

**Chapter 1 : Definitions of Environmental Health | National Environmental Health Association: NEHA**

*The Collaborative on Health and the Environment's (CHE's) primary mission is to strengthen the science dialogue on environmental factors impacting human health and to facilitate collaborative, multifactorial, prevention-oriented efforts to address environmental health concerns.*

Those aspects of the human health and disease that are determined by factors in the environment. It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health. Environmental health as used by the WHO Regional Office for Europe, includes both the direct pathological effects of chemicals, radiation and some biological agents, and the effects often indirect on health and well being of the broad physical, psychological, social and cultural environment, which includes housing, urban development, land use and transport. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. This definition excludes behaviour not related to environment, as well as behaviour related to the social and cultural environment, as well as genetics. They also carry out that role by promoting the improvement of environmental parameters and by encouraging the use of environmentally friendly and healthy technologies and behaviors. They also have a leading role in developing and suggesting new policy areas. Researchers and policy-makers also play important roles in how environmental health is practiced in the field. In many European countries, physicians and veterinarians are involved in environmental health. The environmental health profession had its modern-day roots in the sanitary and public health movement of the United Kingdom. This was epitomized by Sir Edwin Chadwick , who was instrumental in the repeal of the poor laws , and in was the founding president of the Association of Public Sanitary Inspectors, now called the Chartered Institute of Environmental Health. Each of these disciplines contributes different information to describe problems and solutions in environmental health, but there is some overlap among them. Environmental epidemiology studies the relationship between environmental exposures including exposure to chemicals, radiation, microbiological agents, etc. Observational studies, which simply observe exposures that people have already experienced, are common in environmental epidemiology because humans cannot ethically be exposed to agents that are known or suspected to cause disease. While the inability to use experimental study designs is a limitation of environmental epidemiology, this discipline directly observes effects on human health rather than estimating effects from animal studies. Toxicology has the advantage of being able to conduct randomized controlled trials and other experimental studies because they can use animal subjects. However there are many differences in animal and human biology, and there can be a lot of uncertainty when interpreting the results of animal studies for their implications for human health. Exposure science can be used to support environmental epidemiology by better describing environmental exposures that may lead to a particular health outcome, identify common exposures whose health outcomes may be better understood through a toxicology study, or can be used in a risk assessment to determine whether current levels of exposure might exceed recommended levels. Exposure science has the advantage of being able to very accurately quantify exposures to specific chemicals, but it does not generate any information about health outcomes like environmental epidemiology or toxicology. This can in turn be used to develop and implement environmental health policy that, for example, regulates chemical emissions, or imposes standards for proper sanitation. Concerns[ edit ] This article is in a list format that may be better presented using prose. You can help by converting this article to prose, if appropriate. Editing help is available. January Environmental health addresses all human-health-related aspects of the natural environment and the built environment. Environmental health concerns include:

## Chapter 2 : Environment | Definition of Environment by Merriam-Webster

*Humans interact with the environment constantly. These interactions affect quality of life, years of healthy life lived, and health disparities. The World Health Organization (WHO) defines environment, as it relates to health, as "all the physical, chemical, and biological factors external to a.*

However, nanotechnology may also present unintended health risks or changes to the environment. It is presumed that some of these chemicals may present new, unexpected challenges to human health, and their safety should be evaluated prior to release. These cross-cutting issues are not yet understood well enough to inform the development of systems for measuring and tracking their impact. Further exploration is warranted. The environmental health landscape will continue to evolve and may present opportunities for additional research, analysis, and monitoring. Blood Lead Levels As of , there are approximately 4 million houses or buildings that have children living in them who are potentially being exposed to lead. Nearly half a million U. Since no safe blood lead level have been identified for children, any exposure should be taken seriously. However, since lead exposure often occurs with no obvious signs or symptoms, it often remains unrecognized. References 1 World Health Organization. Preventing disease through healthy environments. Status and trends through Impact of regional climate change on human health. Climate change, air quality, and human health. Am J Prev Med. Environmental health, from global to local. Biological interactions of carbon-based nanomaterials: From coronation to degradation. Health and the Built Environment: Am J Public Health.

