In Defense of Children and the Planet

How California Can Improve Children's Health Through Environmental Justice

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Children Now

Contents

Executive Summary

Climate change and environmental racism are threatening children's health and exacerbating health disparities in California, posing a public health crisis that will demand increasing attention and resources in the coming years. A 2024 UNICEF report found that climate change is impacting almost every aspect of child health and well-being from pre-natal to adolescence.[1]

Kids of color and children living in poverty are more likely to grow up in unhealthy neighborhoods with worse air, water, and infrastructure, and more hazardous facilities and exposure to toxins. These communities are also more vulnerable to climate-related events which can exacerbate children's environmental exposures. Heat waves and wildfires increase smog and air pollution, while flooding and storms in neighborhoods with hazardous fossil fuel infrastructure like refineries and extraction sites release toxins into drinking water, soil, and food.[2]

This is of particular concern for children's ability to thrive—kids are not just "little adults" when it comes to environmental exposures. Children and adolescents spend twice as much time outdoors[3] and engaged in vigorous activity as adults do, while also inhaling more pollution and absorbing more lead per pound of body weight. This makes them especially vulnerable to environmental health hazards.

This brief honors and draws inspiration from many decades of work by community organizers and leaders, including Black environmental justice and civil rights advocates, Indigenous leaders, farmworkers' rights organizers, breast cancer activists, community based organizations, and more. Children Now seeks to build upon the work of these leaders by using expertise in children's health and state advocacy to lift up and push forward aligned recommendations. Indigenous leaders and people of color have always been at the frontlines of environmental justice and climate solutions, and the fight for a healthier, greener planet is inextricably linked with Indigenous rights and protecting California's children of color. More than 346,000 Native American children live in California, and the stark health disparities in these communities are evidence of many generations of trauma, systemic racism, and environmental injustice.[4] Climate change and the dispossession of native land has caused widespread loss of cultural richness and identity, with severe implications for children's health.

Illustrated below are the multitude of factors impacting children's environmental health, and why California must take urgent action to protect kids. While these issues are complex and cross-cutting, there are immediate steps that California can take to improve children's outcomes, outlined below.

Every child, regardless of race or zip code, deserves a safe, clean, and climate-resilient world in which to live, grow, and play.

Leverage Medi-Cal Reform to Support Environmental Justice:	Create a new category of Community Supports under Medi-Cal's Section 1115 waiver to provide climate supports (e.g. backup generators, air conditioners, air filters) for people with health conditions exacerbated by climate change; expand eligible populations of focus for existing benefits like nutrition and utilities assistance; incentivize Managed Care Plans to invest in sustainability; and prioritize hospital Community Benefit and MCP Community Reinvestment spending on upstream categories like food access, green space, and clean air.
Prioritize Environmentally Burdened Communities in CalEnviroScreen:	Include additional metrics in future iterations of the CalEnviroScreen tool, such as the rate of pulmonary obstructive disease, history of redlined neighborhoods, access to health care, and the use of two harmful pesticides, glyphosate and paraquat.
Empower Health Providers to Support Climate Justice:	Leverage health centers and clinical settings as Community Resilience Centers to provide medical care and climate supports during extreme weather; and expand the use of climate and environmental justice data in Electronic Health Records to integrate those factors into patient care plans.
Protect Kids from Extreme Heat:	Invest in school greening projects, expand access to air conditioning through Community Benefits; establish a safe outdoor recreation temperature standard for schools; and center children in local heat action plans.
Reduce the Impact of Air Pollution on Children:	Establish a safe outdoor Air Quality Index standard for school recess and sports; improve coordination between pediatricians and schools in implementing asthma care plans to reduce absenteeism; support the advancement of regulations to reduce emissions; and leverage funding streams to improve ventilation in schools.
Provide Green Space for All Kids:	Create green schoolyard master plans; use data tools to prioritize "park poor" areas; design for low maintenance plants; avoid the use of artificial turf; and fund student access to nature including transportation and waived park fees.
Reduce Exposure to Environmental Toxins:	Test and remediate schools for lead in drinking water; improve inspections of older and low-income housing for lead hazards; improve blood lead screenings for children in Medi-Cal; reduce PFAS "forever chemicals" use in children's products; and improve pesticide school buffer zone enforcement and reporting.
Build a Just and Climate-Resilient Food System for Kids:	Streamline enrollment in SNAP and improve linkages with health care; raise the minimum monthly SNAP benefit to $50; and expand the 1115 waiver to include pantry stocking, food boxes, or grocery provisions to high-risk kids and pregnant individuals.
Address Children's "Eco-Anxiety:"	Invest in school counselors and climate-aware curriculum for behavioral health professionals; improve access to green space for children; and encourage physicians to adopt "Park Rx" programs.

Background

Environmental Racism

Environmental racism, a type of environmental injustice, has caused children of color to be disproportionately impacted by environmental factors like hazardous waste, resource extraction, and water pollution. The physical environments—both natural (e.g. air quality and ambient temperature) and built (access to food, green space, transportation)—where children live affect their development and health well into adulthood.

Environmental racism exists because of policies that have historically and still currently discriminate against poor and marginalized communities through exclusionary zoning laws, "redlining," harmful land use, and divestment in infrastructure. For example, minority and low-income communities are more likely to live near freeways, coal plants, and oil refineries that pollute the air; spend more on energy due to inequalities in energy prices and efficiency; live farther from whole-service grocery stores; and have far less access to green spaces than white, affluent communities.[5] For children living in these neighborhoods, negative environmental factors compound social and economic conditions and often result in higher rates of health problems like asthma, diabetes, hypertension, low birth weight, cardiovascular disease, neurodevelopmental and learning disabilities like ADHD and autism.[6]

California boasts one of the nation's most comprehensive mapping tools to identify environmentally burdened communities, called CalEnviroScreen. Communities that are designated "disadvantaged" by the system can qualify for significant government and private funding. CalEnviroScreen has been used to designate the top 25% most burdened communities, including vast swaths of the Central Valley; communities neighboring the ports of Long Beach and Los Angeles; Stockton, Modesto, and Bakersfield; neighborhoods in the Bay Area cities of Richmond and Oakland; and lands under the control of federally recognized tribes. The tool evaluates 21 environmental, public health, and demographic factors to identify which neighborhoods are most susceptible to environmental harm. These factors include air and water pollutants, pesticide application, heavy metals, children's lead risk from housing, and poverty and unemployment rates. It only includes three health factors: low birth weight infants, cardiovascular disease, and emergency room visits for asthma.

Recommendation:

In future iterations of CalEnviroScreen, the State should include additional metrics like the rate of pulmonary obstructive disease, history of redlined neighborhoods,

access to health care, and the use of two harmful pesticides, glyphosate and paraquat.[7]

Climate Change and the Climate Gap

Meanwhile, climate change exacerbates differences in children's environments and results in the "climate gap:" the disproportionate and unequal impact the climate crisis has on people of color and people living in poverty. These communities are more vulnerable to climate-related events like heat waves, droughts, flooding, wildfires, and sea-level rise because of lack of access to transportation, air conditioning, insurance, climate-resilient housing and schools, health care, and emergency services.

Children of color are also more likely to have parents whose work and livelihood are affected by climate change in agricultural farmwork, workplaces with poor ventilation and cooling, and industries with high exposure to chemicals and contaminants.[8] This is of special concern for children in California, which is home to one of the most racially and economically diverse populations in the U.S.

