Using a Person-Centered Approach to Assess Medicaid Coverage for Gender-Affirming Care

By

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ABSTRACT

Transgender and nonbinary adults experience health inequities and higher social risk burdens relative to cisgender people. Research consistently shows receiving gender-affirming care is associated with improvements in transgender and nonbinary people's health and social risk. Insurance coverage for gender-affirming care increases access to these services by decreasing cost barriers. Medicaid coverage for gender-affirming care is a particularly promising policy given the elevated enrollment among transgender and nonbinary people, and higher social risk burdens in Medicaid-insured individuals.

Despite the potential for Medicaid policy to address inequities in transgender and nonbinary populations, minimal research has evaluated whether policies are person-centered. Person-centeredness is a rights-based framework that promotes human dignity through concepts such as bodily autonomy, shared decision-making, and respect for a person's experience and identity. This research filled that gap by systematically assessing person-centeredness in states' Medicaid policies.

This research integrated three studies: a comparative analysis of states' Medicaid gender-affirming care policies as of December 2022; a configurational analysis of state-level factors associated with person-centeredness in policies; and an observational analysis of the relationship between gender-affirming care receipt and wages in a single-state case study. The first study utilized publicly available policy documents and community engagement, the second study utilized secondary data from publicly available

sources, while the third study utilized a limited dataset comprising person-level Medicaid claims and wages.

The first study found that person-centeredness in policy design varied across the 33 states with Medicaid gender-affirming care policies as of December 2022. No state policy achieved high overall person-centeredness, while eight achieved moderately-high, ten achieved moderate, six achieved low, and nine states had exclusionary policies. The second study found that state environments with favorable health system performance and access to health insurance were associated with moderately-high person-centeredness in policy design, while environments wherein LGBTQIA+ equity and Medicaid access did not appear to be priorities were associated with exclusionary policies. The third study found evidence of significant and meaningful wage increases after gender-affirming care receipt among a large sample of transgender and nonbinary adults insured by Oregon's state Medicaid program.

This research demonstrated the validity of assessing person-centeredness in Medicaid policy design, and the tangible and intangible impacts of gender-affirming care on social risk. These findings are intended to serve as a community resource to encourage patient activation. This research may also support advocates' and policymakers' policy learning, and lays the foundation for future research investigating causal relationships with Medicaid policy.

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TERMINOLOGY

Gender identity is an evolving demographic concept. This section describes terminology and language I use throughout this dissertation. The language choices aim to be inclusive, respectful, and readily understood by a variety of readers. While the language is guided by current best practice recommendations,[1-6] future terminology may better reflect gender identity-related concepts and culture.

Sex refers to categories (e.g., male, female, intersex) that are assigned—usually at birth—based on anatomic, physical, or genetic attributes.[1,4]

Gender is a set of socially constructed roles, behaviors, and attributes (e.g., woman, boy).[4] Gender identity is a person's internal knowledge of their gender.[3,6] Gender expression is an interrelated concept entailing how a person presents their gender identity externally, such as through behavior, clothing, voice, or body characteristics.[1,3,4,6] Terms individuals may use to describe their gender identity and expression include transgender, nonbinary, genderqueer, gender fluid, and androgynous.[2-4]

Transgender and nonbinary is a phrase used to describe the community of people whose gender identity (and/or expression) differs from the sex assigned at birth. Transgender describes people whose gender identity is not the same as the sex assigned at birth. For example, a transgender man is an individual whose gender identity is male, and who was assigned female sex at birth. Nonbinary describes transgender people who identify as neither male nor female, a combination of male and female, or a gender

identity not defined by binary gender categorization.[3,4,6] Additional phrases used in the current literature to describe this community include “transgender and gender diverse”, “gender expansive,” or simply “transgender.”[1,2,4,5] I use the terms transgender man/men or transmasculine people, transgender woman/women or transfeminine people, and nonbinary people in this dissertation. If the terminology used within specific research differs from these conventions, I denote the study-specific term using [sic] when citing those results.

Cisgender refers to people whose gender identity is the same as the sex assigned at birth (e.g. a woman with female sex assigned at birth).[4]

Gender affirmation describes the processes that recognize or affirm one’s gender identity (and/or expression). Gender affirmation may occur across four main constructs: social, psychological, medical, and legal.[7] Social affirmation consists of interpersonal and institutional acknowledgement of one’s gender identity, including use of affirmed name and pronouns.[7] Psychological affirmation includes one’s felt sense of self-actualization and validation of gendered self.[7] Medical affirmation is the use of medical care (e.g., therapy, gender-affirming hormones, surgeries, voice therapy) that can help one mentally or physically align with one’s gender identity.[4,7] Legal affirmation consists of legal changes that affirm one’s gender, including legal name and gender marker changes.[7] Gender affirmation is an individual experience, rather than a set of standard milestones.[4,7] This dissertation focuses on medical gender affirmation and health policies that impact access to medical gender affirmation.[7]

CHAPTER 1: BACKGROUND, METHODS OVERVIEW, AND SIGNIFICANCE

This chapter provides a brief background of Medicaid coverage for gender-affirming care; defines the problem statement and research question and aims; describes the frameworks and theoretical basis for this research; summarizes the methodological approach; and asserts the significance of this dissertation research.

Issues

This section describes four topics relevant to Medicaid coverage for gender-affirming care: population health inequities, social risk factors, politicization of transgender rights, and health effects of gender affirmation. While the first three issues portray the adverse environment transgender and nonbinary people face, the fourth demonstrates the importance of affirmation and resilience.

Population health inequities

Transgender and nonbinary people living in the United States experience worse health outcomes than cisgender people. National population health estimates primarily draw from three sources: the national Behavioral Risk Factor Surveillance System (BRFSS), which estimates weighted probability samples and includes an optional sexual orientation and gender identity module which approximately half of all states administer;[8,9] TransPop, a national probability survey of 274 transgender and gender diverse individuals in the United States;[10] and the U.S. Transgender Survey (USTS), a convenience sample of nearly 28,000 respondents in 2015 and 90,000 respondents in 2022.[2,11]

National estimates consistently found that transgender and nonbinary populations experienced poorer physical and mental health, and higher burdens of chronic conditions and disability than cisgender populations.[2,12-14] Compared to cisgender adults, transgender and nonbinary adults had nearly twice the odds of no healthcare coverage and an inability to afford a doctor when needed in the previous year.[2,15] Within-group comparisons reveal further inequities. Transgender women and men had significantly and meaningfully elevated odds of depression, mental distress, mobility disabilities, and cognitive disabilities than either cisgender women or men, and transgender men and nonbinary populations experience worse general health than transgender women.[2,10,16-18]

The inequities in health and access to healthcare are hypothesized to result from interpersonal and structural gender identity-based discrimination. When applied to transgender and nonbinary populations, the Minority Stress Model posits that distal discriminatory laws or regulations, proximal processes including the anticipation and expectation of gender identity-based threats, and internalized attitudes of transphobia and prejudice incur excess stress which affects mental and physical health.[19,20] Application of the Minority Stress Model to qualitative experiences reported by transgender and nonbinary participants found that identity concealment, internalized stigma, and expectations of rejection were associated with health and wellbeing.[21] Cumulatively, the potential health impact of minority stress in transgender and nonbinary people is avoidance of necessary health care, decreased wellbeing, and persistent harm.

Social risk inequities

Inequities in the transgender and nonbinary population persist in social risk. Social risk factors are specific adverse social conditions associated with poor health that can be intervened on at an individual level. These include housing instability, food insecurity, lack of transportation, difficulty paying for utilities, interpersonal safety, financial strain, employment difficulties, family and community support, and educational retainment.[22,23]

Population-based research indicates high social risk in transgender and nonbinary people.[2,14,15,17,24] Transgender and nonbinary people experience higher social risk because of interpersonal and structural discrimination. Discrimination may stifle self-esteem, professional opportunity, and educational retainment, which consequently affects wellbeing and health.[25] Research demonstrates that interventions that directly or indirectly incorporate gender affirmation to address social risks in transgender and nonbinary individuals are highly effective.[26-30] This supports the relationship between gender affirmation, lower social risk, and health and wellness in transgender and nonbinary individuals.

Gender affirmation and health

Gender affirmation is conceptualized as occurring across four core constructs: social, psychological, medical, and legal gender affirmation.[7] Gender affirmation is an individual experience, rather than a standard process.[1,31] The Gender Affirmation Framework proposes that gender identity-based stigma leads to social oppression and psychological distress. An individual's access to gender affirmation mediates the relationship between these two negative states and experiencing high risk contexts or

behaviors, such as undertaking transactional sex.[32] If gender affirmation exceeds social oppression and psychological distress, exposure to high-risk contexts is less likely to occur and health empowerment is more likely to occur.[32,33]

Abundant qualitative evidence supports the association between medical affirmation and positive outcomes such as educational and employment retainment, housing security, wellbeing, and health empowerment.[5,33-35] In contrast, limited quantitative causal inquiry has been conducted.[36-38] Indeed, transgender people identify measuring the impacts of resilience and affirmation as health research priorities.[39]

Studies suggest that the most important components of engaging with research to inform policy development[40] include how policymakers assessed research quality, and how relevant the research was to the policy context.[41,42] Thus, policymakers may value research that demonstrates whether affirmation affects health inequities and social risk in transgender and nonbinary people.

Politicization of transgender rights

State policies that affect health, social risk, and affirmation in transgender and nonbinary people include nondiscrimination laws in employment, housing, lending, health insurance, family and guardianship rights, and changes to identity documents.[43] Studies have consistently demonstrated an association between protective state policies and increased odds of better health, health behaviors, and access to health insurance and health care in transgender and nonbinary people.[44-49]

Because Medicaid finance and reform are governed through federalism, wherein states operate their own Medicaid programs within broad federal guidelines,[50,51]

Medicaid gender-affirming care policies reflect state politics.[52-55] The passage of the Patient Protection and Affordable Care Act (ACA) in 2010 and issuance of the Final Rule implementing specific nondiscrimination provisions under Section 1557 in 2014 generated politicized reactions to publicly-funded insurance coverage for transgender and nonbinary people. This Final rule was updated in 2016 to specify that its sex nondiscrimination provision included nondiscrimination based on gender identity, and explicitly prohibited federally-funded insurers from categorically excluding all types of gender-affirming care from coverage.[56] In 2020, a different presidential administration issued an opposing Final Rule that removed nondiscrimination protections based on gender identity. In 2022, under yet another presidential administration, the federal government proposed a Rule reinstating protections on the basis of gender identity.[56,57] As of December 2022, 24 states and Washington, D.C. implemented Medicaid policies explicitly covering some form of gender-affirming care for adults, 9 states explicitly ban coverage, and 17 states have no specific policy.[58,59]

Political jockeying causes harm. In a large 2019 survey of transgender and nonbinary adults living in Massachusetts or Rhode Island, nearly half the sample reported being concerned their state politicians would pass laws taking away rights for transgender people, and those who were concerned had twice the odds of having depression, anxiety, or post-traumatic stress disorder.[60] Promisingly, qualitative interviews in a separate study of transgender and nonbinary adults identified social support and activism as contributors to their resilience during these rapid sociopolitical changes.[61]

To date, studies undertaking Medicaid gender-affirming policy content analysis have limited their inquiry to specific services. Medicaid coverage for gender-affirming hormones or surgeries,[49] genital reconstruction,[62,63] facial surgery,[63,64] and hair removal[65,66] have been assessed. However, no study has evaluated whether the services comprehensively cover all gender-affirming care needs, how the policies define gender identity and eligibility for services, and what administrative barriers to care exist. For example, in a single-clinic study, application of gatekeeping barriers (e.g., letters of support from mental health providers) in a standard of care model[1] used by many state Medicaid programs would have prevented two thirds of patients who were ready to receive gender-affirming surgery from proceeding.[67] Given the mismatch between Medicaid policy and population need, it is critical to evaluate Medicaid gender-affirming policy from transgender and nonbinary people's perspectives.

Problem Statement

Transgender and nonbinary people's experiences of stigma and discrimination increases their social risk and decreases their health and wellbeing relative to cisgender people. Medical gender affirmation can potentially mitigate social risk and adverse health outcomes in transgender and nonbinary populations. Medicaid coverage for gender-affirming care is a particularly beneficial policy intervention that addresses intersecting social and economic risks in transgender and nonbinary beneficiaries.[5,68,69] Yet, only half of U.S. state Medicaid programs cover gender-affirming medical care.[58]

Transgender and nonbinary people identify studying Medicaid and insurance coverage for gender-affirming care as a research priority.[39,70-72] Policy analysis must center embodied knowledge regarding how gender identity and eligibility are codified, whether beneficiaries' and states' definitions of gender-affirming care aligns, and if services are accessed in the presence or absence of administrative or medical gatekeeping barriers. Furthermore, because states' socio-political environments strongly affect Medicaid policy,[52-54] research is needed to identify environmental conditions associated with the adoption of Medicaid gender-affirming care policies.[49,73,74] Finally, because gender-affirming care strongly contributes to resilience against discrimination and psychological distress,[34,75,76] research must investigate the relationship between gender-affirming medical care, social risk, and population health in transgender and nonbinary Medicaid beneficiaries.

My dissertation addressed research priorities identified by transgender and nonbinary people,[39,70-72] and aimed to generate culturally-competent health research.[77] Together, this elevates embodied knowledge, which may facilitate policy design and implementation that meets community need.[77]

Research Question and Aims

This study asks the following research question: What similarities and differences exist in national and state-level Medicaid gender-affirming care policies and policy environments, and how is gender-affirming care receipt related to social risk? I addressed this research question with three aims:

Aim 1: Assess person-centeredness in U.S. Medicaid gender-affirming care policies' coverage eligibility, covered services, rules for access to care, and language.

Aim 2: Identify configurations of state-level social, political, legal, and health system factors associated with different types of Medicaid gender-affirming care policies.

Aim 3: Examine changes in wages relative to the use of gender-affirming care in transgender and nonbinary Oregon Medicaid beneficiaries.

Frameworks and Theoretical Basis

Transgender and nonbinary health research must be informed by relevant frameworks and theory.[32,78] I summarize the frameworks and theory I used to guide my research in this section. I further describe the frameworks and theory and their application to my research in Chapters 2 and 3.

The Intersectionality Research for Transgender Health Justice framework illustrates the system wherein health for transgender and nonbinary people is produced.[69] It consists of three embedded levels that contribute to transgender health inequities: structures of domination, institutional systems, and socio-structural processes. Interconnected processes within each level are theorized to produce transgender health inequities. The Intersectionality Research for Transgender Health Justice also proposes research actions which can promote transgender health justice.[69]

The Gender Affirmation Framework was developed based on qualitative interviews with transgender women of color. It illustrates how gender affirmation—or the lack of it—impacts health and health-related behaviors.[32,79] This framework

complements the Intersectionality Research for Transgender Health Justice framework, which describes how embedded systems produce health outcomes.

Social Construction of Target Populations theory is a public policy process theory. This theory asserts socially constructed values and power dynamics shape and reinforce policy decisions about target populations. Target populations' political power (strong to weak) and social construction (positive to negative) are associated with types of policy designs.[78,80] Social Construction of Target Populations theory may explain how social and political values and environments are related to Medicaid gender-affirming care policy design.

Methods Summary

I addressed the aims using comparative, descriptive, and regression analysis. Together, they investigated what the Medicaid policies entail, what environments are associated with different policies, and why gender-affirming care is essential for transgender and nonbinary beneficiaries' wellbeing.

Comparative analyses

I addressed Aim 1 by conducting a comparative policy analysis and engaging community members to define policies' person-centeredness. I qualitatively compared policies from the 33 states and US federal districts with explicit Medicaid gender-affirming care policies for adult beneficiaries as of December 2022.[81] I reviewed policy content from states' Medicaid handbooks, program webpages, legislative documents, court decisions, and administrative rules. I compared policies across four domains: how

they operationalized gender identity-based eligibility (eligibility), what gender-affirming services they covered or excluded (comprehensiveness), what rules controlled access to care (accessibility), and how the policies described beneficiaries and gender-affirming care (language). I engaged four community members with diverse gender identities and experience navigating insurance coverage for gender-affirming care to incorporate their embodied knowledge into the policy analysis. This study systematically categorized policies' overall and within-domain person-centeredness, and produced resources meant to help Medicaid beneficiaries understand if their states' policies could meet their needs.

I addressed Aim 2 using coincidence analysis, a configurational comparative method used in implementation science.[82,83] I applied coincidence analysis to assess whether combinations of social and structural factors were associated with the policy categories identified in Aim 1's content analysis. I reviewed published studies to identify a preliminary list of state-level variables associated with Medicaid policy,[49,84,85] and included additional variables extrapolated from the Intersectionality Research for Transgender Health Justice framework. I conducted coincidence analysis to identify difference-making conditions for the two extremes of policy types I identified in Aim 1: moderately-high person-centered policies, and exclusionary policies. Given the federalism in states' policymaking for transgender and nonbinary populations,[55] I conducted this study to identify what state-level environments were associated with different types of Medicaid gender-affirming care policies. These findings may encourage intermediate change, such as the passage of housing or employment nondiscrimination laws, to facilitate downstream changes in Medicaid policy.[86-88]

Descriptive and regression analysis

I conducted a case study of Oregon because it was an early adopter of Medicaid coverage for gender-affirming care in January 2015, and preliminary evidence suggested Oregon Medicaid beneficiaries believed the policy increased their access to gender-affirming care.[89] I analyzed eleven years (2010-2020) of Medicaid administrative claims data linked to wage data for a cohort of 1,110 adult transgender and nonbinary Oregon Medicaid beneficiaries. I described changes in wages relative to individuals' gender-affirming care receipt, and conducted regression analysis to identify demographic characteristics associated with predicted wage changes. The goal of this analysis was to illustrate wage dynamics, a measure of social risk, relative to gender-affirming care receipt.

Significance

Transgender and nonbinary people experience health inequities and higher social risk relative to cisgender people.[2,10,12-18,21-24] Medicaid coverage for gender-affirming care may increase access to medical affirmation and consequently mitigate these inequities.[2,34-38,79]

My research focused on Medicaid coverage for gender-affirming care, a research priority identified by transgender and nonbinary participants across multiple studies.[39,71,72,89] This research was guided by frameworks specific to the transgender experience and theory that addresses the social and political valuation of transgender and nonbinary identities.[32,33,69,78,80] I integrated research actions that supported

transgender health justice, including incorporating knowledge from transgender and nonbinary people,[69] addressing research priorities identified by transgender and nonbinary communities,[70-72] and focusing on potentially positive outcomes.[39] Additionally, I undertook systems-level and social risk inquiry, which further advances transgender and nonbinary health research.[90]

Because this research was centered on community-identified research priorities, embodied knowledge, and transgender-specific frameworks, the findings promote data justice and social justice. The findings from this research may be useful to advocates and policymakers who seek to understand how Medicaid policy impacts beneficiaries and what sociopolitical environmental factors can be explored as potential levers for Medicaid policy changes.[40 86-88]

CHAPTER 2: REVIEW OF RELATED LITERATURE

This chapter reviews the literature on four transgender health research topics relevant to this dissertation: health outcomes in transgender and nonbinary populations; social risk in transgender and nonbinary people; gender affirmation; and health insurance coverage for gender-affirming care. Each section begins with an overview of the topic, delves into specific themes within the topic, and concludes with my recommendations for future research. Individual narratives from published literature are included in the latter three sections to describe relevant lived experiences. This chapter concludes by discussing two additional topics fundamental to this dissertation's design: person-centered care, with a focus on qualitative approaches and embodied knowledge; and theory and frameworks designed for or relevant to transgender and nonbinary people's experiences.

Health Outcomes in Transgender and Nonbinary Populations

Approximately 1.3-4.2 million United States adults, or an estimated 0.5-1.6% of the population, identify as transgender or nonbinary.[91,92] An estimated 38.5% identify as transgender women, 35.9% as transgender men, and 25.6% as nonbinary.[91] Although the exact population proportion is unknown, these 2022 estimates draw from robust national data sources: the Behavioral Risk Factor Surveillance System (BRFSS), which includes an optional sexual orientation and gender identity module that approximately half of all states administer,[8,91] and a Pew Research Center survey.[92] An estimated two-thirds of transgender men reside in the West (32.6%) and South (37.4%), whereas the majority of

transgender women reside in the West (33.7%), South (25.9%) and Midwest (29.7%), and nonbinary individuals concentrate in the Northwest (33.4%), South (27.1%) and West (26.5%).[10] The majority of transgender men (57.1%) and nonbinary people (31.7%) are aged 18-29 years, while most transgender women are between ages 18-29 years (28.5%) and 30-49 years (41.5%).[10] Three-quarters of transgender women live in urban areas, compared to nearly 90% of transgender men and nonbinary people.[10] It is important to note the estimates provided here are based on voluntary survey responses and design-weighted analyses. Sampling and response biases related to willingness to disclose may introduce misclassification errors.[93]

Transgender and nonbinary people living in the United States experience health inequities relative to cisgender people, and within the transgender and nonbinary community itself. These inequities are observed across probabilistic samples from BRFSS[8] and TransPop,[10,24] large national convenience samples including the 2015 U.S. Transgender Survey (USTS)[2] and 2008 National Transgender Discrimination Survey,[94] samples assembled from electronic health records or administrative claims using deterministic methods,[95-100] and community-based convenience samples.[101,102] This section discusses population health inequities statistics, mechanisms for these disparities, and knowledge gaps and research possibilities.

Between-population inequities

Numerous studies find transgender and nonbinary people experience significant differences in health status, disease burdens, access to care, and mortality risk than cisgender populations. Research drawn from BRFSS and health systems data consistently

finds that transgender and nonbinary populations have poorer physical and mental health,[12-14,17,103] lower preventive screening rates,[101,104] less access to health insurance and affordable care,[14,15] higher burdens of chronic conditions and disability,[105-107] and higher mortality[108,109] than cisgender populations. Transgender and nonbinary adults experience at least thirty percent higher odds of severe mental distress, total mentally and physically unhealthy days, and activity-limited days in the past 30 days.[12-14,17,103] Transgender and nonbinary individuals assigned either female or male sex at birth receive breast cancer screening at two-thirds the rate of cisgender people.[101] In BRFSS-based samples with similar eligibility for lung cancer screening, only 2.3% of transgender and nonbinary respondents received this preventive care compared to 17.2% of cisgender adults.[104] Transgender men and women and nonbinary individuals are significantly less likely to receive human papillomavirus vaccination and Papanicolaou smears than cisgender individuals.[102] Furthermore, compared to cisgender adults, transgender adults have nearly twice the odds of having no healthcare coverage.[10,14,15] Lack of health insurance is even higher in Black, American Indian, or Latino/a transgender and nonbinary individuals.[2]

Analyses of administrative claims and electronic health records suggest that diagnostic burdens of potentially disabling conditions are higher in transgender and nonbinary populations. Studies consistently find that transgender and nonbinary individuals have significantly higher overall proportions of mental health diagnoses than cisgender people.[97,98,105,106] For example, the frequency of diagnosed depression ranged between 49.0-67.4% in transgender and nonbinary samples compared to 13.0-22.3% in

cisgender groups.[98,105,106] Diagnosis of HIV/AIDS (1.5-11.2% vs. 0.3-0.4%) and substance use disorders (8.1-26.2% vs. 3.2-8.3%) is also markedly higher in transgender and nonbinary populations.[98,105,106] Higher diagnostic burdens are also observed for obesity (21.9-31.3% vs. 15.6-17.2%),[105,106] and may be due to body dysmorphia and body masking associated with gender identity.[110-112] Mortality rates also appear to be elevated in transgender and nonbinary populations. In an analysis of 2011-2019 private insurance data, at every age, transgender and nonbinary people had higher risk of death than cisgender people. The median age of death was 77 years in the transgender and nonbinary cohort compared to 84 years in the cisgender. The mortality rate was nearly double in the transgender and nonbinary group (standardized mortality ratio 1.80, 95% CI 1.67-1.93), and 42% of their observed deaths were estimated to be excess deaths.[109]

Research across a variety of populations and sampling methodologies consistently finds transgender and nonbinary populations experience health inequities relative to cisgender populations. However, these studies have several methodological limitations.[90] Because studies are mostly cross-sectional, limited estimation can be made for epidemiologic measures such as risk or incidence. Additionally, there are few nationally representative samples, which may limit findings' generalizability and external validity. Furthermore, comparability may be limited if gender identity definitions vary across studies. Finally, few population-based studies utilize community-engaged participatory methods. Community-engaged participatory methods may better elicit transgender and nonbinary people's needs, research priorities, and trust, and yield culturally-appropriate strategies to reduce health inequities.[113]

Within-population inequities

Whereas a gender-inclusive approach, which addresses gender-based health inequities across genders, identifies disparities compared to cisgender populations, a gender-specific approach is valuable for revealing health inequities that exist within the transgender and nonbinary population.[114] The gender-specific approach recognizes that transgender and nonbinary populations consist of non-homogenous people whose gender identities are behaviorally and culturally distinct from one another. Compelling evidence suggests that health outcomes manifest differently across gender identities, creating inequities within the transgender and nonbinary population.[114] Overall health, burdens of specific conditions, access to care, and mortality may differ between transgender men, transgender women, and nonbinary individuals. Intersectional identities such as race, ethnicity, residential geography, and socioeconomic position may contribute to health inequities.

Gender identity appears to impact health inequities. Across BRFSS, 2015 USTS, and TransPop analyses, transgender men and nonbinary individuals self-report worse general health than transgender women, and the odds of frequent mentally unhealthy days are approximately 1.5-2 times higher in transgender men than transgender women and nonbinary adults.[2,10,16,18] In BRFSS-based studies, transgender men and nonbinary adults have higher odds of multiple chronic conditions than transgender women.[17] In an analysis of the 2015 USTS, transgender men and nonbinary adults had thirty percent greater odds of unmet healthcare needs due to cost.[115] In contrast, analyses of electronic health records and administrative claims consistently find commercially-insured

transgender women have slightly higher diagnostic burdens of substance use disorders, tobacco use, and alcohol use disorders.[95,98,100] These studies suggest transgender men and nonbinary individuals tend to experience worse health and healthcare access than transgender women, but not in all contexts. Emerging evidence suggests transgender women experience greater satisfaction with their providers than transgender men, possibly contributing to the observed inequities.[116]

Demographic identities and positionalities appear to impact health inequities within the transgender and nonbinary population in patterns similar to cisgender populations. Relative to transgender and nonbinary individuals who identify as White, those who identify as Hispanic or Latino/a or multiracial are less likely to have health insurance or a regular primary care provider, and more likely to be diagnosed with substance use disorders and report cost barriers to care.[2,117-119] Black transgender women and nonbinary individuals assigned male sex at birth experience higher mortality than Black transgender people assigned female sex at birth.[108] Housing insecurity and lower household income are significantly associated with worse general health, poorer physical and mental health, and lower likelihood of seeing a physician in the past year in transgender and nonbinary populations.[2,118,120] In contrast, a college-level education, history of military service, older age, and identifying as religious or spiritual mitigates health inequities.[117,118]

Gender-inclusive and gender-specific approaches are valid for measuring health inequities between transgender or nonbinary people and cisgender populations and within the transgender and nonbinary community itself. Relatively less attention has

been given to within-population inequities due to methodological challenges in sampling and operationalizing diverse gender identities.[90] The inequities observed in the above studies suggest that the gender-specific approach identifies vital disaggregated patterns. These findings can be used to design interventions that are appropriately tailored to meet the needs of individuals with specific gender identities and other demographic characteristics.

Mechanisms for disparities

Multiple studies apply the Minority Stress Model to explain causal mechanisms for health inequities in transgender and nonbinary populations. As applied to transgender and nonbinary populations, the Minority Stress Model posits that distal discriminatory laws or regulations, proximal processes including the anticipation and expectation of gender identity-based threats, and internalized attitudes of transphobia and prejudice incur excess stress which affects mental and physical health.[19,20] Qualitative and quantitative studies validate the Minority Stress Model in transgender and nonbinary participants' reported experiences. These studies find identity concealment, internalized stigma, and expectations of rejection are associated with anxiety, hypervigilance, physical and mental exhaustion, and substance use.[10,21] Transgender and nonbinary people consistently describe avoiding necessary medical care because of fear of discrimination, distrust of the health care system, lack of transgender-competent providers, and cost.[2,116,121,122] As a participant in a focus group for transgender adults in Georgia explained, "When they [providers] misgender you, you already kind of think they, they are not in your corner. Like, I would think they are not taking this as serious."[122] In

contrast, those with providers who affirmed their gender identity and had knowledge of transgender-specific care are nearly twice as likely to receive wellness exams and half as likely to delay care due to fear of discrimination.[123,124] In an Indiana-based focus group, a 53-year-old transgender woman described her trust in her healthcare provider, "Well, I'm always open to my doctor. He's always open to me. So that was maybe what made him a good doctor, because I can tell him anything…about what's going on with me."[116]

Distal processes also impact health inequities. Discriminatory health insurance practices cause transgender and nonbinary people to skip necessary preventive care due to cost or fear of discrimination.[115,121,122,125] Conversely, favorable policy environments with nondiscrimination laws in insurance, employment, or housing are associated with greater healthcare access.[44,45,89,124] Additional attributes of identity and positionality, including gender identity, race, ethnicity, household income, and educational attainment further impact healthcare seeking behaviors, perceived quality of care, and satisfaction with care.[116,118,124] In the transgender and nonbinary population, minority stress experiences may lead to the avoidance of necessary health care, decreased wellbeing, and persistent harm.[19,21]

Studies across varied contexts applied the Minority Stress Model to understanding causal mechanisms for health inequities in transgender and nonbinary people. Findings from national probability samples,[10,48] transgender veterans,[126,127] transgender women undertaking sex work,[121] and geographically diverse convenience samples[21,116,123,124,128] applied and validated this model. Distal, proximal, and internalized stressors were all associated with negative health outcomes. Whereas distal stress

processes are observable and directly intervenable,[19] qualitatively-reported experiences demonstrate proximal and internalized stress can also be mitigated.[116]

Knowledge gaps

From my literature review, I identify two primary knowledge gaps in research on health inequities in the transgender and nonbinary population. First, the existing research tends toward a positivist ontology and epistemology. A positivist research paradigm believes functional relationships can be derived between explanatory factors and outcomes. Positivist inquiry attempts to generate explanatory associations that can used to predict the phenomena of interest.[129] Positivist ontology assumes a single measurable reality exists, and positive epistemology asserts knowledge can be developed objectively.[129] In contrast, an interpretive approach might be more relevant for understanding health inequities in the transgender and nonbinary population. The interpretive paradigm believes the nature of reality is socially constructed and contextual. Its epistemology views causality as occurring through multiple, simultaneous processes.[130] This approach is relevant for health equity research. Life experiences are context-specific, and individuality and heterogeneity in transgender and nonbinary people's experiences are sensitive to broader structural, cultural, and political events. To date, few studies have utilized an interpretivist, life course approach to understand the timing and importance of themes such as gender exploration and revelation, gender-affirming medical care, community involvement, and socioeconomic position.[131,132] An interpretive approach would enhance and complement findings obtained from positivist inquiry.

Second, future research must utilize designs and methods which estimate incidence and risk and support causal inference about transgender and nonbinary health.[90] While rich qualitative narratives describe factors that impact individual healthcare access and wellbeing, most studies are cross-sectional. Few studies have utilized longitudinal designs to facilitate causal inference about transgender and nonbinary population health. Notable exceptions include a study which analyzed nine years of commercial insurance claims and used a difference-in-differences approach to estimate the impact of a change in states' nondiscrimination policies on suicidality and inpatient mental health hospitalizations,[37] and a study which used nine years of commercial insurance claims to identify differences in mortality risk.[109] Prospective, longitudinal studies which include a variety of gender identities and demographic diversity can estimate measures of incidence and risk, support causal inquiry, and identify targeted health interventions.[90]

Social Risk in Transgender and Nonbinary People

Social risk factors are specific adverse social conditions associated with poor health that are amenable to intervention at an individual level. These include housing instability, food insecurity, lack of transportation, difficulty paying for utilities, interpersonal safety, financial strain, employment difficulties, family and community support, and educational retainment.[22,23] Social risk factors differ from social determinants, which are conditions in the environments where people live, work, learn, socialize, and access healthcare. Unlike social risk factors, which adversely affect health

on an individual level, social determinants can shape population health positively or negatively.[133] Focusing on social risk centers individual experiences and demographic diversity, rather than aggregation into population statistics. This section describes transgender and nonbinary individuals' experiences of social risk, describes hypothesized mechanisms that increase social risk, and highlights interventions that decrease social risk in transgender and nonbinary people. This section ends by describing knowledge gaps and potential directions I identify for future research.

Social risk experiences

High proportions of transgender and nonbinary people report experiencing social risk. Among the nearly twenty eight thousand respondents to the 2015 USTS, nine percent experienced insecure housing, 46% graduated from college, and one third lived in a household with less than $25,000 annual income.[118] Similar experiences were reported in the 2010 U.S. Social Justice Sexuality Survey[134] and 2008 National Transgender Discrimination Survey,[135] suggesting the persistence of social risk during this period. Social risk is even higher among transgender and nonbinary people occupying vulnerable socioeconomic positions. In a sample of 271 transfeminine [sic] adults living Los Angeles County who reported any alcohol or drug use disorders or condomless anal intercourse in the previous six months, self-reported social risk was extremely high. During the 2015-2016 sampling frame, 14.8% of participants reported being homeless, 77.5% earned less than $1000 in the previous month, and 32.8% undertook transactional sex as their main source of income.[136] Among transgender women participating in the 2008 National Transgender Discrimination Survey, those who were Black or Native

American/Alaskan Native were more likely to experience incarceration than non-Hispanic White respondents. In this sample, history of incarceration was associated with increased risk of negative health indicators, such as HIV infection.[137]

Social risk appears to be higher in transgender and nonbinary people compared to cisgender peers. In U.S. transgender veterans using Veterans Health services during 2013-2016, one-fifth experienced housing instability, compared to less than seven percent in cisgender veterans, after adjusting for sociodemographic attributes.[138] Whereas one-third of respondents to the 2015 U.S. Transgender Survey report living in a household with less than $25,000 annual income, the U.S. Census estimated 22.1% of all households lived at this threshold in 2015.[139] Compared to the 46% college graduation rate reported by USTS respondents, an estimated 64% of the general U.S. population attained a bachelor's degree in 2020.[140] Higher burdens of social risk are associated with adverse health outcomes; elevated individual-level social risk may explain some of the health inequities observed in transgender and nonbinary populations.

Lower social risk is associated with better health outcomes in transgender and nonbinary people. Among transfeminine [sic] participants in the Los Angeles study described above, those with access to stable housing and health insurance were more likely to receive gender-affirming hormones from a licensed provider, which reduced the risk of potentially harmful self-medication.[136] U.S. Social Justice Sexuality Survey respondents with higher education, older age, and greater community connectedness reported higher levels of wellbeing.[134] Feelings of interpersonal safety are a highly relevant social risk for transgender and nonbinary people. A USTS respondent explained,

"I changed jobs from a high-paying one where I was not comfortable being out as a trans person to a much lower-paying one where I felt that my identity would be respected. Having a job where my gender identity is respected consistently, where I don't have to constantly fight for myself or hide myself, has improved my quality of life more than any other aspect of my transition."[2] For this individual, social risk resulting from interpersonal safety was more important than a higher income.

The literature demonstrated transgender and nonbinary people experience pervasive social risk. These risks were observed in a variety of demographics and settings. In the studies described above, individuals who reported experiencing multiple social risks, such as housing insecurity and low income, consequently coped with higher risky health contexts, such as undertaking sex work. Transgender and nonbinary people particularly emphasize the importance of social support, interpersonal safety, and community relative to other social risks, including income and housing stability.[2,113,141]

Literature documenting social risk in transgender and nonbinary people has notable strengths, and some minor limitations. Perhaps the biggest strength for this body of knowledge is many studies utilized community-engaged research methods.[142] Indeed, one study acknowledged their community advisory board identified a meaningful change to the original interview guide which better elicited respondents' experiences in a second and third round of interviews.[141] The published literature also contains ample informative quotes illustrating gender identity-based nuances in social risk experiences. One minor limitation of these studies is although social risks occur at an individual level, studies reported summary statistics for the entire sample. Although this practice does facilitate

comparison, it somewhat conflates individual experiences. Despite this limitation, literature documenting social risks in transgender and nonbinary populations evince their burden and consequences.

Mechanisms for social risk

Interpersonal and structural discrimination are theorized to increase social risk for transgender and nonbinary people. Interpersonal discrimination may stifle social belonging, self-esteem, professional opportunity, and educational attainment, which consequently affects wellbeing and health.[25,113] Examples of interpersonal discrimination include being verbally harassed or disrespected, physically attacked, or denied equal treatment based on one's transgender or nonbinary identity.[143] Structural discrimination consists of macro-level conditions that limit people's opportunities, resources, power, and wellbeing based on their personal and demographic attributes.[144] Examples of structural discrimination include employment, housing, education, and public accommodations policies that specifically target transgender and nonbinary individuals.[25,143] Social risk factors often interact, reflecting the complexity of intersectionality and experience.[145] For example, the above quote from a U.S. Transgender Survey respondent illustrates that although income impacted their quality of life, the respondent valued interpersonal safety and employment stability over higher income.[2] For transgender and nonbinary people, social risks from interpersonal safety and community connectedness may outweigh socioeconomic social risks.

A moderate body of research examines hypothesized mechanisms for social risk. Because social risk occurs at an individual level, research tends to comprise qualitative

narratives describing social risk experiences. While an interpretivist approach is certainly valid for understanding social risk, positivist research could be used to formally test causal mechanisms. Although minimal research applies a positivist approach, the hypothesized mechanisms of interpersonal and structural discrimination do plausibly appear to increase social risk in transgender and nonbinary people.

Examples of interventions to mitigate social risk

Emerging research demonstrates that interventions are highly effective at reducing social risk for transgender and nonbinary people. Implementation of a sexual health curriculum intended to provide a safe, supportive, and inclusive environment for transgender and nonbinary students in Chicago Public Schools led to increased uptake of affirming sexual education instructional activities.[27] Unprompted, one teacher added an introductory statement about sexual practices that separated concepts of sexuality from gender identity. Transgender and nonbinary students remarked this teacher's instructional method affirmed their identities and caused them to be more engaged and comfortable with the sexual health curriculum, while cisgender students stated this instruction helped them be better allies.[27] Qualitative interviews with adult transgender women living in Southern U.S. who were economically vulnerable and at high risk for HIV infection examined their preferences for financial assistance. Participants favored unrestricted microloans, and stated the loans would be used to support job acquisition, financial health, gender empowerment, and access to gender-affirming care.[28] In Project LifeSkills, a behavioral HIV prevention intervention conducted among 190 sexually active young transgender women living in Boston or Chicago in 2016, the prevention curriculum

was designed using a community-participatory approach and used an empowerment framework which focused on securing safe housing, accessing medical care, and obtaining employment to reduce HIV risk. Within participants receiving the intervention, the number of condomless sex acts and sexual partners significantly decreased over the 12-month follow-up period.[29] In a 2016 intervention which provided transgender cultural and clinical competence training to healthcare providers working in correctional settings, intervention components addressed providers' knowledge, attitudes, subjective norms, self-efficacy, and skills in providing gender-affirming care to incarcerated transgender people. One module specifically discussed the risks and long-term health effects of incarceration for transgender people to help providers understand the importance of gender-affirming care in carceral settings. Providers' willingness to provide care to incarcerated transgender patients, cultural and clinical competence and knowledge all increased immediately post-intervention.[30] All these interventions directly or indirectly incorporated gender affirmation. This supports the relationship between gender-affirmation, lower social risk, and health and wellness in transgender and nonbinary individuals.