**Chapter 3 : WHO | Public Health, Environmental and Social Determinants of Health**

*Health & Environment In a pioneering report, ACEEE's Health and Environment Program documents how saving energy does more than save money – it protects health. Reducing energy waste reduces pollution.*

Stone;<sup>1</sup> Ronda Hughes;<sup>2</sup> Maureen Dailey. As a result, researchers, policymakers, and providers have intensified their efforts to understand and change organizational conditions, components, and processes of health care systems as they relate to patient safety. Health care is the second-fastest growing sector of the U.S. Most important, improving the work environment may also improve the quality and safety of patient care. High turnover has been recognized as a problem in many service industries, including health care. While these cost estimates rely on nurse manager reports of decreased productivity, clearly there are avoidable organizational monetary and human costs related to high turnover of desirable employees. Using multiple databases in an academic medical center, other analysts found the low-end estimate for the cost of employee turnover accounted for greater than 5 percent of the annual operating budget. Throughout the body of patient safety and occupational health literature, authors refer to concepts of organizational climate and culture as well as safety climate and culture. Culture broadly relates to the norms, values, beliefs, and assumptions shared by members of an organization or a distinctive subculture within an organization. In occupational health, attributes of a safe climate in hospitals have been found to include senior management support for safety programs, absence of hindrances to safe work practices, availability of personal protective equipment, minimal conflict, cleanliness of work site, good communication, and safety-related feedback. Additionally, they should be synergistic and correlate with the overall organizational climate. Indeed, a positive organizational climate is most likely an essential antecedent to the development of a strong safety climate. Using this model as the organizing framework, this chapter reviews the evidence examining the impact of organizational climate on patient and employee outcomes. It is important to note that we are focusing on the broad concept of organizational climate. Another chapter in this volume focuses specifically on safety culture and climate. Based on the evidence on organizational climate and the relationships with patient outcomes, job satisfaction, and turnover, we have developed a new conceptual model of organizational attributes and outcomes. Research Evidence Overall 14 studies were reviewed. In four of the published studies, the researchers focused only on patient outcomes, 23<sup>26</sup> with one of the teams reporting the results related to worker turnover and job satisfaction in other publications. In the following section, the studies focusing on organizational climate and patient outcomes are synthesized, followed by a synthesis of the evidence linking organizational climate with turnover and job satisfaction. Organizational Climate and Patient Outcomes Table 1 describes the primary research six studies found investigating organizational climate and patient safety outcomes. The attributes of organizational climate measured varied. For example, in one study the measure of patient safety was nurse-reported medication errors; 24 another research team measured self-report service quality. The settings studied also varied across projects and were primary care sites, rural hospitals, outpatient social services, specialized hospital settings e. All studies used cross-sectional designs with the exception of one group reporting on the evaluation of a quality-improvement project. Organizational Climate and Patient Outcomes Organizational Climate, Turnover, and Job Satisfaction Table 2 provides the results of the current evidence found examining the relationships among organizational climate and worker outcomes i. Ten studies were found, half of which included both job satisfaction and turnover. Again, the organizational climate attributes varied from morale to composite measures of organizational climate. Most studies 80 percent were conducted in the United States, but nurses employed in Australia, 31 Belgium, 32 and Hong Kong 33 were also studied. The majority of the studies were cross-sectional, with only one pre-post test intervention study. The results related to turnover were not quite as strong, and researchers in one study found that job satisfaction mediated the effect of organizational climate on turnover. For the most part, the research findings were consistent; patient and employee outcomes were affected by organizational climate. However, the strength of the relationship between organizational climate and job satisfaction was stronger than the relationship between organizational climate and turnover. Furthermore, the evidence base regarding organizational climate and