Medi-Cal Managed Care Plans (MCPS), health plans, Medicaid agencies, and health professionals have an enormous and as-yet unrealized role to play in addressing the climate-related health and social needs of California's kids, especially as climate change disrupts the health system's ability to deliver safe and affordable care. The health care sector is also responsible for as much as 8.5% of greenhouse gas emissions in the United States.[9]

Medi-Cal Transformation

Nearly 5.4 million, or about half of all California's kids, are enrolled in Medi-Cal. Medi-Cal enrollees are disproportionately harmed by climate change and environmental racism at a significant cost to the State and health plans. Through a series of transformational initiatives called "CalAIM," California is reforming Medi-Cal (the State's Medicaid program) to better address all of the physical, mental, and social needs of its most vulnerable patients. Medi-Cal offers a unique set of levers for advancing climate equity and environmental justice through federal waivers (called Section 1115 Medicaid demonstration waivers), creative payment structures and quality measures, and community-based partnerships.

California's current 1115 waiver includes a program intended to promote health equity called **Community Supports**. Community Supports are services provided by MCPs in-lieu of costlier clinical care to address health related social needs. Offered services include housing navigation and deposits, medically-supportive food, environmental accessibility adaptation for enrollees' homes, and asthma remediation services. California can and should continue to leverage its 1115 waiver to protect enrollees from climate-related risks and to address existing environmental injustices that are harming patients. Examples of such changes are referenced throughout the brief.

The Department of Health Care Services (DHCS), which oversees Medi-Cal, should also consider ways to advance decarbonization, e.g. by weatherizing homes and providing low or no emission devices like air filters and air conditioners through Community Supports. Telemedicine, which is also a tool for improving health access, decreases the use of transportation and reduces up to 25% of emissions associated with care and the burden on patients to travel to appointments.[10]

Did you know? Washington's State Medicaid Quality Incentive Program12 includes the following questions in a survey for health plans to receive additional incentive payments:

- What environment/climate conditions has your organization had to take action to respond to?
- What projects, programs, practices or policies do you have regarding how you are addressing population health in the context of these environmental/climate conditions?
- To what degree does your organization have projects, programs, practices, or policies that address environmental sustainability practices?
- How do you measure progress in [environmental sustainability] topics?
- Do you measure greenhouse gas emissions? If so, how? If not, do you have plans to?

Alternative payment models and existing flexibilities from the Centers for Medicare and Medicaid Services offer opportunities for health care entities to pursue sustainability initiatives and targets and to collect data on emissions.[11] For example, California can leverage future 1115 waivers to advance mitigation goals by including metrics related to climate change in incentive payment programs. Some health plans and providers in California are already proactively focusing on sustainability because as Blue Shield of California sees it, "Climate Care is Health Care."

Californians in Action

Blue Shield of California is one of only a handful of health plans globally working to reduce their emissions by committing to the **Science Based Targets initiative (SBTi)**. SBTi is the most rigorous and clearly defined pathway to reduce carbon footprint in line with the **Paris Accords**.

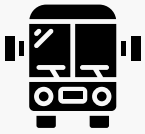
By 2025, Blue Shield has committed to set near-term, company-wide emissions reductions and to submit to SBTi for validation. Blue Shield also supports environmental justice nonprofits that address climate impacts on low-income communities of color through activities such as urban greening, climate literacy, clean energy access and air quality adaptation strategies.[13]

Importance of Community Investment and Locally Driven Solutions

Another pathway for change is through hospital Community Benefits. Nonprofit hospitals in California are exempt from paying federal and state taxes if they meet certain standards, which includes an obligation to finance a set of community-focused, charitable activities known as "Community Benefits." Hospitals must also complete a Community Health Needs Assessment and Community Benefit Plan every three years, which offer an opportunity to identify and address environmental justice issues that affect community health.

In 2020, most Community Benefit spending by hospitals was used to offset low Medi-Cal payments (56.4%). Spending on "Community Building"—addressing the "upstream" factors and social determinants that impact health such as education, air quality, and access to nutritious food—was the lowest percentage (0.4%).[14] Hospitals should prioritize upstream solutions that help people stay healthy in the first place.

There are countless Community Benefit activities that could address health priorities while mitigating climate change and generating environmental benefits, including:



Investing in active transportation and employer-subsidized public transit

Expanding school health asthma programs to address home environments

Creating more green space for park/exercise facilities

Promoting telemedicine and satellite community health centers (which reduce travel emissions)

Supporting healthy affordable housing (energy and asthma upgrades)

Joining the California Climate Action Registry to report emissions

Funding community solar projects

Building healthy and sustainable food systems.[15]

There is currently no minimum amount of Community Benefit funding to be allocated specifically to social determinants, which results in varying levels of investment.

Beginning in 2024, California's Department of Health Care Services (DHCS) will require MCPs to contribute a minimum percentage of annual net income to their communities in addressing unmet health-related social needs. According to the draft policy released in September 2024, permissible reinvestment activities (which are to begin in 2026) include:

- Planting a community farm to support community-level access to nutritious fruits and vegetables.
- Installing new bike lanes and/or walking paths
- Installing a rain garden to prevent contaminated runoff from reaching community water sources
- Providing blood lead analyzer equipment and blood testing kits to community-based organizations, schools, day care facilities and other non-traditional blood lead testing settings for point-of-service testing

Considering the downstream effects of climate change and environmental injustice on the health of California's communities, hospitals and MCPs have an obligation to protect patients from further harm and an opportunity to use their dollars efficiently and equitably towards improving population health.

The Role of Health Professionals and Systems in Mitigating Harm

Health professionals like pediatricians, school nurses, and community health workers are extremely well-positioned to engage children and families about their environments. A comprehensive climate-integrated electronic health record (EHR) would help identify at-risk patients and tailor care while allowing providers to share location-specific climate risk information with patients (e.g. predictions of heat, wildfire smoke, vector-borne disease outbreaks, and floods). Climate-integrated EHRs could reduce exposure in live time to a variety of risk factors, e.g. by enabling prescriptions for air filters or cooling devices or referring members to Community Supports. Climate-integrated health records and early warning and alerts systems could also raise patient awareness of increased risk during and after events.

Californians in Action

The largest provider of hospital care for children in California, Children's Hospital Los Angeles, is already working towards a climate-integrated EHR. CHLA partnered with USC and AccuWeather, integrating AccuWeather's high-resolution data on factors such as air quality, UV index, humidity, temperature, and other environmental determinants of health with data from patient's EHRs.[16] CHLA providers and researchers now have ability to address the impact of environmental exposures on children, for example by asking "What is the air quality at home like for all of our patients who receive care at our hospital?" and analyzing key patterns and risks for children based on air quality data. Dr. Jonathan Tan, pediatric anesthesiologist and Vice Chair of Analytics and Clinical

Effectiveness at CHLA, says that because breathing problems under anesthesia are the number one issue for healthy children going through surgery, patient-level air quality data can be lifesaving if used for interventions like albuterol or air purifiers prior to surgery. In an interview with Children Now, Dr. Tan remarked that "providers and health systems are trusted messengers, so there's an opportunity to communicate about extreme weather and risks using patient portals," before kids are even at risk. Dr. Tan and the CHLA team have a roadmap for a national network of children's hospitals to study the impact of weather on climate on pediatric health across the U.S.

