

RIGHT WITHOUT MEANS ARE NOT RIGHTS:
OPERATIONALIZING INSURANCE COVERAGE AT THE RETAIL COUNTER FOR
OVER-THE-COUNTER CONTRACEPTIVES IN MARYLAND

by

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Dedication

This thesis is first and foremost dedicated to the women in my life.

To my mother, Bobbi Jo Clarke, above all else: Without her sacrifice and support, the opportunity to complete this degree would not have been possible. Growing up surrounded by her strength and spirit has made me the woman I am today.

To my aunt, Rene Miller-Mittenzwei: A life-long feminist, who marched on Washington for the same rights that I advocate for decades later.

And to the many more women I am fortunate enough to know, who remind me daily of the beauty and strength of womanhood and who give meaning to this work.

This thesis is also dedicated to the memory of my late father, U.S. Marine, teacher, and artist, Timothy Evans Flinn. I like to think he would be proud that his daughter became a firebrand.

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The title of this project—“Rights Without Means Are Not Rights”—is inspired by the work of

Loretta Ross, an academic, feminist, and reproductive justice activist. Ross distinguishes a narrow “reproductive rights” lens from a broader reproductive justice framework, arguing that the former focuses primarily on legal rights while neglecting the access dimensions of race and socioeconomic status in reproductive care. The concept of “rights without the means” critiques this legalistic approach, emphasizing that formal rights are insufficient without practical access.

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1. Introduction

Since the 1960s, access to contraceptives has become a socially, educationally, and economically revolutionary force in the lives of American women, with positive spillover effects into the lives of their male peers and society as a whole (Rice et al. 2020). However, these benefits have not been felt equally by all women; both unaffordability and resource constraints pose a significant barrier to contraceptive access for women of color, low-income women, young women, and disabled women (Bailey 2023). For this reason, ensuring that contraceptives are available over-the-counter (OTC) with reliable point-of-sale coverage from insurance providers limits the challenges associated with cost, resource scarcity, and healthcare bias and allows all women, regardless of demographic identity, to reap the benefits of reproductive autonomy.

Particularly now, with the federal government adopting an unfriendly posture toward women's rights and reproductive healthcare access, states have an obligation to protect and ensure access to family planning services (Sonfield and Singiser 2025). Maryland has attempted to meet this demand; the state's Contraceptive Equity Act, passed in 2016, requires insurance carriers in Maryland to cover FDA-approved contraceptives available over-the-counter or by prescription. While the statutory requirement is a vital first step in ensuring expanded access to reproductive healthcare for Marylanders, this coverage only exists on paper; uptake of the policy has been essentially nonexistent.

A similar pattern exists across peer states. Since Maryland became the first state to mandate OTC contraceptive coverage, ten other states have followed suit, indicating a broader national effort to expand contraceptive access. However, these states have encountered similar

challenges in implementing coverage as in Maryland. While statute may require coverage, in practice, coverage at the retail counter does not exist.

This project aims to understand the implementation challenges posed by coverage mandates and provide policy recommendations for strategies that allow consumers to receive immediate insurance coverage for OTC contraceptives at the retail counter. In pursuit of these goals, this project sets out to answer the following questions:

- How can Maryland operationalize insurance coverage for contraceptives at the retail counter?
- What barriers prevent successful implementation?
- How can existing systems be leveraged or adapted to facilitate coverage?

While a number of factors complicate access, this paper asserts that the lack of a viable infrastructure to facilitate insurance transactions at the retail counter poses a fundamental challenge in enacting coverage legislation and exacerbates secondary access barriers. Existing systems either lack necessary billing capabilities—real-time authorization, product eligibility restrictions, and insurer-retailer connectivity—or cannot be integrated into a retail counter point-of-sale system (POS). As such, the creation of a hybrid system that marries the transaction capabilities of existing systems is necessary for the successful implementation of the Contraceptive Equity Act.

These findings are based on a literature review and policy analysis focused on access policy and OTC coverage requirements, a comparative state case study to capture the relationship between policy implementation and variation across demographic, religious, political, and policy contexts, document analysis and system mapping to establish the actors and dataflows necessary for different transaction types, and supplemental expert interviews to assess implementation challenges from the perspective of advocates working in the field.

This project fills a gap in existing research by moving beyond broad discussion of theoretical implementation strategies to a more direct analysis of the technical operations necessary for OTC coverage facilitation and the feasibility of these strategies. This project also bridges the gap between reproductive healthcare policy and digital infrastructure systems in the existing literature. This work directly informs the work of the Maryland Commission for Women, but the insights provided in this paper largely relate to broader systems and are not constrained to Maryland specifically; as such, this research serves as a broader framework for states facing similar implementation challenges.

This paper opens with a discussion of the contextual dimensions and policy background of contraceptive access, explores the methodological approaches utilized in this project, provides analysis of state-level implementation efforts and payment system benefits and constraints, and concludes with policy recommendations for successful policy implementation. To support the state's implementation efforts, this project also develops two supplemental resources following the recommendations: a performance measurement framework for monitoring policy implementation and a county-level visualization identifying Maryland communities most likely to benefit from expanded OTC contraceptive access.

2. Background

2.1. Historical, Political, and Social Dimensions of Contraceptive Access

The historical, political, and social dimensions of contraceptive access highlight the identity-based factors that policymakers must consider when implementing access. Further, because the current statutory coverage requirement exists only on paper, an understanding of the

social elements of contraceptive access is essential in advocating for policy changes intended to operationalize coverage—which will almost certainly be necessary.

The historical trajectory of contraceptive access begins with the federal Comstock Act of 1873 and “little Comstock laws” in many states. The Comstock Act defined contraceptives and abortion as ‘obscene’ and banned the distribution of related products and literature through the mail, and many states followed suit by passing “little Comstock laws,” which criminalized not only mailable material, but also a wide range of content and behavior as well (Hamlin et al. 2024).¹ Fifty years after the death of Anthony Comstock—the puritan crusader and namesake of the Comstock laws—the Supreme Court’s 1965 decision in *Griswold v. Connecticut* established a married person’s right to contraception, and in 1972, the Supreme Court’s decision in *Eisenstadt v. Baird* extended this right to unmarried individuals as well (Weisman et al. 2025). Since then, as many more contraceptive pills and devices have entered the market, state and federal policy has sought to expand access to them in a number of ways. These efforts include the provision of public funding for family planning services via Medicaid, requiring coverage of contraceptives by providers that cover other prescription products, and through the passage of the Affordable Care Act, which mandated no-cost contraceptive coverage and established contraception as preventative care for women (Weisman et al. 2025). Of particular importance in contraceptive accessibility policy was the FDA’s 2023 approval of the first-ever OTC oral contraceptive, Opill—marking the culmination of a thirty-year campaign by the Free the Pill Coalition to secure an affordable and accessible oral birth control option (Prescott and Junod 2024).

¹ The Comstock law remains a part of federal legal code and has seen a “contemporary resurrection” in attempts to roll back reproductive healthcare access. Policymakers must be mindful of how this history has shaped the systems and attitudes surrounding contraceptive access, creating both structural constraints and ongoing legal fragility.

However, in the post-*Roe* landscape, these hard-fought victories are at risk. In his concurring opinion in *Dobbs v. Jackson Women's Health*—the 2022 case that overturned *Roe v. Wade*—Justice Clarence Thomas argued that the same reasoning that was used by the court to overturn *Roe* should be considered in the context of other cases, namely *Griswold v. Connecticut*, posing a potential risk to continued access and coverage (Weisman et al. 2025). Recent efforts to redefine certain contraceptives as abortifacients—drugs that cause the premature termination of pregnancy—also risk limiting access, particularly to IUDs and emergency contraception. As threats to contraceptive access loom at the federal level, state-level protections—like those Maryland has sought to implement—are essential to maintain access and protect the well-being of communities.

These state-level protections not only promote access and autonomy, but also foster social and public health benefits, highlighting the value of contraceptive access for communities. Access to contraceptives increases the rates at which both men and women seek and complete higher education and pursue professional occupations and decreases rates of unintended pregnancy and abortion, both of which are disproportionately high among young, low-income, and non-white women (Bailey 2023). Increased access to contraceptives also comes with a host of public health benefits, including a reduction of maternal mortality rates by 30%; the lengthening of interpregnancy intervals, which helps prevent preterm birth; and better management of pregnancy comorbidities for obese women (Rice et al. 2020).

When women have control over their healthcare, communities benefit, and it is for this reason that ensuring contraceptive access and affordability is essential; while these benefits are impressive, they are severely limited when women of color, low-income women, young women, and disabled women—those most in need of affordable contraceptives, most likely to face these

health challenges, and most likely to be negatively affected by federal rollbacks to reproductive care—are unable to access affordable family planning. It is for this reason that no-cost OTC coverage at the point-of-sale is so important, and why this research seeks to identify recommendations for its implementation.

2.2. OTC Contraceptive Coverage: Theory and Foundation

In recent years, the contraceptive landscape has become increasingly ripe for the development of expanded access policy. In March of 2024, Opill—the first FDA-approved OTC oral contraceptive—hit store shelves, and in the same month, CVS Caremark—one of the largest pharmacy benefit managers (PBMs) in the country—announced that they would be covering Opill without a prescription at no cost (Weixel 2024). In October of 2024, the Biden-Harris administration proposed expanded coverage of OTC contraceptives without cost-sharing for all plans subject to ACA requirements, and while the federal sentiment has shifted significantly, this announcement still represented a significant moment in the movement to expand access to no-cost family planning services (“FACT SHEET” 2024).

OTC access to contraceptives is not uncommon globally but is largely seen only in developing nations, with developed countries only recently moving to expand access in this way (Grindlay et al. 2013).² While the literature doesn’t make direct claims as to why this discrepancy exists, one explanation might be the result of efforts to expand access to contraceptives in developing nations to promote the health of women and girls and decrease maternal mortality rates (Mbizvo and Phillips 2014); however, the scholarship is not clear as to the cause of this variation. Whatever the case may be, this pattern indicates that there is likely

² Greece and South Korea are the only two developed nations where contraception is legally available without a prescription and no screening is required—most similar to Maryland’s policy. In several developed nations, contraceptives are informally available without prescription, but this model less closely aligns with state policy.

not a global model for extensive OTC contraceptive access in developed nations without a prescription or screening.

In 2016, Maryland became the first state to enact statutory coverage requirements for OTC contraceptives, and since then, nine other states have followed suit (Elliott and Nichols 2024).³ These regulations generally apply to individually purchased plans, some employer-sponsored plans, Medicaid, and state employee plans, while Medicare and large employers who self-insure are both regulated only at the federal level (Altman 2025).

Theoretically, point-of-sale coverage is executed in one of two places: the retail counter or the pharmacy counter. Retail counter coverage—the focus of this project—best meets consumers where they are, particularly for young people and those that may have dealt with inequities in the health care system and are less likely to utilize pharmacy services. Retail counter coverage and its methods for implementation will be discussed in greater detail in the next section of this review.

While less accessible, pharmacy counter coverage has the benefit of utilizing a system already structured to process claims for prescription medications, the technology of which can be leveraged to do the same for OTC products. Depending on state policy, coverage at the pharmacy counter may simply mean a pharmacist ringing up a transaction and filing the necessary paperwork, or it could refer to the use of pharmacist prescribing or state standing orders for contraceptives (Leszczynski et al. 2025). As this project does not focus on the pharmacy counter, operational strategies in this context will not be discussed further, but Leszczynski et al. provide a strong overview of these methods. Ultimately, ensuring point-of-sale access at both the retail

³ The ten states with statutory coverage requirements are: California, Colorado, Delaware, Illinois, Maryland, New Jersey, New Mexico, New York, Oregon, and Washington.

and pharmacy counters casts the widest net and ensures that the most consumers possible are reached (Elliott and Nichols 2024).

2.3. Retail Counter Coverage Proposals

While operationalization at the retail counter is still in its infancy, proposals from advocates offer promising strategies for a path forward. In their research, The Free the Pill OTC Contraceptive Coverage Collaborative has found that plan-issued OTC cards and apps present the best option for operationalizing coverage at the retail counter (Elliott and Nichols 2024). Similar models for this exist in practice: Medicare Advantage plans have begun to provide OTC coverage cards to customers; health savings accounts (HSAs), flexible spending accounts (FSAs), and employer funded lifestyle cards can already be used to pay for OTC products; Benefit cards are also used at the retail counter for programs like The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

In practice, a coverage card might function most effectively through a debit-card-like system managed by a provider, similar to existing benefit cards such as HSAs, FSAs, or other employer-funded accounts. Because this work remains largely theoretical, however, the technical workings of a coverage card may ultimately take a number of forms not yet fully proposed in the literature. Comparable benefit systems provide a foundation for how such a model might exist in practice and are examined further in the Analysis section of this paper.

The viability of coverage cards is echoed throughout the literature, and many scholars also point to the importance of a digital alternative, such as the creation of a digital ‘card’ that can be used within payment apps like Apple Wallet, the development of an app that provides coverage information and can be used for payment at the point of sale, or the use of a web-based

application to generate billing information (McIntosh et al. 2013). Insurers could also choose to issue electronic coupons for coverage instead of or complimentary to coverage cards (Contracept. Access Initiat., n.d.). While cards and apps present an interesting and viable path forward, the literature makes little reference to the infrastructure adjustments that will almost certainly be required on the part of retailers and providers. The Contraceptive Access Initiative recommends that health plans partner with specific retailers to pilot this new technology, but information on what this will actually entail is lacking. These gaps in the literature will be discussed further in the next section. While digital options present a viable solution, it is also essential to maintain a physical option as ‘the lowest common denominator’ for participants for whom technology is unfamiliar or inaccessible.

In addition to a coverage card or app, digital kiosks might also provide a path forward. In a 2013 study, Schwarz et al. placed kiosks that provided counseling about contraceptive options, screening for contraindications, and allowed women to request prescriptions in the waiting rooms of ERs and urgent care facilities and ultimately found that patient-facing computers seem to increase access to prescription contraceptives for women in an acute care setting (Schwarz et al. 2013). While this study does not relate specifically to the provision of coverage for OTC products, the framework could certainly be adapted—McIntosh et al. cite this study as a possible strategy for operationalizing coverage. The kiosk approach has a number of benefits, particularly the lack of pharmacist or merchant labor while still providing counseling to patients on contraceptive use. In theory, these kiosks could be adapted with relatively minor changes to dispense contraceptive coverage in-store. Like coverage cards, the details of how this solution might take shape in practice requires research beyond the scope of the current literature, but it also presents an opportunity worth exploring.

States also have the ability to wield soft power in this context; scholars recommend that states might find success in securing and implementing coverage “by negotiating with and influencing health insurers, [PBMs], and employers” (Sonfield and Singiser 2025). For example, in 2024, Pennsylvania insurance officials were able to convince insurers to cover OTC contraceptives without a new requirement, instead relying on encouragement from the governor and state officials, changes to form filing guidance, and follow-ups with insurers. States might also similarly work with PBMs, encouraging them to follow the coverage model recently put forward by CVS Caremark.

Finally, it is worth noting that the adoption of a state-level single-payer or public option health insurance model, while perhaps prohibitively costly in Maryland, best ensures access to universal, financially sustainable healthcare for all, far beyond contraceptive access alone (Wiley 2019). Washington, Nevada, and Colorado have enacted similar laws, and scholarship suggests that such policy is more favorable in states with progressive voting blocs—like Maryland (Monahan et al. 2021). If some form of universal healthcare will ever be adopted at the national level, it is likely that it will first be pioneered at the state level, much like how Canada’s single-payer model began in individual provinces. While not feasible at present, a state-level universal health care model could one day position Maryland as a leader in advancing healthcare as a public good.

2.4. Implementation Challenges

While a number of states have enacted coverage requirements for contraceptives, research suggests that uptake has generally been poor, as has been the case in Maryland. While the exact reasons for these implementation challenges cannot be fully determined from the

existing literature, several complicating factors may be at work. For example, in Maryland's Contraceptive Equity Act, the statutory requirement for coverage is clear, but the law provides no guidance on implementation and assigns no agency to oversee it, leaving operational responsibility undefined (Health Insurance - Contraceptive Equity Act 2016).

Information access poses another problem; pharmacist and consumer awareness is generally low. Pharmacy professionals have indicated minimal communication between pharmacies, PBMs, health plans, and state insurance departments about billing for non-prescription items, and health plan interviewees report that they have received few claims for non-prescribed OTC contraceptives, indicating a lack of awareness amongst consumers of the benefit or billing uncertainty by pharmacists (Long et al. 2023). This confusion is compounded by divergent billing protocols by health insurance plan and even within state Medicaid programs. States have also encountered challenges regarding pharmacist time constraints, training requirements, and lack of payment for pharmacists' prescriptive services. Some states have also received pushback on this policy from physicians citing industry creep (Kate Shamszad, "New Jersey Advocate Interview," December 4, 2025).

Generally, customers seeking no-cost OTC coverage will be required to purchase their contraceptives at the pharmacy counter, but this can manifest itself as a resource-scarcity problem; consumers may not have the time to meet with a pharmacist or wait in line at the pharmacy for a product they could purchase at the cash register—albeit without coverage—and pharmacists have expressed that consulting with patients and/or navigating an unclear billing process complicates their already-busy schedules without additional compensation (Long et al. 2023). Health professionals have also expressed concerns that new billing procedures may trigger audits by PBMs or create legal liability. The significant number of challenges posed at the

pharmacy counter—particularly related to accessibility and resource scarcity—speak to the importance of implementing coverage mechanisms at the retail counter and highlight why this is the central focus of this project.

2.5. Research Gap

However, there is little discussion in the literature regarding how similar or divergent challenges to these might manifest in the retail context. Theoretically, similar issues may exist at the retail counter as in the pharmacy, including lack of consumer awareness, merchant confusion re: billing infrastructure, and audit and liability concerns. While retail accessibility is essential, expert interviews and the lack of related research suggests that such solutions have been posited theoretically, but have not been executed. However, the use of SNAP benefit cards and HSAs, FSAs, and lifestyle cards may mean that existing technology can be leveraged more easily than it seems. These questions and challenges cannot be adequately addressed within the context of the existing literature, so further research into the requisite technology and data is essential.

3. Methods

While statutory coverage for OTC contraceptives has existed in Maryland since the passage of the Contraceptive Equity Act of 2016 , uptake has been minimal due to a number of unresolved implementation challenges—particularly those related to pharmaceutical infrastructure, insurance billing mechanisms, and inadequate point-of-sale (POS) systems. This project employs a qualitative policy analysis and feasibility study to examine how Maryland can address these implementation gaps to operationalize insurance coverage for over-the-counter (OTC) contraceptives at the retail counter.

