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# Medical Invalidation in Childhood as a Cumulative Developmental Exposure: A Life Course Public Health Framework

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## Abstract

**Background**: Preterm infants are at a high-risk of infection. Among healthcare-associated infections (HAIs) in the neonatal intensive care unit (NICU), bloodstream infections linked to central venous catheters (CVCs) are the most prevalent. The most frequent causes of HAIs in preterm infants are coagulase-negative staphylococci (CoNS).

**Objective:** The primary objective of the study was to employ diagnostic methods to distinguish between bloodstreams infection of unknown origin and those related to CVCs, and to compare two procedures for characterizing CoNS-related central venous catheter bloodstream infections: phenotypic methods and genotypic techniques.

**Methods:** A retrospective study was conducted using clinical data from 28 preterm infants admitted to the NICU between 2018 and 2021 who experienced at least one episode of CoNS bloodstream infection. The strains were isolated from both central blood and CVC tip cultures. The Wilcoxon-Mann-Whitney test and Fisher's exact test were employed to analyze the variables. The Akaike information criterion and the Bayesian information criterion were employed for model selection. Of the 28 CoNS isolates, 24 were analyzed genotypically using Pulsed-Field gel electrophoresis (PFGE), while all 28 underwent phenotypic characterization through biotyping and antibiotyping.

**Results:** The primary CoNS isolates included Staphylococcus haemolyticus (32.5%), Staphylococcus epidermidis (30%), and Staphylococcus saprophyticus (12.5%). Nearly all strains exhibited high resistance levels to penicillin and cefoxitin (100%). PFGE analysis identified five distinct patterns (A to E).

**Conclusions:** Preterm newborns infected with CoNS exhibited risk factors that facilitated the colonization and subsequent development of catheter-related bloodstream infections (CRBSIs). Risk factors for CoNS CRBSI include birth weight, age at infection onset, plasma lactate levels, platelet count, catheter duration of stay, use of lipid emulsion, antenatal corticosteroids, antenatal antibiotics, neonatal antibiotics, patent ductus arteriosus, and proton pump inhibitors.

**Keywords:** Medical gaslighting; Medical invalidation; Life course health development; Trust in healthcare; Diagnostic safety; Pediatric; Children; Health equity.

## Introduction

Medical gaslighting is a patient-derived term describing experiences in which symptoms, concerns, or interpretations of illness are minimized, dismissed, or insufficiently recognized within healthcare [1]. Our prior work has examined it

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through the lenses of communication and trust, hospital medicine, vulnerable populations, healthcare systems, and pediatric diagnostic safety [1-6], and suggests that it cannot be understood only as an interpersonal interaction between the patient or family (parents or guardian) and clinician. Information can be discounted because of cognitive assumptions, fragmented care, organizational conditions, structural inequities, or diagnostic narratives that become increasingly difficult to reconsider as the child grows. The phenomenon also intersects with established concerns about diagnostic error [7,8], communication failures, cognitive bias, diagnostic overshadowing, healthcare trust, and health equity. We use medical invalidation as the operational construct: the experience of having one's symptoms or concerns treated as lacking credibility. Medical gaslighting is the patient-derived term for such experiences, developed because patients believed that the current medical terminology was insufficient in describing their experiences. The distinction between clinical disagreement and invalidation is critical. Medicine necessarily involves uncertainty, competing diagnoses, appropriate reassurance, and symptoms that ultimately prove benign. A caregiver may perceive dismissal even when clinical management is appropriate, and respectful communication does not guarantee diagnostic accuracy. The relevant public health exposure may therefore not be diagnostic error. It may be the experience of credibility being withheld. A child with recurrent abdominal pain, for example, may undergo an appropriate evaluation that finds no evidence of disease [6]. The clinician may be correct. Yet the child may leave with the message that the pain was not real, or that returning with persistent symptoms will be viewed as excessive. The clinical statement "we did not identify a cause today" is fundamentally different from the experiential message "there is nothing wrong with you" [6]. That distinction allows medical gaslighting to remain a useful construct without making it synonymous with diagnostic error. Qualitative work with adolescents experiencing chronic pain described symptom disbelief and dismissal by medical providers, school personnel, family members, and peers [9]. The pediatric setting raises a further question: What happens when experiences of medical invalidation occur repeatedly during childhood? Children encounter healthcare while developing their understanding of bodily systems and function, authority, communication, and help-seeking. Early in life, caregivers often interpret and communicate symptoms for their child, and responsibility gradually shifts to the child and adolescent as they mature. Healthcare experiences therefore occur during a period in which beliefs about whether symptoms will be believed, and whether healthcare institutions can be trusted, are themselves developing. Current approaches tend to evaluate such adverse experiences one encounter at a time, for example, through complaint resolution or satisfaction measures. We argue that this unit of analysis should change. The question is whether repeated exposures accumulate across childhood and influence the subsequent health care trajectory of the child into adulthood and their relationship with the healthcare system.