Even without an EHR, pediatricians can practice environmental justice and trauma-informed care by identifying and supporting children who have experienced climate-related harms. For example, pediatricians can use toolkits like the one developed by the **Western States Pediatric Environmental Health Specialty Unit** to assess environmental risks and consider factors when screening for and addressing social determinants of health like energy, food, and housing quality. A pediatrician who learns that a parent is an agricultural farmworker might warn of their child's exposure to pesticides through runoff in water, breast milk, baby food, outdoor air near treated fields, and residue on clothing from pesticide contact on the job. Keeping these potential exposure sources in mind and screening for symptoms like rash, nausea, vomiting, abnormal muscular reflexes, and seizures in that child can help mitigate future harm.

Clinical Settings as Climate Resilience Centers

Health settings like clinics, community health centers, and hospitals can function as "resilience hubs" during extreme weather and climate events. The California Strategic Growth Council's Community Resilience Center (CRC) program funds construction and upgrades of neighborhood-level resilience centers across the state that support communities during climate and other disasters, as well as build long-term resilience, preparedness, and recovery operations for local communities. Funding uses include retrofits and upgrades for solar installation and broadband, community gardens and shade, local workforce development training, and distribution of resources like food, clean water, and personal protective equipment.

Integrating health services and trusted staff from community health centers or hospitals into a resilience hub can increase timely access to basic health programs and social services simultaneously. Community health care workers and promotores are trusted community members and can ensure culturally-responsive access to care during times of disruption and beyond. For example, a CRC may be able to provide emergency behavioral health services while acting as a cooling or heating center, to mitigate the mental health effects of climate events.

Californians in Action

The City of Oakland was awarded $9.25M through the CRC program to build a Community Resilience Center at Lincoln Square Park. The Center will operate as a cooling and warming respite center and provide facilities for resource distribution, charging of phones and medical devices during a power outage, and refrigeration for medications. The Center's design includes solar panels and battery storage for backup power, broadband, a commercial kitchen, restrooms, showers, and conditioned and filtered air. The structure will serve as a clean air center for poor air quality days, and as a distribution point for emergency information via the City's emergency response and recovery systems.

Environmental Pathways Affecting Children's Health

While health systems and pediatricians won't reverse climate change or erase environmental injustice alone, there are countless opportunities for targeted investments and policies that address extreme heat, air pollution, green space equity, environmental toxins, food security, and children's mental health.

Protecting Kids from Extreme Heat

The summer of 2024 was the hottest ever recorded, as climate change continues to increase the intensity and frequency of heatwaves. The California Department of Insurance's (CDI) groundbreaking June 2024 report, **Impacts of extreme heat to California's people, infrastructure, and economy**, measures the true costs of extreme heat by examining seven historical heat events in 2013-2022. The total impacts range from $240 million to $3 billion per event, and authors note that the estimates in the report are conservative.[17] Extreme temperatures pose a risk for heat-related illnesses and ecological damage, while also increasing air pollution and the risk of developing asthma. As is the case for most environmental exposures and issues, children and infants are more susceptible to heat illness than adults, whether they're playing outside or waiting in a parked car. **Heat is the number one cause of climate-related mortality, despite heat-related deaths being entirely preventable.**[18]

Children's bodies take longer to respond with sweat production and acclimatize in a warm environment than adults' do, and are also more susceptible to dehydration because a larger percentage of their body weight is water.[19] These effects are not felt equally—in nearly every major U.S. city, children of color are exposed to more urban heat than their white peers.[20] This is due to historic redlining in neighborhoods of color that results in a lack of trees and vegetation which would otherwise cool the air and provide shade. Densely populated metropolitan areas with more heat-absorbing pavement can be up to 20°F hotter than nearby neighborhoods, with significant implications for children, the elderly, and pregnant individuals.[21]

Extreme heat is also a reproductive justice issue. For every 10°F increase in weekly average temperature in California, there is an 11.6% increase in preterm delivery, which increases the risk of respiratory illnesses, lower cognitive abilities, and behavioral problems in children.[22] Perinatal exposure to heat waves during pregnancy is also linked to a higher high blood pressure, high-blood pressure with seizures (eclampsia), and uterine bleeding.[23]

Student health and learning are at risk with increasing temperatures, which disproportionately affects low-income and children of color who are more likely to attend schools without A/C. A full 5% of the gap in test scores between Black and Hispanic students and their white counterparts can be attributed to disproportionate exposure to excessively hot classrooms.[24]

As temperatures rise, warmer air increases the formation of ground-level ozone—"smog"—which is a harmful air pollutant, and a dramatic increase in pollen, which can exacerbate allergies and lead to asthma attacks.[25] Wildfires, which produce smoke-containing particle pollution that cause asthma attacks and increase hospitalizations and ED visits for children, are also more likely during extreme heat events. These effects are not felt equally—in a phenomenon known as the "urban heat island" effect, children living in cities are often exposed to higher temperatures, more pollution, and heat-trapping asphalt than those who live in surrounding areas.

Recommendations:

Heat Planning:
The CDI report on extreme heat recommends several steps aimed at reducing the health impacts of extreme heat. Local heat action plans can reduce mortality and improve coordination between agencies during heat events, while also providing a forum to discuss investments in infrastructure and warning systems. CDI also recommends planting trees on publicly-owned land in counties with less than 50% tree cover, investing in building and surface reflectance, and providing passive or low-energy cooling strategies.

The widespread existence of urban heat islands in California demonstrates the need for equity-based city planning and strategic placement of green space and shade in disproportionately affected communities. For example, the **Cool LA program** aims to bring 250 lane miles of cool pavement and nearly 2,000 trees to Los Angeles' hottest residential areas, which are more densely developed and predominantly lower-income.

Climate Supports in Medi-Cal:
The current Medi-Cal Community Supports program only offers air conditioners or heaters to individuals who qualify for housing services and/or are currently homeless. However, many more enrollees stand to benefit from air conditioning. The Birth Equity and Mental Health/Substance Use populations of focus within Community Supports are particularly vulnerable to the effects of extreme heat, as are enrollees receiving Asthma Remediation services. California should expand eligibility or create a separate category altogether, following Oregon's lead by including a variety of "Climate Supports" services in its 1115 waiver for all clients living with conditions that make climate events especially dangerous (e.g. mini fridges to keep medications cold during a power outage, backup generators, and air conditioners and filters).[26]

Child Care and School Facility Updates:
Children spend much of their lives in child care facilities and schools, which are vastly underprepared for climate change. California must ensure that the communities most vulnerable to extreme heat with the oldest and least-advanced school facilities get priority access to the funding and resources they need to install energy-efficient HVAC systems, trees, and shade structures. The State should also institute and provide funding to support an evidence-based heat standard for child care and school facilities, similar to the July 2024 regulation that requires employers to act to protect workers from heat illness when indoor workplaces reach 82°F.

