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Improving Prenatal Risk Assessment

ideas42

Working to decrease infant mortality rates in Baltimore, Maryland

Pregnant patients in Baltimore City on medical assistance who do not receive a prenatal risk assessment (PRA) are five times more likely to face fetal or infant loss than those who do. One key reason for this discrepancy is that submission of the PRA form triggers a series of triaging events that connect patients to community-based resources appropriate for them such as home visiting, free cribs, and safe sleep education. We developed a set of interventions to encourage prenatal care staff to complete more PRAs and to do so correctly, in turn helping parents receive the services they need and decreasing infant mortality rates.

Summary

In 2009, Baltimore City had one of the worst rates of infant mortality in the country, with 128 babies dying before their first birthdays in that year alone. The city struggled to address the two leading causes of infant mortality: babies born too soon and too small, and babies dying in their sleep. In response, leaders from different sectors—government, non-profit, academic, community, and corporate—came together to launch B'more for Healthy Babies (BHB). This initiative, led by the Baltimore City Health Department (BCHD) with Family League of Baltimore (FL) and HealthCare Access Maryland (HCAM), works to improve policies and services and mobilizes community members in comprehensive approaches that support mothers, babies, and families.

Highlights

- Historically, Baltimore City has had a high infant mortality rate, above the national average.
- Prenatal care providers have a low rate of filling out the prenatal risk assessment form, which is a key tool to prevent infant loss.

By 2017, the infant mortality rate had declined by 36% from 2009.[1] Despite this great progress, Baltimore has a long way to go, with infant mortality rates still substantially above the national average.[2] BHB and ideas42 partnered to apply a behavioral lens to the problem of infant mortality, focusing on the prenatal risk assessment (PRA) form, which acts as a gateway to many important community-based services.

The PRA form is intended to be completed by health care staff during a patient's first prenatal care visit and again if the pregnancy's risk ever changes. Though the state legally requires all health care providers to complete the PRA form for all pregnant patients on medical assistance, BCHD epidemiological analysis suggests that the completion rate was about 65% between 2012 and 2015. After staff completes and submits the PRA form, HCAM's care coordination program—BHB's centralized intake system for pregnant and postpartum women and infants—forwards it to a managed care organization (MCO) and additionally refers the patient to appropriate supportive health services: home visiting, a free crib, the Special Supplemental Nutrition Program for Women, Infants, & Children (WIC), and more.

[1] Baltimore City Health Department. 2017 Neighborhood Health Profile for Baltimore City (overall), June 2017. Accessed January 17, 2019. https://health.baltimorecity.gov/sites/default/files/NHP%202017%20-%2000%20Baltimore%20City%20(overall)%20(rev%206-22-17).pdf

[2] CDC National Center for Health Statistics. Accessed January 15, 2019. https://www.cdc.gov/nchs/pressroom/sosmap/infant_mortality_rates/infant_mortality.htm

We chose to focus on increasing the completion rate because mortality data from BCHD revealed that pregnant patients in Baltimore City on medical assistance who do not receive a PRA are about five times more likely to face fetal or infant loss than those who do, highlighting the potential power of this tool. We worked with BHB to nudge prenatal care staff to complete PRAs for all patients on medical assistance who receive prenatal care.

Behavioral barriers to submitting PRAs

In order to understand the behavioral barriers preventing health care staff from filling out the PRA form, we interviewed stakeholders within BHB, including staff from BCHD, Johns Hopkins Center for Communication Programs (CCP), Family League, and HCAM. We also spoke to staff at MCOs and at several Baltimore area medical offices, including hospital OB/GYN, labor & delivery, and maternal-fetal medicine departments, Federally Qualified Health Centers, private practices, and numerous others.

Through our interviews, we identified five behavioral barriers to PRA completion:

1. While staff may be aware of the PRA's importance, they do not always see its impact on individual patients.
2. Staff see their primary duty as providing care. Filling out a form does not feel like part of their identity.
3. PRAs are required by law for Medicaid-eligible patients, but providers consider them part of the intake process for patients entering pregnancy with Medicaid as their primary insurance, causing them to miss some patients who don't meet those narrow criteria.
4. When staff rely solely on their memory to complete the PRA, they are likely to forget—especially because they have limited time and cognitive bandwidth.
5. Staff may not order new PRA forms frequently enough because there are no rules—or inconsistent rules—about when, how, and how many forms to order.

