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Social Determinants of Health

What Are They and How Do We Screen

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The *Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity* report recognizes nurses' impact on the medical and social factors that drive health outcomes (National Academies of Sciences, Engineering, and Medicine [NASEM], 2021). The report calls for nursing to take bold steps to address individual and structural level social determinants of health (SDoH)—or social and environmental factors contributing to poor health, poor health outcomes, and health disparities (NASEM, 2021, p. 5). Nurses must recognize the significance of SDoH on patient health outcomes in order to advance health equity and employ nursing interventions to affect positive change for our patients. SDoH are part of our patients' stories, and holistic nursing means we know the whole patient story.

Although it is now widely recognized that SDoH affect health outcomes, a key challenge for nurses is that they represent an enormous range of factors—from food and housing insecurity to personal safety and environmental exposures—that may be more or less able to change with interventions in clinical settings. Furthermore, concerns have been raised that screening for SDoH—especially when not done with sensitivity, cultural competence, or ready intervention—may compromise therapeutic relationships and marginalize patients (Wallace et al., 2020). However, despite these concerns, healthcare systems are widely adopting SDoH assessments, generally through electronic health record screening questions, and attempting to implement associated workflows and interventions. Given this landscape, the purpose of this article, within this special issue of *Orthopaedic Nursing*, is to provide an overview of SDoH factors, identify best practices related to screening and referral, and highlight nurse-directed interventions in clinical settings.

Social Determinants of Health

Social determinants of health (SDoH) are the conditions in which people are born, live, work, learn, worship, play, and age (Office of Disease Prevention and Health Promotion [ODPHP], 2021a). These conditions are known to influence the majority of individual health outcomes (Centers for Disease Control and Prevention [CDC], 2018). For orthopaedic nurses, SDoH have a tremendous influence on patients' physical therapy outcomes and musculoskeletal recovery (Rethorn et al., 2019). SDoH include health-related social needs and social, economic, and environmental factors (Magnan, 2017). Factors addressed within SDoH are *health behaviors* (such as tobacco, diet and exercise, alcohol and drug use, and sexual activity), *clinical care issues* (access to care and quality of care), *social and economic factors* (education, employment, income, family and social support, and community safety), and *physical environmental factors* (air and water quality and housing and transportation) (Magnan, 2017; University of Wisconsin Population Health Institute, 2021).

Many factors influence our length and quality of life (University of Wisconsin Population Health Institute, 2021). The County Health Rankings Model provides an illustration of how each factor impacts individual and community health (see Figure 1). Within this model, we can see the percentage of influence of each health factor, with health behaviors attributing to health outcomes. Many organizations, including Healthy People 2030 (2021), group health-related factors in similar ways.

Social and Economic Factors

Social and economic factors represent the most influential and largest group of health factors, impacting 40% of health outcomes. These factors include education, employment, income, family and social structures, and community safety (University of Wisconsin Population Health Institute, 2021). Although the socioeconomic factors may not be modifiable in the clinical setting, the intent of screening is to identify and acknowledge the need, make possible referrals, and, most importantly,