Mitigating the Effects of Air Pollution on Children

Six of the ten most polluted cities in the U.S. are in California, according to the American Lung Association.[27] Particulate matter pollution and ozone are a threat to human health at every stage of life, increasing the risk of premature birth and low birth weight; causing or worsening lung disease, heart disease and stroke; impairing cognitive function and immunity; and shortening lives.[28] Combustion processes in

facilities like power plants, fracking sites, and oil refineries increase not only toxic air pollutants but also greenhouse gases, furthering the pace of climate change and global warming. Climate change is also increasing pollen counts, leading to more severe seasonal allergies and increased potential for allergy-induced asthma in children.[29]

Asthma is the second most common chronic disease of American children and the leading cause of pediatric emergency department visits, hospitalizations, and school absenteeism.[30] According to the 2021 California Health Interview Survey, 11.8% of all children ages 0-17 in California have ever been diagnosed with asthma. Black, American Indian/Alaska Native, and Latino/a Californians have the highest lifetime asthma prevalence rates in part because of environmental racism that concentrates highways, industrial plants, toxic chemicals, neglected soil, corroded plumbing, and pesticide use in communities of color.[31] Children with higher exposure to particulate matter, nitrogen dioxide, ozone, and acid vapor have lower lung function and size and higher rates of asthma and bronchitis.[32]

Asthma-related school absenteeism is often a result of asthma exacerbations or triggers, lack of asthma control, or irregular clinic visits. According to one study, approximately 50% of children in California diagnosed with asthma missed at least one day of school per year due to asthma, and 11.7% missed 9 or more days.[33] Many schools struggle to provide adequate asthma care with limited resources, and too many schools do not have a health center at all. Schools are generally not equipped with HVAC systems to adequately ventilate the air, and learning time is lost when schools must close due to “smoke days.” Wildfire smoke is particularly damaging to children given how much time they spend outside and the fact that they breathe more air relative to their weight. Wildfire smoke is known to cause lower and upper respiratory infections (e.g. pneumonia, bronchitis) and dermatitis in children, lower birth weight, and still births.[34]

Recommendations:

Building climate-resilient schools:
Local officials in counties already plagued by poor air quality should focus on improving ventilation and filtration systems in schools and homes, planting trees and adding shade cover in schools, encouraging public education around use and access to air purifiers, and help schools meet the State’s commitment to transitioning to 100% zero emission school buses. Policies like **SB 1182** (Gonzalez, 2024), a bill to begin a master planning process for climate-resilient schools, would support schools in being these resilience hubs so that students have access to safe temperatures and air quality, and can continue to learn no matter the weather. Unfortunately, Governor Newsom **vetoed** SB 1182, citing budget concerns. Despite this setback and the veto of a similar bill in 2023, California’s child care and school leaders are working to elevate strategies to build climate resilience.[35] California should continue leading the way in air quality and emissions standards, and consider establishing an outdoor Air Quality Index (AQI) standard for recess and sports especially during wildfire or air pollution events.

Strengthening the link between health systems and schools:
Asthma management can be improved by encouraging pediatricians to ask families about asthma's impact on a student's school attendance, improving linkages between pediatricians and school nurses, and consistently funding infrastructure to support school-based care. Health professionals and legislators should continue to support the advancement of California Air Resources Board (CARB) regulations to reduce emissions from cars, truck fleets, and ports which contribute significantly to air pollution. Notably, the Chevron Supreme Court case could endanger any number of California's nine pending clean air rules awaiting EPA approval, but also underscores the importance of leveraging state regulations and litigation in the absence of strong federal support.

Reducing GHG emissions and improving children's housing:
Simultaneously, the State must do more to substantially reduce greenhouse gas emissions while investing in adaptation and resilience. Policies and funding such as **SB 867 (Allen, Chapter 83, Statutes of 2024)**, the California Climate Resilience Bond (Proposition 4) on the 2024 ballot, should focus on reducing heat and air quality inequities and assisting low-income Californians. Healthy housing policies and asthma home visiting services that reduce indoor pollutants and increase thermal comfort in rental housing are crucial for reducing climate-driven health disparities in children. Power systems should avoid rolling blackouts in vulnerable communities and ensure that there are multiple, easily accessible community resilience centers with air-conditioned spaces, clean air, and culturally competent programs and social services for families during extreme weather and poor air quality events.

Providing Green Space for All Kids

Green spaces mitigate the effects of air pollution and global warming, with significant physical and mental health benefits for children. Unfortunately, green spaces in communities of color are half the size and five times more crowded than those in white communities;[36] and more than half of Los Angeles County is considered "park poor," with 82% of these park-poor areas located in communities of color.[37] This inequity will likely worsen as climate change accelerates; as temperatures rise and air quality worsens, outside play will be increasingly more difficult, especially for kids who already lack steady access to public outdoor spaces.[38]

Access to green space is associated with better mental health and lower all-cause mortality and rates of disease, likely through three main mechanisms: increased physical activity, better recovery from stress, and facilitation of community and social contact.[39] Time spent outdoors is also associated with lower rates of type 2 diabetes, respiratory illness, cardiovascular diseases, obesity, and more. In a series

Californians in Action

The Los Angeles Unified School District, City of Los Angeles, Office of Mayor Karen Bass, and L.A.'s Department of Recreation & Parks are partnering with community organizations to transform 28 schoolyards by 2028 ("28×28"), which would put a valuable green space within a 10-minute walk of 260,000 people.[45] There is a potential for a 20°F temperature reduction from this project!

of focus groups conducted by Children Now to better understand ways to support parents and caregivers of young children, nearly all respondents spoke to the importance of outside spaces in promoting their children's emotional regulation and encouraging healthy development.[40]

There are countless benefits of green spaces and trees for students and school districts, including cost savings on reduced air conditioning needs, reduced absenteeism, and increased enrollment.[41] These cost savings extend to health care systems, too—a Kaiser Permanente study found that health care system costs were approximately $374 lower per person for patients who live in greener areas.[42] Schools, city planners, hospitals, public health departments, and policymakers should invest deeply and strategically in greening communities—it's good for the planet, the wallet, and the kids.

Recommendations:

Scale-up Green Schoolyards and Child Care Spaces
While green schoolyard projects are a popular investment, it can be difficult to bring these efforts to the scale needed for significant impact. Barriers include cost, poor soil that is hostile to trees, lead and toxic contaminants under pavement, the need for irrigation or hand-watering, space constraints, and staff capacity.[43] To address these concerns, the State should provide child care providers and school districts with templates, such as MOUs for joint-use partnerships with city parks departments so that school grounds can function as local parks after school hours in return for cities assisting with park maintenance and security costs. The State can also provide districts with access to agencies with resources and expertise like CalEPA, the Strategic Growth Council, and California Department of Public Health. In addition, the State could require better coordination between agencies to support green child care and schools spaces. To target efforts where they are most needed, the Green Schoolyards America's Schoolyard Tree Canopy Equity Map[44] is useful tool for identifying the most high-risk and high-need zip codes and school districts.

It is crucial that in any greening project, especially spaces that will be utilized by kids and families, natural materials are prioritized over artificial turf—also known as plastic grass. Artificial turf contains hundreds of chemicals, including known carcinogens, neurotoxicants and endocrine disrupters including benzene, arsenic, PFAS, and bisphenol A.[46] Synthetic turf also traps heat and radiates it back slowly, leaching hazardous materials in high heat.[47]

The alternative? Shade structures and climate-resilient plants that reduce storm water runoff and erosion.