patient safety outcomes was scant, with only six studies found, and only three of those studies focused on patients in acute care settings. Despite these limitations, the consistency of the findings point to the importance of organizational climate on patient and employee outcomes. Based on this review and our previous work, we developed the conceptual model displayed in Figure 1. The structural characteristics of the setting may serve as enabling factors for outcomes. These first and foremost include senior leadership. Other important enabling factors are related to the infrastructure such as technology available and communication systems. We call these enabling factors structural characteristics because they are not easily changed. It is important to understand these microclimates are not conceptualized as mutually exclusive or independent. We believe these microclimates interact with each other and are synergistic. For example, a setting that focuses on occupational safety may also focus on evidence-based, patient-centered care; additionally, collaboration and communication among providers and patients may be important shared components of each microclimate. Again, the outcomes are conceptualized at three different levels: The list of specific outcomes under each category is representative of the category, but it is not exhaustive. The existence of a relationship between a positive organizational climate and both worker and patient outcomes means that facilities need to be aware of the importance of assessing and periodically reassessing the climate within their organization. There are published reviews of instruments used to assess organizational climate. Nurse educators need to develop and evaluate safety and leadership curriculum. With the high costs of nursing turnover, efforts to increase job retention levels are likely to be financially beneficial. This is discussed further in the next chapter. It is likely then that development and utilization of readily available tools to assess organizational climate will expand the evidence base and provide key information to leaders and managers to improve job satisfaction, interdisciplinary teamwork, and retention, ultimately improving the quality of health care delivery. Indeed, the usefulness of this information would likely be considerably improved if it were linked with ongoing patient-safety monitoring and quality-improvement activities within the organization. Organizational climate is more malleable and open to change than the more-entrenched aspects of culture. Thus, data-driven leaders can be proactive by assessing both worker perceptions and outcomes to ensure safety processes are adhered to more consistently.

**Research Implications** This review identified a number of gaps in the research evidence. First and foremost, as interventions are developed to improve the organizational climate, rigorous research and evaluation studies need to be conducted. It is important to note, however, that this type of research will not often lend itself to randomized controlled trials. Other epidemiological designs that control for confounding variables and ensure comparability between groups will most likely be needed. Second, future research aimed at understanding the impact of human capital variables would help advance the field and assure that study results are more consistent and comparable. The model provided presents various aspects of organizational climate that may be measured in different research projects, across a research portfolio, and in various settings. It is doubtful that any one study would include all aspects presented in this model. Rather, the researcher may use this model to select the organizational aspects and outcomes most appropriate to their research aims. Organizational climate is one of the overarching aspects found in the work environment. However, it is not the only aspect related to patient safety and worker satisfaction and turnover. Other environmental aspects include actual workload, such as nurse-to-patient ratios in acute and long-term care and caseloads in outpatient settings; scheduled work hours. The impact of these other aspects of the work environment is discussed elsewhere in this volume. There are both strengths and limitations to this review. In our search for evidence we attempted to be comprehensive. However, we may have missed some studies. Additionally, only primary studies published in English after the year were audited.

**Conclusion** Gradually, evidence is accumulating that links work environments to behavior, attitudes, and motivations among clinicians. These behaviors and orientations can, in turn, affect quality processes and outcomes. A growing number of studies in health care show that members of organizations are more satisfied when they work in climates that have more supportive and empowering leadership and organizational arrangements, along with more positive group environments often reflecting elements of group support and collaboration. Moreover, although the research base is not as strong, there is emerging evidence that these same organizational attributes impact employee turnover and, most important, patient safety. Improving the

organizational climate is likely to improve patient safety and decrease overall health care costs. However, future research studying specific interventions and their cost effectiveness is needed. Search Strategy A systematic review of the literature was conducted focusing on relationships among organizational climate and three outcomes: Abstracts were examined by two nurse researchers if the article was published in or after, written in English, and pertained to health care organizations. Manuscripts were obtained and reviewed if they were primary reports of research findings. Reference lists were also reviewed for key articles. Publications that presented primary research findings and had sample sizes of greater than 30 respondents were organized into two tables presenting evidence on the relationships between organizational climate and 1 patient outcomes, and 2 worker satisfaction and retention of workers. Each study was audited for the following elements: All studies were reviewed by two authors. Crossing the quality chasm: National Academy Press; Bureau of Labor Statistics, U. Occupational outlook handbook, 6<sup>th</sup> edition. The global nursing shortage: Antecedents to retention and turnover among child welfare, social work and other human service employees: What can we learn from past research? A review and meta-analysis. Int J Nurs Stud. Job openings and labor turnover survey. Kosel K, Olivio T. The business case for work force stability. The costs of nurse turnover, part 2: The shocking cost of turnover in health care. Health Care Manage Rev. Zhan C, Miller MR.

