

clear. Among drug trials conducted between 2015 and 2019, 56% of U.S. trial participants were female and 16% were Black — proportions that exceed representation in the general population.⁵ The FDA has issued industry guidance with a goal of increasing trial enrollment among older adults with multiple coexisting conditions, and we established the Patient-Focused Drug Development Program to ensure that patient perspectives are central in drug development and evaluation.

In the area of nutrition, over the past few years, the FDA revised the Nutrition Facts label to include added sugars and issued industry guidance on voluntary sodium reduction; we are now redefining criteria for use of the “healthy” claim on food labeling on the basis of the latest nutritional science. Finally, in April 2022, the agency proposed rules

prohibiting the manufacture and sale of menthol cigarettes and flavored cigars, which are used at disproportionately high rates by young people and Black Americans and contribute to substantial preventable morbidity and mortality. In addition, the FDA plans to propose reducing nicotine levels in cigarettes to minimally addictive or nonaddictive levels.

The pervasiveness of common chronic diseases requires a broad coalition, one that should include the biomedical and digital health industries, health systems, payers, patients, patient advocates, policymakers, and other government agencies. The reward for such a united front could be the realization of a thriving and more equitable society.

Disclosure forms provided by the authors are available at NEJM.org.

From the Food and Drug Administration, Silver Spring, MD.

This article was published on February 3, 2024, at NEJM.org.

1. Mossadeghi B, Caixeta R, Ondarsuhu D, Luciani S, Hambleton IR, Hennis AJM. Multimorbidity and social determinants of health in the US prior to the COVID-19 pandemic and implications for health outcomes: a cross-sectional analysis based on NHANES 2017-2018. *BMC Public Health* 2023;23:887.
2. Cross SH, Califf RM, Warraich HJ. Rural-urban disparity in mortality in the US from 1999 to 2019. *JAMA* 2021;325:2312-4.
3. Warraich HJ, Califf RM. Differences in health outcomes between men and women: biological, behavioral, and societal factors. *Clin Chem* 2019;65:19-23.
4. Using artificial intelligence and machine learning in the development of drug and biological products: discussion paper and request for feedback. Silver Spring, MD: Food and Drug Administration, May 11, 2023 (<https://www.fda.gov/media/167973/download>).
5. 2015-2019 drug trials snapshots summary report: five-year summary and analysis of clinical trial participation and demographics. Silver Spring, MD: Food and Drug Administration, November 2020 (<https://www.fda.gov/media/143592/download>).

DOI: 10.1056/NEJMp2313217

Copyright © 2024 Massachusetts Medical Society.

“The Saddest Waste” — Disability, Heredity, and the Artist’s Eye

Perri Klass, M.D.

Joaquín Sorolla triumphed at the 1900 Universal Exposition in Paris. The Spanish painter’s *¡Triste herencia!* (*Sad Inheritance!*) won both the Grand Prix and a medal of honor. After getting him nominated to the French Legion of Honor, it won another medal at the National Exhibition in Madrid a year later. Sorolla was 37 at the time. Originally from Valencia, he had studied in Madrid, Rome, and Paris. He was

already an established artist, and this 1899 painting brought him greater renown — yet he’s not as well known today.

“Master of Light,” a 2022 exhibition in Milan, aimed to acquaint the public with Sorolla’s work. *¡Triste herencia!*, a very large canvas, had a wall to itself. Smaller paintings in the room showcased Sorolla’s interest in capturing juxtapositions of sunlight, water, and children’s bodies. *Niño*

durmiendo en la barca (*Nap on the Boat*, 1895) shows a barefoot boy in rough clothing, asleep in the shade of the sail, probably on a fishing boat. *Mediodía en la playa de Valencia* (*Midday at Valencia Beach*, 1904) features three children; its impressionist treatment of light, shadow, and reflection makes it uncertain whether they are walking on sand or wading in water.

But *¡Triste herencia!*, which dominated the room, is quite differ-

ent (see image). Instead of a peacefully sleeping lad, perhaps worn out by hard work, or three holiday-making children amusing themselves, it shows a group of more than 20 naked boys swimming in the sea, supervised by a black-cloaked monk. In the foreground are boys who haven't yet entered the water, some clearly disabled; two are using crutches to navigate across the sand, and another is apparently blind, holding out his hand for guidance. At least one child in the water is also using a crutch.