Reducing Exposure to Environmental Toxins: Lead, PFAS, and pesticides

Lead

Children are especially vulnerable to the effects of environmental toxins, which include everything from lead to microplastics. Lead has no safe level of ingestion in children, and any amount of exposure in childhood has lifelong impacts. Lead is a potent neurotoxin that impairs children's intellectual development and alters their behavior and ability to concentrate. Lead poisoning is associated with learning difficulties, impaired hearing, reduced attention span, delayed puberty, cancer, and higher levels of criminal activity in adult life.[48]

Lead-based paint has historically been the main source of exposure for California's children, and is the primary cause of very high child blood lead levels.[49] Most homes are not inspected for lead, and Section 8 housing vouchers for low-income families—Housing and Urban Development's largest housing program—do not require lead paint risk assessment.[50] Children can also be exposed to lead via old jewelry, certain toys, some imported spices, and lead-contaminated water. In addition, aviation leaded fuel, while no longer used by larger commercial planes, is still used for smaller piston planes, and lead dust from these emissions can be found in communities near airports. Unleaded aviation fuel is a safer alternative to protect children. In September 2024, Governor Newsom signed **SB 1193 (Menjivar, 2024)** into law, banning the use of leaded fuel and protecting thousands of children.[51]

Lead contamination of drinking water remains a problem for many communities and schools, and poses a serious risk to children's health. Since lead levels vary from one house to another, and lead-testing of drinking water is not widespread, it is difficult to estimate how many families have contaminated wate-r in their homes. However, recent data from the Department of Social Services indicates that one in four childcare centers in California have unsafe levels of lead in drinking water, and some were more than 2000 times the legal limit.[52] Water is often an overlooked source of lead exposure for children and can make up 20% of a child's lead intake. Infants and toddlers who are formula-fed ingest much more, and if a child is malnourished, the child will absorb lead faster.

Alarmingly, lead exposure is often missed in the pediatrician's office. Less than one in four children enrolled in Medi-Cal received blood lead screening in 2022, with only 10% of Native Hawaiian/Other Pacific Islander and only 12% of Black children screened in the same year.[53] In addition, the California Department of Public Health was required to develop new regulations by 2019 identifying the factors health care providers must consider when determining whether children are at risk of lead poisoning. These regulations have not yet been adopted and remain unchanged since 2001, requiring only one environmental risk factor to be considered. This delay means that providers lack updated information on lead exposures from other sources, and thousands of children will continue to go unscreened.

"Forever Chemicals" or PFAS

Hundreds of everyday products are made with highly toxic chemicals called PFAS, short for per- and poly-fluoroalkyl substances. They build up in human bodies and

never break down in the environment, leading to the nickname “forever chemicals.” Very small doses of PFAS have been linked to cancer, reproductive system harm, weakened childhood immunity, low birth weight, endocrine disruption, and increased cholesterol.[54]

Today, nearly all Americans, including newborn babies, have PFAS in their blood. New U.S. Environmental Protection Agency (EPA) data indicates that PFAS is widespread in drinking water, supporting a report that more than 200 million people may be drinking PFAS-tainted water.[55] What began as a “miracle of modern chemistry” is now a national crisis; there are over 4,700 PFAS in use, and regulation and management is far behind.

A Toxic Cycle

Climate change also increases the leaching of many toxins into the air, soil, and water that children consume. Wildfires (which are more likely as the climate warms), for example, increase concentrations of particulate matter in the air and exacerbate asthma, but depending on the composition of the fuel burning, wildfires can also release nitrogen oxides, flame retardants, carbon monoxide, lead, and inorganic metals into the air as well.[56]

Recommendations:

Lead Testing & Remediation for Drinking Water at Child Care Programs and Schools
Alarmingly, there is no comprehensive lead testing and remediation program for drinking water in California’s child care facilities and schools. **AB 746** (Gonzalez, 2017) required one-time lead tests at K-12 school sites built before 2010. However, water systems only tested three to five faucets at each campus, even though schools have dozens of faucets and lead levels can vary from faucet to faucet. Nevertheless, this limited sampling revealed that approximately 18% of K-12 schools had faucets with lead levels above 5 ppb.

Recent bills would have required a testing and remediation program for lead in drinking water at schools, but were vetoed by the Governor (**AB 249, Holden, 2023**) or held in the Legislature (**AB 1851, Holden 2024**). Given that California is well behind other states like Vermont and Washington in testing school drinking water, the State Water Board and the Department of Education must take initiative to address the issue. Some school districts, like Oakland Unified and San Diego Unified, have taken matters into their own hands and initiated testing or installed filtration devices. The most recent round of testing at Oakland Unified found that 7%

of all water fixtures had levels higher than 15 parts per billion, with a dozen faucets emitting between 90 and 930 parts per billion.[57] The school infrastructure bond on the November ballot, Proposition 2, allocates $115 million for testing and remediation of lead, but levels must exceed 15 parts per billion to qualify for funding—a threshold that is too high for children's safety and should be lowered. To address significant inequities in lead exposure, the State should prioritize lead testing and remediation at child care programs and school districts with older buildings and higher percentages of low-income children.

Blood Lead Screening

DHCS should work with health plans and providers to significantly increase blood lead screening for children enrolled in Medi-Cal, and to close the screening gap for Native Hawaiian/Other Pacific Islander and Black children especially.

Reducing Children's Exposure to PFAS

The EPA has recently adopted a requirement for community water systems to regulate six types of PFAS in drinking water, a huge win for children's health and access to safe drinking water. However, the California should also end the approval of new PFAS chemicals and prohibit incineration without protocol, which can release PFAS into the air.[58] California should also create a comprehensive strategy for reducing the use of PFAS chemicals in products and industrial processes, especially those that increase children's exposure, and expand the drinking water to rule to the entire class of PFAS.

Pesticides

According to the Pesticide Action Network of North America, "Pesticides contribute significantly to greenhouse gas emissions while, at the same time, climate change is expected to increase pesticide applications. It's a vicious cycle."[59] Most pesticides are derived from fossil fuels and require immense amounts of energy to create, and when released they also increase ozone and nitrous oxide production.[60] Pesticides are more likely to vaporize into the air we breathe at warmer temperatures, and severe flooding and weather increases pesticide runoff in drinking water.

About 200 million pounds of pesticides are applied per year in California, which is 4.5 times the national average.[61] Pesticides are predominantly used in agriculture, but nearly 75% of US households also use pesticides for control of mold, pests, rodents, etc. in homes and gardens.[62] Many families have insecticides, rodenticides, or common disinfectants in their home, all of which can cause health problems for children. Many schools, daycare centers, and public spaces are located near or directly adjacent to farms, increasing the potential for children's exposure to neurotoxins in pesticides. A recent study in the San Joaquin Valley found that 22% of adults and 10% of children were breathing detectable levels of pesticides including chlorpyrifos, which is banned in California and should not be in use.[63]

Pesticide exposure has been linked to a wide range of illnesses and diseases in children, including brain tumors and other cancers, autism, birth defects, and respiratory diseases.[64] Pesticide exposure disproportionately affect farmworkers, rural communities, and people living in areas where pesticides are produced, the majority of whom are low-income and people of color. A 2014 CDPH study found that Latino/a children are 91% more likely than white children to attend a school near high pesticide use.[65]

Recommendations:

Enforcement of School Notification

While the California Department of Pesticide Regulation adopted a "School Buffer Zone" rule in 2018 that restricts highly drift-prone agricultural pesticide application within a quarter mile of public schools and daycares from 6 am to 6 pm, Monday to Friday, its enforcement and reporting has been lackluster. Despite hundreds of violations, there have only been a handful of citations from County Agricultural Commissioners, and most of the informational notices submitted by farms lack details about where, when, and what was sprayed.[66] **AB 1864 (Connolly & Addis, 2024)** aims to improve enforcement of this regulation and protect children from exposure at school. Furthermore, the annual list of planned pesticide use—which is currently provided to a single administrator at each school and daycare via a password-protected portal—should instead be made publicly available for families and teachers.