**Chapter 4 : Environmental Health**

*Environmental health is the branch of public health concerned with all aspects of the natural and built environment affecting human health. Other terms referring to or concerning environmental health are environmental public health, and public health protection/ environmental health protection.*

In addition, a growing body of research has documented associations between social and cultural factors and health Berkman and Kawachi, ; Marmot and Wilkinson, For some types of social variables, such as socioeconomic status SES or poverty, robust evidence of their links to health has existed since the beginning of official record keeping. For other kinds of variables—such as social networks and social support or job stress—evidence of their links to health has accumulated over the past 30 years. The purpose of this chapter is to provide an overview of the social variables that have been researched as inputs to health the so-called social determinants of health , as well as to describe approaches to their measurement and the empirical evidence linking each variable to health outcomes. It should be emphasized at the outset that the social determinants of health can be conceptualized as influencing health at multiple levels throughout the life course. Thus, for example, poverty can be conceptualized as an exposure influencing the health of individuals at different levels of organization—within families or within the neighborhoods in which individuals reside. Moreover, these different levels of influence may co-occur and interact with one another to produce health. For example, the detrimental health impact of growing up in a poor family may be potentiated if that family also happens to reside in a disadvantaged community where other families are poor rather than in a middle-class community. Furthermore, poverty may differentially and independently affect the health of an individual at different stages of the life course e. In short, the influence of social and cultural variables on health involves dimensions of both time critical stages in the life course and the effects of cumulative exposure as well as place multiple levels of exposure. The contexts in which social and cultural variables operate to influence health outcomes are called, generically, the social and cultural environment. Comprehensive surveys of current areas of research in the social determinants of health can be found in existing textbooks Marmot and Wilkinson, ; Berkman and Kawachi, These variables are highlighted because of their robust associations with health status and their well-documented and reliable methods of measuring these variables, and because there are good reasons to believe that these variables interact with both behavioral as well as inherited characteristics to influence health. Socioeconomic differences in health are large, persistent, and widespread across different societies and for a diverse range of health outcomes. In the social sciences, SES has been measured by three different indicators, taken either separately or in combination: Although these measures are moderately correlated, each captures distinctive aspects of social position, and each potentially is related to health and health behaviors through distinct mechanisms. Educational Attainment Education is usually assessed by the use of two standard questions that ask about the number of years of schooling completed and the educational credentials gained. The quality of education also may be relevant to health, but it is more difficult to assess accurately. An extensive literature has linked education to health outcomes, including mortality, morbidity, health behaviors, and functional limitations. The relationship between lower educational attainment and worse health outcomes occurs throughout the life course. For example, infants born to Caucasian mothers with fewer than 12 years of schooling are 2. An association between education and health in observational data does not necessarily imply causation. Alternatively, the association between education and health may partly reflect confounding by a third variable, such as ability, which is a prior common cause of both educational attainment and health status. The totality of the evidence suggests, nonetheless, that education is a causal variable in improving health. Natural policy experiments—such as the passage of compulsory schooling legislation at different times in different localities within the United States—suggest that higher levels of education are associated with better health lower mortality Lleras-Muney, It is therefore likely that the association between schooling and health reflects both a causal effect of education on health, as well as an interaction between the level of schooling and inherited characteristics. Several causal pathways have been hypothesized through which higher levels of schooling can