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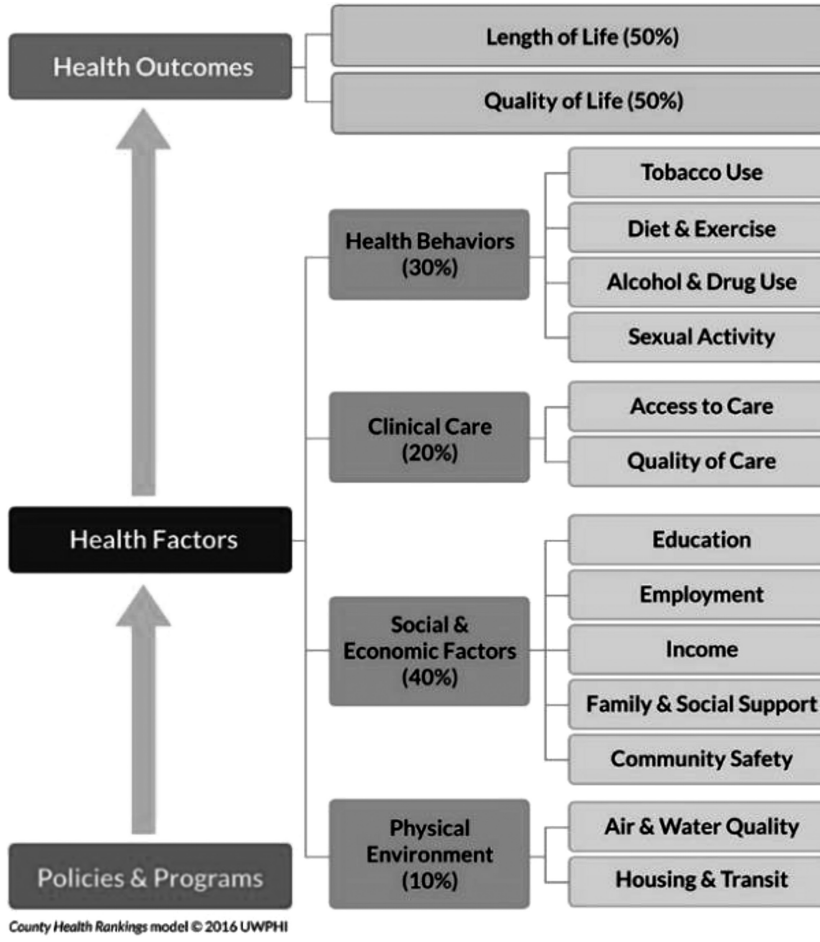

FIGURE 1. County Health Rankings Model. From *County Health Rankings & Roadmaps*, by the University of Wisconsin Population Health Institute, 2021 (www.countyhealthrankings.org). Reprinted with permission.

initiate the patient's plan of care with these needs in mind.

Education

Adults live healthier and longer lives, and their children thrive, when they have attained higher levels of education compared with less educated peers (Zajacova & Lawrence, 2018). Across the United States, a large gap exists in the level of education attained between people who live in the least healthy counties and the healthiest counties (University of Wisconsin Population Health Institute, 2018). Semega et al. (2018) found a statistically significant increase in poverty rates among people 25 years and older who had not completed high school. Education plays an important role in opening opportunities that impact wellness: Education influences employment opportunities and therefore the potential for income and benefits such as paid time off and insurance (University of Wisconsin Population Health Institute, 2018).

Better health outcomes and life expectancy are associated with people who have higher levels of education, as education influences employment opportunities, salary levels, and the employee's ability to afford health insurance (McGill, 2016). Trauma patients with low level of education have significantly worse outcomes in functional status, chronic pain, and ability to return to work (Herrera-Escobar et al., 2019).

Employment/Income

Economic stability is the connection between a person's finances and their health and is vital to accessing quality medical care and the ability to afford lifestyle choices (Sherrell, 2021). Nearly one in 10 people live in poverty in the United States (Semega et al., 2018). Poverty is a complex, often bidirectional, structure in that it can be both a cause and a result of disease; furthermore, poverty both affects an individual's likelihood to have risk factors for disease and affects the ability and opportunity for disease prevention and management (American Academy of Family Physicians [AAFP], 2021). For example, substance use disorders and mental and chronic health conditions are more prevalent in patients of lower socioeconomic status (SES) (Walker & Druss, 2017). Most SDoH screening questions seek to answer the level of financial strain on the patient's ability to pay for basic needs (food, housing, medical care, and heating) and to identify the type of resource needed.

Unintentional shame may be placed by the care team on the patient with low income when behaviors such as missed or late to appointments and lack of medical treatment adherence are perceived as "noncompliant"

(AAFP, 2021). These patients may not feel comfortable sharing the challenges they are encountering to acquire health care such as transportation or the expense of medications and tests (AAFP, 2021).