Research identifying interventions to address social risk in transgender and nonbinary people is an emerging topic; few studies have been published. Most studies focus on interventions in transgender women, whereas fewer address social risk in transgender men, nonbinary people, or other gender identities. Still, the existing literature identifies several promising characteristics. All studies directly involved target populations in designing interventions. Interventions which incorporate gender

affirmation and self-sufficiency appear to be effective and preferred. While most interventions were implemented specifically in transgender communities, the sexual health curriculum intervention created an intriguing secondary positive effect among cisgender students.

Knowledge gaps

Social risk in transgender and nonbinary people is well documented. Future research can build on emerging knowledge to identify additional characteristics of successful interventions. Participants in intervention studies discussed the importance of peer educators and acknowledging intersectionality and demographic diversity. For example, a 20-year-old transgender woman with part-time employment commented on advertisements for a potential microloan campaign: "As long as you, like, get like, different kinds of trans people. Like, don't have, like, five White trans girls who are, like, in their 20's or like, are older and have already completely transitioned or whatever. Make sure there's, like uh, voices for different transgender women of color."[28] Future research should also weigh the benefits of interventions' efficacy in specific individuals and contexts versus effectiveness and efficiency in broader gender-inclusive[114] settings.

Gender Affirmation

Gender affirmation is conceptualized as occurring across four core constructs: social, psychological, legal, and medical affirmation.[7] Social affirmation may include processes such as the choice of name and pronoun, and interpersonal acknowledgment of one's identity. Psychological affirmation includes the internalized sense that one's

gender identity is respected and validated, and resistance of internalized transphobia. Legal affirmation includes actions that legally affirm one's gender identity, including legal name changes, changes in gender on record, and relevant laws. Medical affirmation comprises medical services that affirm one's gender identity, including counseling, hormone therapy, surgery, and voice therapy.[7]

Because my dissertation focuses on coverage for gender-affirming care, this section concentrates on medical gender affirmation. In this section, I use the terms demand and need interchangeably to indicate the necessity of these services. I avoid using the term "want" because it suggests that these services are optional.[146] Medical gender affirmation is an individual experience, rather than a standard process; the goal might not be cisnormative endpoints such as a binary gendered appearance.[2,4,31]

This section reviews literature regarding the gap between the demand for and availability of medical gender affirmation. This section also summarizes observational studies on the effects of medical gender affirmation. It concludes with a discussion of knowledge gaps and future research possibilities.

Demand for vs. availability of medical gender affirmation

There is a substantial gap between the demand for medical gender affirmation and its availability. Among USTS respondents, 77% report needing counseling or mental health therapy to support their gender identity or gender transition, but only 58% had received it. Unmet need for gender-affirming hormones is also high: 95% of transgender men and women report needing hormone therapy, while 71% had ever received it, compared to 49% and 13%, respectively, among nonbinary respondents. Forty two

percent of transgender men, 28% of transgender women, and 9% of nonbinary respondents had ever received any gender-affirming surgery, whereas at least 40% of all groups report unmet medical need for this care.[2] Although unmet need remains high, the rates of gender-affirming hormone and surgery receipt observed in the 2015 USTS are higher than those reported in the 2008 National Transgender Discrimination Survey (57.3% and 32.6%, respectively),[2,135] suggesting some improvement over time. Analyses of administrative data also demonstrate increases over time in use of gender-affirming hormones and genital, breast/chest, sex organ removal, facial contouring, or other surgeries among commercially-insured beneficiaries.[147-151] While the demand for gender-affirming medical care is high, empirical evidence suggests its availability is increasing.

Key barriers to medical gender affirmation include insurance denials of care,[2,89,116,152] cost barriers,[2,71,116,122,153-156] lack of accessible or available gender-affirming care providers,[2,71,89,122,154,155,157,158] and mistrust or fear of the healthcare system.[89,116,122,152,154,158] Forty percent of USTS respondents report all of their current health care providers know they are transgender, but 31% are not out to any of their providers.[2] Among TransPop respondents, nearly one-third of transgender men or women, and over two-thirds of nonbinary individuals report not having a healthcare professional providing their gender-affirming care.[10] Conversely, facilitators to gender-affirming care include access to culturally-competent providers,[89,116,124,152,159] health insurance coverage for gender-affirming care,[89,116,124,152,159] social networks and patient advocates who facilitate care navigation,[89,159] use of an informed consent model that emphasizes bodily autonomy,[89,116,152,159] and convenient proximity to care.[89,152,159] A

White, 35-year-old trans woman [sic] participating in a qualitative study of gender-affirming care received through family planning clinics, described the ideal provider as "Not only willing to listen to trans people who are coming in seeking care, but that you've already done a lot of the legwork, that you've talked to places that are already doing this work. Not trying to just go off the barest standards, but are actively trying to keep up with research and understand when new evidence arrives that might need to change the standard of care…Trying to understand the diversity of the population who needs this care."[152]

Ample literature examines the demand for and availability of gender-affirming medical care. These studies use both positivist and interpretivist approaches, generating a wealth of quantitative and qualitative knowledge. Positivist research quantifies the degree of demand and unmet need. Interpretivist approaches tend to examine reasons for seeking medical gender affirmation, and experiences obtaining care. Together, both approaches indicate the high demand for services, and identify common facilitators and barriers to care across transgender and nonbinary people's experiences.

Positive impacts of medical gender affirmation

Medical gender affirmation leads to a breadth of health and wellness benefits. Mental health benefits,[2,160-164] decreases in substance use disorders,[160,164] lowered risk of eating disorders,[165] increases in satisfaction and health empowerment,[79,158,166] improvements in social and romantic relationships,[161] and employment retention[2,161] have all been documented. In fact, a cost-effectiveness study estimated insurance coverage for medical gender affirmation could reduce the risk of negative health

outcomes such as HIV infection, depression, drug abuse, and mortality at an incremental cost-effectiveness ratio of $9,314 per quality-adjusted life year, and the budget impact of covering gender-affirming care was approximately $0.016 per member per month.[167] A transgender woman participating in a Montana-based focus group expressed how her medical affirmation improved her health, reinforced her psychological affirmation, and helped her sense of interpersonal connectedness. "I would say my current physical health is better. Better than it's been in the past if for no other reason [than transitioning], I have a lot less stress in my life now. So I feel better than I've ever felt. That's just like an overall wellbeing feel better, but I think a lot of that has to do with stress and the lack of it in my life now. Versus before knowing that you need to do this thing [transition], but you're…just stressed about coming out to people and stuff like that. Now that that's kinda not there at all, I feel great…The first time I came out to somebody, it was like the biggest breath of fresh air."[141]

Similar to research examining the demand for and availability of gender-affirming care, studies investigating the impacts of medical affirmation applied both positivist and interpretivist approaches. A modest but compelling range of health and social risk outcomes were studied. Interpretive research using qualitative methods collected narratives about transition processes and effects. These studies identified intangible positive effects, including relief, satisfaction, and health empowerment. Positivist approaches supported interpretivist findings by examining associations between medical affirmation and outcomes, and suggesting some generalizable benefits. The existing literature strongly supports the value of medical affirmation, and reports of transition

regret are extremely rare.[168] Overall, the literature indicates overwhelmingly positive impacts of medical affirmation.

Knowledge gaps

I identify four knowledge gaps after reviewing the medical gender affirmation literature. First, minimal research investigates the demand for and availability of this care in economically vulnerable transgender and nonbinary populations. In an analysis of 2014-2019 BRFSS data, 58.2% of transgender respondents reported earning under 250% of the federal poverty level compared to 36.8% of cisgender men and 46.3% of cisgender women. Although one quarter of transgender and cisgender respondents reported being covered by public insurance, which includes Medicare and Medicaid, the proportion of transgender respondents with no insurance (23.3%) was significantly higher than the proportions among cisgender men (16.1%) or women (12.8%).[169] Given Medicaid's potential to assist beneficiaries experiencing economic or medical precariousness, as well as the rapidly changing Medicaid policy landscape, it is imperative to understand whether Medicaid coverage for gender-affirming care addresses medical need and impacts social risk and health inequities in transgender and nonbinary beneficiaries. Second, research must assess a breadth of gender-affirming care beyond gender-affirming hormones or surgeries. For example, the majority of transgender men and women, and nearly one quarter of nonbinary people, report needing facial surgery and voice therapy.[2] However, research has not investigated these services in depth despite emerging evidence suggesting affirming facial and voice care positively impact wellbeing and safety.[170] In fact, transgender and nonbinary people describe a range of care as medically necessary,

including chest compression garments and menstrual cups.[159] Research must acknowledge the diversity of transition experiences and needs. Third, medical affirmation must be examined in relation to other affirming processes. For example, social and legal affirmation comprising formal and informal changes in gender markers and name are associated with better mental health and greater likelihood of seeking medically-necessary care.[99,152,171,172] Even though the above quote from a transgender woman in Montana described her tandem processes of medical and psychological affirmation,[141] qualitative and quantitative research rarely examines the joint impact of multiple sources of affirmation. Finally, given the compelling evidence supporting medical affirmation's benefits, future research can investigate whether medical affirmation reduces health inequities and social risk. Positive research findings could be used to justify health insurance coverage as a means to increase access to medical affirmation.

Health Insurance Coverage for Gender-Affirming Care

Health insurance coverage for gender-affirming care is a recent policy change.[68,173,174] These policy changes involve varied federal and state agencies, including the Centers for Medicare and Medicaid Services, Veterans Health Administration, state insurance boards, state Medicaid programs, commercial insurance plans, and occasionally states' judiciary and legislative branches.[174,175] Consequently, policies may be sensitive to political, economic, and social beliefs, resulting in a variety of policies spanning overt coverage for medical gender affirmation to explicit prohibitions on this care.

This section builds on the subject of medical gender affirmation by examining a policy which potentially addresses demand for and availability of services: health insurance coverage for gender-affirming care. This section covers four topics. First, it summarizes recent historical policy changes resulting from the passage of the Patient Protection and Affordable Care Act (ACA). Then, it reviews literature regarding the effects of health insurance coverage for gender-affirming care. Next, it summarizes methods and results from published comparative policy analyses of private and public insurance coverage for gender-affirming care. Last, it revisits the politicized nature of coverage and examines research investigating state-specific factors that affect Medicaid policies for this care. This section concludes by identifying knowledge gaps and areas for future research.

The Affordable Care Act and its impacts on coverage for gender-affirming care

The 2010 passage of the ACA catalyzed the modern-era debate over health insurance coverage for gender-affirming care.[68,175] Section 1557 of the ACA was the first federal civil rights law to prohibit discrimination on the basis of sex in health care.[176] These coverage reforms, and Medicaid expansion in 2014, substantially increased Medicaid enrollment among transgender people.[177] In 2016, the U.S. Department of Health and Human Services updated the interpretation of the Section 1557 Final Rule to specify its sex nondiscrimination provision included nondiscrimination based on gender identity, and explicitly prohibited federally-funded insurers—including Medicaid, the Veterans Health Administration, and Indian Health Service—from categorically excluding all types of gender-affirming care from coverage.[81] However, in 2020, a different

presidential administration issued a Final Rule which reversed the 2016 mandate and removed nondiscrimination protections based on gender identity.[174] In 2022, under yet another presidential administration, the federal government proposed a Rule reinstating protections on the basis of gender identity.[81,178] Federal oscillations echoed at the state level, with many state Medicaid programs granting or prohibiting gender-affirming care coverage during this decade.[58,81]

In addition to expanding Medicaid eligibility, the ACA also subsidized individual insurance purchased through private insurance marketplaces.[179] These insurance programs were required to comply with ACA mandates. Thus, the policy effects spread. In 2011 the Veteran's Health Administration published a directive stating, "medically necessary care is provided to enrolled or otherwise eligible intersex and transgender Veterans including hormonal therapy, mental health care, preoperative evaluation, and medically necessary post-operative and long-term care following sex reassignment surgery."[175,180] In 2012, insurance regulators in 17 states and Washington DC amended their policies to clarify that insurance exclusions specific to transgender people were prohibited under state law.[173] As of December 2022, 24 states and Washington, D.C. implemented Medicaid policies explicitly covering some form of gender-affirming care, 9 states explicitly ban coverage, and 17 states have no specific policy.[58,81] Twenty-two states prohibit private health insurance discrimination based on gender identity, while Arkansas law explicitly permits private insurers to refuse to cover gender-affirming care.[58] Legal opposition to covering gender-affirming care gels around three tactics: labeling transgender or nonbinary identity as a "preexisting condition"; deeming gender-affirming

care as cosmetic or experimental; or restricting access through medical necessity review.[181]

Effects of coverage for gender-affirming care

This section describes four topics in the literature examining the effects of coverage for gender-affirming care: decreased cost barriers, increased receipt of medical affirmation, downstream effects on health and wellness, and increased overall health insurance enrollment. This section ends with a synthesis of studies' rigor, validity, and limitations.

Decreased cost barriers. The increase in coverage for gender-affirming care is promising because of its positive impact on access to medical affirmation. One of the most immediate effects of coverage is decreased cost barriers to obtaining gender-affirming care. An analysis of National Inpatient Sample data indicates that self-pay was the most common form of financing inpatient gender-affirming surgery during 2008-2013 relative to private insurance, Medicare, or Medicaid. The proportion of self-pay decreased and insurance coverage increased over 2014-2015, and by 2016-2017 the four payment methods were equally likely to cover this care.[182] Analyses of commercial insurance claims estimated lifetime costs of $2,175 for gender-affirming mental health care and $4,350 for gender-affirming hormones,[167] and a mean total cost of $28,367 for each gender-affirming surgery.[147]

Increased receipt of medical affirmation. Coverage may increase the receipt of gender-affirming care. A study using 2000-2018 National Inpatient Sample data evaluated the effect of the 2016 Section 1557 Final Rule, which prohibited federally-funded insurers

from categorically excluding coverage for all gender-affirming care. Using an interrupted time series analysis, the study estimated an additional 69 people per year received inpatient gender affirming surgery in states that implemented Medicaid or private insurance coverage for this care.[183] Comparable findings were observed wherein coverage for gender-affirming hormones is associated with higher prescribed hormone use and lower use of potentially unsafe nonprescription hormones.[45,184] Coverage for affirming counseling and therapy also increases their use.[45] However, some participants in qualitative studies describe limited availability of gender-affirming care even in states with insurance coverage due to lack of proficient providers,[71,89,116,124,152,158,166] service restrictions,[89,116,152,166] or difficulty accessing coverage information.[124,166]

Downstream effects on health and wellness. In addition to decreasing cost barriers and increasing availability of services, coverage for gender-affirming care may impact health and wellness. In an analysis of privately-insured transgender and nonbinary beneficiaries, suicidality significantly decreased in the first year after implementation of a private health insurance nondiscrimination policy. Borderline significant decreases were estimated in the second postimplementation year, while mental health hospitalization generally decreased or stayed stable after the policy change.[37] In an analysis of transgender women living with HIV in Memphis, Tennessee, viral suppression was up to 96% higher among those using gender-affirming hormones.[185] In a multistate study of transgender women of color living with HIV, structural equation modeling estimated medical gender affirmation contributed to healthcare empowerment, and medical gender affirmation in combination with healthcare empowerment fully mediated the

negative effect of transgender-related discrimination on viral suppression.[79] In a latent factor analysis of Black transgender women living in Atlanta, Georgia, medical affirmation was positively associated with recent healthcare use and current general health, and negatively associated with past year suicidal ideation and recent psychological distress.[34] Indeed, cost-effectiveness modeling suggests health insurance coverage for gender-affirming care has minimal budget impact at a cost of $0.016 per member per month at a threshold of less than $10,000 per quality-adjusted life year compared to no coverage.[167] These studies suggest coverage for gender-affirming care immediately impacts the availability of medical affirmation, and has downstream effects on mental health and quality of life.

Increased overall health insurance enrollment. Health insurance coverage for gender-affirming care may have the effect of increasing overall health insurance enrollment in the transgender and nonbinary population. Analyses of public and private health insurance administrative claims estimated the number of beneficiaries identified as transgender noticeably increased after Medicaid expansion in 2014 and implementation of Section 1557 nondiscrimination provisions in 2016.[99,100,186]

In the general U.S. population, increased access to insurance coverage is associated with decreases in racial or ethnic inequities in preventable hospitalizations and emergency department visits,[187] increased use of primary preventive care,[188-191] and improved health in vulnerable subpopulations such as children, individuals with AIDS, or low-income adults.[192] Unsurprisingly, access to health insurance coverage is also associated with positive health outcomes in transgender and nonbinary beneficiaries.

Studies document improved mental and physical health,[193] reduced cost barriers,[116,124,194] and higher utilization of primary care and mental health providers.[118,124,193-195] For example, economists analyzed 2014-2020 BRFSS data using a regression discontinuity design and estimated transgender and nonbinary individuals who gained insurance coverage through age 26 years under the ACA expansion experienced a 31.2% decrease in the likelihood of reporting poor general health, and a 65.8% decrease in the likelihood of being unable to see a doctor due to cost.[193] Literature suggests the ACA's gender identity-based nondiscrimination mandate was associated with increased health insurance enrollment and subsequent improvements in overall health.

Synthesis. A robust body of literature examines the effects of coverage for gender-affirming care. These studies span positivist, interpretivist, and critical research paradigms, and comprise demographically and socioeconomically diverse samples. The studies demonstrate coverage for medical affirmation decreases cost barriers and increases availability of services. However, some qualitative study participants mention insurance coverage imperfectly addresses demand for and availability of medical affirmation. Studies also suggest coverage for gender-affirming care may be associated with downstream improvements in health due to medical affirmation and reduction in gender identity-based discrimination. Coverage for gender-affirming care may also be associated with increased insurance enrollment among transgender and nonbinary people. In this population, qualitative and quantitative studies suggest insurance enrollment is associated with increased access to primary care and improved mental and physical health.

The published literature has three limitations. First, studies rarely conduct longitudinal analyses to investigate temporal phenomena, such as natural experiments created through policy changes. Although participants in qualitative studies describe how policy changes have affected them, few observational studies confirm these findings at a population level. Second, relatively few studies utilize a critical research paradigm. The critical research paradigm's ontology believes society is full of inequality and injustice; its epistemology seeks knowledge through uncovering justice and empowering citizens. Although some qualitative studies use this paradigm, they rarely address how participants or allies can change the nature of coverage for gender-affirming care. Thus, while studies establish foundational knowledge, they do not evolve future policy change. Similarly, a final limitation of the published literature is the studies describe and assess single-chain causal events. That is, the studies examine whether coverage for gender-affirming care produces the outcome Y. In reality, the effects of this policy change are likely sequential:[196,197] coverage for medical affirmation induces the immediate outcome Y1, which then induces the distal outcome Y2, etc. Despite these limitations, the published literature appears to be rigorous and valid.

Published comparative policy analyses for gender-affirming care

Given the likely benefits of coverage for gender-affirming care, it is important to understand policy variability. Comparative policy analysis is a method for inductively comparing similar policy issues across different contexts to identify trends and patterns.[198] I conducted a scoping review of literature indexed in PubMed and identified thirteen published comparative analyses of insurance coverage for gender-affirming care.

I then grouped the comparative analyses according to how they evaluate the policies. I identified three broad types of comparisons: basic assessments of coverage,[49,63,64,66,199-203] moderately detailed analyses of qualifying criteria for care,[199,201,204-207] and patient-modeled searches for care.[49,205] This section describes findings from each type of evaluation. Studies that perform multiple analyses, such as a basic assessment of coverage and a more detailed analysis of qualifying criteria, are mentioned across multiple groups.

Nine studies perform basic coverage assessments. These studies assess a limited or generic set of services and categorize the policies according to simple coverage rubrics. Four studies assess state-specific Medicaid coverage for gender-affirming hormones and surgery,[49] facial surgeries,[63,64] hair removal,[66] or general gender-affirming surgeries.[63,202] Three studies assess commercial insurance policies regarding mastectomy (also termed "top surgery"),[206] voice therapy services,[199] and facial surgery and body modification.[201] Eight of the nine studies categorize the policies as covered benefit, not a covered benefit, or indeterminate,[49,63,64,199,201-203,206] and occasionally include a "preauthorized" category, meaning coverage for the service depends on prior authorization from the insurance company on a case-by-case basis. Only one study distinguishes beyond these few categories with additional details regarding medical necessity criteria.[66]

Six studies, including two that perform basic coverage assessments, undertake moderately detailed analyses of qualifying criteria for care. Five of these studies assess commercial insurance policies,[199,201,204-206] while one evaluates Medicare Advantage

formularies.[207] All five commercial insurance analyses evaluate the presence or absence of prerequisite criteria recommended by the World Professional Association for Transgender Health's (WPATH) Standards of Care, Version 7, published in 2012. These criteria include referrals from mental health professionals, diagnosis of gender dysphoria, age of majority, continuous living in a specific gender role for a minimum duration (often one year), and a specified order of care (e.g., gender affirming hormones prior to surgery). Transgender and nonbinary individuals needing medical affirmation have asserted the WPATH standards restrict their bodily autonomy.[166] One participant in a Colorado-based focus group explained, "What I was really worried about when I started treatment was that it would be like basically a constant test, like the thing with the gatekeeping, that you would be constantly proving that you're trans enough."[166] The only recommended prerequisite the latest version of the WPATH Standards of Care, published in 2022, removes is the age minimum.[1] The sole Medicare Advantage analysis assesses whether coverage for gender-affirming hormones is subject to prior authorization, step therapy, or quantity limits.[207]

The two studies which perform patient-modeled searches for care were also included in the prior summaries. Both studies characterize the ease of accessing and understanding coverage documents.[49,205] One study investigates Medicaid coverage for gender-affirming hormones or surgeries using a three-step process that mimics a beneficiary's care-seeking behavior.[49] First, the authors performed an internet search of state Medicaid policy documents to determine whether the service was covered. If uncertainty occurred, the authors then called the state Medicaid program office to

confirm coverage for the service. If the representative was unable to definitively answer, the authors then called state Medicaid Managed Care plan offices, or called providers whose internet profiles indicated they provided gender-affirming hormones or surgeries and asked if they had ever successfully received Medicaid reimbursement. The authors categorized states according to which step yielded the desired information. For example, 12/51 states' hormone policies and 16/51 states' surgery policies could be determined from an internet search of state Medicaid policy documents in the first step.[49] The other study reviews 40 corporate insurance contracts and groups them based on the ease of accessing and understanding the policy.[205] Contracts' policies are rated as "Clear" if they include a discussion of gender dysphoria with an affirmation of coverage, reference the WPATH Standards of Care, enumerate exclusions beyond a generic statement of cosmetic/experimental/investigational exclusions, and clearly indicate coverage. "Silent" policies are those that had neither a gender dysphoria section nor a specific exclusion, had no other language related to transgender health, and did not confirm coverage for gender-affirming health care. "Ambiguous" policies had neither a gender dysphoria section nor a specific exclusion, but implied coverage for gender-affirming care (e.g., travel reimbursement for gender-affirming surgery). "Excluded" contracts had a total exclusion on all gender-affirming care.[205] Unlike the basic coverage assessments and modest analyses of coverage criteria, the two patient-modeled study methods were immediately relevant to a transgender and nonbinary audience.

I identified a moderate number of comparative policy analyses, all of which were published during or after 2020. Over half the analyses undertake very basic coverage

assessments. Basic coverage assessments illustrate the national landscape but lack nuance. For example, studies of whether "any gender-affirming surgeries" are covered mask whether those services comprise a narrow or comprehensive array. Only two studies conduct patient-modeled searches. These studies are especially useful for transgender and nonbinary beneficiaries to understand how easily information can be accessed. However, these methods do not evaluate whether the policy content meets demands for gender-affirming care. All studies use positivist epistemology to evaluate policy content according to rules and quantifiable measures. One critique of comparative policy analyses is that they omit social, political, and environmental contexts that contribute to the specific problem and policy.[198] This critique extends to the positivist approach. Despite this limitation, the published comparative policy analyses are a useful foundation for understanding the current policy landscape and identifying additional areas of inquiry, such as additional barriers to gender-affirming care that cannot be overcome by coverage alone.

Factors that affect Medicaid coverage for gender-affirming care

Medicaid coverage for gender-affirming care is important to understand for several reasons. First, the policy removes cost barriers, which are especially salient in Medicaid beneficiaries who qualify on the basis of income. Second, Medicaid serves transgender and nonbinary beneficiaries who likely experience high social risk. Third, because states operate their own Medicaid programs within broad federal guidelines,[51] Medicaid policies for transgender and nonbinary people reflect states' social and political values.[55] These values may include whether Medicaid is framed as a health insurance

program or welfare program,[208] value judgements about deservingness,[54] the dependence of gubernatorial ratings on Medicaid policy,[53] and whether states expanded Medicaid under the ACA.[177] The Medicaid Act gives states significant discretion to decide what services their programs will cover, and rulemaking procedures can differ across states.[181] This third reason is especially important to examine, as it may reveal ways in which states' environments contribute to Medicaid gender-affirming care policies, and whether environmental changes will produce policy changes.

Emerging research identifies state-level factors associated with insurance coverage for gender-affirming care. Multiple studies find positive associations with gender identity nondiscrimination laws in areas such as employment, housing, and parental rights.[49,204,209,210] These studies use aggregate measures of states' gender identity-related policies, including a policy tally developed by the independent think tank Movement Advancement Project or the Human Rights Campaign's state equality index.[58,211] Market size and Medicaid expansion under the ACA also has positive associations with coverage for gender-affirming hormones or surgery.[47,49,209] One related study investigates individual and state-level factors associated with whether transgender adults had ever experienced providers refusing to treat them because of their gender identity. Four state-level factors are assessed: the percent of the state voting Republican, income inequality, the percent of same-sex couple households, and transgender-protective laws. Of these, the percent voting Republican is significantly associated with care refusal.[74] These factors are likely applicable to studying Medicaid policy, as they capture relevant state attributes which could influence Medicaid policy creation.[86]

Literature examining factors that affect insurance coverage for gender-affirming care consistently suggests states' environments strongly impact the passage of favorable or exclusionary policies. Aggregate policy tallies, Medicaid expansion under the ACA, and anticipated market size are positively associated with insurance coverage for gender-affirming care. Related literature suggests additional attributes, including the percent voting Republican and states' demographic composition, might also be related. As a nascent field, these studies have several limitations. All studies are cross-sectional in design, their analytic techniques estimate the marginal contribution of single factors, and they examine associations. Studies which apply interpretivist and critical research paradigms may build on existing research by developing causal process theories which illustrate how state-level factors impact Medicaid policy. These conceptual models may incorporate a broader range of contributing factors, and examine plausible scenarios wherein the factors interact and jointly contribute to the policies.

Knowledge gaps

Knowledge about health insurance coverage for gender-affirming care is evolving rapidly. Existing literature documents positive outcomes associated with coverage, while emerging research undertakes comparative analyses and investigates factors associated with the policy change. I identify three promising directions for future research. First, research about health insurance coverage for gender-affirming care can integrate knowledge from transgender and nonbinary people's lived experiences. For example, whereas existing comparative policy analyses use WPATH Standards of Care to frame policy content, qualitative studies find transgender and nonbinary people may prefer less

restrictive models of care. Applying the perspective of a care-seeking transgender or nonbinary beneficiary grounds research in their knowledge. Second, future studies can develop and examine conceptual models which portray realistic, complex causal processes. Existing research utilizes cross-sectional methods, which limits methods to simplistic conceptual models to illustrate the effects of insurance coverage for gender-affirming care, or factors associated with coverage. A more plausible conceptual model might incorporate systems theory, life course approaches, and causal models to understand the impacts of coverage and environments which produce these policies. Third, research can identify Medicaid policy changes which will meet the demand for and increase availability of gender-affirming care. For example, limited comparative research examines how Medicaid policies define gender identity, or identifies factors associated with Medicaid coverage for gender-affirming care. Medicaid policy is an important topic because of its relevance for low-income transgender or nonbinary beneficiaries, and its sensitivity to state and national environments. Taken together, these recommendations may produce research grounded in transgender and nonbinary beneficiaries' experiences, and reflective of complex gender affirmation and policy processes.

Person-Centered Care: Qualitative Approaches and Embodied Knowledge

Person-centered care is care in which individuals' values and preferences are elicited to guide healthcare that supports their health and life goals.[212,213] Patient-centered care is a related concept which shares many themes, including empathy, respect, engagement, communication, shared decision-making, holistic and individualized

focus, and coordinated care.[213,214] However, person-centered and patient-centered care define these themes differently. For example, patient-centered care defines communication as "clinician-patient communication," whereas person-centered care defines it as "a process of negotiation that accounts for individual values to form a legitimate basis for decision-making."[213] A published systematic review of patient-centered and person-centered theoretical concepts offers a succinct distinction between the two: the goal of person-centered care is a meaningful life for the person, whereas the goal of patient-centered care is a functional life for the patient.[213] Goals of a meaningful life include finding value in one's life, living a good life, and achieving wellbeing. In contrast, goals of a functional life include physical or mental functioning and symptom reduction.[213] Medical affirmation based on person-centered care is used to achieve intangible outcomes of wellbeing and meaning, whereas patient-centered care considers it a means to achieve measurable health improvements.

Person-centered care aligns with qualitative approaches which elicit transgender and nonbinary people's care preferences and goals. Qualitative approaches include narrative inquiry through interviews, stories, or other narratives; ethnographic methods such as participant observation or field interviews; and document analysis such as open-ended qualitative survey approaches.[215] Qualitative approaches may use community-engaged research practices. Community engagement in research entails a continuum of processes.[142] Lower levels of engagement may involve informing the community of the research or community consultation. Mid-level practices include community participation or community-initiated research. High levels of engagement include community-based

participatory research methods and community-driven research.[142] Studies have used qualitative approaches which incorporate community-engaged research practices to identify transgender and nonbinary participants' visions of person-centered care.[89,116,118,124,152,158,159,166,216]

Storytelling is a qualitative approach which can identify person-centered care and promote health equity.[217,218] Storytelling is an interactive process that allows the sharing of stories, organized into discrete pieces of information possibly bounded by time or space.[217] Storytelling expands understanding of the particular contexts in which health and health decision-making occurs, enabling members of the target population to actively participate in knowledge generation.[217] Use of qualitative approaches such as storytelling enables emancipatory knowing, or the ability to notice injustices and develop ways to address those inequities.[217] Indeed, two strengths of qualitative approaches are the use of participatory narratives to identify community priorities for research, and development of collaborative interventions that more fully address social determinants of health and social risk.[217,218] Below, I discuss applications of storytelling, other qualitative approaches, and community-engaged research practices to understand person-centered gender-affirming care.

Embodied knowledge about gender-affirming care

I conducted a narrative literature review to find qualitative studies that sought to understand transgender and nonbinary participants' perspectives on person-centered gender-affirming care. After reviewing the literature, I grouped findings into four themes[213] about person-centered care: respect and shared decision-making;

individualized focus, holistic focus, and coordinated care. Research illustrating embodied knowledge within these themes is described below. Contextual information, including how people self-described, is provided when available.

Respect and shared decision-making. Respect in person-centered care means the caregiver respects the person's beliefs and values, and supports their dignity.[213] Shared decision-making means the person actively participates in their care, and experiences empowerment and autonomy.[213] An example of respectful person-centered care is providers' use of workaround strategies to circumvent insurance-related barriers and preserve beneficiaries' dignity. A biracial, 23-year-old trans woman [sic] living in San Francisco shared, "My provider went through, then they coded it differently. Instead of doing gender identity disorder, they did it under some other code, so that the insurance would cover it and that's how, ultimately, I got it paid for."[152] Narratives from individuals representing a variety of gender identities and living across the United States expressed appreciation for providers who practiced an informed consent model of care, which promotes shared decision-making.[67,89,152,166,219] A White, 28-year-old transwoman [sic] who sought gender-affirming hormones at a family planning center in San Francisco explained how informed consent shifted power from the provider to her. "Throughout the whole [informed consent] process it was kind of presented to me as these are your options. These are your options of what you can do, and we will help you with that rather than, here are the things that we are going to do. I think having that option, and having that as a conversation rather than, again, feeling like you're trying to prove something to someone, I think that was huge."[152] Autonomy in one's care is another aspect of shared

decision-making. Transgender and nonbinary adults in Oregon metropolitan areas, New Orleans, and Los Angeles-based studies described utilizing social networks to access gender-affirming care. This included asking friends or community members to recommend trusted providers, sharing hormones, crowdfunding to pay for hormones or surgeries, and accompanying others to care.[62,89,216,220,221] These narratives depict themes of respect and shared decision-making in person-centered care which supported people's choices and shared power and responsibility.

Individualized focus. Individualized focus entails the caregiver's recognition of specific aspects of the person's life, and the person's preferences being considered relevant.[213] Stories and narratives expose frustrations with how WPATH Standards of Care guidance hinders individualized focus on their care.[67,89,166,219]A 24-year-old lesbian and nonbinary individual asserted, "Every trans person I know hates it [WPATH] because they [doctors] think they can determine our own gender better than we can."[89] A participant in a Colorado focus group described the negative health effects of being denied access to gender-affirming hormones through WPATH recommendations, "I was told that I had to come back after a year and sit and think about whether or not I wanted HRT [hormone replacement therapy] because I was too depressed to transition. And it turns out, transitioning was what helped me not be depressed."[166] Occasionally, individuals felt ambivalent about whether WPATH standards of care supported an individualized focus, "Call me ruthless, but I still think that there should be a little bit of gatekeeping in place for like, to help us think. I did four years of therapy before I decided to go on hormones, like, for me, I needed that, I needed to process that out."[166]

Individualized focus can honor people's preferences and ensure patient safety. For example, Mt. Sinai Health System in New York implemented a gender-affirming surgery readiness evaluation that eliminated most WPATH Standards of Care restrictions but added a social work evaluation. The social work evaluation assessed whether the patient had stable housing with adequate private bathroom and food preparation and storage facilities, residence within 90 minutes of the postoperative care offices during the four weeks after surgery, and the ability to arrange for a caretaker who could assist with activities of daily living for four weeks post-surgery. Of the 139 patients assessed, 85% were deemed ready for surgery according to Mt. Sinai criteria, half of whom met Mt. Sinai person-centered readiness assessments but not WPATH criteria.[67] Readiness assessments which incorporated social work evaluations balanced individualized focus with caregivers' concern about specific aspects of the care-seeker's life. Such models may be more person-centered than standards of care due to their individualized focus.

Holistic focus. Holistic focus refers to the acknowledgement of the person's whole life, including biological, psychological, and nonmedical issues, as well as social context.[213] One way to promote holistic focus is to change eligibility definitions. Because of the WPATH Standards of Care, many providers and insurers define medically necessary gender-affirming care as treatment for Gender Dysphoria or Gender Incongruence.[1,199,205] However, not all transgender and nonbinary people experience gender dysphoria[222] or identify as transgender,[2] and thus might be excluded from receiving covered care. An individual living in New Orleans expressed the dissonance between normative and self-actualized terminology: "I personally identify as, for data's

sake, I identify as a trans woman of color. My person term that I coined for myself is FGD, female-gender dominant. So, I like to call myself that a lot."[216] Holistic focus entails acknowledging the person's whole life. For example, qualitative study participants from western Massachusetts and Oregon identified chest compression garments and menstrual cups as medically necessary and believed insurance should cover them.[89,159] Holistic focus would acknowledge the existence of chest tissue and menstruation as nonmedical issues that were relevant to the person's medical affirmation process.

Coordinated care. Qualitative approaches allow people to ideate visions of transition care. Narratives from people of varied gender identities, geographies, and socioeconomic positions express desire for coordinated care. Coordinated care means care is planned and coordinated across carers, the health system, and time.[213] A 22 year old White trans man [sic] expressed his desire for a practice where health needs could be addressed in one place, "I feel like I should be able to talk about not just transitioning but my other health needs and how those affect it…So I would like it to be like a [primary care provider], like a regular clinic setting. I would also like someplace that is LGBT friendly specifically."[152] Multiple studies found respondents desired coordinated care led by staff and providers with lived experience.[152,223] A 28-year old, Middle Eastern trans man [sic] asserted, "You need to employ trans people to help. Because you can read in a book all day, but until you are something you're not…You can understand to an extent, but you don't understand."[152] These ideated experiences suggest care coordination is an important feature of person-centered gender-affirming care.

Community-identified research priorities

Attention to individual narratives enables emancipatory knowing, the ability to recognize injustices and develop ways to address those inequities.[217] One practice of emancipatory knowing is to study community-identified research priorities. Within studies which specifically ask transgender and nonbinary participants to discuss research topics, participants identify insurance coverage for and access to transition-related care as a top research priority.[70-72] Sub-themes within this topic include understanding how insurance coverage could be more inclusive of diverse gender identities,[72] whether insurance covers all transition-related healthcare,[72] and how insurance coverage affects out-of-pocket costs and social risk.[70] A study in Arkansas, which utilized community-driven[142] community engagement, recruited transgender, nonbinary people, and cisgender people to participate in a series of summits to define health-related research interests and priorities.[71,72] Examples of community-generated questions from these summits include: How do we establish concise and fair insurance policies for trans individuals?[72] How can we improve access [to trans care] for low income people?[72] Multiple research paradigms could be used to address these questions and the sub-themes above. For example, interpretivist epistemology[224] could examine why beneficiaries demand certain services in order to justify coverage for this care. Pragmatic epistemology, which believes the best method is one that solves problems,[224] could be applied to questions about improving access and affecting social risks.

A separate body of qualitative research seeks to identify how transgender and nonbinary people want health research to be conducted. These studies identify three

important research practices. First, the research must include a variety of gender identities.[39,225] An individual living in Boston described the need to conduct representative research: “There’s some research on people who transition from one gender to the other but all the nonbinary and people in the middle that there’s not a whole lot really known about that.” Second, the research must document the impact of structural and interpersonal stigma and discrimination on health, including discrimination in insurance, employment, and housing.[39,226] Finally, the research must measure resiliency, not just disparities.[39,90,226] A New-York based participant explained how this would combat harmful narratives, “I think also sometimes we focus on like what’s wrong. Like how prevalent is this problem in this community. But I want to see more research on what helps us and things to ask for from institutions and be like, ‘This is proven to help trans people.’ ”[39] Implementing these practices in community-identified research priorities could support emancipatory knowing.

