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Underutilized Community Health Needs Assessments: Four Environmental Actions for Hospitals that Improve Community Health

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Underutilized Community Health Needs Assessments: Four Environmental Actions for Hospitals that Improve Community Health

Warren G. Lavey[†]

Abstract

Tax-exempt hospitals' community health needs assessments ("CHNAs") provide an underutilized resource for healthcare organizations and communities. These studies and action commitments, which the Affordable Care Act ("ACA") requires, are linked to financial incentives for hospitals to manage population health. To comply with the ACA, CHNAs engage hospital administrators, public-health departments, and some community members. They provide an important opportunity for hospitals to analyze measures, plan remedial strategies, and act to improve health services, behaviors, and community conditions. Unfortunately, many community decision-makers and environmental advocates are unaware of the requirements that the law imposes on tax-exempt hospitals and thus do not take advantage of these vehicles for improving local environmental health. When hospitals choose strategies for addressing community health needs, they should adopt four environmental actions: improving air quality by reducing hospitals' energy consumption; mitigating threats from toxins by expanding alerts in hospital-information and quality-control systems; increasing health literacy by integrating into patient and community decisions the local health impacts of climate change; and sharing data and analyses with community planners and environmentalists for health-impact assessments of parks and trails to decrease obesity.

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I. Introduction

Pursuant to the ACA¹ and the Treasury Department regulations adopted in 2014,² tax-exempt hospitals must develop community health needs assessments.³ After engaging with public-health departments and community members to analyze health needs and resources in the communities they serve, hospitals must prioritize a few health needs for remedial actions and implement strategies for improving those conditions in the hospital facility or community.⁴ The ACA requires that hospitals

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1. Public Law 111–148 (124 Stat. 119 (2010)), Section 9007(a) (added Section 501(r) to the Internal Revenue Code).
 2. Department of the Treasury, “Additional Requirements for Charitable Hospitals; Community Health Needs Assessments for Charitable Hospitals”, 79 Fed. Reg. 78954 (Dec. 31, 2014) (to be codified at 26 CFR §1.501(r)–3) [hereinafter, Treasury Regs.].
 3. Treasury Regs., *supra* note 2, at §1.501(r)–3(b)(4). (The Treasury Department’s regulations establish criteria for the contents and process of developing CHNAs. Authorized bodies of hospital facilities must adopt reports that assess the health needs of the communities they serve. Among the criteria for CHNAs’ contents are: “[A] hospital facility must identify significant health needs of the community, prioritize those health needs, and identify resources (such as organizations, facilities, and programs in the community, including those of the hospital facility) potentially available to address those health needs. For these purposes, the health needs of a community include requisites for the improvement or maintenance of health status both in the community at large and in particular parts of the community (such as particular neighborhoods or populations experiencing health disparities). These needs may include, for example, the need to address financial and other barriers to accessing care, to prevent illness, to ensure adequate nutrition, or to address social, behavioral, and environmental factors that influence health in the community. A hospital facility may determine whether a health need is significant based on all of the facts and circumstances present in the community it serves. In addition, a hospital facility may use any criteria to prioritize the significant health needs it identifies, including, but not limited to, the burden, scope, severity, or urgency of the health need; the estimated feasibility and effectiveness of possible interventions; the health disparities associated with the need; or the importance the community places on addressing the need.”).
 4. See Julia James, *Health Policy Brief: Nonprofit Hospitals’ Community Benefit Requirements*, HEALTH AFFAIRS 3 (Feb. 25, 2016), http://healthaffairs.org/healthpolicybriefs/brief_pdfs/healthpolicybrief_153.pdf Sara Rosenbaum, *Hospitals as Community Hubs: Integrating Community Benefit Spending, Community Health Needs Assessment, and Community Health Improvement*, 2016 ECON. STUD. AT BROOKINGS 1, 4 (Mar. 2016), available at: <http://www.brookings.edu/~media/Research/Files/Papers/2016/03/09-hospitals-as-community-hubs-rosenbaum/Rosenbaum-PDF-Layout-FINAL.pdf?la=en>; Sara Rosenbaum, *Additional Requirements for Charitable Hospitals: Final Rules on Community Health Needs Assessments and Financial Assistance*, HEALTH AFFAIRS BLOG (Jan. 23, 2015), <http://healthaffairs.org/blog/2015/01/23/additional-requirements-for->

produce triennial needs assessments, implementation plans, and annual progress reports.⁵

CHNAs should be seen in the context of relevant public policies, not merely as a reporting mandate. As part of an effort to slow the growth of healthcare spending, the ACA provides incentives for healthcare organizations to manage the health of the populations they serve.⁶ Additionally, tax-exempt hospitals must provide community benefits beyond charity care, with a focus on preventive measures.⁷ Requiring hospitals to assess and address community health needs should improve population health and strengthen preventive measures.

Treasury Department regulations broadly define community health needs to include “social, behavioral, and environmental factors,” and give hospitals substantial discretion in identifying, prioritizing, and addressing these needs.⁸ These factors in the CHNA rules align with the Institute of

charitable-hospitals-final-rules-on-community-health-needs-assessments-and-financial-assistance/; Mary Crossley, *Health and Taxes: Hospitals, Community Health and the IRS*, 16 YALE J. HEALTH POL’Y, L. & ETHICS 51, 51 (2016); BUILD HEALTHY PLACES NETWORK, SUMMARIZING THE LANDSCAPE OF HEALTHY COMMUNITIES 8 (2016) (“the Affordable Care Act of 2010 catalyzed coordinated healthy communities’ efforts across sectors through its focus on healthcare access, preventive health and its new requirements for hospitals to engage with and reinvest in the communities they serve”).

5. 26 C.F.R. §1.501(r)–3(b); see 26 U.S.C. §6033(b)(15)(A); 26 U.S.C. §4959 (imposing a \$50,000 excise tax on a hospital organization that fails to meet the CHNA requirements).
6. See Daniel B. Rubin et al., *Tax-Exempt Hospitals and Community Benefit: New Directions in Policy and Practice*, 36 ANN. REV. OF PUB. HEALTH 545, 554 (2015); Gary J. Young et al., *Provision of Community Benefits by Tax-Exempt U.S. Hospitals*, 368 NEW ENG. J. MED. 1519, 1520 (2013); Stephen M. Shortell et al., *The Contribution of Hospitals and Health Care Systems to Community Health*, 30 ANN. REV. OF PUB. HEALTH 373, 374-75 (2009).
7. Before the Treasury Department adopted the CHNA rules, two state court decisions found that specific hospitals’ community benefits were inadequate for their tax exemption. See *Utah Cty. v. Intermountain Health Care, Inc.*, 709 P.2d 265, 278 (Utah 1985) (“We cannot find, on this record, the essential element of gift to the community, either through the nonreciprocal provision of services or through the alleviation of a government burden, and consequently we hold that the defendants have not demonstrated that their property is being used exclusively for charitable purposes under the Utah Constitution.”); *Provena Covenant Med. Ctr. v. Dep’t of Revenue*, 925 N.E.2d 1131, 1151-52 (2010) (“The minimal amount of free and discounted care provided at the [Provena Covenant Medical Center] cannot be excused under the theory that aid to indigent persons is not a prerequisite to charity The volunteer classes and services cited by Provena Hospitals included such items as free health screenings, wellness classes, and classes on handling grief. Again, while beneficial to the community, they were not necessarily charitable.”).
8. 26 CFR §1.501(r)–3(b)(4), Treasury Regs, *supra* note 2, at 78963 (“Numerous commenters asked for clarification that the term ‘health needs’ also encompasses needs in addition to access to care, such as access to proper nutrition and housing,

Medicine's conclusion that, because social and environmental conditions are the primary determinants of public health, improving population health requires actions to address these conditions.⁹

According to the Treasury Department, CHNAs require about three thousand hospitals to devote over 400,000 hours annually and engage public-health authorities and community members in their efforts.¹⁰ An initiative of this size and scope calls for an evaluation of whether CHNAs are reasonably directed and whether the resulting resources are effectively utilized. Several studies show that, unfortunately, CHNAs are not only underutilized in promoting population health, but also miss low-hanging fruit for improving environmental determinants of health.

One study of ninety-five Texas CHNAs found that, of the 473 health priorities identified, only five percent addressed environmental and other community conditions, while almost fifty percent focused on access to care and other health-system factors.¹¹ The study observed, however, that clinical measures, such as access to and quality of care, contribute little to population health when compared to community conditions.¹² Similarly, a study of thirty-eight Georgia CHNAs found that only thirty-four percent collected data on environmental health indicators, such as public safety, transportation, parks, pollution, and water quality, and that no hospital "prioritized health needs related to physical environment, such as improving housing or building parks."¹³ After finding no CHNA-implementation strategies addressing the physical environment in seventy-two North Carolina hospitals, another study recommended that hospitals shift their focuses toward more preventive components in health

the mitigation of social, environmental, and behavioral factors that influence health, or emergency preparedness. In response to these comments, the final regulations expand the examples of health needs that a hospital facility may consider in its CHNA to include not only the need to address financial and other barriers to care but also the need to prevent illness, to ensure adequate nutrition, or to address social, behavioral, and environmental factors that influence health in the community."); see also SARA ROSENBAUM, PRINCIPLES TO CONSIDER FOR THE IMPLEMENTATION OF A COMMUNITY HEALTH NEEDS ASSESSMENT PROCESS 6 (2013).

9. See COMM. ON INTEGRATING PRIMARY CARE & PUBLIC HEALTH ET AL., PRIMARY CARE AND PUBLIC HEALTH: EXPLORING INTEGRATION TO IMPROVE POPULATION HEALTH 19 (2012) (please note, the National Academy of Medicine is the successor to the Institute of Medicine).
10. Treasury Regs, *supra* note 2, at 78955-56.
11. Cara L. Pennel et al., *Community Health Needs Assessment: Potential for Population Health Improvement*, 19 POPULATION HEALTH MGMT. 178, 181 (2015).
12. *Id.* at 184.
13. GEORGIA WATCH HEALTH ACCESS PROGRAM, NONPROFIT HOSPITAL COMMUNITY HEALTH NEEDS ASSESSMENTS IN GEORGIA 17 (2015) [hereinafter Georgia Watch], <http://www.georgiawatch.org/wp-content/uploads/2015/06/Formatted-CHNA-Report-06022015-FINAL.pdf>; *Id.* at 29.

behaviors, social and economic factors, and physical environment.¹⁴ A fourth study of forty-four hospitals listing 212 priorities found no priorities in the physical-environment category, compared to 142 in the clinical-care category.¹⁵ Finally, a nationwide study of more than 1500 tax-exempt hospitals found that in 2013, only about half of the hospitals partnered with community stakeholders—including local health departments more focused on community conditions—in developing a community-wide CHNA implementation plan and that hospitals serving low-income communities made less progress on CHNA implementation and population health improvement.¹⁶

Realistically, hospitals cannot be expected to focus their resources on or remedy various underlying socioeconomic and infrastructure risks to community health, such as poverty and unsafe neighborhoods. Some hospitals already engage in improving local environmental determinants of health, in part by partnering with environmentalists and community organizations in CHNAs and remedial actions.¹⁷ On the other hand, many hospitals could reasonably undertake more actions to improve their communities' environmental health.