Family Notification & Education

California must transition away from synthetic pesticide use and increase the resilience of farming systems by providing technical assistance and incentives for farmers to adopt practices that protect children and the planet. In the meantime, health professionals and community health workers should advise families to close

windows and keep children indoors when pesticides are being sprayed on adjacent fields. Health providers can also advise farm worker families that washing hands, faces, and changing out of contaminated clothes and shoes before returning home or entering a car with children can help prevent exposure. Families should notify their clinicians or their local health department if they experience (or suspect) a pesticide drift from spraying in nearby fields, and school officials should be vigilant as well.

Building a Just and Climate-Resilient Food System for Kids

Over 1 million households with children in California face food insecurity.[67] Because of historic structural inequities and disinvestment in communities of color, Black Californians are more than twice as likely to experience food insecurity as white Californians.[68] As the climate warms and the frequency of extreme weather events increases, California's food system is becoming even more vulnerable. Heat reduces crop yields, degrades food quality, and puts farmworkers' livelihoods and California's food systems in peril. Fires, droughts, and floods continue to increase food prices and exacerbate existing food insecurity among Californian's children.

Food deserts are an environmental justice issue, as they are areas devoid of fresh fruit, vegetables, and other healthful whole foods, largely due to a lack of grocery stores, farmers' markets, and other healthy food providers. Food deserts are not natural, nor are they inevitable—they often result from supermarkets maximizing profits by abandoning inner-city areas and communities of color, while fast-food chains and small convenience stores with limited healthy food and fresh produce options remain.

Food insecurity—limited, uncertain, or inconsistent access to the quality and quantity of food necessary for a healthy life—is associated with both hunger and obesity, as well as barriers to academic achievement and a higher likelihood of other serious and costly health conditions like hypertension, high cholesterol, and diabetes.[69] Food insecurity among pregnant individuals is associated with greater incidences of inpatient hospitalizations and missed immunizations for their children in the first six months of life.[70]

While federal programs support food access—e.g. the Supplemental Nutrition Assistance Program (SNAP), or "CalFresh" in California, and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)—these programs alone are not enough to meet the nutritional needs of children and expecting mothers. Half of all California children are eligible and participate CalFresh at some point before the age of 5, but enrollment varies immensely by geographic area because eligibility is based on federal poverty levels.[71] Beginning in the 2022-23 school year, California became the first state to implement a statewide Universal Meals Program for school children, requiring schools to provide one free breakfast and one free lunch per school day to any student requesting a meal. This was a monumental step towards ensuring consistent access to nutritious food during academic hours. Children's nutrition needs extend beyond the school day, however, and the stress of food insecurity is often felt at a household level.

Currently, California's section 1115 waiver only includes medically tailored meals and medically supportive food for patients with chronic conditions (e.g. diabetes, HIV, cancer, disabling mental health disorders) or patients at risk of hospitalization. According to DHCS, this has resulted in a 22-58% reduction in emergency department (ED) visits and a 27-63% decrease in inpatient hospitalizations.[72] The cost savings are significant; medically tailored meals led to savings of 16% in health care costs for patients with complex needs, or $220 healthcare costs savings per patient per month. However, this benefit is not covered for children with food insecurity.

Recommendations:

California's Climate Resilience Bond (Proposition 4) stands to invest over $1 billion in climate-resilient sustainable agricultural, local food system infrastructure, and farmworker well-being. Improving children's nutrition requires attention on more than just food availability, however. It is crucial that California's policies and resources center the children and families who are most likely to feel the financial effects of a climate-threatened food system.

Leveraging Health Systems to Improve Food Access
Partnerships between community-based organizations and local health departments can ensure that individuals visiting for health services like immunizations or check-ups are also screened for food insecurity and referred to food supports. Unfortunately, there is no formal linkage between Medi-Cal and WIC or SNAP because the programs use different platforms and applications.[73] However, exciting work is under way to use data matching to link eligible Medi-Cal enrollees to WIC. Community-based health workers like promotores, doulas, home visitors, and case managers can help improve food security for pregnant and postpartum people and young children by connecting families to nutrition support programs. Policymakers should work to address under-enrollment in these programs by improving public awareness, requiring routine referrals and warm handoffs, reducing administrative barriers for SNAP enrollment (e.g. phone interviews), and improving data linkages with health care and other safety net supports.

Using California's 1115 Waiver to Support Food-Insecure Kids
California should also consider expanding its Community Supports offerings to include pantry stocking, food boxes, or grocery provisions that extend eligibility beyond individuals with specific chronic conditions. Massachusetts and New York, for example, provide additional meal supports for households with high-risk children and/or pregnant individuals. Both states go as far as providing cooking supplies (e.g. pots and pans), up to 3 meals a day plus additional support for households with children, and transportation to nutrition services.[74] Given the cost savings demonstrated by medically tailored meals alone, California would be wise to expand its waiver to include services that directly address food security to include pantry stocking for children under 21 and pregnant people, including two months postpartum.

Californians in Action:

The San Francisco Health Network "Food as Medicine" Collaborative provides food to low-income patients accessing health care services from community clinics in San Francisco through clinic-based food "pharmacies." This program seeks to bridge the divide between healthcare systems and the food system including the San Francisco-Marin Food Bank, farmers' markets, and grocery stores. Food pharmacies "fill prescriptions" written by doctors and prescribed to give patients access to healthy food while reducing the stigma associated with receiving food aid.[75]

Increasing the Minimum Benefit for SNAP/CalFresh
California should permanently expand and authorize the CalFresh Minimum Nutrition Benefit Pilot program so that all CalFresh recipients receive a minimum of $50 per month, rather than the current $23, especially considering the administrative burden of applying. The State should also increase meal reimbursement for children in family child care homes, a critical setting for nutrition services, and provide incentives that encourage grocery stores to open in low-income neighborhoods and accept SNAP benefits.

Addressing Children's "Eco-Anxiety"

Fearing, anticipating, and experiencing climate change and environmental hazards can lead to severe anxiety and distress. Climate change and environmental disasters cause disruptions to home environments and neighborhoods, hamper the ability of caregivers to provide nurturing and consistent care, and often contribute to depression and post-traumatic stress disorder in adolescents. Emerging studies show associations between increased temperatures and higher rates of attempted and completed suicide, hospital admissions for mental illness, and worse outcomes for community mental health and well-being.[76]

In what is often called "eco-anxiety," many youth are anxious and uncertain about the future of their planet and the effects of climate change and environmental racism on their communities and loved ones. A 2022 study found that 80% of California youth ages 14-24 have experienced some form of climate distress.[77] These youth also often feel excluded from decision-making processes, especially in communities that have historically been disempowered to fight the siting of hazardous facilities in their neighborhoods or to hold polluters accountable.

Listen to Youth![78]

"I see a lot of stress in my community because of pollution and climate change. The constant air quality alerts and dirty water make people anxious and scared, especially low-income families. It's taking a toll on our health, with more people getting sick, and the worry about what's next is always there."