This dissertation studied community-identified research priorities using community-identified research practices. It used knowledge from transgender and nonbinary people to support emancipatory knowing. The goal was to generate evidence which was meaningful to the community and allies for making person-centered health and healthcare decisions.

Theories and Frameworks

A common limitation I identified across the literature I reviewed was the lack of longitudinal, systems-level, or complex causal approaches. The published literature

largely uses cross-sectional designs, which limits our understanding of how gender affirmation, health behaviors, health outcomes, policies, and social contexts change over time. One way to address this limitation is to ground the research in theory and frameworks which express the complexity in the underlying phenomena.[227] In this section, I discuss theory and frameworks which capture nuance and context in transgender and nonbinary people's experiences: the Intersectionality Research for Transgender Health Justice framework,[69] the Gender Affirmation Framework,[32] and the Social Construction of Target Populations[78] theory. I provide an overview of each framework or theory, summarize its application in previous studies, describe its relevance for my research (summarized in

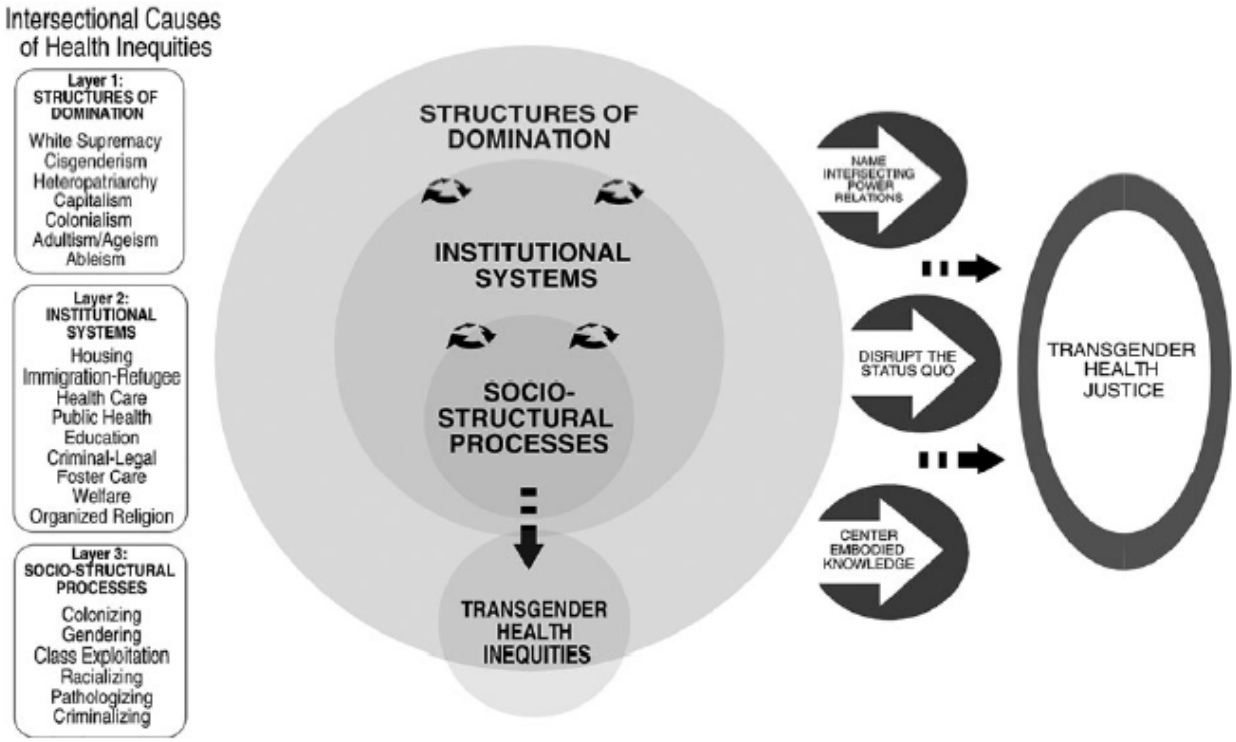
Table 2.1), and comment on its limitations.

Table 2.1. Application of frameworks and theory to dissertation Aims

	Aim 1: Assess person-centeredness in U.S. Medicaid gender-affirming care policies' coverage eligibility, covered services, rules for access to care, and language	Aim 2: Identify configurations of state-level social, political, legal, and health system factors associated with different types of Medicaid gender-affirming care policies	Aim 3: Examine changes in wages relative to the use of gender-affirming care in transgender and nonbinary Oregon Medicaid beneficiaries
Intersectionality Research for Transgender Health Justice Framework	✓	✓	✓
Gender Affirmation Framework	✓		✓
Social Construction of Target Populations Theory	✓	✓	

Intersectionality Research for Transgender Health Justice Framework

Figure 2.1. Intersectionality Research for Transgender Health Justice Framework



Source: Wesp et al., Transgender Health 2019

Overview. The Intersectionality Research for Transgender Health Justice framework (Figure 2.1) is the primary framework for my dissertation research. This framework illustrates the system which produces health for transgender and nonbinary people.[69] It consists of three embedded levels which contribute to transgender health inequities. The outermost level represents structures of domination, such as cisgenderism, heteropatriarchy, and ableism. An embedded second level represents institutional systems including housing, health care, education, criminal justice, and religion. An innermost third level represents socio-structural processes such as gendering, pathologizing gender identity, and criminalizing gender identity.

Interconnected processes within each level produce transgender health inequities. The Intersectionality Research for Transgender Health Justice framework also proposes research practices which can promote transgender health justice. Research must name intersecting power relations that affect transgender and nonbinary populations, disrupt the status quo created by institutional systems, and center knowledge on transgender and nonbinary perspectives.[69]

This framework was guided by the theories of intersectionality and structural injustice.[69] Intersectionality theory asserts various oppressive forces mutually reinforce a complex system of power that is rooted in social structures and institutional systems.[69,228] The theory of structural injustice posits individuals act according to societal laws, rules, and other practices which create norms that benefit some, while indirectly or directly harming others.[69,229] This framework accepts the assertion that health inequalities are best understood as a combination of intersectionality and social theory.[230]

Application in previous studies. Two studies applied this framework. One study used the framework to develop a conceptual model demonstrating how intersecting oppressive forces affected pathways to incarceration and post-release experiences among Black American and First Nations Australian transgender women.[231] Another combined the framework with a parallel set of concepts to examine how transgender youth in Washington state negotiated systems of power to ensure their safety and access to gender-affirming care.[232] Both studies articulated concepts within the framework's three embedded levels, and incorporated the framework's proposed research practices.

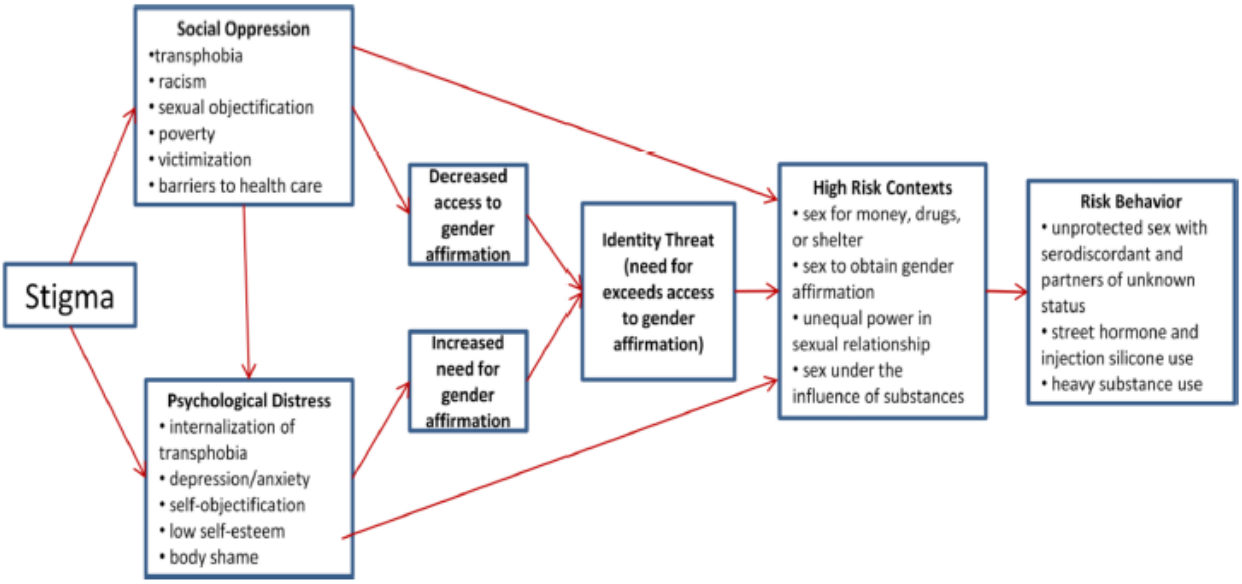
Indeed, both studies devoted a significant proportion of their discussions to describing how their studies named intersecting power relations, disrupted the status quo, and centered embodied knowledge.[231,232] These two studies applied the framework to two very different settings and participant groups. This suggests the framework is adaptable and valid as both a conceptual diagram and a set of guiding research principles.

Relevance for dissertation research. This framework directly supports emancipatory knowing in how it depicts the system that produces health, incorporates intersectionality, acknowledges social risk, and promotes emancipatory research practices. Chapter 3 describes how this framework guided my formation of conceptual models, analytic methods, and dissemination narratives in all three dissertation aims. I also implemented this framework's research practices to advance transgender health justice.

Limitations. This framework is fundamental to my research, and I do not identify any limitations in its design or applicability. The only limitation I anticipate is inherent in my own research: I do not undertake any primary qualitative data collection. This may somewhat limit my ability to center embodied knowledge and explore intersectionality experiences. However, I incorporated other community-engaged research practices,[142] including drawing upon knowledge obtained from existing qualitative studies, and engaging community members as research partners.

Gender Affirmation Framework

Figure 2.2. Gender Affirmation Framework



Source: Sevelius, Sex Roles 2013

Overview. The Gender Affirmation Framework (Figure 2.2) was developed to describe the relationship of gender affirmation to behavior and consequences of unmet needs for gender affirmation.[32] The Gender Affirmation Framework proposes that gender identity-based stigma leads to social oppression and psychological distress. An individual's access to and need for gender affirmation mediates the relationship between these two negative states and experiencing high-risk contexts or behaviors, such as undertaking survival sex. If gender affirmation exceeds social oppression and psychological distress, high risk contexts are less likely and health empowerment is more likely to occur.[32,79] However, if the need for gender affirmation exceeds access to gender affirmation, a phenomenon called "identity threat" may occur, which results in the person attempting to decrease the threat or increase one's coping mechanisms.[32,233]

The Gender Affirmation Framework is based on Objectification Theory and the Identity Threat Model of Stigma.[32] Objectification Theory suggests gender socialization and sexual objectification experiences lead to women being defined by others, and defining themselves by their bodies and appearance.[234] The Identity Threat Model of Stigma posits anxiety and maladaptive coping strategies such as substance use or self-harm can result from stigma-related stressors that threaten one's identity and exceed one's coping resources.[233] The Gender Affirmation Framework was developed by applying these theories to qualitative interviews collected in a study of adult transgender women who were recently incarcerated and in a study of adult transgender women of color who were at risk of HIV infection.[32] Study findings produced the pathways depicted in the Gender Affirmation Framework.

Application in previous studies. The Gender Affirmation Framework was applied to guide conceptual models in three studies of transgender women's HIV risk behaviors,[79,235,236] one study of mental health outcomes in transgender women with a history of sex work,[237] and one study of disordered eating in young transgender women.[238] Only one of these examines how gender affirmation produces positive outcomes. This study conducts structural equation modeling to explain how gender affirmation leads to health empowerment and viral suppression among transgender women of color living with HIV in San Francisco.[79] This study is a rare example of advancing emancipatory knowing.

An additional study was identified that performed a literature review and mapped the findings onto a modified set of constructs from the Gender Affirmation Framework.[239] This is an unconventional and perhaps unsuitable use of the framework.

Relevance for dissertation research. The Gender Affirmation Framework conceptualizes the production and consequences of met and unmet needs for gender affirmation. In this framework, gender affirmation can be social, psychological, legal, or medical. This framework is an important secondary foundation for my dissertation because it illustrates the complex causal processes surrounding gender affirmation and is applicable to medical gender affirmation. This framework complements the Intersectionality Research for Transgender Health Justice framework: it is embedded in the latter's socio-structural process level, and specifically focuses on the causal chain encompassing gender affirmation. Furthermore, the Gender Affirmation Framework supports a person-centered approach to affirmation. As such, it is relevant for this dissertation's first aim, a comparative policy analysis, and third aim, which investigates the effect of medical affirmation on social risk (additional details in Chapter 3).

Limitations. The Gender Affirmation Framework was developed based on knowledge from English-speaking transgender women of color living in San Francisco who engaged in sex work or had a history of incarceration.[32] The framework's causal process diagram may not be generalizable to other transgender or nonbinary populations. Emerging literature supports its validity and replicability in additional populations of transgender women, suggesting this limitation might be overcome with additional validity testing.

Social Construction of Target Populations

Overview. Social Construction of Target Populations theory asserts social construction influences public officials' agenda-setting and policy design, which in turn influences the target populations' political orientations and participation.[78] This theory helps explain why some target groups are advantaged more than others independently of traditional sources of political power, and how policy designs reinforce or change these advantages.[78] Target populations are characterized along two dimensions: (political) power and social construction. Social construction affects the allocation of benefits and burdens in policy solutions.[78] Examples of benefits are tax incentives for small businesses, while burdens may be processes involved in registering and certifying a small business.

This theory incorporates aspects of intersectionality theory in how it depicts potentially oppressive forces of political power, social construction, and the allocation of policy benefits and burdens in policy processes. It implies public policy can be used as a system as oppression since public officials are sensitive to public sentiment, and must demonstrate how proposed policies are connected to the electorate's social values.[78] The theory's authors assert it resolves Lasswell's classic policy question, "Who gets what, when, and how?"[78,240]

Application in previous studies. This theory has been applied to a moderate range of target populations and health policy topics. These include insurance coverage for emergency medical services for children,[241] federal disability benefits for people with substance use disorders,[242] unintended pregnancy prevention policies for young and low-income people,[243] trauma-focused legislation for military populations,[244] state hate crime

laws for queer people,[245] government-sponsored healthcare for undocumented immigrants,[246] state exposure criminalization laws for people living with HIV,[247] hospital screening policies for perinatal illicit substance use,[248] autism legislation for children with autism spectrum disorder,[249] and policies for people living with AIDS.[250,251] Only one study applied the theory to transgender or nonbinary populations, an evaluation of U.S. military policies regarding the inclusion of transgender servicemembers.[252]

Interestingly, the published literature only focused on target populations with negative social constructions and/or weak political power. The studies confirmed the theory: target populations falling within these groups received policies with low benefits and/or no or low control over the burdens, and contributed to their low civic participation. For example, in a review of laws criminalizing HIV exposure, policies varied in how they depicted people living with HIV.[247] People living with HIV who engaged in injection drug use were constructed negatively and had low power. Consequently, policies conferred minimal benefits but high burdens.[247] Rather than providing treatment for the target population's substance use disorder (i.e. addressing the issue via a policy benefit), their injection drug use was criminalized because of its potential to infect others with HIV (burden).

Relevance for dissertation research. This theory is highly relevant for my dissertation. Like the Intersectionality Research for Transgender Health Justice framework, it incorporates intersectionality theory and social theory. Because it was not developed specifically for use in transgender or nonbinary populations, I applied it as a secondary, supportive theory. Nevertheless, it is highly applicable to my dissertation's

first and second aims, a comparative policy analysis and configurational analysis of state-level factors associated with Medicaid policies, respectively (additional details in Chapter 3). Social Construction of Target Populations aptly captures how social and political environments manifest as Medicaid gender-affirming care benefits and burdens and perpetuate advantages or disadvantages.

Limitations. Social Construction of Target Populations was intended to be applicable in a range of public policies. The authors envisioned concepts of benefits, burdens, political power, and social construction could be feasibly measured through survey methods, textual analysis, or other positivist paradigms. This design may be a limitation. Because the concepts exist along a continuum, their measurement is subjective and relative. It may be difficult to characterize these concepts reliably.

Synthesis

The Intersectionality Research for Transgender Health Justice framework,[69] Gender Affirmation Framework,[32] and Social Construction of Target Populations theory[78] articulate processes that produce affirmation and health in transgender and nonbinary populations. Applying these frameworks and theories to transgender and nonbinary health research potentially promotes a person-centered perspective and supports emancipatory knowing. The two frameworks were specifically developed to capture complex causal processes using a systems approach and are adaptable to various research paradigms. The Intersectionality Research for Transgender Health Justice framework depicts multilevel processes which produce health in transgender and nonbinary people, while the Gender-Affirmation framework focuses on processes

embedded within the former framework's socio-structural level. Although the Social Construction of Target Populations theory was developed to generally explain policy processes vis a vis social values and enfranchisement, it is also relevant for its acknowledgment of intersectionality and social theory. These frameworks and theory guided my research and conceptualize complexities in Medicaid insurance coverage for gender-affirming care.

Conclusion

This chapter aimed to: 1) Familiarize the reader with the topics of health, social risk, gender affirmation, and insurance coverage for gender-affirming care; and 2) Position the dissertation research within the context of person-centered care and emancipatory knowing, as well as guiding theory and frameworks. The literature demonstrated health inequities and high social risk in transgender and nonbinary people and suggested gender affirmation could mitigate these inequities. The literature also revealed transgender and nonbinary people identified insurance coverage for gender-affirming care as a research priority topic. To enable emancipatory knowing, this research must acknowledge the diversity within the transgender and nonbinary population, confront the causes of health inequities and produce person-centered knowledge. Above all, this research must benefit transgender and nonbinary people.

CHAPTER 3: RESEARCH DESIGN AND METHODS

Health insurance coverage for gender-affirming care increases access to medical affirmation,[45,182-184,253] and may reduce health inequities and social risk.[34,37,79,167,185] Transgender and nonbinary people participating in studies across the United States identified insurance coverage for and access to transition-related care—particularly for low-income beneficiaries—as a research priority topic.[70-72] Existing research consistently documents positive outcomes associated with insurance coverage for gender-affirming care. However, relatively few studies examine whether these policies promote person-centered care—care that respects the recipient's values and individual preferences, and supports a meaningful life.[212,213] Furthermore, few studies investigate the systems or environments associated with these policies.

Existing health policy research catalogues what gender-affirming services are covered, and what administrative and medical necessity criteria restrict access to this care. However, this research tends to overlook transgender and nonbinary beneficiaries' perspectives. Of the published comparative policy analyses—inductive comparisons of similar policy issues across different contexts[198]—identified in Chapter 2, only two assessed policy content from the perspective of a transgender or nonbinary beneficiary.[49,205] While promising, both studies focus on the ease of accessing and clarity of coverage documents, rather than how well the policies align with beneficiaries' gender affirmation needs and preferences. Furthermore, few studies investigate Medicaid policy, and no studies assess the effect of coverage on measures of resilience or social risk, despite these being community-identified research priorities.[39,70,72]

Health policy research that integrates community narratives and community-identified research priorities advances emancipatory knowing, the practice wherein affected communities expose injustices to address them.[39,69,70,72,217,218] To address knowledge gaps, I designed my dissertation research to expand understanding of gender-affirming care in the context of Medicaid policy. I utilized comparative policy analysis, coincidence analysis, and descriptive and regression analysis to explore this topic. This chapter summarizes my dissertation's research design and methods. First, I illustrate the conceptual relationships among the three aims introduced in Chapter 1 (Figure 3.1). Then, I discuss how the Intersectional Research for Transgender Health Justice framework, the Gender Affirmation Framework, and the Social Construction of Target Populations theory were applied to guide each aim. Next, I describe the design, objectives, methods, assumptions, and limitations for each aim. I also explain how I integrated knowledge from transgender and nonbinary people into each approach. Finally, I explain human subjects' protections and offer concluding thoughts.

Research Question, Aims, and Conceptual Framework

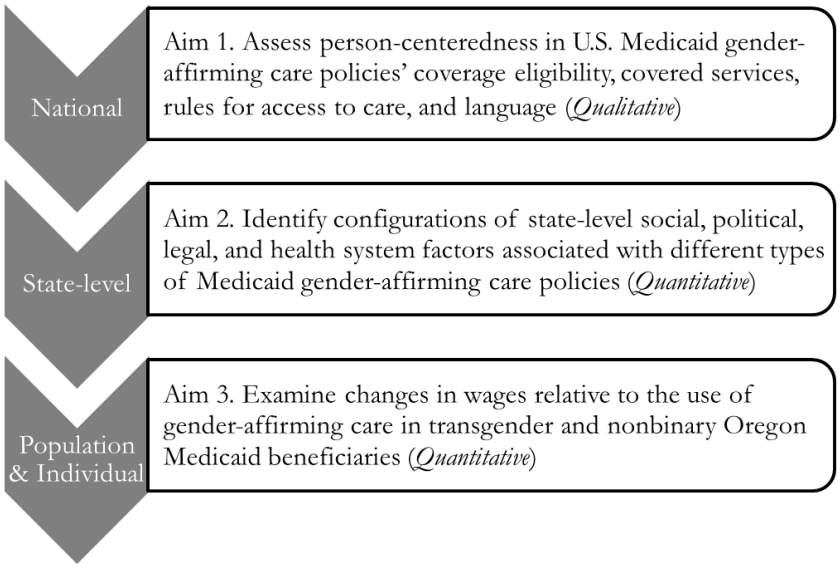
This study asks the following research question: What similarities and differences exist in national and state-level Medicaid gender-affirming care policies and policy environments, and how is gender-affirming care receipt related to social risk? I identified three aims to address this research question. Figure 3.1 reproduces the aims, illustrates their connection, and summarizes their theme and approach.

Aim 1: Assess person-centeredness in U.S. Medicaid gender-affirming care policies' coverage eligibility, covered services, rules for access to care, and language.

Aim 2: Identify configurations of state-level social, political, legal, and health system factors associated with different types of Medicaid gender-affirming care policies.

Aim 3: Examine changes in wages relative to the use of gender-affirming care in transgender and nonbinary Oregon Medicaid beneficiaries.

Figure 3.1. Conceptual framework for dissertation Aims



Aim 1 investigated states' Medicaid policy content. I assessed the 33 U.S. states and federal districts (Washington, D.C.) with policies explicitly permitting or prohibiting coverage for gender-affirming care for adult beneficiaries as of December 2022.[81] I systematically categorized policies' person-centeredness in how they defined eligibility, how inclusive their language was regarding gender-affirming care and its recipients, how comprehensively they covered gender-affirming services, and what rules governed access to care.

Aim 2 examined whether state-level social, political, legal, and health system-related factors were associated with the categories of Medicaid policies determined in Aim 1. I utilized a robust analytic approach that enabled the comparison of different configurations of factors. I used this approach to investigate whether configurations of state-level factors were associated with person-centeredness in Medicaid gender-affirming care policies. The goal of this inquiry was to explore what state environments were associated with different kinds of Medicaid policies and identify candidate factors for future policy process investigation.

Aim 3 expanded upon Aim 1 by conducting a case study of Oregon, a state with moderately person-centered policy. Oregon was an early adopter of Medicaid coverage for gender-affirming care in January 2015.[254] Preliminary research suggested the state's policy change increased access to medical affirmation among transgender and nonbinary beneficiaries and aligned with their preferences.[89] I examined wage changes relative to gender-affirming care use using eleven years of linked Medicaid claims and wages data for adult transgender and nonbinary Medicaid beneficiaries. The goal of this analysis was to understand wage dynamics prior to and after receipt of gender-affirming medical care.

Together, the research question and aims characterized the national landscape of states' policy design, investigated state-level contexts associated with different policy types, and then focused on a transgender and nonbinary population's experience of gender-affirming care and social risk. I hypothesized that variable-speed federalism could be demonstrated in Medicaid gender-affirming care policies' person-centeredness (Aim 1); the variation was likely associated with states' different policy and social

environments (Aim 2); and a relationship existed between use of gender-affirming care and wages, a measure of social risk (Aim 3). Aims 1 and 3 focused on health policy content and effects, whereas Aim 2 examined the systems and organizational dynamics associated with the health policy. I utilized a qualitative approach to address Aim 1, and undertook quantitative analyses for Aims 2 and 3. Existing frameworks and theories relevant to transgender and nonbinary experiences guided the methods and design, as described in the next section.

Theoretical Approach

Three relevant theory and frameworks guided my research: the Intersectionality Research for Transgender Health Justice framework,[69] the Gender Affirmation Framework,[32] and the Social Construction of Target Populations theory.[78] These were previously described in Chapter 2. Table 3.1 summarizes their application to the three aims. This section describes their application in greater detail.

Table 3.1. Summarized application of frameworks and theory to Aims

	Aim 1: Comparative analysis of Medicaid gender-affirming care policies	Aim 2: Factors associated with types of Medicaid gender-affirming care policies	Aim 3: Wage changes relative to gender-affirming care receipt
Intersectionality Research for Transgender Health Justice framework[69]	Followed recommended research practices, examines forms of power	Utilized framework's systems perspective and focus on intersectionality	Adapted framework's systems perspective, follows recommended research practices
Gender Affirmation Framework[32]	Adapted framework's conceptualization of gender-affirmation		Applied framework's proposed pathway to conceptualize effects
Social Construction of Target Populations theory[78]	Examined whether different policy types exist	Tested state-specific factors which may measure social construction	

The Intersectionality Research for Transgender Health Justice framework[69] illustrates the multilevel systems that produce health for transgender and nonbinary people, and identifies research practices that can promote transgender health justice (Figure 2.1). This framework guided all three aims. Aim 1 followed its research practices of centering transgender and nonbinary people's embodied knowledge, and naming structures of domination and socio-structural processes—such as cisgenderism, ageism, and the pathologizing of transgender or nonbinary identity—that undermine access to gender affirmation and consequently impact social and health inequities. Per the framework's recommended research practices, I integrated embodied knowledge from respondents to the 2015 U.S. Transgender Survey[2] and qualitative research[116,152,255] into methods for Aim 1 (Table 3.1). Aim 2 utilized the framework's systems perspective on the intersectional causes of health inequities to evaluate state-level environments associated with different types of Medicaid policies. State-level factors included structures of domination, such as states' political ideology and institutional systems. Per this framework, I hypothesized that the interaction among these factors, rather than the isolated effects of singular variables, was associated with policies' person-centeredness. I applied the framework's depiction of systems and processes to Aim 3's hypothesized relationship between gender-affirming care and wages, a measure of social risk. Aim 3 complied with the framework's actions of disrupting the status quo and elevating community-identified research priorities.

The Gender Affirmation Framework[32] depicts how gender identity-based oppression and gender affirmation are related to health and social risks. Within the

framework, if access to gender affirmation exceeds gender identity-based oppression, health empowerment is more likely, and risky contexts and behaviors, such as undertaking sex for money or shelter, or using street hormones and silicone injections, are less likely.[32,79] I drew on the Gender Affirmation Framework for Aims 1 and 3. I borrowed from the framework's conceptualization of affirmation as occurring along a continuum and applied it to evaluate Medicaid policies' gender-affirming medical services in Aim 1. Policies that inclusively defined gender identity or that covered a breadth of gender-affirming services were more person-centered because they had greater potential alignment with individual beneficiaries' needs and preferences. Policies that offered less opportunity for medical gender affirmation were less person-centered. Aim 3 directly mapped onto the Gender Affirmation Framework. Aim 3 examined whether receipt of medical affirmation was related to wages, a measure of social risk.

Whereas the first two frameworks are specific to transgender and nonbinary people, the Social Construction of Target Populations theory[78] is more broadly relevant. This theory posits that identity is a social construct and that public opinion and culture result in the social construction of persons or groups who are affected by public policy. The theory argues that target populations' social construction strongly influences public opinions, elected officials' perceptions, and policy design. The allocation of benefits and burdens in policy design depends on the target populations' social construction (positive, negative) and privilege (strong, weak).[78] This theory guided Aims 1 and 2. Aim 1 examines state Medicaid programs' breadth of coverage for gender-affirming care and how gender identity-based eligibility and administrative rules governing access were designed. The

theory suggests a relationship between social construction of target populations and policy design, which I explored in Aim 1. Aim 2 incorporated the theory by examining factors that may reflect the social construction of transgender and nonbinary populations, and assessed how these factors were associated with different Medicaid gender-affirming care policy designs. For example, the Human Rights Campaign produces state equality scores which review state legislation regarding sexual orientation and gender identity. State equality scores can be used as a surrogate marker for LGBTQ+ social acceptance or discrimination, which affects how this population is socially, legally, and politically characterized.[211] Aim 2 applied the Social Construction of Target Populations theory to understand how state-specific factors which may measure social construction were related to states' Medicaid policy design.

The aims addressed distinct but connected topics (Figure 3.1). The theory and frameworks described above applied to the research question and aims in overlapping and specific ways. The guiding theory and frameworks were chosen because they specifically conceptualize transgender and nonbinary experiences,[32,69] or their theory are relevant to understanding policy processes that affect this population.[78]

Aim 1 Comparative Policy Analysis: Design and Methods

Aim 1: Assess person-centeredness in U.S. Medicaid gender-affirming care policies' coverage eligibility, covered services, rules for access to care, and language.

Research design and rationale

In past studies, transgender and nonbinary focus group participants universally identified insurance coverage for gender-affirming care as a priority topic for future research.[70-72] As of December 2022, 33 states and Washington, D.C. have implemented policies regarding coverage for, or exclusion of, gender-affirming care for adult Medicaid enrollees.[81]

Comparative policy analysis is a method for inductively comparing similar policy issues across different contexts to identify trends and patterns.[198,256] Chapter 2 described previously published comparative policy analyses of Medicaid coverage for gender-affirming care. These studies examined coverage for specific types of care (e.g. hormones, surgeries, hair removal), the existence of medical necessity criteria, and how easily coverage documentation could be found.[49,63,64,66,202] However, no study addressed community-identified research topics, such as how to access care and whether the covered services addressed a range of medical gender affirmation needs.[70-72]

I addressed Aim 1 by conducting a comparative policy analysis using a community-engaged approach. I compared Medicaid policies from the 33 states and federal districts within four domains: how they operationalized gender identity-based eligibility (Eligibility), what services they covered as gender-affirming care (Comprehensiveness), what restrictions controlled access to care (Accessibility), and what terminology was used to characterize gender-affirming care and its beneficiaries (Language). Unlike previously published comparative policy analyses, I directly

incorporated knowledge from transgender and nonbinary people into measures of person-centeredness.

Study objective

The study objective was to determine similarities and contrasts in state Medicaid gender-affirming care policies for adults, resulting in policies' organization into overall categories of person-centeredness. The domains were purposefully designed so the resulting policy types were meaningfully informative for care-seeking transgender and nonbinary beneficiaries. Additionally, the codebook adapted methods from published comparative studies of Medicaid and commercial policies[49,205] to facilitate comparability with existing research.

Analytic method

I conducted comparative policy analysis using methods adapted from qualitative content analysis.[257,258] Content analysis is a method for making replicable and valid inferences from documents' content.[259] I undertook the following steps: 1) Defined the context; 2) Identified what comprised the health policy; 3) Organized policy documents; 4) Operationalized variables and constructed a codebook; 5) Evaluated the individual state policies; 6) Compared and analyzed across states.

Step 1: Define the context. Defining the context entails describing the purpose of content analysis, describing how the available data will be used to achieve the purpose, and delineating reasonable boundaries for the inferences' validity.[257] I systematically characterized Medicaid gender-affirming care policies' alignment with transgender and

nonbinary beneficiaries' preferences and needs in Aim 1. I undertook qualitative content analysis of policy cases (described in Step 2 below) to investigate state policies' similarities and differences across four domains: eligibility, comprehensiveness, accessibility, and language (described in Step 4). These domains were based on theory and frameworks relevant to transgender and nonbinary health research, as well as community engagement.[32,69,78] I deliberately focused on a small number of variables to facilitate comparison.[260] All 33 U.S. states and federal districts with Medicaid policies explicitly covering or prohibiting gender-affirming care for adults were included, which increased the study's validity.[260] I conducted content analysis on December 2022 policy documents, ensuring inferences were made on temporally similar and relatively current policies.

Step 2: Identify what comprises the health policy. I identified the unit of investigation for comparative policy analysis in this step.[261] I defined health policy as the actions that affect institutions, organizations, services, and funding arrangements within a health system.[262] In this dissertation, the health policy of interest was Medicaid coverage for gender-affirming care, and the unit of analysis was the state-level policy case. This dissertation defined the policy case as the instance of the policy in its real-life context.[263] As described above, the comparative analysis utilized documentary methods,[261] which involved using existing policy documents. Because states operate their own Medicaid programs within broad federal guidelines,[51] policy case artifacts may vary. For this study, the policy case comprised a state's collection of specific documents regarding Medicaid coverage for gender-affirming care.[259,261] Below, I described what I

included as policy documents for the 33 U.S. states and federal districts with explicit policies as of December 2022.

Consistent with previously-published studies,[49,63,203] I used states' online Medicaid provider handbooks as the primary policy case artifact. Provider handbooks describe states' policies and procedures needed to receive reimbursement for Medicaid-covered services; these handbooks are regularly updated. Because a previously-published comparative analysis found that up to one-third of Medicaid policy documents were not readily available online,[49] I also included content from states' Medicaid program webpages, state-specific legislative documents regarding the policy change, court decisions, administrative rules, and official state press releases as policy case artifacts.

I obtained state-specific legislative documents by searching states' legislative websites for the term "transgender." Legislative documents were limited to passed bills regarding Medicaid coverage for gender-affirming care and official press releases about these bills. If a Medicaid provider handbook did not exist, content from legislative documents and program webpages was treated as the primary content source if they contained the most updated details within the four domains of interest.

I obtained court decisions by searching states' judicial websites for decisions pertinent to Medicaid coverage for gender-affirming care. I obtained administrative rules by searching states' online databases for the term "transgender," and limited results to those relevant to Medicaid policy.

The availability of and relationship between policy documents differed across states. For example, Oregon Medicaid maintains a Prioritized List that systematically

ranks health services according to metrics such as its likely impact on a healthy life, vulnerability of the population affected, and impacts on suffering.[264] Although Oregon's legislature decides the annual funding threshold for the Prioritized List, the Oregon Health Authority prioritizes health services at its own discretion.[264] For this state, policy documents comprised the Medicaid provider handbook and supporting Medicaid program content, whereas judicial and legislative artifacts were irrelevant. Other states had different policy documents. For example, Illinois' administrative code contained information about Medicaid coverage for gender-affirming care, whereas its Medicaid handbook did not.[265]

Step 3: Organize policy documents. This step involved assembling and organizing the documents for content analysis. I reviewed appendices from previous comparative policy analyses,[49,81,203] then conducted hand searches within states' Medicaid websites, legislative and judicial archives, and online databases to obtain the remaining documents using the processes and selection criteria described above. I cross-referenced the assembled policy documents against state-specific resources identified by published peer-reviewed articles assessing Medicaid coverage,[49,63,203] a December 2022 Medicaid gender-affirming care report published by the Williams Institute,[81] and the Transgender Legal Defense & Education Fund's Medicaid Regulations and Guidance site[266] to verify timeliness and accuracy. Because states' policy case artifacts included multiple documents,[261] I tracked which documents I obtained and coded for each state. I conducted all searches for documents between June and July 2023.

Step 4: Operationalize variables and construct a codebook. This step describes how I operationalized variables[267] and constructed the codebook. I developed an initial operationalization of the four domains based on methods from previously-published comparative policy analyses[49,63,203,205] and qualitative research with transgender and nonbinary people. For example, within the Language domain, policies with "high" person-centeredness defined gender identity as the individual's self-identification. This reflected knowledge from transgender and nonbinary people that asserted gender identity spans a diversity of terminology and cannot solely be recognized by medical or other diagnostic criteria.[2,4,39] Similarly, I used U.S. Transgender Survey qualitative responses[268] to initially define "high" person-centeredness in the Comprehensiveness domain and published qualitative research informed "high" person-centeredness in Accessibility.[116,152,255]

I developed a codebook that documented interim and final databases created during content analysis, annotations, and a difference list. A qualitative codebook encompasses a set of methodological tools that can help research teams understand and analyze qualitative data, and assist in replicating findings.[269] The interim database kept track of decisions I made about each code during each coding iteration, while the final database contained the finalized codes.[269] Annotations record the researcher's thought process during content analysis, and are rooted in specific examples from the data.[269] Because I allowed each policy case to potentially consist of multiple documents, annotations were useful if policy documents appeared contradictory or ambiguous. The final element of the codebook was the difference list, which tracked differences in codes and how differences were resolved.[269]

Then, I used adaptive network sampling[270] to recruit four transgender and nonbinary community members with myriad gender identities and experience navigating insurance coverage for gender-affirming care. I set up two-hour individual or group meetings with these participants and we reviewed the domains, a sample of coded documents, and the codebook. Each participant shared their personal insights regarding person-centeredness in gender-affirming care, identified important information for creating a relevant community resource about Medicaid gender-affirming care policy, and recommended improvements to the domains' definition and codebook's design.

Step 5: Evaluate the individual state policies. In this step, I reviewed and coded document content. Coding is the systematic, iterative, and reflexive categorizing, organizing, and analyzing of documents to uncover their meanings.[257,269] I used qualitative content analysis to identify relevant policy content and methodically code each state's policy case documents. This method was valid, reliable, and replicable because I applied a single rubric to all policy cases, and the domains meaningfully differed.[257,271]

I conducted qualitative analysis in multiple iterative stages. First, I read through the 33 policy cases without annotating or coding the documents. This provided an orientation to the different policy documents and their general content organization, and revealed necessary methodological adaptations. For example, policy documents that contained procedure code lists rather than descriptions of the covered services needed to be translated to descriptions before coding could occur. Then, I undertook initial coding of each state's policy documents, and continually refined the coding and develop

the initial codebook over multiple iterations. Next, I engaged four community members, as described above, to refine the methods, and I re-coded documents after each meeting. I produced a final dataset and codebook, as well as exhibits designed with input from the community members to ensure relevance to transgender, nonbinary, and gender-diverse Medicaid beneficiaries. I used ATLAS.ti Web (version 5.8.0)[272] to conduct qualitative content analysis during August through November, 2023.

Step 6: Compare and analyze across states. Using the final dataset, I discerned patterns within and across cases to establish congruence and contrast. I compared policies within each domain, and in gestalt, resulting in a parsimonious classification into four policy person-centeredness types.