## From Encounter to Developmental Exposure

Public health traditionally focuses on exposures that occur within social, environmental, institutional, and relational contexts and may influence health over time. Childhood healthcare experiences can reasonably be considered part of that developmental context. We propose five linked domains. The proposed mechanism runs from experience to interpretation to trust to engagement to trajectory, which in turn shapes subsequent healthcare experiences. First, experience, the recognition, dismissal, validation, or exclusion of the child or caregiver's concerns from clinical reasoning. Second, interpretation, or the meaning assigned to the experience by the child and caregiver. Third, trust, which implies the confidence placed in clinicians and healthcare institutions. Fourth, engagement, which provides information regarding the willingness of the child and family to disclose important healthcare symptoms, and leads to developmental patterns related to help-seeking, follow up, continuity, and participation in their healthcare. Fifth, trajectory, which is the accumulation of subsequent healthcare experiences across developmental periods. This framework is bidirectional. Behaviors resulting from prior invalidation may reinforce the original clinical narrative. A family that seeks multiple opinions may be labeled as "doctor shopping". A caregiver who repeatedly advocates may be viewed as "overly anxious". A child who stops reporting symptoms may appear to have improved. Healthcare systems may thus inadvertently participate in producing behaviors that are later interpreted as evidence about the patient. The relevant unit of analysis is the trajectory rather than the encounter (Table 1). This framework is hypothesis-generating. There is currently insufficient evidence to conclude that medical gaslighting causes lifelong healthcare mistrust or adverse adult health outcomes, and not every experience of dismissal is expected to cause lasting harm. Our contribution is to identify a plausible pathway that can be empirically tested.

## Theoretical Underpinning: Life Course Health Development

Life Course Health Development (LCHD) provides a theoretical foundation for understanding why healthcare experiences in childhood have consequences beyond the encounter in which they occur [10,11]. LCHD conceptualizes health as a dynamic developmental process shaped by ongoing interactions between individuals and their environments. Health trajectories are influenced not only by biological processes but also by experiences accumulated over time, developmental timing, environmental conditions and the

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reciprocal relationship between individuals and the systems in which they live. From this perspective, healthcare is not simply a setting in which illness is evaluated and treated. It is also part of the developmental environment in which children acquire expectations, behaviors, and relationships that may influence their subsequent health. The proposed exposure is neither isolated nor deterministic. A single experience of dismissal is unlikely to determine a child's future relationship with healthcare. However, repeated experiences may become incorporated into a developing trajectory in which interpretation, trust, and healthcare behaviors influence one another over time. Within an LCHD framework, medical invalidation can be conceptualized as one potentially modifiable environmental experience that intersects with other developmental influences to shape subsequent healthcare engagement (Figure 1).