The methodology integrates four primary components: (1) a narrative literature review and secondary data analysis; (2) comparative state-level case studies; (3) expert interviews with reproductive health advocates and policy professionals; and (4) industry documentation analysis and system mapping focused on retail and insurance technology infrastructure. This study focuses on the use of policy and operational mechanisms to implement coverage at the retail counter. These methods are designed to assess the benefits, challenges, and adaptability of existing benefit systems, as well as to inform the feasibility of proposed solutions within the context of Maryland’s political and regulatory environment.

3.1. Literature Review and Secondary Data Analysis

This project is developed around a narrative literature review that establishes the social, political, and contextual factors informing OTC contraceptive coverage policy. The review focuses on four areas of study: (1) the social, historical, and political dimensions of contraceptive access; (2) OTC contraceptive coverage theory and strategy; (3) policy challenges and implementation gaps; and (4) digital payment systems and benefit infrastructure.

This review serves two purposes. First, it synthesizes existing scholarship on the inequities inherent to contraceptive access, as well as its importance for all women, but particularly those in marginalized groups. Second, it identifies and seeks to address a critical gap in the literature: while scholars and practitioners have proposed a number of theoretical solutions for contraceptive coverage at the retail counter, there is little research on how these systems might function in practice. As such, examining literature on similar benefit systems—as well as their development, implementation, and regulation—lends insight into how coverage systems might be integrated at the retail counter. Secondary data sources include state statutes and

regulations, federal guidance, insurer and pharmacy benefit manager (PBM) policy documents, advocacy organization reports, and publicly available descriptions of existing benefit systems such as SNAP and WIC. These sources are analyzed to identify governance and management structures, administrative responsibilities, retailer involvement, and technical requirements relevant to retail counter coverage.

3.2. Comparative State Case Study

To assess how peer states have attempted to implement similar coverage requirements, this project conducts a comparative case study of selected states: Maryland, Delaware, Wisconsin, New Mexico, Massachusetts, New Jersey, New York, Pennsylvania, and Washington, D.C. These states are selected to assess variation across political, demographic, and regulatory contexts, including demographic composition, population density, rural–urban distribution, political control, reproductive health policy history, religious lobbying efforts, and the existence (or attempted implementation) of OTC contraceptive coverage requirements relative to Maryland. This method is intended to capture the relationship between geographic, political, and demographic variation and implementation successes and challenges. This case study relies on publicly available state-level data, lobbying disclosures, and local news coverage, as well as expert interviews when possible.

3.3. Expert Interviews: Reproductive Health Policy and Advocacy

The project incorporates expert interviews with reproductive health advocates, policy professionals, and practitioners from states that have attempted to implement OTC contraceptive coverage. These interviews capture experiential knowledge not reflected in other secondary data,

including informal workarounds, stakeholder resistance, and coordination challenges among insurers, pharmacies, and regulators. Because official documents and news coverage are often unclear regarding policy uptake, these interviews clarify where implementation efforts have stalled or succeeded beyond what is clear from public reporting on state-level policy.

Interviewees were selected based on professional involvement in contraceptive access, insurance coverage policy, or state-level implementation efforts. Interviews explore topics such as consumer awareness, insurer compliance, pharmacy-level constraints, and perceptions of retail versus pharmacy counter access, providing real-world grounding for this project's recommendations and analysis.

3.4. Document Analysis and System Mapping

To compensate for the lack of research on the technical and operational aspects of retail counter coverage infrastructure, this study employs an analysis of industry documentation to map the relevant actors and data flows of analogous benefit systems in an effort to determine the operational and infrastructural requirements for retail-counter coverage. In line with the broader goals of this project's methodology, this effort focuses largely on implementation mechanisms alone, rather than their relationship to broader social or health outcomes.

This analysis relies on state statutes, regulatory guidance, and contracting requirements published by Maryland state agencies, as well as technical and administrative documentation on the use of analogous benefit and payment systems—such as pre-paid cards, SNAP, WIC, and PBM auto-adjudication—published by public offices and private third-party contractors, utilizing both policy-facing and infrastructural documentation. Sources were selected based on their relevance to POS data transactions and claims and payment processing. This analysis focuses

primarily on governance structure, transaction flow and payment pathways, POS integration capacity, product eligibility and restriction mechanisms, and stakeholder roles.

This analysis is then translated into system maps that visually represent the relevant actors, data flows, and transaction steps of different transaction-types, tracking transaction flow from consumer initiation through payment settlement. This study maps three systems whose capabilities most closely parallel the necessary transaction components of a retail coverage transaction system: (1) prepaid card rails, (2) WIC-style SKU-level product restriction, and (3) PBM real-time adjudication. These system maps visualize the real-time authorization process, actors' points of integration and data exchange pathways. They are then compared across standardized criteria, including technical complexity, retailer and state administrative burden, product restriction precision, and ease of integration at the POS. This analysis is then synthesized in a comparative matrix following the maps and explanation.

3.5. Research Limitations

This study faces several limitations. First, the analysis relies heavily on secondary sources rather than primary administrative data, reflecting the lack of available information on successful coverage mechanisms. Second, because retail counter coverage for OTC contraceptives has rarely been fully implemented, many findings are speculative and based on analogous systems rather than direct observation. Additionally, access to technical experts and proprietary system information is difficult to obtain, limiting the depth and accuracy of analysis of retailer and insurer systems. Finally, because implementation is influenced by political will and institutional capacity, findings from other states may not fully translate to Maryland's context.

Despite these limitations, this multi-method approach strengthens this study’s findings by synthesizing qualitative data across policy and technical contexts with the integration of expert perspectives. As such, this methodology is well suited to address this project’s goal of identifying both political and technical feasibility, particularly in a research area largely still in its infancy.

4. Analysis

While multiple states have enacted statutory coverage mandates for over-the-counter contraceptives, uptake has been minimal across states, with reports from policy analyses and stakeholder interviews indicating limited claims activity and widespread implementation challenges (Long et al. 2023; Elliott and Nichols 2024; author interviews). This section examines that gap by first analyzing challenges in state-level implementation, then evaluating the payment rails that may be used to facilitate these transactions, and finally identifying the system requirements and constraints for feasible implementation. This analysis draws on three primary sources of evidence: (1) a comparative case study of state-level OTC contraceptive coverage policy, (2) a secondary literature analysis of industry documentation on retail billing and insurance claims systems, and (3) insights from interviews with pharmacy and policy stakeholders. Because data and literature on contraceptive coverage uptake is limited, this analysis relies on evaluation across these sources to identify consistent patterns of implementation challenges.

4.1. State Policy Landscape and Uptake

Since Maryland became the first state to require coverage for OTC contraceptives in 2016, ten other states have followed suit, passing similar requirements into law and indicating

that Maryland's Contraceptive Equity Act is part of a broader policy trend toward creating more accessible pathways to contraceptives (Free Pill, n.d.). As such, this section was initially designed as a comparative case study of states with statutory OTC contraceptive coverage requirements or similar policy landscapes to Maryland, with the intention of identifying implementation strategies and political and demographic conditions associated with uptake success or failure. This dataset included Maryland, Delaware, Wisconsin, New Mexico, Massachusetts, New Jersey, New York, Pennsylvania, and Washington, D.C., and was designed to capture variation across demographic, religious, political, and policy contexts.

However, while attempting to assess uptake and real-world implementation of OTC coverage across Maryland's peer states, it quickly became clear that these states faced challenges similar to those in Maryland. Public reporting on the issue was already scarce, and existing news coverage focused largely on the passage of contraceptive coverage bills, with little to no discussion of their execution. Further, interviews with Kate Shamszad, Director of Policy at the New Jersey Health Care Quality Institute, and Dr. Amy M. Bachyrycz, Clinician Education Associate Professor in Pharmacy Practice and Administrative Sciences at the University of New Mexico School of Health Sciences, indicated that other states with similar coverage requirements also face poor uptake as a result of limited infrastructure, confusion among healthcare professionals, and unclear implementation strategies. Across states, the available evidence suggests that uptake has been minimal, and as a result, there are no clear examples of operationalized coverage at the retail counter (Shamszad, "New Jersey Advocate Interview"). From this, it became evident that implementation challenges are not driven by a lack of political will or demographic constraints, but are instead worsened by the absence of feasible infrastructure. While the original intent of the case study was to identify state-level variation in

success, the evidence instead demonstrates a convergence in the failure to operationalize coverage, suggesting that barriers are not state-specific but indicate broader structural and infrastructural challenges.

While point-of-sale (POS) coverage represents a critical barrier, it is not the sole challenge impeding uptake. Existing literature identifies additional constraints, including low consumer awareness, inconsistent insurer communication, pharmacy workflow disruption, and administrative ambiguity in billing procedures (Long et al. 2023). However, these challenges are compounded by the absence of a functional payment infrastructure capable of facilitating transactions at the retail counter. In practice, this lack of infrastructure contributes to decreased consumer participation, increased administrative burden for pharmacists, and incompatibility between retail transactions and insurance billing systems. While each of these factors poses an independent barrier, their interaction with inadequate infrastructure underscores the need to consider what an effective payment system would require. As such, this analysis focuses on payment rails as a central—though not comprehensive—condition for implementation. While this conclusion is based on limited available data, the consistency of these patterns across states suggests that operational constraints at the point of sale are likely a central factor in implementation challenges.

Even in states with favorable political environments and strong policy commitments to reproductive access, evidence suggests that uptake remains weak. Public reporting on implementation is minimal. Expert interviews indicate that few, if any, successful claims are being processed, and seemingly no state has successfully implemented retail-counter coverage mechanisms (Interviews with Shamszad; Bachyrycz 2025). As such, the limiting factor does not appear to be demographics, politics, or policy design alone, but may instead reflect the absence

of clear implementation pathways, including billing mechanisms, POS infrastructure, and claims processing systems at the retail counter. Accordingly, the persistence of low uptake across otherwise supportive states indicates that a key constraint is not policy-based but operational—specifically, the absence of a viable transaction and adjudication infrastructure at the point of sale. For this reason, successful implementation requires consideration of what systems might enable real-time coverage at the retail counter.

4.2. Payment Rail Infrastructure: A Comparative Analysis

4.2.1. OTC Contraceptive Coverage in Theory

In theory, OTC contraceptive coverage requires that a consumer be able to purchase contraceptives at the retail counter and receive immediate insurance coverage for this purchase without the need for reimbursement. This process therefore involves several steps: (1) eligibility verification (confirming that the purchaser is covered), (2) product validation (ensuring that the product is eligible for coverage), (3) transaction authorization (linking the merchant to the insurer), and (4) payment settlement. While these steps are routine during pharmacy adjudication, no analogous system exists behind the retail counter, creating a gap between statutory requirement and real-world practicality.

4.2.2. Background

While policy requiring coverage for OTC contraceptives is in place, the physical infrastructure needed to operationalize this coverage is not. This transaction infrastructure must facilitate coverage at the point-of-sale—rather than reimbursement later—while supporting specific product-level restrictions and the ability to process claims or payment. Existing literature

on the implementation of OTC contraceptives is largely conceptual, not operational. As previously discussed, these proposals suggest a variety of tools to operationalize coverage—including kiosks, physical cards, and apps—but they do not analyze the infrastructure required to make these systems functional. Because of this gap, the feasibility of implementing coverage cannot be assessed without examining the payment infrastructure more closely.

All retail transactions rely on payment rails—the systems that authorize, route, and settle transactions by connecting retailers, payment processors, financial institutions, and in specific cases, insurers and benefit administrators (“What Are Payment Rails?” n.d.). Evaluating different forms of these payment rails provides insight into the possibility of adapting or leveraging existing systems for the sale and coverage of contraceptives, and also allows for a fuller understanding of the costs, administrative burden, and feasibility of implementation as well. This analysis focuses on three models chosen for their similarity to what will likely be required in a future coverage-system. The first of these systems is a prepaid card network, much like HSAs, FSAs, or OTC benefit cards, operating on standard card network rails like any other transaction conducted with a payment card (“The Essential Guide to Card Issuing” n.d.; Williams 2009). The second rail network examined is the WIC benefit system, utilizing specialized cards connected to product eligibility databases used to restrict transactions to specific items (Thompson, n.d.). Finally, the last of these systems is real-time adjudication by PBMs, the insurance billing procedure used by PBMs and providers to assess eligibility and payment for prescription products (“Claims Adjudication and Point-of-Sale Processing,” n.d.).

While each model has strengths and weaknesses in its capabilities, these models provide practical reference points for how retail coverage might be operationalized. These models are evaluated across dimensions of technical complexity, retailer integration burden, insurer

involvement, product restriction precision, implementation cost, and privacy implications. A comparative matrix synthesizes these findings following the individual analyses.

4.2.3. Rail 1: Prepaid Card

The first model leverages existing open-loop card-network rails, meaning payment networks that are widely accepted across retailers and financial institutions (Blackhawk Netw., n.d.). In this model, an insurance provider would load funds onto a branded prepaid card for beneficiaries to purchase contraceptives at the retail counter. The system benefits from minimal retailer integration requirements, but falls short in its ability to employ product restrictions.

Prepaid cards are widely used financial instruments deployed across contexts ranging from personal budgeting to payroll distribution and government benefit programs (Pew Charit. Trusts 2014). In many cases, a third-party organization acting as a program sponsor will contract with an issuing financial institution to establish and administer prepaid accounts on its behalf. While the sponsor determines the terms and funding for the program, the card issuer maintains the accounts and authorizes transactions through established card-network rails. These card networks are payment networks that connect issuing banks with acquiring banks to facilitate transactions (“The Essential Guide to Card Issuing,” n.d.).

The actors and transaction flow involved in an open-loop prepaid card system are illustrated in Figure 1. A prepaid card transaction begins with initiation, where a cardholder presents their card at a merchant’s POS. From there, their payment information is encrypted and forwarded to the payment processor—a secure intermediary between businesses and financial institutions. The payment processor forwards the transaction details to the merchant’s bank—called the acquiring bank—which then forwards the details to the card issuer through the card network. The issuing bank verifies the customer’s account status and balance and, using the

same network, sends an approval or decline message to the acquiring bank, on to the payment processor, and finally, to the merchant's POS. Once the transaction is authorized, the clearing and settlement processes follow, typically batched at the end of the business day, with the issuing bank transferring the transaction amount to the acquiring bank through the card network and the acquiring bank depositing those funds into the merchant's account ("How Payment Transaction Processing Works," n.d.).

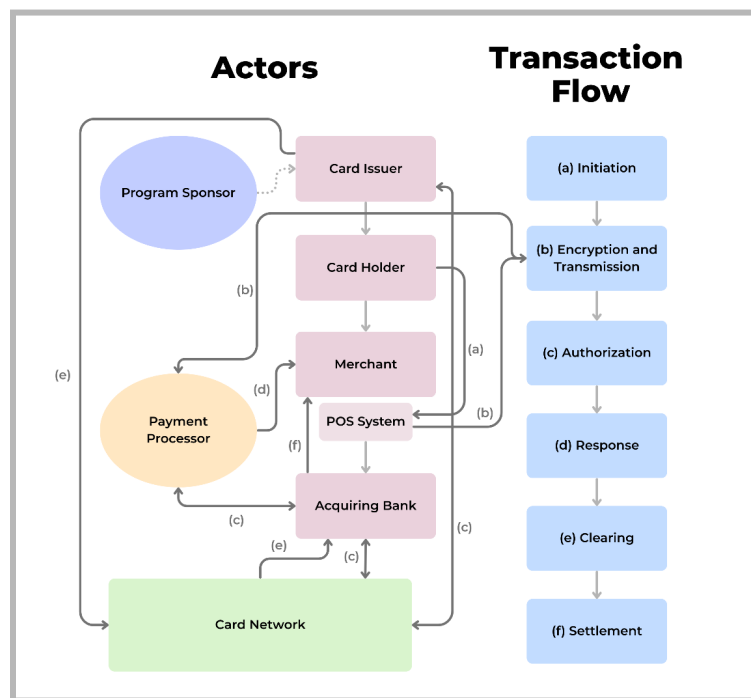


Figure 1. Open-loop prepaid card transaction architecture. Depicts the real-time authorization and settlement process across standard card-network rails, without native product-level eligibility validation or insurer adjudication. *Source: Author's illustration. A full-size version of this figure appears in Appendix A.*

One advantage of the prepaid card payment system is its security. Because the cards are not linked to a bank account, a compromised card puts only the funds held within the prepaid account at risk. Further, when issued by an FDIC-insured institution and properly registered, they

benefit from many of the same protections as they would have with a standard debit or credit card, including FDIC insurance, fraud alerts, and the ability to freeze a lost card (Blackhawk Netw., n.d.). Prepaid cards also operate within payment and credit card networks that maintain robust, mandatory security standards, requiring encryption, firewalls, and regular testing, among others (“PCI Security Standards Overview,” n.d.). Risk of unauthorized use is also comparable to that of credit and debit cards, but security mechanisms like PIN protections or embossed names support identity verification. Along with security, prepaid card systems also benefit from operational convenience. While EBT transactions or insurance claims require additional infrastructure or labor, the requisite hardware and software for prepaid card transactions is a standard POS system—already deployed at millions of retailers across the state.

While prepaid cards benefit from robust security and ease of use, in the context of insurance coverage for contraceptives, the system also presents a number of issues. First and foremost, unlike WIC transactions, standard prepaid cards have no SKU restriction capabilities, meaning that spending on these cards cannot be limited to specific contraceptive products. As a result, prepaid cards risk increased benefit misuse. However, several fintech companies, including Lynx and Fidelity Information Systems, advertise the ability to distribute “restrict spend” or “filtered spend” cards, which appear to offer the same features as standard prepaid cards along with the ability for the program sponsor to add specific SKU-level restrictions on what purchases can be made (Lynx, n.d.; Magennis 2024). Publicly available documentation on these products is limited, and further evaluation would likely require direct communication with vendors.

Beyond challenges enforcing product restrictions, and even if the aforementioned “restrict spend” cards prove viable, prepayment into accounts by providers presents efficiency

challenges; while a three pack of condoms might cost six dollars, brand name Plan B might cost sixty. Because these cards require funds to be preloaded and given that the range of contraceptives available in-store is broad in both selection and cost, determining the appropriate and efficient amount of funds to be deposited into user accounts presents challenges; too small a deposit risks a failed transaction and too large a deposit risks inefficient use of funds by providers. These limitations underscore the tension between operational simplicity and restriction precision within the prepaid model, prompting consideration of alternative payment infrastructures.