Assumptions

The validity and reliability of this analysis depended on three assumptions. First, I assumed there was sufficient variation across the state policies to identify meaningful patterns and contrasts. Preliminary review of several states' Medicaid policy documents suggested ample variation existed beyond simply whether the policy covered or prohibited gender-affirming care. Second, I assumed the data to assess the domains was sufficiently available from all states' policy documents. A previously published comparative analysis of commercial insurance policies evaluated how easily contract content could be understood. This study created "Ambiguous" and "Silent" ratings for policies with vague or omitted language.[205] I incorporated these methods into my codebook to account for Medicaid policies with similarly problematic content. Third, I assumed my single coder's analysis was relatively free from bias, and the cross-case

evaluation and comparison could be replicated. I used ATLAS.ti Web, which enabled me to annotate and reflect upon my analyses. I also involved four community members with relevant lived experience to refine my approach, and received extensive feedback from dissertation committee members with relevant expertise. Community engagement and investigator triangulation[273,274] likely enhanced my single-coder design and increased validity, replicability, and health justice[69] in this study.

Limitations

My methods had several limitations. First, the primary drawback of the comparative method is it entails many variables over a typically small number of policy cases.[260] This limitation was initially intended to contrast the comparative method with statistical methods that approximated experimental methods that controlled for known confounders.[260] I minimized this limitation by including a moderate number of policy cases (33), and deliberately minimizing the number of domains.

A second criticism of comparative policy analysis is that it fails to account for the contextuality of the specific problem.[198] Indeed, my cross-sectional design may mask earlier context, particularly in states that implemented their policies incrementally.[275] Analyzing cross-sectional data, rather than temporally different documents, likely improves the study's internal validity. However, if I instead compared policies at the time they were initially implemented, the results might reveal valuable contextual differences due to rapidly evolving language and beliefs on transgender and nonbinary identity and healthcare.

Third, a variety of policy documents must be analyzed since states do not make Medicaid coverage information available in a standard way.[49] The qualitative approach was designed to adapt to different text and documents while still maintaining order. Indeed, it is acceptable for policy cases to use multiple sources or types of evidence.[261] Still, this limitation may affect cross-case comparability.

Fourth, text in the policy documents imperfectly reflects real-world behaviors. Transgender and nonbinary people described how their providers used work-arounds to circumvent policy mandates, while other beneficiaries encountered providers who implemented their own gatekeeping practices.[152,166] However, this limitation was unlikely to significantly alter gender-affirming care patterns, and minimally threatened the study's validity.

Finally, the potential for bias was present because a single researcher, the doctoral candidate, performed coding. To mitigate the potential for bias, I practiced reflexivity and carefully documented decisions, questions, and contradictions. I intentionally sought feedback from community members with a variety of gender identities and lived experiences to evaluate reliability and validity, and ensure the results were relevant to the intended audience of care-seeking transgender, nonbinary, and gender-diverse Medicaid beneficiaries.

Aim 2 Configurational Analysis of Policy Environment Factors: Design and Methods

Aim 2: Identify configurations of state-level social, political, legal, and health system factors associated with different types of Medicaid gender-affirming care policies.

Research design and rationale

One critique of comparative policy analyses is that they largely focus on policy content, and neglect to account for actors, societal context, and processes.[256,263] I identified the cross-sectional design as a limitation of the methods for Aim 1 for precisely this reason. Therefore, for Aim 2 I conducted an analysis of environmental factors associated with the different policy types identified in Aim 1.

The Intersectionality Research for Transgender Health Justice framework[69] was fundamental to Aim 2's design and methods. This framework depicts the systems, institutions, and intersectional forces that produce social and health inequities for transgender and nonbinary people. Per this framework, Aim 2 hypothesized interaction between state-level factors produced environments associated with policies that mitigated or exacerbated social inequity. Previously-published research identified state-level factors associated with commercial insurance coverage for gender-affirming care,[204,209,210] but few investigated associations with Medicaid coverage.[49,63,203] These studies quantitatively estimated the isolated effect of singular variables, rather than recognizing factors' joint interactions.[63,69,198,203,256,263]

This investigation aimed to address two community-identified research priorities regarding Medicaid coverage for gender-affirming care: to understand what environments were associated with different types of insurance policies ,[71,72] and to identify factors that could potentially be altered to generate policies that align with beneficiaries' needs and preferences.[39,72,158] I hypothesized that configurations of social, legal, political, market, and health systems factors were associated with Medicaid policy.

Study objective

The goal of this analysis was to identify configurations of state-level factors associated with different levels of person-centeredness in state Medicaid gender-affirming care policies. Findings can be used by advocates and policymakers to understand state-level contexts associated with different types of Medicaid policy, and identify factors for future investigation as potential policy levers.

Analytic method

The analytic method relied on configurational theory, an approach to organizational analysis.[276,277] Configurational theory focuses on how or why multiple attributes combine in distinct configurations to explain the organizational phenomenon.[276] This theory allows for the possibility that complex causal processes may involve more than one configuration of attributes which leads to the outcome of interest.[276] Blending configurational theory with the Intersectionality Research for Transgender Health Justice framework yielded myriad possible environments associated with gender-affirming care policy.

Configurational comparative methods are a class of approaches used to model complex patterns of conditions with a hypothesized relationship to a specific outcome.[197] Configurational comparative methods rely on a regularity theory of causality, which defines a cause as a "difference maker" of an effect within a fixed set of background conditions. X is a cause of Y if there exists a fixed set of background conditions ϕ such that a change in the value of X is systematically associated with a change in Y. If X does not make a difference to Y in any ϕ, X is considered redundant and is not a cause of Y.[197]

The condition X consists of a cluster of factors (say, A+B+C), wherein each single factor (e.g., A) is related to the effect Y as an *insufficient* but *nonredundant* part of an *unnecessary* but *sufficient* condition ("INUS" condition).[197,278] An example for illustrating INUS conditions is: not every traffic jam (Y) is caused by a car accident (A), but a car accident (A) in combination with other conditions, such as a two-lane freeway (B) and rush hour traffic (C), is sufficient to cause a traffic jam. In this example, the car accident is a factor in an INUS condition: it is a necessary, but itself insufficient, part of a sufficient, but itself unnecessary, condition for a traffic jam. All three factors are difference-makers: if one of them is missing, a traffic jam does not occur along this causal path. However, a traffic jam may also occur in other configurations of conditions, such as during a summertime drive in a popular national park.

Regularity theories explain Boolean properties which comprise three measures of complexity: conjunctivity, equifinality, and sequentiality. Conjunctivity occurs when several conditions must be jointly present when an outcome occurs (if A + B + C then Y). Equifinality refers to the possibility wherein different paths are associated with the same outcome (if A + B + C then Y, or if D + E + F then Y). Sequentiality occurs because outcomes tend to induce further outcomes (if A + B then C, and if A + B + C then Y).[196,197]

Coincidence analysis (CNA) is a type of configurational comparative method. CNA uses an inductive, stepwise approach to modeling potential configurations. CNA first tests single factor values for sufficiency and necessity, then tests combinations of increasing numbers of factors. This method yields sufficient and necessary configurations that are automatically parsimonious and redundancy-free.[197] Because real-life data tend to exhibit

variance due to unmeasured confounding, strictly sufficient or necessary conditions for an outcome Y usually do not exist.[196] However, two important model specifications measure the degree to which the model can distinguish between cases with and without the conditions or outcomes of interest. The first is consistency, the degree to which the behavior of an outcome obeys a whole model or a corresponding sufficiency or necessity relationship. The second is coverage, which measures the degree to which a whole model or a sufficiency or necessity relationship accounts for the behavior of the outcome of interest.[196,279] For example, if consistency is lowered from its maximum of 1 to 0.8, CNA is given permission to treat X as sufficient for Y, even though in 20% of the cases X is not associated with Y. Similarly, if coverage is lowered from its maximum of 1 to 0.8, CNA is allowed to treat X as necessary for Y even if 20% of the cases featuring Y do not feature X.[196] The higher the coverage, the less likely the underlying data set is prone to unmeasured confounding.[196] The researcher specifies the consistency and coverage according to their own acceptable uncertainty levels. However, to reduce the likelihood of overfitting, setting the consistency and coverage to the maximum of 1 is not recommended unless the researcher is certain the data has minimal unmeasured confounding.[197]

The configurational theorizing process entails three iterative stages: 1) scoping, 2) linking, and 3) naming.[276] I detail my approach to each stage below. I conducted coincidence analysis[196,197] to identify configurations of state-level factors associated with different levels of person-centeredness in Medicaid gender-affirming care policies.

Scoping stage. The scoping stage involved identifying and specifying the key factors theorized to be associated with Medicaid gender-affirming care policy types. This process entailed both considering as many relevant factors as possible, and simplifying the full group of factors to a parsimonious set.[276] I identified factors and organized them within higher-order constructs that could be used to simplify or group them: social environment, legal environment, political or policy factors, market, and health system factors. Configurational theory implies the factors must be logical and plausible. Thus, some factors were drawn from published literature suggesting the factors were associated with commercial and Medicaid policy,[49,63,74,203,204,209,210] while other potential factors were exploratory. CNA does not limit the number of factors. However, parsimony and simplification ideally yield models that are explainable and justifiable.

I assembled the configurational data set of factor values for each of the 33 states and federal districts with Medicaid policies covering or prohibiting gender-affirming care as of December 2022. I also collected factor values for the 17 states that did not have explicit policies for use in a sensitivity analysis. Data came from sources including the U.S. Census,[280,281] Medicaid.gov,[282,283] Movement Advancement Project,[58,284] Human Rights Campaign,[211,285] Kaiser Family Foundation,[286] Williams Institute reports,[91,287] Cook Political Report,[288] and content analysis from policy documents. Because CNA can accommodate binary, and finitely-categorical factor values,[196] I undertook minimal transformation of numerical or ordinal data. I utilized the minimally sufficient conditions ("msc") routine within the R "cna" package[289] to perform the scoping process.

Linking stage. The linking stage entailed theorizing about how or why the factors formed the configuration(s) associated with the policy type.[276] In this stage, I reflexively analyzed the preliminary models identified in the scoping stage above. This stage involved considering the theoretical mechanisms underlying why conjunctivity and sequentiality occur. Policy process theories, including policy feedback theory[86] and innovation and diffusion,[290] proved useful. Iteration is encouraged in configurational theorizing processes and CNA,[276] and complement the principle of equifinality. While developing models, I undertook necessary adjustments, such as modifying the consistency and coverage specifications, adding factors to the configurational data set, combining variables into higher-order measures, eliminating implausible factors, or combining policy types. I conducted multiple scoping and linking stages to produce the final configurations.

Although the primary analysis included only the 33 states and federal districts with explicit Medicaid gender-affirming care policies and modeled their level of person-centeredness as an outcome, I also conducted a sensitivity analysis that modeled a typology developed by a different study: whether the Medicaid gender-affirming care policies were restrictive, protective, or unclear.[203] The sensitivity analysis was based on theory about agenda blocking and agenda silencing, wherein social and political forces affect which issues receive policy attention.[291] Because the policy typologies meaningfully differed between the primary and secondary analyses, the sensitivity analysis tested whether broad inferences could be made about state-level environments associated with

analogous policy types (i.e., moderately-high person-centeredness and protective policies, exclusionary and restrictive policies).

Naming stage. The naming stage articulated the factors and labeled the configurations. Naming communicates the configurations' meanings, frames the narrative about the observed patterns, and highlights the observed distinctions.[276] I performed naming after CNA was finalized.

Assumptions

This approach relied on four assumptions. First, I assumed the policy types identified in Aim 1 were logical and mutually exclusive. Second, the CNA method assumed the configurational data comprised a reasonably complete set of factors. A higher likelihood of unmeasured confounding in the configurational data leads to less reliable interpretation in the resulting models.[196] Third, the CNA method assumed that conjunctivity explains the true form of environmental patterns, rather than the isolated, linear effect of single factors. Fourth, the CNA method assumed equifinality, wherein multiple configurations can be associated with the same outcome.

Limitations

My approach had three limitations. First, CNA is somewhat sensitive to unmeasured confounding. If unmeasured confounding cannot be assumed to affect all cases and configurations equally, generalization may be problematic due to threats to validity.[196] Second, configurational comparative methods rely on observed data, and consequently likely do not reveal all underlying configurations. The absence of X from a

model only means the data do not contain evidence for X's relevance, not that X itself is irrelevant.[196] Third, I performed scoping, linking, and naming processes as a single researcher. The results may be limited by my biases and lack of comparable published studies. Despite these limitations, the findings expanded on current evidence and applied a novel systems perspective to this aim.

Aim 3 Oregon Medicaid Gender Affirming Care and Wages: Design and Methods

Aim 3: Examine changes in wages relative to the use of gender-affirming care in transgender and nonbinary Oregon Medicaid beneficiaries.

Research design and rationale

In September and November 2018, four focus groups comprising transgender and nonbinary participants who received primary care at federally-qualified community health centers in Boston and New York identified three health research priorities.[39] One priority was to research resiliency and success stories, rather than disparities.[39] Studying whether Medicaid policy change contributes to downstream resilience and success in transgender and nonbinary beneficiaries meaningfully advances the narrative.

Preliminary qualitative and quantitative research suggests that health insurance coverage for gender-affirming care is associated with access to medical affirmation,[45,182-184,221] improved viral suppression in people living with HIV,[79,185] and lower suicidality.[34,37] However, the relationship with social risk is less well understood. Employment is a critical social risk factor and research suggests that unemployment and underemployment are especially high in transgender and nonbinary individuals.[2,135] Qualitative research

indicates medical gender affirmation protects against employment discrimination or job loss due to greater feelings of safety or engagement with work.[2,161,292,293] Although some participants in qualitative interviews reported experiencing employment discrimination when employers learned that they were transgender,[2,294] an analysis of 2015 U.S. Transgender Survey data found the odds of unemployment did not increase if respondents believed people could perceive they were transgender.[295]

I conducted a single-state case study of Oregon, which was an early adopter of Medicaid coverage for gender-affirming care.[58] Preliminary evidence suggests the state's transgender and nonbinary beneficiaries believe the policy adequately aligns with their needs and preferences.[89] This case study addressed a community-identified need for studies that focus on practical outcomes.[39] I utilized a novel longitudinal dataset to investigate wage dynamics relative to gender-affirming care receipt, which advances the research agenda.

Study objective

The goal of this analysis was to examine changes in wages relative to the use of gender-affirming care.

Analytic method

I detail my analytic approach below using the STROBE checklist for observational studies.[296]

Study design. I conducted a retrospective observational study using eleven years of secondary data collected in Oregon. Oregon Medicaid began covering gender-

affirming care in January 2015,[81] and the data span five years prior to and after this policy change.

Setting. This study used 2010-2020 Oregon Medicaid administrative claims provided by the Oregon Health Authority and wage data from the Oregon Employment Department. Administrative claims are data derived from reimbursement information on all services paid by Oregon Medicaid for its beneficiaries. These data include diagnosis and procedure codes, pharmacy claims, provider attributes, and dates of service at a person- and daily-level. The data also include demographic information collected at enrollment. The data contain a unique person-level identifier that allows beneficiaries to be followed over time across discontinuous enrollment periods. Wage data was appended to this cohort of Oregon Medicaid beneficiaries. The Oregon Employment Department collects wage data from employers who have employees covered by unemployment insurance and shares wage data for socioeconomic research. Person-level matching between Oregon Medicaid beneficiaries and Oregon Employment Department wage data was conducted by the state of Oregon's Integrated Client Services unit.[297]

Participants. This study comprised transgender and nonbinary adults who received gender-affirming care when they were enrolled in Oregon Medicaid during the 2010-2020 period. Individuals were excluded if they were dually-enrolled in Medicare and Medicaid, younger than 18 years or older than 65 years the first time they received gender-affirming care covered by Oregon Medicaid, continuously enrolled in Oregon Medicaid for less than one year, or had no employment data. Previously-developed methods were applied to identify this cohort[99] and their gender-affirming

care[95,99,100,253,264] from administrative claims. Consistent with previous literature, gender identity was applied retrospectively and prospectively.[98,100,298,299] For example, if an individual was first identified as transgender or nonbinary in 2015, their data from the entire 2010-2020 period was used in this analysis. The sample comprised 1,110 adult beneficiaries.

Variables. The primary independent variable was receipt of gender-affirming care. I identified gender-affirming care use in the claims data by applying gender-affirming diagnosis and procedure codes identified in prior literature[95,99,100,253] and Oregon Medicaid benefits information.[264] I created binary indicators representing use of any or no care, gender-affirming hormones, gender-affirming surgery (breast/chest, removal of sex organs, and genital plastic surgery), and hair removal. The primary outcome was wages. I processed the raw wage data following guidance from the Oregon Employment Department. Covariates included gender (categorical; transmasculine or nonbinary with female sex assigned at birth or gender-affirming care consistent with a masculinizing gender expression; transfeminine or nonbinary with male sex assigned at birth or gender-affirming care consistent with a feminizing gender expression), age at the time of earliest gender-affirming care (categorical), race and ethnicity (categorical), residence in urban areas (binary), and years of Medicaid enrollment (continuous). The covariates were obtained or measured from Medicaid enrollment and medical files. Unmeasured confounders that could not be obtained from the data included nonmedical affirmation, educational attainment, and housing stability.

Statistical methods. I conducted descriptive and regression analysis to investigate changes in wages relative to individuals' gender-affirming care. I created a time series plot to describe the sample's average quarterly wages in the 16 quarters prior to and after individuals' first gender-affirming care receipt. I described the distribution of changes in wages after gender-affirming care receipt and reported the median wage change and the percentile for which positive wage change was observed. I also conducted a sensitive analyses wherein I systematically compared wages from one year prior to gender-affirming care receipt to those earned one, two, and three years after to investigate short-term changes. I conducted regression analysis to identify demographic factors associated with wage changes.

Because literature indicates TFN and TMN people experience different employment opportunities after receiving gender-affirming care,[2,292,295,300,301] I stratified all analyses by gender. I adjusted all wages to January 2024 USD using the Consumer Price Index for All Urban Consumers (CPI-U, series ID CUUR0000SA0)[302] at quarterly intervals.

Assumptions

My analysis relied on two assumptions. First, it assumed no major economic disruptions occurred during the study period that would induce external effects on observed wage dynamics. Because I limited my study population to transgender and nonbinary beneficiaries who had received gender-affirming care, I did not have a comparator group to depict baseline wage trends. However, because I investigated wage changes relative to gender-affirming care receipt, a cisgender comparator group would have been inappropriate since they would not be "at risk" of receiving gender-affirming

care. The second assumption was the time period was sufficient to observe short-term effects on employment outcomes. During the 2010-2020 period, Oregon's seasonally-adjusted unemployment rate ranged between a low of 3.4% and maximum of 13.3% during a COVID-19 pandemic-era peak in April 2020.[303] For much of the decade the unemployment rate was lower than 8%, suggesting sufficient employment and wage-earning could reasonably be observed in the sample during this period.

Limitations

This analysis had several limitations. First, the sample only included transgender and nonbinary Oregon Medicaid beneficiaries with observed care. Oregon Medicaid requires a diagnosis of gender dysphoria prior to receiving coverage for gender-affirming care.[254,264] Consequently, beneficiaries who did not seek or receive gender-affirming services, or those who were not diagnosed with gender dysphoria, were not included. In a previously-published study, the use of work-around diagnoses were low in Oregon Medicaid claims, suggesting this limitation likely did not exclude transgender or nonbinary beneficiaries on a large scale.[99] Second, measurement methods do not account for the diversity of gender identities. During the study period, Oregon Medicaid enrollment forms only collected binary gender identity values. House Bill 3159, which passed in 2021, mandates the collection of sexual orientation and gender identity in Oregon programs, including Oregon Medicaid.[304] Although these gender identity information were not available for this study, draft recommendations from May 2022 include more inclusive gender categories such as transgender, nonbinary, agender, and gender questioning[305] and could be applied in future research. Third, wage data was only

available for employees covered by unemployment insurance, and did not include other sources of income such as earnings from veterans' benefits, public assistance, and other sources.[306] Finally, these results may not be generalizable to other states. Despite these limitations, the study addressed community-identified research priorities,[39,71,72] and investigated a compelling social risk outcome.

Human Subjects Protections

This research was supervised by the doctoral dissertation chair and committee, and adhered to Portland State University's ethical standards for research involving human participants. The researcher obtained and maintained current Responsible Conduct of Research and Human Subjects Research training certification from the Collaborative Institutional Training Initiative.[307] All data collection methods were submitted by the researcher and dissertation committee chair to the Portland State University Institutional Review Board (IRB) in May 2023. The Portland State University Institutional Review Board approved this study in June 2023 (HRPP #238159-18, Appendix A). The researcher confirmed with the Oregon Health Authority and Oregon Employment Department that separate institutional review board approval was not needed from these entities, and Data Use Agreements were obtained for the use of Medicaid and employment data.

All information obtained through secondary data collection is publicly available. All data provided by the Oregon Health Authority and Oregon Employment Department were anonymized. All findings were presented in aggregated or de-identified form.

Conclusion

This study answered the research question: What similarities and differences exist in national and state-level Medicaid gender-affirming care policies and policy environments, and how is gender-affirming care receipt related to social risk? Three aims addressed this research question: 1) Assess person-centeredness in U.S. Medicaid gender-affirming care policies' coverage eligibility, covered services, rules for access to care, and language; 2) Identify configurations of state-level social, political, legal, and health system factors associated with different types of Medicaid gender-affirming care policies; 3) Examine changes in wages relative to the use of gender-affirming care in transgender and nonbinary Oregon Medicaid beneficiaries. The research question and three aims address community-identified research priorities[39,70-72,158] and meaningfully advance methods in this field.

Characterizing Medicaid policies according to person-centered measures, understanding configurations of state-level factors associated with different types of policies, and investigating the impact of Medicaid policy on social risk centers the transgender and nonbinary experience. While some methodological limitations exist, this dissertation research nonetheless produced knowledge relevant for transgender and nonbinary people, and valuable to health researchers and policymakers.

CHAPTER 4: UNITED STATES MEDICAID GENDER-AFFIRMING CARE POLICIES AND LEVELS OF PERSON-CENTEREDNESS - EMBEDDING LIVED EXPERIENCE INTO POLICY ANALYSIS

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Introduction

Gender-affirming care is healthcare that meets the physical, mental, and social health needs among people whose gender identity or expression differs from their assigned sex at birth (i.e., transgender and nonbinary people).[7] Insurance coverage for gender-affirming care is associated with increased usage of gender-affirming surgery,[183] higher prescribed hormone use and lower use of potentially unsafe nonprescription hormones,[45,184] and affirming counseling and therapy[45] in transgender and nonbinary people. Having the opportunity to access gender-affirming care may lead to benefits in mental health outcomes, including decreases in substance use disorders and improved quality of life,[2,160-164] and improved physical outcomes such as greater viral suppression among people living with HIV[79,185] and better general health.[34] In a survey of transmasculine adults, use of gender-affirming surgery was significantly associated with enhanced social relationships and maintaining employment,[161] underscoring the potential for substantial improvements across various dimensions in quality of life.

Policies prohibiting gender-based discrimination in health insurance are intended to increase access to healthcare for transgender and nonbinary people. Previous studies found nondiscrimination policies were associated with immediate health outcomes, such as increased use of gender-affirming mental healthcare[195] and surgery,[253] and decreased suicidality.[37] Access to health insurance among transgender and nonbinary people is also associated with upstream benefits, including reduced healthcare cost barriers[193] and timely healthcare utilization.[124]

Because over one-fifth of transgender and nonbinary people are insured by Medicaid,[81] changes to Medicaid policy may significantly impact their population health and overall quality of life. Although Section 1557 of the Affordable Care Act (ACA) requires that insurance coverage cannot be denied due to one's gender identity,[178] Medicaid coverage for gender-affirming care is governed by state-specific policies, resulting in a heterogenous national landscape.[81,177] Even in states that explicitly cover gender-affirming care, covered services[49,62-66,202] and access restrictions[66,89,152] vary. Further, for states wherein policies are not uniformly documented in their Medicaid handbooks, information about coverage for gender-affirming services may be vague or difficult to find.[49,203] This opacity hinders accessibility for beneficiaries with time or health-literacy limitations,[49] and could lead to risky health behaviors such as obtaining nonprescribed hormones.[32,49]

To date, comparative analyses of states' Medicaid policies focused on whether specific affirming facial[64] or genital[62] procedures are covered, whether broad categories of care such as gender-affirming surgeries or hormones are covered,[49,63,202] the ease of obtaining publicly-available information,[49,203] and characterizing policies as protective, restrictive, or unclear.[203] However, while these studies broadly summarize policies' content, they do not investigate whether the policies meet the diversity of individuals' gender-affirming care needs. Indeed, no study has assessed whether Medicaid gender-affirming care policies promote person-centered care: care that demonstrates respect for the person's experience and identity, engages the care recipient in shared decision-

making, recognizes how institutions and systems affect access to care for transgender and nonbinary people, and prioritizes meaningful life and wellbeing.[213,214,308]

This study aims to fill the gaps in prior comparative analyses by undertaking an in-depth synthesis of person-centeredness in states' Medicaid gender-affirming care policies. We use a community-engaged approach to assess multiple dimensions of person-centeredness, including how the policies define gender identity and gender identity-based eligibility, what services are covered or excluded, and how rules and processes impact access to gender-affirming care. Findings from this study are anticipated to serve as a cohesive resource to community members, providers, policymakers, and researchers seeking insights into state Medicaid gender-affirming medical care policies.

Materials and Methods

Study Design

We used qualitative content analysis[257] to characterize person-centeredness in state Medicaid gender-affirming care policies. Because states operate their own Medicaid programs within broad federal guidelines,[51] state-specific Medicaid policy changes occur on varying timelines. Heightened social and political attention[174,178,309,310] to and increased patient activation[147,311,312] of gender-affirming care contributes to the rapidly-changing policy landscape. Thus, content analysis was conducted on policy documents as of December 2022, ensuring cross-sectional comparisons were made on temporally similar and relatively current policies. As of December 2022, 33 U.S. states

and Washington, D.C., had explicit Medicaid gender-affirming care policies[58,81] and were included in this study. The Portland State University Institutional Review Board approved this study (HRPP #238159-18).

Frameworks

This study was guided by the Intersectionality Research for Trans Health Justice (IRTHJ) framework.[69] IRTHJ illustrates the embedded systems—structures of domination, institutional systems, and socio-structural processes—that produce transgender health inequities. Meaningfully, IRTHJ identifies three actions to advance transgender health justice: naming intersecting power relations, disrupting the status quo, and centering embodied knowledge. Secondarily, this study is guided by concepts in desire-based research frameworks, wherein research seeks to understand the experiences, human agency, and complexity in lived lives, and research is intentionally designed to improve the situation.[39,313] We applied these frameworks to the themes used to evaluate person-centeredness and to the process of knowledge creation.

Policy Document Compilation

For this study, we used the state-level policy case, a collection of specific documents[259,261] regarding Medicaid coverage for gender-affirming care, to create an in-depth comparison of state Medicaid programs' gender-affirming care policies. Policy documents included Medicaid handbooks, Medicaid program webpages, legislative documents regarding state-specific policy changes, administrative rules, court decisions,

and official state press releases or insurance bulletins. These documents described the official implementation of Medicaid policy in its real-life context.[263]

We obtained provider and member handbooks and relevant health information from states' Medicaid program webpages. We obtained legislative documents by searching states' legislative websites for the terms "gender" or "sex" with wildcard prefixes or suffixes based on states' usage of these terms (e.g., transgender, gender-affirming, transsexual). Legislative documents were limited to passed bills regarding Medicaid coverage for gender-affirming care, official press releases, and publicly available meeting minutes regarding these bills. We obtained administrative rules by searching states' online databases using the aforementioned terms and limiting results to those relevant to Medicaid policy. We obtained court decisions by searching states' judicial websites for decisions pertinent to Medicaid coverage for gender-affirming care. We obtained state press releases and insurance bulletins through hand-searches of states' health and human services or health insurance regulation sites.

We cross-referenced the assembled policy documents against state-specific resources identified by published peer-reviewed articles assessing Medicaid coverage,[49,63,203] a December 2022 Medicaid gender-affirming care report published by the Williams Institute,[81] and the Transgender Legal Defense & Education Fund's Medicaid Regulations and Guidance site[266] to verify timeliness and accuracy. We conducted all searches for documentation between June and July 2023. We retained only the most recent documents prior to December 31, 2022 and did not analyze historical versions.

Coding

We used a middle-range coding approach,[314] wherein we applied both inductive or emergent codes and *a priori* codes from published literature[2,39,49,63,152,202,203,205,255] to the policy documents. While *a priori* coding facilitated comparison with previous research, inductive coding allowed the coder (KY) to examine the policy from the novel lens of person-centeredness. All documents with available information regarding Medicaid gender-affirming care policies were coded and included in the results. If a state's policy case comprised multiple documents, we considered documents that contained the most recent and highest level of detail to be primary sources. For example, if a state's Medicaid provider handbook described coverage for oral, transdermal, or injectable gender-affirming hormones, and the state's insurance bulletin described general coverage for gender-affirming hormones, we reported coded data from the provider handbook.

We identified and included Medicaid provider and member manuals, Medicaid websites, prior authorization forms, administrative rules, insurance bulletins, legislative and judicial cases in this analysis (Appendix B).

We coded documents iteratively using ATLAS.ti Web (version 5.8.0),[272] and utilized investigator triangulation and community engagement to enhance the single-coder design.[273,274] First, the coder (KY) read through all documents once without undertaking any coding to grasp the scope of available information, perform additional hand-searches if documents contained no Medicaid gender-affirming care content, and identify preliminary themes related to person-centeredness. Then, the coder performed

coding across multiple iterations to identify *a priori* codes and additional emergent codes.

Next, the coder used adaptive network sampling[270] to recruit four members of the transgender and nonbinary community to review and refine the initial coding and approach. These community members (HW, HS, MSH, RS) participated in two-hour meetings wherein they evaluated the initial codebook, reviewed a sample of policy documents, shared their personal insights regarding person-centered healthcare and policy, and identified salient information and methods for community-facing dissemination. The coder then undertook additional coding to incorporate community feedback after each meeting. For example, HS and MSH recommended specifying whether certain hormone formulations were covered, and all four community members recommended separating an initial "Inclusivity" domain into Eligibility and Language. Two community members (HW and HS) reviewed the subsequent codebook (Appendix C) and codes before the coder finalized the results.

We identified four themes after coding and community review were completed: Accessibility (rules that exist regarding access to gender-affirming care), Comprehensiveness (subtheme 1: gender-affirming services that are explicitly covered; subtheme 2: gender-affirming services specifically excluded by the policy), Eligibility (how the policy defines eligibility for gender-affirming care), and Language (how the policy refers to beneficiaries and gender-affirming services) (Table 4.1). We characterized policy content on a unidimensional scale as having high, moderately high, moderate, or low person-centeredness by combining performance across the four themes. We applied a

separate "exclusionary" characterization to Medicaid policies that explicitly prohibited coverage for gender-affirming care.

Table 4.1. Definitions of person-centeredness domains identified within Medicaid policy content

Domain	Description
Accessibility	Rules that exist regarding access to gender-affirming care (e.g., obtaining prior authorization, specific duration of gender-affirming hormones mandated before gender-affirming surgeries permitted) High person-centeredness: Policy contains minimal restrictions to member's ability to access gender-affirming care Moderate person-centeredness: Policy contains restrictions that moderately affect a member's ability to access gender-affirming care, but may be acceptable insofar as they mainly exist to ensure members' safety Low person-centeredness: Policy restrictions minimize members' bodily autonomy or are unclear
Comprehensiveness	Subtheme 1: Gender-affirming services that are covered by the policy High person-centeredness: An extensive range of gender-affirming care is explicitly covered, representing the diversity of medical gender affirmation Moderate person-centeredness: Covered care is limited to mental health services, gender-affirming hormones, and some gender-affirming chest and genital surgeries Low person-centeredness: Minimal gender-affirming care is covered, or the policy language is unclear regarding what services are covered Subtheme 2: Gender-affirming care that the Medicaid policy specifically excludes High person-centeredness: The policy explicitly states no services will be excluded Moderate person-centeredness: The policy contains limited explicit exclusions that do not limit coverage for a variety of gender-affirming care Low person-centeredness: The policy contains moderate to extensive explicit exclusions; or the policy language is unclear regarding excluded services; or the policy only covers care that is already included in benefits plan
Eligibility	How the policy defines eligibility for receiving gender-affirming care High person-centeredness: All members seeking gender-affirming care are eligible, with no mention of diagnosis- or medically-based history Moderate person-centeredness: Eligibility is based on gender incongruence Low person-centeredness: Eligibility is based on an impairment-based diagnosis (e.g., gender dysphoria or gender identity disorder), or eligibility rules are unclear
Language	How the policy refers to beneficiaries and gender-affirming services High person-centeredness: Policy content consistently uses inclusive terminology for gender identity and gender-affirming care Moderate person-centeredness: Policy content uses affirmation-based language combined with non-inclusive terminology Low person-centeredness: Policy uses only non-inclusive terminology, such as reinforcing binarized gender identity

Positionality and Reflexivity

The authors and members of the community panel have extensive embodied knowledge and health literacy regarding insurance coverage for gender-affirming care. Four of the five authors identify as transgender men, genderqueer, or nonbinary, and all have professional and volunteer experience in research and community organization for queer health. Members of the author team and community panel were purposefully invited to contribute to this study because they have obtained gender-affirming care covered by Medicaid, the Veterans Health Administration, and commercial insurance.

The first author (KY) consciously incorporated reflexivity into coding and understanding person-centeredness in Medicaid policy content through discussions with community participants and coauthors. For example, when evaluating person-centeredness within the Eligibility theme, some participants felt a gender dysphoria diagnosis was an acceptably necessary gatekeeping barrier that might be appropriate for providers to frame medical care, whereas others disagreed with pathologizing gender identity. These considerations are reflected in how Eligibility-based person-centeredness was defined (Table 4.1).

In contrast, community participants unanimously agreed on what constituted person-centered Language. Policy phrasing that used affirmation-based terminology and did not dichotomize care into feminizing vs. masculinizing was considered person-centered; terms such as “preferred gender role,” “cross-sex,” and “cosmetic” were less person-centered because they reinforced normative binarized gender identity.

Furthermore, community participants and coauthors agreed the four component themes contributed equally to policies' overall person-centeredness, and none should be weighted substantively more.

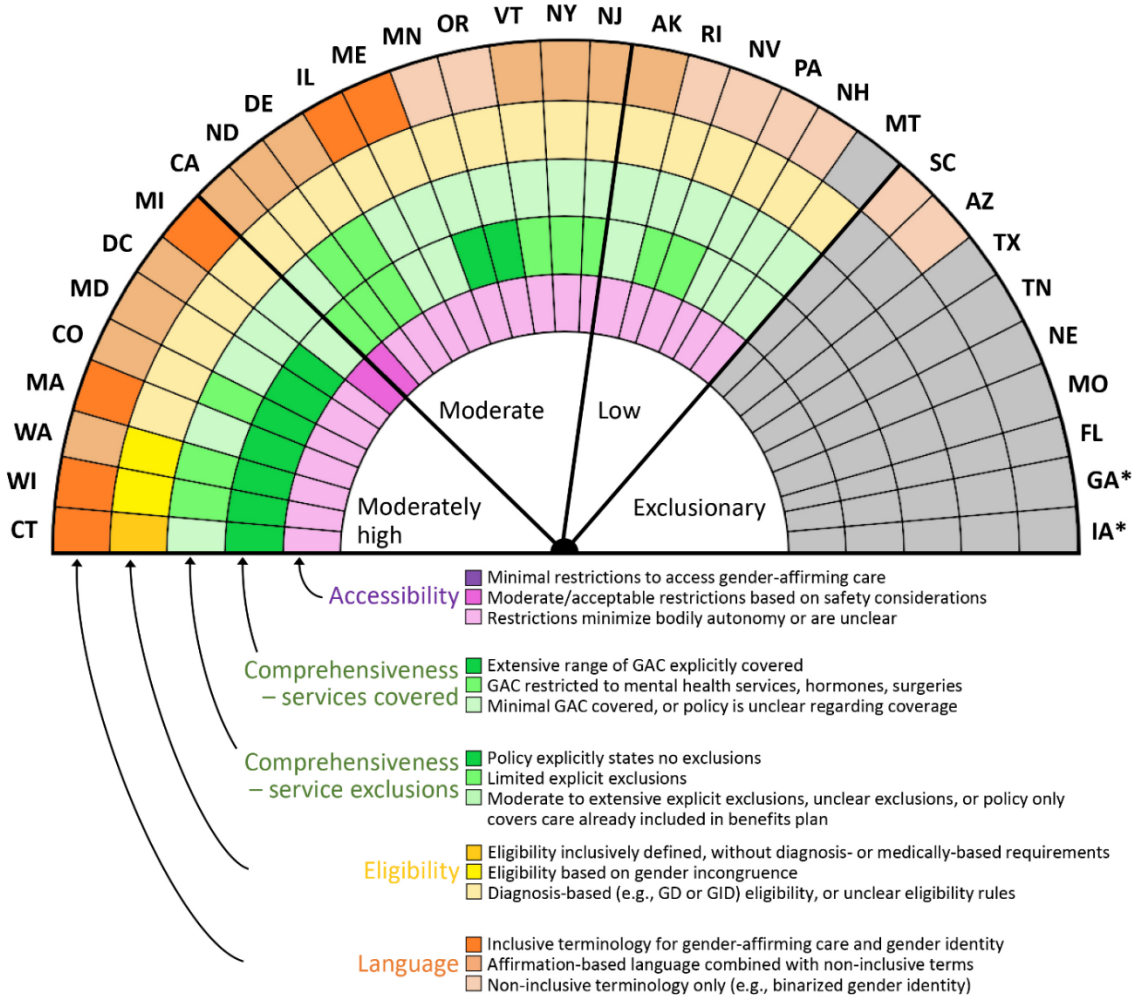
Community participants' and coauthors' collective knowledge informed the definition of person-centeredness generated in this study, with the acknowledgment that concepts about gender identity, gender-affirmation, and language continually evolve. Utilizing this combined knowledge promotes transgender health justice.[69,313]

Results

Person-centeredness in state Medicaid policy

Eight state policies were characterized as having moderately-high overall person-centeredness, ten as moderate, six as low, and nine as exclusionary (Figure 4.1). While no state policies exhibited high overall person-centeredness, seven state policies with moderately-high overall person-centeredness demonstrated high person-centeredness within the Comprehensiveness – Services Covered theme by covering a range of gender-affirming care beyond gender-affirming hormones and chest or genital surgeries, including hair removal, affirming facial surgeries, or voice care (Figure 4.1, Table 4.3). In contrast, most policies exhibited low person-centeredness within the Accessibility, Comprehensiveness - Service Exclusions, and Eligibility themes. While these findings are based on Medicaid policy content, it is important to note actual implementation may differ.