## Why Childhood Matters

The developmental context may amplify the significance of repeated healthcare experiences. In early childhood, symptom information is often mediated through caregivers, and when caregiver observations are discounted, clinically meaningful longitudinal information may be lost. For example, parent reports of safety incidents in hospitalized children were frequently confirmed during physician review as medical errors and many were not otherwise documented in the medical record [12]. During middle childhood, children increasingly participate directly in communication, creating opportunities for both recognition and dismissal of their own symptoms. During adolescence, young people increasingly assume responsibility for describing symptoms, making decisions, and navigating healthcare independently (Table 2). Pediatric guidelines describe the shift from parent-supervised

**Table 1:** Single-Encounter versus Developmental Public Health Perspectives regarding Medical Invalidation.

| Domain | Single-Encounter Perspective | Developmental Public Health Perspective |
|---|---|---|
| Exposure | Was the concern dismissed? | How often has the child experienced invalidation? |
| Interpretation | What did the clinician intend? | What meaning did the child or family assign to the experience? |
| Trust | Satisfaction with the clinician | Trust in clinicians and healthcare institutions over time |
| Engagement | Did the family follow today's plan? | Disclosure, help-seeking, continuity, and reassessment over time |
| Outcome | Resolution of the immediate problem | Subsequent healthcare trajectory and potentially later health behaviors |

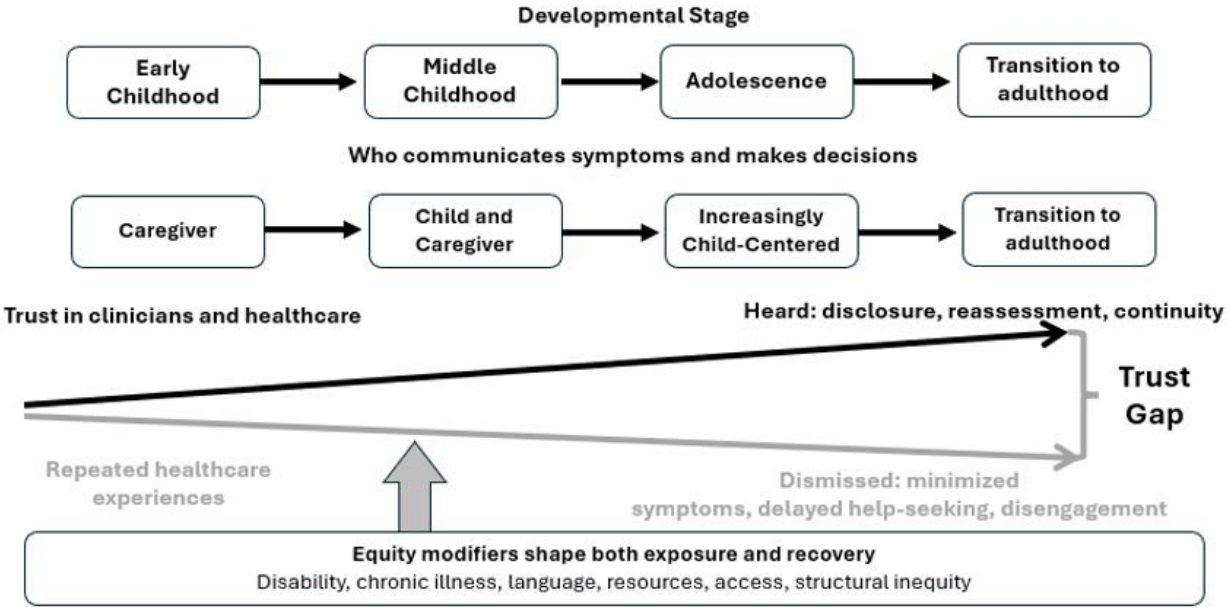



**Figure 1:** Life Course Health Development framework for medical invalidation demonstrating how healthcare experiences accumulate into a "trust trajectory." Responsibility for communicating symptoms shifts from the caregiver to the child across development. Repeated healthcare experiences help to establish a "Trust Trajectory" that may reinforce or erode trust over time. Equity modifiers (e.g. disability, socioeconomic status, language, resources and structural inequities) can affect both exposure and recovery from these experiences.