Social Support

The lack of meaningful contact with others is defined as social isolation and may result in feeling lonely (American Health Insurance Plans, 2019). The quality and quantity of social relationships affect physical and mental health, healthy behaviors, mortality (Flowers et al., 2017), and hospital readmission (Donovan & Blazer, 2020). For socially isolated older adults, Medicare spent an estimated $134 more per month than those identified as connected older adults (Flowers et al., 2017). Identifying whether and how an individual's social support system plays in their ability to engage in self-care is imperative for proactive discharge planning (Wallace et al., 2017). Screening questions may ask the individual how often they talk on the phone or get together with family, friends, or neighbors. In addition, exploring an individual's attendance and belonging to clubs, organizations, and religious service can identify additional support and types of support systems as well as causative factors and outcomes. Although screening for marital status is important, being married does not remove the risk of social isolation (Flowers et al., 2017).

Community Safety

Violence has a ripple effect as it can affect the health of victims, perpetrators, and the communities where they live (Rivara et al., 2019). Crime and violence exposure within communities has short- and long-term health effects (Healthy People 2030, 2021). The prevalence of violence is higher in areas with greater poverty (AAFP, 2021). There are additional factors to poverty that impact the incidence of violent crimes (i.e., homicide) in communities such as substance abuse, access to firearms, and overall levels of crime (Rivara et al., 2019). The biological and mental health effects of violence impact the incidence of cardiovascular disease, premature mortality, depression, anxiety, posttraumatic stress disorder, and suicide (Rivara et al., 2019).

The spaces in which we live, work, and play impact our ability to perform physical activity in a safe manner. Across U.S. cities, approximately 15% of the land is deemed vacant or abandoned (Branas et al., 2018). The perception of safety and people's actual physical safety are affected by the vacant and blighted urban land (Branas et al., 2018). Interventions in urban areas aimed at "greening" a space with trash pickup and mowing have been shown to reduce shootings (Moyer et al., 2019). People may be less likely to participate in physical activity and may report poorer self-rated health and mental health with neighborhood safety fears (Meyer et al., 2014). Brown et al. (2014) found that people who perceive their environment unsafe from crime may have higher levels of obesity and body mass index scores because of less physical activity. But, in sum, exposure of violence across the life span can have a cumulative effect on a person's health (Rivara et al., 2019).

Community safety questions may not be part of the data collected in a screening tool in the electronic health record (EHR) and may be explored by other members of the interprofessional team, particularly those engaged in home visitations or involved in community outreach. Questions related to community safety explore domains related to the visibility of law enforcement, gang activity, drug traffic, and gun violence or public fighting (North Carolina Department of Health and Human Services, 2018).

Health Behaviors

Health behaviors account for 30% of the factors that contribute to health outcomes (University of Wisconsin Population Health Institute, 2021). Many of these behaviors clinicians already identify as key areas being addressed with patients on hospital admission or clinic visit. Clinicians may have workflow processes to address a positive screen and mitigate behaviors to promote future health for patients (e.g., referral to diabetes education or a smoking cessation program).

These stressors include tobacco use, food insecurity, alcohol/drugs/substance use, physical activity, and sexual activity. Although the County Health Rankings Model does not include intimate partner violence (IPV), depression, or stress as factors of health, as nurses, we recognize these affect health behaviors and outcomes. Validated screening tools are used to capture what social needs our patient experience, and we recognize that these factors are all related to impediments to engage in healthy behavior change interventions.

Tobacco Use

In the United States, smoking is the most common cause of preventable disease, disability, and death, making smoking cessation the most important action to improve population health and quality of life (CDC, 2020b). More than 480,000 smoking-related deaths occur annually (Diaz, 2019). Adults living below poverty level and those with less than high school education have higher tobacco consumption (CDC, 2019a). Although genetics plays a role and smoking occurs across socioeconomic classes, risk factors for starting and continuing smoking are influenced by social environments more often encountered in the landscape of poverty (ODPHP, 2021b).