Figure 4.1. State Medicaid gender-affirming care policies' levels of person-centeredness



Abbreviations: GAC gender-affirming care; GD gender dysphoria; GID gender identity disorder.

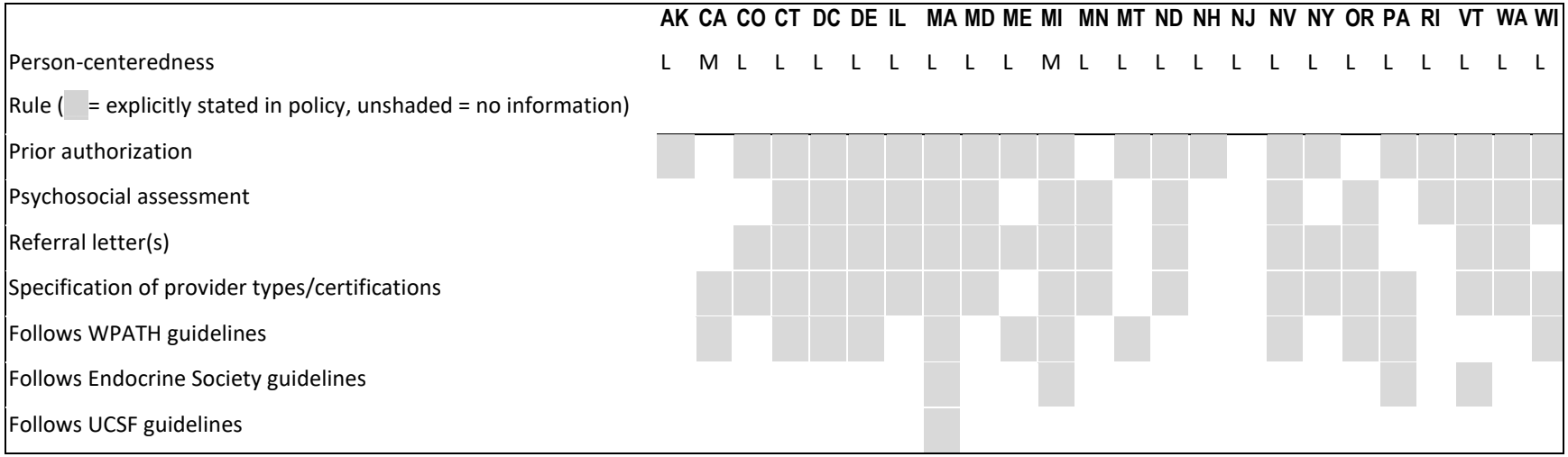
Notes: Overall person-centeredness was categorized as follows: High person-centeredness consisted of high person-centeredness in ≥2 component themes or subthemes and performance no lower than moderate in any remaining themes; Moderately high consisted of high and moderate person-centeredness in ≥1 theme or subtheme each; Moderate person-centeredness consisted of moderate person-centeredness in ≥2 themes or subthemes OR high person-centeredness in ≥1 theme or subtheme in the absence of moderate person-centeredness in any remaining themes; Low person-centeredness comprised moderate person-centeredness in ≤1 theme or subtheme; Exclusionary person-centeredness occurred when the policy explicitly excluded coverage for gender-affirming care, although person-centeredness could be assessed in the Language theme.

Person-centeredness within each policy theme

Table 4.2-Table 4.4 summarize states' policy content within the Accessibility, Comprehensiveness, and Eligibility and Language themes, respectively. The two most common access-related rules were meeting a threshold for medical necessity and obtaining prior authorization. Additional Accessibility details about age requirements and referral letters can be found in Appendix D. A total of 88 different types of care were identified across the policy documents within the Comprehensiveness theme (Table 4.3). Gender-affirming hormones was the most commonly covered type of care (20 states), whereas reversal of gender-affirming surgical procedures was most often specified as non-covered care (10 states). Within the 24 states that explicitly covered gender-affirming care, coverage for facial surgeries, hair-related care, torso or limb-related care, or voice care tended to be excluded (Table 4.3).

Table 4.2. State-specific Medicaid gender-affirming care Accessibility rules

	AK	CA	CO	CT	DC	DE	IL	MA	MD	ME	MI	MN	MT	ND	NH	NJ	NV	NY	OR	PA	RI	VT	WA	WI
Person-centeredness	L	M	L	L	L	L	L	L	L	L	M	L	L	L	L	L	L	L	L	L	L	L	L	L
Rule (= explicitly stated in policy, unshaded = no information)																								
Age requirement, years[1]			18	18	18	18	21	18	18			18		19			18	18	15		18		18	18
Care progression or sequence rules[2]																								
Hormones prior to surgery, months			12		12		12	12	12			12		12			12	12	12			12	12	6
Time spent living in gender role prior to surgery, months			12		12		12	12	12			12		12			12	12	12			12	12	
Time spent living in gender role prior to hormones, months						3																		
Psychosocial therapy prior to or with hormones, months						3								Y										
Hormones not needed prior to mastectomy																								
Hormones needed prior to mammoplasty, months								12	12			24					12	24	12		12	12	12	
Timing of diagnosis prior to surgery request, months								6	24															
Pelvic physical therapy only for pre/post-operative genital surgery																								
Hair removal only covered prior to surgery																								
Clinical effectiveness																								
Cost-effectiveness																								
Informed consent																								
Likelihood of adverse events																								
Maximum quantities allowed																								
Medical necessity																								
Minimum quantities allowed																								
Out of state coverage																								



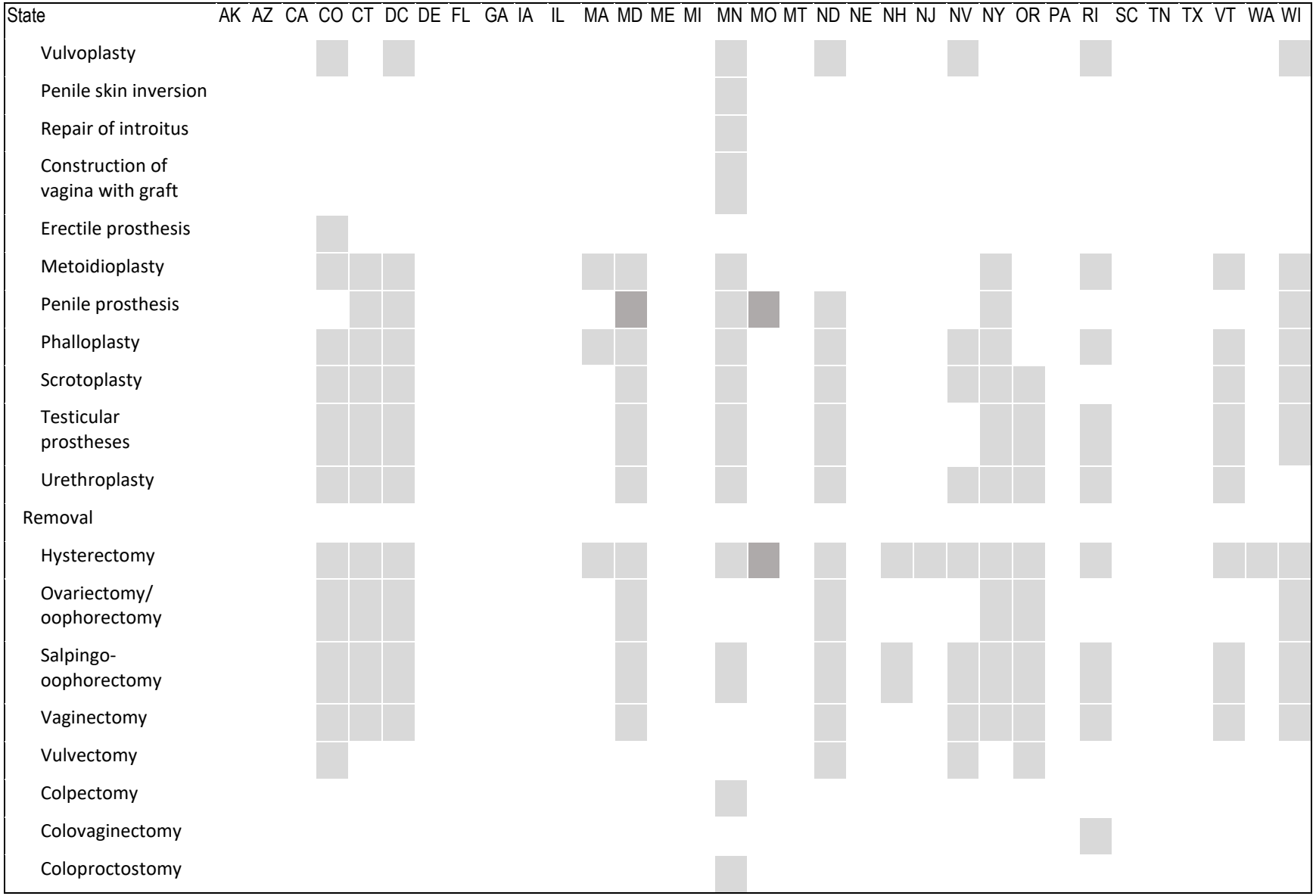
Abbreviations: H High; L Low; M Moderate; UCSF University of California, San Francisco; WPATH World Professional Association for Transgender Health.

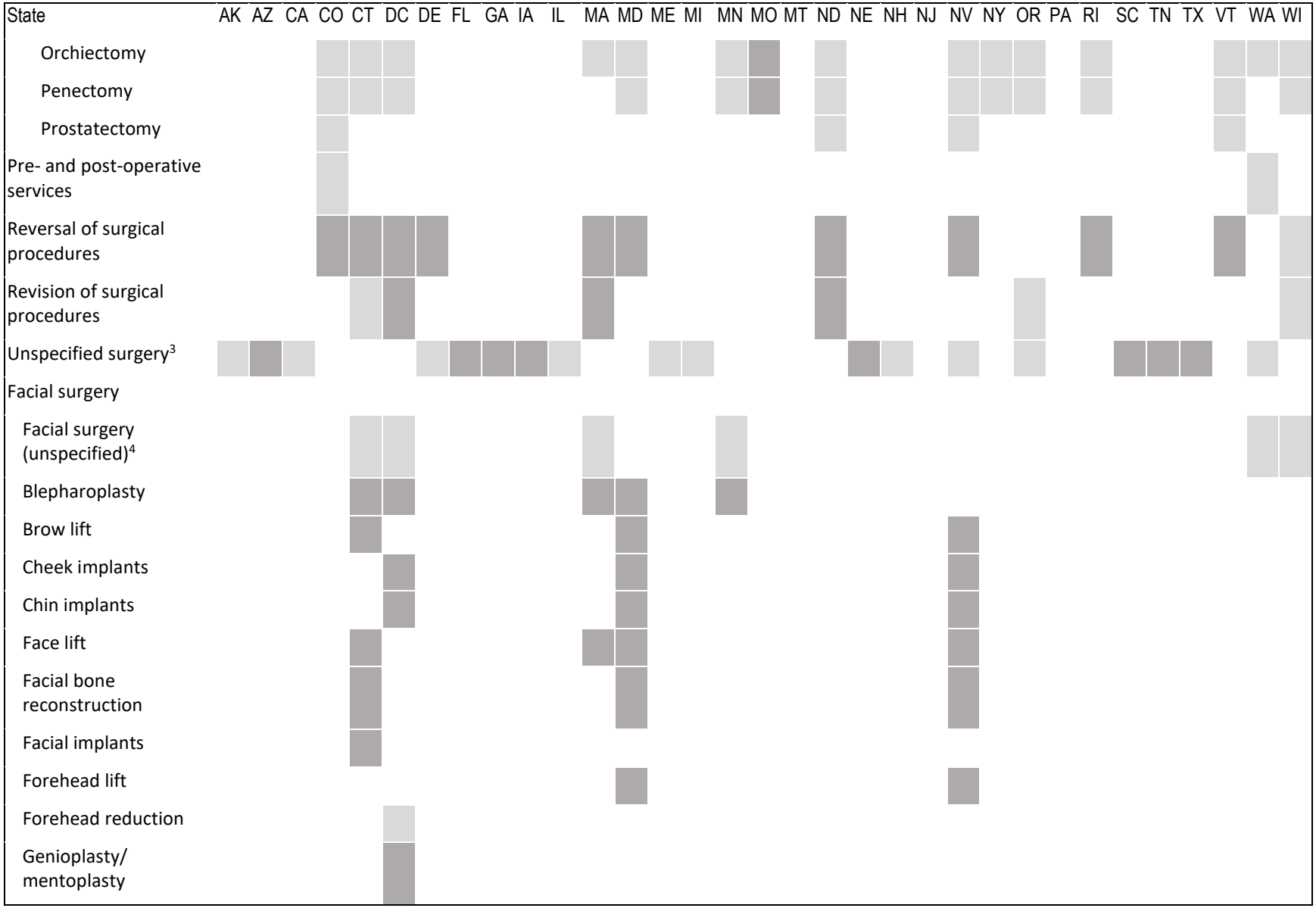
State abbreviations: AK Alaska; CA California; CO Colorado; CT Connecticut; DC Washington, District of Columbia; DE Delaware; IL Illinois; MA Massachusetts; MD Maryland; ME Maine; MI Michigan; MN Minnesota; MT Montana; ND North Dakota; NH New Hampshire; NJ New Jersey; NV Nevada; NY New York; OR Oregon; PA Pennsylvania; RI Rhode Island; VT Vermont; WA Washington; WI Wisconsin.

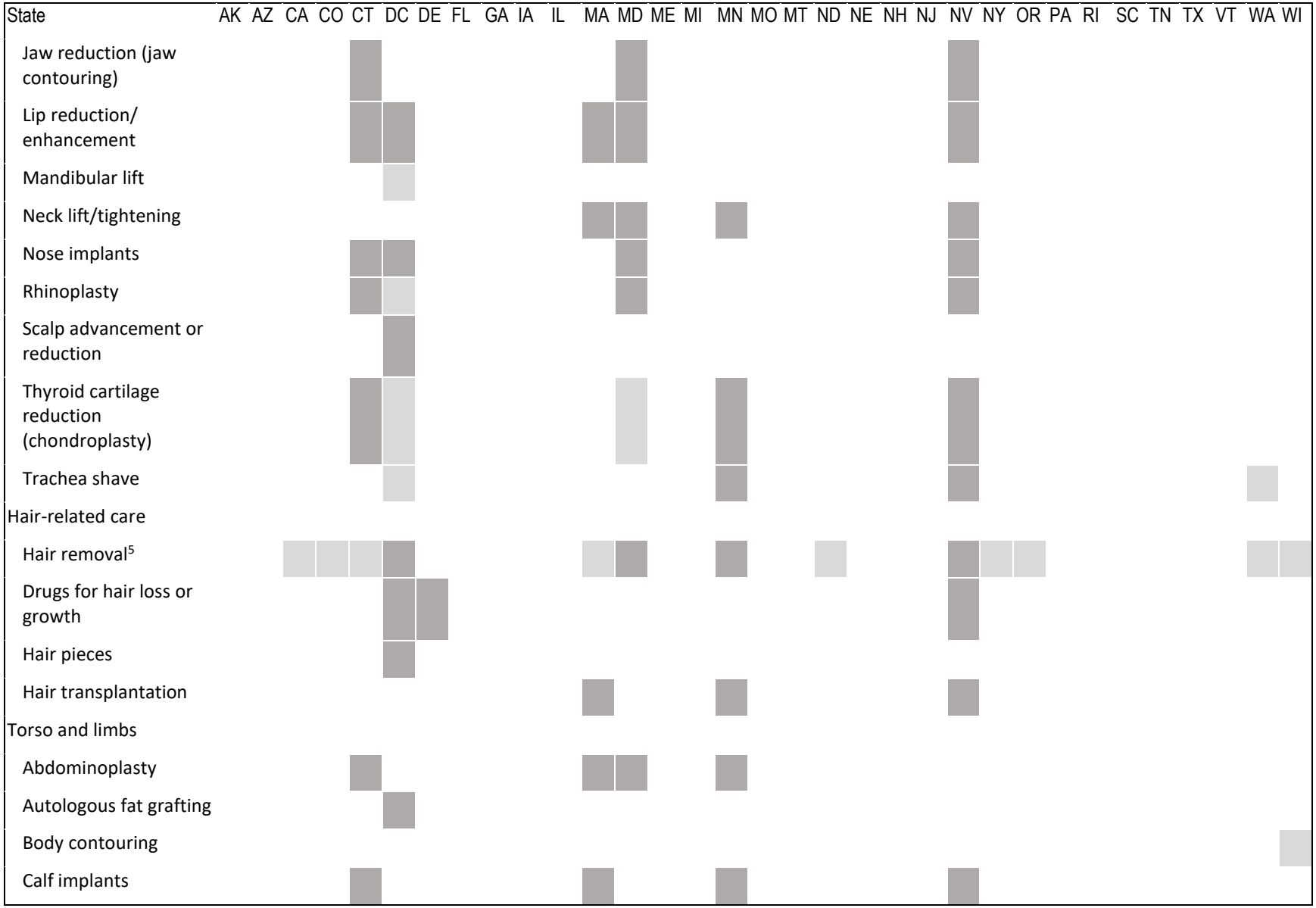
Notes: Some Accessibility rules may occur in tandem, e.g., obtaining informed consent may be a requirement for prior authorization. While these findings are based on Medicaid policy content, it is important to note actual implementation may differ. [1]Colorado's minimum age requirement explicitly applies to gender-affirming hormones and surgeries, New York specifies a minimum age requirement of 16 years for gender-affirming hormones indicated for use in adults, and Washington specifies a minimum age requirement of 17 years for mastectomy, while all other explicitly stated age requirements apply to gender-affirming surgeries. [2]Duration, in months, of care sequence rules specified where available. Arizona, Florida, Georgia, Iowa, Missouri, Nebraska, South Carolina, Tennessee, and Texas all explicitly exclude Medicaid coverage for gender-affirming care as of December 2022 and have no Accessibility rules.

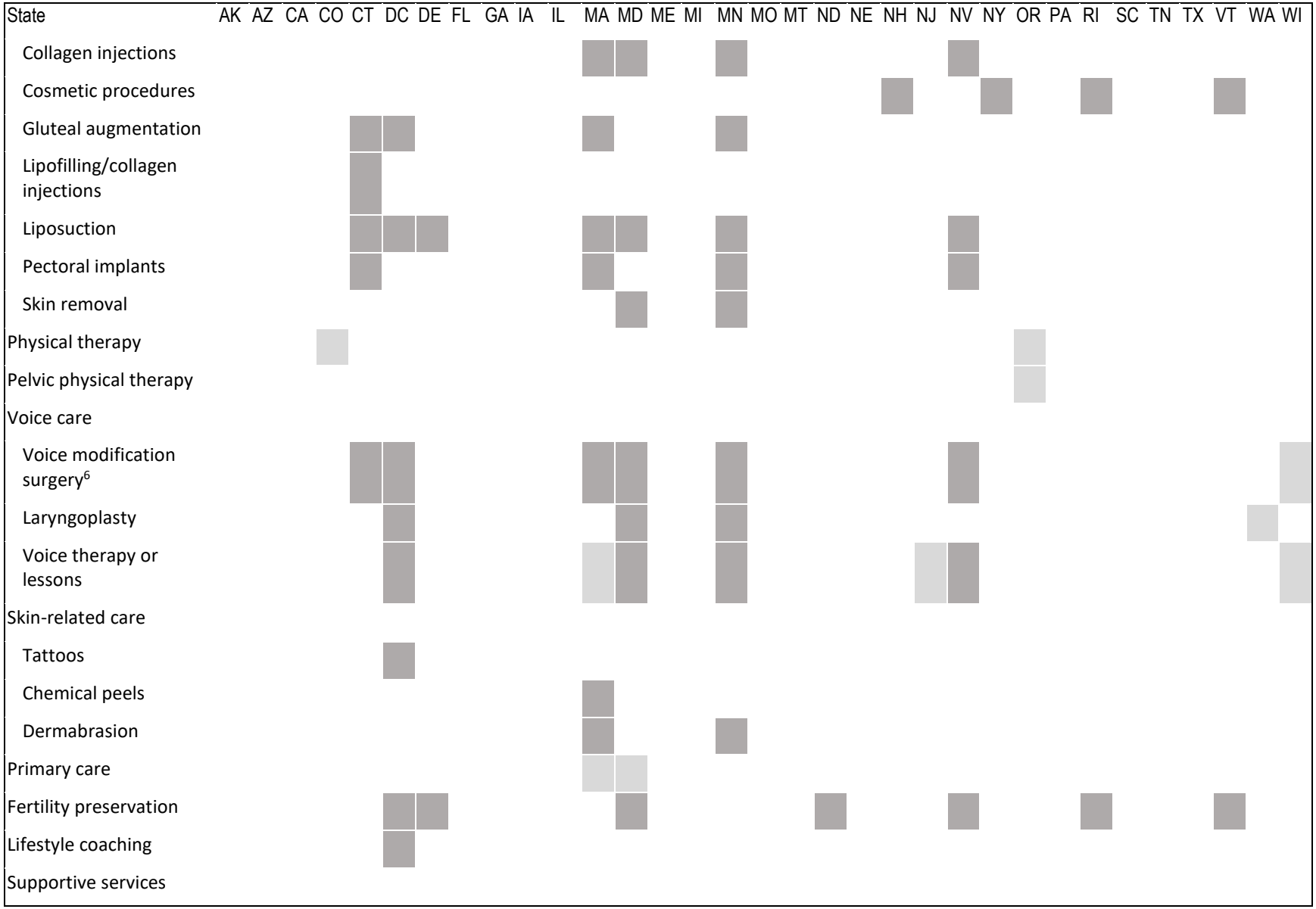
Table 4.3. State-specific Comprehensiveness of coverage for or exclusion of specific gender-affirming services

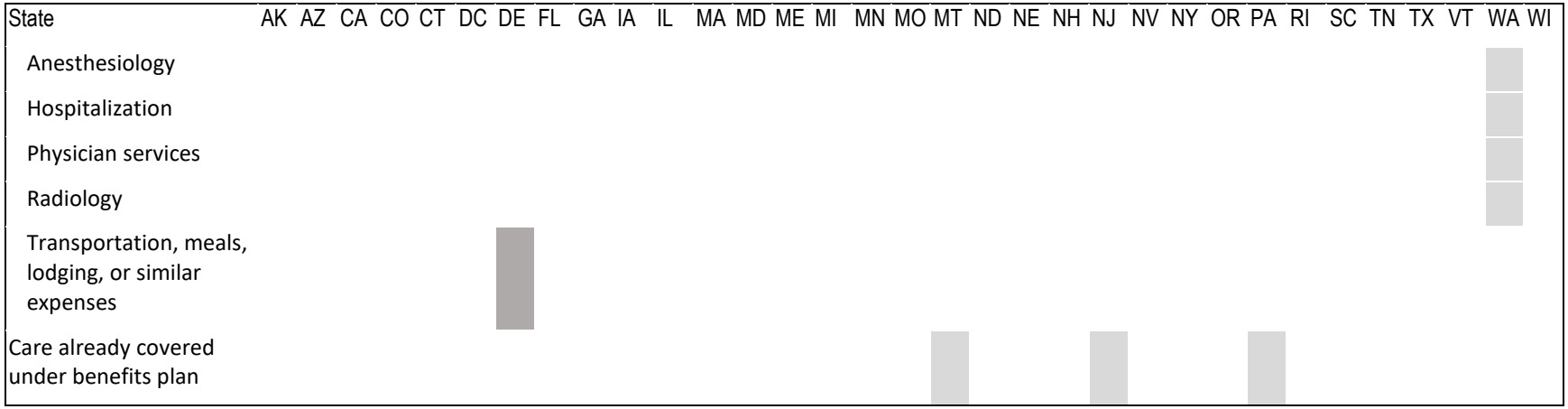
State	AK	AZ	CA	CO	CT	DC	DE	FL	GA	IA	IL	MA	MD	ME	MI	MN	MO	MT	ND	NE	NH	NJ	NV	NY	OR	PA	RI	SC	TN	TX	VT	WA	WI
Person-centeredness of services covered	L	E	M	H	H	H	M	E	E	E	L	H	H	L	L	H	E	L	M	E	L	M	M	M	H	L	M	E	E	E	M	H	H
Person-centeredness of services excluded	L	E	L	M	L	L	M	E	E	E	L	L	L	L	L	L	E	L	M	E	L	L	L	L	L	L	L	E	E	E	L	M	M
Service (__ = covered; __ = excluded; unshaded = no information)																																	
Mental and behavioral health services																																	
Hormones[1]																																	
Laboratory testing[2]																																	
Breast/chest-related care																																	
Mammoplasty																																	
Mastectomy																																	
Mastopexy																																	
Nipple/areola reconstruction																																	
External genitalia and organ-related services																																	
Construction																																	
Clitoroplasty																																	
Labiaplasty																																	
Vaginoplasty																																	


State
AK AZ CA CO CT DC DE FL GA IA IL MA MD ME MI MN MO MT ND NE NH NJ NV NY OR PA RI SC TN TX VT WA WI
Vulvoplasty
Penile skin inversion
Repair of introitus
Construction of vagina with graft
Erectile prosthesis
Metoidioplasty
Penile prosthesis
Phalloplasty
Scrotoplasty
Testicular prostheses
Urethroplasty
Removal
Hysterectomy
Ovariectomy/ oophorectomy
Salpingo-oophorectomy
Vaginectomy
Vulvectomy
Colpectomy
Colovaginectomy
Coloproctostomy


State
AK AZ CA CO CT DC DE FL GA IA IL MA MD ME MI MN MO MT ND NE NH NJ NV NY OR PA RI SC TN TX VT WA WI
Orchiectomy
Penectomy
Prostatectomy
Pre- and post-operative services
Reversal of surgical procedures
Revision of surgical procedures
Unspecified surgery[3]
Facial surgery
Facial surgery (unspecified)[4]
Blepharoplasty
Brow lift
Cheek implants
Chin implants
Face lift
Facial bone reconstruction
Facial implants
Forehead lift
Forehead reduction
Genioplasty/ mentoplasty


State
AK AZ CA CO CT DC DE FL GA IA IL MA MD ME MI MN MO MT ND NE NH NJ NV NY OR PA RI SC TN TX VT WA WI
Jaw reduction (jaw contouring)
Lip reduction/ enhancement
Mandibular lift
Neck lift/tightening
Nose implants
Rhinoplasty
Scalp advancement or reduction
Thyroid cartilage reduction (chondroplasty)
Trachea shave
Hair-related care
Hair removal[5]
Drugs for hair loss or growth
Hair pieces
Hair transplantation
Torso and limbs
Abdominoplasty
Autologous fat grafting
Body contouring
Calf implants


State
AK AZ CA CO CT DC DE FL GA IA IL MA MD ME MI MN MO MT ND NE NH NJ NV NY OR PA RI SC TN TX VT WA WI
Collagen injections
Cosmetic procedures
Gluteal augmentation
Lipofilling/collagen injections
Liposuction
Pectoral implants
Skin removal
Physical therapy
Pelvic physical therapy
Voice care
Voice modification surgery[6]
Laryngoplasty
Voice therapy or lessons
Skin-related care
Tattoos
Chemical peels
Dermabrasion
Primary care
Fertility preservation
Lifestyle coaching
Supportive services



Abbreviations: E Exclusionary; H High; L Low; M Moderate.

State abbreviations: AK Alaska; AZ Arizona; CA California; CO Colorado; CT Connecticut; DC Washington, District of Columbia; DE Delaware; FL Florida; GA Georgia; IA Iowa; IL Illinois; MA Massachusetts; MD Maryland; ME Maine; MI Michigan; MN Minnesota; MO Missouri; MT Montana; ND North Dakota; NE Nebraska; NH New Hampshire; NJ New Jersey; NV Nevada; NY New York; OR Oregon; PA Pennsylvania; RI Rhode Island; SC South Carolina; TN Tennessee; TX Texas; VT Vermont; WA Washington; WI Wisconsin.

Notes: While these findings are based on Medicaid policy content, it is important to note actual implementation may differ. [1]Category includes vaguely-defined gender-affirming hormones (e.g., CA covers “hormone therapy;” DE and MD cover “continuous hormone therapy;” WA covers “pre-surgical and post-surgical hormone therapy”; CO, ND and NY cover “gonadotropin-releasing hormone therapy and cross-sex hormone therapy”), or coverage is implied by policies regarding gender-affirming surgery wherein receiving gender-affirming hormones is a surgery prerequisite (in CT, DC, IL, MN, and VT); [2]WA also covers Pathology; [3]Category includes policy language that refers to general categories of care, such as "surgical procedures to alter a recipient's body to conform to the recipient's gender identity" (AK), “chest/breast surgery” or “genital surgery” (DE, IL, NH, NV); [4]Category includes policy language that refers to “facial surgery” without specifying the covered care, or “facial feminizing” or “facial masculinizing” surgery (WA, WI); [5]Within this category, several states specify hair removal is only covered to treat tissue donor sites (CO, CT, ND) or as part of preparation for gender-affirming surgery (NY, OR, WI); [6]WI covers voice feminization surgery only.

Eighteen states explicitly required a diagnosis of gender dysphoria prior to receiving gender-affirming care within the Eligibility theme, and among states that explicitly covered gender-affirming care under Medicaid, language within the policies tended to be moderately or highly person-centered (Table 4.4).

Table 4.4. State-specific person-centeredness within Eligibility and Language domains

State	Eligibility person-centeredness & Details and/or excerpt(s) from policy narrative	Language person-centeredness & Excerpt(s) from policy narrative
AK	Low Eligibility unclear. Services only explicitly entail "surgical procedures to alter a recipient's body to conform to the recipient's gender identity." Administrative code states "Client statement is acceptable verification for…gender."	Moderate Client statement is acceptable verification for race, ethnicity, and gender; Alter a recipient's body to conform to the recipient's gender identity; ...for reasons of race, color, national origin, sex (including pregnancy, gender identity, and sexual orientation)
AZ	Exclusionary	Low Gender reassignment surgeries
CA	Low Treatment of gender dysphoria; treatment of gender identity disorder	Moderate “Normal appearance” is determined by referencing the gender with which the recipient identifies; Reconstructive surgery to create a normal appearance for transgender recipients; Recipients of all gender identities; Bring primary and secondary gender characteristics into conformity with the individual’s identified gender
CO	Low Clinical diagnosis of gender dysphoria (DSM-V 302.85 or 302.6) or gender identity disorder (ICD-CM 10 F64. 1-9 or Z87.890)	Moderate Gender-affirming care services benefit; Induce or change secondary sex characteristics; Change primary or secondary sex characteristics to affirm a person’s gender identity; Lived in the preferred gender role;

State	Eligibility person-centeredness & Details and/or excerpt(s) from policy narrative	Language person-centeredness & Excerpt(s) from policy narrative
		Transgender services
CT	High	High
	"The following criteria are guidelines only. Coverage determinations are based on an assessment of the individual and their unique clinical needs;" "Gender incongruence/diversity is marked and sustained"	Person-centered assessment of the treatment needs; Gender incongruence/diversity; Gender affirming surgery; Gender affirmation is the process of changing the gender characteristics a person is born with to the gender characteristics a person identifies with
DC	Low	Moderate
	Treatment of gender dysphoria; Established diagnosis of gender dysphoria	Discrepancy between a person's gender identity and that person's sex assigned at birth, and the associated gender role and/or primary and secondary sex characteristics; Sex reassignment procedures; Gender reassignment surgery; Female-to-male; Male-to-female
DE	Low	Moderate
	Treatment of Gender Dysphoria Disorder	"Gender identity" means a gender-related identity, appearance, expression or behavior of a person, regardless of the person's assigned sex at birth. Gender identity may be demonstrated by consistent and uniform assertion of the gender identity or any other evidence that the gender identity is sincerely held as part of a person's core identity; Gender Dysphoria Disorder; Gender Identity: A person's intrinsic sense of being male (a boy or a man), female (a girl or woman), or an alternative gender (e.g., boygirl, girlboy, transgender, genderqueer, eunuch); Gender Reassignment Surgery (GRS) (gender affirmation surgery or sex reassignment surgery): Surgery to change primary and/or secondary sex characteristics to better align a person's physical appearance with their gender identity;

State	Eligibility person-centeredness & Details and/or excerpt(s) from policy narrative	Language person-centeredness & Excerpt(s) from policy narrative
		Female to Male/Male to Female Gender Reassignment Surgery
FL	Exclusionary	Exclusionary
	Gender Dysphoria	Sex reassignment surgeries;
		Procedures that alter primary or secondary sexual characteristics;
		Providers may not deny services to recipients based solely upon race, creed, color, national origin, disabling condition, or disability, in accordance with federal anti-discrimination laws.
GA	Exclusionary	Exclusionary
		Transsexual surgery;
		These temporary Medical Assistance benefits [for women's health] are available to Georgia female applicants only, which includes a qualified transgendered female to male or a qualified transgendered male to female
IA	Exclusionary	Exclusionary
	Transsexualism, hermaphroditism, gender identity disorder, or body dysmorphic disorder	Sex reassignment surgery or any other cosmetic, reconstructive, or plastic surgery procedure related to transsexualism, hermaphroditism, gender identity disorder, or body dysmorphic disorder
IL	Low	High
	Diagnosis of Gender Dysphoria; DSM-5 diagnosis; ICD-10 diagnosis	Gender-affirming surgeries, services and procedures;
		Individual's gender- related healthcare;
		Sex Assigned at Birth;
		Identifying Gender
MA	Low	High
	Treatment for gender dysphoria	Gender-affirming [hormone therapy, hair removal, surgery, etc.];
		Transgender and gender-diverse individuals;
		Better align physical characteristics to gender identity
MD	Low	Moderate

State	Eligibility person-centeredness & Details and/or excerpt(s) from policy narrative	Language person-centeredness & Excerpt(s) from policy narrative
	Clear diagnosis of gender dysphoria; Members with gender identity disorder	Gender reassignment surgery: Male-to-Female Transition, Female-to-Male Transition; The desire to live and be accepted as a member of the opposite sex, usually accompanied by the wish to make his or her body as congruent as possible with the preferred sex; Gender transition services; Transgender persons
ME	Low	High
	Member has gender dysphoria	Transgender Services; Gender affirming care services
MI	Low	High
	Clinically diagnosed with gender dysphoria	Gender affirmation/confirming medical, surgical, and pharmacologic treatments and procedures; Gender affirmation services
MN	Low	Low
	Diagnosed as having gender dysphoria	Male-to-female gender-confirming surgery; Female-to-male gender confirming surgery
MO	Exclusionary	Exclusionary Gender change
MT	Low	Exclusionary
	Eligibility unclear. Policy states "The Federal Final Rule prohibits a State Medicaid Program...from having or implementing any categorical coverage exclusion or limitation from health services related to gender transition."	Gender transition
ND	Low	Moderate
	Diagnosis of Gender Dysphoria	Gender affirming care and services; Gender Confirmation Surgery (also known as gender affirmation surgery or sex reassignment surgery) means a surgery to change primary or secondary sex characteristics to affirm a person's gender identity; Desired gender role
NE	Exclusionary	Exclusionary

State	Eligibility person-centeredness & Details and/or excerpt(s) from policy narrative	Language person-centeredness & Excerpt(s) from policy narrative
		Sex change
NH	Low	Low
	Eligibility unclear. A Joint Legislative Committee on Administrative Rules memo states the rule change will "allow Medicaid recipients to receive gender reassignment surgery"	Gender reassignment services; Health services related to gender transition; Sex change operations; Transgender individual based on the fact that an individual's sex assigned at birth, gender identity, or gender otherwise recorded [differs from sex assigned at birth]
NJ	Low	Moderate
	Eligibility not clearly stated, but legislation states nondiscrimination due to a covered person's gender identity or expression	Person's gender identity or expression; Services related to gender transition; "Gender identity" means a person's internal sense of their own gender, regardless of the sex the person was assigned at birth. "Gender transition" means the process of changing a person's outward appearance, including physical sex characteristics, to accord with the person's actual gender identity. "Transgender person" means a person who identifies as a gender different from the sex assigned to the person at birth
NV	Low	Low
	Covered diagnosis codes for gender identity disorders (gender dysphoria) include: F64.1, F64.2, F64.8, F64.9	Gender Reassignment Services; Male-to-Female (MTF) recipient; Female-to-Male (FTM) recipient
NY	Low	Moderate
	Treatment of gender dysphoria	Gender reassignment; Gender role congruent with the individual’s gender identity; Conform secondary sex characteristics to those of the patient’s identified gender
OR	Low	Low
	Diagnosis of gender dysphoria	Gender dysphoria/transexualis; Sex reassignment surgery; Gender role that is congruent with their gender identity

State	Eligibility person-centeredness & Details and/or excerpt(s) from policy narrative	Language person-centeredness & Excerpt(s) from policy narrative
PA	Low	Low
	Diagnosis of Gender Dysphoria	Sex reassignment;
		Services associated with gender transition
RI	Low	Low
	"Persistent" Gender Dysphoria	Gender Dysphoria/Gender Nonconformity;
		Females transitioning to males;
		Males transitioning to females
SC	Exclusionary	Low
		Gender Transition Services and procedures related to gender transition
TN	Exclusionary	Exclusionary
		Transsexual surgery;
		Sex change or transformation surgery
TX	Exclusionary	Exclusionary
		Sex change operations
VT	Low	Moderate
	Diagnosis of gender dysphoria. ICD-10- Diagnosis codes: F64.0 Transsexualism F64.1 Dual role transvestism F64.2 Gender identity disorder of childhood F64.8 Other gender identity disorders F64.9 Gender identity disorder, unspecified Z87.890 Personal history of sex reassignment	Gender Affirmation Surgery;
		Preventative screenings may be medically necessary based on anatomy;
		FtM;
		MtF
WA	Moderate	Moderate
	Treatment of gender dysphoria (also referred to as gender incongruence)	Gender dysphoria (also referred to as gender incongruence);
		Medical services for gender-affirming treatment
WI	Moderate	High
	Gender incongruence-related diagnosis	Being transgender looks different for everyone. For example, some people might: Change their bodies with hormones or surgery. Doing so helps align their physical body with their gender identity. Express gender in less permanent ways. This includes through clothing, hair, makeup, pronoun usage, and other behaviors. Choose not to alter their external appearance at all;

State	Eligibility person-centeredness & Details and/or excerpt(s) from policy narrative	Language person-centeredness & Excerpt(s) from policy narrative
		Gender-affirming medical and/or surgical treatments; Individuals who may identify as, but are not limited to, the following: Male, Female, Gender diverse, Nonbinary, Agender, Intersex, Eunuch; Gender incongruence-related diagnosis; Assigned Male at Birth (AMAB); Assigned Female at Birth (AFAB)

Abbreviations: DSM-V Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; ICD-CM (also ICD-10) International Classification of Diseases, Clinical Modification

State abbreviations: AK Alaska; AZ Arizona; CA California; CO Colorado; CT Connecticut; DC Washington, District of Columbia; DE Delaware; FL Florida; GA Georgia; IA Iowa; IL Illinois; MA Massachusetts; MD Maryland; ME Maine; MI Michigan; MN Minnesota; MO Missouri; MT Montana; ND North Dakota; NE Nebraska; NH New Hampshire; NJ New Jersey; NV Nevada; NY New York; OR Oregon; PA Pennsylvania; RI Rhode Island; SC South Carolina; TN Tennessee; TX Texas; VT Vermont; WA Washington; WI Wisconsin.