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pediatric care to more independent adult care as a period of risk and vulnerability for which structured support is recommended [13].

A young child who repeatedly observes that reporting symptoms results in skepticism may learn that bodily experiences are not credible. An adolescent who has developed expectations of dismissal may disclose less information, delay help-seeking, or seek information outside of the healthcare system where the information may be less accurate. Consistent with this possibility, adolescents with chronic pain describe anticipating disbelief and concealing their symptoms from clinicians [9]. When the adolescent later transitions to adult healthcare, behaviors previously buffered by caregivers become the young person's responsibility. The timing of invalidation may therefore matter.

## Trust as the Proposed Mediating Mechanism

Trust provides the most plausible bridge between healthcare experience and later behavior. In a meta-analysis of observational studies, higher trust in the healthcare professional was associated with beneficial health behaviors, fewer symptoms, and a higher quality of life [14]. Research involving adolescents identifies being listened to, respect, honesty, confidentiality, and empathy as important components of trust [15,16]. Healthcare experiences also teach children how healthcare works and whether reporting symptoms produces attention or skepticism, whether uncertainty can be acknowledged, whether disagreement is acceptable, and whether unresolved concerns will be revisited. A young person who expects to be heard may be more likely to disclose symptoms, return for reassessment, and participate in longitudinal care. A young person who expects dismissal may minimize symptoms, delay disclosure, seek alternative sources of information, or avoid care. Importantly, these behaviors should not automatically be characterized as poor health literacy, non-adherence, or inappropriate utilization. They represent understandable adaptations to prior experiences. Repeated experiences may therefore strengthen either a trusting or a distrustful healthcare trajectory. Trust is unlikely to be the only pathway. Other plausible mechanisms include internalized self-doubt about the credibility of one's own bodily experiences (epistemic injustice) [17,18], medical traumatic stress, for which pediatric models exist [19], reduced health self-efficacy, and identity effects of persistent labels. Trust is the pathway most amenable to measurement and intervention, and we focus on it for that reason.

## Health Equity: Who can Recover from Dismissal?

The burden of dismissal and the ability to recover from it are unlikely to be equally distributed. A family with flexible employment, transportation, insurance, financial resources, and access to specialists may respond to an unsatisfactory encounter by obtaining another opinion. Another family may not have a practical alternative. Language barriers may make complex symptom histories more difficult to communicate. Children with disabilities may depend heavily on caregivers to describe changes from baseline while simultaneously facing diagnostic overshadowing. Limited access to pediatric subspecialty care may make an inconclusive evaluation effectively definitive. The experience of dismissal may thus be similar while the capacity to recover from it differs substantially. Studies of pediatric analgesia and of clinicians' pain assessments document racial differences and how pain is treated and rated [20,21], which may illustrate how credibility is unevenly extended. This is an important public health distinction. Prior work has demonstrated relationships between medical gaslighting and structural inequities [3,4]. Adverse childhood experiences (ACEs) provide an established precedent for considering childhood exposures that influence later health and behavior [22]. The toxic stress framework provides a related account of how early adversity

**Table 2:** Developmental Stage, Vulnerability, and Protective Approaches for Medical Invalidation.

| Developmental Stage | Primary Source of Symptom Information | Potential Vulnerability | Potential Consequence | Protective Approach |
|---|---|---|---|---|
| **Early Childhood** | Caregiver; limited direct child communication | Experience mediated almost entirely by adults; caregiver concerns may be discounted | Delayed recognition; caregiver mistrust | Elicit explicit caregiver concerns; attend to them specifically in the encounter. |
| **Middle Childhood** | Child and Caregiver | Conflicting or incomplete accounts | Reduced participation; altered symptom communication | Developmentally appropriate direct questioning and shared explanation |
| **Adolescence** | Increasingly child-centered | Symptoms interpreted through behavioral, psychological, developmental, or social assumptions | Reduced disclosure, delayed help-seeking, disengagement | Direct adolescent voice, confidentiality, shared decision-making |
| **Transition to Adulthood** | Young Person | Prior experiences and labels carried forward | Distrust; fragmented care; difficulty navigating care independently | Continuity, transition support, health self-advocacy |