All the boys look sickly and scrawny, their bodies pallid against the golden brown sand. A 1901 critic, Aureliano de Beruete, wrote, "We see in this canvas a brother from the Congregation of San Juan de Dios accompanying as they bathe a multitude of degenerate children, blind, crippled, lame, lepers, sick, in short, of all kinds; the dregs that society throws from its bosom and that charitable institution collects and protects" [*multitud de niños degenerados, ciegos, tullidos, cojos, leprosos, enfermos, en fin, de todo género; escoria que la sociedad arroja de su seno*].¹ Another critic, William Starkweather, writing on the occasion of Sorolla's 1909 blockbuster New York exhibition, described the boys as "the off-cast children of wretched parents. Most of them are crippled, some of them bear the stigmata of idiocy, many are totally blind."²

Beruete's catalogue of misery echoes the words of Sorolla himself, describing how he'd come to create the painting: "One day I was working hard on one of my studies of Valencian fishing, when I discovered from afar a few na-



¡Triste herencia!, Joaquín Sorolla, Valencia, 1899.

Reproduced courtesy of Colección Fundación Bancaja.

ked boys in, and on the shore of the sea, and watching over them the vigorous figure of a friar. It seems that they were the residents of the hospital of San Juan de Dios, the saddest waste of society: blind, crazy, crippled and lepers [*el más triste desecho de la sociedad: ciegos, locos, tullidos y leprosos*]. I cannot explain to you how impressed I was, so much so that I did not waste time to obtain a permit to work in the field, and right there, next to the water's edge, I made my painting."²

¡Triste herencia! has appeared several times in the medical literature. In 2012, Martínez-Lage et al. discussed it from a neurologic perspective in the journal *Child's Nervous System*, connecting it to "the sequels of the polio epidemic that had struck the region of Valencia some years before."³ In 2021, Joseph wrote in the *Journal of Pediatric Orthopaedics* that "Sorolla had unknowingly painted children with postpolio

paralysis for the first time!" He described approvingly how the painter had captured "the wasting of muscles of the thigh and calf" in the boy being assisted by the monk, and commented that "the excessive flexion of the right knee and the plantarflexed posture of the right ankle with the toes unable to clear a mound of sand during the swing phase of gait indicate that the boy's tibialis anterior is paralysed."⁴

But why "sad inheritance"? And why "dregs," "waste," "wretched parents"? Joseph's "unknowingly" referred to Sorolla's own misunderstanding of the pathophysiology he depicted. Sorolla's original title for the painting was *Niños de placer* (*Children of Pleasure*), and the implication of both titles is that these unhealthy, institutionalized children had been left disabled owing to the sins of their parents — that is, most likely, that they suffered from effects of congenital syphilis. Sorolla did not un-

derstand that he was painting postpolio paralysis; he saw the boys' problem as a moral one. The "saddest waste of society" was indeed a social issue, the tragic inheritance was the sins of the parents being visited on the sons.

Sorolla's contemporaries also understood the painting as depicting congenital syphilis. As the *Newark Evening News* described it when the 1909 exhibition opened in New York, "A score or so of imbecile or crippled boys — the anatomical deformities are superbly mastered — the cast-off children of depraved and unknown parents, huddle about the good priest whose life is consecrated to the alleviation of the sufferings caused by the sins of the parents."¹

Other Sorolla paintings conveyed social and political messages: *Trata de blancas (White Slave Trade, 1894)* showed four young prostitutes on a train, supervised by an older woman; *¡Otra Margarita! (Another Marguerite!, 1892)* was a woman in handcuffs, arrested for murdering her illegitimate child; *¡Aún dicen que el pescado es caro! (And They Still Say Fish Is Expensive!, 1894)* depicted a badly injured young man on a fishing boat. But with *¡Triste herencia!*, he felt finished with sad and difficult subjects. In 1909, he said, according to Starkweather, "I suffered greatly. I shall never do another."¹