Discussion

The current study provides an in-depth evaluation of gender-affirming care policies of each state's Medicaid program based available policy documents as of December 2022. We examined person-centeredness in thirty-three state policies across four themes: Eligibility (who can receive the care), Accessibility (how the services can be attained), Comprehensiveness (what services are available or unavailable for coverage), and Language (how the policy portrays beneficiaries and their care). Although no state policy demonstrated overall high person-centeredness, some component themes exhibited high person-centeredness. For example, within the Comprehensiveness theme, Minnesota's Medicaid Provider Manual says the state will cover "Mastectomy, breast reduction, [and] chest reconstruction."[315] The distinction between mastectomy and breast reduction allows for the possibility of non-flat top surgery that preserves some breast tissue, which may be affirming for nonbinary people.[316]

Within the Accessibility theme, high person-centeredness was occasionally demonstrated by rules that respected bodily autonomy and individual choice. For example, Maryland, Vermont, Washington, and Washington, D.C. Medicaid policies explicitly did not require use of gender-affirming hormones prior to mastectomy (Table 4.2). High person-centeredness within the Accessibility theme could also be demonstrated by explicit coverage for some gender-affirming care obtained out-of-state, as this rule may remove geographic access barriers[317] (Table 4.2).

The findings are consistent with prior research that found variability across state Medicaid coverage for specific services, such as affirming facial and genital surgeries,[62,64] or broad categories of gender-affirming surgeries or hormones,[49,63,202] as well as inconsistent access to and clarity in the policies themselves.[49,203,205] The current study differs from and complements existing research by applying the novel lens of person-centeredness and drawing on embodied knowledge from a community panel to interpret these policies. This study builds on community resources, such as the Transgender Legal Defense & Education Fund,[266] Williams Institute,[81] and Movement Advancement Project,[58] by identifying additional policy documents (Appendix B) and systematically synthesizing multiple dimensions of Medicaid gender-affirming care policy, such as eligibility and accessibility rules. It fills an important research and community need[39,70,72,311] by creating a cohesive resource that conveys whom the policy will cover, what services are and are not covered, and how gender-affirming care can be accessed.

Limitations

This study has several methodological and contextual limitations. First, a single researcher performed all qualitative coding. We attempted to minimize single-coder bias by utilizing recommended approaches, such as practicing deliberate reflexivity by soliciting and incorporating community member feedback on the coding and codebook.[273] Second, the Medicaid gender-affirming care policy landscape changes rapidly. Although we performed content analysis on policy documents that were current as of December 2022, policy content could subsequently shift. We somewhat addressed this limitation by the addition of the Language theme, which captured period-specific characterizations of gender identity and gender affirming care. Additionally, we attempted to facilitate replication and updates by publishing all policy document sources and this study's codebook (Appendix B, Appendix C). Researchers using these resources can certainly identify and code new themes that arise in the future.

Third, the method of assessing policies' overall and component person-centeredness was developed by the authors and a small community panel. Decisions made by our research collaborative may not be entirely generalizable and are influenced by our collective experiences and backgrounds. Fourth, the content analysis method does not capture relevant aspects of states' environments that may contribute to or arise from the policy's implementation.[257] For example, in states with multiple Medicaid delivery systems (e.g., managed care organizations, fee-for-service),[318] beneficiaries' access to gender-affirming care might differ according to the program in which they are enrolled. Despite these limitations, this study intentionally followed research practices that promote health

justice[69,313] to create community and research resources for assessing person-centeredness in state Medicaid gender-affirming care policies.

Conclusion

This study assessed contemporary Medicaid policies and found that all states have the potential to improve their policies' person-centeredness, as no state achieved an overall characterization of high person-centeredness, but high person-centeredness could be found within component themes. We incorporated methods from existing studies[49,63,203,205] and augmented them with additional scrutiny of policies' language, basis of eligibility, acceptability of access rules, and services covered. Notably, we directly engaged community members and drew on their experiential knowledge to develop a relevant, replicable method of evaluating person-centeredness in policy analysis.

Future research can update the analysis with real-time Medicaid policies, and invite additional community members to refine concepts about person-centeredness. The study's findings are intended to support community members seeking a straightforward resource that enables them to compare Medicaid gender-affirming care policies within and across states. The results may also encourage providers and policymakers to consider how Medicaid policy could be designed to promote person-centered gender-affirming care.

CRediT Author Statement

Kimberly Yee: Conceptualization, Data curation, Formal Analysis, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing. Hill Wolfe:

Formal Analysis, Methodology, Validation, Writing – review & editing. Hales Skelton: Formal Analysis, Methodology, Validation, Writing – review & editing. Jae Downing Corman: Conceptualization, Methodology, Writing – review & editing. Jaclyn Hughto: Conceptualization, Methodology, Writing – review & editing.

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Disclaimer

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CHAPTER 5: COINCIDENCE ANALYSIS OF STATE-LEVEL FACTORS ASSOCIATED WITH MEDICAID GENDER-AFFIRMING CARE POLICY

Introduction

Medicaid insurance coverage for gender-affirming care, or healthcare that meets the physical, mental, and social health needs of people whose gender identity or expression differs from their assigned sex at birth,[7] is a contemporary policy issue.[55,319,320] Comparative policy analyses have examined the national landscape of Medicaid policies regarding gender-affirming care, and assessed whether specific services are covered,[49,63,64,203] how readily insurance information could be obtained,[49] or characterized policies' overall allocation of gender-affirming benefits.[203] Notably, because Medicaid operates under federalism,[51,55] these studies found substantial variation across Medicaid gender-affirming care policies. Scholars argue this heterogeneity illustrates "variable speed" federalism in transgender policymaking, wherein policies differ even in states that share a common vision of transgender policy due to state-specific contexts.[55]

One critique of comparative policy analyses is they fail to identify social, political, and other environmental contributors to the specific policy.[198] That is, while the studies above parse policies' content, they do not assess which factors are associated with types of policies. To date, a limited number of studies examined whether the passage of healthcare non-discrimination laws,[49] electorate partisanship,[63] or Census region[203] were correlated with Medicaid gender-affirming care policies. However, whereas these

studies investigated policies' correlation with a single factor, a different analytic approach is needed to depict the likely complexity in the underlying policy environment.

Coincidence analysis (CNA) is a configurational comparative method which uses Boolean algebra and set theory to systematically compare cases and identify specific conditions—alone or in combination with other specific conditions—that are related to a specific outcome.[196,197] CNA incorporates three attributes of configurational complexity: conjunctivity, equifinality, and sequentiality.[196,197] Conjunctivity entails the presence of multiple co-occurring conditions. Equifinality comprises the potential for different sets of conditions to be associated with the same outcome. Sequentiality describes the phenomenon wherein sequential conditions or events tend to propagate chain reactions.[196,197] Configurational analyses identify difference-making conditions that distinguish one group (i.e., outcome occurrence) from another.[321,322] CNA is an emerging method in implementation science research. It has been applied to identify determinants of healthcare programs and policies in a variety of settings,[323-326] demonstrating its versatility and adaptability.

This study aims to identify state-level environmental configurations associated with person-centeredness in Medicaid gender-affirming care policy. I conducted coincidence analysis to explore configurational relationships within a range of social, legal, political, market, and health system factors. Findings can be used by advocates and policymakers to understand state-level contexts associated with different types of Medicaid policy, and generate hypotheses about factors that could potentially be modified to induce policy change.

Methods

Data sources

I examined how state-level social, legal, political, market, and health system environments contributed to types of Medicaid gender-affirming care policies. I identified specific factors from the published literature that used regression techniques to identify variables associated with coverage for gender-affirming hormones or surgeries,[47,49,209] gender identity nondiscrimination laws,[49,55,63,203,204,209,210] and transgender adults' gender identity-related experiences with providers.[74] I identified additional factors with a theoretically plausible connection to policies' person-centeredness based on a framework conceptualizing how structural, institutional, and social-level mechanisms impact transgender health.[69] I selected an initial set of 24 factors across the five environments, measured at or prior to December 2022 (Table 5.1). I obtained data from publicly-available sources, including the U.S. Census Bureau, Movement Advancement Project, and Kaiser Family Foundation (Appendix F).

Outcome measurement

My unit of analysis was the state. My outcome of interest was the level of person-centeredness in a state's Medicaid gender-affirming care policy as of December 2022. As defined in Aim 1, person-centeredness in Medicaid gender-affirming care policy is care that demonstrates respect for the person's experience and identity, engages the care recipient in shared decision-making, recognizes how institutions and systems affect access to care for transgender and nonbinary people, and prioritizes

meaningful life and wellbeing.[213,308] In December 2022, 33 states and Washington, D.C. had explicit Medicaid gender-affirming care policies.[81] Of these, eight, ten, and six states' policies exhibited moderately-high, moderate, and low person-centeredness, respectively, while nine had Medicaid policies that specifically excluded coverage for gender-affirming care. Similar to previous CNA research,[322,325,326] I investigated the eight states with moderately-high (CT, CO, DC, MA, MD, MI, WA, WI) and nine states with exclusionary person-centeredness (AZ, FL, GA, IA, MO, NE, SC, TN, TX) to ensure a meaningful gap between outcome groups. States without explicit policies were excluded because previous research found inconsistencies in access to gender-affirming care in the absence of unequivocal policy.[49,63,203] Including these cases would likely introduce unnecessary diversity to the range of possible configurations,[327] increasing the possibility of high model ambiguity—numerous and potentially spurious causal models that explain my data equally well.[327]

Analysis

CNA overview. CNA is a configurational comparative method that systematically identifies conditions that are necessary or sufficient for an outcome (i.e., person-centeredness in policy).[196,197] The CNA algorithm requires a data set consisting of *factors*, thresholds for *consistency* and *coverage*, and a prespecified upper bound for the *maximal complexity* of the solutions.[196] *Factors* are analogous to variables in statistics, and were assessed for every state. Conditions are specific factor values (e.g., factor: % living in poverty; condition: ≤10%).[196] Solutions are configurations of minimally necessary conditions for the policy type.[196] *Consistency* and *coverage* are scores ranging

from 0 to 1 that measure the model's ability to distinguish between states with and without the condition configuration and policy type. *Consistency* was calculated as the number of states with the condition configuration and the specified policy type divided by the total number of states exhibiting the configuration.[196,289] *Coverage* was calculated as the number of states with the condition configuration and the policy type divided by the total number of states with the policy type.[196,197] The solutions' *maximal complexity* specifies its maximum number of factors and conditions.[289] CNA inductively builds solutions by permutationally testing conditions of increasing complexity for sufficiency and necessity.[196,289] This approach prioritizes simpler configurations and parsimony.[196,197] CNA results in one or more models consisting of solution configurations at the specified consistency, coverage, and complexity.

I applied CNA because its case-based approach is adaptable to both large and small sample sizes,[197] which is amenable to my data; CNA incorporates configurational complexity[196,197] that accommodates state-level diversity within my data; and CNA's inductive approach yields redundancy-free, parsimonious solutions[196,197] that are appropriate for this exploratory study.

CNA procedure. I conducted CNA following recommended best practices.[197] First, I created a multi-value dataset[196] comprising the 24 factors and applied the minimally sufficient conditions ("msc") routine to reduce the dataset to nine factors for each of the two outcomes (i.e., moderately-high or exclusionary policy person-centeredness) to use in model-building (Table 5.1). Second, I iteratively developed models for both outcomes using forward selection, and retained factors if (1) models' fit metrics, including

consistency or coverage, increased by ≥2%, (2) complexity increased by ≤2 conditions, (3) models included at least one potentially modifiable factor, and (4) models aligned with theory or published literature. Third, I reported all final models that met these criteria and had overall consistency of ≥0.85% and coverage ≥0.95%. Fourth, I conducted a secondary analysis wherein I modeled outcomes from a published study that categorized Medicaid gender-affirming care policies as protective, restrictive, or unclear.[203] I conducted CNA separately on the outcomes of protective (n=27 states) or restrictive (n=9 states) policies, and applied the same factors and methods as in the primary analysis. Additional methods details can be found in Appendix G.

I used the Coincidence Analysis package ("cna")[289] in R (version 4.3.1)[328] for this analysis. The Portland State University Institutional Review Board approved this study (HRPP #238159-18).

Table 5.1. Factor calibration and final models identified different factors for moderately-high person-centered policies vs. exclusionary policies

Moderately-high person-centeredness in policy		Factor	Exclusionary policy	
Retained in full model(s)	Retained in factor reduction phase		Retained in factor reduction phase	Retained in full model(s)
		Social environment		
		LGBTQIA+ equality score	✓	✓
	✓	% Living in poverty		
		% Same-sex couple households	✓	
		Census geographic region		
		Legal environment		
✓	✓	Protectiveness in gender identity laws		
		Political environment		
✓	✓	Partisan voting index		
		Legislative % female, transgender, or nonbinary		
	✓	Year Medicaid gender-affirming care policy implemented		
		Market environment		
		% Population transgender or nonbinary	✓	✓
	✓	% Population insured by Medicaid	✓	
✓	✓	% Transgender/nonbinary enrolled in Medicaid	✓	✓
		Health system environment		
		Immediate Medicaid expansion under the ACA	✓	✓
		Year Medicaid expansion implemented		
		Medicaid expansion status		
		Medicaid per capita spending		
		Medicaid % of state budget		
		State share of Medicaid spending	✓	
		Primary care providers per 100k population	✓	
✓	✓	Health System score, overall		
		Health System score, health		
✓	✓	% Without health insurance		
	✓[a]	% Covered by Managed care	✓[a]	
	✓[a]	% Covered by Primary care case management	✓[a]	
	✓[a]	% Covered by Fee-for-service	✓[a]	

Notes: [a]Factors combined into a single variable representing the Medicaid delivery system for the majority of the state's Medicaid beneficiaries. Abbreviations: ACA Affordable Care Act; LGBTQIA+ lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual and more.

Results

My analysis comprised thirty-three states with explicit Medicaid gender-affirming care policies as of December 2022. I modeled policies with moderately-high person-centeredness (n=8) and exclusionary policies (n=9) as separate outcomes.

Outcome 1: Moderately-high person-centeredness

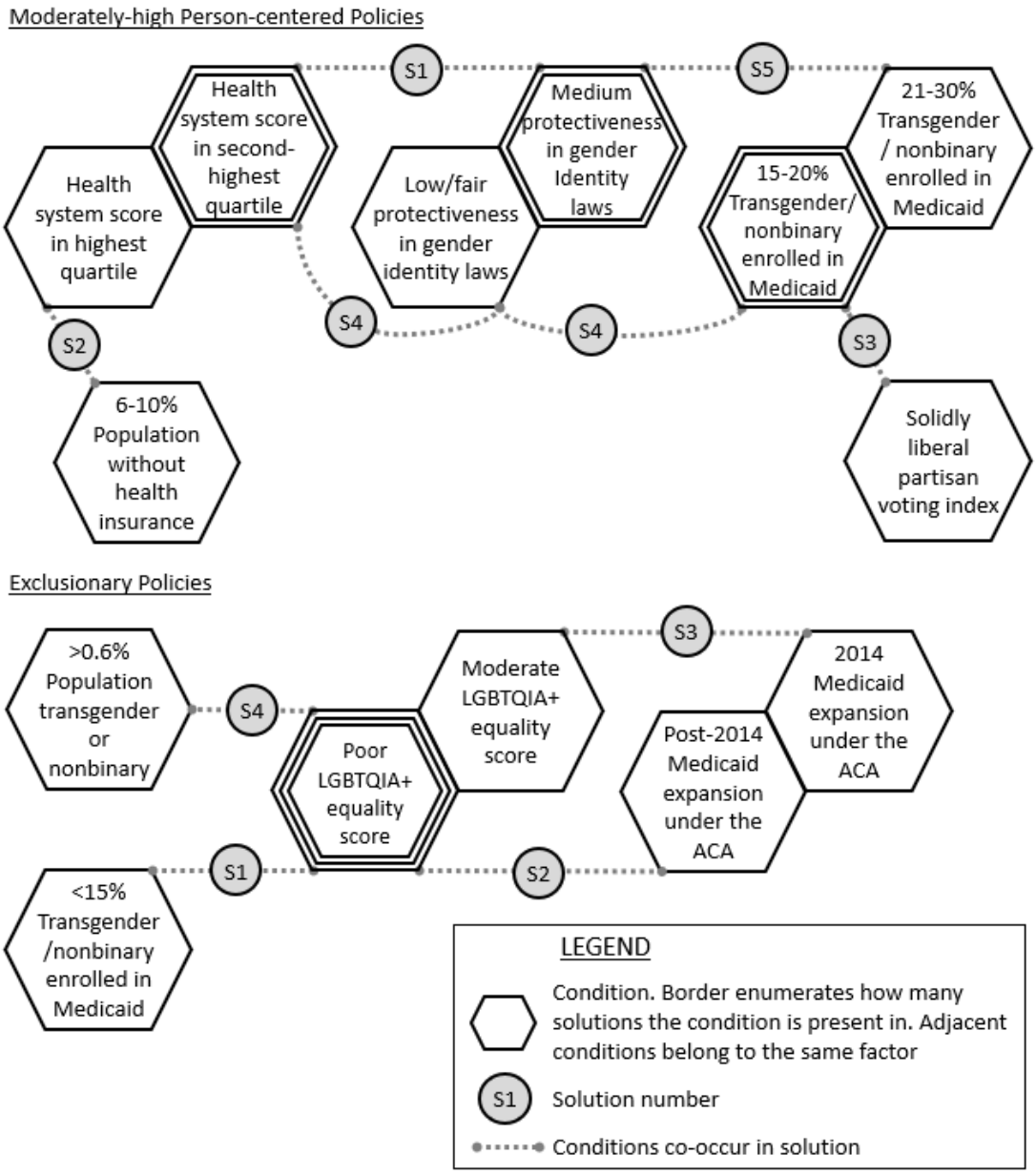
I identified two models for moderately-high person-centered policies, and the overlap between these models suggested minimal model ambiguity (Figure 5.1, Table 5.2). No necessary conditions were identified. Models comprised five factors taking on eight distinct condition values. Conditions that were identified in both models included above-average national rankings on health system score,[329] having ≥15% of the state's transgender or nonbinary population enrolled in Medicaid,[81] and having a solidly liberal state partisan voting index.[288] Both models had overall consistency of 89% and coverage of 100%: of the nine states whose environments contained at least one solution pathway from the models, eight states' policies demonstrated moderately-high person-centeredness (consistency), and all eight states' environments were encompassed in the model solutions (coverage). Consistency for the solution pathways ranged from 80-100%, indicating high reliability. Across the two models, the maximum solution-specific coverage was 50%, indicating that of the eight states with moderately-high person-centered policies, half shared an environmental configuration (Table 5.2).

Outcome 2: Exclusionary person-centeredness

I identified two models for exclusionary policies (Figure 5.1, Table 5.2). No necessary conditions were identified, although all solution pathways contained LGBTQIA+ equality score[211] as a factor. Both models had overall consistency of 90% and coverage of 100%: of the ten states whose environments met at least one solution pathway from the models, nine had exclusionary policies (consistency), and all nine states' environments were encompassed in the model solutions (coverage). Consistency

for the solution pathways ranged from 88-100%, indicating high reliability. The maximum solution-specific coverage was 78%, indicating that of the nine states with exclusionary policies, seven shared an environmental configuration (Table 5.2).

Figure 5.1. Solution pathways identified different conditions and configurations for moderately-high person-centered policies vs. exclusionary policies



Abbreviations: ACA Affordable Care Act; LGBTQIA+ Lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual, and more.

Table 5.2. Model details for solution pathways for moderately-high person-centered policies and exclusionary policies indicate high reliability and commonalities in difference-making conditions

		State(s)	Solution Pathway	Cons	Cov
Moderately-high person-centered policies (8 states)					
Model 1		MI	Health system score in second-highest quartile AND Medium protectiveness in gender identity laws	1.0	0.125
Model 1	Model 2	CO, CT, MD, WA	Health system score in highest quartile AND 6-10% of population without health insurance	0.80	0.50
Model 1	Model 2	MA, DC	Solidly liberal partisan voting index AND 15-20% Transgender/nonbinary population enrolled in Medicaid	1.0	0.25
Model 1	Model 2	WI	Health system score in second-highest quartile AND Low/fair protectiveness in gender identity laws AND 15-20% Transgender/nonbinary population enrolled in Medicaid	1.0	0.125
Model 1	Model 2	MI	Medium protectiveness in gender identity laws AND 21-30% Transgender/nonbinary population enrolled in Medicaid	1.0	0.125
			Overall model measures	0.89	1.0
Exclusionary policies (9 states)					
		State(s)	Solution Pathway	Con	Cov
Model 1		AZ, FL, GA, MO, NE, TN	Poor LGBTQIA+ equality score AND <15% Transgender/nonbinary population enrolled in Medicaid	1.0	0.67
Model 1	Model 2	FL, GA, MO, NE, SC, TN, TX	Poor LGBTQIA+ equality score AND Post-2014 Medicaid expansion under the ACA	0.88	0.78
Model 1	Model 2	IA	Moderate LGBTQIA+ equality score AND 2014 Medicaid expansion under the ACA	1.0	0.11
Model 1	Model 2	AZ	Poor LGBTQIA+ equality score AND >0.6% Population transgender or nonbinary	1.0	0.11
			Overall model measures	0.90	1.0

Abbreviations: ACA Affordable Care Act; AZ Arizona; CO Colorado; Con consistency; Cov coverage; CT Connecticut; FL Florida; GA Georgia; IA Iowa; LGBTQIA+ Lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual, and more; MA Massachusetts; MD Maryland; MI Michigan; MO Missouri; NE Nebraska; SC South Carolina; TN Tennessee; TX Texas; WI Wisconsin.

Secondary analysis

The secondary analysis yielded dissimilar models from the primary analysis, likely due to the divergent categorization of Medicaid gender-affirming care policies. Two models comprising a total of five sufficient pathways were identified for states with protective policies (overall consistency 87%, coverage 100% for both), and one model

with three sufficient solution pathways was identified for states with restrictive policies (consistency 90%, coverage 100%) (Table 5.3). Poor LGBTQIA+ equality scores[211] were a necessary condition in states with restrictive policies.

Table 5.3. Model details for solution pathways for secondary analyses of protective and restrictive policies indicate more complexity and importance of LGBTQIA+ equality scores across both outcomes

Protective policies (27 states)					
		State(s)	Solution Pathway	Cons	Cov
Model 1		GA, MT	Low/fair protectiveness in gender identity laws AND 80-99 Primary Care Providers per 100,000 population AND 11-15% Population living in poverty	1.0	0.07
	Model 2	CA, CO, CT, DC, DE, IL, MA, MD, ME, MN, NH, NJ, NV, NY, OR, RI, VA, VT, WA	High LGBTQIA+ equality score	0.95	0.70
		AK, CA, CO, CT, IA, IL, MD, MI, MT, NJ, NV, NY, OR, PA, WA	21-30% Transgender/nonbinary population enrolled in Medicaid	0.79	0.56
		ND, WI	Low/fair protectiveness in gender identity laws AND 6-10% Population living in poverty AND 15-20% Transgender/nonbinary population enrolled in Medicaid	1.0	0.07
		GA	Exclusionary gender identity laws AND 11-15% Population living in poverty 15-20% Transgender/nonbinary population enrolled in Medicaid	1.0	0.04
			Overall model measures	0.87	1.0
Restrictive policies (9 states)					
		State(s)	Solution Pathway	Con	Cov
Model 1		AZ, FL, MO, NE, OH, SC, TN	Poor LGBTQIA+ equality score AND 80-99 Primary Care Providers per 100,000 population AND Majority of Medicaid benefits delivered by managed care	0.88	0.78
		WY	Poor LGBTQIA+ equality score AND Majority of Medicaid benefits delivered by Fee-for-Service	1.0	0.11
		TX	Poor LGBTQIA+ equality score AND <80 Primary Care Providers per 100,000 population	1.0	0.11
			Overall model measures	0.90	1.0

Abbreviations: ACA Affordable Care Act; AK Alaska; AZ Arizona; CA California; CO Colorado; Con consistency; Cov coverage; CT Connecticut; DC Washington, District of Columbia; DE Delaware; FL Florida; GA Georgia; IA Iowa; IL Illinois; LGBTQIA+ Lesbian, gay, bisexual, transgender, queer or questioning, intersex, asexual, and more; MA Massachusetts; MD Maryland; ME Maine; MI Michigan; MN Minnesota; MO Missouri; MT Montana; ND North Dakota; NE Nebraska; NH New Hampshire; NJ New Jersey; NV Nevada; NY New York; OH Ohio; OR Oregon; PA Pennsylvania; RI Rhode Island; SC South Carolina; TN Tennessee; TX Texas; VA Virginia; VT Vermont; WA Washington; WI Wisconsin; WY Wyoming.

Discussion

I applied Coincidence Analysis to explore state-level contexts associated with person-centeredness in Medicaid gender-affirming care policies. Results suggested contexts differed for states with policies demonstrating moderately-high person-centeredness compared to those that were exclusionary, and that states with similar policy types may have similar environments. For example, among the eight states with moderately-high person-centered policies, four (50%) had difference-making configurations wherein their health systems scored in the highest quartile nationally, and they had below average[330] (6-10%) proportions without health insurance. Among the nine states with exclusionary policies, seven (78%) had difference-making configurations with poor LGBTQIA+ equality scores and delayed Medicaid expansion under the Affordable Care Act (Table 5.2). That is, in states with moderately-high person-centered policies, health systems performance and access to health insurance appeared to be favorable for recipients, whereas in states with exclusionary policies, equity and Medicaid access were not priorities. These findings are consistent with policy theory that hypothesizes public policies' allocation of benefits depends on the sociopolitical environment,[78] and that existing policies that affect transgender and nonbinary people in non-health settings (e.g., nondiscrimination in housing or employment) likely impact health policies.[86]

Although the secondary analysis identified different configurations due to differences in state policies' classification, meaningful similarities indicated the dual analyses were useful for inductively constraining the range of possible factors.[327] Final

models generally comprised social and health system environmental factors for both analyses, suggesting broadly similar state contexts were associated with analogous policy types (protective vs. moderately-high person-centered; restrictive vs. exclusionary). For example, "poor LGBTQIA+ equality score" was a necessary condition in 8/9 (89%) of states in the primary analysis classified as having exclusionary policies and in all states classified in the secondary analysis as having restrictive policies. Furthermore, configurations of environmental factors tended to produce stronger associations with policy outcomes than isolated conditions, supporting the importance of systems-level inquiry in policy analysis. I investigated a range of theoretically plausible factors associated with Medicaid gender-affirming care policy, and identified a subset of potentially difference-making conditions for future research.

My findings are consistent with the three existing studies that assessed variables associated with Medicaid gender-affirming care policies. One study calculated Spearman rank correlation and estimated a significant association between passage of healthcare non-discrimination laws and coverage of gender-affirming surgery.[49] Similarly, in my study, I found LGBTQIA+ equality scores[211] and protectiveness in gender identity laws[284] were present in configurations associated with both moderately-high person-centered and exclusionary policies. Another study conducted pairwise t-tests and found a significant correlation between number of covered gender-affirming surgeries and Democrat-controlled or -leaning electorates;[63] I also found solidly liberal partisan voting index[288] was in a configuration associated with moderately-high person-centered policies. A final study estimated a borderline significant relationship between Census

region and Medicaid policy type utilizing Pearson's X^2 tests,[203] and my CNA approach also did not identify geographic region as a difference-making condition. Although it did not specifically focus on Medicaid policy and beneficiaries, a previous study conducted logistic regression modeling and found an intriguing interaction that demonstrated the importance of state context: the positive association between a large transgender and nonbinary population and the presence of a practice offering gender-affirming genital surgery decreased if the state had exclusionary gender-affirming care legislation.[209] My coincidence analysis complemented these foundational studies by exploring configurational associations with a breadth of environmental factors.

I demonstrated the feasibility and reliability of using CNA to identify difference-making conditions in state environments associated with person-centeredness in Medicaid gender-affirming care policy. Results suggested states with similar policies tended to have similar environments, rather than unique local contexts. I also prioritized models that contained at least one feasibly intervenable condition. In states with moderately-high person-centered policies, a potentially mutable condition was health system performance, which included healthcare access, quality, and spending, as well as health equity and population health.[329] LGBTQIA+ equality score, an aggregate measure that included laws relevant to transgender and nonbinary people, and presence of cultural competency trainings for medical, law enforcement, and education professionals,[211] was a potentially modifiable condition in states with exclusionary policies. Future research can investigate whether changing these conditions induces changes in Medicaid policy design.

Limitations

I identified three methodological and practical limitations. First, my findings may be limited by unobserved confounding. There exists limited previous research on this topic and I identified candidate factors based on directly[49,63,203] or indirectly[47,74,204,209] comparable research and theoretical frameworks.[69] I attempted to minimize the risk of unmeasured confounding by assessing a breadth of factors, such that measurable factors might serve as proxies for unmeasured ones. Second, CNA results are sensitive to researchers' different tolerances for calibration thresholds, which may alter their analytic processes, factor reduction, and final model selection. Following recommended practices,[197] I detailed my calibration methods and reported multiple models that performed equally well using my selection processes. Furthermore, I decreased the risk of overfitting by systematically evaluating models rather than simply selecting those with maximal consistency and coverage thresholds.[197] Third, because my unit of analysis was the state, I could not make inferences about within-state environmental subtleties, such as rural-urban gender-affirming care access inequities.[141,331,332] Despite these limitations, I found promising evidence of shared state environmental configurations and person-centeredness in Medicaid gender-affirming care policy.

Conclusions

I conducted CNA and identified difference-making environmental conditions associated with person-centeredness in Medicaid gender-affirming care policy. Social and health systems factors appeared to have the strongest associations with policy types. My

study empirically illustrates the intersection of social, legal, political, market, and health system factors and Medicaid policies for transgender and nonbinary people. Future research can build on these findings by investigating whether factors causally impact policy design and implementation.

CHAPTER 6: USE OF GENDER-AFFIRMING CARE AND INCREASED WAGES AMONG TRANSGENDER AND NONBINARY OREGON MEDICAID RECIPIENTS

Introduction

Transgender and nonbinary individuals, or people whose gender identity differs from the sex they were assigned at birth, are more likely to be unemployed and have lower incomes than cisgender people, or those whose gender identity is the same as their sex assigned at birth.[2,16,17,135,295] Employment is a critical social risk factor—an adverse social condition associated with poor health. Given their disproportionate experiences of underemployment, low income, and other social risks such as homelessness, food insecurity, and educational attainment, transgender and nonbinary people also experience poorer health and inadequate access to healthcare than cisgender people.[2,14,16,17]

A robust body of literature suggests improving access to healthcare can impact people's health and subsequently their ability to work and earn income.[333] Most recently, studies examined this phenomenon in the context of Medicaid expansion under the Affordable Care Act. In qualitative studies of beneficiaries insured under Medicaid expansion, respondents believed Medicaid supported their ability to work or find a job by enabling them to maintain their health,[334] or improve their physical and mental health.[335,336] Quantitative analyses support these findings,[335-338] and additionally indicate a profound poverty-reducing effect of Medicaid coverage among low-income beneficiaries.[333,339-341]

We apply a similar model to investigate how access to gender-affirming care (i.e., medical care that affirms transgender, nonbinary, and gender-diverse people's gender identity) is related to wage changes. Research indicates gender-affirming care is associated with protection against employment discrimination or job loss due to greater feelings of safety, authenticity, or engagement with work.[2,34,161,292,293,342] To date, evidence regarding the effects of gender-affirming care on employment outcomes has been limited to cross-sectional qualitative or survey-based studies,[2,292,293,295,301,342,343] revealing a need for population-based, longitudinal inquiry.

We conducted a single-state case study to investigate whether wages, a measure of social risk, changed after gender-affirming care use in a transgender and nonbinary population. We leveraged a novel dataset that combined Medicaid and wages data, which enabled us to depict individuals' timing and sequence of gender-affirming care receipt and wage dynamics.

Methods

Study design

We conducted a retrospective observational study of transgender and nonbinary Medicaid enrollees using eleven years of secondary data collected in Oregon from 2010 to 2020. Oregon's state Medicaid program began covering gender-affirming care in January 2015.[81]

Setting

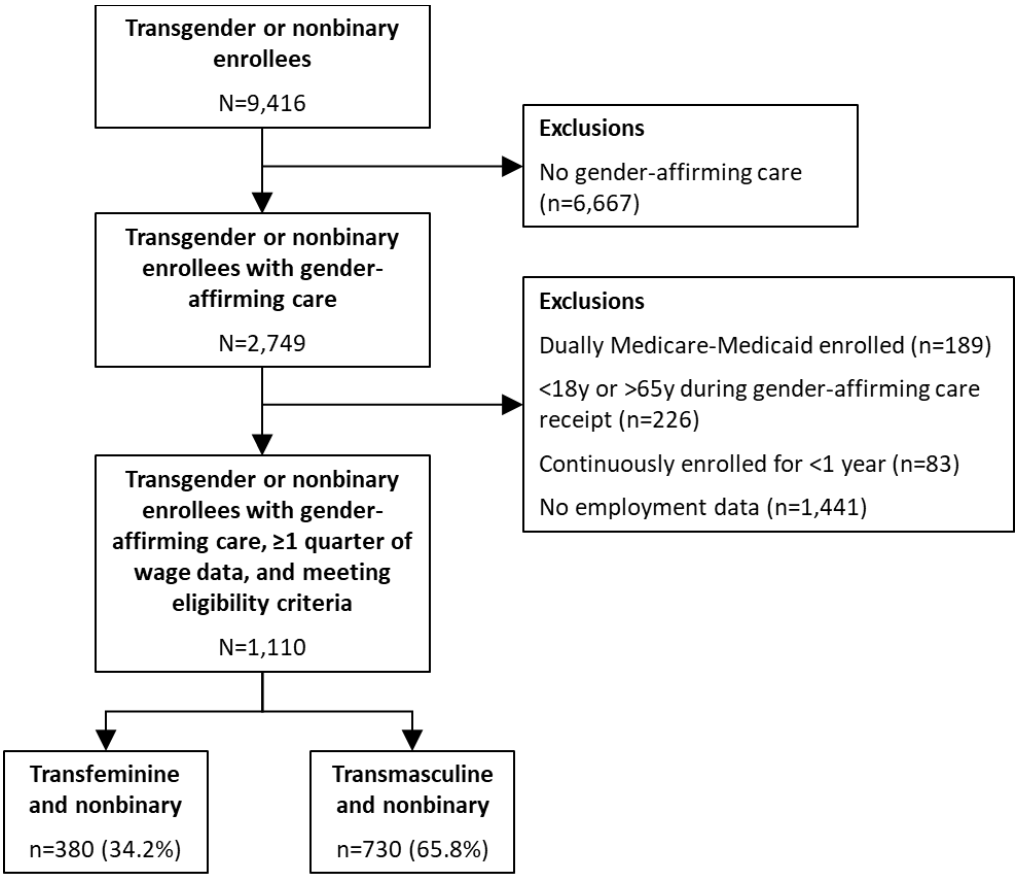
We analyzed Medicaid administrative claims and employment data from 2010 to 2020, obtained from the Oregon Health Authority and the Oregon Employment Department, respectively. The claims data, based on reimbursement records from services paid by Oregon Medicaid, included detailed information on diagnosis and procedure codes, pharmacy claims, service dates, and demographics. A unique identifier allowed for longitudinal tracking of beneficiaries across enrollment periods. Employment data included quarterly wages[306] from employers who have Oregon-based employees covered by unemployment insurance. This data structure enabled us to examine wage dynamics outside of Medicaid enrollment periods. The state of Oregon's Integrated Client Services unit[297] conducted person-level matching across Medicaid and employment datasets using an agency-specific identifier.

Study population

The study population included transgender and nonbinary adults residing in Oregon who were enrolled in Medicaid when receiving gender-affirming care. We applied a previously-published deterministic method to identify care-seeking transgender and nonbinary Oregon Medicaid beneficiaries based on the presence of gender identity-related diagnoses (ICD-9: 302.5x, 302.6, 302.85; ICD-10: F64.0, F64.1, F64.2, F64.8, F64.9, Z87.890), use of high-specificity gender-affirming care in the absence of gender identity-related diagnoses (i.e., utilization of this care was unlikely to misclassify cisgender individuals as transgender), or an "endocrine disorder not otherwise specified" diagnosis (ICD-10 E34.9) in conjunction with gender-affirming care.[95] We excluded individuals from

our analysis if they had not received gender-affirming care covered by Oregon Medicaid, were dually-eligible for Medicaid and Medicare (due to missing Medicare claims), were younger than 18 years or older than 65 at the time of gender-affirming care receipt, or had continuous enrollment in Oregon Medicaid for less than one year (i.e., insufficient follow-up for observing Medicaid-insured gender-affirming care). Additionally, we excluded adults who did not have reported wages, our outcome of interest (Figure 6.1).

Figure 6.1. Sample selection for study of Oregon Medicaid gender-affirming care and wages, 2010-2020



Variables

The primary outcome was wages. We removed wage observations with hourly wages >$500 and negative hourly or total wages (1.9% of total observations) following

guidance from the Oregon Employment Department. We adjusted all wages to January 2024 USD using the Consumer Price Index for All Urban Consumers (CPI-U, series ID CUUR0000SA0)[302] at quarterly intervals.

The primary demographic characteristic was gender. We applied published methods to infer the sample's gender,[95,99] and categorized people as transfeminine and nonbinary (TFN) or transmasculine and nonbinary (TMN). Per this method, TFN people comprised those who received gender-affirming care to achieve a nonbinary-to-feminine gender expression or had medical care consistent with male sex assigned at birth (e.g., prostate-related care), while TMN people comprised those who received gender-affirming care to achieve a nonbinary-to-masculine gender expression or had medical care consistent with female sex assigned at birth (e.g., hysterectomy).[95,99]

The primary independent variable was receipt of gender-affirming care. We identified gender-affirming care use in our claims data by applying gender-affirming diagnosis and procedure codes identified in prior literature[95,99,100,253,344] and Oregon Medicaid benefits information.[264] We created binary indicators representing use of gender-affirming hormones, gender-affirming surgery (breast/chest, removal of sex organs, and genital plastic surgery), or hair removal. We matched gender-affirming care to gender categories (e.g., testosterone for TMN and estrogen for TFN; mastectomy or breast reduction for TMN and mammaplasty for TFN).