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may shape later health [23]. Studies have also associated childhood adversity with healthcare utilization and with lower trust in healthcare professionals [24,25]. This may be especially important in settings where financial, racial, ethnic, gender, and other structural challenges are widespread, and where there are often insufficient mechanisms to understand, identify and ameliorate the outcomes resulting from medical gaslighting [4]. These findings do not establish that medical gaslighting is an ACE or that it produces equivalent effects. They demonstrate, however, that childhood experiences can plausibly influence later healthcare relationships. Medical invalidation may represent a distinct, healthcare-based developmental exposure warranting longitudinal investigation.

## Diagnostic Path Dependence

A particularly important mechanism may occur when previous diagnoses become explanations for future symptoms. Children with chronic illness, disability, neurodevelopmental conditions, psychiatric diagnosis, or complex medical histories may be especially vulnerable to diagnostic overshadowing. This has been described in children with neurological disabilities, among whom most of those with Attention Deficit Hyperactivity Disorder (ADHD) in a tertiary clinic cohort had not been diagnosed before referral, a pattern the authors interpreted as overshadowing [26]. Evidence from studies of people with intellectual conditions is mixed: a systematic review found that overshadowing may be less common than originally believed and graded the evidence as low quality [27]. A child with anxiety may have new symptoms attributed to anxiety. A child with autism may have behavioral changes attributed to autism. A child with a functional disorder may have new symptoms interpreted through the established diagnosis. The problem is not the diagnosis itself. The problem arises when a diagnosis becomes sufficiently noticeable that new information is incorporated into an existing narrative without adequate reconsideration of the presenting problem. The medical record can also perpetuate this process. Once a child is described as anxious, behaviorally difficult, medically complex, or excessively concerned, future clinicians may encounter the label before they encounter the child. This creates a form of diagnostic path dependence, in which an earlier interpretation becomes a durable label, the label shapes future diagnostic interpretation and the original explanation is reinforced (Figure 2). Breaking this cycle requires deliberate reassessment when symptoms persist, change, or become discordant with the established diagnosis.

## A Public Health Approach: Prevent, Detect, and Repair

If medical invalidation is potentially cumulative, prevention should not begin only after a family reports being gaslighted. A public health approach suggests three levels of intervention. Primary prevention creates clinical environments in which children and caregivers would truly participate in the diagnostic process, including developmentally appropriate elicitation of the child's experience, explicit invitation of caregiver observations, documentation of unresolved concerns, transparent communication about diagnostic uncertainty, explicit reassessment criteria, preservation of concerns across transitions of care, and gradual development of adolescent autonomy. These practices should not be framed as strategies to avoid accusations of medical gaslighting. They are strategies for improving the reliability and safety of healthcare for children. Secondary prevention identifies accumulating risk. Repeated visits for unresolved symptoms, recurrent caregiver concerns without resolution, multiple