Hospitals, emergency departments, and clinics are incorporating tobacco use and smokeless (vaping) screening into workflows and documenting in the EHR. In addition, pediatricians are screening adolescents and children for secondhand smoke exposure and provide resources for smoking cessation (Marbin et al., 2021). Screening questions aim to answer start date, quit date, packs per day, years smoked, and readiness to quit. Support is beneficial in improving cessation rates. Telephone text hotlines (1-800-QUIT-NOW) have been used in the United States to provide ongoing support (Rigotti, 2021).

Food Insecurity

According to the U.S. Department of Agriculture (USDA; 2021), food security is when all people, always, have access to enough food to have an active and health life.

Food is considered a household resource and therefore not defined at an individual level. A household is considered food insecure if they had insufficient money and other resources for food and reported as low or very low food security (Coleman-Jensen et al., 2020). Since 1995, the USDA collects annual survey data to address access and adequacy of food security (Coleman-Jensen et al., 2020). Approximately 10.5% of U.S. households experienced food insecurity at some time during 2019, which is a downward trend since a peak of 14.9% in 2011 (Coleman- Jensen et al., 2020). From a global perspective, five characteristics are associated with food insecurity: education, social networks, social capital, income, and employment (Cafiero et al., 2018). Screening for food insecurity can be accurately assessed using a two-item questionnaire asking: "(1) "Within the past 12 months, we worried whether our food would run out before we got money to buy more" and (2) "Within the past 12 months, the food we bought just didn't last and we didn't have money to get more" (Hager et al., 2010, p. e29).

Food insecurity is linked to a higher chance of chronic disease and has a stronger association with chronic disease than income (Gregory & Coleman-Jensen, 2017). Disability is a contributing factor in food insecurity. Heflin et al. (2019) found that individuals, aged 19–59 years, with mobility limitations, functional limitations, and work-limiting disabilities, such as arthritis, have increased chance of food insecurity. Although food insecurity rates have declined over the years, single-mother households, African Americans, and Hispanics continue to encounter higher food insecurity rates (Coleman-Jensen et al., 2020). Full-time employment by a member of the household reduces the prevalence of food insecurity (Coleman-Jensen et al., 2020). The interdependence of unemployment and consequential poverty limits the opportunities to buy foods high in nutritional value (Kind & Golden, 2018). These foods are typically energy-dense, low-cost, "convenience" foods that contribute to obesity (Decker & Flynn, 2018).

Physical Activity

Incorporating regular physical activity is one of the most important ways people can improve their health (Healthy People 2030, 2021). Physical activity can reduce the risk of many chronic diseases and improve the way individuals feel (reduce anxiety and depression) and function (improved cognition, bone health, and sleep) (Piercy et al., 2018). Research shows the benefits of exercise includes, but is not limited to, lower risk of all-cause mortality, heart disease, stroke, hypertension, Type 2 diabetes, and some cancers (Piercy et al., 2018). In the United States, approximately 80% of adults are insufficiently active (Piercy et al., 2018). O'Donoghue et al. (2018) found in the systematic literature review that overall SES was the sole factor significantly related to overall physical activity in adults and older adults. Screening questions for physical activity behavior address the number of days in a week the individual engaged in moderate to strenuous exercise and the number of minutes at that level (Coleman, 2012).

Alcohol/Drugs/Substance Use

The abuse of drugs, alcohol, or both is associated with a variety of destructive social conditions and negative health outcomes (ODPHP, 2021c). Community, household (family), and interpersonal (friends and social groups) dynamics are strongly influenced by substance use (ODPHP, 2021c). Opioid use risk and initiation at an early age are linked to childhood trauma (Stein et al., 2017). Alcohol Screening and Brief Intervention has been shown to be effective in reducing excessive drinking (CDC, 2020c). Screening has the individual answer a single question of alcohol use, with expansion into daily and weekly limit to screen for excess. If a positive screen, the use of the full 10 question AUDIT (U.S.) Alcohol Use Disorders Identification Test instrument is recommended to assess harm and dependence (CDC, 2014). If there is likeliness for dependence, a brief intervention with a referral is recommended.