Behavioral solutions

We then conducted design sessions with our partners at BHB to develop design ideas that could address the identified barriers. Following that session, we refined our solutions to create an intervention package with six pieces (see Appendix for sample pieces):

1. The quarterly **track record report** sent to each office was an avenue for feedback and peer comparison. Each report featured a graph comparing the number of PRAs a given office completed to the number of PRAs similar offices completed, with the intention of making discrepancies salient and spurring staff at these practices to consider the causes.
2. With the first track record report, we provided a **PRA checklist** including the three basic steps of PRA submission and tips on how to complete them: (1) Talk to a patient about the PRA (includes

talking points); (2) Fill out the form (includes the office's unique identification number); (3) Fax the form (includes the appropriate fax number). The checklist was intended to reduce the cognitive effort and risk of errors associated with completing the PRA.

3. We shared **patient and practitioner testimonials** with staff so they were able to more vividly experience the improved outcomes resulting from PRAs and hear stories from and about people similar to their patients.
4. A website included **PRA best practices** for reference and a quiz that staff could take to evaluate their PRA process. Especially for prenatal care offices without clear PRA completion processes, and for offices that viewed PRAs as legally required but not medically helpful, this intervention was intended to help them assess themselves against a clear standard and receive tailored feedback.
5. On a non-randomized basis, we held two **networking events** for prenatal care stakeholders across roles: providers, home visitors, HCAM employees, WIC employees, BCHD employees, and more. These events allowed different groups of people to interact and see their identity as part of a large health care team.
6. Also on a non-randomized basis, the **PRA Champions program** empowered a prenatal care staff member at each practice to spearhead the efforts to increase PRA completion rates. BHB provided the Champion with over-the-phone support. Note that enrollment in the Champions program was low due to limited resources available for outreach.

We bundled the first four intervention components—the feedback reports, checklist, testimonials, and website—and randomly assigned this treatment package to prenatal care offices in the Baltimore area. Materials were delivered on the schedule and through all available channels noted below. We also discussed the 2017 track record, checklist, and website during in-person visits with all locatable treatment offices in late April and early May.

March	April	May	June	July	August
2017 Track Record (Mail, E-mail, and/or Fax)		Q1 Track Record (Mail, E-mail, and/or Fax)		Q2 Track Record (Mail, E-mail, and/or Fax)	
Checklist (Mail, E-mail, and/or Fax)					
Testimonial (Email)	Testimonial (Email)				Testimonial (Email)

Our Results

PRA Submission Insights

In late April or early May during the study period, we visited every prenatal care office assigned to treatment to ensure they were exposed to the interventions and learn more about the experience of receiving them. Through these visits, we learned about several key concerns and differences among offices that might have informed whether the interventions improved their PRA submission behavior.

Most notably, we learned that maternal-fetal medicine (MFM) specialists, who see pregnant patients for services like ultrasounds and genetic screenings, rarely believe it is their responsibility to submit PRAs for their patients, since each patient's "home" obstetrics office presumably already did so upon initiation of care. However, an MFM visit is a key moment in a pregnancy because it may reveal risks to the patient or fetus that were previously unknown, and as such it's a valuable moment to submit a PRA even if one was already submitted during the patient's first prenatal care visit. Not only does a PRA submitted by a MFM alert Baltimore- and insurance-based care coordinators of new risks to the pregnancy, it also allows patients to opt into additional services with an improved awareness of their needs. But because MFM specialists didn't perceive the form as their responsibility, they tended to dismiss our outreach. We believe that a different approach would be necessary and beneficial to successfully change their behavior.

We also heard from multiple staff members that they were concerned about submitting PRAs for patients ineligible for Medicaid due to their income or immigration status, or who do not speak English fluently. Staff members were uncertain if the PRA could provide any benefits to these patients, and they perceived that it might pose risks particularly for undocumented patients. We altered subsequent Track Record reports to address these concerns in the Frequently Asked Questions section.