4.2.4. Rail 2: WIC — SKU-Level Restriction

Where a prepaid card system trades ease of use for limited restrictions, WIC—the USDA’s supplemental nutrition assistance program for women, infants, and children—demonstrates how a payment system can support both a relatively simple user experience and robust product restriction infrastructure through an Approved Product List (APL) tied to retailer point-of-sale systems (“Authorized Vendor Manual” 2018). In this model, a provider could contract with a third-party processor to develop a payment system with SKU-level restrictions limited to OTC contraceptives. Because WIC relies on a highly specialized administrative system governed at both the state and federal levels, it would be difficult to directly adapt the system for use by other benefit programs (“eWIC Function and Service Requirements” 2025). Instead, this model would likely require the development of a new system modeled on WIC’s product-restriction capacity rather than the direct use of the program’s existing infrastructure.

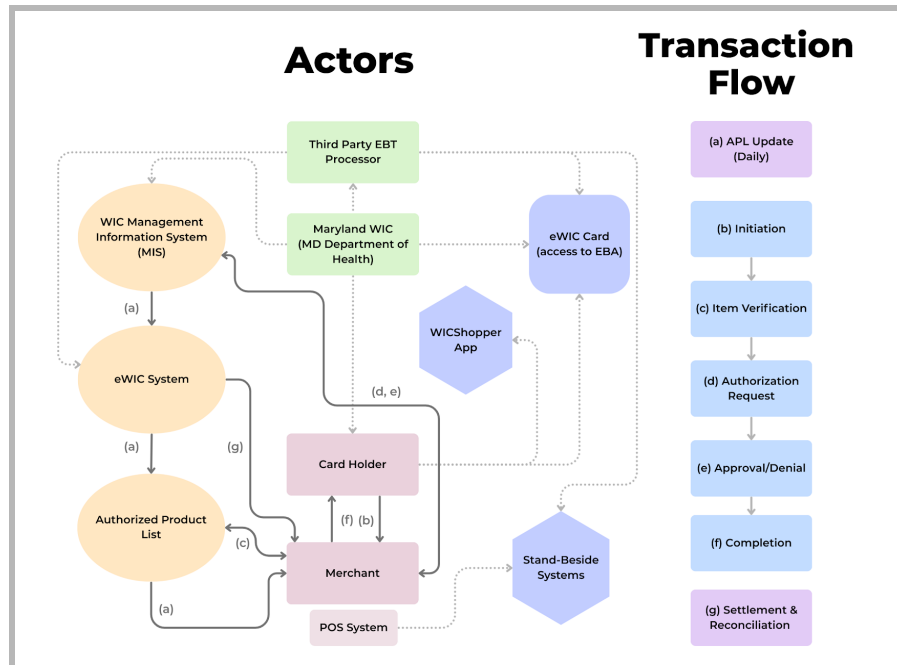


Figure 2. WIC transaction architecture with product eligibility restrictions. Depicts real-time authorization through an EBT processor linked to a centralized approved product list (APL), enabling SKU-level purchase validation at the point of sale. *Source: Author's illustration. A full-size version of this figure appears in Appendix A.*

The actors and transaction flow involved in a WIC-style transaction are illustrated in Figure 2. While WIC is a federal program, program management is generally conducted at the state and county levels. In many states, including Maryland, the state's WIC Office contracts with a third-party EBT processor, which is charged with the creation of eWIC cards, the management of the eWIC system, and the distribution of integrated and stand-beside POS systems (Olson 2017; "eWIC Function and Service Requirements" 2025). These cards are then distributed to county-level WIC offices, which are tasked with participant enrollment and benefit account management. While WIC recipients are able to use store tags or the WIC Authorized Food List to determine which products are program-eligible, the WICShopper App allows users to scan barcodes to check eligibility, locate participating stores, check their benefit balance in

real-time, and report instances where eligible products were denied (“Authorized Vendor Manual” 2018).

In stores with WIC-integrated POS systems, WIC and non-WIC items can be included in the same transaction, but for stand-beside POS—a separate terminal provided by the EBT processor that facilitates WIC transactions—WIC and non-WIC items must be scanned in separate transactions. At checkout, a WIC transaction begins with initiation, where a customer swipes their eWIC card and enters their PIN. Their card is then checked against the “hot card list” of lost or stolen cards. After their benefit account is verified, the merchant’s POS system compares all items against the Approved Product List—a database that contains the Universal Product Codes (UPCs) of all WIC approved foods, updated on a daily basis through the state’s WIC Management Information System (MIS) and then transmitted to retailers’ POS through the eWIC system (“eWIC Function and Service Requirements” 2025).

After all items are scanned, the POS sends an authorization request to the state MIS via the EBT processor to confirm that the transaction data aligns with the customer’s available benefits. Based on the transaction and benefit information, the MIS then approves or denies the transaction, sending the message back to the retailer’s POS. If the transaction is approved, the participant confirms their purchase, both a WIC-item and a non-WIC-item receipt print, and the participant’s monthly benefit balance is updated. At this point, the transaction is considered complete. The transaction is then sent to the state for settlement, and merchants are typically paid the following business day.

The primary benefit of the WIC system in this context is its SKU-level restriction capabilities. The APL provides an up-to-date, comprehensive database of all eligible products, and the WIC transaction rails ensure that only these items can be purchased using WIC funds.

Further, the system offers multiple methods for merchants and beneficiaries to communicate perceived issues with SKU-level restrictions—like an item that should be included in the APL but is not, for example—an important feature, given how frequently store stock and product information changes. In these ways, WIC provides a strong parallel for what an ideal future coverage system might look like: secure, efficient, and responsive.

However, the security and efficiency of WIC is a double-edged sword. The very infrastructure that underpins WIC’s effectiveness also represents its greatest drawback, as it is complex, highly specialized, and not easily transferable, making the model inherently limited as a point of comparison. These transactions rely on a complex digital infrastructure, managed at the local, state, and federal levels exclusively for WIC transactions. Unlike prepaid card rails, this system is not one that can easily grow to accommodate new financial instruments; it is purpose-built for WIC transactions alone. Consequently, using WIC as a model would necessitate building entirely new system architecture, establishing processor relationships, and developing digital infrastructure—an undertaking likely requiring significant state oversight. However, WIC’s established framework may ease the design process by offering a clear point of reference, even as implementation remains complex. While WIC demonstrates the challenges of a closed, purpose-built system, PBM adjudication systems present a different model for operationalizing coverage—one that introduces its own set of infrastructural and administrative complexities.

4.2.5. Rail 3: PBM Real-Time Adjudication

While prepaid card networks and WIC systems are integrated directly into merchant POS systems, PBM real-time adjudication—through which PBMs and insurers verify eligibility and determine patient cost for prescription items—operates exclusively at the pharmacy counter.

Nevertheless, it warrants analysis as the most established and robust system for processing medical claims. In practice, it is also the only mechanism through which states have achieved even limited success in providing coverage for OTC products, albeit confined to the pharmacy counter.

In just 1.2 seconds, a PBM adjudication engine processes a prescription claim through a complex, “step-by-step logical cascade of sequential if...then statements” to determine patient eligibility and cost—an interaction that, despite its speed, reflects a highly intricate underlying system (“Claims Adjudication and Point-of-Sale Processing,” n.d.). This process is illustrated in Figure 3 on the following page. The auto-adjudication process begins when the pharmacist or healthcare provider enters an individual’s prescription and insurance information into the pharmacy management system. This insurance information, usually taken from an insurance card, acts as a sort of ‘key,’ facilitating the cascading logic necessary to complete the transaction.

This claim, called a “B1” or billing request, is written in a standardized “language” created by the National Council for Prescription Drug Programs (NCPDP) that acts as a structured code with different fields and segments providing information about the prescription item, the card holder, their plan, and their healthcare provider. The pharmacy system sends the claim to a “telecom switch,” which essentially acts as a digital switchboard for all PBMs and payers in the US. The switch maintains a “master routing table” of every BIN (Bank Identification Number) and the PBMs they belong to, and immediately forwards the entire claim to the corresponding PBM (RelayHealth, n.d.; “Claims Adjudication and Point-of-Sale Processing,” n.d.). The PBM then determines which plan type the patient is enrolled in and which rules to apply to their claim.

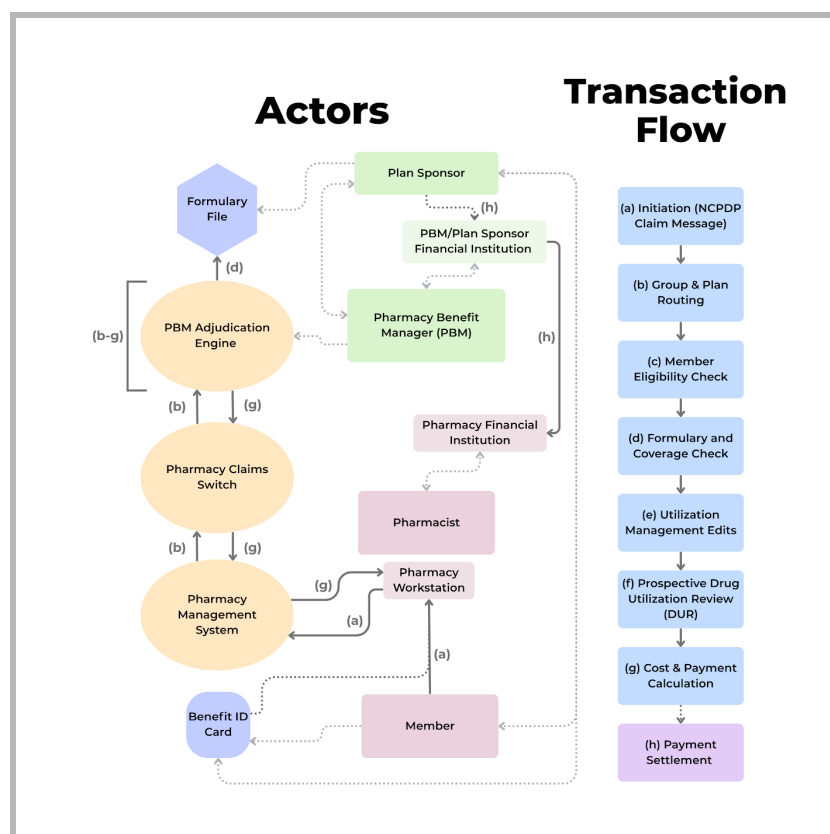


Figure 3. Automated prescription claims adjudication infrastructure in PBM systems. Depicts real-time claim processing through a centralized adjudication engine, enabling instantaneous eligibility verification and cost determination at the pharmacy counter. *Source: Author's illustration. A full-size version of this figure appears in Appendix A.*

The next step is the member eligibility check, where the adjudication system attempts to match the patient's information—name, relationship to policy-holder, and date of birth—with a member in its “eligibility file,” a massive database—sometimes referred to as an 834 file—that the employer or health plan sends to the PBM nightly or weekly. Once the system identifies the correct patient, the claim is checked against the plan's formulary file—the record of which drugs are covered by a plan. The formulary file is a massive database that maintains a formulary status (“formulary,” “non-formulary,” or “product not covered”) of every known NDC, a unique, 10-digit identifying code assigned to every drug on the market (“National Drug Code Database Background Information” 2017). Non-formulary drugs will return a message to the pharmacist

suggesting similar drugs that are on the formulary list, while NDCs included on a master “exclusion list”—items like cosmetic drugs or weight loss supplements—belong to a class of drug that the plan does not cover at all and will return a ‘Product Not Covered’ rejection message to the pharmacist.

If the formulary check is successful, the claim is then processed through ‘utilization management edits’—the most complex step in the adjudication process. Utilization management edits apply to claims that are made for a formulary drug, but the distribution of that drug has rules set by the payer, often as a cost-saving mechanism. Some of these edits might be prior authorization (where a healthcare provider must obtain approval from a health plan before prescribing certain care or drugs), step therapy (where a payer requires that a patient try lower-cost treatments before they will cover a higher-cost medication), or quantity limits, age precautions, and gender precautions for medications that have adverse effects on specific groups (NAIC, n.d.; “Step Therapy for Medicine | UMass Memorial Health,” n.d.). While UM rules are set by payers to save money, Prospective Drug Utilization Review (DUR)—run parallel to these edits—is a set of clinical safety rules mandated by law, checking for drug-drug interactions, drug-disease precautions, and clinical misuse or abuse (“Claims Adjudication and Point-of-Sale Processing,” n.d.).

Finally, after the claim has been approved at every stage, the PBM must determine the cost and payment for the prescription. The PBM will always reimburse the pharmacy at the lesser of three different prices, between the pharmacy’s usual and customary price, the generic rate, or the PBM’s maximum allowable cost (“Claims Adjudication and Point-of-Sale Processing,” n.d.). After the lowest possible cost is determined, the patient’s copay is decided based on their plan design and the drug itself, using a similar “lesser of” logic. Finally, the PBM

bundles all this information together into another B1 response, sends it back through the switch, and the switch directs it to the pharmacy. This entire process, from start to end, takes only 1.2 seconds. At this point, the transaction is completed. Reimbursements from plan providers or PBMs to pharmacies are then batched in weekly or biweekly cycles. These funds are sent from the payer's financial institution to the pharmacy's financial institution via an electronic fund transfer and are accompanied by an electronic remittance file that explains how the plan has adjusted claims charges.

The PBM auto-adjudication model offers a useful illustration of what a digital claims process for future OTC purchases might entail. However, like WIC, it is better understood as a model for building new infrastructure, rather than a system that can be directly adapted. The adjudication process depends on a complex digital ecosystem embedded behind the pharmacy counter, managed by PBMs and health IT professionals, and designed for use by trained medical staff. Analyzing this system is still valuable for understanding (1) the complexity of traditional claims processing, (2) the data pathways that might be required in a future OTC claims model, and (3) the mechanisms through which states have achieved any level of success in administering coverage for OTC contraceptives, but ultimately the auto-adjudication system is likely not one that can be transferred from the pharmacy counter to the cash register.

4.2.6. Comparative Assessment of Payment Rail Models

Translating statutory requirements into widespread coverage requires the development or adaptation of an operational POS infrastructure, but no existing system fully satisfies the combined needs of ease of integration, product-restriction capabilities, and claims processing infrastructure. In practice, these rails trade simplicity for control. For example, prepaid card networks benefit from ease of use through existing card-network infrastructure, functioning like

any other retail transaction, but rules—if present—are difficult to enforce at the user or product level. WIC cards represent a similarly user-friendly system, with the added benefit of strong product-restriction capabilities, but rely on a highly complex and rigid set of rules to determine eligibility. Similarly, auto-adjudication allows for the highest degree of precision in control, utilizing item-level restrictions, person-specific rules, and safety and cost-containment mechanisms, but the flexibility and complexity of these rules bind the system to the pharmacy and require a trained professional for use.

These systems also differ in their level of integration with existing infrastructure. Prepaid cards represent the highest level of integration, operating on universal payment rails through standard POS systems anywhere that cards are accepted. The WIC system is more specialized; while it appears integrated at the POS, it still depends on dedicated POS logic, eligibility databases, and third-party processors to complete transactions. Although it is an established system, WIC ultimately requires program-specific infrastructure to function. By contrast, PBM auto-adjudication represents a highly specialized infrastructure that exists entirely within the pharmacy ecosystem and is not designed for use at the retail counter.

These systems also reflect tradeoffs between administrative burden and oversight capacity. Prepaid cards require minimal administrative support, as they mirror standard card transactions, but this simplicity is associated with more limited and indirect oversight mechanisms, often taking the form of ex post financial auditing rather than real-time controls. WIC, or a system modeled after it, relies on substantial administrative support through centralized, state-managed information systems, eligibility databases, and broader program administration. While this increases administrative burden, it also enables more robust program oversight and monitoring. PBM real-time adjudication relies on a highly complex data

infrastructure largely confined to private-sector use; adapting such a system would require significant oversight to ensure consumer protection and standardization across PBMs. At the same time, this level of complexity supports highly granular oversight mechanisms within its existing context.

Ultimately, no single rail achieves real-time coverage, SKU-level product restrictions, and a low implementation burden simultaneously. These systems should therefore be understood as partial analogues rather than complete solutions. Rather than identifying a single model to adopt, this analysis highlights the constraints and tradeoffs inherent to each approach and provides a foundation for understanding how different system components might be combined. Because these tradeoffs are multidimensional, a structured comparison is necessary. The following matrix synthesizes these findings by comparing each payment rail across technical complexity, ease of integration, retailer burden, administrative burden, insurer role, product-restriction capabilities, real-time authorization, and implementation complexity, providing a side-by-side assessment of system capabilities and constraints.

Criteria	Prepaid Restricted-Use Card	WIC-Style Product Restriction	PBM Real-Time Adjudication
<i>Digital Infrastructure Intensity</i>	Mature open-loop card-network infrastructure; no POS integration or centralized eligibility database. Requires issuing bank and program administrator partnerships.	Complex government-administered WIC infrastructure; requires new system architecture and state-overseen third-party processor contracts.	Complex pharmacy-specific digital infrastructure administered through PBMs and health IT contractors; designed for pharmacy environments and trained professionals.
<i>POS Integration Requirements</i>	No new POS hardware; minimal software integration.	Dedicated POS software and hardware distributed and maintained by third-party processors.	Retail POS integration uncertain; proprietary pharmacy adjudication systems may require substantial modification or replacement of retail POS software.
<i>Retailer Burden</i>	Minimal workflow disruption; limited additional software configuration or staff training.	Low to moderate operational disruption; installation of new POS software or hardware and staff training may be required.	Moderate to high operational disruption; specialized software, hardware, and staff training may be required.
<i>State Burden</i>	No new state-operated infrastructure required; limited to regulatory and oversight functions.	High administrative responsibility; state operation of infrastructure and APL maintenance or oversight of provider administration.	No new state-operated infrastructure required; limited to regulatory and oversight functions.
<i>Insurer Role</i>	Act as program sponsor.	Third-party processor or program sponsor contracts; APL and MIS maintenance to administer product eligibility.	Benefit administration through existing PBM adjudication systems; adaptation of pharmacy billing infrastructure for retail transactions may be required.
<i>Product Restriction Precision</i>	Limited product-restriction capability; restrictions partially implemented through card program processors.	High precision product restrictions through SKU-level verification tied to APLs.	Very high product-verification precision with integrated clinical and safety checks tailored to individual consumers.
<i>Real-Time Authorization & Payment</i>	Real-time transaction authorization and payment processing.	Real-time transaction authorization and payment processing.	Real-time transaction authorization and payment processing.
<i>Implementation Complexity</i>	Low-to-moderate complexity; relies on existing card-network infrastructure.	Very high implementation complexity; new payment infrastructure and system architecture required.	Very high implementation complexity; adaptation of pharmacy adjudication software and hardware for retail environments, potentially requiring new POS-compatible systems.