Sexual Activity

Sexual risk behaviors can result in unintended health consequences such as HIV infection, sexually transmitted infections, and pregnancy (CDC, 2021). Sexual health is influenced by a number of social factors: healthcare access, health literacy, insurance level, income, cultural and social norms, sexual behavior, education, sex, gender identity, and sexual orientation (Stumbar et al., 2018). The interrelation of SDoH and teen pregnancy produces a cyclical pattern of economic and social hardship. Inadequate education and lower levels of poverty also are associated with teenage pregnancy (Mollborn, 2017). Evidence also tells us that stigma and discrimination experienced by LGBTQ youth place them at a greater risk for negative sexual health outcomes (CDC, 2019b).

Intimate Partner Violence

IPV is under a broader term of domestic violence. IPV involves current or former partners and can vary in frequency and severity of episodes (CDC, 2020a). IPV can include stalking, psychological aggression, physical violence, and sexual violence (CDC, 2020a). Data show some forms of IPV affecting about one in four women and one in 10 men (CDC, 2020a). A significant number of female and male victims reported their first exposure to violence occurred before 18 years of age (CDC, 2020a). IPV survivors experience depression and suffer from posttraumatic stress disorder symptoms. They also have a greater risk of engaging in unhealthy behaviors such as binge drinking, smoking, and sexual risk behaviors (CDC, 2020a). Maternal risks of IPV include low maternal weight gain, infections, high blood pressure, and preterm delivery (Agency for Healthcare Research and Quality [AHRQ], 2015). The Institute of Medicine recommends screening as part of women's preventive health visits. There are several screening tools that can be self-administered or clinician administered. Screening questions allow the individual to answer yes, no, or refuse and ask whether they have experienced humiliation or fear from their partner and abuse in the three areas (emotional, physical, and sexual) within the last year (Sohal et al., 2007).

Depression

Disability, morbidity, and mortality are significantly impacted by major depression (Weinberger et al., 2018). According to the data provided by the Substance Abuse and Mental Health Services Administration (SAMSHA), in 2017, an estimated 4.5% of adults and 13.3% of adolescents in the United States had at least one major depressive episode (National Institute of Health [NIH], 2019). With disparities, those with the least education have the highest rates of depressive symptoms and the lowest treatment rates (Todd & Teitler, 2019). The Patient Health Questionnaires (PHQs) are common cited tools used to screen for depression. The PHQ-2 is a useful tool because of its brevity and ease of use in busy clinical settings for both adolescents and adults (Manea et al., 2016). The two questions look at the individual's recall response to a 2-week period on interest or pleasure in doing things and feeling down, depressed, or hopeless. For a positive PHQ-2 screen, additional screening should be done with the PHQ-9 or another validated tool (APA, 2020).

Stress

The variables of personal salience, proximity, and the duration and magnitude of the stress demand affect the individual's perception of the threat and the resources needed to cope (APA, 2017). Screening for emotional well-being and stress explores the patient's self-report on their feelings and thoughts on if and how often they feel worried, tense, nervous, and anxious, or if they are having difficulty sleeping because their mind is distressed.

There are physiological changes in bodily systems triggered by stress hormones in response to a challenge, threat, or problem (ACF, 2021). Significant problems with an individual's health and development are associated with prolonged, severe, or chronic stress (Franke, 2014). Chronic stress affects an individual's well-being, physically and mentally, leading to muscle pain, insomnia, anxiety, high blood pressure, and a weakened immune system (APA, 2019). Individuals who may have experienced adverse early life events and continue to have a limited support system are prone to chronic stress (McEwen, 2017). In addition to the physiological impact, these stressors impair brain architecture, having long-lasting consequences on cognitive function and behavioral health such as self-esteem, impulse control, and judgment (Hamoudi et al., 2015; McEwen, 2017).