Finally, we learned that, nearly always, PRAs were completed solely for patients with Medicaid as their primary insurance at their first obstetrics visit. Patients who switched to Medicaid as their primary insurance later in pregnancy, or who had Medicaid as secondary insurance throughout, tended not to have PRAs completed on their behalf. Some staff members reported that many patients switched to Medicaid as primary insurance once they began to consider the high costs of labor and delivery that they would need to pay under high-deductible plans, and in general, pregnant patients in Maryland may be unaware of their eligibility for Medicaid, since income requirements are relaxed during pregnancy. This could be an additional source of missed opportunities to complete PRAs.

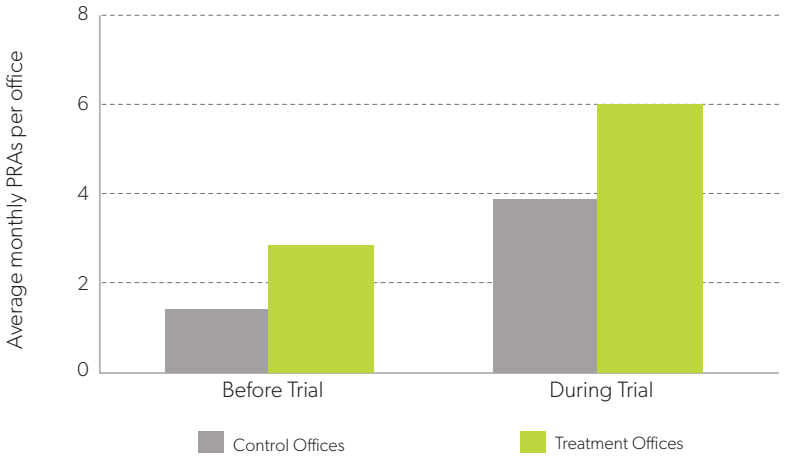
Randomized Controlled Trial Results

BCHD identified 49 prenatal care offices to include in our sample, including primary obstetrics & gynecology offices, maternal-fetal medicine specialists, and a few idiosyncratic practice arrangements (e.g., mobile and residential clinics). Offices with known administrative commonalities, such as being affiliated with the same health care organization, were assigned to clusters, and randomization was additionally stratified according to BCHD-provided categories of office size.

We conducted a differences-in-differences analysis comparing treatment and control offices over the six-month trial period (March-August 2018) and the same period the preceding year. We found an increase in the number of PRAs submitted in 2018 vs. 2017, which was large in size: over twice as many PRAs were submitted in 2018 compared to 2017 across treatment and control groups.[3] We also found some suggestion of imbalance between the treatment and control groups, independent of the treatment effect itself.[4] The effect of the intervention, while directionally positive, was not significant. We additionally conducted analyses for the subset of PRAs submitted on behalf of Medicaid-enrolled patients, and results were substantively similar.

Several data- and implementation-related challenges affect our confidence in these results. For example, all MFM specialist offices in the sample were, by chance, assigned to the treatment condition before we became aware of their divergent mental model regarding PRAs. While this issue would likely cause our effect estimates to be conservative, other issues' directional impacts are less clear. For instance, we were unable to attribute some PRAs to specific offices due to insufficient or ambiguous information on the form, while approximately 6% of the PRAs recorded during the pre- and post-trial periods were submitted by practices not included in our sample. It is also possible that some offices did not receive the full treatment. When we performed in-person outreach at treatment offices, most reported that they had not seen the track record report previously, although we had provided it ahead of time through available postal addresses, email addresses, and fax numbers.

Figure A. The average number of PRAs submitted per month, per office across time and groups



It's important to note that, because we did not have access to information about the number of pregnancies in the Baltimore area during the pre- and post-trial periods, observed increases in submitted PRAs over time may not represent an improved rate of submission overall. Birth rates in Maryland have been flat in recent years,[5] so unless trends abruptly changed between 2017 and 2018, the magnitude of the difference between submissions in 2017 and 2018 suggests that prenatal care offices have substantially improved their PRA submission rates on average.

