ohio Birth Registry data.[14] Accurate data on specific variables are entered and available within 2 weeks of birth for use in quality improvement projects. Variables collected from the Integrated Perinatal Health Information System included gestational age, maternal race, maternal history of prior preterm birth, and insurance status. Maternal history of preterm birth has been collected in this system for all Ohio births since January 2006. Receipt of progesterone was added in October 2014 and is a completed field for more than 90% of births. Data collected from women cared for at participating sites and submitted to the Collaborative represent and are included in but do not comprise the entire population tracked by the Ohio Birth Registry at participating hospitals.

In measuring and reporting prematurity rates, we use statistical process control methods to describe

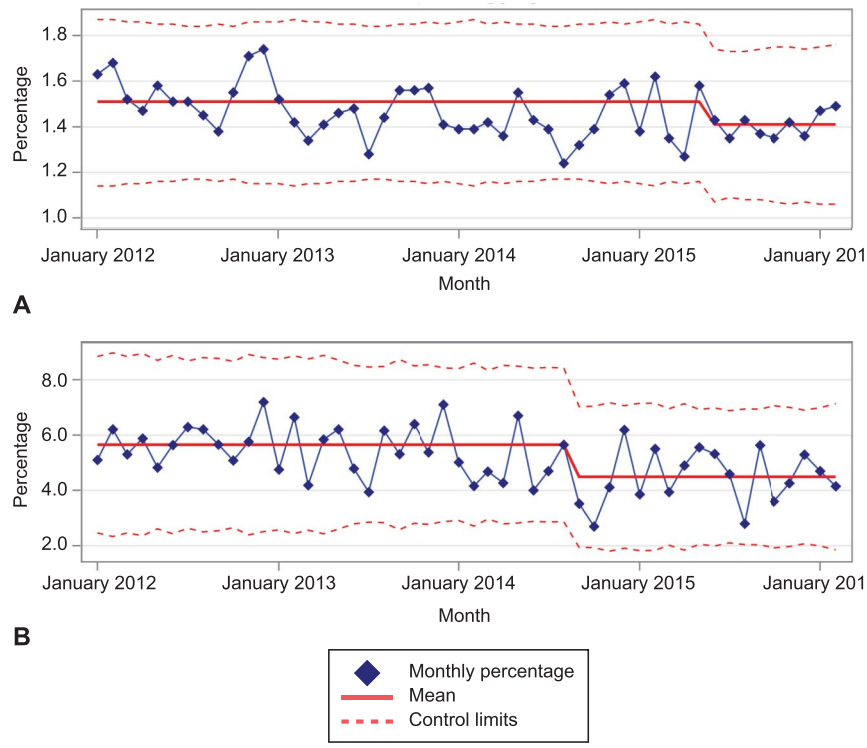

Fig. 2. Percentage of births before 32 weeks of gestation to all women and those with prior preterm birth for all Ohio hospitals, January 2014 to February 2016. Figure displays control charts, which include all Ohio maternity hospitals' birth registry data from the Ohio Department of Health Vital Statistics. **A**. Percentage of births before 32 weeks of gestation. **B**. Percentage of births before 32 weeks of gestation to mothers with a history of previous preterm birth. Denominator varies by month. Approximate averages for monthly denominators: **A**=11,000; **B**=560.

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longitudinal system variation over time using control limits representing three standard errors above and below the centerline (weighted mean).[14,15] For the primary outcomes, baseline centerline and control limits were calculated from the period January 2012 through December 2013 and were extended and displayed throughout the project. The control charts show a centerline (weighted mean value) and its control limits, defined by the mean±3 standard errors. Data were added monthly and were monitored for significant change using standard statistical process control rules including: 1) 1 point outside the upper or lower control limits; 2) 2 of 3 successive points in the outer third of the control limits; 3) 8 successive points above or below the mean (centerline); and 4) 6 consecutive points increasing or decreasing.[15,16] When one of the rules listed was met, the centerline and its control limits were recalculated. Centerline shifts determined by a data point falling outside the control limits or by 2 of 3 successive points in the outer third of the control limits are described as significant. In other instances in which statistical process control rules prescribe a centerline shift, we describe the change as sustained.