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14. See NETWORK FOR PUB. HEALTH LAW, REVIEW OF NORTH CAROLINA HOSPITALS' COMMUNITY HEALTH NEEDS ASSESSMENTS AND IMPLEMENTATION STRATEGIES 4 (2014); *id.* at 9.
 15. PUB. HEALTH INST., SUPPORTING ALIGNMENT AND ACCOUNTABILITY IN COMMUNITY HEALTH IMPROVEMENT: THE DEVELOPMENT AND PILOTING OF A REGIONAL DATA-SHARING SYSTEM 65 (2014) [hereinafter, Public Health Institute], <http://nnphi.org/wp-content/uploads/2015/08/SupportingAlignmentAndAccountabilityInCommunityHealthImprovement.pdf>.
 16. G. Cramer et al., *The Progress of US Hospitals in Addressing Community Health Needs*, 107 AM. J. PUB. HEALTH 255, 259-60 (2017) ("Hospitals located in communities with substantial socioeconomic challenges may be overwhelmed by the volume and extent of the community's needs, which leads to inaction. Also, hospitals that serve relatively high levels of uninsured individuals may be focused on meeting charity care goals for patient care services, leaving little time or resources to focus on population health improvement.").
 17. See HEALTH CARE WITHOUT HARM & PRACTICE GREENHEALTH, LEVERAGING HOSPITAL COMMUNITY BENEFIT ACTIVITIES TO ADDRESS CLIMATE CHANGE AND ENVIRONMENTAL RISKS 8 (Working Version, Mar. 2016), <https://noharm-uscanada.org/sites/default/files/documents-files/4031/Leveraging%20Hospital%20Community%20Benefits%20to%20Address%20Climate%20Change.pdf> ("Health care systems across the country are working to improve both patient and community health using a wide range of tools that include healthier sustainable food, active transportation, environmental risk reduction, energy efficiency and solar energy projects, housing and economic development, and access to care . . . Each of these projects addresses a health priority . . . and also helps to reduce climate or environmental risks."); Barbara Ray, *A New Responsibility for Children's Hospitals: The Health of Neighborhoods*, CROSSWALK, <https://medium.com/bhpn-crosswalk/a-new-responsibility-for-childrens-hospitals-the-health-of-neighborhoods-257107d6051f> (last visited Apr. 1, 2017).

In the context of addressing priority community health needs, I propose strategies through which hospitals could feasibly address four local environmental conditions that significantly determine population health: (a) air quality—use less and cleaner energy in hospitals’ operations; (b) exposure to toxins—expand alerts for environmental threats in hospitals’ information- and quality-control systems; (c) health literacy—integrate into patient and community decisions the local health impacts of climate change; and (d) obesity—share hospitals’ CHNA data and analyses with community planners and environmentalists to support health-impact assessments (“HIAs”) of local parks and trails. This article describes how these actions build on CHNAs’ processes for data gathering and analysis, information collected, and objectives.

Table 1 summarizes the proposed strategies.

Community-Health Concern	Leading Health Outcomes	Approaches in Some Implementation Plans	Proposed Actions by Hospitals
Hazardous air pollutants	Respiratory and cardiovascular illness ¹⁸	Improving home indoor air quality; ¹⁹ advocating for regulations ²⁰	Decrease energy use in healthcare operations; use clean energy sources
Exposure to toxins	Cancers, ²¹ neurological damage, ²²	Advocating for actions by other organizations ²⁴	Expand alerts in hospital systems to detect outbreaks

18. See *Health and Environmental Effects of Particulate Matter (PM)*, U.S. ENVTL. PROTECTION AGENCY (EPA), <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm> (last visited Mar. 24, 2017); *Fact Sheet: Ambient (Outdoor) Air Quality and Health*, WORLD HEALTH ORG. (updated Sept. 2016), <http://www.who.int/mediacentre/factsheets/fs313/en/>.
19. See e.g., CHICAGO DEP’T PUB. HEALTH, CHICAGO HOSPITALS AND THE AFFORDABLE CARE ACT: MORE OPPORTUNITIES FOR PREVENTION 14 (Mar. 2015), https://www.cityofchicago.org/content/dam/city/depts/cdph/statistics_and_reports/ChicagoHospitalsandACAReport2015.pdf.
20. See e.g., ST. MARY MEDICAL CTR., COMMUNITY BENEFIT 2015 REPORT AND 2016 PLAN 13 (2015).
21. See AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, *Health Effects of Chemical Exposure*, U.S. DEP’T HEALTH & HUMAN SERVS. 2, available at <https://www.atsdr.cdc.gov/emes/public/docs/health%20effects%20of%20chemical%20exposure%20fs.pdf>.
22. See *id.* at 3; see also U.S. ENVTL. PROT. AGENCY, *Cyanobacteria and Cyanotoxins: Information for Drinking Water Systems* 3, available at https://www.epa.gov/sites/production/files/2014-08/documents/cyanobacteria_factsheet.pdf.
24. See CHATHAM HOSPITAL, COMMUNITY HEALTH NEEDS ASSESSMENT 7 (2013) <http://www.chathamhospital.org/app/files/public/4918/pdf-chatham-chna-needsassessment.pdf>.

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	respiratory and cardiovascular illness ²³		and clusters related to environmental toxins
Inadequate health literacy	Using less effective and more expensive care ²⁵	Interpretation services; ²⁶ community health fairs; ²⁷ classes on prenatal care and other topics ²⁸	Develop capacity of patients and community planners to make decisions reflecting local health impacts of climate change
Obesity	Diabetes, ²⁹ hypertension, ³⁰ heart disease, ³¹ stroke ³²	Communications on healthy eating and exercise; ³³ support for community programs ³⁴	Share CHNA analyses with community planners and environmentalists in HIAs for local parks and trails

Table 1. Four Environmental Strategies Addressing Common Community Health Needs.

23. AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, *supra* note 21, at 2; U.S. ENVTL. PROT. AGENCY, *supra* note 22; *see also Hazard Alert: Diesel Exhaust/Diesel Particulate Matter*, U.S. DEP'T OF LABOR, https://www.osha.gov/dts/hazardalerts/diesel_exhaust_hazard_alert.html (last visited Feb. 5, 2017).

25. *See* Robert John Adams, *Improving Health Outcomes with Better Patient Understanding and Education*, 3 RISK MGMT. & HEALTHCARE POLICY 61, 64 (Oct. 2010).

26. *See e.g.*, SANDOVAL REGIONAL MEDICAL CTR., INC., COMMUNITY HEALTH NEEDS ASSESSMENT IMPLEMENTATION PLAN 2016-2019 (2016); JOHNS HOPKINS HOSPITAL, JOHNS HOPKINS HOSPITAL IMPLEMENTATION STRATEGY 7 (2013), <http://web.jhu.edu/administration/gca/CHNA%20and%20CBR%20Docs/Implementation%20Strategy%20FY13.pdf>.

27. *See e.g.*, BARNES JEWISH HOSPITAL, COMMUNITY HEALTH NEEDS ASSESSMENT REPORT AND IMPLEMENTATION PLAN (2014).

28. *Id.*

29. *The Health Effects of Overweight and Obesity*, CTRS. DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/healthyweight/effects/> (last updated June 5, 2015).

30. *Id.*

31. *Id.*

32. *Id.*

33. *See e.g.*, JOHNS HOPKINS, *supra* note 26, at 9; KAISER FOUND. HOSPITAL-IRVINE, 2013 IMPLEMENTATION STRATEGY FOR COMMUNITY HEALTH NEEDS 12 (Sept. 13, 2013).

34. *See e.g.*, JOHNS HOPKINS, *supra* note 26, at 9; KAISER FOUND. HOSPITAL-IRVINE, *supra* note 33, at 116-17.

The CHNA process should not be limited to describing county health indicators, increasing access to care, and supporting national health programs, as has too often been the case. Instead, environmentalists, community planners, and other stakeholders should use the assessment and prioritization of community health needs, along with the design and implementation of strategies for meeting those needs, to garner attention and support for reasonable hospital initiatives that improve local environmental determinants of community health.

II. Four Environmental Actions for Hospitals

A. Improving Air Quality—Energy Used by Hospitals

CHNAs often consider county air-quality indicators related to respiratory, cardiovascular, and other illnesses.³⁵ One common indicator is the number of days per year in which the county's fine-particulate-matter or ozone concentration exceeds state or national averages or standards.³⁶ In some instances, hospitals commit to advocating for policies intended to make the air cleaner, especially in vulnerable communities,³⁷ or to supporting interventions to improve residential indoor air quality.³⁸ Mostly, hospitals determine that they lack the expertise and resources to address the community health need for better ambient air quality.³⁹

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35. See e.g., Tammy Cronin, *At the Intersection of Air Quality and Health*, VALLEY VISION (Sept. 28, 2016) <http://valleyvision.org/newsmusings/at-the-intersection-of-air-quality-and-health> (analyzing 17 CHNAs in the Sacramento, California region) ("Several of the region's priority health needs intersect with air quality. Pollution-Free Living and Work Environments is the health need most obviously connected with air quality. But there are other intersections as well. For example, when air quality is poor the need for 'Active Living and Health[y] Eating' is impacted because sensitive groups – including seniors, children, and expectant mothers – aren't able to participate in active outdoor activities that would otherwise be of benefit to their health. In the health need labeled 'Disease Prevention, Management, and Treatment' poor air quality manifests in health indicators such as 'percentage of adults with asthma' and 'asthma-related visits to the emergency room.'").
36. See HOSPITAL COUNCIL OF NORTHERN & CENTRAL CALIFORNIA, COMMUNITY HEALTH NEEDS ASSESSMENT: FRESNO, KINGS, MADERA AND TULARE COUNTIES 26-27 (Mar. 2013).
37. See ST. MARY MEDICAL CENTER, *supra* note 20, at 9-10.
38. See CHICAGO DEP'T OF PUB. HEALTH, *supra* note 19, at 14.
39. HOSPITAL COUNCIL OF NORTHERN & CENTRAL CALIFORNIA, *supra* note 36, at 49-50; DIGNITY HEALTH ST. MARY MED. CTR., CMTY. HEALTH IMPLEMENTATION STRATEGY 2016-2018, at 10-12 (2016). Compare SAINT AGNES MED. CTR., CMTY. HEALTH NEEDS ASSESSMENT 5, 124-26 (2016) ("Breathing problems, most notably the chronic condition of asthma, are inextricably linked to climate and environmental conditions that have unique impact throughout the four counties. The selection of Access to Care and Breathing Problems (Asthma) responds to the need for healthcare to fully recognize the underlying factors that undermine access to care and exacerbate breathing problems in the region When participants were asked to identify

When designing CHNA-improvement strategies, many hospitals ignore their ability to improve community air quality by decreasing the energy used for their own operations and by using cleaner energy. Healthcare facilities use a substantial amount of energy.⁴⁰ Direct energy uses include powering equipment for lighting; heating, chilling, and distributing water; heating, cooling, humidifying and circulating air; processing and transmitting information; and providing food services.⁴¹ Indirect energy uses include water utilities, providers of trucking and other transportation of products and people, construction services, waste-disposal services, and suppliers of items used in hospital operations.⁴² Electricity-generating plants are major sources of particulate matter, ozone, and other air toxins.⁴³ Emissions from coal and, to a lesser extent, natural-gas power plants harm human health locally and up to hundreds of miles away.⁴⁴ Tailpipe emissions