Aanya Tripathi, High School Student
Torrance, California

"As an 18-year-old, I don't know if I'll make it to 80. While I should be focusing on internships, first dates, and dorm decor, I'm instead worried about whether raising children will even be possible if policymakers continue to neglect the urgent need to care for the world we inhabit. How much worse does the climate crisis have to become before action is taken? Do we have to wait until it's 'too late?' This is not an issue you can ignore while the next generation bears its looming threat. This is a responsibility you not only owe to the planet—but to us."

Katareena Roska, College Student
Northwestern University

"I've noticed that a lot of my friends and people my age are struggling with eco-anxiety, being worried about the planet's future……Climate change and environmental racism are taking such a toll that it's easier to ignore nature instead of caring for it, which is only making things worse. It's tough to stay hopeful when we're so disconnected and not doing our part to help."

Ishan Kamisetty, High School Student
Dublin, California

"Students like me see the news headlines of destroyed homes, extreme heat, and sea level rise. I see the numbers of "highest global temperature ever" and think, 'how has it gotten so bad?' I don't just read about the effects of climate change—I feel it. Our whitewater rafting school trip was canceled because of poor air quality and low water levels. My friends reschedule plans because it's too hot to meet outside. I worry about our communities, environment, and future, but remain hopeful as well. Policymakers must prioritize environmental justice, listen to youth, and take action."

Sahngwie Yim, High School Student
San Jose, California

Encouragingly, research shows young children living in areas with more green spaces had fewer symptoms of anxiety and depression.[79] Access to green space is associated with lower stress and lower risk of neurodevelopmental problems like inattentiveness, and provides one of the best settings for bonding between young children and trusted adults. Nature-based therapy, which involves spending time in nature to enable growth and healing, may offer a healing antidote to eco-anxiety.

Increase & Equip School Counselors

Behavioral health providers have the skills and position in children's lives to recognize, prevent, diagnose, and help treat the mental health effects of climate change and environmental hazards. However, many providers are not equipped to navigate complex emotions about climate change and environmental injustice, which are experienced in vastly different ways by youth. The California Association of School Counselors is building curriculum that includes discussions on how to address climate anxiety, but those counselors are few and far between in schools.[80] The State must invest much more in building up the school counselor workforce, while connecting students to behavioral health services and opportunities to engage with nature in a healthy way (e.g. school gardens, greener schoolyards, and safer school infrastructure). California higher education institutions should also explore pathways and curriculum for behavioral health providers to receive specific training related to the mental health effects of the climate on youth and offering a certification in climate awareness.

Park Access

California should invest in free public transportation and waive park fees for all students, so they can access public green spaces and trails more easily while meeting carbon reduction and climate goals. The current policy, the California State Park "Adventure Pass," is a good start but only waives park entrance fees for fourth graders and does not include transportation. California must also recognize that mental health services are extremely hard to access for many children, and community-based systems of support, recreational programming, and safe green spaces can provide a crucial lifeline for children.

Some physicians are adopting "Park Rx" programs in which health providers collaborate with public land agencies and community partners to "prescribe the outdoors" along with other medicine to help relieve stress, lower blood pressure, enhance the immune system, shorten recovery time, and encourage physical activity. There are currently 26 registered ParkRx programs in California across many public health and park departments, hospitals, and care settings.

For example, UCSF Benioff Children's Hospital of Oakland integrated nature into their outpatient primary care clinic, renamed clinic rooms after regional parks, and provides free entrances at parks for pediatric patients on the first Saturday of every month including transportation, healthy lunch, and outdoor activities led by park staff. The patients are accompanied by their guardians and medical staff. The clinic integrated Park Rx into their electronic medical system where over 100 physicians prescribe time in nature for children with chronic illnesses; to date, over 4,000 children and family members have participated in the program.[81]

Conclusion

Mitigating, and more importantly preventing, the harmful effects of climate change on children and communities will require reducing greenhouse gas emissions and reliance on private transportation, implementing local climate action plans, switching to energy efficient appliances, and aiming for carbon neutrality. To reach the state's 2030 targets for reducing emissions, **California needs to triple the rate it has been cutting greenhouse gases since 2010**. Currently, it will take until almost 2050.

If passed in November by voters, Proposition 4 (the Climate Bond) will help Californians prepare for wildfires and extreme heat, strengthen agricultural resilience and local food systems, create parks and improve access to the outdoors, ensure safer drinking water, and much more. Proposition 2 (the School Infrastructure Bond), if approved, will also deliver much needed funding for school modernization and infrastructure, including energy efficiency, air filtration system upgrades, and drinking water lead testing and remediation. In the meantime, there are myriad ways for the health sector to target resources for climate and environmental justice solutions.

Many local health departments will be forced to address the health effects of climate change, but a recent survey found that 90% of public health departments across the country have no full-time staff dedicated to climate change and 69% do not provide any education or outreach on the health risks of climate change.82 There is an urgent need to invest in a climate-ready and environmental justice-informed public health system in California, which can leverage programs and services to keep kids and communities healthy.

From hospitals to child care centers, climate change and environmental justice issues will continue to shape children's health outcomes in nearly every setting and sector. California should lead the way in ensuring that health and environmental justice are tackled in tandem, so that children can grow up healthy and enjoy a greener, cleaner planet.

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Endnotes

1 https://www.unicef.org/media/159341/file/A_Threat_to_Progress_2307.pdf

2 https://www.nejm.org/doi/full/10.1056/NEJMsb2213250

3 https://www.lung.org/clean-air/outdoors/who-is-at-risk

4 https://first5center.org/publications/support-for-native-american-infants-toddlers-and-their-families-in-california#chapter125727

5 https://css.umich.edu/publications/factsheets/sustainability-indicators/environmental-justice-factsheet

6 https://harvardcenter.wpenginepowered.com/wp-content/uploads/2023/03/HCDC_WP16_R2A.pdf

7 All lands under the control of federally recognized tribes

8 https://www.kff.org/racial-equity-and-health-policy/issue-brief/climate-related-health-risks-among-workers-who-is-at-increased-risk/#:~:text=Over%20half%20of%20Hispanic%20(58,with%2039%25%20of%20White%20workers.

9 https://www.healthaffairs.org/doi/10.1377/hlthaff.2020.01247

10 https://news.blueshieldca.com/2023/07/19/study-blue-shield-virtual-care-pilots-reduced-carbon-emissions-water-use

11 https://www.mathematica.org/download-media?MediaItemId=%7B91EDC563-DC79-4308-8E5B-6BE9AF050198%7D

12 https://www.wsha.org/wp-content/uploads/2022-WSHA_MQI-Guidelines_06022022_Final.pdf

13 https://s3.amazonaws.com/cms.ipressroom.com/395/files/20243/BSC+Sustainability+1-pager+v13TRUE.FINAL.pdf

14 spending

15 https://us.noharm.org/media/4232/download?inline=1

16 https://airqualitynews.com/health/how-will-environmental-data-revolutionise-childrens-healthcare/

17 https://www.insurance.ca.gov/01-consumers/180-climate-change/upload/Impacts-of-extreme-heat-to-California-s-people-infrastructure-and-economy-by-California-Department-of-Insurance-June-2024.pdf

18 https://www.epa.gov/climate-indicators/climate-change-indicators-heat-related-deaths

19 https://www.scientificamerican.com/article/heat-waves-affect-children-more-severely/

20 https://www.epa.gov/heatislands/heat-islands-and-equity

21 https://www.noaa.gov/news-release/federal-agencies-communities-to-map-heat-inequities-in-14-us-cities

22 https://oehha.ca.gov/media/downloads/risk-assessment/report/childrencenterlegreport082619.pdf

23 https://link.springer.com/article/10.1007/s40572-022-00345-9

24 https://www.aeaweb.org/articles?id=10.1257/pol.20180612

25 https://www.hsph.harvard.edu/news/hsph-in-the-news/opinion-how-to-mitigate-climate-changes-impact-on-allergies/

26 AB 586 (Calderon) would have added climate supports and environmental remediation devices to the list of Community Benefits offered through CalAIM, but the bill failed in 2023.