In addition to using statistical process control methods to monitor progress, we used generalized linear mixed models to confirm the program effect while adjusting for multiple sources of variation. These analyses modeled births before 32 weeks of gestation as a binary outcome of the simultaneous influence of calendar time, initiation of the program in 2014, maternity hospital participation in the Quality Collaborative, and characteristics of the mother (race, Medicaid coverage, and prior preterm birth). We also considered clustering of births by maternity hospital and autocorrelation over time as sources of correlation between outcomes.

RESULTS

A total of 2,562 women eligible for progestogen supplementation were identified at participating clinic sites between January 1, 2014, and November 30, 2015. Women with a prior preterm birth constituted 93% of those tracked by participating sites; the remainder had a short cervix measured by ultrasonography. Among eligible women identified at or before 20 6/7 weeks of gestation, progestogen was not offered to 11% and declined by 10%. Failure to initiate 17-α-hydroxyprogesterone caproate was also caused by entry to care after 20 6/7 to 24 6/7 weeks of gestation, the close of the eligibility period in published protocols. Of all women identified as potentially eligible, 161 (6%) entered care after the upper limit of eligibility (24 6/7 weeks of gestation) and 91 (57%) of those who entered late were not treated. A progestogen was prescribed at or before 20 6/7 and 24 6/7