Screening tools to measure generalized stress through anxiety and depression screenings are available such as Generalized Anxiety Disorder (GAD), Children (Screen for Anxiety-Related Disorders) SCARED, or the PHQ-2 and -9. These tools are meant to measure generalized stress, not specific stress, from environmental factors. Stress screenings will help clinicians assess how stressors are affecting an individual's ability to cope with stressors brought to them in their environment and also serve as a decision support tool for further assessment (Biegler et al., 2016). The addition to an overall screening question to use in clinical practice such as "Over the last several months, have you been continually worried or anxious about a number of events or activities in your daily life?" could indicate stress is present in an individual's life and including the GAD and PHQ screenings for adults or SCARED for children would be appropriate.

Clinical Care

Clinical care factors account for 20% of the factors that contribute to our health outcomes and are affiliated with the quality, availability, affordability, and accessibility of getting healthcare (University of Wisconsin Population Health Institute, 2021).

Access to Care

Approximately one in 10 people in the United States do not have health insurance coverage (Berchick et al., 2018). Access to preventive care is less likely for people experiencing SDoH (Heath, 2020), which contributes to multiple health issues (McGill, 2016). Individuals who do not have health insurance are less likely to have a primary care provider and may not be able to afford the healthcare services and prescriptions needed in their care (Healthy People 2030, 2021). In 2019, affordability or the perception of not being able to afford the cost of coverage was the most common reason reported for not having health insurance among adults, followed by coverage eligibility (Cha & Cohen, 2020).

Screening questions to address access may include asking if the patient has a primary care provider, if they have insurance (no insurance, public or private insurance), or if they have a medical card. These questions can identify if the patient is uninsured or underinsured, which may impact the type of services available.

Having insurance increases access to care and improves health outcomes (Sommers et al., 2017); indeed, with the coverage expansion offered by the Affordable Care Act (ACA), along with increased funding for community health centers, access to coverage and care improved for disparate groups (Artiga et al., 2020). Yet, access to care is different depending on where you live. With respect to urban versus rural access to care, rural access requires longer travel times to reach a source of care and the patients are less likely to have a physician as a provider (Kirby & Yabroff, 2019). Urban or metropolitan patients are more likely to have a source of care with office hours on the weekend and at night (Kirby & Yabroff, 2019). The American Hospital Association (AHA) (2016) identified lack of access to primary care and high rates of underinsured and uninsured are characteristics of a vulnerable community.

Quality of Care

Within vulnerable communities, the ability to access healthcare services varies (Bhatt & Bathija, 2018). Socioeconomics and sociodemographics play a role in the determination of an individual's ability to access safe quality care (Bhatt & Bathija, 2018). In orthopaedics, the quality of care delivered, surgical versus nonoperative intervention, is closely connected with the patients SES (Li et al., 2020).

Many communities, urban and rural alike, do not have essential services to promote and maintain health.

The AHA (2016) has identified essential services within communities to promote health equity: primary care, mental health and substance use care, emergent care, prenatal care, transportation, diagnostic services, home health, dental care, and a community referral structure. These essential health care services must also be delivered in an equitable and culturally competent manner (Bhatt & Bathija, 2018).

Physical Environment

The physical environment contributes to 10% of health outcomes (University of Wisconsin Population Health Institute, 2021). The factors related to the physical environment may contribute more to our chronically ill patients' ability to meet their needs identified in the plan of care. For example, many (in fact most) chronic conditions require the same things to achieve optimal health: transportation to health visits; access to quality food and water; clean air and clean environments to prevent exacerbation of illnesses and additional infection exposures; and adequate access to broadband internet (Johns Hopkins University, 2020).

Transportation Insecurity

Transportation affects multiple aspects of a person's life, connecting people to their destination, such as employment, church, parks, childcare, and healthcare (AHA, 2017a). Transportation is a critical SDoH as it impacts most of the other SDoH by either hindering or providing access to destinations or services (King, 2018). According to the AHA (2017a), transportation is the main reason 3.6 million people do not obtain medical care in the United States each year.