Figure 4. Comparative feasibility matrix of implementation models for retail-counter OTC contraceptive coverage. *Source: Author analysis.*

4.3. Operational Feasibility and Constraints

The analysis demonstrates that implementation challenges are endemic among states that have attempted to mandate coverage for over-the-counter contraceptives, and that among the systems that might be used to operationalize coverage, no existing model can fully support these transactions. In this way, the evidence indicates that the primary barrier lies not in policy adoption alone, but in operational feasibility. A feasible system must support real-time authorization at the retail counter, distinguish eligible from ineligible items, and connect transactions between merchants and health plan providers. Existing systems each solve part of this problem, but none is fully equipped to address all components within the same transaction. Prepaid cards represent an easy-to-use, nearly universally accepted method of payment that can facilitate transactions in a matter of seconds, but they suffer from weak control and restriction capabilities. A WIC-like system addresses this gap through the use of an authorized product list that distinguishes eligible from ineligible items, but it relies on a complex and highly specialized data ecosystem. Finally, PBM auto-adjudication allows for the highest degree of precision in control and connects merchants with payers, but the system is not retail-compatible. While each of these systems addresses one dimension of an OTC coverage transaction, no model can fully facilitate these transactions; it is for this reason that states have been unable to find success in their implementation efforts. Across states, similar patterns of failure emerge, not due to a lack of effort or an unfavorable political climate, but instead because of an inability to reconcile the system requirements necessary to facilitate coverage.

Given this, establishing the necessary capabilities of a successful system is essential. For coverage to function at the retail counter, an operational system must integrate with existing POS

systems, support real-time transaction approval, ensure that only eligible products can be purchased, facilitate pathways between merchants and providers, and avoid significant disruption to retail operations. While no model satisfies all of these conditions, existing systems offer partial solutions, and implementation will likely require the adaptation and combination of existing payment rails or the development of new ones. As such, the challenge is no longer whether coverage should exist or where states are falling short, but instead how to operationalize retail counter coverage for OTC contraceptives within the constraints of existing retail and insurance infrastructure.

5. Policy Recommendations

Coverage for OTC contraceptives may exist in statute, but this mandate has not been operationalized in practice. Analysis reveals that this implementation failure is born from a lack of sufficient infrastructure and governance systems able to facilitate coverage transactions, which in turn exacerbates secondary implementation barriers. These systems must be capable of real-time authorization at the point-of-sale, user and product eligibility restrictions, retailer-provider connectivity, all while contributing minimal disruption to retail operations and workflow. Existing models provide analogues for components of this system, but no transaction infrastructure currently in use meets all these requirements simultaneously. To address this barrier, this study proposes three recommendations to facilitate coverage transactions: (1) a hybrid infrastructure model, (2) governance and oversight mechanisms, and (3) targeted legislative action. First, A hybrid payment model operationalizes coverage at the retail counter by leveraging existing payment systems to minimize administrative burden, and utilizes the ease of use and integration of the prepaid card system, the product eligibility restrictions of WIC, and

the retailer-insurer connectivity of the PBM auto-adjudication engine. Second, governance and oversight mechanisms ensure accountability, coordination, and compliance between relevant actors. Finally, legislative action allows the former recommendations to take effect by enabling implementation, clarifying authority, and assigning public and private responsibilities in the context of this program by enshrining them in statute. Together, these recommendations allow the state of Maryland to translate statutory requirements into functional, scalable access at the point of sale, ensuring that the benefits of contraceptive access are felt by all.

5.1. Recommendation 1: Hybrid Infrastructure Model

Lack of sufficient payment infrastructure acts as a fundamental barrier to operationalizing coverage. Further, this deficiency exacerbates observed secondary access problems; lack of payment systems forces pharmacists to take time to navigate an unclear billing system, contributing unduly to their workload, and an inability to scale the program results in poor consumer awareness given that there is no widespread use. As such, the state must address this system-level failure. No existing system meets the necessary requirements of a coverage transaction: real-time authorization, eligibility restrictions, and adjudication capabilities between retailers and providers. Prepaid card rails, WIC, and PBM adjudication lend insight into successful program *components*, indicating that a successful payment infrastructure must combine these varying capabilities. A hybrid model utilizes the relevant components of individual systems while compensating for their relative failures in the context of their authorization, restriction, and connectivity capabilities.

A hybrid model employs the ease of use and integration of a prepaid card model, the product-level restrictions of a WIC-style system, and the claims-processing capabilities of an

adjudication transaction. This can be understood in terms of core system components: (1) the payment layer, (2) the product restriction layer, and (3) the connectivity layer. The payment layer borrows from the prepaid card model by operating on existing open-loop card networks to enable widespread use and instant transaction verification. The product restriction layer utilizes an eligibility database integrated with retail POS to enable product restriction capabilities, similar to WIC's use of APLs. Finally, the connectivity layer relies on PBM rules engine to verify eligibility, coverage, and product limits, as is used in adjudication systems.

In this model, a transaction begins with consumer initiation using a physical or digital card. Card rails then handle authorization at the point-of-sale (prepaid card). A POS-integrated product eligibility restriction database then determines if the transaction is for an eligible contraceptive product (WIC). Finally, a backend system—meaning the invisible infrastructure that processes transactions and applies rules—links transactions to PBMs or insurers to apply eligibility, safety, and cost-saving rules and ultimately reconcile payments with retailers. This system leverages existing payment rail components with the intention of limiting workflow disruption and operational lift for participating retailers. As such, this proposal benefits from the feasibility of adapting existing systems rather than developing new ones.

A hybrid model would likely require the state to contract a third party administrator, payment processor, or tech vendor to develop and operate the system's backend infrastructure and execute transactions in real time. This is similar to the administration of existing benefit systems. In addition to contracting with a program administrator, the state would set compliance requirements, oversee program implementation, and regulate insurer and retailer participants. Insurers would be tasked with defining eligibility requirements—within the scope of state statute—as well as funding the benefit and providing administrative data for oversight purposes.

Retailers and POS developers would be required to integrate this system into their checkout process, likely requiring onboarding guidance by the state and employee training, but ultimately constituting the lowest administrative burden of any involved stakeholder. This minimal lift for retailers is essential in enabling widespread use, as a difficult-to-use system will likely manifest the same use-challenges as have been observed behind the pharmacy counter. This hybrid payment infrastructure addresses the lack of sufficient transaction capabilities at the retail counter and enables a real-time transaction governed by the same rules and restrictions as similar benefit systems. However, this system cannot succeed without establishing governance systems and policy clarity.

5.2. Recommendation 2: Oversight Mechanisms

While the Contraceptive Equity Act of 2016 (SB848) established a contraceptive coverage mandate with guidance for insurance providers, the law fails to designate a clear implementing authority, broader stakeholder roles and responsibility, or coordination between relevant parties. In turn, this has manifested itself as fragmentation across insurers, retailers, and state agencies without a clear path forward towards implementation. Lack of enforcement and compliance mechanisms further complicates this dynamic. As such, the development of an oversight system is necessary to operationalize and sustain the program.

First, the creation of a multi-agency oversight structure enables stronger coordination and implementation guidance among participating partners. The Maryland Insurance Administration should be tasked with the regulation of insurers in this system. SB848 already establishes the responsibilities of insurance providers within the program, but MIA must ensure compliance with program requirements, enable and monitor data reporting by providers, and assess—and

intervene when necessary—failures to cover eligible transactions. The Maryland Department of Health (MDH) should coordinate and oversee broader program implementation, acting as the primary liaison agency between retailers, third party administrators, POS vendors, and the state to facilitate onboarding and participation. In the early stages of program uptake, MDH should be tasked with leading implementation by overseeing system rollout via the creation and management of a pilot program and its scaling and establishing timelines for phased rollout. In the program's later stages, MDH will function as the primary program administrator, managing contracts with third-party administrators and overseeing system performance at a high level. While MIA and MDH are responsible for program oversight within the public sector, a third-party administrator should be contracted for system management, handling card issuance, backend-system infrastructure, and real time transaction-authorization and claims settlement.

Program implementation should begin with a pilot program with select retailers and insurers, ideally those most equipped to quickly adapt their systems. Big-box stores and national retailers are likely best positioned for this role. In this stage, MDH and MIA should work closely with retailers and insurers respectively to determine areas of success and chokepoints in implementation. Then, based on insurer and retailer participation and feedback, MDH should implement a phased rollout with the ultimate goal of expanding to all relevant retail locations in the state.

SB848 already successfully establishes insurer participation as a regulatory requirement. However, this mandate should be expanded slightly to include data reporting as a condition of program compliance. The same requirement should be extended to retailers, enabling the state to better engage in program oversight. Enforcement mechanisms must also be established to guarantee adequate participation and compliance. During the early stages of program adoption,

the state should consider offering tax subsidies to retailers participating in the pilot rollout to compensate for any workflow disruptions and incentivize participation, allowing evaluation of a broader swath of retailers in determining conditions for success in later rollout stages. Insurers should also be required to participate in corrective action plans for significant incidence of noncompliance. This would entail a structured process facilitated by MIA, requiring insurers to identify, correct, and report on compliance failures within a defined timeline. After noncompliance is identified via reporting data, consumer complaints or MIA audits, insurers must analyze the root causes of failure and determine concrete corrective actions to address any issues. MIA should then establish a timeline for compliance, including milestones for progress. Insurers must then engage in increased data collection and reporting to MIA. If insurers continue to fail to comply, these concerns should be addressed via financial penalties, sanctions, or additional regulatory action as determined by the state. Together, these structures and mechanisms ensure stronger program participation and compliance while establishing a system that allows for long-term program rollout and sustainability. However, these systems require formal authority and legal backing to take effect.

5.3. Recommendation 3: Legislative Action

While there are clear pathways to successful implementation, both in the context of infrastructure and enforcement, these mechanisms must be formalized in statute to take effect. SB848 lays the groundwork for a contraceptive mandate, but the state must take additional legislative action to implement the program.

First, SB848 must be amended to grant explicit authority to MIA for program oversight and enforcement of insurance providers in the program. This provision must also extend the

agency the ability to engage in punitive action—in the form of corrective action plans and financial sanctions—against insurance providers that fail to comply with program requirements. This amendment may also include a tax subsidy program for early-adopter retailers, but this also may be considered as separate legislation within the budgetary process.

The state must also adopt a legislative provision mandating reporting requirements by insurers and retailers. Standardized data submission on coverage, claims, and access measures is essential for the state to evaluate program uptake and success. Reporting should be tied to regulatory compliance, with participants mandated to disclose data on transaction volume, insurance claims, denial rates and coverage gaps, and consumer complaints and insurer responses. These metrics are valuable indicators of program performance, and their significance is discussed in more detail in the following section.

Statute must also be used to officially establish agency implementation responsibilities as discussed in the previous recommendation. MDH should be designated as the lead implementing agency, with MIA functioning in a supportive capacity to oversee insurer participation and compliance more specifically. This provision is necessary to clarify roles and responsibilities across agencies and address existing coordination failures in the current policy environment.

Finally, the state must take legislative action to authorize system implementation. This would allow a state agency—likely MDH—to contract with third-party administrators and vendors for program construction, development, and management. This statute would also support the use of a pilot-program with well-equipped retailers and providers, followed by a phased rollout state-wide. Together, these legislative provisions would allow the state to create the statutory framework necessary to enable the previous recommendations, and in so doing,

address the most pressing implementation barriers preventing Marylanders from accessing OTC contraceptives with insurance coverage.

5.4. Conclusion to Recommendations

Like its peer states, Maryland faces not a policy gap in successful implementation of over-the-counter coverage for contraceptives, but instead a lack of sufficient infrastructure, both in transaction and governance capabilities. Together, these recommendations—a hybrid transaction system, governance and oversight mechanisms, and legislative backing—establish the necessary infrastructure to implement contraceptive coverage. These recommendations are interconnected and interdependent; a hybrid infrastructure enables stakeholder involvement, a governance framework establishes compliance conditions and oversight mechanisms for these stakeholders, and additional statute allows these systems to take effect. Together, they enable real-time retail access within a scalable, enforceable system, and in so doing, translating a decade of dormant statute into practical access.

6. Performance Measurement and Evaluation

In 2016, the Maryland General Assembly passed the Contraceptive Equity Act, a first-of-its-kind law mandating that all insurers governed by the state provide coverage for contraceptives purchased over-the-counter. Despite this mandate, implementation has been minimal due to the absence of point-of-sale infrastructure. As such, performance measures are necessary to monitor program rollout, identify persistent barriers to access, and assess effectiveness. This section outlines how implementation should be evaluated. Because the

program remains in its early stages, performance is assessed across three broad early outcomes: uptake, access, and equity.

Each outcome measure includes a defined indicator, data source, and counterfactual benchmark. Administrative data from retailers, insurers, and the state provide the primary basis for evaluation, supplemented by survey and reporting data where necessary. Some indicators—like those measuring failed transactions, timeframes, or geographic proximity—rely on supplemental data sources or the hybridization of data from multiple sources. Counterfactual approaches used to measure success include pre-post comparisons, interrupted time series, comparison across units, criterion-based benchmarks, and norm-referenced comparisons.

Uptake indicates the ability for merchants and insurers to provide coverage for OTC contraceptives at the retail counter. Measures of uptake are shown in the table below.

<i>Uptake Measures</i>			
<i>Indicator</i>	<i>Measures...</i>	<i>Data</i>	<i>Benchmark</i>
Number of covered contraceptive transactions	Existence and scale of uptake	POS data; claims data	Pre-post increase from zero; interrupted time series over a longer period
Percentage of eligible transactions covered versus paid out-of-pocket	Effectiveness of uptake	POS data	Pre-post increase from zero; comparison across retailers and providers
Number of eligible transactions forgone due to coverage barriers	Unmet demand, uptake barriers	Consumer surveys, complaint data (<i>self-reported</i>)	Comparison across units; relative to observed covered transactions

Access represents the availability of OTC contraceptives at a breadth of retailers without cost to consumers. Measures of access are shown in the table below.

Access Measures			
<i>Indicator</i>	<i>Measures...</i>	<i>Data</i>	<i>Benchmark</i>
Number of unique users purchasing contraceptives with coverage	Activation of the program; scale of use	Claims data	Pre-post increase from zero
Percentage of eligible users age 15-44 utilizing coverage	Scope of program reach	Numerator - claims data; denominator - state data	Pre-post increase from zero; criterion-based: assessed against established standard
Percentage of retailers providing coverage	Retail availability	Claims data; retailer reporting ⁴	Criterion-based: near-universal participation; minimum geographic coverage in early stages
Time of program adoption by retailers from onboarding date	Implementation speed	State agency records; POS and claims data	Criterion-based: rollout occurs within defined timeframe

Finally, equity signifies the distribution of program access across populations by income, race, age, and geography. Measures of equity are shown in the table below.

Equity Measures			
<i>Indicator</i>	<i>Measures...</i>	<i>Data</i>	<i>Benchmark</i>
Percentage of participants that are non-white, low-income, or under age 25	Representation of underserved populations among users	Insurance policy data; survey data	Norm-referenced: proportional to eligible population; higher participation among underserved groups indicates equity gains
Percentage of eligible users per county utilizing coverage	Geographic disparities in use	Insurance policy data; claims data	Comparison across units: relative to usage rates across counties; Norm-referenced: relative to state-wide rate
Percentage of transactions occurring	Proximity of access	Insurance policy data; claims data	Criterion-based: transactions occur

⁴ Retailer participation data may necessitate reporting requirements as a condition of program participation.

within a defined geographic radius from user's residence (ZIP code)			within defined proximity to residence; Comparison across units: urban, suburban, and rural
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These measures collectively assess program performance in the context of implementation activation and success, retail counter accessibility, and demographic and geographic distribution of use. They reflect both concrete measures of service delivery and the broader social patterns that shape equitable access to contraceptives. The majority of proposed measures are relatively simple to assess, and those requiring significant synthesis and analysis across sources—like proximity of transactions or forgone transactions—are therefore provided as supplemental to the main measures of success. Together, these measures establish the operational infrastructure for program assessment, monitoring, and oversight.

7. Data Visualizations: Patterns of Need, Retail Access, and Behavioral Change

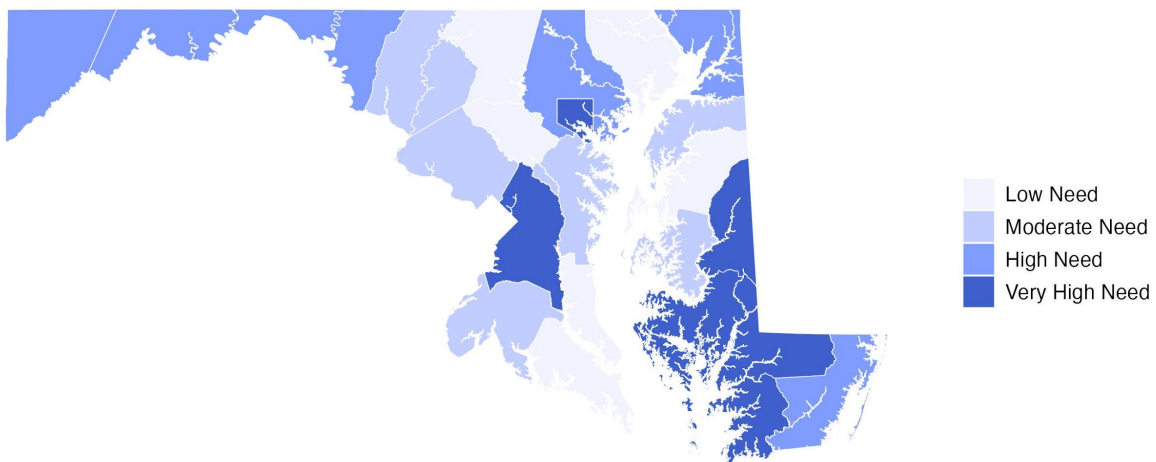
To support analysis and evaluation, this study also utilizes data visualizations mapping reproductive need in Maryland, the state's retail capacity, and expected behavior changes in contraceptive use. These visualizations are intended to support the feasibility analysis and indicate priority areas of intervention by the state by identifying geographic and infrastructural misalignment. This analysis is supported by a map of reproductive need in Maryland, followed by a visualization of retail capacity, and concluding with an overlay of these graphics to determine misalignment between need and capacity. These graphics are complemented by a Sankey diagram visualizing expected change in the efficacy of contraceptive use methods as a result of this policy.

7.1. Need Index Map

Across Maryland, geographic need is clustered within specific regions, particularly in Prince George's County, Baltimore City, and the Eastern Shore. Reproductive need is determined via rates of teen pregnancy, unintended pregnancy, poverty among reproductive-age women, and the concentration of low-liquidity households, using ALICE families (Asset-Limited, Income-Constrained, Employed) as a proxy. Together, these variables were normalized to create a reproductive need index by county in Maryland. This analysis reveals concentration of reproductive need within low-income and rural communities in particular, indicating a regional skew among those communities most in need of affordable contraception.