We identified potential covariates based on published literature regarding gender-affirming care use or employment outcomes.[2,16,17,148,149] Years enrolled in Medicaid was the cumulative enrollment time calculated from Medicaid enrollment files'

exact dates of enrollment and disenrollment. We obtained race and ethnicity from enrollment files and created a single categorical variable that aggregated racial groups with small counts (Hispanic or Latino/a/x/e ethnicity, non-Hispanic or Latino/a/x/e White, non-Hispanic Black or African American, Another race or ethnicity [includes non-Hispanic Asian or Pacific Islander, Native American or Alaska Native, or Multiracial identity], and missing race and ethnicity). Age was calculated as of the date when the initial gender-affirming care was received and grouped by decade (e.g., 36-45 years). Residence (binary: urban or rural) was defined using residential zip code reported in enrollment files, referenced to Oregon Office of Rural Health designations.[345] We created a binary indicator based on individuals' claims history for whether they received their gender-affirming care after Oregon Medicaid's policy change.

Analytic approach

First, we descriptively analyzed wages relative to individuals' initial gender-affirming care receipt using a time series plot. We included the sixteen quarters prior to and after an individual's care receipt, and the quarter during the care event, and calculated the population's average quarterly wages from the available wage data.

Then, we described the change in wages after receipt of any gender-affirming care, gender-affirming hormones, and affirming chest/breast surgeries. We investigated short- and long-term changes by calculating the difference in individuals' wages earned two years prior to their first gender-affirming care receipt to wages earned two and three years after, respectively. We assessed the distribution of wage changes using box plots and reported the median wage change and the percentile for which positive wage

change was observed. Because published research suggests transgender and nonbinary people may experience job instability during medical affirmation,[342,346] we conducted a sensitivity analysis wherein we compared wages from one year prior to gender-affirming care receipt to wages earned one, two, and three years after.

Next, we conducted regression analysis to identify demographic characteristics associated with short-term wage changes (i.e., two years prior to vs. two years after gender-affirming care receipt). We included variables identified in published literature[2,295,347] in our models: race and ethnicity, age, urban residence, and years enrolled in Medicaid.

Because literature indicates TFN and TMN people experience different employment opportunities after receiving gender-affirming care,[2,292,295,300,301] we stratified all analyses by gender category.

We conducted all analyses using R (version 4.3.1).[328] The Portland State University Institutional Review Board approved this study (HRPP #238159-18).

Results

The study sample included 1,110 adult Oregon Medicaid beneficiaries comprising 380 (34.2%) TFN and 730 (65.8%) TMN people. Across both gender categories similar proportions identified as Non-Hispanic White (53.4-53.9%) and resided in urban areas (85.5-86.0%). Over one third of beneficiaries enrolled in Medicaid during 2014 and 2015, when two policy changes that directly affected transgender and nonbinary people occurred (i.e., gender identity-based nondiscrimination in Medicaid expansion under the

Affordable Care Act in 2014, and Oregon Medicaid coverage for gender-affirming care in 2015). A higher proportion of TFN people received their first gender-affirming care at older ages than TMN (75.3% older than age 25 vs. 51.6%), although the proportions receiving gender-affirming care after Oregon Medicaid began covering care were similar (TFN 96.8%, TMN 98.5%) (Table 6.1). The most common first gender-affirming care received among TFN people were hormones (49.7%) and hair removal (26.1%), and among TMN people the most common were hormones (42.8%) and chest surgery (39.6%) (data not shown).

Table 6.1. Demographic and enrollment characteristics of adult transgender and nonbinary Oregon Medicaid beneficiaries included in study of gender-affirming care and wages

	TFN (n=380)	TMN (n=730)	All (n=1,110)
Race and ethnicity[1]			
Hispanic or Latino/a/x/e	13 (3.4%)	35 (4.8%)	48 (4.3%)
Non-Hispanic Black	13 (3.4%)	16 (2.2%)	29 (2.6%)
Non-Hispanic White	205 (53.9%)	390 (53.4%)	595 (53.6%)
Another race or ethnicity	18 (4.7%)	46 (6.3%)	64 (5.8%)
Missing	131 (34.5%)	243 (33.3%)	374 (33.7%)
Age at first gender-affirming care, years			
18-25	94 (24.7%)	353 (48.4%)	447 (40.3%)
26-35	182 (47.9%)	293 (40.1%)	475 (42.8%)
36-45	68 (17.9%)	63 (8.6%)	131 (11.8%)
46-55	25 (6.6%)	18 (2.5%)	43 (3.9%)
56+	11 (2.9%)	3 (0.4%)	14 (1.3%)
Urban residence	325 (85.5%)	628 (86.0%)	953 (85.9%)
Years enrolled in Medicaid, median (IQR)	4.8 (3.1-6.8)	4.7 (3.1-6.8)	4.8 (3.1-6.9)
Year first enrolled in Medicaid			
2011 or prior	66 (17.4%)	187 (25.6%)	253 (22.8%)
2012-2013	14 (3.7%)	19 (2.6%)	33 (3.0%)
2014-2015	153 (40.3%)	252 (34.5%)	405 (36.5%)
2016-2017	100 (26.3%)	174 (23.8%)	274 (24.7%)
2018-2020	47 (12.4%)	98 (13.4%)	145 (13.1%)
Gender-affirming care use[2]			
Hormones	218 (57.4%)	444 (60.8%)	662 (59.6%)
Breast or chest surgery	92 (24.2%)	425 (58.2%)	517 (46.6%)
Hair removal	129 (33.9%)	27 (3.7%)	156 (14.1%)
Organ removal	126 (33.2%)	118 (16.2%)	244 (22.0%)
Genital plastic surgery	55 (14.5%)	16 (2.2%)	71 (6.4%)

	TFN (n=380)	TMN (n=730)	All (n=1,110)
Care received after 2015 policy change	368 (96.8%)	719 (98.5%)	1087 (97.9%)
Years of employment data, median (IQR)	4.0 (2.5, 6.0)	4.3 (2.8, 6.3)	4.3 (2.5, 6.3)
Annual wages, median $ (IQR)	12,762 (6,785-18,506)	13,372 (8,464-20,610)	13,219 (7,828-20,016)

Notes: [1]Other race and ethnicity included non-Hispanic or Latino/a/x/e Asian or Pacific Islander, Native American or Alaska Native, and Multiracial identity. [2]Gender-affirming care use was specific to gender category (e.g., estrogens, mammaplasty, vaginoplasty among TFN; testosterone, mastectomy, phalloplasty among TMN), and people could have received more than one type of care. Percentages refer to column values within gender category. Annual wages were reported in January 2024 USD. Abbreviations: IQR interquartile range; TFN transfeminine and nonbinary; TMN transmasculine and nonbinary.

On average, wages for TFN and TMN people remained relatively stable and similar during the four years prior to their first gender-affirming care receipt. Wages appeared to hit a minimum during the quarter gender-affirming care was obtained, before steadily increasing above pre-care levels for the subsequent four years. Average wages for TMN people were higher than for TFN people during the entire post-care period (Figure 6.2).

Figure 6.2. Trends in quarterly average wages prior to and after gender-affirming care receipt (event) among transgender and nonbinary beneficiaries enrolled in Oregon Medicaid, by gender category

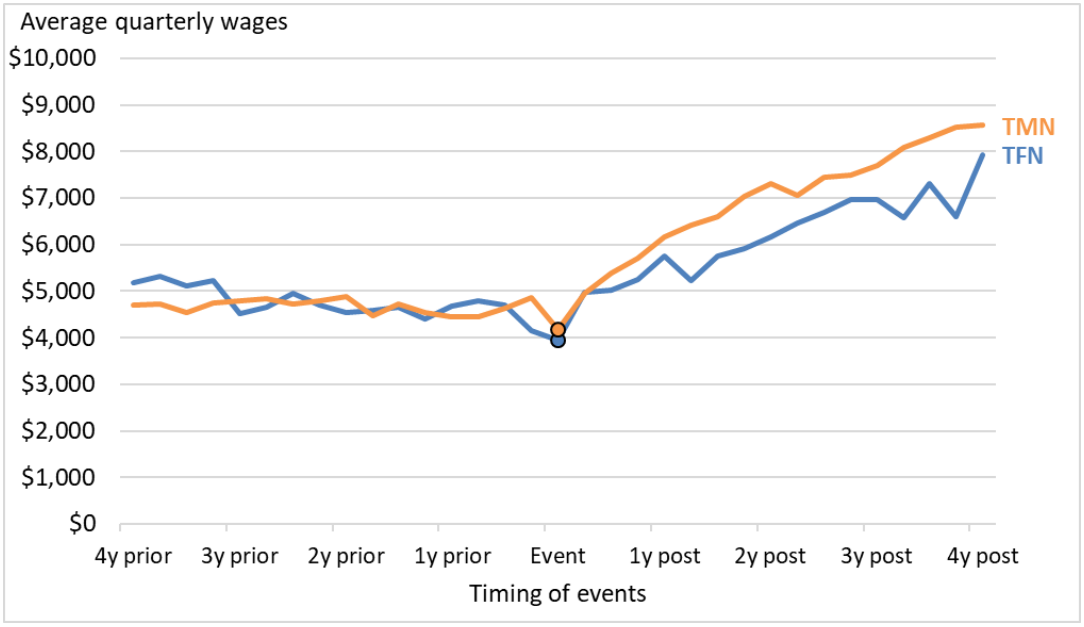


Figure notes: Average wages are calculated as a simple average of available wages from that quarter. Annual wages are reported in January 2024 USD. Abbreviations: TFN transfeminine and nonbinary; TMN transmasculine and nonbinary.

Positive median wage change was observed at both two and three years after individuals' first gender-affirming care compared to wages earned two years prior to receiving care (Figure 6.3). Wages increased meaningfully over time among most TFN and TMN people for all care types assessed, except for gender-affirming estrogen use among TFN people, for whom a modest median wage change was observed at both time periods ($38 at two years, $39 at three years; 50.0% experienced wage growth). A larger proportion of TMN than TFN people experienced wage growth after receiving gender-affirming care, and median wage change tended to be substantially larger among TMN people. For example, median wage change at two years after the first receipt of any gender-affirming care was $5,531 among TMN people and $822 among TFN, with 66.2% and 54.3% experiencing wage growth, respectively. Similar temporal and gender-based trends were observed in the sensitivity analysis (data not shown).

Figure 6.3. Distribution of wage changes after receiving any gender-affirming care among transgender and nonbinary beneficiaries enrolled in Oregon Medicaid, by gender category

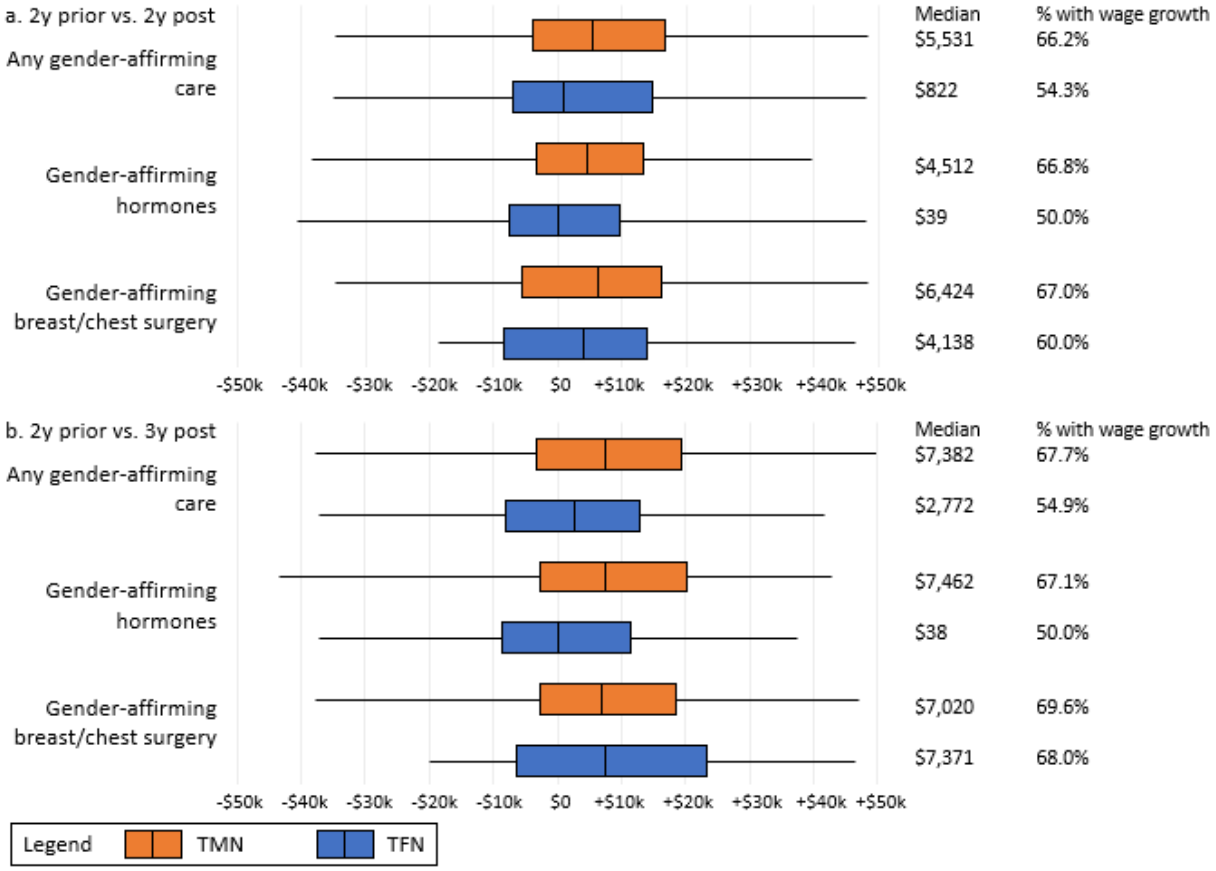


Figure notes: Wage changes are reported in January 2024 USD. Abbreviations: TFN transfeminine and nonbinary; TMN transmasculine and nonbinary.

In the regression analysis (Table 6.2), among TFN people the adjusted mean wage difference was positive and statistically significant (estimate: $7,648, 95% CI $309 to $14,987), and compared to beneficiaries aged 18-25 years at the time of their first gender-affirming care receipt, being aged 46 and older was borderline significantly associated with smaller wage increases (estimate: -$6,532, 95% CI -$13,154 to $90). Among TMN people, the adjusted mean wage difference was positive and statistically significant (estimate: $10,134, 95% CI $6,308 to $13,960). Compared to those who were

young adults, being aged 36-45 years at the time of initial gender-affirming care receipt was significantly associated with smaller wage increases (estimate: -$7,856, 95% CI -$11,567 to -$4,145) as was being aged 46 and older (estimate: -$12,539, 95% CI -$18,593 to -$6,484).

Table 6.2. Regression results for wage changes after gender-affirming care receipt (in 2024 USD), by gender category

	TFN		TMN	
	β (95% CI)	p value	β (95% CI)	p value
Intercept	7,648 (309, 14,987)	0.04	10,134 (6,308, 13,960)	<0.0001
Race and ethnicity				
Non-Hispanic White (ref)				
Non-Hispanic Black	5,389 (-4,485, 15,263)	0.29	3,607 (-3,266, 10,480)	0.30
Hispanic or Latino/a/x/e	2,003 (-7,451, 11,458)	0.68	2,765 (-2,002, 7,532)	0.26
Another race or ethnicity	3,035 (-5,123, 11,193)	0.47	3,012 (-1,190, 7,214)	0.16
Missing race or ethnicity	790 (-2,931, 4,511)	0.68	-512 (-2,715, 1,691)	0.65
Age at first gender-affirming care				
18-25 years (ref)				
26-35 years	-443 (-4,932, 4,045)	0.85	-1,606 (-3,785, 574)	0.15
36-45 years	-3,755 (-9,188, 1,678)	0.18	-7,856 (-11,567, -4,145)	<0.0001
46+ years	-6,532 (-13,154, 90)	0.05	-12,539 (-18,593, -6,484)	<0.0001
Urban residence (ref: Rural)	-1,608 (-6,496, 3,280)	0.52	-787 (-3,679, 2,105)	0.59
Years enrolled in Medicaid	-135 (-854, 583)	0.71	-193 (-566, 180)	0.31

Notes: Wages are reported in January 2024 USD. Abbreviations: TFN transfeminine and nonbinary; TMN transmasculine and nonbinary.

Discussion

In this descriptive study, we examined wage changes after gender-affirming care receipt among transgender and nonbinary Oregon Medicaid beneficiaries. In our sample of 1,110 adult beneficiaries (TFN n=380, TMN n=730), we observed meaningful and durable wage increases in the majority of TFN and TMN people after they received any gender-affirming care, gender-affirming hormones, or affirming breast/chest surgeries. In

regression analyses, being aged 36 years or older when beginning gender-affirming care was significantly associated with smaller wage changes among TMN people.

Our findings are consistent with research and theory that suggests access to healthcare is associated with the ability to work and earn income, particularly among Medicaid beneficiaries.[333-341] We also identified trends that are important to situate in the context of transgender and nonbinary people's experiences. First, while wages increased for the majority of people after gender-affirming care receipt, TMN people experienced substantially higher median wage increases than TFN people. Researchers hypothesize the effectiveness of masculinizing gender-affirming care (e.g., mastectomy, testosterone) in achieving a binarized gender expression may afford TMN people similar advantages experienced by cisgender males.[2,32,301,348] Indeed, TFN people reported higher pre-affirmation earning power and greater employment discrimination relative to TMN people in multiple studies.[94,292,301,349,350]

Second, immediate wage decreases coincided with gender-affirming care receipt. This phenomenon has been observed in qualitative and survey-based studies of transgender and nonbinary people,[2,292,342] and is believed to be due to job instability, employment discrimination, and variable organizational return-to-work policies during medical gender-affirmation.[2,292,343,346,347]

Third, the regression analyses suggested the intersection of gender and age were associated with wage changes after gender-affirming care receipt. The relationship between intersectional identities and economic potential has been observed in previous studies of transgender and nonbinary people.[2,12,135] However, it is important to

acknowledge that intangible benefits of medical affirmation on employment, such as increased job satisfaction and internalized authenticity,[2,342,351] may be more important than wage changes. Findings from our study validate previous research and extend the model of health and wealth to include gender-affirming care.

Given the high self-reported social risk among Medicaid beneficiaries,[352] recent Medicaid policy changes regarding gender-affirming care[58,81] offer an opportunity to examine whether care receipt affects transgender and nonbinary beneficiaries' economic opportunities. The temporal subtleties we observed regarding Oregon Medicaid enrollment, timing of gender-affirming care use relative to Oregon Medicaid's policy change, and gendered wage dynamics highlights the importance of applying life course theory to understanding transgender and nonbinary people's lives.[132]

Limitations

Our study had several limitations. First, we applied a deterministic method[95] to identify a sample of care-seeking transgender and nonbinary Oregon Medicaid beneficiaries. This method relies on medical history, rather than self-report, to infer gender or sex assigned at birth. Consequently, the sample does not represent all transgender and nonbinary beneficiaries. Oregon is currently developing a legislatively-mandated[304] gender identity collection standard for use in healthcare settings, which includes identities such as transgender, nonbinary, agender, gender-questioning, woman, or man,[305] that may enable more inclusive sampling in future research. Second, our regression may be biased by unmeasured confounding from factors including nonmedical

affirmation,[342] education,[295,347] and housing instability.[26] However, our findings were consistent with existing research that accounted for these factors, which supports our study's validity. Third, our data comprised wages, rather than income, which includes earnings from veterans' benefits, public assistance, and other sources.[306] Our wage analysis may not fully depict the financial consequences of receiving gender-affirming care.

Despite these limitations, our analyses identified compelling evidence of wage increases following medical affirmation. Because our employment data comprised wages received at any time, we leveraged our highly detailed dataset to represent individual life courses comprising up to eleven years of Medicaid-insured gender-affirming care events and wages earned during and beyond Medicaid enrollment. Our study demonstrates the feasibility of conducting population-level research to understand the relationship between gender-affirming care and social risk.

Conclusion

We analyzed a novel dataset with eleven years of Medicaid-covered healthcare and Oregon employment history for a large population-based sample of transgender and nonbinary adults. Our findings empirically support emerging literature regarding medical affirmation and employment outcomes.[2,292,342] We observed meaningful increases in wages following medical affirmation. These benefits may be due to direct mechanisms such as access to gender-based privilege[2,32,301] or indirect mechanisms including greater feelings of safety and engagement at work.[2,342] These findings emphasize the importance

of applying a life course approach to understand the impact of gender-affirming care on social risk and downstream outcomes. Future research can extend our inquiry to other contexts, including commercial insurance and other state or national populations.

Acknowledgments

I would like to thank Radhika Appachar, Chris Coon, Wes Muow, and Brenda Turner for their timely and attentive efforts in providing the data used in this study.

CHAPTER 7: RECOMMENDATIONS AND CONCLUSIONS

The purpose of this study was to apply a person-centered lens to assess Medicaid gender-affirming care policies for adults. I evaluated policies at the national, state, and population level, and aimed to fill knowledge gaps by addressing topics that transgender and nonbinary people identified as research priorities. I hope my findings can serve community members, policymakers, providers, and advocates who want to understand Medicaid gender-affirming care policies and how the use of gender-affirming care may be associated with changes in social risk.

I start this chapter by revisiting my research questions and summarizing my findings regarding Medicaid gender-affirming care policies from a national and state-level perspective, and wage dynamics relative to gender-affirming care receipt among Oregon transgender and nonbinary Medicaid beneficiaries. Then, I discuss my study's significance and contribution. I conclude by identifying policy and practice implications, study limitations, and future research recommendations. Throughout, I situate my findings within community-identified research priorities and practices.

Research Summary

My study addressed the following research questions: What similarities and differences exist in national and state-level Medicaid gender-affirming care policies and policy environments, and how is gender-affirming care receipt related to social risk? Below, I describe the key findings for each aim and synthesize these findings into themes.

Overview of key findings

National level (Aim 1). Transgender and nonbinary people identify insurance coverage for and access to gender-affirming care as a top research priority.[70-72] Thus, I conducted a comparative policy analysis and partnered with four transgender and nonbinary community members to assess person-centeredness in the 33 states and federal districts with Medicaid gender-affirming care policies as of December 2022.[81] Although no state policy achieved an overall "High" level of person-centeredness, high person-centeredness was evident within the four domains—Comprehensiveness, Accessibility, Eligibility, and Language.

State level (Aim 2). Understanding factors associated with insurance policies for transgender and nonbinary people,[72] and undertaking research that examines structural and interpersonal factors associated with health production[39,226] are community-identified research priorities and practices. I applied Coincidence Analysis[196] to examine state-level social, political, legal, market, and health system factors associated with person-centeredness in Medicaid gender-affirming care policies. I found that contexts differed for states with moderately-high vs. exclusionary person-centered policies, and that states with similar policy types may have similar environments. States with moderately-high person-centered policies had favorable health systems performance and access to health insurance, whereas in states with exclusionary policies, LGBTQIA+ equity and Medicaid access did not appear to be priorities.

Population and individual level (Aim 3). I conducted a retrospective observational study to investigate wage changes relative to gender-affirming care use in transgender

and nonbinary Oregon Medicaid beneficiaries. Wages steadily increased for transmasculine and transfeminine beneficiaries after gender-affirming care receipt. A higher proportion of transmasculine than transfeminine people experienced wage growth, and the median magnitude of wage change was double in transmasculine people. This study addressed the community-identified research practice of conducting research that measures resiliency, not just inequities.[39,90,226]

Synthesis across the 3 Aims

The three aims assessed Medicaid coverage for gender-affirming care at the national, state, and population levels. Several shared themes emerged.

Medicaid coverage for gender-affirming care is one component of a system that affects transgender and nonbinary people's wellbeing (Aims 1, 2, & 3). Members of my community panel unanimously agreed that the Comprehensiveness, Accessibility, Eligibility, and Language domains equally contributed to policies' person-centeredness (Aim 1). That is, the way the policy design interacted with socio-structural processes (e.g., pathologizing gender identity), institutions (e.g., health care), and dominant paradigms (e.g., cisgenderism) affected beneficiaries' right to dignity, a key concept of person-centeredness.[69,308] I found that a variety of environmental factors were associated with policies' person-centeredness (Aim 2), further supporting a systems framework.[69] At an individual and population level, gender-affirming care use was associated with a meaningful increase in average wages, demonstrating the potential impact of gender-affirming care on a tangible measure of social risk. Medicaid policies have individual, organizational, and social impacts on transgender and nonbinary people's lives.[69,353]

Variable speed federalism likely occurs in Medicaid gender-affirming care policy design and implementation (Aims 1 & 2). I found evidence consistent with variable speed federalism, which occurs when states implement their desired level of transgender policymaking at different speeds and emphasize different values.[55] For example, although I identified 88 distinct gender-affirming services across all states' policies, no state covered more than 25 (Aim 1), and states gradually covered more services in response to demand.[254,354] I also found varied state environments associated with moderately-high person-centered and exclusionary policies. In particular, state environments associated with exclusionary policies tended to center on poor LGBTQIA+ equality scores[211] (Aim 2). Findings from my study were consistent with prior research that suggested policy design was associated with conditions such as available gender-affirming care providers[317] or political climate.[209]

Person-centered Medicaid gender-affirming care policy design potentially impacts social risk (Aims 1 & 3). Social risks are specific adverse social and economic conditions associated with poor health that are intervenable at an individual level. They include food or housing insecurity, employment, education, ability to pay for personal needs, and sense of personal safety or community belongingness. The prevalence of social risk is high in Medicaid-insured and transgender and nonbinary populations.[2,11,135,295,352] Examples of person-centeredness in Medicaid policy design include coverage for a breadth of gender-affirming care and inclusive language (Aim 1), which are associated with reduced financial burden[89,221] and perceived social acceptance.[353] My study also found that average wages increased among Oregon Medicaid beneficiaries who received

gender-affirming care, and that wage growth differed according to what kind of gender-affirming care people obtained (Aim 2). These findings support scholars' assertion that public policy shapes people's experiences of social determinants of health and social risks.[353]

Significance and Contribution

My research contributed to the current field of transgender health research in three ways. First, I addressed community-identified research priorities and practices. Across multiple studies, transgender and nonbinary people identified insurance coverage for and access to transition-related care as a research priority.[70-72] Specific topics include understanding how insurance coverage could be more inclusive of diverse gender identities,[72] whether insurance covers all transition-related healthcare,[72] and how insurance coverage affects out-of-pocket costs and social risk.[70] Transgender and nonbinary people also described how they wanted health research to be conducted. Participants asserted that the research should include a variety of gender identities,[39,225] the research must document the impact of structural and interpersonal processes,[39,226] and the research must measure resiliency.[39,90,226] I considered these priorities and practices when developing my aims, methods, and narratives.

Second, my study was guided by the Intersectionality Research for Transgender Health Justice framework.[69] I adapted its depiction of the systems that produce health for transgender and nonbinary people to all three Aims, and followed its recommended research practices to promote transgender health justice. For example, I used the

framework's systems perspective on the intersectional causes of health inequities to identify factors potentially associated with person-centeredness in policy (Aim 2), and engaged four transgender and nonbinary community members to develop a definition of person-centered gender-affirming care policy (Aim 1). This framework's systems perspective and emphasis on health justice complemented my focus on person-centeredness.

Third, I conducted a cohesive multilevel investigation that addressed research gaps. I identified knowledge gaps in Chapter 2 that included embedding lived experiences into research about health insurance coverage for gender-affirming care, assessing a breadth of gender-affirming care beyond gender-affirming hormones or surgeries, and investigating whether medical affirmation reduces social risk. Aims 1 and 3 specifically addressed these gaps. Additionally, my study design considered data and methodological gaps identified in a scoping review of transgender and nonbinary health research:[90] I applied validated methods[95,100,253] to assess gender-affirming care, identified a large sample of transgender and nonbinary people for my analyses, focused on a less-studied population of Medicaid beneficiaries, and involved community members in my research.

I intended for my study to help transgender and nonbinary people. Per feedback from community participants, I designed the findings from Aim 1 for use as a community resource by people of varying health literacy. I framed Aim 2 as an exploratory study intended for policymakers, advocates, and health policy researchers. I conducted Aim 3 because I hypothesized gender-affirming care use would be associated with positive wage changes, and I wanted to respond to a transgender participant in a New York focus

group who said, “I want to see more research on what helps us and things to ask for from institutions and be like, ‘This is proven to help trans people.’ ”[39]

Implications for Policy and Practice

The current social, legal, and political climate regarding transgender and nonbinary rights is polarized. During 2023, the Republican-controlled U.S. House of Representatives passed two bills that banned the use of federal funds for gender-affirming care,[319] and at least 479 anti-LGBTQIA+ bills were introduced in the 2024 U.S. legislative session.[355] According to an independent think tank that focuses on LGBTQ policy issues, as of March 2024, 21 states have an overall discriminatory landscape of laws and policies related to gender identity, while 16 states have an overall protective landscape.[284] Despite the challenging climate, I believe my study can inform policy and practice.

Recommendations for Medicaid policy design

One quarter of U.S. states explicitly ban Medicaid coverage for gender-affirming care, and one quarter has no explicit policy.[58] However, recent litigation following the Supreme Court’s ruling in *Bostock v. Clayton County* successfully overturned West Virginia’s Medicaid gender-affirming care ban in 2022,[81] suggesting similar judicial processes could overrule existing legislative bans on care. Therefore, my recommendations for Medicaid policy design apply to all states.

Results from my study indicated Medicaid gender-affirming care policy design must align with the state’s goals and resources. While analyzing policy documents in Aim

1, I discovered some states overtly declared their rationale for covering gender-affirming care. For example, in an insurance bulletin communicating its 2014 Medicaid policy change, Washington, D.C. asserted, "The comprehensive benefits provided by Medicaid are essential to the health and well-being of some of the District's most vulnerable residents."[356] Washington, D.C. has one of the highest per-capita Medicaid expenditures in the nation,[282] and its policy demonstrated high person-centeredness within the Comprehensiveness – Services Covered domain (Aim 1). In contrast, Montana issued an insurance bulletin in 2017 that stated, "The [2016] Federal Final Rule prohibits a State Medicaid Program from implementing any categorical coverage exclusion from health services related to gender transition. The State Medicaid program is not, however, restricted from determining whether any particular service meets medical necessity requirements…Services related to gender transition that otherwise fall within a member's covered benefit plan will be reimbursable under Montana Medicaid when medically necessary."[357] Montana's rationale demonstrated the state's reluctance to address gender-affirming care needs, and its policy demonstrated low overall person-centeredness (Aim 1). Ideally, policy design would consider person-centeredness.[353] However, misalignment between states' goals and ability to allocate resources can result in unintended harm for care-seeking beneficiaries, including out-of-state travel and lack of in-state gender-affirming care providers.[209,317] I recommend states pragmatically consider their rationale and resources[55] in Medicaid policy design.

I also recommend that states with similar contexts and goals (Aim 2) emulate peer states' policies, a process known as diffusion of innovation.[51,290] No states that

offered Medicaid coverage for gender-affirming care had identical policies (Aim 1). However, policymakers and advocates can apply my findings in Aims 1 and 2 to evaluate different policy designs. This may enable them to understand the breadth of implemented policies and inform future policy modifications.

Finally, policymakers and advocates can design a person-centered policy for transgender and nonbinary beneficiaries. In Aim 1, the community panel agreed the four domains we assessed were equally important components of person-centeredness. That is, whom the benefits were available to (Eligibility) and the terminology the policies used to describe transgender and nonbinary people and their care (Language) was just as important as the services covered (Comprehensiveness) and rules governing access to care (Accessibility). Scholars assert policy language regarding transgender and nonbinary people shapes social and cultural norms, communicates the policy's intent and motivations, and can be used to include or exclude specific gender-based identities.[353] Previous comparative policy analyses focused on what services state Medicaid programs covered (Chapter 2). My study establishes person-centeredness as an essential perspective for evaluating policy design.

Recommendations for information accessibility

Members of my community panel discussed accessing health insurance information through social media (e.g., Facebook, YouTube, Reddit, TikTok) and personal networks. Two described providers' confusion regarding whether insurance required body mass index testing prior to surgical consultation. Beneficiaries' and providers'

difficulties understanding policy information is unsurprising: policy documents can be difficult to find and interpret (Appendix B).

I recommend state health and insurance departments provide Medicaid gender-affirming policy information that is easy to find and comprehensible to people with disabilities,[358] varying levels of health literacy, and broad language and literacy abilities.[359] Washington state created a user-friendly website for its Medicaid Transhealth Program[360] that meets many of these recommendations. The state's website uses inclusive language to clearly communicate eligibility requirements and services covered, and provides easily-navigable links to find a provider, change gender identity on health insurance documents, and legally change one's name through the Social Security Administration. I urge other states to follow Washington state's example.

Limitations

I summarize two categories of my study's limitations below: methodological and data-related limitations, and general limitations regarding studying Medicaid policy.

Methodological and data-related limitations

My study, like other studies, may be subject to researcher bias, wherein my beliefs affect my research decisions and conclusions. I attempted to minimize researcher bias by engaging community members and practicing reflexivity (Aim 1).[273] I described all methods and analyses to facilitate replicability, performed sensitivity analyses to evaluate models' reliability, and transparently reported CNA model ambiguities[197] and negative wage changes (Aims 1-3).

My study may have been biased by unmeasured confounding because I had limited existing research to guide my variable selection (Aim 2) and I was unable to measure specific variables (Aim 3). I attempted to minimize bias from unmeasured confounding by evaluating a breadth of factors that might serve as proxies for unobservable confounders (Aim 2). I also compared my findings to existing research that included the confounders I was unable to measure in my data (Aim 3). The consistency of my findings with existing research supported my study's validity.

I had limited ability to discern subtleties such as within-state differences in policy implementation and context (Aims 1 and 2) and the diversity of gender identities (Aim 3). In my national and state-level analyses, my unit of analysis was the state, which likely obscured important within-state inequities such as rural-urban gender-affirming care access.[141,331,332] In my single-state case study, I applied a deterministic method[95] to identify a sample of care-seeking transgender and nonbinary Oregon Medicaid beneficiaries which likely failed to characterize the diversity of gender identities[2] in my sample and excluded people without observable medical gender affirmation covered by Medicaid.

I managed my study's methodological and data-related limitations by following recommended practices for conducting and reporting observational research.[197,296] Additionally, my dissertation committee assessed my study's methods and results for validity.

Limitations of studying Medicaid policy

My study also has practical limitations. First, Medicaid gender-affirming care policy is polarized and most state policies were implemented in the last decade.[58,81,319,355] Given these rapid policy changes, findings may quickly become outdated. However, given the rapidly changing policy landscape, my findings may also provide an important snapshot of Medicaid gender-affirming care policies in the early 2020s. I studied Medicaid gender-affirming care policies that were implemented on or before December 2022. By March 2024, two more states (Iowa and Virginia) offered Medicaid coverage for this care and three states (Arkansas, Mississippi, and North Carolina) began excluding gender-affirming care for minors.[58] Although my findings are not obsolete, policies have changed over the fifteen months I conducted my study. Second, Medicaid gender-affirming care policy design and implementation imperfectly reflect real-world behaviors. In qualitative studies and within my own community panel, transgender and nonbinary people described how their providers used workarounds to circumvent policy mandates, while others encountered providers who implemented their own gatekeeping practices,[152,166] which served to restrict access to care. These limitations affect my study's timeliness and accuracy.

Recommendations for Future Research

I addressed knowledge gaps and conducted exploratory research. Based on my findings and study limitations, I describe three practices for future research below.

Include a diversity of identities

I echo previous calls for including a diversity of identities and experiences in research.[39,90,114,225] The 28,000 respondents to the 2015 U.S. Transgender Survey identified more than 500 unique gender identities to describe themselves.[2] In addition to gender identity, community members described their racial and ethnic identities, age, and sexual orientation as important intersecting social identities.[39,132,225] Respect for individuality and human dignity are person-centered concepts[213,308] to incorporate into transgender and nonbinary health policy research.

Conduct causal or positivist inquiry

In Chapter 2 I identified a lack of causal or positivist inquiry in transgender and nonbinary health research. My study revealed potential topics for studies that would facilitate causal inference. In Aim 2, my findings identified environmental conditions associated with person-centeredness in Medicaid policy. Future research that investigates whether these factors causally impact Medicaid policy design would be valuable to policymakers, policy researchers, and advocates. In Aim 3, I observed meaningful wage growth relative to gender-affirming care receipt. Future research can apply longitudinal, positivist approaches to examine whether gender-affirming care use caused the wage increases.

Causal and positivist inquiry will also complement life course studies of transgender and nonbinary people. Life course studies depict individual lives as sequences of life experiences that evolve over time and are shaped by social contexts.[132] In a life course study of 87 transgender and nonbinary people, participants identified

experiences within themes including gender exploration and revelation, gender-affirming medical care, education and finances, community involvement, place of residence, and parenthood. Commonalities and individualities in participants' life courses suggest causal inquiry may identify important social risk interventions, such as career training,[26,28,293] that can impact transgender and nonbinary people's life courses.

Incorporate community engagement

Community engagement in research can be described as a continuum.[142] Engaging transgender and nonbinary people may integrate their knowledge, facilitate emancipatory knowing, address health from an ecological perspective, generate culturally-appropriate research, and build trust between researchers and community members.[142,217] Specific to this study, scholars described how including community partners in policymaking for transgender and nonbinary people can ensure policies contain appropriate language and content, reveal policies' unintended impacts or less obvious harms, inform policymakers and advocates about affirming and harmful policies, and increase the likelihood that policy will improve outcomes for community members.[353]

Conclusion

This study's goal was to assess whether Medicaid gender-affirming care policies for adults promote person-centeredness. I evaluated policies at the national and state levels to characterize the policy landscape and state environments. I also conducted a population-level study to understand wage changes relative to gender-affirming care

receipt. Based on my literature review, I expected to find a variety of policies and policy environments indicative of variable speed federalism, and that gender-affirming care would be associated with increased wages.

While I did find evidence of both phenomena, two unexpected findings emerged. First, no state achieved overall high person-centeredness in its policy. Second, transmasculine and nonbinary adults who began affirming medical care receiving gender-affirming care covered by Oregon Medicaid when they were in their mid-30s experienced considerably less wage growth than beneficiaries who were young adults when they first received care.. Both findings indicate that we need to dismantle structural, institutional, and interpersonal barriers to transgender and nonbinary people's health equity.