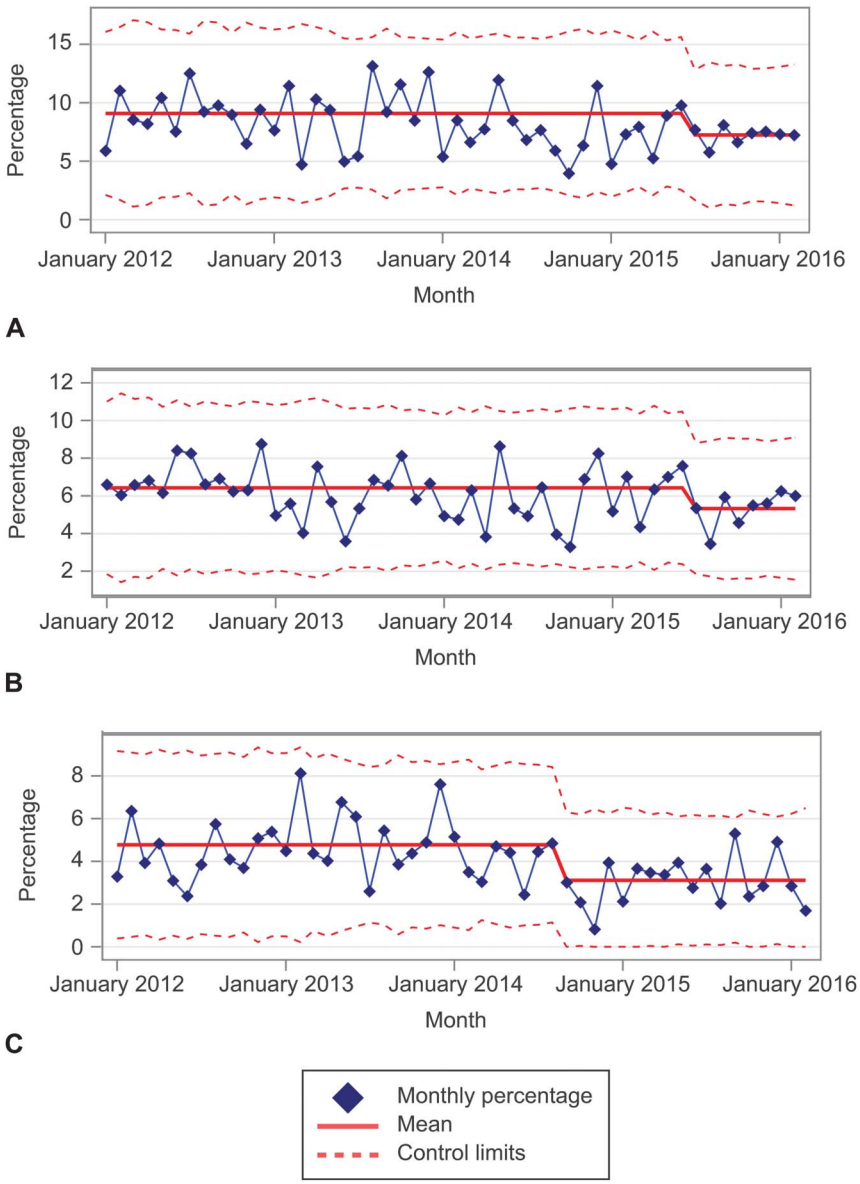

Fig. 3. Percentage of births before 32 weeks of gestation to women with prior preterm birth by race and insurance for all Ohio hospitals, January 2014 to February 2016. Figure displays control charts, which include all Ohio maternity hospitals' birth registry data from the Ohio Department of Health Vital Statistics. **A**. Percentage of births before 32 weeks of gestation to African American mothers with a history of previous preterm birth. **B**. Percentage of births before 32 weeks of gestation to mothers on Medicaid with a history of previous preterm birth. **C**. Percentage of births before 32 weeks of gestation to mothers not on Medicaid with a history of previous preterm birth. Denominator varies by month. Approximate averages for monthly denominators: **A**=160; **B**=300; **C**=260.

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weeks of gestation in 64% and 72%, respectively. Sites largely followed treatment protocols[2,3] that recommend 17-α-hydroxyprogesterone caproate injections for women with a prior spontaneous preterm birth and vaginal progesterone for women with a short cervix 20 mm or less, but vaginal progesterone was used by some sites when injectable 17-α-hydroxyprogesterone caproate was unavailable. Of women who agreed to progestogen therapy, 65% were prescribed injections, 30% were prescribed vaginal preparations, and the remaining 5% were prescribed both or lacked documentation of the formulation.

Outcome data are derived solely from the Ohio Birth Registry during the interval January 2014 to February 2016 and are described here in two categories: births from all Ohio maternity hospitals and births from the 20 hospitals linked to the 23 prenatal care sites that participated in the quality improvement effort. The 20 participating hospitals represented 48.7% of all births in Ohio and 62.1% of all births in Ohio to women with a previous preterm birth.

Singleton births before 32 weeks of gestation declined in Ohio by 6.6% during this interval, from 1.5 to 1.4% (Fig. 2A). Although this decrease was less than 10%, it met statistical process control rules that prescribe a shift in centerline in June 2015. Beginning September 2014, births before 32 weeks of gestation to women with a prior preterm birth declined