Reproductive Health Need Index by County in Maryland

Composite of unintended pregnancy, teen birth rate, and economic vulnerability



Source: Maryland PRAMS; NCHS; US Census; ALICE dataset.
Economic vulnerability combines poverty and ALICE households.

Figure 5. Map of reproductive need in Maryland, based on unintended pregnancy, teen birth rate, reproductive poverty, and low liquidity. *Source: Author's illustration based on data from Maryland PRAMS, NCHS, US Census, and United Way. A full-size version of this figure appears in Appendix B.*

These patterns indicate priority areas for intervention by highlighting the communities with the greatest observed reproductive need.

7.2. Retail Capacity Map

Retail capacity for the distribution of OTC contraceptives is similarly lopsided, with urban and suburban areas possessing stronger retail infrastructure than their rural counterparts. This visualization utilizes SafeGraph Point-of-Interest data, which maps the coordinates and industry-type of all non-residential buildings in the United States. This data is then classified into three tiers: high, moderate, and low capacity for implementation. These tiers are determined by both by the likelihood of retailers to sell contraceptives and their anticipated ability to facilitate coverage transactions. High-tier retailers are pharmacies, large chains, drug stores, and stores with health infrastructure. Medium-tier retailers are grocery stores and big-box retailers. Finally, low-tier retailers are convenience stores and gas stations with convenience stores attached. These tiers are intended to function as a proxy for capacity, rather than a concrete assertion of program participation capabilities.

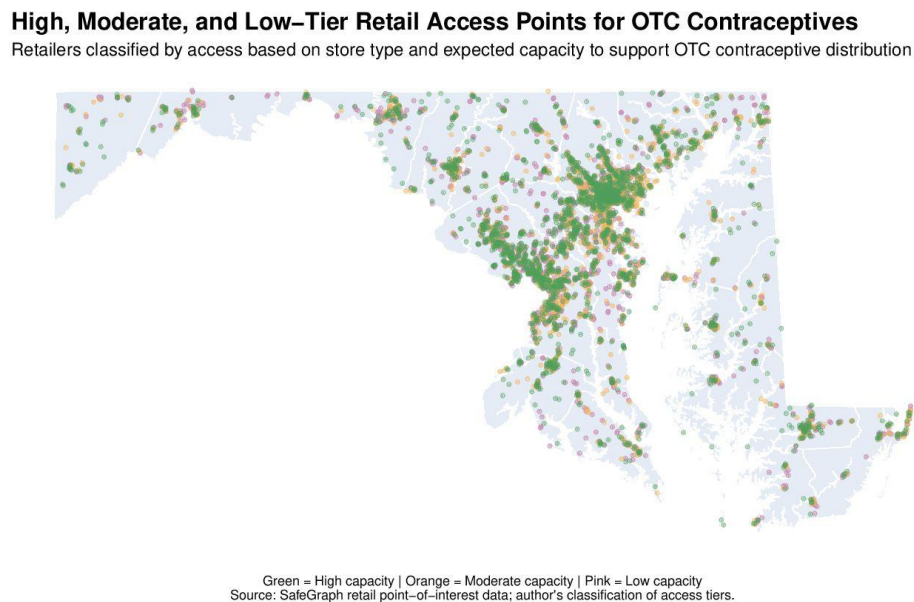


Figure 6. Map of tiered retailer coverage capabilities. *Source: Author's illustration based on SafeGraph POI data. A full-size version of this figure appears in Appendix B.*

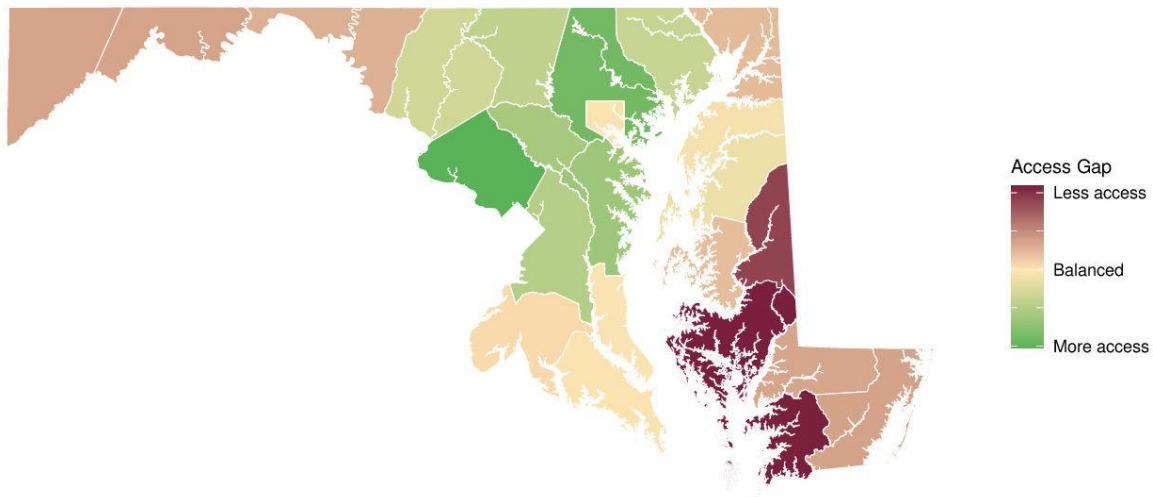
While this map illustrates where retail infrastructure exists, it does not indicate whether that infrastructure aligns with areas of greatest need.

7.3. Reproductive Need and Retail Capacity Overlay Map

Comparing reproductive need with retail capacity reveals a clear structural misalignment. Utilizing the concentration of reproductive need and high- and moderate- capacity retailers, this map illustrates the spatial overlap between high-need areas and implementation capacity. Areas of alignment are coded in yellow, meaning that the proportion of retailers matches the concentration of reproductive need. Areas of excess capacity are green, indicating that retail capacity outpaces need. Finally, areas of poor capacity are coded in pink, meaning that their reproductive need is not matched in their capacity to facilitate retail transactions. As such, yellow and green areas indicate likely program success, while pink regions indicate the need for critical intervention. This map lends insight into where implementation is most feasible versus most needed, which appear to exist in opposition to each other. High-need areas without high-tier retail access represent structural barriers to implementation. The misalignment in capacity is not random, but instead reflects broader structural inequities inherent to both urban and rural food, healthcare, and retail deserts. This map indicates the need to target particular communities with additional implementation strategies beyond standardized state rollout.

Gap Between Reproductive Health Need and Retail Access in Maryland

Positive values indicate higher need relative to access



Source: Maryland PRAMS; NCHS; US Census; SafeGraph.

Figure 7. Map illustrating the gap between reproductive need and retailer capacity. *Source: Author's illustration based on reproductive need and retail capacity data sources. A full-size version of this figure appears in Appendix B.*

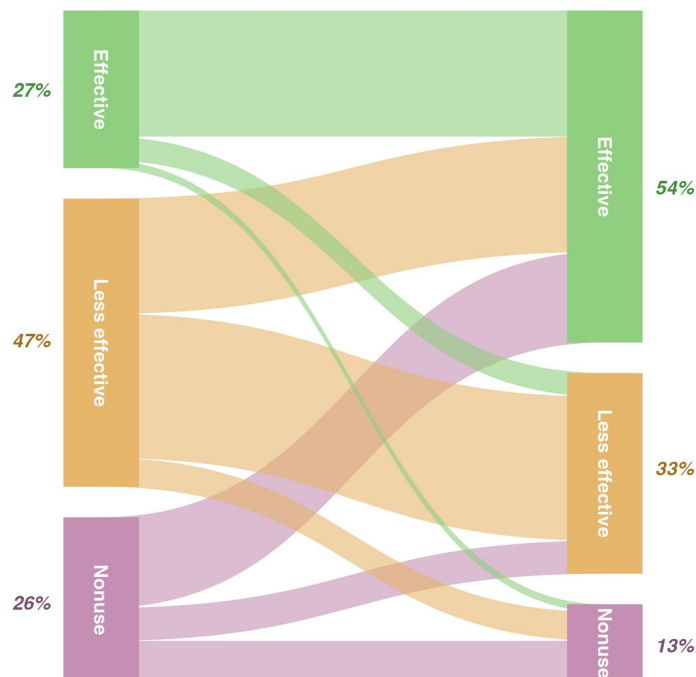
7.4. Anticipated Behavioral Changes: Sankey Diagram

Addressing these gaps is particularly important given the demonstrated impacts of improved contraceptive affordability. Ensuring successful implementation in communities most in need is paramount, given that improved contraceptive affordability is shown to have positive effects on consumer choice regarding effectiveness of contraceptive use methods. This Sankey diagram maps anticipated behavioral changes as a result of successful implementation of OTC coverage. It is based on current contraceptive method data from the state of Maryland, which indicates that 27% of reproductive-age Marylanders utilize effective contraception—like long-acting reversible methods, for example, 47% of residents utilize a less effective form of contraception—like condoms or other barrier methods, and 26% report non-use of contraceptive methods (Douglas-Hall et al. 2020). This graph then utilizes observed behavioral data on the

relationship between increased affordability and contraceptive method choice to estimate changes in the efficacy of contraceptive use methods amongst Maryland residents. Although these estimates are based on modeled behavior and are not intended to function as a precise forecast, they nevertheless provide strong evidence of the direction and magnitude of change associated with improved accessibility. Under modeled conditions, use of effective contraceptive methods more than doubles, with nonuse shrinking dramatically. This data suggests that reducing financial barriers has substantial positive spillover effects on reproductive health outcomes (Busse et al. 2025; Glei 1999; Secura et al. 2010; Peipert et al. 2011; Chakraborty et al. 2021; Daniels and Abma 2018).

Projected Changes in Contraceptive Use in Maryland Under OTC Access

Population-weighted scenario based on Maryland baseline method use and observed behavior
Flows represent % of Maryland women aged 18-49



Effective use more than doubles under modeled conditions.

Figure 8. Predicted changes in efficacy of contraceptive method due to increased affordability. *Source: Author's illustration based on relevant literature. A full-size version of this figure appears in Appendix B.*

This finding reaffirms the importance of targeted implementation efforts in high-need, low-capacity counties. Realizing these projected gains depends on extending access to the communities currently left out of existing infrastructure who serve to gain the most as a result of expanded access.

8. Conclusion

While Maryland's Contraceptive Equity Act is a vital first step in guaranteeing expanded reproductive healthcare access to all Maryland residents, stakeholders have been unable to successfully implement the statute's coverage mandate. In Maryland, and across its peer states, coverage exists on paper, but not in practice. The primary barrier to uptake is not political or ideological, but appears to arise from insufficient technical and governance infrastructure. As such, this study seeks to discover methods of overcoming these barriers by establishing the necessary mechanisms for providing insurance coverage at the retail counter for OTC contraceptives.

Analysis reveals a broader convergence across states in their failure to operationalize coverage. No state—including those with favorable political and reproductive healthcare climates—has successfully implemented mechanisms for providing coverage at the retail counter, indicating that uptake challenges may be born from structural—rather than contextual—barriers; without a POS-linked payment infrastructure, coverage transactions remain impossible.

Examination of potential infrastructural adjustments reveals three necessary capabilities of this transaction system: (1) real-time authorization, (2) product-level eligibility restrictions, and (3) insurer-retailer connectivity for adjudication and payment settlement. No existing

framework provides all three services simultaneously, but analogues for components exist in practice. Prepaid card transactions are simple, scalable, provide real-time authorization, and utilize existing open-loop card rails, meaning that they can be used at a breadth of retailers. WIC employs a POS-embedded database of program-eligible products capable of instantly determining product-level restrictions at checkout. PBM adjudication systems link pharmacies with a backend rules engine to determine patient eligibility, clinical safety, and cost-saving mechanisms, while also processing claims data and batched reimbursement to retail locations. However, these systems have their tradeoffs. While prepaid cards represent the easiest capacity for integration, their simplicity results in limited user and product eligibility control mechanisms. Conversely, WIC employs a high degree of transaction control, but also utilizes a highly complex state- and federally-managed infrastructure that cannot be used for other programs. Finally, PBM adjudication benefits from the highest degree of precision but relies on a complex system constrained to the pharmacy for use by medical professionals. While no one system is equipped to facilitate coverage transactions, existing mechanisms provide analogues for success in a hybridized model.

This work serves to advance the academic exploration of OTC contraceptive coverage methods by moving beyond theoretical proposals into discussion of operational feasibility. This study bridges the existing gap in the literature between reproductive healthcare policy and digital payment infrastructure. This approach is novel in its identification of transaction-level requirements and operational levers beyond its focus on policy goals. This study reframes contraceptive access as an infrastructural issue rather than solely political or ideological one, and therefore provides a scalable framework that can be used across different state environments beyond Maryland.

Successful implementation requires deliberate systems-building, both in regard to governance and payment infrastructure. A viable system must be interoperable with retail POS, capable of adjudication and claims processing, and minimally disruptive to retail workflow. Given these constraints, a hybrid payment model based on prepaid card, WIC, and auto-adjudication systems is necessary. This system must also be accompanied by improved governance structures. Lack of oversight will likely breed continued policy stagnation as a result of unclear agency leadership structure and a lack of enforcement mechanisms. To facilitate these changes, legislative clarity enables action by providing statutory backing for program authority, enforcement procedures, and rollout and administration.

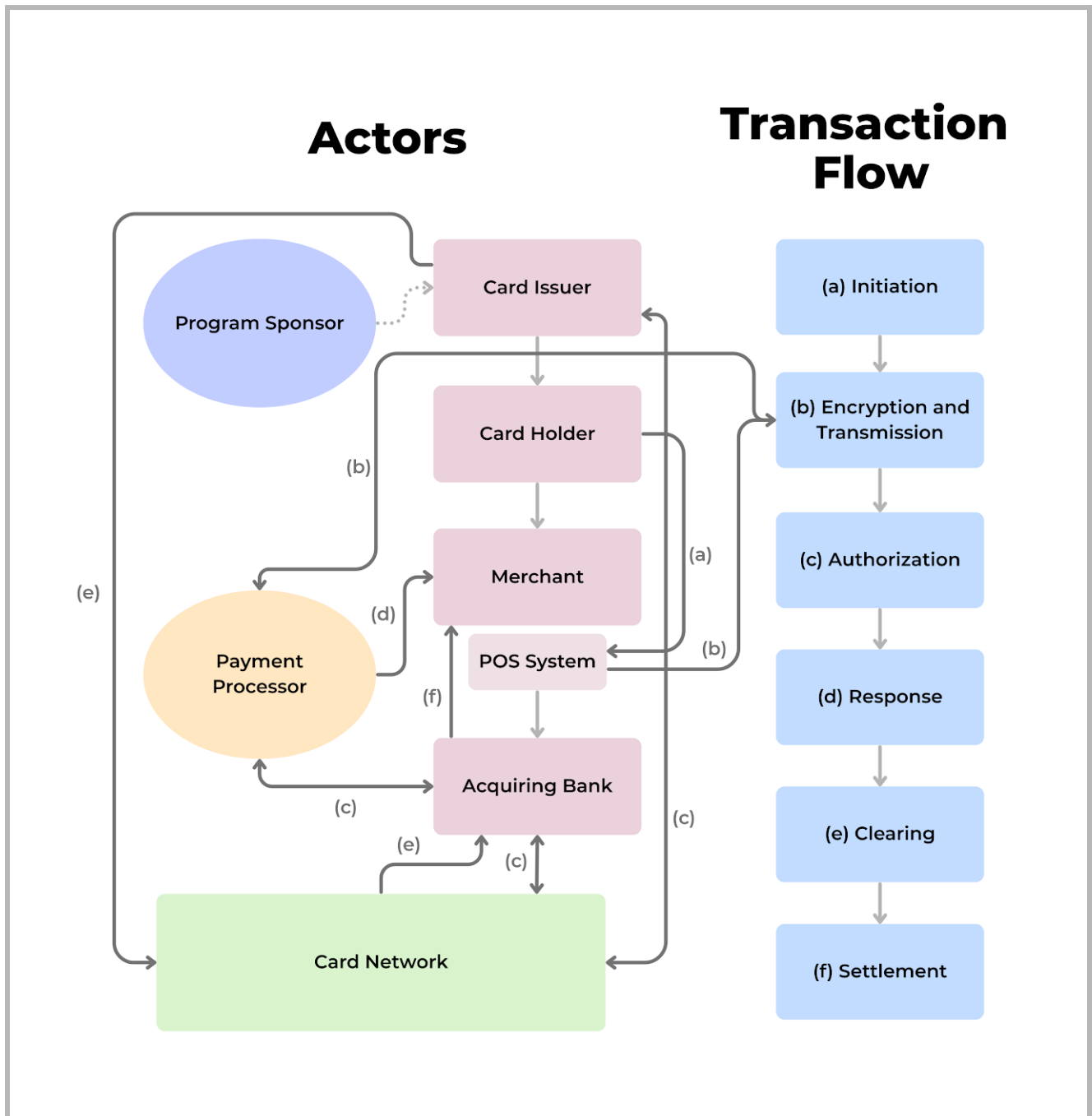
Without these actions, disparities in access will persist despite statutory coverage, most affecting low-income, non-white, and young women. However, should the state successfully operationalize coverage, evidence demonstrates measurable and significant gains in affordability, access, and method effectiveness of contraceptive use. Increased contraceptive affordability leads to demonstrable behavioral shifts, likely manifesting as improved health outcomes for Marylanders.

As a result of limited real-world implementation data, this study relies primarily on analysis of analog systems. As such, future research requires the study of pilot rollout programs, vendor-level technical research, cost modeling, and retailer adoption studies. These studies will lend deeper insight into the required infrastructural details and complexity that cannot currently be determined via analysis of existing systems. Greater technical exploration of infrastructural requirements within contraceptive coverage is a necessary next stage of research to develop as viable a system as possible.

Maryland's contraceptive coverage mandate has now been dormant for nearly a decade; while residents are technically entitled to coverage, policy uptake has remained nonexistent through the life of the law. The state must therefore adopt a technical and governance infrastructure better equipped for implementing the statute. These infrastructural considerations may also be applied more broadly, creating a viable framework for uptake for the many peer states that have experienced similar implementation challenges. The challenge is no longer identifying the nebulous complicating factors that lie in the way of implementing coverage, but whether states are willing to construct the systems to make that coverage a reality.