improve health outcomes. They include the acquisition of knowledge and skills that promote health e. Although it is not established which of these pathways matter more for health, they each are likely to contribute to the overall pattern of higher years of schooling being associated with better health status. Moreover, the evidence points to the importance of improving access to preschool education as a means of enhancing the health prospects of disadvantaged children Acheson, Income The measurement of income is more complex than assessing educational attainment. Survey-based questions inquiring about income must minimally specify the following components: In addition to the higher rate of measurement error for income as compared to educational attainment , this variable also is associated with higher refusal rates in surveys that are administered to the general population. As with education, an extensive literature has documented the association between income and health. For example, even after controlling for educational attainment and occupational status, post-tax family income was associated with a 3. That is, the excess risks of poor health are not confined simply to individuals below the official poverty threshold of income. That is, the relationship between the two variables is acknowledged to be dynamic and reciprocal. Ill health is a potent cause of job loss and reduction in income. Indeed, income as an indicator of SES is more susceptible to reverse causation than education, which tends to be completed in early adult life prior to the onset of major causes of morbidity and functional limitations. For example, children do not normally contribute to household incomes, yet their health is strongly associated with levels of household income in both the Panel Study of Income Dynamics and the National Health Interview Surveys Case et al. An alternative possibility is that the relationship between income and health is explained by a third variable—such as inherited ability—that is associated with both socioeconomic mobility and the adoption of health maintenance behaviors. Yet, in the National Health Interview Survey, the impact of family income on child health has been found to be similar among children who were adopted by nonbiological parents compared to children who were reared by their biological parents Case et al. The causal pathways linking income to health are likely to be different from those linking education to health. Most obviously, income enables individuals to purchase various goods and services e. Additionally, secure incomes may provide individuals with a psychological sense of control and mastery over their environment. See Chapter 4 for a detailed discussion of psychological factors and health. That said, it has also been observed that higher incomes are associated with healthier behaviors such as wearing seatbelts and refraining from smoking in homes that do not, in themselves, cost money Case and Paxson, Debate also exists in the literature concerning whether it is absolute income or relative income that matters for health Kawachi and Kennedy, Many definitions of poverty, for example, are based upon the concept of the failure to meet a minimal standard of living defined in absolute terms e. The concept of relative income has been operationalized in empirical research by measures of relative deprivation at the individual level as well as by aggregate measures of income inequality at the community level. Measures of relative deprivation involve assessments of the income distance between individuals and their comparison or reference group—that is defined by others who are alike with respect to age group, occupational class, or community of residence. The causal mechanisms underlying the relationship between absolute income and health are linked to the ability to access material goods and services necessary for the maintenance of health. Relative income is hypothesized to be linked to health through psychosocial stresses generated by invidious social comparisons as well as by the inability to participate fully in society because of the failure to attain normative standards of consumption. Growing evidence has suggested an association between relative deprivation measured among individuals and poor health outcomes Aberg Yngwe et al. A related literature has attempted to link the societal distribution of income as an aggregate index of relative deprivation to individual health outcomes, although the findings in this area remain contested Subramanian and Kawachi, ; Lynch et al. Variables other than household income also may be useful for health research—such as assets including inherited wealth, savings, or ownership of homes or motor vehicles Berkman and Macintyre, While income represents the flow of resources over a defined period, wealth captures the stock of assets minus liabilities at a given point in time, and thus indicates economic reserves. Measuring wealth is particularly salient for studies that involve subjects towards the end of the life course, a time when many individuals have retired and depend on their savings. In the Panel Study of Income Dynamics, for example, only a weak association was seen between post-tax family income and