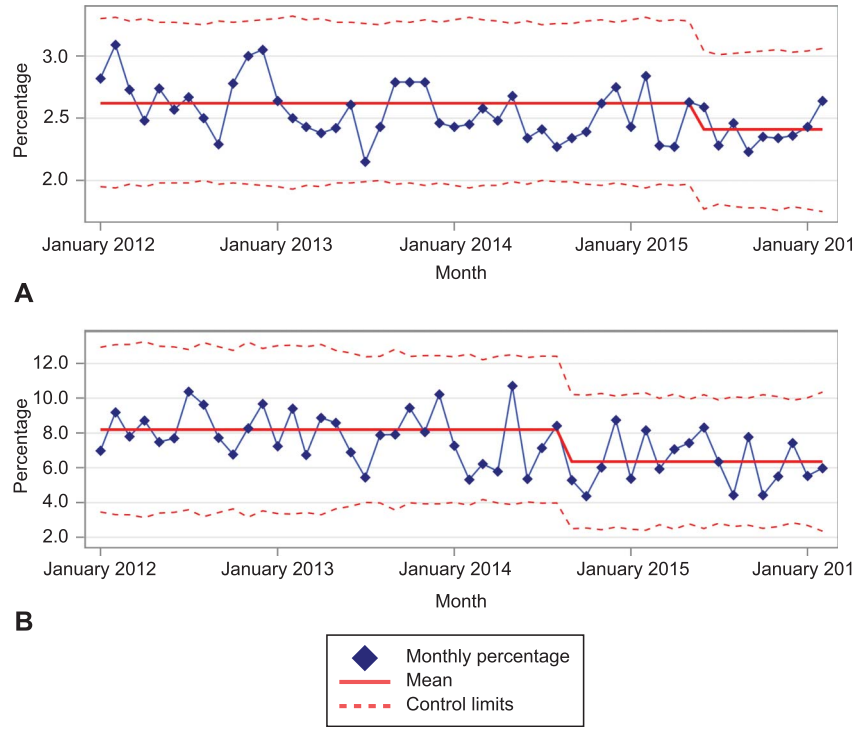

Fig. 4. Percentage of births before 32 weeks of gestation to all women and those with prior preterm birth for participating hospitals, January 2014 to February 2016. Figure displays control charts, which include the 20 Ohio Perinatal Quality Collaborative participating hospitals' birth registry data from the Ohio Department of Health Vital Statistics. **A**. Percentage of births before 32 weeks of gestation. **B**. Percentage of births before 32 weeks of gestation to mothers with a history of previous preterm birth. Denominator varies by month. Approximate averages for monthly denominators: **A**=5,360; **B**=350.

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significantly by 20.5%, from 5.7 to 4.5% (Fig. 2B). When analyzed by maternal race–ethnicity and insurance provider, sustained reductions in births before 32 weeks of gestation were also observed beginning in July 2015 in African American women (by 20.3%) (Fig. 3A) and in women insured by Medicaid (by 17.1%) (Fig. 3B). In women not insured by Medicaid, births before 32 weeks of gestation decreased by 34.8% in September 2014, approximately 9 months before reductions were observed in the Medicaid population (Fig. 3C). The rate of births before 37 weeks of gestation in all Ohio hospitals did not change for all births, but did decline in women with a previous premature delivery (data not shown).

Births before 32 weeks of gestation declined in participating hospitals by 8.0% beginning in June 2015, from 2.6 to 2.4% (Fig. 4A). This change was concurrent with the reduction observed for all Ohio births. Beginning in September 2014, births before 32 weeks of gestation among women with a prior preterm birth declined significantly in participating hospitals by 22.5% (Fig. 4B), a decline sufficient to affect this rate in all Ohio hospitals because more than 60% of women with a prior preterm birth delivered at participating sites. Births before 32 weeks of gestation in participating hospitals demonstrated sustained reductions beginning in July 2015, by 23.7% in African American women (Fig. 5A) and by 21.2% in women insured by Medicaid (Fig. 5B). The rate of births before 37 weeks of gestation in participating hospitals did not change (data not shown).

Birth registry data in women with a prior preterm birth examined over time by payer category (Medicaid compared with non-Medicaid) show a decrease in births before 32 weeks of gestation in those not insured by Ohio Medicaid that began in 2013, before this project was initiated. This decrease did not affect the overall rate of pre–32-week births in Ohio, probably because the percentage of pregnant women with a prior preterm birth who are privately insured is relatively small. The decline in births before 32 weeks of gestation in women who delivered their neonates at participating sites is first seen in summer 2014 (Fig. 5C). Owing to regionalization, these tertiary hospitals are the birth sites for 88.9% of births before 32 weeks of gestation among women with a previous premature birth. The rates presented in Figures 2–5 have been sustained through August 2016, the last month with complete data from the Ohio Birth Registry at the time of submission of this article.