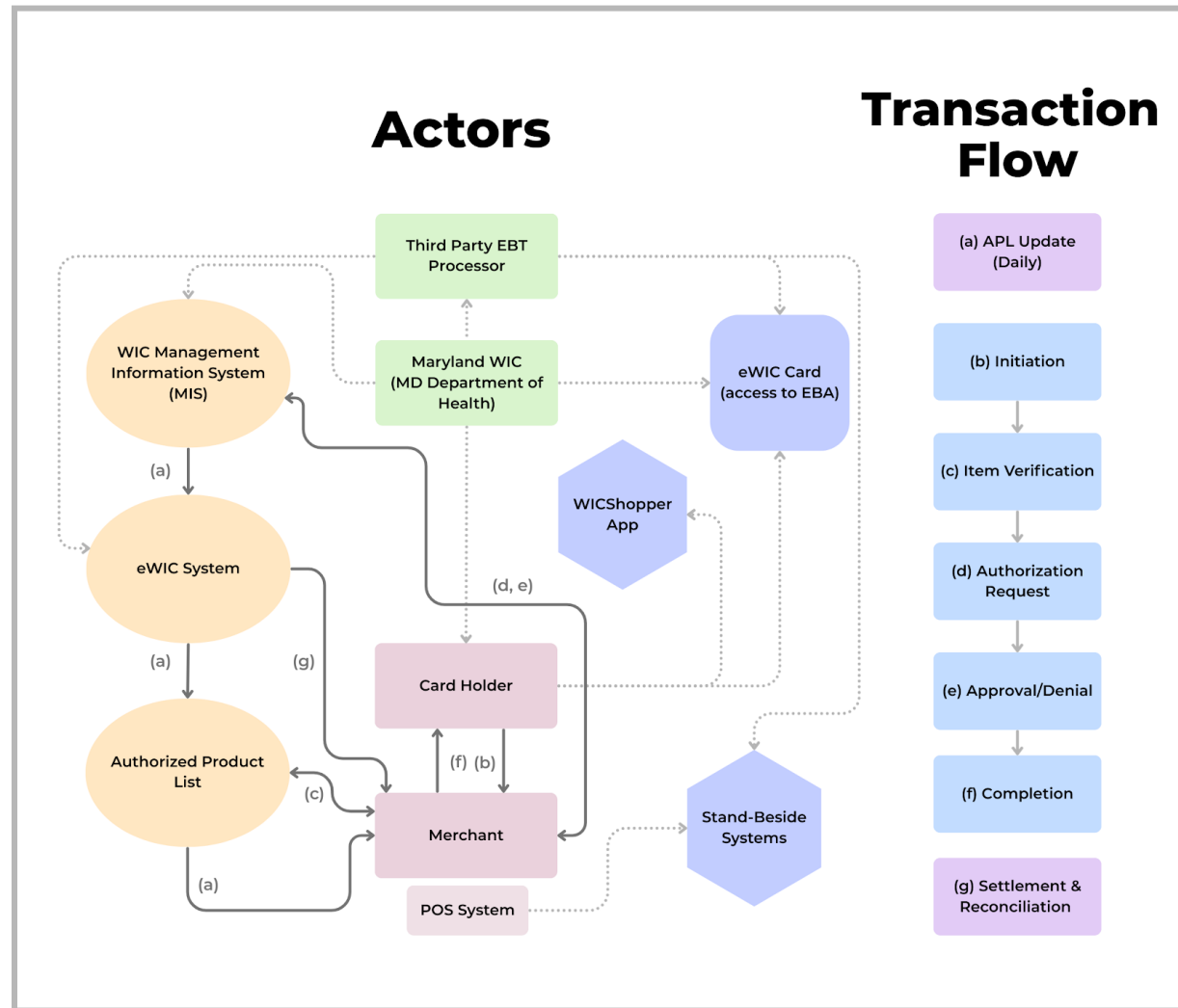
9. Appendix A — Systems Maps

Figure A1. Open-loop prepaid card transaction architecture



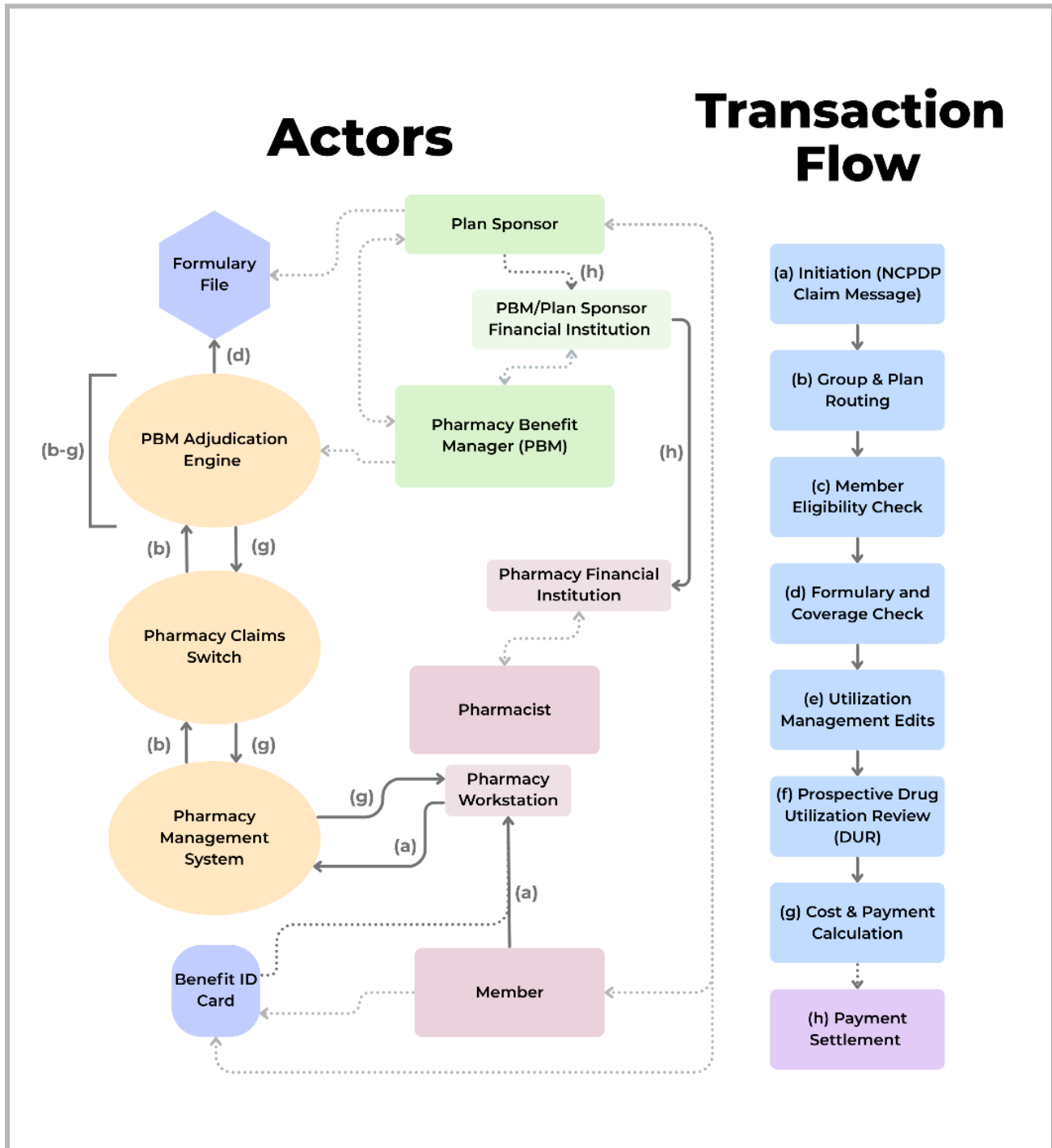
Source: Author's illustration based on industry documentation.

Figure A2. WIC-style transaction architecture with SKU-level item restrictions.



Source: Author's illustration based on industry documentation.

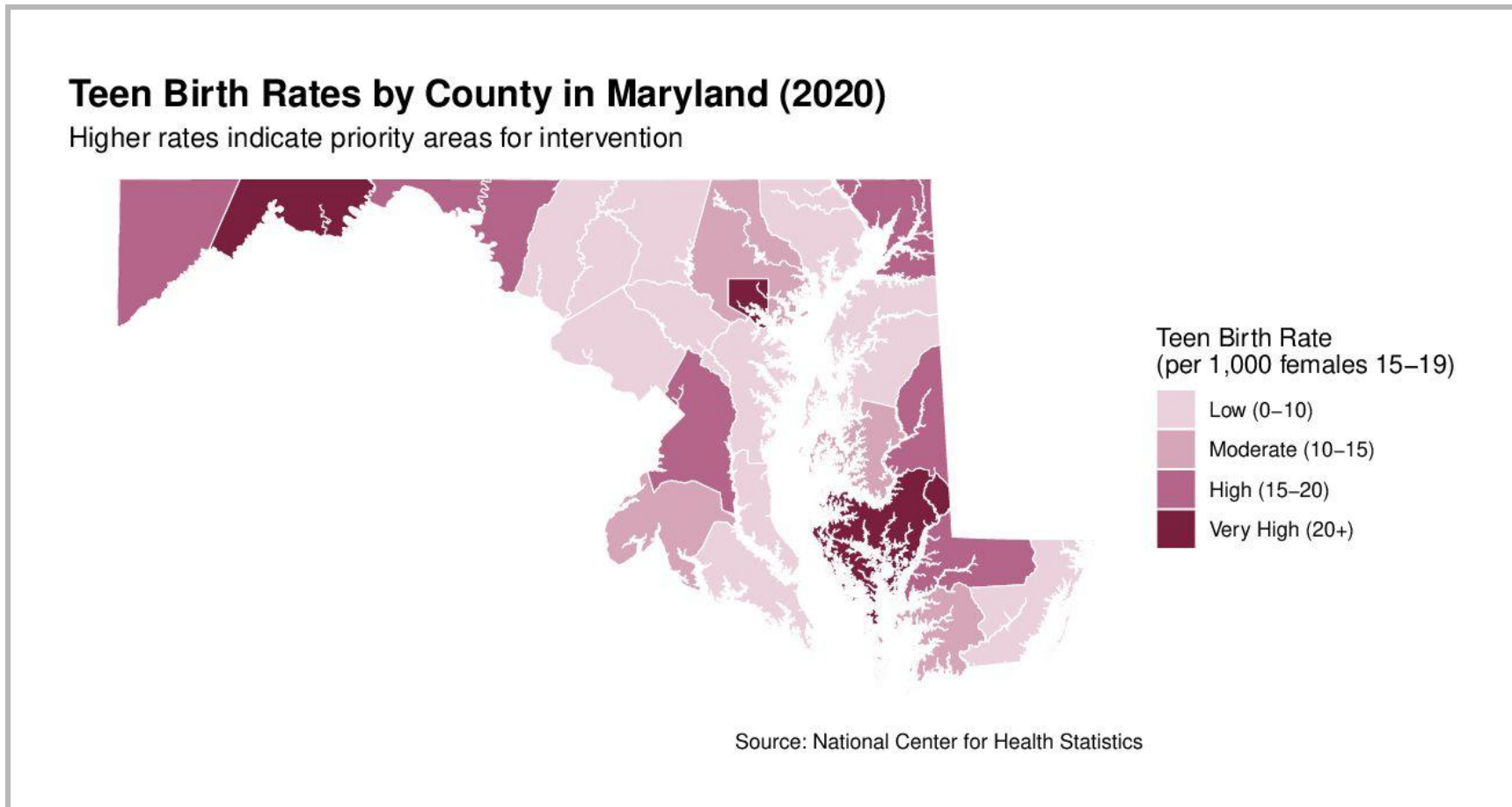
Figure A.3. PBM real-time adjudication architecture.



Source: Author's illustration based on industry documentation.

10. Appendix B — Data Visualizations and Analytical Figures

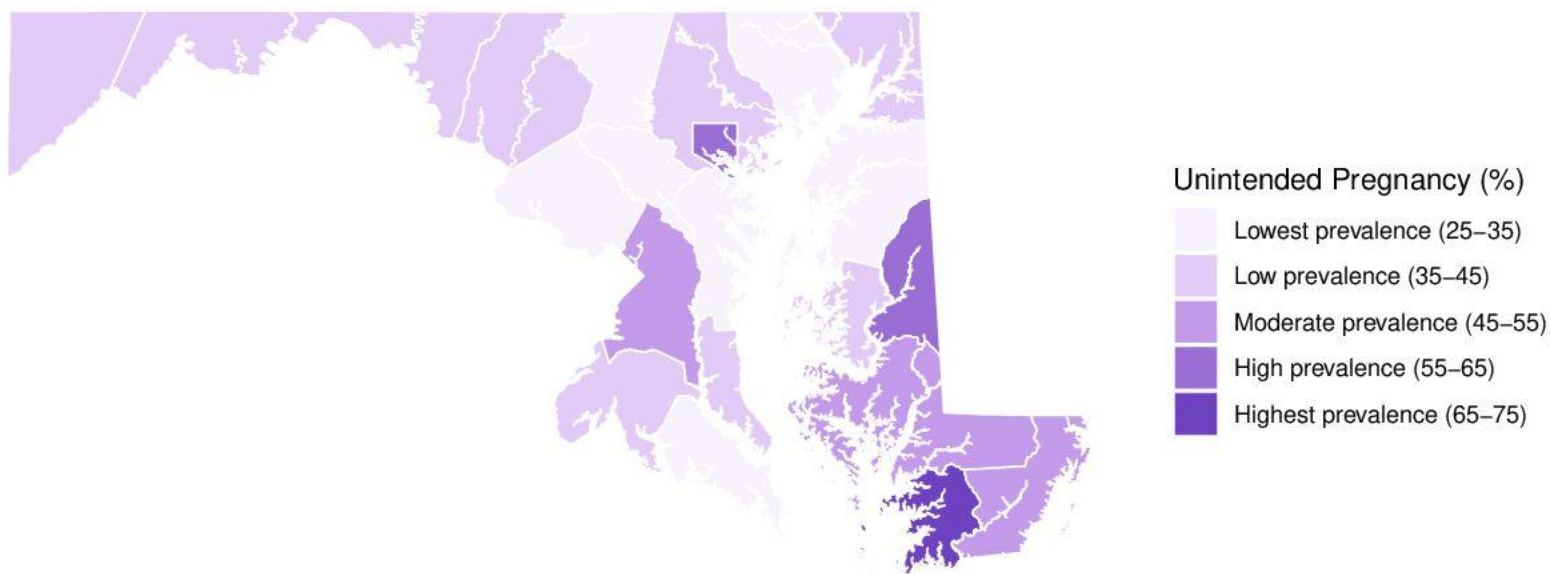
Figure B.1. Map of concentration of teen births by county in Maryland.



Source: Author's illustration based on data from the National Center for Health Statistics.

Figure B.2. Map of prevalence of unintended pregnancy by county in Maryland.

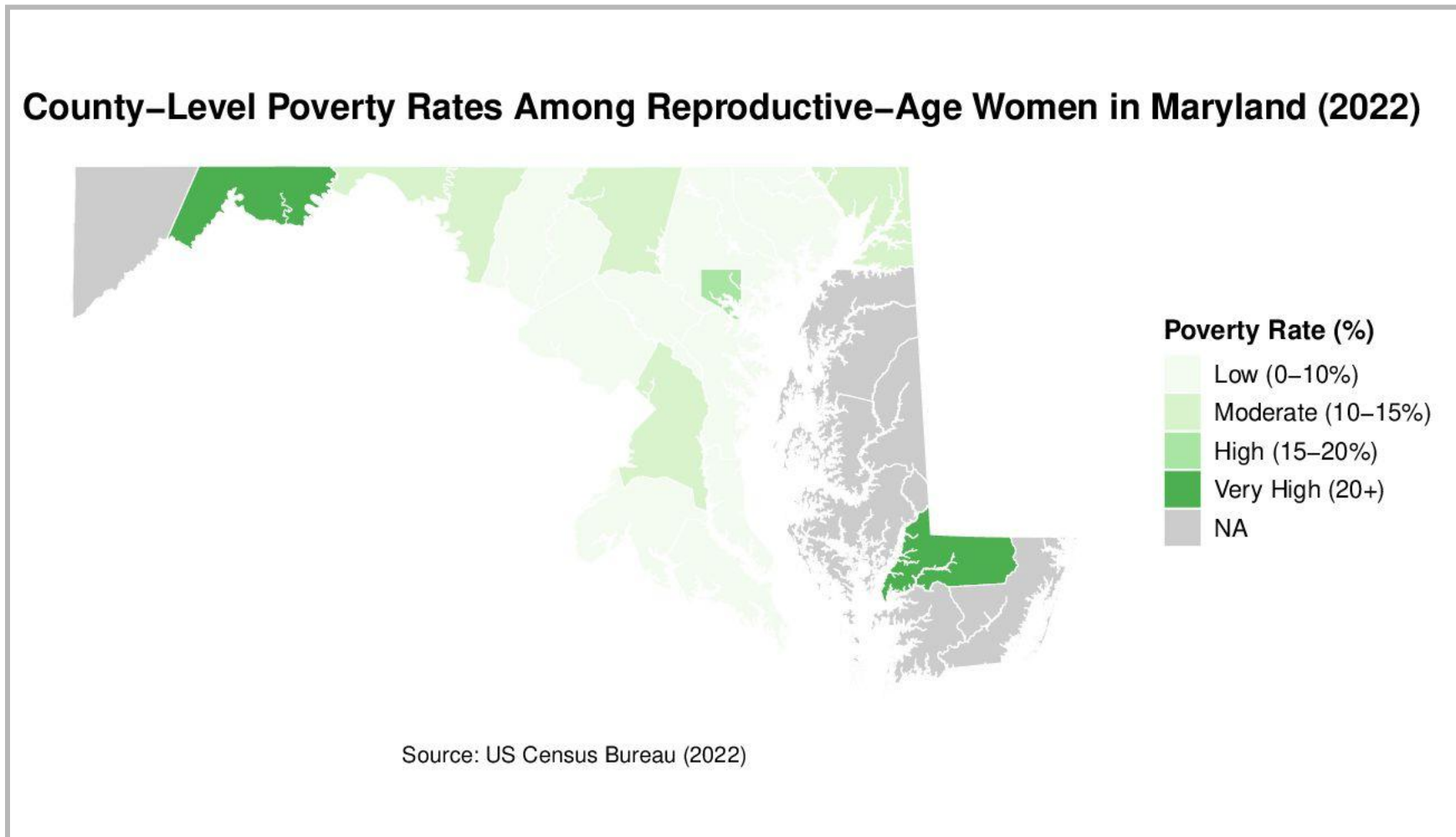
Unintended Pregnancy Rate by County in Maryland (2015)



Source: Maryland PRAMS (Dec 2015)