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- three biggest obstacles to having a healthy environment, air pollution was raised as a core concern.”), with SAINT AGNES MED. CTR., CMty. HEALTH NEEDS ASSESSMENT IMPLEMENTATION STRATEGY FISCAL YEARS 17-19, at 3 (“Saint Agnes will not take action on the following health need: Breathing Problems (Asthma) – Local organizations are focused on this topic and interventions associated with it. [Saint Agnes Medical Center] will remain engaged in community coalitions and collaborations around this topic and offer insight/support when appropriate, but will not specifically address asthma.”).
40. *Better Buildings Alliance: Sectors*, U.S. DEP’T ENERGY, <https://betterbuildingssolutioncenter.energy.gov/alliance/sectors/private/healthcare> (last visited Feb. 24, 2017) (stating that healthcare facilities spend more than \$11.5 billion on energy annually); See Press release, U.S. Evtl. Protection Agency, EPA Updates ENERGY STAR Tool to Support Greater Energy Efficiency in Hospitals (Nov. 7, 2011), <https://www.energystar.gov/about/content/epa-updates-energy-star-tool-support-greater-energy-efficiency-hospitals> (“Improving the energy efficiency of America’s hospitals by 10% would save 7.3 billion kilowatt-hours of electricity, 243 million therms of natural gas each year, and about \$740 million annually in energy bills. It would also prevent greenhouse gas emissions equal to that from the annual electricity use of over 712,000 homes.”).
41. See *Direct and Indirect Energy Consumption by Source*, FENRIAM, <http://www.fenriam.eu/direct-and-indirect-energy-consumption-by-source.html> (last visited Mar. 13, 2017).
42. See *id.*
43. See *Mercury and Air Toxics Standards: Cleaner Power Plants*, U.S. ENVTL. PROTECTION AGENCY, <https://www.epa.gov/mats/cleaner-power-plants> (last updated June 10, 2016).
44. See U.S. ENVTL. PROTECTION AGENCY, REGULATORY IMPACT ANALYSIS FOR THE CLEAN POWER PLAN FINAL RULE 16-19 (2015), <https://www.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf>; NAT’L RES. COUNCIL, HIDDEN COSTS OF ENERGY: UNPRICED CONSEQUENCES OF ENERGY PRODUCTION AND USE 82-94, 117-23 (2010); Charles T. Driscoll et al., *US Power Plant Carbon Standards and Clean Air and Health Co-Benefits*, 5 NATURE CLIMATE CHANGE 535, 535 (2015); ERICA BURT ET AL., SCIENTIFIC EVIDENCE OF HEALTH EFFECTS FROM COAL USE IN ENERGY GENERATION 2-3 (2013),

from hospitals' vehicles, along with their passenger- and freight-transportation providers, also pollute their communities' air.⁴⁵

Peer-reviewed health impact calculators are available to estimate the public-health benefits arising from reducing a hospital's energy consumption.⁴⁶ In one case study, a Midwestern health system used 29.5 million kilowatt hours ("kWh") of electricity annually, which it purchased from the regional grid.⁴⁷ The health-impact calculator estimated that the air pollutants created when generating energy for this hospital were associated with high health costs to its community and region, including seven asthma attacks, 342 incidents of respiratory symptoms, and sixty-three work-loss days annually, as well as one premature mortality and one emergency-room visit every three years.⁴⁸ If the hospital cut its energy usage or switched to clean energy, a ten percent reduction in emissions from the hospital's electricity consumption would yield for the community and region an estimated \$265,000 in annual societal value, including \$31,000 in medical and other cost savings, according to this impact calculator.⁴⁹

Many hospitals already apply energy audits, benchmarking tools, certification programs, and other guidance to reduce their energy

https://noharm-uscanada.org/sites/default/files/documents-files/828/Health_Effects_Coal_Use_Energy_Generation.pdf.

45. See *Transportation*, AM. C. PHYSICIANS, https://www.acponline.org/system/files/documents/advocacy/advocacy_in_action/climate_change_toolkit/transportation.pdf; see also *Seattle Hospital's Move to Propane Fleet Maximizes Savings, Sustainability*, METRO (Jul. 29, 2013), <http://www.metro-magazine.com/accessibility/news/290780/seattle-hospital-s-move-to-propane-fleet-maximizes-savings-sustainability>.
46. See e.g., *Healthcare Energy Impact Calculator*, PRACTICE GREENHEALTH, <http://www.eichealth.org> (last visited Mar. 24, 2017).
47. PRACTICE GREENHEALTH, ENERGY IMPACT CALCULATOR W1.0: MID-WESTERN HEALTH SYSTEM CASE STUDY 1, *available at* <http://www.eichealth.org/docs/eic%20midwestern%20case%20study1.pdf>.
48. *Id.* at 1.
49. *Id.*; see also SUSAN KAPLAN ET AL., CAN SUSTAINABLE HOSPITALS HELP BEND THE HEALTH CARE COST CURVE? 1-2 (Commonwealth Fund, vol.29, Nov. 2012) ("As part of a preventive approach to controlling chronic disease, increasing numbers of hospitals have committed to minimizing the adverse environmental effects of their operations on patients, staff, and the community, serving as role models for the health sector and society at large We standardized metrics and extrapolated to project national savings were all U.S. hospitals to implement such greening activities. Our conclusion is that these savings could exceed \$5.4 billion over five years, and \$15 billion over 10 years.").

consumption,⁵⁰ in some cases to comply with municipal ordinances.⁵¹ Some successful hospital initiatives include installing energy-efficient lighting, occupancy sensors, and low-flow plumbing fixtures; retro-commissioning existing building equipment and systems; training staff on behavioral changes; buying low-emission vehicles; and applying environmental standards in selecting suppliers and products.⁵² Some healthcare facilities have achieved energy savings of ten percent or more after undertaking these initiatives.⁵³ Often, actions that reduce energy usage also save money for healthcare facilities, improve patient care through infection control, and increase employee safety and satisfaction.⁵⁴ In addition to cutting energy usage, healthcare facilities can decrease their harmful air emissions by

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50. See e.g., *ENERGY STAR Score for Hospitals in the United States*, U.S. ENVTL. PROTECTION AGENCY (Nov. 2014), https://www.energystar.gov/sites/default/files/tools/Hospital_US_0.pdf; *Better Buildings, Sector: Healthcare*, U.S. DEP'T. ENERGY, <http://betterbuildingssolutioncenter.energy.gov/alliance/sector/healthcare> (last visited Feb. 24, 2017); *What is Sustainability*, U.S. GEN. SERVS. ADMIN., <https://sftool.gov/learn/about/41/sustainability> (last visited Mar. 13, 2017); *LEED*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/leed> (last visited Mar. 13, 2017); See *Hospital Member Toolkits*, PRACTICE GREENHEALTH, <https://practicegreenhealth.org/tools-resources/member-toolkits-0> (last visited Mar. 24, 2017).
 51. See e.g., BOSTON, MA. CITY CODE ORDINANCES ch. VII, §7-2 (2013); See also CHICAGO, IL. MUN. CODE, Title 18, ch. 18-14 (2013).
 52. See *Commercial Buildings Energy Consumption Survey*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/consumption/commercial/reports/2007/large-hospital.cfm> (last visited Mar. 13, 2017); HEALTHIER HOSPITALS, LEADING CM'TYS. TO A HEALTHIER FUTURE: 2014 MILESTONE REPORT 13-14 (2015) http://healthierhospitals.org/sites/default/files/IMCE/fnl_hhi_milestone_report_rev.pdf.
 53. See Jeff Ferenc, *Energy matters: The Path to Efficiency Starts with EPA Benchmarking Tool*, HEALTH FACILITIES MGMT. (Oct. 1, 2013), http://www.hfmmagazine.com/display/HFM-news-article.dhtml?dcrPath=/templatedata/HF_Common/NewsArticle/data/HFM/Magazine/2013/Oct/1013HFM_FEA_Interview; HEALTH RESEARCH & EDU. TRUST, ENVIRONMENTAL SUSTAINABILITY IN HOSPITALS: THE VALUE OF EFFICIENCY (2014).
 54. See U.S. DEP'T. ENERGY, HOSPITALS SAVE ENERGY AND MONEY BY OPTIMIZING HVAC PERFORMANCE (July 2011), http://apps1.eere.energy.gov/buildings/publications/pdfs/alliances/hea_hvac_fs.pdf; *Air Quality in Hospitals and Health Care Facilities*, ATLANTIC ENVTL. INC., <http://www.atlenv.com/hospital-healthcare-facility-ehs/>; CHRISTOPHER J. STIPE, INDOOR AIR QUALITY IN HOSPITALS 24 (July 2015), available at <http://flowtechinc.com/test/wp-content/uploads/2015/04/Indoor-Air-Quality-in-Hospitals.pdf>; Warren G. Lavey., *Energy Efficiency as Fundamental to the Missions of U.S. Religious Congregations, Health Care Providers and Schools*, 3 WASH. & LEE J. ENERGY, CLIMATE & ENV'T 1, 19-26 (2012).

installing or purchasing energy generated from clean, renewable sources, such as from solar-, wind-, hydro- or geothermal-power systems.⁵⁵

Major organizations of healthcare providers strongly support energy efficiency and clean energy use in hospital and other healthcare facilities.⁵⁶ Hospital administrators participating in CHNAs should engage their operations managers and purchasing staff to implement actions that improve community air quality. While hundreds of hospitals have achieved commendable gains in energy management,⁵⁷ many are laggards.⁵⁸ New opportunities to improve community health through energy management vary by hospital location.⁵⁹ Even hospitals supplied by clean or distant

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55. See Lola Butcher, *Hospitals Shift from Fossil Fuel to Renewable Energy Sources*, MODERN HEALTHCARE (Nov. 8, 2014), <http://www.modernhealthcare.com/article/20141108/MAGAZINE/311089981>.
 56. See Samantha Ahdoot et al., *Global Climate Change and Children's Health*, 136 PEDIATRICS e1468, e1478 (2015); Ryan A. Crowley et al., *Climate Change and Health: A Position Paper of the American College of Physicians*, 164 ANN. INT. MED. 608, 609 (2016).
 57. See e.g., *Better Health, Lower Costs, Improved Economy*, ENVISION GUNDERSEN HEALTH Sys. (Nov. 10, 2014) <http://www.gundersenenvision.org/app/files/public/4683/Envision-Energy-Independence-Infographic.pdf> (citing energy efficiency improvement of over 40%, and about \$3 million in annual financial savings); *Energy Use in Hospitals*, U.S. ENVTL. PROTECTION AGENCY (Jan. 2015), https://www.energystar.gov/sites/default/files/tools/DataTrends_Hospital_20150129.pdf.
 58. *Measuring Hospital Energy Performance*, HEALTH FACILITIES MGMT. (May 13, 2015), <http://www.hfmmagazine.com/articles/1547-measuring-hospital-energy-performance>.
 59. Generally, a large hospital in a densely-populated area near a coal power plant could produce more community health benefits through energy management than a small facility in a rural area supplied by hydro-electricity. Energy used by the large, urban hospital supplied by a nearby coal power plant causes more emissions of particulate matter, ozone and other air toxics affecting more community residents, resulting in higher health costs to the community from the hospital's operations. Correspondingly, the potential gains in community health are greater from energy efficiency and clean energy actions at such a hospital. See PRACTICE GREENHEALTH, OHIO HEALTHIER HOSPITALS: A COLLECTION OF ENERGY CASE STUDIES 4 (2015):

Beyond cost savings, hospitals have the opportunity to improve the air quality of the patient population they serve by reducing energy emissions. The 2015 State of the Air produced by the American Lung Association reported that while the air in Ohio has improved over the last 15 years, there is work to be done. Cleveland, Akron, Canton, Cincinnati, and Dayton areas still ranked in the worst 10 cities for year-round particle pollution. As of 2014, there were nearly 200,000 children and 680,000 adults with asthma at high risk from air pollution in Ohio.

electricity sources could benefit their communities by reducing passenger, freight, and construction vehicles' emissions from their operations by applying emissions standards in their purchases, utilizing electric vehicles in their fleets, and encouraging staff to use public transportation or van fleets.⁶⁰

By highlighting community health needs related to air pollution and spurring hospitals to commit to actions that improve population health, CHNAs offer an opportunity to focus hospital administrators on reducing the local airborne particulate matter and ozone resulting from their operations. Together with these direct benefits, the publicity surrounding CHNAs would help hospitals lead other institutions, businesses, and residents in their communities, thereby multiplying their contributions to healthier air quality.

B. Reducing Exposure to Toxins—Expanding Alerts from Hospital Systems

Some CHNAs report indicators of population health related to environmental threats from toxic chemicals, such as elevated blood-lead levels and hospitalizations for asbestosis, and indicators of harmful or risky physical environmental conditions, such as contaminated industrial and waste-disposal sites, inadequate water and sewage systems, nitrates or cyanotoxins in water, pesticide use, and diesel-engine emissions.⁶¹ The population-health impacts of these threats include increased lung and other types of cancers, neurological damage, asthma and other respiratory

Further, the Burden of Asthma in Ohio Report from the Ohio Department of Health indicates that children's asthma rates are at 15% compared to the national CDC reported average of 8.3% . . .