We could also frame these findings more optimistically. My research and previous studies demonstrated person-centeredness is achievable in gender-affirming care and policy, and I observed positive wage changes after gender-affirming care receipt in the majority of the study sample. Medicaid coverage for gender-affirming care is a relatively recent policy change: of the 26 states and the District of Columbia that explicitly offer coverage, nearly all of these policies were implemented on or after 2015.[81] The eight states that achieved moderately-high person-centeredness in their policies demonstrated high person-centeredness in at least two of the component domains. Perhaps overall high person-centeredness is imminently achievable.

Transgender and nonbinary health policy research has burgeoned in the past decade, driven by Section 1557 of the Affordable Care Act and greater social and political visibility. An emerging body of research describes gender-affirming care policies, and a

logical progression for future research is to examine how gender-affirming care policies produce health and wellbeing in transgender and nonbinary populations.

This study examined person-centeredness in Medicaid gender-affirming care policies. My overall findings confirmed that achieving person-centeredness encompasses more than covering a breadth of gender-affirming care, and that state environments are associated with Medicaid policy. Medicaid gender-affirming care policy potentially impacts a range of human needs, including health and social risk. Person-centered policy can ensure the care meets those needs and supports future thriving.

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APPENDIX A: PORTLAND STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD APPROVAL

Portland State UNIVERSITY

Human Research Protection Program
1600 SW 4th Avenue, Suite 620
Portland, OR 97201
(503) 725-5484 psuirb@pdx.edu

Human Research Protection Program
Notice of Review Not Required Determination

June 30, 2023

Dear Investigator,

The PSU Institutional Review Board (IRB) reviewed the following submission:

Investigator(s)	Jill Rissi / Kim Yee, School of Public Health
HRPP #	238159-18
Title	Using a person-centered approach to assess Medicaid coverage for gender-affirming care
Funding Agency / Kuali #	N/A
Determination Date	6/30/23
Expiration Date	N/A
Review Category(ies)	N/A

The IRB determined this project does not require Human Research Protection Program (HRPP) review under the federal regulations, as the project does not meet the federal definitions of "research" with "human subjects" per 45 CFR Part 46 or 28 CFR Part 46.

Please note that this determination by the PSU HRPP does not constitute permission to access and use protected data (such as FERPA-protected student records). Other institutional approvals may be required prior to accessing protected data.

As a reminder, PSU faculty, staff, and students are responsible for maintaining the highest ethical standards when conducting any projects on behalf of PSU, regardless of whether HRPP review is required. Additionally, if there are planned changes to the project that may make the project "human subjects research" please contact the HRPP prior to implementation to ensure the Review Not Required status of this project does not change.

If there are any questions, please contact the HRPP at psuirb@pdx.edu or call 503-725-5484.

Sincerely,

Leah Polhemus, HRPP Administrator
Human Research Protection Program

APPENDIX B: STATE MEDICAID POLICY DOCUMENTS

State	Policy Document(s) (date of document used in study, if available)
Alaska (covers)	Alaska Administrative Code Title 7 AAC § 105.130- Title 7 AAC § 105.220 (link) *No relevant info: Medicaid Recipient Handbook (link)*
Arizona (excludes)	Arizona Administrative Code AAC 9-22, R9-02202-4(B)(4) (link) *No relevant info: Arizona Health Care Cost Containment System Medical Policy Manual (link)*
California (covers)	MediCal Provider Manual (May 2022) (link) Department of Health Care Services All Plan Letter 13-011 (September 2013) (link)
Colorado (covers)	Colorado Code of Regulations 10 CCR § 2505-10 8.735 (link) Health First Colorado (Medicaid) Gender-Affirming Care Billing Manual (Nov 2022) (link)
Connecticut (covers)	Husky Health (Medicaid) Provider Policies & Procedures: Gender Affirmation Surgery (December 2022) (link) Insurance Department Bulletin IC-34 (December 2013) (link) Department of Social Services Regulation #14-05 (2014) (link)
Delaware (covers)	Division of Medicaid & Medical Assistance Practitioner Provider Specific Policy Manual (October 2022) (link) Domestic/Foreign Insurers Bulletin No. 86 (September 2020) (link) Senate Bill 97 (2013) (link)
Florida (excludes)	Florida Administrative Code 59G-1.050 (August 2022) (link) *No relevant info: Provider Handbook (link)*
Georgia (excludes[a])	Medicaid Health Care Financing Administration Program Memorandum 91-4 (August 1991, original exclusionary policy) (link) Thomas et. Al. v. Georgia Department of Community Health (June 2021) (link) American Civil Liberties Union of Georgia press release (July 2022) (link) *No relevant info: Provider Manual (link)*
Illinois (covers)	89 Ill. Adm Code 140.413(a)(16) (December 2019) (link) Department of Healthcare and Family Services Gender-Affirming Surgeries and Services FAQ (June 2020) (link) Department of Healthcare and Family Services Prior Authorization for Gender-Affirming Services (link) *No relevant info: Provider Handbook (link)*
Iowa (excludes[a])	House File 766 (May 2019, original exclusionary policy) (link)

State	Policy Document(s) (date of document used in study, if available)
	Vasquez and Covington v. Iowa Department of Human Services (November 2021) (link) Medicaid Provider Policy Manual (Physician Services version accessed June 2023 was last revised December 2021 and still excluded gender-affirming care) (link)
Maine (covers)	Code R. 10-144 Chapter 101 MaineCare Benefits Manual § 90.04-33 (May 2022) (link) MaineCare Member Handbook (link)
Maryland (covers)	Maryland Medical Assistance Program Managed Care Organizations Transmittal No. 110 (March 2016) (link) Maryland Medicaid Provider Manual (January 2022) (link) Code of Maryland Regulations 10.67.06.26-3 (April 2021) (link)
Massachusetts (covers)	MassHealth Gender-Affirming Care website (link) MassHealth Guidelines for Medical Necessity Determination for Gender-Affirming Surgery (September 2021) (link) Code of Massachusetts Regulations 103 CMR § 433.408(C)(1) (link) MassHealth Provider Manual – Physician Manual (link)
Michigan (covers)	Medicaid Provider Manual (link) Medical Services Administration Bulletin MSA 21-28 (November 2021) (link) Medical Services Administration Bulletin MSA 19-06 (March 2019) (link)
Minnesota (covers)	Minnesota Health Care Programs Provider Manual (link)
Missouri (excludes)	MoHealthNet Physician Manual (Dec 2022) (link)
Montana (covers)	Montana Healthcare Programs Notice (July 2016) (link) *No relevant info: Physician-Related Services Manual (March 2021) (link)*
Nebraska (excludes)	Nebraska Administrative Code 471 Nebraska Medical Assistance Program Services Provider Handbook – Physicians' Services Chapter 18 § 006.01(DD) (July 2022) (link) Nebraska Administrative Code 471 Nebraska Medical Assistance Program Services Provider Handbook – Hospital Services Chapter 10 § 005.01(FF) (June 2022) (link)
Nevada (covers)	Medicaid Services Manual Chapter 600- Physician Services (October 2022) (link) Medicaid Web Announcement 1532 (May 2018) (link) Transmittal Letter 26/15 to MSM Chapter 1200 (November 2022) (link) Billing Guide (Dec 2022) (link)
New Hampshire (covers)	New Hampshire Healthy Families Member Handbook (July 2022) (link) New Hampshire Healthy Families Provider Handbook (July 2022) (link)

State	Policy Document(s) (date of document used in study, if available)
New Jersey (covers)	New Jersey Assembly Bill 4568 (July 2017) (link) New Jersey Statute § 30:4D-9.1 (2022) (link) *No relevant info: Eligibility and Service Manuals (link)*
New York (covers)	18 NY Codes, Rules, and Regulations § E (Article 3) 505.2 (link) *No relevant info: Provider Manual (link)*
North Dakota (covers)	General Information for Providers Manual (link)
Oregon (covers)	Prioritized List (October 2022) (link) Prioritized List: Guidelines for Gender Dysphoria FAQ (March 2019) (link) Oregon Health Plan (Medicaid) Policies, Rules and Guidelines (link)
Pennsylvania (covers)	Medical Assistance Bulletin 99-16-11 (July 2016) (link) Medical Assistance Bulletin 01-20-39 (November 2020) (link) *Medical Assistance/Medicaid Eligibility Handbook (link) did not contain information regarding gender-affirming care*
Rhode Island (covers)	Medicaid Provider Manual (link) Gender Dysphoria/Gender Nonconformity Coverage Guidelines (October 2015) (link)
South Carolina (excludes)	Healthy Connections Medicaid Physicians Services Provider Manual (May 2022) (link)
Tennessee (excludes)	Rules of Tennessee Department of Finance and Administration Division of TennCare Chapters 1200-13-13.10(3)(b)(72), 1200-13-13.10(3)(b)(86), 1200-13-14.10(3)(b)(72), and 1200-13-14.10(3)(b)(86) (May 2022) (link)
Texas (excludes)	Medicaid Provider Procedures Manual (August 2022) (link)
Vermont (covers)	Health Care Administrative Rules 4.238 (November 2019) (link) Department of Vermont Health Access Medical Policy Bulletin (November 2019) (link) *No relevant info: Medicaid Provider Manuals (link)*
Washington (covers)	Washington Apple Health (Medicaid) Physician-Related Services/Health Care Professional Services Manual (October 2022) (link) Washington Administrative Code § 182-531-1675 (January 2023) (link) Washington Apple Health (Medicaid) Transhealth Program Website for Providers (link)
Wisconsin (covers)	BadgerCare Plus and Medicaid Physician Handbook (link) ForwardHealth Bulletin No. 2019-20 (November 2019) (link) Wisconsin Administrative Code DHS 107.03(23) and DHS 107.03(24) (link)

State	Policy Document(s) (date of document used in study, if available)
Washington, D.C. (covers)	Department of Health Care Finance Policy # OD-001-17 (September 2016) (link) Department of Health Care Finance Medicaid Policy Statement (February 2014) (link)

Notes: Primary source document listed first. [a]State legally covers gender-affirming care as of December 2022, but policy documents not updated to reflect coverage at time of study

APPENDIX C: CODEBOOK FOR ASSESSING PERSON-CENTEREDNESS WITHIN MEDICAID GENDER-AFFIRMING CARE POLICIES

Theme and subthemes	Definition	Example(s)
Accessibility: The Accessibility theme identifies rules in the policy language regarding access to care		
Age requirement, years	Specification of a minimum age limit for receipt of any type of gender-affirming care provided to adult beneficiaries, including the policy explicitly specifying the age of majority (>= 18 years)	"The DMAP member must be age eighteen (18) years or older for irreversible surgical interventions" (Delaware Medicaid Provider Manual) "Gender-affirming surgeries, services and procedures are covered only with prior approval by the Department for individuals who are 21 years of age or older." (Illinois Administrative Code)
Care progression or sequence rules	The policy states at least one type of gender-affirming care must be provided in a specific order relative to other gender-affirming care or personal experiences. This subtheme does NOT consider obtaining letters of reference as part of gender-affirming care	
Hormones prior to surgery, months	The policy specifies the individual must have received gender-affirming hormones for a minimum period in order to receive coverage for gender-affirming surgery	"Received hormone therapy appropriate to the recipient's gender goals, which shall be for a minimum of 12 months in the case of a recipient seeking genital reconstruction surgery, unless such therapy is medically contraindicated, or the recipient is otherwise unable to take hormones" (Nevada Medicaid Services Manual)
Time spent living in gender role prior to surgery, months	The policy specifies the individual must have lived in their affirmed gender for a minimum period in order to receive coverage for gender-affirming surgery	"The following criteria…must be met before coverage of GCS [gender confirmation surgery] can be authorized: ...Member has lived in the gender role that is congruent with their gender identity for at least 12 continuous months" (Minnesota Medicaid Provider Manual)
Time spent living in gender role prior to hormones, months	The policy specifies the individual must have lived in their affirmed gender for a minimum period in order to receive coverage for gender-affirming hormones	"A documented real-life experience (living as the other gender) of at least three months prior to the administration of hormones" (Delaware Medicaid Provider Manual)

Theme and subthemes	Definition	Example(s)
Psychosocial therapy prior to or with hormones, months	The policy specifies the individual must have received psychotherapy/psychosocial therapy for a minimum period in order to receive coverage for gender-affirming hormones	"Initial hormone therapy must be preceded by:…A period of psychotherapy of a duration specified by a DMAP enrolled qualified mental health professional (Minimum of three months, though longer periods may be recommended…)" (Delaware Medicaid Provider Manual)
Hormones not needed prior to mastectomy	The policy specifies gender-affirming hormones are not a requirement prior to mastectomy (or breast reduction)	"Except for mastectomy in female-to-male beneficiaries, documentation of 12 months continuous hormonal therapy is required for patients undergoing GRS [gender reassignment surgery]" (DC Policy # OD-001-17)
Hormones needed prior to mammoplasty, months	The policy specifies the individual must have received gender-affirming hormones for a minimum period in order to receive coverage for gender-affirming mammoplasty	"Augmentation mammoplasty with implantation of breast prostheses may be considered medically necessary when…The member has had 12 months of clinician-supervised hormone therapy that has resulted in no or minimal breast development, unless hormone therapy is medically contraindicated" (Massachusetts MassHealth Guidelines for Medical Necessity Determination for Gender-Affirming Surgery)
Timing of diagnosis prior to surgery request, months	The policy specifies the individual must have received a qualifying diagnosis a minimum period prior to receiving coverage for at least one type of gender-affirming surgery	"This diagnosis must have been present for at least 6 months" (Massachusetts MassHealth Guidelines for Medical Necessity Determination for Gender-Affirming Surgery)
Pelvic physical therapy only for pre/post-operative genital surgery	The policy specifies pelvic physical therapy is only covered if provided in relation to a gender-affirming surgery	"Pelvic physical therapy…is included on this line only for pre- and post-operative therapy related to genital surgeries also included on this line" (Oregon Prioritized List)
Hair removal only covered prior to surgery	The policy specifies hair removal is only covered as a service used prior to a gender-affirming surgery	"Electrolysis or laser hair removal performed by a licensed qualified professional for the removal of hair on a skin graft donor site before its use in genital gender-affirming surgery" (Massachusetts MassHealth Guidelines for Medical Necessity Determination for Gender-Affirming Surgery)
Clinical effectiveness	The policy specifies clinical effectiveness will be assessed as rationale for coverage	"For prior authorization, factors that the department will consider include the service's medical necessity, clinical effectiveness, cost-effectiveness, and likelihood of adverse effects" (Alaska Administrative Code)

Theme and subthemes	Definition	Example(s)
Cost-effectiveness	The policy specifies cost-effectiveness will be assessed as rationale for coverage	"For prior authorization, factors that the department will consider include the service's medical necessity, clinical effectiveness, cost-effectiveness, and likelihood of adverse effects" (Alaska Administrative Code)
Informed consent	The individual receiving care must provide informed consent, either alone or as part of required documentation (such as for a prior authorization request) as a requisite for receiving gender-affirming care	"Attestation by the provider that the record includes an informed consent agreement signed by the member" (Rhode Island Medicaid Provider Manual)
Likelihood of adverse events	The policy imposes potential restrictions for at least one service based on the likelihood of the recipient experiencing adverse events	"Genital reconstruction surgery is covered for recipients that are sufficiently physically fit" (Nevada Medicaid Services Manual)
Maximum quantities allowed	The policy describes quantity restrictions generally or for a specific type of service	"Limitations and exclusions, medical necessity and reconstructive determinations and/or appropriate utilization management criteria that are non-discriminatory may be applied" (California Medi-Cal Provider Manual)
Medical necessity	The policy includes a statement wherein at least one gender-affirming service must meet the state's definition of medical necessity	"Medical and mental health services, determination of medical necessity, as well as the relevant qualifications and clinical experience requirements of treating providers, must adhere to the most current clinical practice guidelines" (Michigan Medicaid Provider Manual)
Minimum quantities allowed	The policy describes quantity restrictions generally or for a specific type of service	"The department may place minimum or maximum quantities allowed of a specific service" (Alaska Administrative Code)
Out of state coverage	Policy contains overt or implied statements indicating gender-affirming services provided out of state may be covered	"Enrolled providers are eligible to provide transgender services if: 1. Licensed by the Colorado Department of Regulatory Agencies of the licensing agency of the state in which the provider practices" (Colorado Code of Regulations)
Prior authorization	At least one gender-affirming service requires prior authorization	"All gender-affirming surgeries require PA [prior authorization]" (Massachusetts MassHealth information for members website)

Theme and subthemes	Definition	Example(s)
Psychosocial assessment	The policy includes a statement that explicitly or implicitly describes a required mental health, behavioral, and/or social assessment prior to receipt of at least one gender-affirming service	"If significant medical or mental health concerns are present, documentation from the treating provider that they do not interfere with self-identification and do not put the individual at unreasonable risk" (Connecticut Medicaid Provider Handbook)
Referral letter(s)	The policy describes a requirement for referral letter(s) prior to receiving at least one form of gender-affirming care. The policy may specify additional details, including what type(s) of providers may supply referrals, the purpose of the letter, the number of necessary letters, and the timing of the referral(s), although this subtheme can occur in the absence of these details	"The individual will require two referrals from qualified mental health professionals who have independently assessed the individual. If the first referral is from the individual's psychotherapies, the second referral should be from a person who has only had an evaluative role with the individual. Two separate letters, or one letter signed by both (e.g., if practicing within the same clinic) are required" (Maryland Insurance Bulletin)
Specification of provider types/certifications	The policy covers at least one type of gender-affirming care only if it is provisioned by providers with specific qualifications. Qualifications include details regarding the provider's professional degrees or certifications, scope of practice, and/or license to practice in specific geographic areas	"Enrolled providers are eligible to provider transgender services if: 1. Licensed by the Colorado Department of Regulatory Agencies or the licensing agency of the state in which the provider practices; 2) Services are within the scope of the provider's practice; and 3. Knowledgeable about gender nonconforming identities and expressions, and the assessment and treatment of gender dysphoria" (Colorado Code of Colorado Regulations)
Follows WPATH guidelines	The policy specifies at least one form of gender-affirming care must be provided based on recommendations in any version of the World Professional Association for Transgender Health (WPATH) Standards of Care	"Have a comprehensive mental health evaluation provided in accordance with Version 7 of the World Professional Association for Transgender Health (WPATH) Standards of Care" (Oregon Prioritized List)
Follows Endocrine Society guidelines	The policy explicitly references Endocrine Society Guidelines or includes the guideline in the document's References section	"Is prescribed the Pituitary Suppressive Agent, LHRH [luteinizing hormone-releasing hormone] in a manner consistent with current medical literature [Endocrine Society Clinical Practice Guidelines for gender-affirming hormones referenced in Reference section below]" (Pennsylvania Medical Assistance Bulletin)

Theme and subthemes	Definition	Example(s)
Follows UCSF guidelines	The policy explicitly references University of California, San Francisco Guidelines or includes the guideline in the document's References section	Selected References section includes "Deutsch, MB. Guidelines for the Primary and Gender-Affirming Care of Transgender and Gender Nonbinary People. Center of Excellence for Transgender Health Department of Family & Community Medicine University of California, San Francisco 2nd Edition: June 2016" (Massachusetts MassHealth Guidelines for Medical Necessity Determination for Gender-Affirming Surgery)
Comprehensiveness: The Comprehensiveness theme identifies gender-affirming services covered or excluded under the policy. Clarifying notes for specific subthemes or types of services are below		
Gender-affirming services that are specifically covered by the policy	If the policy lists a specific service as covered, and later asserts this service may not be covered if it does not meet certain thresholds—such as a medical necessity determination—the service is assumed to be covered (e.g., Connecticut)	
Gender-affirming care that the Medicaid policy specifically excludes	Services the policy specifies as excluded. If the policy does not explicitly list the service, it is assumed to be neither covered nor specifically excluded. Non-covered services may be described broadly or specifically	"The plan does not cover cosmetic procedures" (New Hampshire Medicaid Member Handbook) "Non-Covered Services include but are not limited to: 1. Gender reassignment services for members who are dissatisfied with their natal sex or prefer to be opposite sex without clinically significant distress or impairment. 2. Cosmetic procedures. 3. Reversal of gender reassignment surgery. 4. Procedures for the preservation of fertility" (Rhode Island Medicaid Provider Manual)
Hormones	Policy narrative contains at least one type of gender-affirming hormones. Policy may or may not specify hormone dosage, duration, frequency, or formulation. Coverage for hormones may be implied by statements regarding their use in relation to other gender-affirming care	"MassHealth covers medically necessary puberty blockers and gender-affirming hormone therapy (GAHT)" (Massachusetts MassHealth information for members website) “Gender affirming pelvic/gonadal, genital, and chest surgery…is considered medically necessary when all of the following criteria are met:…E. Stable on hormonal therapy unless medically contraindicated or not desired” (Connecticut Medicaid Provider Handbook)

Theme and subthemes	Definition	Example(s)
Unspecified surgery	Policy narrative contains unspecified gender-affirming surgeries, or narrative contains minimal specification of covered surgical care	"The department will not pay for the following services unless the department has given prior authorization for the service:...Surgical procedures to alter a recipient's body to conform to the recipient's gender identity" (Alaska Administrative Code)
Facial surgery	Policy narrative contains at least one type of unspecified gender-affirming facial surgery	"Facial surgery may be considered for coverage on a case-by-case basis" (Minnesota Medicaid Provider Manual)
Mental health services	Policy narrative describes some form of individual mental health services. Coverage may be explicit or may be implied by policy language	"Prior to surgery, a post-operative plan of care must be in place which includes behavioral health counseling" (North Dakota Medicaid Provider Information)
Hair removal	Policy narrative describes some form of hair removal services. Hair removal may be covered as a standalone service or only as presurgical care. Hair removal may encompass different types of services, such as electrolysis or laser hair removal, or be nonspecifically defined	"Permanent hair removal to treat surgical tissue donor sites" (Colorado Code of Colorado Regulations)
Fertility preservation	Policy narrative describes services that aid in fertility or reproductive preservation, including sperm or oocyte collection and preservation	“Sperm preservation in advance of hormone treatment or gender surgery; cryopreservation of fertilized embryos” (Delaware Medicaid Provider Manual)
Care already covered under benefits plan	Policy only covers gender-affirming services that are already part of the existing covered benefit plan unrelated to gender-affirming care	"The discrimination prohibited by this section shall include:…(a) health care services related to gender transition if coverage is available for those services under the contract when the services are not related to gender transition, including but not limited to hormone therapy, hysterectomy, mastectomy, and vocal training; or (b) health care services that are ordinarily or exclusively available to individuals of one sex when the denial or limitation is due only to the fact that the covered person is enrolled as belonging to the other sex or has undergone, or is in the process of undergoing, gender transition" (New Jersey Legislative Bill A4568)

Theme and subthemes	Definition	Example(s)
Eligibility (Theme)	Policy definition of who is eligible for gender-affirming care. If policy is unclear on eligibility, note the ambiguity within this domain	"DHCF [Department of Health Care Finance] confirms and clarifies that treatments and services related to the treatment of gender dysphoria are covered by Medicaid" (Washington, D.C. Press Release)
Language (Theme)	Terminology and phrasing the policy uses to describe gender identity, individuals seeking gender-affirming care, and gender-affirming care itself	"Gender Confirmation Surgery means a surgery to change primary or secondary sex characteristics to affirm a person's gender identity" (Colorado Code of Colorado Regulations) "Gender affirmation services" (Michigan Medical Services Administration Bulletin)

APPENDIX D: ADDITIONAL AVAILABLE STATE-SPECIFIC DETAILS REGARDING AGE REQUIREMENTS AND/OR REFERRAL LETTERS WITHIN THE ACCESSIBILITY THEME

State	State-specific details
Alaska (covers)	No details available
Arizona (excludes)	No details available
California (covers)	No details available
Colorado (covers)	Age requirement, years: Policy specifies a minimum age of 18 years for both gender-affirming hormones and surgeries Referral letters: 1 referral letter each from a behavioral health professional and medical professional are needed prior to gender-affirming surgery. Recipient must have "an established and ongoing relationship" with both providers who provided signed statements
Connecticut (covers)	Referral letters: One referral letter from a medical professional ("treating provider") is needed prior to gender-affirming surgery
Delaware (covers)	Age requirement, years: Policy specifies a minimum age of 18 years for gender-affirming surgeries, and the minimum age for "irreversible surgical interventions" may be lowered to 16 years when additional criteria are met Referral letters: Two referral letters from "DMAP enrolled licensed mental health professionals qualified in the treatment of gender dysphoric and transgendered individuals" are needed prior to gender-affirming genital surgery
Florida (excludes)	No details available
Georgia (excludes*)	No details available
Illinois (covers)	Age requirement, years: Policy specifies a minimum age of 21 years for gender-affirming surgeries Referral letters: Two referral letters from "qualified medical professionals…including one from a Licensed Practitioner of the Healing Arts…and one from either the individual's primary care physician or the physician managing the individual's gender-related healthcare" are needed prior to gender-affirming surgery
Iowa (excludes*)	No details available
Maine (covers)	Referral letters: Two referral letters from "qualified Maine licensed health professionals who have independently assessed the member and are referring the member for surgery" are needed prior to gender-affirming surgery
Maryland (covers)	Age requirement, years: Policy specifies a minimum age of18 years for gender-affirming surgeries Referral letters: Two referral letters from "qualified mental health professionals; if the first referral is from the individual's psychotherapist, the second referral should be from a person who has only had an evaluative role with the individual" are needed prior to gender-affirming surgery
Massachusetts (covers)	Age requirement, years: Policy specifies a minimum age of18 years for gender-affirming surgeries Referral letters: One referral letter each from "a licensed qualified behavioral health professional and the other a clinician familiar with the member's health" are needed prior to gender-affirming surgery
Michigan (covers)	Referral letters: One mental health evaluation by "a fully licensed mental health professional who…has experience in the treatment and assessment of gender dysphoria" prior to gender-affirming surgery

Minnesota (covers)	Age requirement, years: Policy specifies a minimum age of18 years for gender-affirming genital surgeries, but policy is unclear regarding other surgeries Referral letters: Two referral letters from "independent clinicians with expertise in transgender health, one of whom has an established and ongoing relationship with the member…from behavioral health professionals, the member's treating provider (physician, nurse practitioner, clinical nurse specialist), or both" for gender-affirming genital surgery. One referral letter from a "clinician with expertise in transgender health and who has an established and ongoing relationship with the patient" for gender-affirming chest surgery
Missouri (excludes)	No details available
Montana (covers)	No details available
Nebraska (excludes)	No details available
Nevada (covers)	Age requirement, years: Policy specifies a minimum age of18 years for gender-affirming surgeries Referral letters: two referral letters from "qualified licensed mental health professionals who have independently assessed the recipient…one with whom the recipient has an established ongoing relationship [and one who only has an evaluative role]" prior to gender-affirming surgery
New Hampshire (covers)	No details available
New Jersey (covers)	No details available
New York (covers)	Age requirement, years: Policy specifies a minimum age of16 years for gender-affirming hormones and 18 years for gender-affirming surgeries Referral letters: two referral letters from "a psychiatrist, psychologist, psychiatric nurse practitioner, or licensed clinical social worker with whom the individual has an established and ongoing relationship; the other may be from a psychiatrist, psychologist, psychiatric nurse practitioner, or licensed clinical social worker acting within the scope of his or her practice, who has only had an evaluative role with the individual" prior to gender-affirming surgery
North Dakota (covers)	Age requirement, years: Policy specifies a minimum age of 18 years for gender-affirming surgery, and does not specify a minimum age for gender-affirming hormones; however, policy states "If a member is under 19 years of age, a parent or legal guardian must provide informed consent" Referral letters: Records must "include a signed statement from a licensed behavioral health provider with whom the member has an established and ongoing relationship" for gender-affirming surgery
Oregon (covers)	Age requirement, years: Policy specifies a minimum age of15 years to provide informed consent (implied for hormones and surgery) Referral letters: one referral letter from a "mental health professional provided in accordance with version 7 of the WPATH Standards of Care" for breast/chest surgeries. Two referral letters from "mental health professionals provided in accordance with version 7 of the WPATH Standards of Care" for genital surgeries
Pennsylvania (covers)	No details available
Rhode Island (covers)	Age requirement, years: Policy specifies a minimum age of 18 years for gender-affirming behavioral health care, hormonal therapy, laboratory testing, and covered surgeries
South Carolina (excludes)	No details available

Tennessee (excludes)	No details available
Texas (excludes)	No details available
Vermont (covers)	Age requirement, years: Policy specifies a minimum age of 18 years for gender-affirming surgeries Referral letters: One "written clinical evaluation [by a] qualified mental health professional" for breast surgery. Two "written clinical evaluations [by] two separate qualified mental health professionals. The first referral should be from the individual's treating qualified mental health professional, and the second referral may be from a person who has only had an evaluative role with the individual" for genital surgery
Washington (covers)	Age requirement, years: Policy specifies a minimum age of 18 years for gender-affirming surgeries, except for mastectomy, which has a minimum age of 17 years Referral letters: One "letter written within the past 18 months from the provider managing the client's hormone therapy" for breast augmentation, hysterectomy, orchiectomy, "full-bottom surgery," facial feminization, and "other gender-affirming treatments"; a "letter of medical necessity within the past 18 months supporting the request for mastectomy from the primary care provider" for mastectomy; a "letter of medical necessity from the treating surgeon…or a letter of medical necessity from the provider who will perform the hair removal" for genital or donor skin site hair removal; a "letter written within the past 18 months from the provider managing the client's hormone therapy [and] a letter of medical necessity from the dermatologist or primary care provider, completed within the past 18 months" for facial or body hair removal.
Wisconsin (covers)	Age requirement, years: Policy specifies a minimum age of 18 years for gender-affirming services, with additional coverage criteria for members under 18 years of age Referral letters: "Referral for the requested surgical and/or medical procedures from at least one health care professional who has expertise and experience and who is qualified to assess clinical aspects of gender dysphoria, incongruence, and diversity"
Washington, D.C. (covers)	Age requirement, years: Policy specifies a minimum age of 18 years for gender-affirming surgeries Referral letters: Two referral letters from behavioral health professionals and one referral letter from a medical professional are needed prior to gender-affirming surgery

Note: *State legally covers gender-affirming care as of December 2022, but policy documents not updated to reflect coverage at time of study

APPENDIX F: FACTORS CONSIDERED IN COINCIDENCE ANALYSIS OF MEDICAID GENDER-AFFIRMING CARE POLICY TYPES

Factor	Description	Conditions	Source
Social environment			
LGBTQIA+ equality score	2022 Human Rights Campaign State Equality Index, a composite measure that includes laws relevant to transgender and nonbinary people, and the presence of cultural competency trainings for medical, law enforcement, and education professionals	High=Working toward innovative equality Moderate=Solidifying equality Low=Building equality Poor=High priority to achieve basic equality	link
% Living in poverty	2022 Census Supplemental Poverty Measure, a poverty measure that additionally includes noncash benefits in resources, accounts for income and payroll taxes, subtracts necessary expenses, and accounts for geographic differences in housing costs	1= ≤5% 2= 6-10% 3= 11-15% 4= ≥16%	link
% Same-sex couple households	2022 American Community Survey estimated percent of total same-sex households	1=first quartile (0.0-0.7%) 2=second and third quartile (0.8-1.2%) 3=fourth quartile (1.3-3.6%)	link
Census geographic region	Census region divisions for the United States	1=West 2=Midwest 3=Northeast 4=South	link
Legal environment			
Protectiveness in gender identity laws	December 2022 policy tally created by the Movement Advancement Project that scores the laws and policies within each state related to gender identity	4=High 3=Medium 2=Fair or Low 1=Negative	link
Political environment			
Partisan voting index	2022 Cook Partisan Voter Index, a measure of the two-party vote share calculated using a 75/25% weighting on the 2016 and 2020 presidential elections. Aggregation categories based on Ballotpedia rating definitions	1= ≥R+11 (solidly Republican) 2= R+4 to R+10 (lean Republican) 3= R+1 to R+3; D+1 to D+3 (toss-up) 4= D+4 to D+10 (lean Democrat) 5= ≥D+11 (solidly Democrat)	link

Factor	Description	Conditions	Source
Legislative makeup (% female, transgender, or nonbinary)	2022 Rutgers Center for American Women and Politics "State Legislature - % Total Women"	1= ≤20% 2= 21-40% 3=≥41%	link
Year Medicaid gender-affirming care policy implemented	UCLA Williams Institute December 2022 report on Medicaid gender-affirming care policy	1= ≤2010 2= 2011-2015 3= 2016-2020 4= ≥2021 99= Missing or N/A	link
Market environment			
% Population transgender or nonbinary	UCLA Williams Institute June 2022 report estimating the number of adults who identify as transgender, based on Behavioral Risk Factor Surveillance System estimates	1=first quartile (0-0.45%) 2=second quartile (0.46-0.53%) 3=third quartile (0.54-0.60%) 4=fourth quartile (0.61-0.92%)	link
% Population insured by Medicaid	2022 American Community Survey percentage of people with Medicaid insurance coverage (Table B-4)	1= ≤10% 2= 11-20% 3= 21-30% 4= ≥31%	link
% Transgender/nonbinary enrolled in Medicaid	UCLA Williams Institute December 2022 report estimating the number of transgender adults and the number of transgender adults enrolled in Medicaid (Table 1)	1= ≤14% 2= 15-20% 3= 21-30% 4= ≥31%	link
Health system environment			
Medicaid expansion under the ACA	Binary indicator of whether state immediately expanded Medicaid in January 2014 under the Affordable Care Act	1=No 2=Yes	link
Year Medicaid expansion implemented	Year state expanded Medicaid under the Affordable Care Act	1= 2014 2= 2015-2019 3= ≥2020 99= Missing or N/A	link
Medicaid expansion status	Binary indicator of status of whether state expanded Medicaid under the Affordable Care Act, as of December 2022	1= Not adopted 2= Adopted, or adopted but not implemented	link
Medicaid per capita spending	2021 Medicaid and CHIP Scorecard: Medicaid Per Capita Expenditures, Average annual Medicaid expenditures per enrollee by state for five eligibility groups	1= <$5,000 2= $5,001-$9,999 3= ≥10,000	link
Medicaid % of state budget	Kaiser Family Foundation state fiscal year 2022 estimate of Medicaid expenditures as a percent of total state expenditures	1= 0-14% 2= 15-24% 3= 25-34% 4= ≥35% 99= Missing or N/A	link

Factor	Description	Conditions	Source
State share of Medicaid spending	Kaiser Family Foundation fiscal year 2022 estimate of federal and state share of Medicaid spending, state share shown	1= 0-14% 2= 15-24% 3= 25-34% 4= ≥35% 99= Missing or N/A	link
Primary care providers per 100k population	Association of American Medical Colleges 2021 State Physician Workforce Data Report: Active Primary Care Physicians per 100,000 Population	1= <80 2= 81-99 3= ≥100	link
Health System score, overall	Commonwealth Fund June 2022 Scorecard on State Health System Performance, overall rank. Scores based on aggregated performance across healthcare access, quality, and spending, as well as health equity and population health	1=first quartile (state rank 38-50) 2=second quartile (state rank 26-37) 3=third quartile (state rank 13-25) 4=fourth quartile (state rank 1-12)	link
Health System score, health	Commonwealth Fund June 2022 Scorecard on State Health System Performance, Health Lives domain rank. Scores based on aggregated performance across health outcomes, including preventable mortality and overall health	1=first quartile (state rank 38-50) 2=second quartile (state rank 26-37) 3=third quartile (state rank 13-25) 4=fourth quartile (state rank 1-12)	link
% Without health insurance	2022 American Community Survey percentage of people without health insurance coverage (Table B-1)	1= ≤5% 2= 6-10% 3= ≥11%	link
% Covered by Medicaid MCO	Kaiser Family Foundation July 2022 estimates of share of Medicaid population covered under different delivery systems: Percentage covered by risk-based managed care	1= ≤50% 2= 51-80% 3= 81-100%	link
% Covered by PCCM	Kaiser Family Foundation July 2022 estimates of share of Medicaid population covered under different delivery systems: Percentage covered by primary care case management	1= ≤50% 2= 51-80% 3= 81-100%	link
% Covered by FFS	Kaiser Family Foundation July 2022 estimates of share of Medicaid population covered under different delivery systems: Percentage covered by fee-for-service	1= ≤50% 2= 51-80% 3= 81-100%	link

Factor	Description	Conditions	Source
Majority of Medicaid benefits delivered by [delivery system]	Aggregate factor denoting the primary Medicaid delivery system, calculated by evaluating proportions covered under MCO, PCCM, and FFS	1= Majority PCCM 2= Majority FFS 3= Majority MCO	link

APPENDIX G: DETAILED METHODS FOR COINCIDENCE ANALYSIS

I conducted CNA following recommended best practices in Whitaker, Implementation Science 2020.

Step 1: Define, calibrate, and select the factors for the dataset. I created a multi-value dataset comprising 24 factors. Multi-value factors can take on any of a finite number of possible values. To limit the combinatorial size of all logically possible configurations and reduce model ambiguity, I operationalized factors to ≤5 possible conditions. Further, I applied the minimally sufficient conditions ("msc") routine to inductively identify conditions with robust connection to the outcome. I considered all one-, two-, and three-condition configurations, and iteratively lowered the specified consistency level by 5 points (from a range of 95% to 75%) until I identified at least four potential condition configurations that (a) met the consistency threshold, (b) had high coverage scores compared to configurations with identical numbers of conditions, and (c) were consistent with theoretical and background knowledge. I then further reduced the initial set of candidate factors by logically combining or eliminating factors. I identified nine factors for each of the two outcomes to use in model-building. I conducted pairwise correlations and confirmed the factors were not multicollinear.

Step 2: Model development. I developed models iteratively using model-building functions within the R "cna" software package. For both outcomes, I built a preliminary model using the three factors with the strongest connection to the outcome based on consistency and coverage levels from the msc routine. I held coverage constant at 93%, then introduced additional candidate factors individually and retained those factors if: (1) models' fit metrics, including consistency or coverage, increased by ≥2%, (2) complexity increased by ≤2 conditions, (3) models included conditions with at least one mutable component, and (4) models aligned with theory or published literature.

Step 3: Model reporting. Following recommended best practices regarding transparency about model ambiguity, I reported all final models that met these criteria and had overall consistency of ≥0.85% and coverage ≥0.95%.

Step 4: Secondary analyses. I modeled a different Medicaid gender-affirming care policy categorization to investigate whether broad inferences could be made about determinants. The policy typology for the secondary analysis came from a published study (Chin, Plastic Reconstructive Surgery 2023) that categorized Medicaid gender-affirming care policies as protective, restrictive, or unclear. I conducted CNA separately on the outcomes of protective (n=27 states) or restrictive (n=9 states) policies, and applied the same factors and methods as in the primary analysis.

I used the Coincidence Analysis package ("cna") in R (version 4.3.1) to conduct this analysis.

My R Markdown for this analysis is available upon request.