Analyses using generalized linear mixed models confirmed the well-known multifold increase in rates of early preterm birth in mothers who are African American, Medicaid-insured, or who receive care at tertiary participating hospitals. After adjusting for these effects and accounting for time trends and

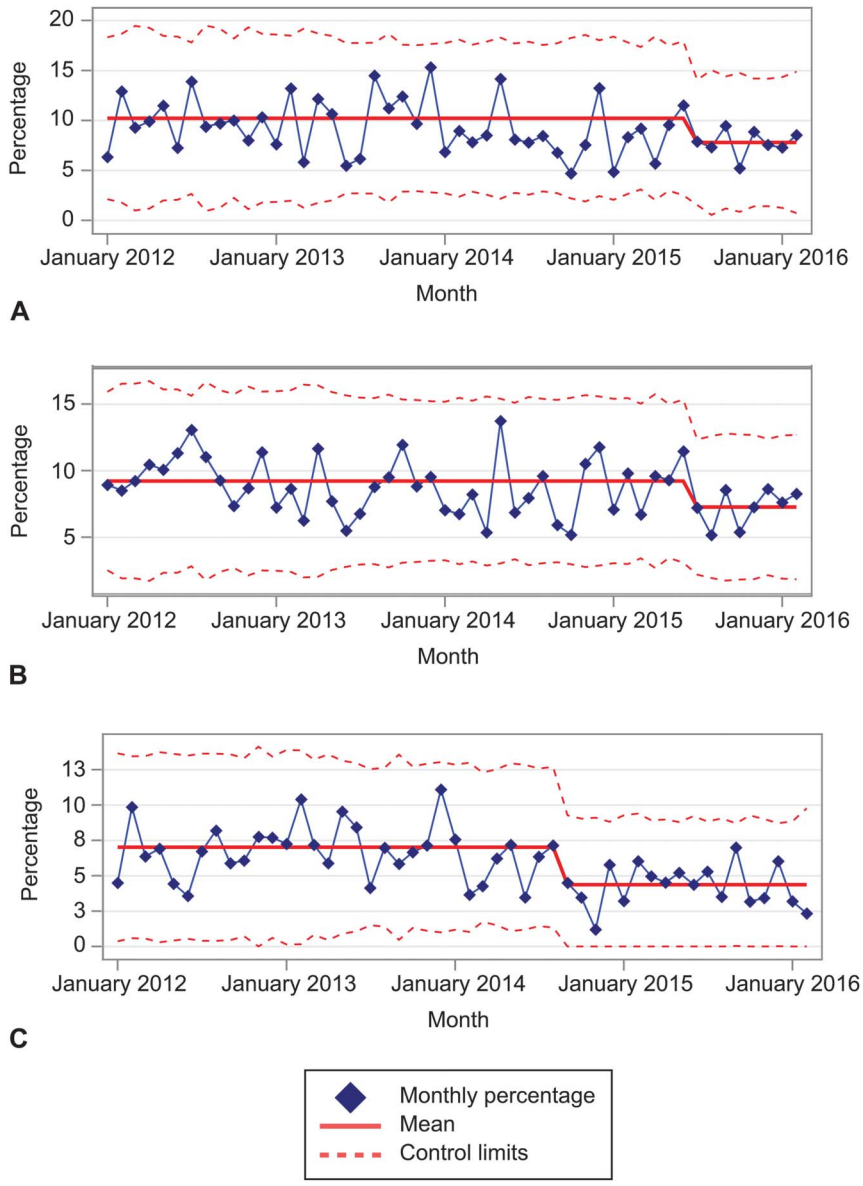

Fig. 5. Percentage of births before 32 weeks of gestation to women with prior preterm birth by race and insurance for participating hospitals, January 2014 to February 2016. Figure displays control charts, which include the 20 Ohio Perinatal Quality Collaborative participating hospitals' birth registry data from the Ohio Department of Health Vital Statistics. **A**. Percentage of births before 32 weeks of gestation to African American mothers with a history of previous preterm birth. **B**. Percentage of births before 32 weeks of gestation to mothers on Medicaid with a history of previous preterm birth. **C**. Percentage of births before 32 weeks of gestation to mothers not on Medicaid with a history of previous preterm birth. Denominator varies by month. Approximate averages for monthly denominators: **A**=130; **B**=190; **C**=160.

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clustering of early births by birth hospital, the decrease (13%, 95% confidence interval 0.3–24%) in the risk of birth before 32 weeks of gestation among mothers with prior preterm birth after the initiation of this project was significant.