Ohio Hospital Association (OHA) Energy and Sustainability Program has more than 100 member hospitals benchmarked in ENERGY STAR Portfolio Manager, with over 40 GWh saved in 2014. This is the equivalent to the yearly consumption of nearly 4,000 homes and according to the Practice Greenhealth Energy Impact Calculator, results in an estimated reduction of 769 respiratory symptoms and 139 work days gained. (footnotes omitted).

60. UNIV. OF PITTSBURGH MED. CTR., *UPMC's New Emission Requirements Exceed Federal Standards, Draw Praise from Environmental Groups* (2011), <http://www.upmc.com/media/NewsReleases/2011/Pages/upmc-emission-requirements.aspx>; SEATTLE CHILDREN'S HOSPITAL, COMPREHENSIVE TRANSPORTATION PLAN, available at http://masterplan.seattlechildrens.org/documents/CTP_booklet_final.pdf (last visited Apr. 1, 2017).
61. See, e.g., SPARROW CLINTON HOSPITAL, *COMMUNITY HEALTH NEEDS ASSESSMENT* 18 (2013) http://www.sparrow.org/upload/docs/About%20Sparrow/Sparrow%20Clinton%20Hospital_031813.pdf; SARATOGA HOSPITAL, *COMMUNITY HEALTH NEEDS ASSESSMENT* 36, 48, 54 (2013) <http://www.saratogahospital.org/wordpress/wp-content/uploads/2013/09/2013-Community-Health-Needs-Assessment-for-Saratoga-County.pdf>.

illnesses, and cardiovascular diseases.⁶² Federal and state statutes and regulations have forced hospitals to safely dispose of hazardous, infectious, and other medical wastes that result from their operations.⁶³ While hospitals' compliance with such requirements contributes to community health, hospitals could do more to address other sources of and risks from toxic chemicals in their communities.

Both before and after the passage of the ACA, the Treasury Department's rules for reporting hospitals' community benefits recognized hospitals for expenditures to "address environmental hazards that affect community health."⁶⁴ Yet, as with airborne particulate matter and ozone, many hospital CHNA-implementation plans miss important environmental determinants of health, forego actions in this area because other organizations are perceived as better-equipped to address environmental toxins, or commit only to advocating for actions undertaken by other organizations because of hospitals' limited expertise and resources.⁶⁵

Hospitals should be able to use their information systems and quality-control procedures to identify and analyze relevant indicators of patients' risky environmental exposures to toxic chemicals.⁶⁶ These capabilities should include providing alerts and other reports to physicians, hospital administrators, and public-health authorities.

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62. See *Human Health and Contaminated Water*, U.S. ENV'T. PROTECTION AGENCY, <https://www.epa.gov/privatewells/human-health-and-contaminated-water>.
 63. Management Standards for Hazardous Waste Pharmaceuticals, 80 Fed. Reg. 58014 (2015) (to be codified 40 C.F.R. pt. 266); Federal Plan Requirements for Hospital/Medical/Infectious Waste Incinerators Constructed On or Before December 1, 2009, and Standards of Performance for New Stationary Sources: Hospital/Medical/Infectious Waste Incinerators, 78 Fed. Reg. 28052 (2013) (to be codified at 40 C.F.R. pt. 60); PRACTICE GREENHEALTH, *MANAGING PHARMACEUTICAL WASTE: A 10-STEP BLUEPRINT FOR HEALTHCARE FACILITIES IN THE UNITED STATES* (2008); THE COUNCIL OF STATE GOV'T, *MODEL GUIDELINES FOR STATE MEDICAL WASTE MANAGEMENT* (1992); ILL. ENV'T PROT. AGENCY, *Potentially Infectious Medical Waste*, <http://www.epa.illinois.gov/topics/waste-management/waste-disposal/special-waste/pimw/index> (last visited Apr. 1, 2017).
 64. DEP'T OF THE TREASURY, INSTRUCTIONS FOR SCHEDULE H (FORM 990) 4 (2016) ("Environmental improvements' include, but are not limited to, activities to address environmental hazards that affect community health, such as alleviation of water or air pollution, safe removal or treatment of garbage or other waste products, and other activities to protect the community from environmental hazards."); DEP'T OF THE TREASURY, INSTRUCTIONS FOR SCHEDULE H (FORM 990) 3-4 (2008).
 65. See e.g., CHATHAM HOSPITAL, *supra* note 24, at Addendum A, 2; UNITYPOINT FINLEY HOSPITAL, COMMUNITY HEALTH NEEDS ASSESSMENT REPORT AND HEALTH IMPROVEMENT PLAN 2016-2019 17 (2016).
 66. See HEALTH RESOURCES & SERVS. ADMIN., *QUALITY IMPROVEMENT 1*, 4 (2011), available at <http://www.hrsa.gov/quality/toolbox/methodology/qualityimprovement/>; U.S. GOV'T ACCOUNTABILITY OFF., GAO-16-308, *PATIENT SAFETY: HOSPITALS FACE CHALLENGES IMPLEMENTING EVIDENCE-BASED PRACTICES 7* (2016).

Spurred by the Health Information Technology for Economic and Clinical Health Act of 2009 (“HITECH”)⁶⁷ and the ACA,⁶⁸ hospitals employ electronic medical-information systems and reporting procedures. Based on the laboratory tests that physicians order and the descriptions of patients’ symptoms entered into medical records, the hospitals’ systems and procedures send alerts and reports within the hospitals and to public health agencies about the incidence of various illnesses and threats.⁶⁹ These hospital tools include clinical-decision support systems for patient safety, healthcare-reimbursement information systems, and surveillance for early detection of infections and communicable diseases.⁷⁰ Especially in communities where public health authorities or patients’ illnesses and tests have identified toxic chemical threats for certain locations and populations, hospitals’ timely analysis of diagnostic codes and conditions and reporting their analyses to public health authorities would improve population health.

Many hospital systems alert staff and public health authorities to only some environmental health risks. For example, in August 2014, information systems and quality-control procedures at McLaren Hospital in Flint, Michigan called hospital administrators’ attention to an increase in its patients who showed symptoms from exposure to *Legionella*,⁷¹ a bacterium

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67. See American Recovery and Reinvestment Act of 2009, Pub. L. 111–5, §13001; *Electronic Health Records (EHR) Incentive Programs*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/index.html?redirect=/ehrincentiveprograms/> (last updated Feb. 2, 2017) (stating Title IV of Division B established incentive payments to eligible healthcare professionals, hospitals, and other organizations to promote the adoption and meaningful use of interoperable health information technology and qualified electronic health records).
 68. See *Affordable Care Act Helps Expand the Use of Health Information Technology*, U.S. DEP’T. HEALTH & HUMAN SERVS. (Dec. 20, 2012), <http://www.hrsa.gov/about/news/pressreleases/121220healthcenternetworks.html>.
 69. See COMMITTEE ON INTEGRATING PRIMARY CARE AND PUB. HEALTH, ET AL., *PRIMARY CARE AND PUBLIC HEALTH: EXPLORING INTEGRATION TO IMPROVE POPULATION HEALTH* 19 (2012).
 70. See Mike Miliard, *Clinical Decision Support: No Longer Just a Nice-to-Have*, HEALTHCARE IT NEWS (July 14, 2015), <http://www.healthcareitnews.com/news/clinical-decision-support-no-longer-just-nice-have>; see e.g., Solweig Gerbier-Colomban, et al., *Can epidemic Detection Systems at the Hospital Level Complement Regional Surveillance Networks: Case Study with the Influenza Epidemic?* 14 BMC INFECTIOUS DISEASES 381 (2014).
 71. *Steps Taken to Safeguard Water After 2014 Test Found Legionella Bacteria in Water at McLaren Flint*, ABC7-WXYZ DETROIT, (Jan. 22, 2016) [hereinafter McLaren Flint], <http://www.wxyz.com/news/test-finds-legionnaires-disease-bacteria-in-water-at-mclaren-flint-steps-taken-to-safeguard-water>.

that can grow and spread in human-made water systems.⁷² This hospital “began aggressively testing [its] water supply” and then “install[ed] a secondary water disinfectant system throughout the entire facility at a cost of \$300,000.”⁷³

Neither this hospital nor others in the region received alerts from their information systems or quality-control procedures about the outbreak of elevated blood-lead levels, later attributed to Flint’s contaminated municipal water supply.⁷⁴ It was not until August 31, 2015 that a pediatrician at Flint’s Hurley Medical Center analyzed her hospital’s electronic medical records from routine screening of children for blood-lead levels.⁷⁵ The doctor used the hospital’s information to compare the incidence of high blood-lead levels on a detailed geographic basis and over time.⁷⁶ The hospital’s data were sufficient such that a modest improvement

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72. CTRS. DISEASE CONTROL & PREVENTION, *Legionella (Legionnaires’ Disease and Pontiac Fever): Causes, How it Spreads, and People at Increased Risk*, CDC (Jan. 11, 2017), <https://www.cdc.gov/legionella/about/causes-transmission.html>.
 73. McLaren Flint, *supra* note 71 (McLaren Hospital released the following statement: “After the City of Flint switched to the Flint River as its water source in April of 2014, we noticed an increase in the number of Legionella cases that were coming to McLaren for treatment, as well as those being reported across the county and at other hospitals. *Because of that concern, and concern over the quality of water that we were receiving from the city, we began aggressively testing our water supply.* An early test result indicated the presence of a low level of legionella. As soon as this was identified, McLaren Flint put immediate measures in place that were successful in controlling the situation. We have taken additional measures to safeguard the quality of our water system even more, including by installing a secondary water disinfectant system throughout the entire facility at a cost of \$300,000.” (emphasis added)).
 74. Chinaro Kennedy et al., *Blood Lead Levels Among Children Aged <6 – Flint, Michigan*, 2013-2016, CDC (July 1, 2016), <http://www.cdc.gov/mmwr/volumes/65/wr/mm6525e1.htm>.
 75. *Elevated Blood Lead Levels in Flint, Michigan*, 27 PROJECT S.E.N.S.O.R. NEWS (Spring 2016), <http://www.oem.msu.edu/userfiles/file/News/v27n2..pdf>. (It is important to note that the physician was also trained in public health, and her analysis was outside of normal procedures.).
 76. Finding statistically significant differences, Dr. Mona Hanna-Attisha described the detection of high lead levels in some neighborhoods from the hospital’s records as “the easiest research project I’ve ever done.” Sanjay Gupta et al., *‘Our mouths were ajar’: Doctor’s fight to expose Flint’s water crisis*, CNN (Jan. 22, 2016), <http://www.cnn.com/2016/01/21/health/flint-water-mona-hanna-attisha/>; Mona Hanna-Attisha et al., *Elevated Blood Lead Levels in Children Associated With the Flint Drinking Water Crisis: A Spatial Analysis of Risk and Public Health Response*, 106 AM. J. PUB. HEALTH 283, 284 (2016); See Mona Hanna-Attisha, *Background and Next Steps*, MICH. STATE UNIV. COLL. OF HUMAN MED. (Feb. 2016), <https://sph.umich.edu/flint-crisis/pdf/Mona-Hanna-Attisha-Flint-Water-Crisis-Feb2016.pdf>; Robin Erb, *Flint Doctor Makes State See Light About Lead in Water*, DETROIT FREE PRESS (Oct. 12, 2015), <http://www.freep.com/story/news/local/michigan/2015/10/10/hanna-attisha-profile/73600120/>.

to the hospital's routine information systems and reporting procedures could have provided earlier alerts of the lead contamination to physicians, hospital administrators and public-health authorities.