[3] p=0.075

[4] p<0.12

[5] National Center for Health Statistics, final natality data. US Census Bureau. Population estimates based on bridged race categories released by the National Center for Health Statistics. Accessed February 6, 2019. www.marchofdimes.org/peristats

Conclusion

While Baltimore's fetal and infant mortality rates have declined since the B'more for Healthy Babies initiative began, there is still substantial room for improvement to bring Baltimore's birth outcomes in line with national averages. Through this work, we tested an innovative package of interventions to improve referrals to services that can help parents navigate their pregnancies and the first year of their babies' lives. Substantially more PRAs were submitted in March-August 2018 compared to the same period in 2017 across both treatment and control groups. Some of those additional PRAs may have been submitted due to the relevant office's receipt of treatment, but the available evidence is insufficient to confidently draw that conclusion.

In parallel with our efforts to improve submissions of PRAs, BHB stakeholders have been working on additional innovations to improve referrals for maternal and child health. Electronic options for PRA submission are being piloted at prenatal care offices throughout the city, and these pilots could lead to a broader integration of PRAs into electronic health record systems, reducing provider time and attention required to submit referrals. Similar efforts are underway for other maternal and child health referrals, such as the postpartum infant maternal referral (PIMR) used in hospitals that deliver infants. Efforts like these, as well as refined behavioral interventions, can continue to reduce the behavioral barriers associated with connecting parents to the services they need.

Finally, the scale at which this study was run—at the city jurisdiction—presented several key limitations to analysis, reach, and messaging. While BCHD is responsible for collecting data on maternal and child health, they do not have unencumbered access to data about the number of prenatal care visits for pregnancies in their jurisdiction; Medicaid, operating at the state level, owns relevant data, and health care organizations and MCOs also possess it. This means that while we can assess whether more or fewer PRAs were submitted by groups of practices, at this time we cannot assess whether their submission rate improved, nor whether incremental PRA submissions are related to improved birth outcomes. The project's outreach was also limited to practices according to BCHD's jurisdiction and familiarity, although patients may seek care outside their home jurisdiction. Finally, while BCHD is a known authority in Baltimore City, prenatal care offices may respond more strongly to messengers such as the health care organization to which they belong or the insurance company that pays for patients' treatment, since the authoritative relationship between provider and employer or payer is more direct. We look forward to exploring integrated partnerships to help health care systems better serve their patients during pregnancy and early childhood. By continually building on insights and innovative solutions, we can strengthen the impact of overlooked mechanisms—like the PRA form—for improving lives.

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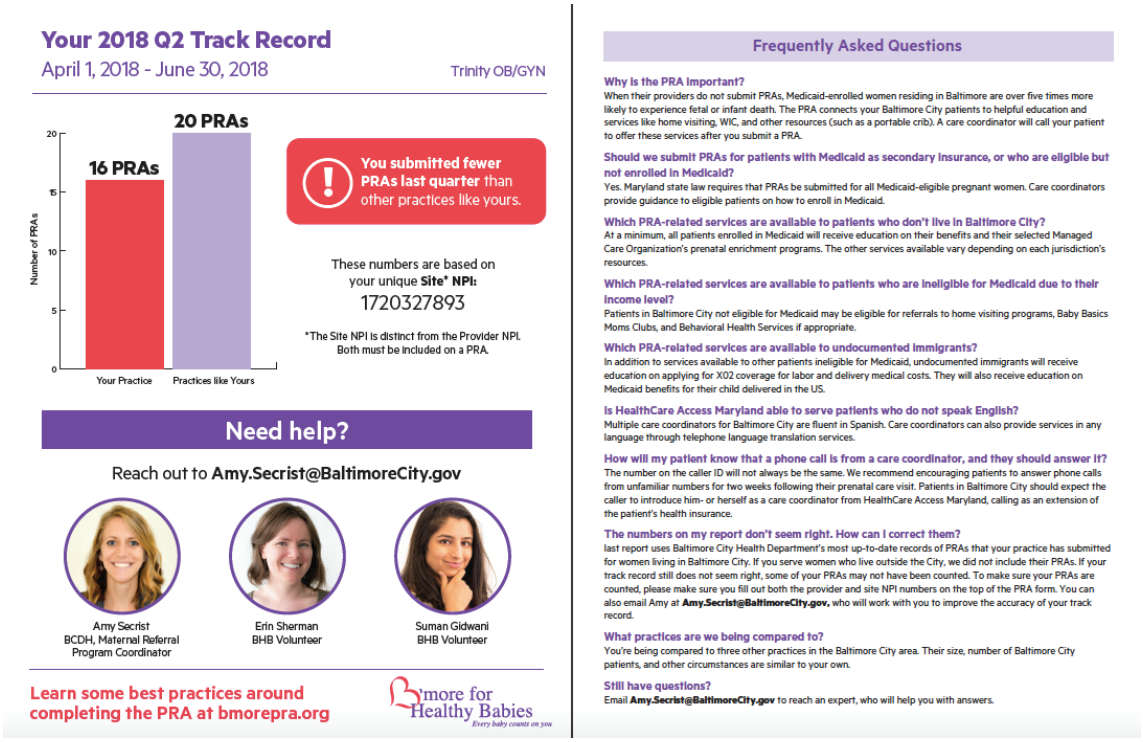
Appendix