DISCUSSION

The sustained 6.6% reduction seen in singleton births before 32 weeks of gestation concurrent with the Ohio progestogen project is remarkable because early premature births have been notably resistant to medical interventions applied during pregnancy. Between 2012 and 2014, U.S. rates of births before 32 weeks of gestation (defined by best obstetric estimate) declined by 1.8%,[17] a rate of 0.6% per year, whereas the rate in Ohio decreased by 2.8% per year. In research trials, only progestogen prophylaxis and cervical cerclage have reduced births before 32 weeks of gestation.[18] Because rates of cervical cerclage did not change in Ohio from 2013 to the present (based on Birth Registry and Ohio Medicaid data), increased progestogen use is a more plausible explanation for the decline. Although we cannot be certain that the results reported here are attributable entirely to our project, the outcomes we report are consistent with research studies in which the predominant effect of progestogen prophylaxis was seen for births before 32–34 weeks of gestation.[4–6] In our analyses,

adjustment for major risk factors (race, Medicaid coverage, prior premature birth) and potential correlation of outcomes within maternity hospitals confirmed a persistent association between the quality improvement project and reduction in early preterm birth among mothers with prior premature birth.

We noted two findings that may influence future efforts to promote progestogens. In a project conducted at sites where cervical ultrasonography is widely used, the predominant indication for progestogen treatment is a history of preterm birth; few women were identified only by cervical length screening. Also interesting is the decline in early preterm births that was first observed in 2013–2014 in nonparticipating sites, where most pregnant women are privately insured. It is reasonable to speculate that administrative, transportation, continuity of care, financial, and psychosocial barriers to initiating progestogen prophylaxis were less frequent among privately insured women. Ohio adopted presumptive Medicaid eligibility for pregnant women in July 2013 and expanded Medicaid eligibility in January 2014, but numerous ongoing barriers to progestogen use by Medicaid-insured women were identified and addressed during this project. Failure to offer progestogens to eligible women, refusal to accept treatment, and late entry into prenatal care were common barriers at sites of care, but inefficient communication at the system level among health care providers, insurers, county eligibility staff, pharmacies, hospitals, and pregnant women was the most significant cause of delay or interruption of progestogen treatment. For example, we encountered pregnant, Medicaid-covered women eligible for progestogen prophylaxis who were inadvertently disenrolled from Medicaid because the Medicaid eligibility system had not been notified of their current pregnancy status. Improved communication of high-risk pregnancy status so that a care manager was specifically assigned to notify county-eligibility staff of pregnancy status drove substantial improvement in progestogen treatment for Medicaid-insured and African American women. Use of outdated or multiple treatment protocols among hospital, pharmacy, or managed care personnel was also a common cause of delayed treatment. Barriers related to health care providers, manufacturers, insurers, pharmacies, home delivery services, and patients persist. In February 2016, all Ohio Medicaid managed care plans agreed to remove prior authorization for all progestogen formulations. In April 2016, the U.S. Food and Drug Administration approved single-dose 250-mg vials of manufactured 17-α-hydroxyprogesterone caproate without preservative, a step intended to reduce the financial burden of the more expensive five-dose vial but had the unanticipated effect of eliminating participation by a major home health care service. Restoring reliable alternate home health services has been challenging. This project demonstrates that system-level barriers are best overcome with system-level actions.

Although efforts to drive population change are always hard to measure and evaluate, we believe that removal and continued surveillance of barriers to progestogen prescription for Medicaid-insured women are principally responsible for the reduced rates of birth before 32 weeks of gestation reported here. At the local level, our project suggests that prescription for a progestogen requires aggressive follow-up to assure treatment is received. Adoption of a uniform site-specific treatment protocol and designation of a local "progesterone navigator" to monitor women tracked on a "progesterone log" of women eligible to receive progestogens were useful steps. Persistent efforts will be required to effect change at the practice level to streamline prescription of progestogens and at the system level to identify and remove barriers to effective care. We look forward to reporting broad dissemination of the practice-level changes to further decrease early preterm birth in Ohio and to similar reports from other states.

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