To put the hospitals' systems in context, local, state and federal government agencies have responsibility for testing community water supplies for lead and other toxins, and public-health departments generally receive data from hospitals and publish reports on cases of elevated blood-lead levels.⁷⁷ Before this Flint hospital detected the lead contamination, the public-health agencies and other state and municipal government officials repeatedly assured residents that the water was properly tested and found safe.⁷⁸ Nationally, the Government Accountability Office and the Environmental Protection Agency ("EPA") released studies highlighting the EPA's lead-in-water rule and sampling protocols' failures, and the EPA opened a proceeding to update the rule.⁷⁹ Despite laws that empower and impose safety obligations on municipal water systems, public-health agencies, and environmental regulators, lead in municipal water systems continues to pose a widespread threat to public health. After the Flint revelation, the Natural Resources Defense Council and USA Today found lead levels that violate the EPA's standards in more than one thousand

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77. U.S. ENVTL. PROT. AGENCY, LEAD AND COPPER RULE: MONITORING AND REPORTING GUIDANCE FOR PUBLIC WATER SYSTEMS (2010), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100DP2P.txt>; Brown, M. & Margolis, S., *Lead in Drinking Water and Human Blood Lead Levels in the United States*, CDC MORBIDITY & MORTALITY WEEKLY REPORT (Aug. 10, 2012), <http://www.cdc.gov/mmWR/preview/mmwrhtml/su6104a1.htm>; Letter from J. Beauvais (EPA Deputy Assistant Administrator) to public health commissioners regarding the EPA's Lead and Copper Rule (Feb. 29, 2016), *available at* <https://www.epa.gov/sites/production/files/2016-03/documents/samplelettercommissionersfeb2016.pdf>; Frida D. Fokum et al., *Childhood Lead Exposure, Testing Rate, and Blood Lead Poisoning Prevalence in Illinois and Chicago, 1996-2012*, 1 ILL. MORBIDITY & MORTALITY BULL. 13 (Sept. 2015).
 78. FLINT WATER ADVISORY TASK FORCE, FINAL REPORT 1 (2016), *available at* https://www.michigan.gov/documents/snyder/FWATF_FINAL_REPORT_21March2016_517805_7.pdf; *see also* Daniel Bethencourt, *After Flint Water Crisis, Families File Lawsuit*, DETROIT FREE PRESS (Nov. 13, 2015), <http://www.freep.com/story/news/local/michigan/2015/11/13/after-flint-water-crisis-families-file-lawsuit/75744376/> (explaining how families are filing lawsuits against government officials and their contractors).
 79. Brady Dennis, *The EPA's Lead-In-Water Rules Has Been Faulted for Decades, Will Flint Hasten a Change?*, WASH. POST (May 5, 2016), https://www.washingtonpost.com/national/health-science/epas-lead-in-water-rule-has-been-faulted-for-decades-will-flint-hasten-a-change/2016/05/04/8d25bb12-0de9-11e6-bfa1-4efa856caf2a_story.html?utm_term=.50ed421788f3; GOV'T ACCOUNTABILITY OFFICE, GAO-06-148, *DRINKING WATER: EPA SHOULD STRENGTHEN ONGOING EFFORTS TO ENSURE CONSUMER ARE PROTECTED FROM LEAD CONTAMINATION* (2006); Miguel A. Del Toral et al., *Detection and Evaluation of Elevated Lead Release from Service Lines: A Field Study*, 47 ENVTL. SCI. & TECH. 9300 (2013).

community water systems serving millions of people in all fifty states. There were also extensive deficiencies in testing the water for lead and in reporting the results to state officials and the public.⁸⁰

Another unfortunate recent illustration of the need to focus CHNAs on hospitals' actions to detect and communicate environmental toxins in at-risk communities occurred in East Chicago, Indiana, the site of a closed lead refinery and smelter.⁸¹ Since the early 1990s, the EPA and the Indiana State Department of Health identified high lead concentrations in the soil of hundreds of residences and elevated blood-lead levels in a high proportion of community children tested.⁸² The EPA found "an imminent and substantial threat to human health," listed the area as a Superfund site, removed and replaced soil in some hotspots in 2006 through 2011, and warned residents to avoid the soil through public notices and community meetings.⁸³ The EPA's continuing concerns and efforts resulted in adopting a plan for large-scale soil remediation in 2012.⁸⁴ Despite this plan, medical doctors in the community and public-health authorities continued to see many cases of elevated blood-lead levels in children.⁸⁵ The EPA's extensive soil remediation was delayed and, after the Flint lead-in-water crisis, East Chicago's mayor ordered relocation for hundreds of residents of a public housing complex.⁸⁶

Despite the evidence of risks to community health in the East Chicago area from environmental toxins, the local hospitals' CHNAs failed to

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80. KRISTI PULLEN FREDINICK & ERIK OLSON, WHAT'S IN YOUR WATER? FLINT AND BEYOND 5-6 (2016); Mark Nichols & Alison Young, *Beyond Flint: Excessive Lead Levels Found in Almost 2,000 Water Systems Across All 50 States*, USA TODAY (Mar. 11, 2016), <https://www.usatoday.com/story/news/2016/03/11/nearly-2000-water-systems-fail-lead-tests/81220466/>.
 81. Angela Caputo, Michael Hawthorne & Craig Lyons, *East Chicago Residents Fleeing Lead Contamination Find Few Housing Options*, CHI. TRIB. (Oct. 5, 2016), <http://www.chicagotribune.com/news/local/breaking/ct-east-chicago-lead-20161004-story.html> (stating soil tests revealed lead and arsenic concentrations as high as 228 times the level considered hazardous to children).
 82. U.S. ENVTL. PROT. AGENCY, U.S. SMELTER AND LEAD REFINERY, INC SUPERFUND SITE RECORD OF DECISION 7-51 (Nov. 2012) [hereinafter EPA Record of Decision].
 83. *Id.* at 8-9; Abby Goodnough, *Their Soil Toxic, 1,100 Indiana Residents Scramble to Find New Homes*, N.Y. TIMES (Aug. 30, 2016), <https://www.nytimes.com/2016/08/31/us/lead-contamination-public-housing-east-chicago-indiana.html>; Nick Janzen, *EPA Response to East Chicago Lead Typical for Soil Contamination*, IND. PUB. MEDIA (Sept. 23, 2016), <http://indianapublicmedia.org/news/epa-response-east-chicago-lead-typical-soil-contamination-105933/>.
 84. EPA Record of Decision, *supra* note 82, at 48.
 85. Lauren Cross, *Experts: West Calumet Lead Levels 'Alarming'*, NWI TIMES (Aug. 12, 2016), http://www.nwitimes.com/news/local/lake/experts-west-calumet-lead-levels-alarming/article_2b36273e-a06a-57cc-a8b8-4e4d90bcd911.html.
 86. Caputo et al., *supra* note 81.

consider the health risk of lead-contaminated soil in describing needs or prioritizing actions.⁸⁷ Because East Chicago-area hospitals missed indicators of lead in soil and blood when assessing community health needs, these hospitals did not pursue many feasible, beneficial actions to promote community health. Reasonable hospital actions could have included educating residents about the dangers of living near and playing in the soil, recommending that all children be tested for blood-lead levels, tracking patterns of elevated blood-lead levels, analyzing occurrences of illnesses potentially related to lead exposure, and communicating evidence of this health problem to government officials and community organizations.

Without presuming that local hospitals have all of the data and resources available to public-health agencies, the East Chicago-area hospitals could have addressed behaviors related to lead-contaminated soil within their information, analytic, and financial capabilities. By applying information systems and quality-control processes responsive to well-known toxic conditions in the community, these hospitals could have analyzed their records for patterns of elevated blood-lead levels and related health problems. The hospitals could have used these analyses in training their healthcare providers to improve patient care in standards or guidelines for testing patients and in communicating to patients and the community served about behaviors and risks.

The actions that Flint and East Chicago hospitals could have taken to identify and mitigate health threats from toxic chemicals in water and soil illustrate the reasons that the Treasury Department included “environmental factors that influence health in the community” in the rules for CHNAs.⁸⁸ In response to CHNAs, hospitals should prioritize systems to detect harms from environmental toxins, but not merely to backstop the risk of intentional misconduct or negligence by government agencies with responsibility for preventing and identifying exposures. By expanding hospitals’ alerts to and reports on local environmental threats, hospitals could advance population health in four ways.

First, hospital systems might provide more timely alerts to the hospital staff and community, which would improve patient care and preventive measures. Second, within the constraints of the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”)⁸⁹ and guided by risks identified in CHNAs, hospitals could focus their healthcare providers and systems on potential outbreaks from exposures to toxins in narrowly defined, vulnerable populations by geography, occupation, age, or other factors. A hospital’s more fine-grained analyses could supplement

87. COMMUNITY HEALTH CARE SYS., ST. CATHERINE HOSPITAL, 2012 COMMUNITY HEALTH NEEDS ASSESSMENT 6 (2013).

88. Treasury Regs., *supra* note 2, at 78963.

89. Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191 (1996).

government agencies' aggregated county, state, or national reports. Next, such analyses might take a different approach to detecting environmental health threats than the agencies' criteria and techniques for sampling air, water, and soil. Hospitals could base their analyses on the observations and tests conducted by healthcare providers on the front lines, receiving patient complaints and taking histories, physicals, and tests. Finally, in the triennial CHNA analyses of health needs, hospitals could consider information from their systems on community environmental health to supplement county-level indicators; the broader set of indicators could lead hospitals to improve their assessments of environmental factors influencing community health and strategies for raising population health.⁹⁰

Hospital administrators participating in CHNAs should engage their health-information systems and quality-control managers, as well as community and environmental organizations, in designing actions that address risks from known or potential environmental toxins in vulnerable populations and locations. In some cases, a single healthcare organization's information cannot reliably detect an outbreak from an environmental toxin. But for many hospitals and risks, improving hospitals' ability to detect outbreaks could yield better population health, including reduced incidents of elevated blood-lead levels as well as fewer hospitalizations for asbestosis and other toxic exposures.

C. Improving Health Literacy—Local Health Impacts of Climate Change

Health literacy refers to the population's ability to obtain and understand the information necessary to making beneficial health decisions.⁹¹ Healthcare providers and public-health authorities commonly identify health literacy as a health need for a community or vulnerable population.⁹² In part through CHNAs, hospitals develop strategies to improve community availability of information and education for individual decision-making in connection with general access to healthcare services;

90. GEORGIA WATCH, *supra* note 13, at 35 (recommending that, in developing CHNAs, hospitals look at their own utilization data to give a picture of the health of the communities they serve); Lindsey Wahowiak, *How Hyper-Local Data Make Big Impacts on Public Health: New Data Resources Available for Workers*, 47 NATION'S HEALTH 1 (2017) (500 Cities Project (a partnership of the Robert Wood Johnson Foundation, Centers for Disease Control and Prevention, and CDC Foundation) is the first data analysis of U.S. Census Bureau tracts in the large cities that identifies, analyzes and reports on indicators of chronic heart disease, diabetes, nutrition and physical activity down to the neighborhood level; also, CDC's Behavioral Risk Factor Surveillance System uses phone surveys of health and health behaviors to predict the prevalence of health issues and outcomes at city and neighborhood levels.).