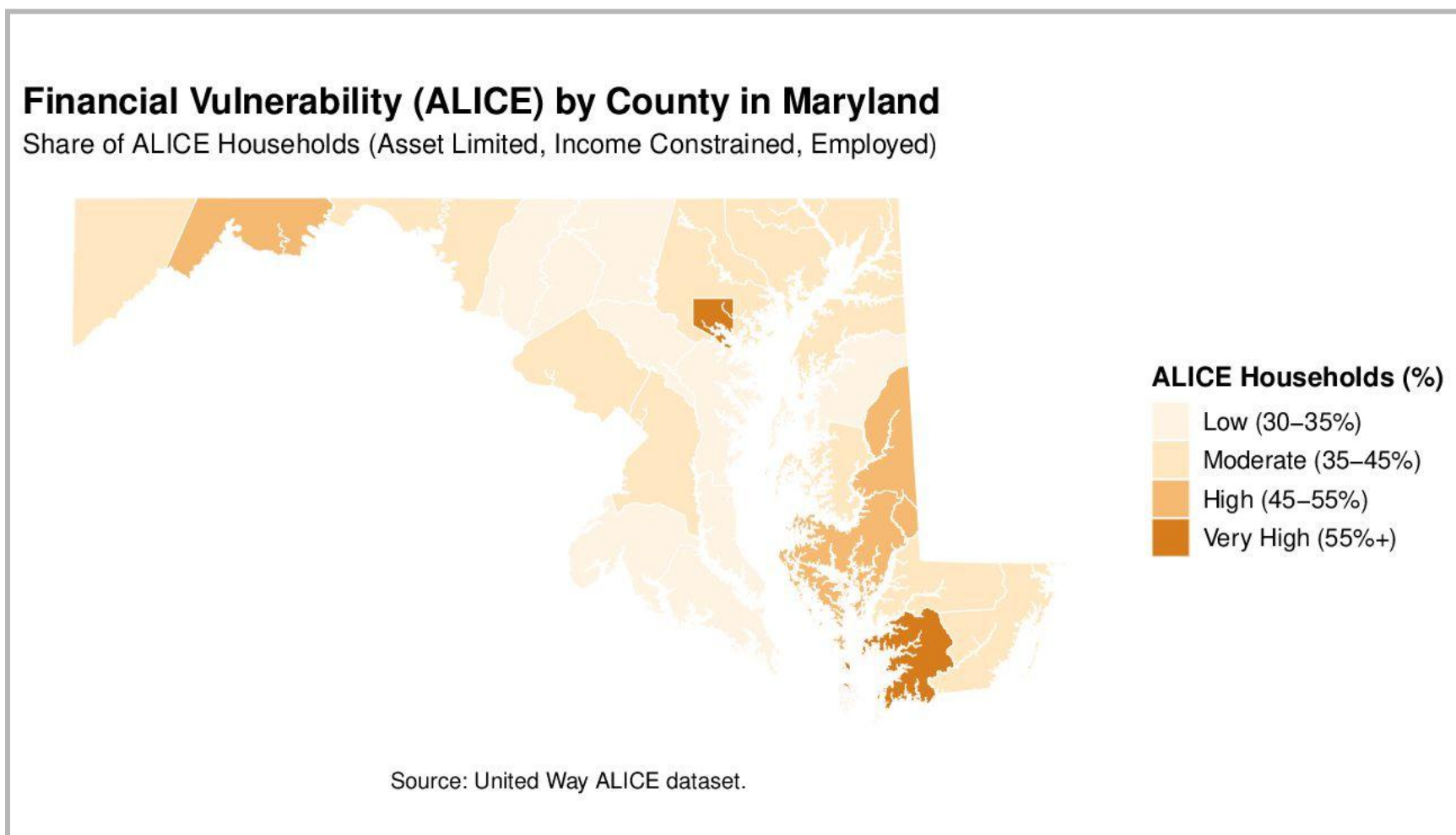
Source: Author's illustration based on data from Maryland's 2015 PRAMS study.

Figure B.3. Map of poverty among Maryland women aged 15-49.



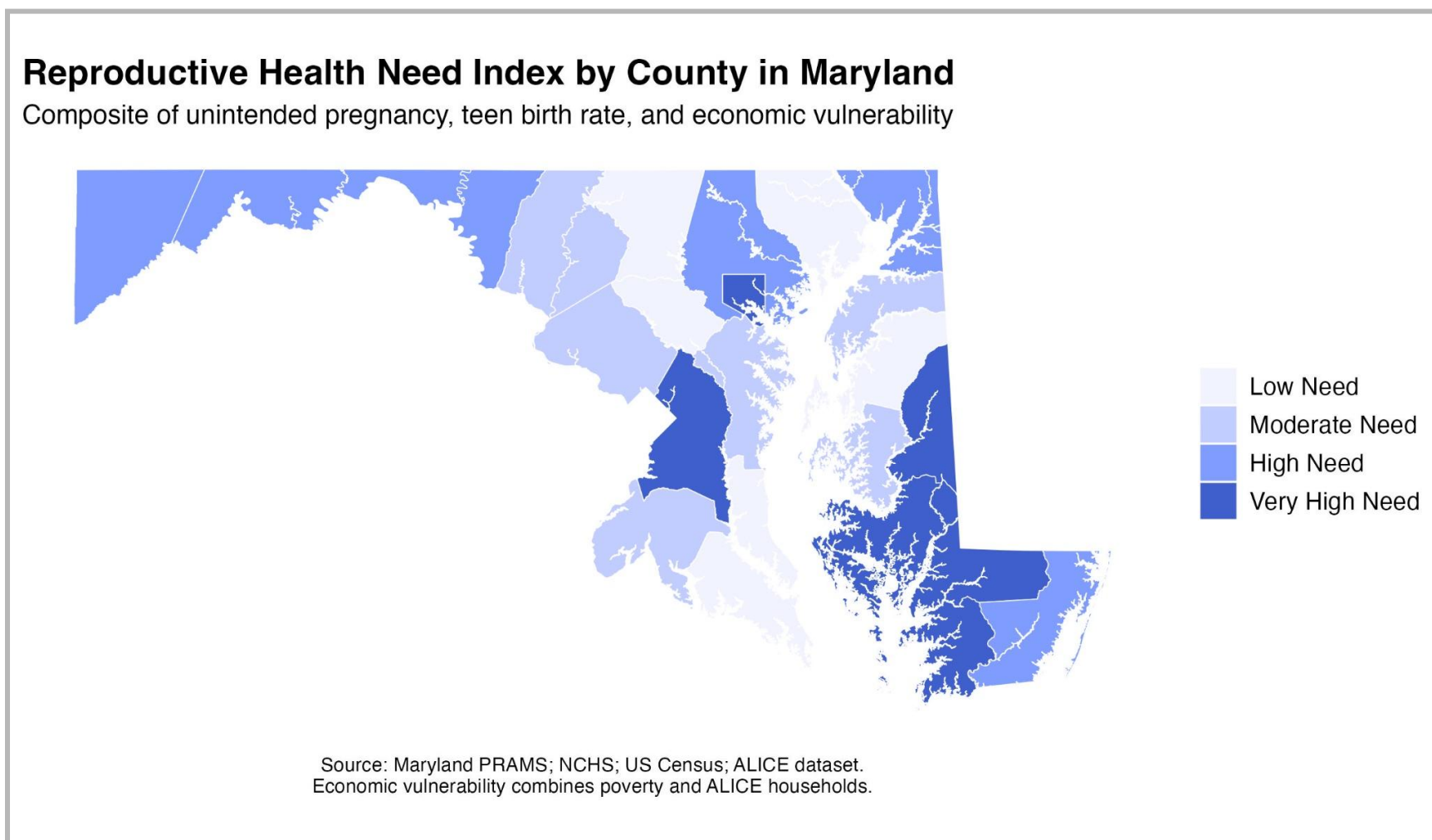
Source: Author's illustration based on US Census Bureau data.

Figure B.4. Map of financial vulnerability in Maryland, with concentration of ALICE households serving as a proxy.



Source: Author's illustration, based on the United Way ALICE dataset.

Figure B.5. Map of reproductive need in Maryland.

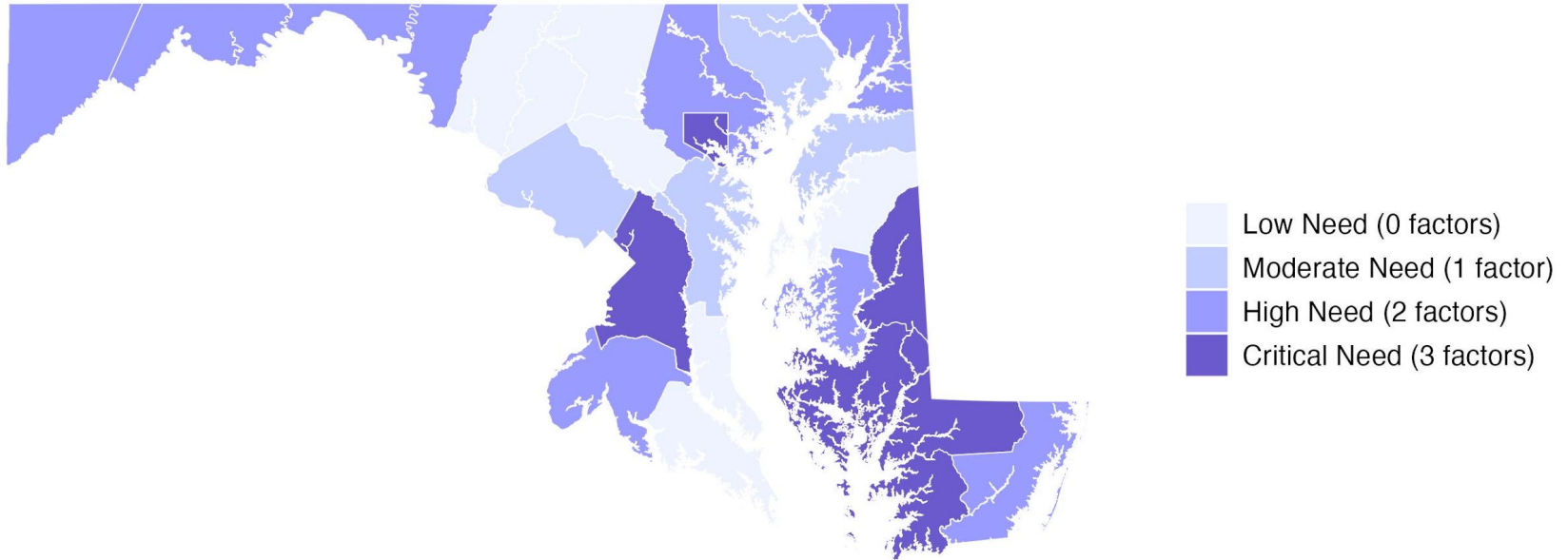


Author's illustration based on data from Maryland PRAMS, NCHS, US Census, and United Way.

Figure B.6. Map of number of reproductive risk factors by county.

Concentration of Reproductive Health Risk Factors by County in Maryland

Number of high-risk conditions present (unintended pregnancy, teen birth rate, economic vulnerability)



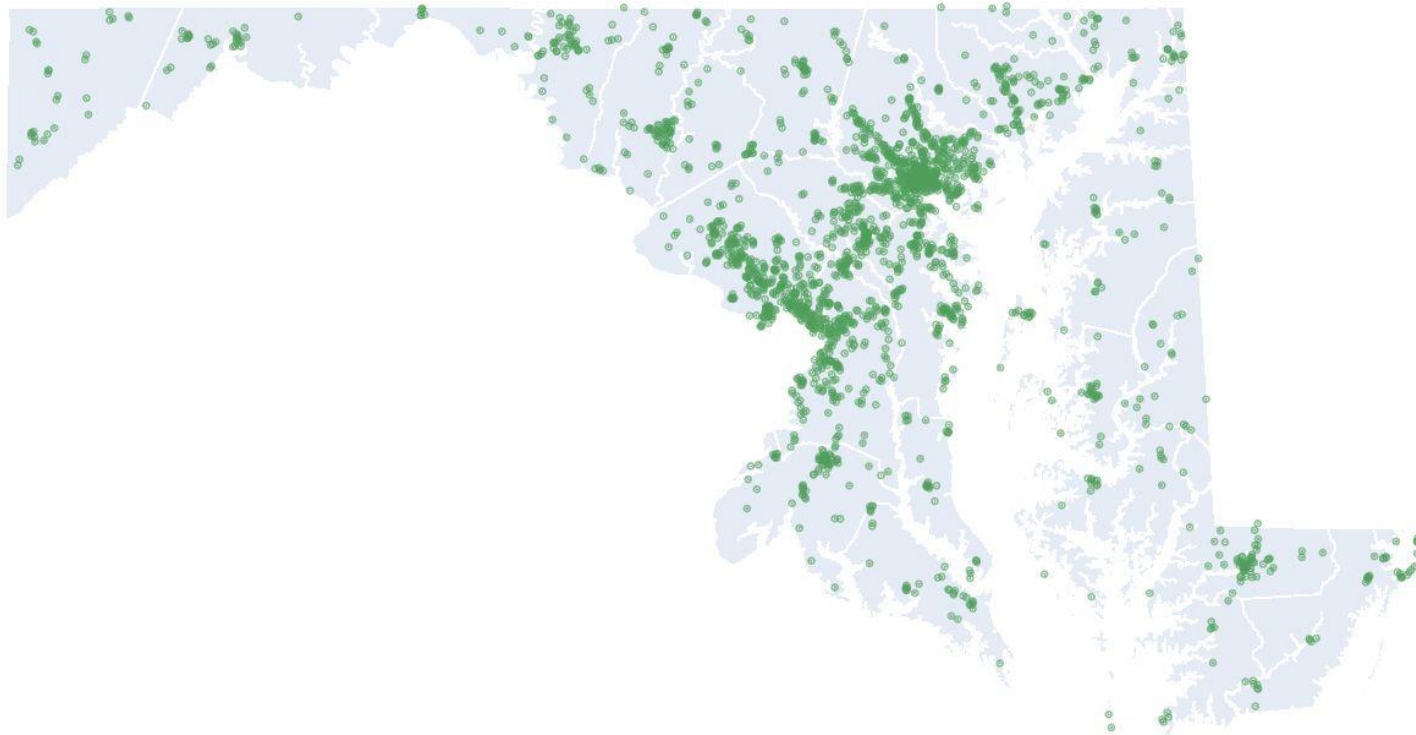
Source: Maryland PRAMS (Dec 2015); National Center for Health Statistics; US Census Bureau (2022); United Way.
Overlap scores use available indicators.

Author's illustration based on data from Maryland PRAMS, NCHS, US Census, and United Way.

Figure B.7. Map of retailers most likely to facilitate coverage.

High-Tier Retail Access Points for OTC Contraceptives

Retailers classified by access based on store type and expected capacity to support OTC contraceptive distribution



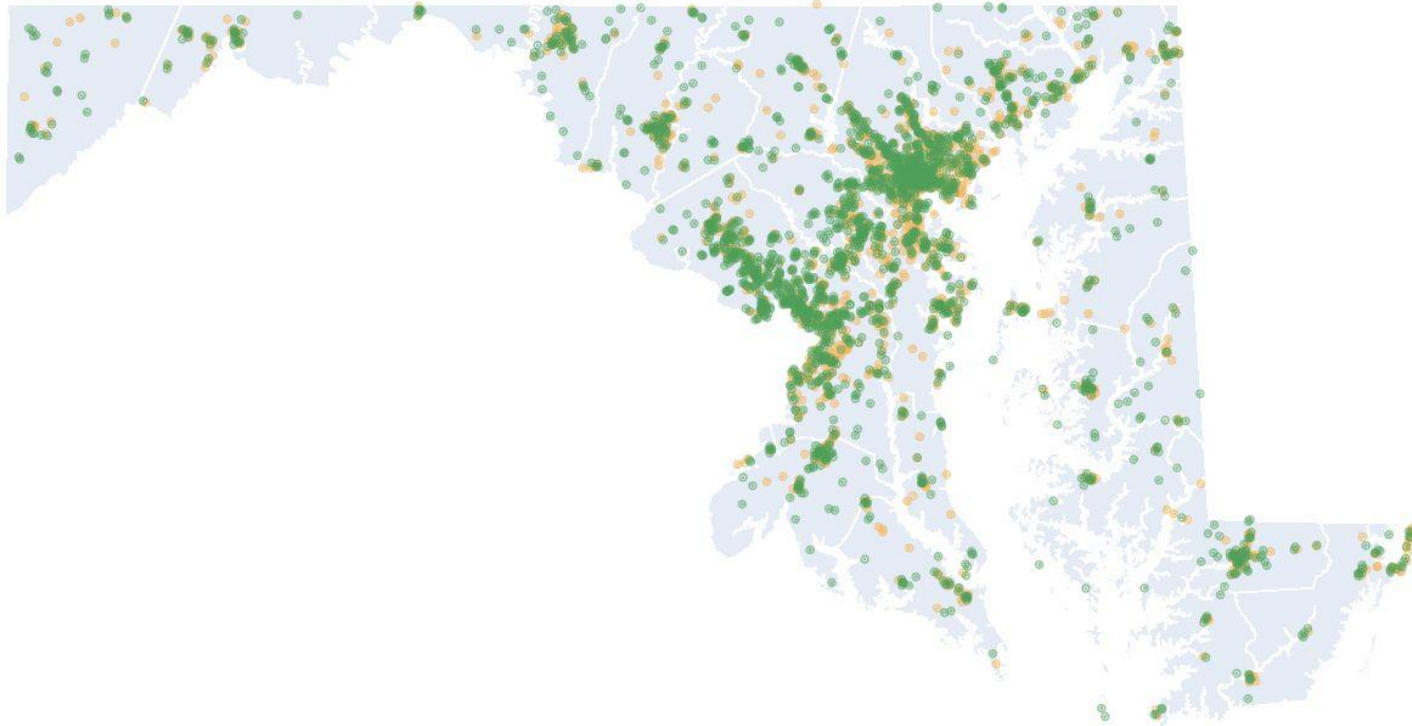
Source: SafeGraph retail point-of-interest data; author's classification of access tiers.

Source: Author's illustration based on SafeGraph POI data.

Figure B.8. Map of retailers most and moderately likely to facilitate coverage.