27 https://www.lung.org/research/sota/city-rankings/states/california

28 https://www.lung.org/research/sota/health-risks

29 https://www.apha.org/-/media/files/pdf/topics/climate/asthma_allergies.pdf

30 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4914465/#:~:text=Childhood%20asthma%20is%20a%20leading,million%20missed%20school%20days%20annually.&text=Asthma%2Drelated%20school%20absenteeism%20affects,especially%20among%20urban%20minority%20youth.

31 https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHIB/CPE/CDPH%20Document%20Library/Asthma_Surveillance_in_CA_Report_2017.pdf

32 https://ww2.arb.ca.gov/resources/documents/childrens-health-study

33 https://pubmed.ncbi.nlm.nih.gov/31837461/#:~:text=Results%3A%20715%20respondents%20represent%20an,not%20significant%20for%20any%20absenteeism.

34 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7502220/

35 https://www.liifund.org/perspective/why-child-care-must-be-part-of-any-conversation-around-the-climate-emergency/ and http://blog.csba.org/category/climate/

36 https://www.tpl.org/the-heat-is-on

37 https://lacountyparkneeds.org/wp-content/uploads/2016/06/FinalReport.pdf

38 https://www.childrennow.org/wp-content/uploads/2024/02/big-feelings-report.pdf

39 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4556255/

40 https://www.childrennow.org/wp-content/uploads/2024/02/big-feelings-report.pdf

41 https://static1.squarespace.com/static/57682b81725e25259d8396e3/t/6438bc332c18d829a5c-0bc10/1681439805834/23-04-13_Taking+Schoolyard+Forests+to+Scale.pdf

42 https://divisionofresearch.kaiserpermanente.org/green-space-health-care-costs/

43 https://static1.squarespace.com/static/57682b81725e25259d8396e3/t/6438bc332c18d829a5c-0bc10/1681439805834/23-04-13_Taking+Schoolyard+Forests+to+Scale.pdf

44 https://experience.arcgis.com/experience/fd36cb241343489d98737a02f53ddd2b/#data_s=id%3AdataSource_2-18e345823b5-layer-23%3A1440

45 https://e7jecw7o93n.exactdn.com/wp-content/uploads/2022/09/Green-schoolyards-for-Los-Angeles-A-Trust-for-Public-Land-special-report.pdf

46 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10262297/

47 https://calmatters.org/environment/2023/10/california-synthetic-turf-pfas/

48 https://www.atsdr.cdc.gov/csem/leadtoxicity/physiological_effects.html

49 https://www.childrennow.org/wp-content/uploads/2023/10/cehm-lead-factsheet-final.pdf

50 https://www.gao.gov/blog/danger-lead-paint-hazards-two-hud-programs

51 https://www.gov.ca.gov/2024/09/22/governor-newsom-issues-legislative-update-9-22-24/

52 https://www.ewg.org/news-insights/news-release/2023/05/1-4-california-child-care-centers-found-have-alarming-levels

53 https://www.childrennow.org/portfolio-posts/preventive-services-for-kids-in-medi-cal/

54 https://www.eea.europa.eu/publications/emerging-chemical-risks-in-europe

55 https://www.ewg.org/news-insights/news-release/2024/05/new-epa-data-confirm-widespread-forever-chemicals-drinking-water

56 https://www.epa.gov/wildfire-smoke-course/why-wildfire-smoke-health-concern#:~:text=Effects%20to%20Exposure-,Wildfire%20Smoke:%20A%20Complex%20Mixture,related%20activities%2C%20such%20as%20wildfires.

57 https://oaklandside.org/2024/08/23/lead-contamination-oakland-schools-guide/

58 https://earthjustice.org/feature/pfas-chemicals-epa-roadmap

59 https://www.panna.org/news/pesticides-climate-change-a-vicious-cycle/

60 https://www.panna.org/news/pesticides-climate-change-a-vicious-cycle/

61 https://www.panna.org/wp-content/uploads/2023/02/202301ClimateChangeEngFINAL.pdf

62 https://nchh.org/information-and-evidence/learn-about-healthy-housing/health-hazards-prevention-and-solutions/pesticides/

63 https://www.nature.com/articles/s41370-024-00708-4?utm_source=rct_congratemailt&utm_medium=email&utm_campaign=oa_20240910&utm_content=10.1038/s41370-024-00708-4

64 https://www.panna.org/resources/pesticides-and-children/#:~:text=The%20science%20leaves%20little%20room,spectrum%20disorder%2C%20ADHD%20and%20cancer.

65 https://www.pesticidereform.org/schools/#:~:text=Roughly%20500%2C000%20California%20children%20attend,of%20the%20most%20impacted%20schools.

66 https://www.pesticidereform.org/wp-content/uploads/2021/03/Schools-reg-letter-to-DPR-March-2021.pdf

67 https://www.cafoodbanks.org/hunger-data-reports/

68 https://www.cafoodbanks.org/hunger-data-reports/

69 https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.2015.0645

70 https://journals.lww.com/greenjournal/abstract/2020/05001/unmet_social_needs_in_the_prenatal_period__effects.590.aspx

71 https://go.childrennow.org/2024-california-childrens-report-card

72 https://www.dhcs.ca.gov/Documents/MCQMD/May-Community-Supports-Spotlight-Medically-Tailored-Meals.pdf

73 https://calwic.org/wp-content/uploads/2021/07/Expanding-Access-to-WIC-Through-Horizontal-Integration_07_21.pdf

74 https://ccf.georgetown.edu/2024/06/13/state-use-of-section-1115-waivers-to-support-the-health-related-social-needs-of-pregnant-and-postpartum-women-infants-and-young-children/

75 https://www.nationalhealthcorps.org/host-site/san-francisco-health-network-food-pharmacy-food-medicine-collaborative#:~:text=Food%20As%20Medicine%20seeks%20to,community%20clinics%20in%20San%20Francisco.

76 https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196%2823%2900104-3/fulltext#:~:text=In%20a%20qualitative%20narrative%20synthesis,studies)%2C%20and%20worse%20outcomes%20for

77 https://news.blueshieldca.com/2022/04/21/new-poll-finds-climate-change-is-taking-a-toll-on-gen-z-mental-health-while-also-inspiring-youth-to-take-action

78 These testimonials were collected by Children Now from youth across California in August 2024.

79 https://pubmed.ncbi.nlm.nih.gov/38598238/

80 https://calmatters.org/health/mental-health/2023/10/climate-change-california-youth-mental-health/

81 https://www.ebparks.org/programs/hphp/shine

82 https://www.naccho.org/uploads/downloadable-resources/Are-We-Ready-2024-7-18-Final.pdf

Children Now delivers uplifting and lasting change for California's kids by connecting people and policy.

We conduct non-partisan research, policy development, and advocacy reflecting a whole-child approach to improving the lives of kids, especially kids of color and kids living in poverty, from prenatal through age 26.

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