91. U.S. DEPT. OF HEALTH AND HUMAN SERV., NATIONAL ACTION TO PLAN TO IMPROVE HEALTH LITERACY 1 (2010).

92. Ruth M. Parker, Scott C. Ratzan & Nicole Lurie, *Health Literacy: A Policy Challenge for Advancing High-Quality Health Care*, 22 HEALTH AFF. 147, 147 (2003).

such actions include patient-navigator programs, language-interpretation services, community health fairs, community classes and films, and easy-to-understand guides to pharmaceuticals and health insurance.⁹³ Some hospitals' health-literacy actions promote community understanding of connections between environmental factors and health outcomes; for example, informing a population about the dangers of and ways to reduce sun exposure is a strategy for addressing skin cancer, and educating a community about the benefits of and places to engage in outdoor exercise is a strategy for addressing obesity and diabetes.⁹⁴

The CHNA process should encourage more hospitals to help develop communities' and individuals' capacities to make decisions related to the local health impacts of climate change. This form of health literacy would assist community leaders, organizations, and residents obtain and understand information and make beneficial health decisions in the face of growing health-related problems associated with climate change, including asthma, allergies, vector-borne infectious diseases, and mental health problems caused by flooding from intense storms.⁹⁵

Leading international and national health organizations point to wide-ranging, severe health impacts of climate change, as well as the need to raise public awareness on this issue.⁹⁶ According to the American Medical

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93. Margaret Danilovich, *Health Literacy is Costly and Can be Deadly*, CNN (Mar. 3, 2017), <http://www.cnn.com/2017/03/03/opinions/health-illiteracy-can-be-deadly-danilovich/>.
 94. BARNES-JEWISH HOSPITAL, COMMUNITY HEALTH NEEDS ASSESSMENT REPORT AND IMPLEMENTATION PLAN (2014), *available at* http://barnesjewish.thehcn.net/content/sites/barnesjewish/BJH_Implementation_plan_20140507121710.pdf; SEATTLE CHILDREN'S HOSPITAL, COMMUNITY HEALTH NEEDS ASSESSMENT REPORT 17, 80 (2013), *available at* <http://www.seattlechildrens.org/about/community-benefit/community-health-assessment/>.
 95. ADVOCATE HEALTH CARE, COMMUNITY HEALTH NEEDS ASSESSMENT IMPLEMENTATION PLAN 1-3 (2014); NICKLAUS CHILDREN'S HOSPITAL, 2015 PRC CHILD & ADOLESCENT HEALTH NEEDS ASSESSMENT 101 (2015); SARATOGA HOSPITAL, COMMUNITY HEALTH NEEDS ASSESSMENT 65, 82 (2013), *available at* <http://www.saratogahospital.org/wordpress/wp-content/uploads/2013/09/2013-Community-Health-Needs-Assessment-for-Saratoga-County.pdf>; LINN COUNTY PUBLIC HEALTH, COMMUNITY HEALTH NEEDS ASSESSMENT 13 (2013), *available at* http://myvgh.org/wp-content/uploads/2013/08/VGH_2013_CHNA-Report.pdf.
 96. George Luber et al., *Chapter 9: Human Health*, in CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT (Jerry M. Melillo, et al., eds. 2014) (addressing health impacts of air pollution, allergens, wildfires, temperature extremes, precipitation extremes (heavy rainfall, flooding and drought), disease carried by vectors, food- and water-borne diarrheal disease, food security, and mental health and stress-related disorders); WORLD HEALTH ORG., WHO GLOBAL PROGRAMME ON CLIMATE CHANGE & HEALTH (2016); Nick Watts et. al., *Health and Climate Change: Policy Responses to Protect Public Health*, 386 LANCET 1861, 1861 (2015); AM. PUB. HEALTH ASSOC., A DECLARATION ON CLIMATE CHANGE AND HEALTH (2016), *available at* <https://www.apha.org/news-and-media/news-releases/apha-news->

Association, “doctors may find themselves on the front lines in dealing with [climate change’s] serious and immediate problems. Patients are sicker or developing new conditions as a result of changes in the weather. Greater awareness and understanding of the situation, from a medical perspective, is a proper priority.”⁹⁷

The Centers for Disease Control and Prevention (“CDC”) has been working to build its understanding of climate change impacts, vulnerabilities, and resilience for community health through a cooperative grant-planning program with many state, county, and local public-health organizations.⁹⁸ Also, the White House led an initiative in 2015 and 2016 to train public-health, medical, and nursing students to address the health impacts of climate change.⁹⁹ More broadly, the Office of Management and Budget and the Council on Environmental Quality coordinated an effort for all federal agencies to weigh climate-change impacts, including health effects, in developing regulations and other actions.¹⁰⁰

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- releases/2016/declaration-on-climate-change-and-health; MEDICAL SOC’Y CONSORTIUM ON CLIMATE & HEALTH, MEDICAL ALERT!: CLIMATE CHANGE IS HARMING OUR HEALTH, at Exec. Summary (2017) (“A recent survey showed that most Americans have not considered how global warming might affect people’s health, and few (32%) can name a specific way in which climate change is harming our health. Few are aware that some groups of Americans—including our children, our elders, the sick and the poor—are most likely to be harmed by climate change.”).
97. AM. MEDICAL ASSOC., *Opinion: Confronting health issues of climate change*, AM. MED. NEWS (Apr. 4, 2011) <http://www.amednews.com/article/20110404/opinion/304049959/4>; Along with reducing the carbon footprint of healthcare facilities, the recommendations to healthcare professionals include advocating for policies which protect public health by mitigating and adapting to climate change. See also Benjamin H. Kaffenberger et al., *The Effect of Climate Change on Skin Disease in North America*, 76 J. AM. ACAD. DERMATOLOGY 140, 143 (2016) (“Implementation of mitigation strategies are critical in following the lowest-risk models for climate change [D]ermatologists should be aware of changing patterns and types of diseases.”).
 98. CDC’s *Climate-Ready States and Cities Initiative*, CDC (Dec. 22, 2014), http://www.cdc.gov/climateandhealth/climate_ready.htm (programs in 16 states and 2 cities aimed at developing ways to anticipate climate-related health effects and prepare flexible plans); Gino D. Marinucci et al., *Building Resilience Against Climate Effects – A Novel Framework to Facilitate Climate Readiness in Public Health Agencies*, 11 INT’L J. ENVLT. RESEARCH PUB. HEALTH 6433, 6433 (2014); CLIMATE AND HEALTH IN ILLINOIS, ILL. DEPT. OF PUB. HEALTH (2016), *available at* <https://ipha.com/content/uploads/Climate%20and%20Health%20in%20Illinois.pdf>.
 99. *Fact Sheet: Health Educators Climate Commitment*, WHITE HOUSE OFFICE OF THE PRESS SEC’Y (Dec. 4, 2015), <https://www.whitehouse.gov/the-press-office/2015/12/04/fact-sheet-health-educators-climate-commitment>.
 100. Starting in 2009, federal agencies developed a Social Cost of Carbon “to value the climate impacts of rulemakings.” *Social Cost of Carbon*, ENVTL. PROT. AGENCY (Dec. 2016), https://www.epa.gov/sites/production/files/2016-12/documents/social_cost_of_carbon_fact_sheet.pdf. To inform regulatory and other agency decisions, the Social Cost of Carbon attempts to reflect the impacts

In addition to various federal government initiatives, three major organizations of healthcare providers recently embraced greater hospital and physician involvement in community health-education actions on climate change. These action plans are based on and benefit from the public's trust in physicians and hospitals as keys to improving individual and government decisions. First, in a position paper published in April 2016, the American College of Physicians ("ACP") recommended that physicians and other healthcare providers educate their communities about the health risks posed by climate change.¹⁰¹ The ACP's initiative includes an action plan, presentation, and a two-page, easy-to-understand patient-education resource intended for physicians to use to improve an individual's capacity to make beneficial health decisions.¹⁰² Similarly, the American Academy of

of carbon emissions on human health and other effects; it is "meant to be a comprehensive estimate of climate change damages and includes, among other things, changes in net agricultural productivity, human health, property damages from increased flood risk and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning." *Id.* The President's Council on Environmental Quality (CEQ) directed federal agencies to consider the human health and other effects of greenhouse gas emissions and climate change when evaluating proposed actions. CHRISTINA GOLDFUSS, COUNCIL ON ENVTL. QUALITY, FINAL GUIDANCE FOR FEDERAL DEPARTMENTS AND AGENCIES ON CONSIDERATION OF GREENHOUSE GAS EMISSIONS AND THE EFFECTS OF CLIMATE CHANGE IN NATIONAL ENVIRONMENTAL POLICY ACT REVIEWS 30 (2016) ("Agencies should be aware of the ongoing efforts to address the impacts of climate change on human health and vulnerable communities. Certain groups, including children, the elderly, and the poor, are more vulnerable to climate-related health effects, and may face barriers to engaging on issues that disproportionately affect them." (footnote omitted)); *Zero Zone v. U.S. Dep't of Energy*, 832 F.3d 654, 677, 680 (7th Cir. 2016) (agency reasonably applied the Social Cost of Carbon in weighing the costs and benefits of a new regulation). See NAT'L ACADS. OF SCI., ENG'G, & MED., VALUING CLIMATE DAMAGES: UPDATING ESTIMATION OF THE SOCIAL COST OF CARBON DIOXIDE (2017).

101. Crowley et al., *supra* note 56, at 1.

102. AM. COLL. PHYSICIANS, *Patient FACTS: Climate Change and your Health* (2016), available at

https://www.acponline.org/system/files/documents/advocacy/advocacy_in_action/climate_change_toolkit/climate-change.pdf. (The patient resource in the section on "How can climate change affect my health?" provides details on heat-related conditions, breathing problems, unsafe water supply, disease spread by insects, less food and water, and mental health problems. The next section on "How can I protect myself and my loved ones?" lists these steps: prepare for extreme weather events; protect yourself from insect bites; during a heat wave, wear loose clothing, drink lots of water, stay out of the sun, and check on family members; check on air quality and limit outdoor activity during poor air quality days; wash your fruits and vegetables; and "talk with your health care professional about any concerns you may have." The public education document concludes with recommendations on "What can I do to help?" in terms of reducing household greenhouse gas emissions.); See also AM. COLL. PHYSICIANS, *Climate*

Pediatrics adopted a policy statement on climate change in November 2015.¹⁰³ Several recommendations aimed at local actions to enhance community health knowledge about climate change's impact on children's health, leading to more effective mitigation and adaptation decisions. Third, Global Green and Healthy Hospitals developed a leadership pledge for hospitals, health systems, and government health institutions entitled "2020 Health Care Climate Challenge."¹⁰⁴ Organizations that choose to participate commit to reducing their own climate footprints and preparing for climate impacts. Several large American healthcare providers pledged to educate their local communities on the challenges and solutions related to climate and health.¹⁰⁵

The analysis of population-health indicators in CHNAs and the process of hospital-public-health-community engagement should position hospitals to contribute to building community health literacy for adapting to climate change.¹⁰⁶ This is especially true for communities that have recently experienced or are at clear risk from climate-related extreme weather events, such as flooding, severe storms, and wildfires. CHNAs should help hospitals identify vulnerable populations¹⁰⁷ by location, age, and socioeconomic characteristics; increases in climate-related illnesses; and inadequate hospital and community resources for facing increasingly likely disasters, ranging from ambulance services to emergency shelters, power, food distribution, and evacuation resources. Also, CHNAs should focus hospital administrators on developing climate-resilient hospital facilities

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- Change Toolkit*, <https://www.acponline.org/advocacy/advocacy-in-action/climate-change-toolkit> (last visited Apr. 1, 2017).
103. Ahdoot, *supra* note 56, at 3 (This organization recommends that individual pediatricians discuss climate change with families in terms of their actions that reduce carbon emissions and promote health; educate children, families and communities on emergency and disaster readiness; educate elected officials and the public by speaking at hearings, providing expert testimony, letters to the editor, and community engagement; and build a broader coalition across disciplines to address climate change at the local and national levels.).
104. *2020 Health Care Climate Challenge*, GLOBAL GREEN & HEALTHY HOSPITALS (2016), <https://noharm-global.org/issues/global/2020-health-care-climate-challenge>; GLOBAL GREEN & HEALTHY HOSPITALS, *A COMPREHENSIVE ENVIRONMENTAL HEALTH AGENDA FOR HOSPITALS AND HEALTH SYSTEMS AROUND THE WORLD* (2011).
105. *Kaiser Permanente Brings Health Focus to 2015 Paris Climate Summit*, KAISER PERMANENTE (Jan. 6, 2016), <https://share.kaiserpermanente.org/article/kaiser-permanente-brings-health-focus-to-2015-paris-climate-summit/>; Jeff Ferenc, *U.S. Health Care Systems Join in Climate Change Conference in Paris*, HEALTH FACILITIES MGMT. (Dec. 17, 2015), <http://www.hfmmagazine.com/articles/2024-u-s-health-systems-join-paris-climate-change-talks>.
106. Warren G. Lavey, *Hospitals Should Help Communities Prepare for Climate Change*, 106 AM. J. PUB. HEALTH 1952 (2016).
107. Natalie McGill, *Vulnerable Populations at Risk from Effects of Climate Change: Public Health Working to Find Solutions*, 46 NATION'S HEALTH 1 (2016).