High– and Moderate– Tier Retail Access Points for OTC Contraceptives

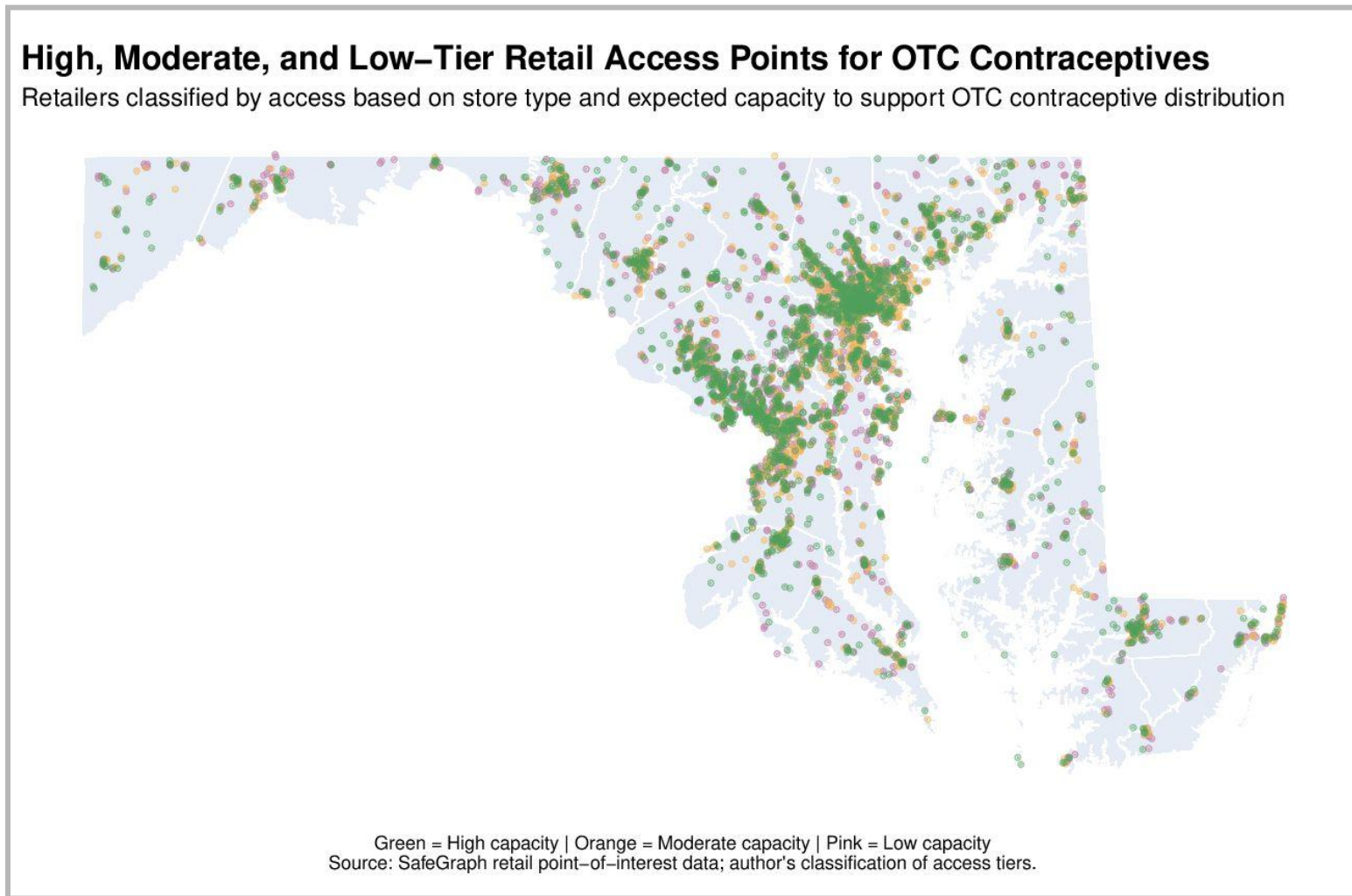
Retailers classified by access based on store type and expected capacity to support OTC contraceptive distribution



Source: SafeGraph retail point-of-interest data; author's classification of access tiers.

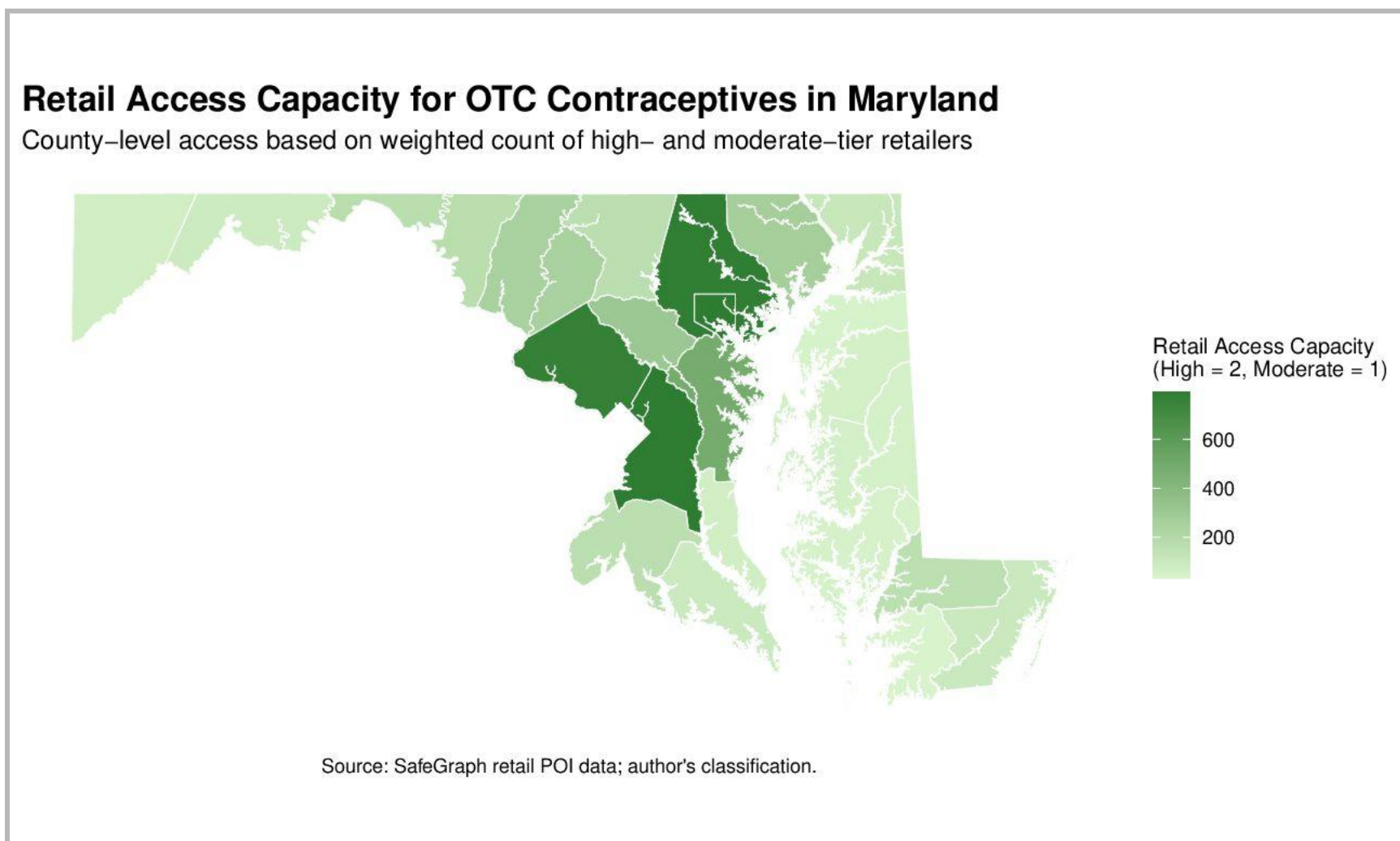
Source: Author's illustration based on SafeGraph POI data.

Figure B.9. Map of retailers most, moderately, and less likely to facilitate coverage.



Source: Author's illustration based on SafeGraph POI data.

Figure B.10. Map of concentration of retailers likely to facilitate coverage.

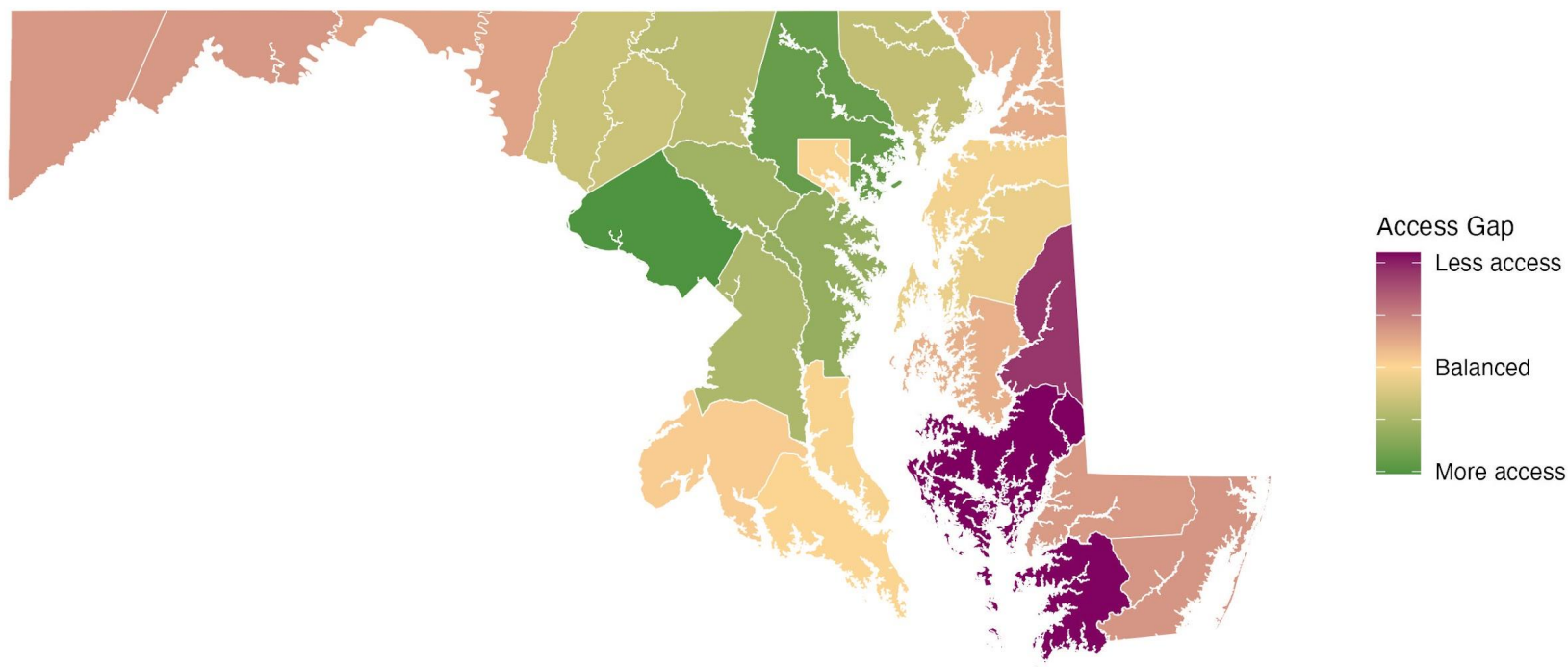


Source: Author's illustration based on SafeGraph POI data.

Figure B.11. Map illustrating the gap between reproductive need and retailer capacity.

Gap Between Reproductive Health Need and Retail Access in Maryland

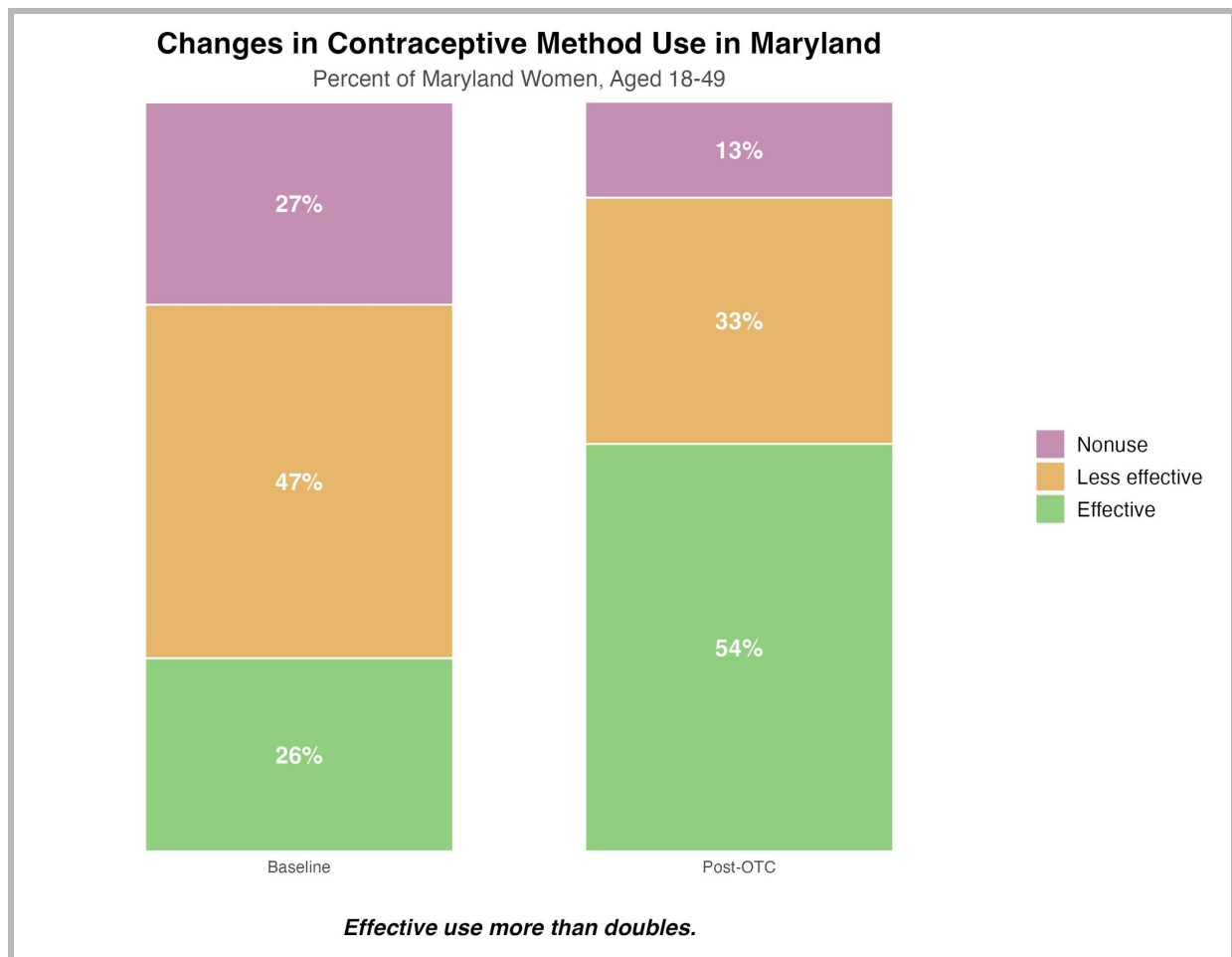
Positive values indicate higher need relative to access



Source: Maryland PRAMS; NCHS; US Census; United Way; SafeGraph.

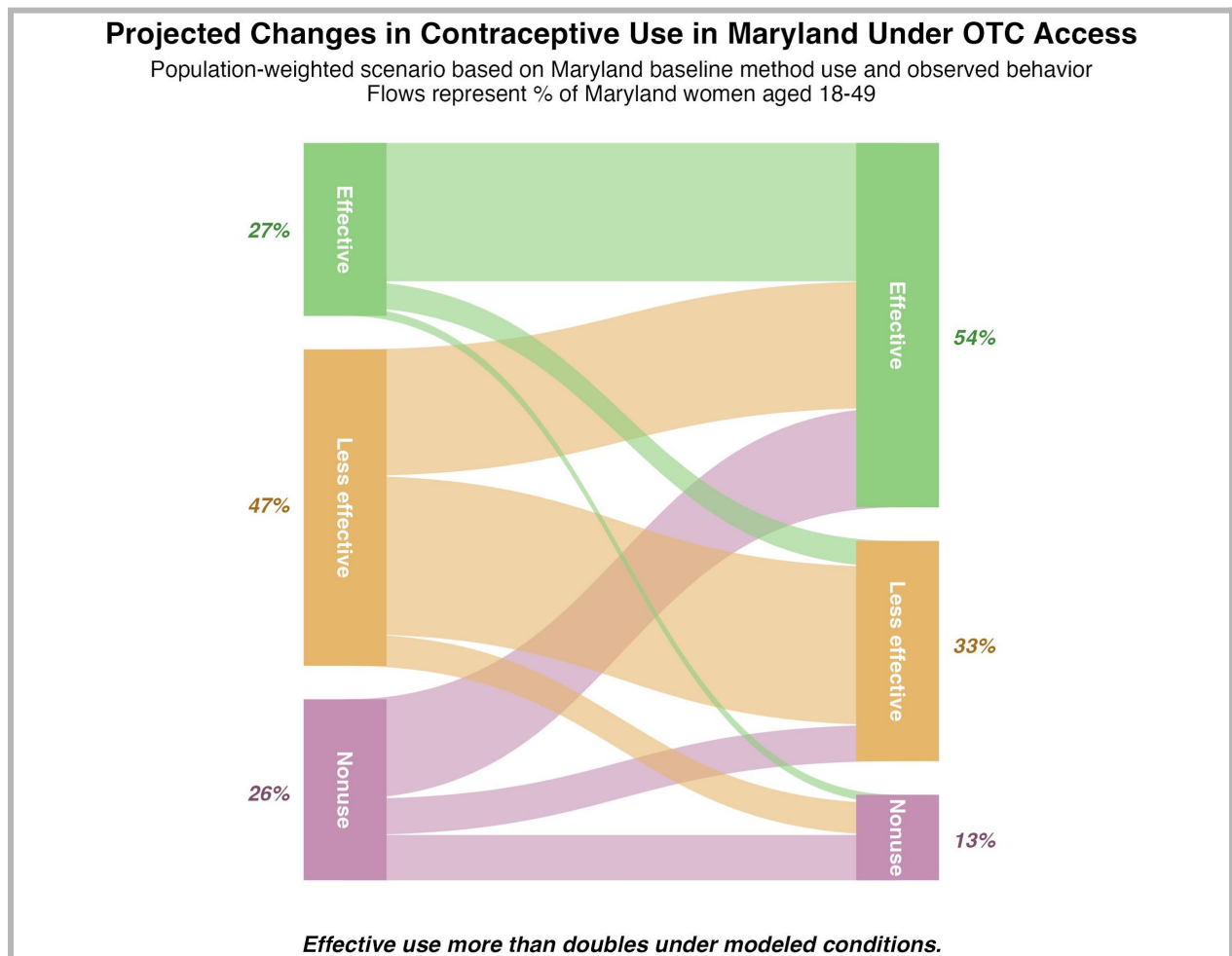
Source: Author's illustration based on relevant data.

Figure B.12. Predicted changes in efficacy of contraceptive use method due to increased affordability.



Source: Author's illustration based on Guttmacher Institute data and observed behavioral patterns.

Figure B.13. Predicted changes in efficacy of contraceptive use method due to increased affordability.



Source: Author's illustration based on Guttmacher Institute data and observed behavioral patterns.

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