Just as an orthopedist might celebrate the accuracy of Sorolla's observation of muscular pathophysiology and gait abnormalities, a pediatrician might wonder whether the painter had any sense of polio as an infectious threat. If these boys had been stricken in the polio epidemic,

there might still have been some protest against a society that cast off sick or disabled children, but heredity and wretched parents would have had nothing to do with it. Polio epidemics were relatively new in Europe and the United States in the late 19th and early 20th centuries, and the disease's characteristics were just being worked out. It wasn't until 6 years after the painting was done that Dr. Ivar Wickman, in Stockholm, established that polio was a contagious disease. Congenital syphilis, by contrast, had long been understood to be inherited: Paracelsus had noted in 1529 that it passed from father to son. The Norwegian artist Edvard Munch painted *The Inheritance* in 1897–99, depicting a weeping mother holding an infant on her lap. Munch had apparently studied a teaching collection of anatomical wax models in Paris, and represented the infant with hydrocephalus, frontal bossing, wasted limbs, and a skin eruption on his chest.⁵

Sorolla was painting pathophysiology from life, and he recorded it with sufficient fidelity to impress an orthopedist. But his moral was based on a faulty diagnostic theory. The children he described and painted were outcasts: blind, crazy, crippled, lepers. He blamed their parents, who he believed had committed immoral sexual acts, leaving these "children of pleasure" a heredity of pain and suffering. Interestingly, Sorolla had lost his own parents in 1865 when he was 2 years old, to cholera, another disease that wasn't then understood definitively to be traceable to an infectious microorganism.

Sorolla was not wrong about the damage syphilis can do; untreated congenital disease (and there was no effective treatment at the time) can indeed cause skeletal damage, optic atrophy, blindness, and neurologic problems including paralysis. However, the patterns of muscle wasting and paralysis Sorolla recorded reveal more specific diagnostic information to 21st century medical observers. Sorolla's view of his subjects and his intended social protest remind us of the ways that medicine has often assigned blame to patients — or their parents — over the centuries. The painting also suggests a larger social moral about the marginalization of disabled children, "the dregs that society throws from its bosom," "the saddest waste."

Yet the painting allows those marginalized children a moment of joy; however much the painter might have suffered in recording the moment, it is not a moment of suffering for the children. Even as Sorolla recorded the devastation of the boys' bodies, he was painting those bodies as they made their way from the sandy beach into the light-dappled water. He was capturing them during their recreation, their time to be children, between the sea and the sky. He may have meant to offer a profound social statement, but he was also painting a moment of grace.

Disclosure forms provided by the author are available at NEJM.org.

From the Department of Pediatrics, New York University Grossman School of Medicine, and the Arthur L. Carter Journalism Institute, New York University — both in New York.

This article was published on February 3, 2024, at NEJM.org.

1. Bereute AD, Mauclair C, Rochefort H, et al. Eight essays on Joaquín Sorolla y Bastida, followed by appreciations of the press. New York: Hispanic Society of America, 1909.
2. Sorolla J. ¡Triste herencia! Fundación Bancaja (<https://www.fundacionbancaja.es/obra/triste-herencia/>).
3. Martínez-Lage JF, Pérez-Espejo MA, Galarza M. Portraying disease: Sorolla's sad legacy. *Childs Nerv Syst* 2012;28:959-61.
4. Joseph B. Art and pediatric orthopaedics: Sorolla and a sad inheritance. *J Pediatr Orthop* 2021;41(7):e590-e591.
5. Perciaccante A, Coralli A. The history of congenital syphilis behind The Inheritance by Edvard Munch. *JAMA Dermatol* 2018;154:280.

DOI: 10.1056/NEJMp2312346

Copyright © 2024 Massachusetts Medical Society.



In Season 2 of the NEJM podcast “Not Otherwise Specified,” Dr. Lisa Rosenbaum delves into a burgeoning revolution in medical training in discussions with trainees, educators, and experts on evolving cultural norms. Listen to the next episode of “NOS Season 2: The Quiet Revolution in Medical Training” at [NEJM.org](https://www.nejm.org) or wherever you get your podcasts.