and services, as they are important elements of planning and preparing for climate-resilient communities.¹⁰⁸

With the tendency of CHNAs to analyze recent indicators of community health and address access to healthcare services, most hospitals do not prioritize education actions regarding the local health impacts of climate change.¹⁰⁹ The selection of priority areas for hospital actions and development of implementation strategies should be more forward-looking. In the face of climate change, more hospitals' initiatives should support disaster preparedness actions for communities, through actions such as developing plans for and educating residents about extreme weather events, adding green space and trees to mitigate urban heat islands, and developing green infrastructure to reduce flooding. Hospitals should also contribute to patients' understanding of how their illnesses and risks are linked to climate change, such as causing more frequent and intense allergies and asthma, and how decisions they make, like the choice to cut energy consumption, can reduce these risks.¹¹⁰

Hospital administrators participating in CHNAs should engage their education and community outreach managers to design actions to improve decision-making regarding the local health impacts of climate change. With resources like the ACP's toolkit, large and small hospitals can train their staffs to help develop patients' and community leaders' capacity to understand and reduce health risks from climate change.

D. Preventing Obesity—Sharing Analysis for Community Parks and Trails

Obesity is commonly identified as both a major community health problem and priority for hospitals' implementation plans. For example, in a survey of CHNAs for twenty-seven Chicago-area hospitals, fifteen identified obesity, nutrition, physical activity, or weight control as a priority issue.¹¹¹ Numerous CHNAs associate obesity with several chronic diseases, including diabetes, hypertension, heart disease, and stroke.¹¹² CHNAs often consider

108. CITY OF BALTIMORE, DISASTER PREPAREDNESS AND PLANNING PROJECT (2015), *available at* http://www.baltimoresustainability.org/wp-content/uploads/2015/12/Chapter5_StrategiesandActions.pdf.

109. See Howard Frumkin et al., *Climate Change: The Public Health Response*, 98 AM. J. PUB. HEALTH 435, 441 (2008).

110. *Id.* at 439.

111. CHICAGO DEPT. PUB. HEALTH, CHICAGO HOSPITALS AND THE AFFORDABLE CARE ACT: MORE OPPORTUNITIES FOR PREVENTION 7 (2015), *available at* https://www.cityofchicago.org/content/dam/city/depts/cdph/statistics_and_reports/ChicagoHospitalsandACARepor2015.pdf.

112. FORREST GENERAL HOSPITAL, COMMUNITY HEALTH NEEDS ASSESSMENT REPORT 11-13, 22-24 (2013), *available at* <https://www.forresthealth.org/app/files/public/19/Community-Needs-PDF-.pdf>; MULTICARE AUBURN MED. CTR., 2013 COMMUNITY HEALTH NEEDS ASSESSMENT AND IMPLEMENTATION STRATEGY 10-11, A-28 – A-30 (2013), *available at* https://www.multicare.org/file_viewer.php?id=9784&title=CHNA-Auburn; St.

various indicators of risky lifestyle behaviors related to obesity, including lack of physical exercise and unhealthy eating practices.¹¹³

Hospitals that prioritize obesity in their CHNA-implementation plans select a variety of active-living and healthy-eating strategies.¹¹⁴ In terms of CHNA indicators of a community's physical environment related to obesity, measures include access to safe playgrounds and parks for all ages.¹¹⁵ The Surgeon General and the CDC address the health benefits of greater access to local public parks as places for walking and other physical activity.¹¹⁶ Some hospitals take actions in their communities supporting the creation of parks, walking and biking paths, and outdoor exercise programs.¹¹⁷ For example, hospitals in Little Rock and Chicago played various roles in

JOSEPH MERCY LIVINGSTON HOSPITAL, 2012 COMMUNITY HEALTH NEEDS ASSESSMENT & IMPLEMENTATION STRATEGY 9, 12 (2012), available at http://www.stmarymercy.org/documents1/SJML_CHNA.pdf.

113. In some communities, the prevalence of obesity risky behaviors exceeds the occurrence of cigarette smoking and binge drinking. HENRY FORD HEALTH SYSTEM, COMMUNITY HEALTH NEEDS ASSESSMENT 14-15 (2012), https://www.henryford.com/documents/CommunityHealth/2013%20HFHS%20CHNA_Final.pdf.
114. KAISER FOUND. HOSPITAL – IRVINE, 2013 IMPLEMENTATION STRATEGY REPORT FOR COMMUNITY HEALTH NEEDS 12-13 (2013).
115. KAISER FOUND. HOSPITAL – IRVINE, 2013 COMMUNITY HEALTH NEEDS ASSESSMENT 111-117 (2013).
116. U.S. DEP'T HEALTH & HUMAN SERVICES, *Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities* 20 (2015), <http://www.surgeongeneral.gov/library/calls/walking-and-walkable-communities/call-to-action-walking-and-walkable-communities.pdf>; *Access to Parks and Schools and Your Health*, CTRS. FOR DISEASE CONTROL & PREVENTION (Dec. 8, 2012), <http://ephtracking.cdc.gov/showAccessToParksAndSchools.action>; Jeanette Gustat et al., *Effect of Changes to the Neighborhood Built Environment on Physical Activity in a Low-Income African American Neighborhood* (2012), https://www.cdc.gov/pcd/issues/2012/11_0165.htm.
117. CHILDREN'S HOSP. COLO., 2016 COMMUNITY HEALTH ACTION PLAN 26 (2016) ("Mobilization of Children's Colorado as well as other community health clinic and pediatric practice providers to provide expert testimony and help generate public will for enhanced funding for healthy lifestyle and obesity prevention services."); HURLEY MED. CTR., IMPLEMENTATION STRATEGY & COMMUNITY BENEFIT PLAN 12 (2012) ("Health data and expertise will be provided to the development of the City of Flint's first new master plan in over five decades. An updated master plan will allow for physical environment improvements that support residents to live safe, active lifestyles within environments that support every resident's capacity to live, learn, work, and play."); ATLANTIC HEALTH SYSTEM – MORRISTOWN MED. CTR., COMMUNITY HEALTH NEEDS ASSESSMENT 28 (2013), available at <http://www.atlantichealth.org/Files/Public/Documents/Community%20Benefits/MMCCommunityHealth.pdf>. But see GEORGIA WATCH, *supra* note 13, at 29, 35 (finding that none of 38 Georgia CHNAs prioritized physical environment, including building parks, and recommending that hospitals invest in programs that create green space).

developing parks and walking paths in their respective cities, including increasing awareness of how these community assets help prevent obesity and related diseases, catalyzing collaboration with public and private organizations, and providing financial support.¹¹⁸

Several recent studies found that communities typically give little attention to the health benefits of decisions, including for parks and trails. The National Research Council and the American Public Health Association expressed concerns about the lack of health considerations in government and community decision-making.¹¹⁹ Similarly, the EPA observed that “in most community decisions, the environmental, health, and well-being impacts (beneficial or adverse) are not well understood or fully considered.”¹²⁰

Together with the EPA,¹²¹ the CDC recommends that communities prepare HIAs for parks and trails.¹²² HIAs are evidence-driven processes and tools that help decision-makers recognize and evaluate the potential health effects of a program, plan, or policy, such as increasing, preserving, or

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118. *Medical Mile: Arkansas River Trail*, CITY PARKS ALLIANCE, <http://www.cityparksalliance.org/issues-a-resources/health/case-studies/medical-mile> (last visited Apr. 1, 2017); *New Communities Program: Garfield Park Conservatory Alliance/Local Initiative Support Corporation*, CITY PARKS ALLIANCE, <http://www.cityparksalliance.org/issues-a-resources/community-building/case-studies/new-communities-program> (last visited Apr. 1, 2017); Peter Harnik & Ben Welle, *From Fitness Zones to the Medical Mile: How Urban Park Systems Can Best Promote Health and Wellness*, THE TRUST FOR PUBLIC LAND 34 (2011), available at <http://cloud.tpl.org/pubs/ccpe-health-promoting-parks-rpt.pdf>.
119. NAT’L RESEARCH COUNCIL, IMPROVING HEALTH IN THE UNITED STATES: THE ROLE OF HEALTH IMPACT ASSESSMENT 27-30 (2011); *Promoting Health Impact Assessment to Achieve Health in All Policies*, AM. PUB. HEALTH ASSOC. (Oct. 30, 2012) [hereinafter APHA Policy Statement], <https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/11/16/51/promoting-health-impact-assessment-to-achieve-health-in-all-policies>.
120. U.S. ENVTL. PROTECTION AGENCY, SUSTAINABLE AND HEALTH COMMUNITIES, STRATEGIC RESEARCH ACTION PLAN 2016-2019, at 22-23 (2015), available at https://www.epa.gov/sites/production/files/2015-10/documents/strap_2016_shc_508.pdf. Most decision-makers on parks and trails do not have the benefit of a local health impact assessment (HIA). As of February 2016, CDC estimated that only roughly 150 HIAs were completed or in progress across all sectors (not just parks and trails). CTRS. FOR DISEASE CONTROL & PREVENTION, HEALTH IMPACT ASSESSMENT (Feb. 29, 2016), available at <https://www.cdc.gov/healthyplaces/hia.htm>.
121. U.S. ENVTL. PROT. AGENCY, A REVIEW OF HEALTH IMPACT ASSESSMENTS IN THE U.S.: CURRENT STATE-OF-SCIENCE, BEST PRACTICES, AND AREAS FOR IMPROVEMENT, at 49-57 (2015), available at <https://www.epa.gov/sites/production/files/2015-03/documents/review-hia.pdf>.
122. CTRS. FOR DISEASE CONTROL & PREVENTION, *Parks and Trails Health Impact Assessment Toolkit* (Jun. 2, 2016), http://www.cdc.gov/healthyplaces/parks_trails/.

designing parks and trails.¹²³ A major barrier to applying HIAs to many projects is the lack of neighborhood-level data and expert health analyses of alternative actions.¹²⁴ The CDC points to hospitals and clinics as valuable potential partners in the multi-stakeholder, multi-disciplinary process,¹²⁵ and observes that hospitals' community assessments are a local data source for HIAs.¹²⁶

CHNAs provide hospitals with an underutilized wealth of information on community obesity and the health impacts of local parks and trails. While the Treasury Department regulations to implement the ACA require that hospitals make CHNAs available to the public on their websites,¹²⁷ many community decision-makers outside of traditional health fields are unaware of the data collection and analysis in CHNAs and hospitals' commitments to addressing community needs.¹²⁸ Hospitals should take further steps to bring to the attention of community planners, parks departments, and transportation authorities these health indicators and analyses.¹²⁹ There are a few examples of hospitals participating in HIAs for