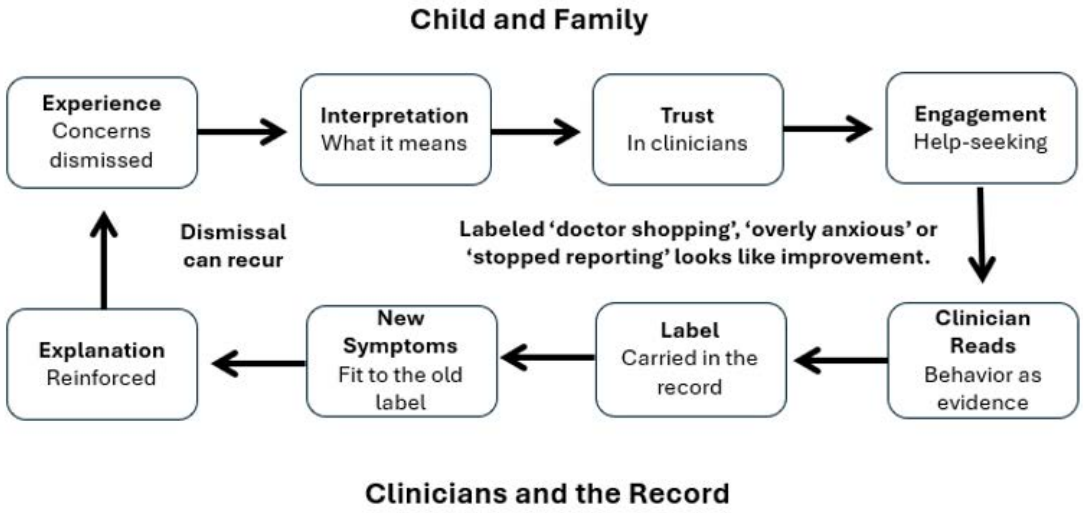



**Figure 2**: Behaviors after invalidation can be read as evidence about the patient creating a bi-directional loop and diagnostic pathway dependence. Experiences of invalidation shape interpretation, trust, and engagement. The resulting behaviors may be read by clinicians as evidence about the patient and carried forward as a label, which shapes the interpretation of new symptoms and reinforces the original explanation.

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negative investigations without explicit reassessment, repeated clinical changes, increasing disagreement between families and clinicians, and fragmentation across healthcare systems should trigger a diagnostic and relational pause. None of these issues by themselves establish medical gaslighting. However, they should prompt the clinician to ask: What remains unexplained? What has changed? What does the family continue to report? Has the child's baseline changed? What assumptions are shaping the current interpretation? What would cause us to reconsider the working diagnosis? This approach translates a subjective experience into a patient safety and public health opportunity. Tertiary prevention repairs trust. When repeated invalidation has occurred, reassurance alone may be insufficient. Trust repair may require acknowledging prior experience, reconstructing the diagnostic formulation, clarifying what remains uncertain, and establishing a shared plan for reassessment with direct engagement of the adolescent. At the organizational level, repetitive experiences should become opportunities for learning rather than merely case-by-case complaint resolution. Patient experience should function as organizational intelligence, not simply satisfaction data [1].

## Measuring Exposure

A major limitation of the field is the absence of a validated measure of medical gaslighting in children. A binary item asking, "were you gaslighted?" would risk conflating appropriate clinical disagreement with harmful invalidation. Initial measurements should instead focus on observable domains: whether the child and caregiver's concerns were elicited, taken seriously, and incorporated into clinical reasoning; whether diagnostic uncertainty was explained; whether persistent or changing symptoms were reassessed and unresolved concerns carried forward; whether the child and family understood why an assessment was or was not needed; whether continuity was maintained; and whether trust changed following repeated encounters. Measurement must be longitudinal, because measuring only satisfaction after a single encounter cannot test the hypothesis about accumulation. Candidate outcomes include recognition, diagnostic responsiveness, continuity, trust, appropriate engagement, diagnostic delay, and healthcare utilization.

## Research Agenda

This framework yields a focused research agenda.