mortality among post-retirement-age subjects, while measures of wealth continued to indicate a strong association with mortality risk Duncan et al. Finally, measures of income, poverty, and deprivation have been extended to incorporate the dimension of place. Growing research, utilizing multilevel study designs, has conceptualized economic status as an attribute of neighborhoods Kawachi and Berkman, These studies have revealed that residing in a disadvantaged or high-poverty neighborhood imposes an additional risk to health beyond the effects of individual SES. A recent Department of Housing and Urban Development randomized experiment in neighborhood mobility, the so-called Moving To Opportunity study, found results consistent with observational data: Moving from a poor to a wealthier neighborhood was associated with significant improvements in adult mental health and rates of obesity Kling et al. Disadvantaged neighborhoods are often characterized by adverse physical, social, and service environments, including exposure to more air pollution via proximity to heavy traffic, a lack of local amenities such as grocery stores, health clinics, and safe venues for physical activity, and exposure to signs of social disorder Kawachi and Berkman, Occupational Status The third standard component of SES that typically is measured by social scientists is occupational status, which summarizes the levels of prestige, authority, power, and other resources that are associated with different positions in the labor market. Occupational status has the advantage over income of being a more permanent marker of access to economic resources. Three main traditions can be discerned in the way in which different disciplines have approached the measurement of aspects of occupations relevant to health. In the traditional occupational health field, researchers have focused on the physical aspects of the job, such as exposure to chemical toxins or physical hazards of injury Sloté, In the fields of occupational health psychology and social epidemiology, researchers have focused on characterizing the psychosocial work environment, including measures of job security, psychological job demands and stress, and decision latitude control over the work process Karasek and Theorell, Finally, the sociological tradition has tended to focus on occupational status, which includes both objective indicators e. Several alternative approaches currently exist for the measurement of occupational status. For a detailed description, see Berkman and Macintyre as well as Lynch and Kaplan For example, the Edwards classification U. Census Bureau, is a scheme based upon the conceptual distinction between manual and nonmanual occupations. An alternative and commonly used measure of occupational status is the Duncan Socioeconomic Index SEI , which combines subjective ratings of occupational prestige with objective measures of education and incomes associated with each occupation. SEI scores, which range from 0 to , were originally constructed by Duncan using data from the National Opinion Research Center study, which provided public opinions about the relative prestige rankings of representative occupations. These prestige rankings were then combined with U. Census information on the levels of education and incomes associated with each Census-defined occupation. The resulting SEI scores have been updated several times Burgard et al. In the Wisconsin Longitudinal Survey of men and women who graduated from Wisconsin high schools in 53 or 54 years old in , Duncan SEI scores were inversely associated with self-reported health, depression, psychological well-being, and smoking status Marmot et al. As is the case with both education and income, an association between occupational status and health may partly reflect reverse causation. That is, ill health e. Although the adverse health impact of job loss e. As noted above, existing measures of occupational status such as the Duncan SEI combine measures of prestige with indicators of education and income that are thought to affect health independently. In addition, there are uncertainties regarding the optimal time point for measuring occupational status, especially since individuals change occupations over their life course. The potential pathways linking occupational status to health outcomes are again distinct from those linking either education or income to health. First, higher status and nonmanual occupations are less likely to be associated with hazardous exposures to chemicals, toxins, and risks of physical injury. Higher status jobs also are more likely to be associated with a healthier psychosocial work environment Karasek and Theorell, , including higher levels of control decision latitude as well as a greater range of skill utilization lack of monotony. A greater sense of control in turn implies improved ability to cope with daily stress, including a reduced likelihood of deleterious coping behaviors such as smoking or alcohol abuse. Undoubtedly, a major intervening pathway between occupational status and health is through the indirect effects of higher incomes and access to a wider range of resources such as powerful social connections. In summary, there is good

evidence linking each of the major indicators of SES to health outcomes. Together, education, income, and occupation mutually influence and interact with one another over the life course to shape the health outcomes of individuals at multiple levels of social organization the family, neighborhoods, and beyond. Social Networks, Social Support, and Health An independent social determinant of health is the extent, strength, and quality of our social connections with others. Recognition of the importance of social connections for health dates back as far as the work of Emile Durkheim. More recently John Bowlby maintained that secure attachments are not only necessary for food, warmth, and other material resources, but also because they provide love, security, and other nonmaterial resources that are necessary for normal human development Berkman and Glass, Certain periods during the life course may be critical for the development of bonds and attachment Fonagy, According to attachment theory, secure attachments during infancy satisfy a universal human need to form close affective bonds Bowlby, Two social variables are of particular interest in characterizing social relationships:

### Chapter 5 : Department of Public Health and Environment |

*Environmental health is a key part of any comprehensive public health system. The field works to advance policies and programs to reduce chemical and other environmental exposures in air, water, soil and food to protect people and provide communities with healthier environments.*

### Chapter 6 : Environmental Health | Healthy People

*CDC's National Center for Environmental Health (NCEH) plans, directs, and coordinates a program to protect the American people from environmental hazards. We promote a healthy environment and prevent premature death, avoidable illness and disability caused by non-infectious, non-occupational environmental and related factors.*

### Chapter 7 : The Link between the Environment and Our Health - Scientific American

*Environmental Health is the branch of public health that focuses on the interrelationships between people and their environment, promotes human health and well-being, and fosters healthy and safe communities.*

### Chapter 8 : The Human and Environmental Effects of E-Waste – Population Reference Bureau

*The role of the Department of Public Health, Environmental and Social Determinants of Health (PHE) within the overall work of WHO is to promote a healthier environment, intensify primary prevention and influence public policies in all sectors so as to address the root causes of environmental and social threats to health.*

### Chapter 9 : Environmental Health | Healthy People

*Department of Public Health and Environment. Skip to main content. LPHAs; Welcome. About us Careers Contact us Find health care and health insurance.*