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123. See CTRS. FOR DISEASE CONTROL & PREVENTION, *supra* note 120 ("HIA is a process that helps evaluate the potential health effects of a plan, project, or policy before it is built or implemented. HIA brings potential positive and negative public health impacts and considerations to the decision-making process for plans, projects, and policies that fall outside traditional public health arenas, such as transportation and land use. An HIA provides practical recommendations to increase positive health effects and minimize negative health effects.").
124. APHA POLICY STATEMENT, *supra* note 119.
125. CTRS. FOR DISEASE CONTROL & PREVENTION, *Parks and Trails Health Impact Assessment Toolkit, Section A: Stakeholders – Subject Matter Experts* (Nov. 27, 2013), http://www.cdc.gov/healthyplaces/parks_trails/.
126. CTRS. FOR DISEASE CONTROL & PREVENTION, *Parks and Trails Health Impact Assessment Toolkit, Section B: Data* (June 2, 2016), http://www.cdc.gov/healthyplaces/parks_trails/sectionb; See Public Health Institute, *supra* note 15, at 2 ("In short, there are a plethora of community health improvement assessment-related activities in local communities across the country, each with different reference points, areas of emphasis, sources of input, and varying processes. Among community stakeholders, there is often a lack of understanding about how to engage hospitals as partners. On the hospital side, there is often a lack of staffing and competencies to engage in and or sustain such partnerships.").
127. 26 CFR §1.501(r)–3(b)(7).
128. HARRY SNYDER & CARL OSHIRO, *ADVOCATING FOR CHANGE: PERSUADING DECISION MAKERS TO ACT FOR BETTER HEALTH*, CENTER FOR HEALTH COMMUNITIES OF THE CALIFORNIA ENDOWMENT 24 (2006), available at <http://sph.berkeley.edu/sites/default/files/Advocating-for-Change-Manual-2.pdf>.
129. Pennel et al., *supra* note 11, at 184 (recommending that hospitals diffuse the work of CHNAs and expand community collaboration, including specifically with government agencies engaged in planning and zoning as well as parks and recreation, to increase opportunities for communities to be healthy and to improve efficiency and leverage).

parks and trails,¹³⁰ but hospital participation is not noted in several other HIAs reviewed in the CDC's toolkit for parks and trails.¹³¹

Building on the information and public outreach in the CHNA process, hospitals are well-positioned to spur and contribute to community HIAs for parks and trails. CHNAs often collect information relevant to HIAs for parks and trails through indicators of health, behavior, and physical environment, analyses of disparities in community-population groups, as well as interviews with community residents and representatives.¹³² Hospitals should highlight for community planners vulnerable populations that would benefit from parks and related programs, including access and use for disabled residents. Also, CHNAs involve a multi-stakeholder process that can form the basis for collaboration on HIAs for parks and trails. As hospitals develop strategies and actions for their CHNA implementation plans,

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130. SOUTH CAROLINA INST. OF MED. & PUB. HEALTH, A HEALTH IMPACT ASSESSMENT (HIA) OF PARK, TRAIL, AND GREEN SPACE PLANNING IN THE WEST SIDE OF GREENVILLE, SOUTH CAROLINA (Mar. 2013), *available at* <http://imph.org/wordpress/wp-content/uploads/2013/03/HIA-FullVersion-2013-WEB.pdf>; METROPOLITAN AREA PLANNING COUNCIL, HEALTH IMPACT ASSESSMENT – QUEQUECHAN RIVER RAIL TRAIL PHASE 2, 9 (2012), *available at* http://www.mapc.org/sites/default/files/FallRiver_Final_HIA.pdf; *Update: Institute on Social Exclusion Assessing Health Impact in Chicago's Pilsen, Little Village Communities*, ADLER UNIV. (Jan. 2, 2015), <http://www.adler.edu/blog/update-institute-on-social-exclusion-assessing-health-impact-in-chicagos-pilsen-little-village-communities>.
 131. *See Parks and Trails: Health Impact Assessment Toolkit, Appendix A*, CTRS. FOR DISEASE CONTROL & PREVENTION (2014), https://www.cdc.gov/healthyplaces/parks_trails/appendixa.htm; MINNESOTA DEP'T OF HEALTH, ST. LOUIS PARK COMPREHENSIVE PLAN, HEALTH IMPACT ASSESSMENT 3 (2011), *available at* http://www.health.state.mn.us/divs/hia/docs/slp_hia.pdf; Catherine L. Ross, *Atlanta BeltLine Health Impact Assessment*, GA. INST. OF TECH., at 15 (2007), <http://www.pewtrusts.org/~media/assets/2012/03/01/atlantabeltline.pdf?la=en>; Jonathan C. Heller & Rajiv Bhatia, *The East Bay Greenway Health Impact Assessment*, HUMAN IMPACT PARTNERS 7 (Sept. 10, 2007), <http://www.pewtrusts.org/~media/assets/2007/09/eastbaygreenway.pdf>; WISCONSIN DIVISION OF PUB. HEALTH, MARQUETTE COUNTY ICE AGE TRAIL EXPANSION HEALTH IMPACT ASSESSMENT 8-9 (2011), *available at* <http://www.pewtrusts.org/~media/assets/2011/04/healthimpactassessmentoftheiceagetrailwi.pdf>; *HOPE VI to HOPE SF, San Francisco Public Housing Redevelopment, A Health Impact Assessment*, U. C. BERKELEY HEALTH IMPACT GROUP 8 (Nov. 2009), <http://www.pewtrusts.org/~media/assets/2011/01/hopevitohopesfsanfranciscopublichousingredevelopment.pdf?la=en>; DOUGLAS COUNTY HEALTH DEP'T, ADAMS PARK: A CATALYST FOR COMMUNITY REVITALIZATION AND HEALTH 2 (2012); DOUGLAS COUNTY HEALTH DEP'T, ADAMS PARK HIA AFTERWORD 3 (Oct. 2012), *available at* http://www.douglascounty-ne.gov/health/images/stories/Healthy%20Community/Adams%20Park_Afterword%20ref.pdf.
 132. *See Health Impact Assessment*, CTRS. FOR DISEASE CONTROL & PREVENTION (Sept. 19, 2016), <https://www.cdc.gov/healthyplaces/hia.htm>.

participation in HIAs for parks and trails should be an obvious step to utilize hospitals' expertise and resources in addressing communities' shortcomings in physical activity.

Hospital administrators participating in CHNAs should engage with community decision-makers and environmental organizations on parks and trails. Beyond contributing to HIAs, CHNAs should lead hospitals to support expanded access to parks by having their staffs and administrators communicate the opportunities and related health benefits to patients and communities. As observed in Section II.C above, hospitals have the expertise and roles in communities to influence public awareness of the health benefits of parks. By providing information on how expanding access to parks would improve health outcomes, hospitals take preventive measures for better population health.

Table 2 summarizes the four environmental actions and related indicators for hospitals.

Community Health Concern	Environmental Action for Hospitals	Indicators to Track Action	Health Needs Indicators
Hazardous air pollutants	Decrease energy used in healthcare operations, use clean energy sources, engage hospital facilities management and purchasing staff	Reduced kWh of electricity used in facilities, kWh of electricity from clean sources used in facilities, reduced particulate matter and ozone emissions from facilities' electricity and vehicles	Incidence of asthma attacks, respiratory symptoms, work loss days
Exposure to toxins	Integrate alerts into hospital systems to detect outbreaks and clusters, engage hospital information technology and quality control managers	Types of alerts implemented, number of detections reported to public health departments	Incidence of elevated blood lead levels, asbestosis, and other toxic exposures
Inadequate health literacy	Develop capacity to make decisions reflecting the local health impacts of climate change, engage healthcare	Staff trained for patient and community communication on climate change, number of	Incidence of asthma, allergies, and vector-borne

	providers and community planners	community events on climate change, engagement in disaster preparedness and actions to improve climate resilience	infectious diseases
Obesity	Share analysis in HIAs for local parks and trails, engage community planners and environmentalists	Hospital engagement in local HIAs, community events supporting parks and trails	Participation in physical activity, incidence of obesity and diabetes

Table 2. Indicators to Track the Four Environmental Actions.

III. Conclusion

Adopted at the end of 2014, the Treasury Department regulations for preparing CHNAs allow hospitals broad discretion in identifying significant health needs in a community, determining which needs they will address in their implementation strategies, and designing their actions.¹³³ The regulations, as well as medical and public health research, direct hospitals to consider social, behavioral, and environmental factors affecting community health.

Hospitals and communities should use CHNAs more effectively and in more ways. This article analyzed four commonly prioritized community health concerns: air quality, exposure to toxins, health literacy, and obesity. For each of these priority concerns, many hospitals could undertake reasonable actions linked to environmental conditions that would improve population health. The CHNA process should focus hospital administrators on the local health benefits arising from improving air quality by reducing hospitals’ energy consumption, mitigating threats from toxins by expanding alerts in hospital systems, increasing health literacy by integrating into patient and community decisions the local health impacts of climate change, and decreasing obesity by sharing data and analyses with community planners and environmentalists for HIAs of parks and trails. This portfolio of environmental actions would help many hospitals address community health needs that they recognize as significant but have previously categorized as beyond their resources.

Studies of CHNAs and reports highlighting opportunities to enhance hospitals’ attention to environmental determinants of community health may encourage some improvements in hospitals’ consideration of

133. 26 CFR §1.501(r)–3 (2015).

community conditions and prioritization of actions.¹³⁴ Unfortunately, the sanction allowed under the ACA for failing to meet the CHNA requirements, a \$50,000 excise tax,¹³⁵ provides only a weak incentive for hospitals to consider and address important community environmental conditions in CHNAs.¹³⁶ It is unlikely that the Treasury Department would closely review and penalize a hospital's failure to prioritize environmental actions pursuant to a CHNA. Perhaps state and municipal authorities will use CHNAs that ignore environmental conditions in challenging certain hospitals' claims that they are providing community benefits worthy of tax-exempt status.¹³⁷ Perhaps, in private litigation alleging a hospital's negligence in caring for patients or utilizing hospital information, a party will point to the CHNA regulations in arguing for a standard of reasonable conduct in light of some environmental health risks.

To increase CHNAs' attention to environmental determinants of community health, environmentalists and community planners should partner more closely with hospitals in developing CHNAs and the implementation plans to address community health needs. Such participation would encourage hospitals to consider local environmental conditions and actions (looking beyond access to healthcare issues), facilitate community-wide planning, and promote sharing data and resources. These organizations outside of the healthcare sector should take the initiative in contacting local hospitals and public-health departments. Effective participation requires that the environmentalists and community planners commit staff to the CHNA process, provide data to affected community members that show the adverse health impacts of certain local environmental conditions, and formulate priority actions that would be reasonable for hospital engagement.

It is still early in the nation's experience with the CHNA process. Resources and standards for how hospitals could reasonably and effectively address community health needs through preventive strategies are evolving.¹³⁸ Opportunities for innovative initiatives abound. There is hope

134. See generally *supra* notes 13-18.

135. Affordable Care Act, Pub. L. No. 111-148, §4959 (2010).

136. Cramer, *supra* note 16, at 258 (showing that in study of over 1500 tax-exempt hospitals in 2013, 85% of the hospitals reported that they prioritized health needs of the community served, and 53% of the hospitals reported that they included their CHNA into their operating plan). The author found no reported imposition of this sanction or other enforcement action for inadequacy of a hospital's CHNA.

137. See, e.g., *Utah Cty. v. Intermountain Health Care, Inc.*, 709 P.2d 265, 278 (Utah 1985); *Provena Covenant Med. Ctr. v. Dep't of Revenue*, 925 N.E.2d 1131, 1151-52 (2010).

138. See Daniel R. George et al., *The Role of Nutrition-related Initiatives in Addressing Health Needs Assessments*, 48 AM. J. HEALTH ED. 58 (2017); *Community Benefit/Community Health Needs Assessment*, U.S. NAT'L LIBRARY OF MED. (Mar. 9,

that environmentalists and community planners could use hospitals' CHNAs to move toward more effective hospital actions to address community environmental conditions.

2017), https://www.nlm.nih.gov/hsrinfo/community_benefit.html (resources section listed).