- **Measurement**. Develop developmentally appropriate measures of recognition, credibility, participation, and invalidation, with adolescents increasingly providing direct patient-recorded data.
- **Longitudinal association**. Conduct longitudinal studies examining whether repeated experiences of dismissal are associated with changes in symptom disclosure, health-seeking, utilization, continuity, and diagnostic delay, accounting for confounders such as illness severity, caregiver anxiety, and prior adverse childhood experiences.
- **Developmental timing**. Examine whether experiences in early childhood operate differently from those in adolescence when independent healthcare decision making is emerging.
- **Differential vulnerability**. Examine variation by disability, chronic illness, neurodevelopmental conditions, socioeconomic position, language, race, and ethnicity, gender, geographic access, and healthcare fragmentation.
- **Disagreement versus invalidation**. Distinguish perceived dismissal from clinically appropriate disagreement. The outcome should not be whether the patient received the diagnosis they expected, but weather concerns were elicited, considered, explained, documented, and revised when circumstances changed.
- **Interventions**. Evaluate structured elicitation, diagnostic pauses, transparent communication of uncertainty, safety-netting, continuity interventions, patient navigation, and trust repair strategies.
- **Research should also be participatory**. Children and families should help define what it means to be heard, believed, respected, and appropriately challenged.

## Limitations

This framework has important limitations. Medical gaslighting remains an evolving construct without a universally accepted definition or validated measure. Much of the supporting evidence comes from adjacent literatures on diagnostic error, communication, healthcare trust, diagnostic overshadowing, health equity, and adverse childhood experiences. Experiences of dismissal are subjective: a child or caregiver may perceive dismissal when clinical management is appropriate, while respectful patient communication does not guarantee diagnostic accuracy. Healthcare experiences are only one component of a child's developmental environment, and associations between invalidation and later disengagement may be confounded by illness severity, caregiver characteristics, and other adversity. Most importantly, the proposed developmental consequences remain hypotheses. The framework should not be used to label clinicians or families. Its purpose is to identify potentially modifiable processes through which healthcare experiences may influence future engagement and health.

## Conclusions

The central proposition of this framework is that medical gaslighting in childhood may matter because it can accumulate. The significance of an individual encounter may be modest, and a single reassuring evaluation does not

determine a child's relationship with healthcare. However, repeated experiences of not being heard may become part of the developmental environment through which children learn how to interpret symptoms, communicate concerns, evaluate health care authority, and decide whether seeking care is worthwhile. This shifts the conversation from an individual to a broader public health question. Rather than asking only whether healthcare has successfully diagnosed and treated a child, we should also ask what healthcare teaches children about healthcare? The distinction from patient satisfaction is important. Satisfaction asks whether an encounter met expectations. The developmental question is whether healthcare experiences alter the child's relationship with healthcare over time. That question is measurable, it can be studied longitudinally, and it can be examined through an equity lens. Importantly it may be modifiable. Healthcare cannot eliminate diagnostic uncertainty. It can, however, ensure that uncertainty does not require invalidation. Clinicians can acknowledge symptoms without prematurely explaining them, preserve unresolved concerns, revisit diagnostic assumptions, and communicate what would prompt reassessment. The public health opportunity lies not in eliminating disagreement but in preventing cumulative invalidation.