Figure B. Sample prenatal risk assessment feedback report.



Your 2018 Q2 Track Record
April 1, 2018 - June 30, 2018
Trinity OB/GYN

You submitted fewer PRAs last quarter than other practices like yours.

These numbers are based on your unique **Site* NPI:**
1720327893

*The Site NPI is distinct from the Provider NPI. Both must be included on a PRA.

Need help?

Reach out to **Amy.Secrist@BaltimoreCity.gov**

Amy Secrist
BCDH, Maternal Referral Program Coordinator

Erin Sherman
BHB Volunteer

Suman Gidwani
BHB Volunteer

Learn some best practices around completing the PRA at bmorepra.org

bmore for Healthy Babies
Every baby counts on you

Frequently Asked Questions

Why is the PRA important?
When their providers do not submit PRAs, Medicaid-enrolled women residing in Baltimore are over five times more likely to experience fetal or infant death. The PRA connects your Baltimore City patients to helpful education and services like home visiting, WIC, and other resources (such as a portable crib). A care coordinator will call your patient to offer these services after you submit a PRA.

Should we submit PRAs for patients with Medicaid as secondary insurance, or who are eligible but not enrolled in Medicaid?
Yes. Maryland state law requires that PRAs be submitted for all Medicaid-eligible pregnant women. Care coordinators provide guidance to eligible patients on how to enroll in Medicaid.

Which PRA-related services are available to patients who don't live in Baltimore City?
At a minimum, all patients enrolled in Medicaid will receive education on their benefits and their selected Managed Care Organization's prenatal enrichment programs. The other services available vary depending on each jurisdiction's resources.

Which PRA-related services are available to patients who are ineligible for Medicaid due to their income level?
Patients in Baltimore City not eligible for Medicaid may be eligible for referrals to home visiting programs, Baby Basics Moms Clubs, and Behavioral Health Services if appropriate.

Which PRA-related services are available to undocumented immigrants?
In addition to services available to other patients ineligible for Medicaid, undocumented immigrants will receive education on applying for X02 coverage for labor and delivery medical costs. They will also receive education on Medicaid benefits for their child delivered in the US.

Is HealthCare Access Maryland able to serve patients who do not speak English?
Multiple care coordinators for Baltimore City are fluent in Spanish. Care coordinators can also provide services in any language through telephone language translation services.