## References

1. Shane K, Sood N, Slonim AD. Exploring Medical Gaslighting: Efforts to Enhance Communication and Trust in Healthcare. Physician Lead J 12 (2025): 13–19.
2. Sood N, Shane K, Slonim AD. What are the Risks, Challenges, and Solutions to Medical Gaslighting in Hospital Medicine? The Hospitalist.
3. Shane K, Slonim AD. Medical Gaslighting and its Impact on Vulnerable Populations. J Racial Ethn Health Disparities (2026).
4. Slonim AD, Naveed M, Shane K. Medical Gaslighting in Urban Healthcare: A Bioecological Framework for Health Equity and Participatory System Transformation. Healthcare (Basel) 14 (2026): 3244.
5. Nagula S, Ahmed N, Shane K, et al. Reframing Patient and Parental Experience in Pediatric Healthcare: Medical Gaslighting as a Diagnostic Safety Vulnerability. Children (Basel) 13 (2026): 981.
6. Mustafa N, Nima J, Klaus M, et al. Medical Gaslighting in Gastroenterology: A Narrative Review From Pediatric and Adult Practice. Gastro Hep Adv 5 (2026): 100961.
7. Committee on Diagnostic Error in Health Care, Board on Health Care Services, Institute of Medicine, The National Academies of Sciences, Engineering, and Medicine. Improving Diagnosis in Health Care. Balogh EP, Miller BT, Ball JR, editors. Washington (DC): National Academies Press (US); 2015.
8. Singh H, Graber ML. Improving Diagnosis in Health Care--The Next Imperative for Patient Safety. N Engl J Med 373 (2015): 2493–2495.
9. Wakefield EO, Belamkar V, Litt MD, et al. "There's Nothing Wrong With You": Pain-Related Stigma in Adolescents With Chronic Pain. J Pediatr Psychol 47 (2022): 456–468.
10. Halfon N, Larson K, Lu M, et al. Lifecourse health development: past, present and future. Matern Child Health J 18 (2014): 344–365.
11. Russ SA, Larson K, Tullis E, et al. A lifecourse approach to health development: implications for the maternal and child health research agenda. Matern Child Health J 18 (2014): 497–510.
12. Khan A, Furtak SL, Melvin P, et al. Parent-Reported Errors and Adverse Events in Hospitalized Children. JAMA Pediatr 170 (2016): e154608.
13. White PH, Cooley WC, et al. Supporting the Health Care Transition From Adolescence to Adulthood in the Medical Home. Pediatrics 143 (2019): e20183610.
14. Birkhäuer J, Gaab J, Kossowsky J, et al. Trust in the health care professional and health outcome: A meta-analysis. PLoS One 12 (2017): e0170988.
15. Hardin HK, Bender AE, Hermann CP, et al. An integrative review of adolescent trust in the healthcare provider relationship. J Adv Nurs 77 (2021): 1645–1655.
16. Klostermann BK, Slap GB, Nebrig DM, et al. Earning trust and losing it: adolescents' views on trusting physicians. J Fam Pract 54 (2005): 679–687.
17. Fricker M. Epistemic Injustice: Power and the Ethics of Knowing. Oxford: Oxford University Press; 2007.
18. Carel H, Kidd IJ. Epistemic injustice in healthcare: a philosophical analysis. Med Health Care Philos 17 (2014): 529–540.
19. Kazak AE, Kassam-Adams N, Schneider S, et al. An integrative model of pediatric medical traumatic stress. J Pediatr Psychol 31 (2006): 343–355.
20. Goyal MK, Kuppermann N, Cleary SD, et al. Racial Disparities in Pain Management of Children With Appendicitis in Emergency Departments. JAMA Pediatr 169 (2015): 996–1002.
21. Hoffman KM, Trawalter S, Axt JR, et al. Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. Proc Natl Acad Sci U S A 113 (2016): 4296–4301.

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22. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. Am J Prev Med 14 (1998): 245–258.

23. Shonkoff JP, Garner AS, et al. The lifelong effects of early childhood adversity and toxic stress. Pediatrics 129 (2012): e232–e246.

24. Munoz RT, Hanks H, Brahm NC, et al. Adverse Childhood Experiences and Trust in the Medical Profession among Young Adults. J Health Care Poor Underserved 30 (2019): 238–248.

25. Koball AM, Domoff SE, Klevan J, et al. The impact of adverse childhood experiences on healthcare utilization in children. Child Abuse Negl 111 (2021): 104797.

26. Hendriksen JG, Peijnenborgh JC, Aldenkamp AP, et al. Diagnostic overshadowing in a population of children with neurological disabilities: A cross sectional descriptive study on acquired ADHD. Eur J Paediatr Neurol 19 (2015): 521–524.

27. Dell'Armo K, Tassé MJ. Diagnostic Overshadowing of Psychological Disorders in People With Intellectual Disability: A Systematic Review. Am J Intellect Dev Disabil 129 (2024): 116–134.

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