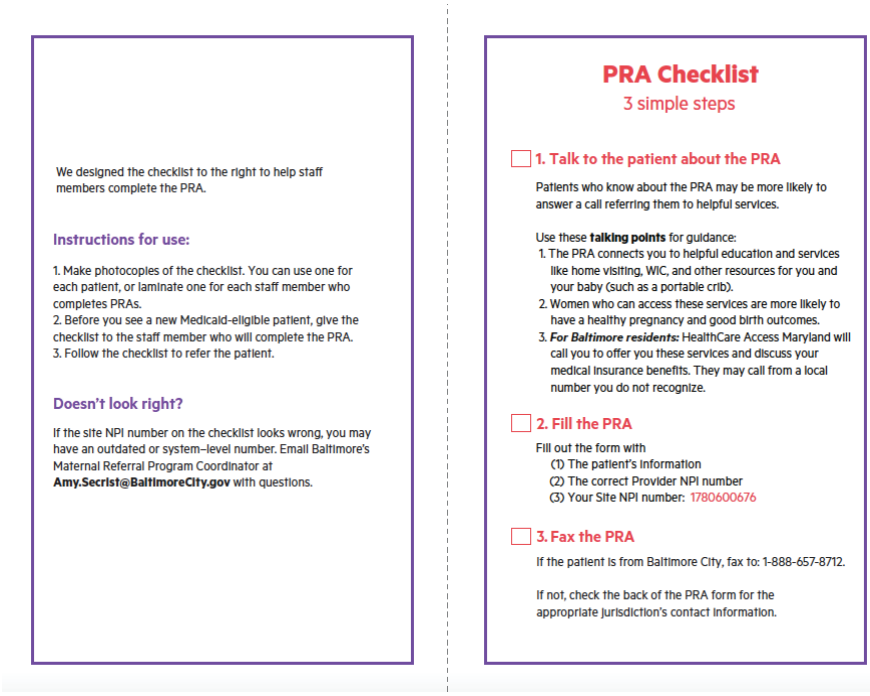
How will my patient know that a phone call is from a care coordinator, and they should answer it?
The number on the caller ID will not always be the same. We recommend encouraging patients to answer phone calls from unfamiliar numbers for two weeks following their prenatal care visit. Patients in Baltimore City should expect the caller to introduce him- or herself as a care coordinator from HealthCare Access Maryland, calling as an extension of the patient's health insurance.

The numbers on my report don't seem right. How can I correct them?
last report uses Baltimore City Health Department's most up-to-date records of PRAs that your practice has submitted for women living in Baltimore City. If you serve women who live outside the City, we did not include their PRAs. If your track record still does not seem right, some of your PRAs may not have been counted. To make sure your PRAs are counted, please make sure you fill out both the provider and site NPI numbers on the top of the PRA form. You can also email Amy at **Amy.Secrist@BaltimoreCity.gov,** who will work with you to improve the accuracy of your track record.

What practices are we being compared to?
You're being compared to three other practices in the Baltimore City area. Their size, number of Baltimore City patients, and other circumstances are similar to your own.

Still have questions?
Email **Amy.Secrist@BaltimoreCity.gov** to reach an expert, who will help you with answers.

Figure C. Sample prenatal risk assessment checklist.



We designed the checklist to the right to help staff members complete the PRA.

Instructions for use:

1. Make photocopies of the checklist. You can use one for each patient, or laminate one for each staff member who completes PRAs.
2. Before you see a new Medicaid-eligible patient, give the checklist to the staff member who will complete the PRA.
3. Follow the checklist to refer the patient.

Doesn't look right?

If the site NPI number on the checklist looks wrong, you may have an outdated or system-level number. Email Baltimore's Maternal Referral Program Coordinator at **Amy.Secrist@BaltimoreCity.gov** with questions.

PRA Checklist
3 simple steps

☐ **1. Talk to the patient about the PRA**

Patients who know about the PRA may be more likely to answer a call referring them to helpful services.

Use these **talking points** for guidance:
1. The PRA connects you to helpful education and services like home visiting, WIC, and other resources for you and your baby (such as a portable crib).
2. Women who can access these services are more likely to have a healthy pregnancy and good birth outcomes.
3. ***For Baltimore residents:*** HealthCare Access Maryland will call you to offer you these services and discuss your medical insurance benefits. They may call from a local number you do not recognize.

☐ **2. Fill the PRA**

Fill out the form with
(1) The patient's information
(2) The correct Provider NPI number
(3) Your Site NPI number: 1780600676

☐ **3. Fax the PRA**

If the patient is from Baltimore City, fax to: 1-888-657-8712.

If not, check the back of the PRA form for the appropriate jurisdiction's contact information.

Figure D. Sample patient testimonials.

Figure E. Sample "PRA Grade" quiz results page from the intervention website, BmorePRA.org.