Transportation is tied to economic mobility (AHA, 2017a). When people have access to safe and reliable transportation, they can secure employment, improve opportunities for education, connect with family and friends socially, and have consistent access to basic needs such as groceries and pharmacies. Transportation may be unaffordable to vulnerable populations due to associated fees and insurance cost for vehicle ownership or the expense of bus or train fares (AHA, 2017a). Wolfe et al. (2020) found that people with a functional limitation, receiving Medicaid, Hispanic, or living below the poverty line had greater chances of reporting a transportation barrier.

Screening questions address if the lack of transportation has kept the patient from missing appointments or from getting needed medications and if it has kept them from work, meetings, or school or from getting things necessary for daily living (National Association of Community Health Centers [NACHA], 2016). Strategies for healthcare entities to overcome the transportation gap in both rural and urban communities include screening for needs, telehealth, mobile clinics, and community partnerships to provide direct transportation using rideshare companies (AHA, 2017a). A key initiative for healthcare stakeholders, payers, and providers is enabling better medical transportation using nonemergency transportation and rideshare (Heath, 2019).

Housing

Safe neighborhoods and infrastructure of our environment are becoming increasingly important to public health. Neighborhoods and the physical environment include housing, transportation, safety, parks, playgrounds, walkability, and zip code (Artiga & Hinton, 2018). Housing stability, quality, safety, and affordability are the four pathways connecting housing and health outcomes (Taylor, 2018). People who live in low-income and minority neighborhoods are much more likely to experience harmful conditions that influence health, with one in every four persons (25.7%) in the United States living in a high poverty neighborhood (Artiga & Hinton, 2018).

Housing stability has many facets, which include homelessness, unsafe housing, weatherization, housing quality, rent and mortgage affordability, and utilities (AHA, 2017b). Patients who are homeless experience significantly higher readmission rates after surgery (Titan et al., 2018). Screening questions should address if the patient has a steady place to sleep, use of shelters, the ability to pay rent or mortgage and utilities in a timely manner, or any concern of losing housing.

The physical and social environments as well as the service conditions of neighborhoods have been repeatedly and strongly linked to poor mortality and general health status, disability, poor birth outcomes, and increased chronic conditions, as well as an impact on health behaviors and mental health (Edmonds et al., n.d.). Evaluating neighborhoods for rates of violence and injuries, unsafe air or water, poor or no lighting, sporadic garbage pickup, and other health and safety risks is needed to assess and address these SDoH.

Adverse health outcomes such as mental health issues related to stress, depression, and anxiety; lead poisoning from exposure to peeling paint; asthma and respiratory infections from mold exposure, pest infestations, and poor insulation are associated with substandard housing (High, 2017). Communities with concentrated poverty are particularly affected, due to living in substandard housing conditions themselves, with fewer resources to support efforts to escape poverty (High, 2017). Lack of affordable housing can create financial stressors with the inability to meet monthly rent or mortgage payments (Taylor, 2018). Access to stable housing can reduce healthcare cost and improve health (Taylor, 2018).

Air and Water Quality

Air pollution has a variety of health effects (Manisalidis et al., 2020) and is associated with cellular inflammation and oxidative stress (NIH, 2021). Individuals living in large urban areas are most affected by air pollutants, with road emissions, and more at risk of exposure to accidental release of toxins (Manisalidis et al., 2020; NIH, 2021). If a patient is more susceptible to changes in air quality even when the air quality index is low, their health is impacted (Manisalidis et al., 2020). Even short-term exposure to air pollutants is related to asthma, respiratory diseases, cough, wheezing, shortness of breath, and higher rates of hospitalization (Manisalidis et al., 2020; NIH, 2021).

By international law, access to clean water and sanitation is a human right (Kingsland, 2021). In the United States, between 2013 and 2017, more than 1 million people experienced insecure water access (Kingsland, 2021). According to the report, *Closing the Water Access Gap in the United States*, more than 2 million people do not have running water in their home or basic indoor plumbing (Roller et al., 2019). Although most Americans likely take water quality for granted, there are vulnerable communities (low-income people living in rural areas, immigrants, tribal communities, and people of color) experiencing inadequate infrastructure providing clean water and sanitation (Roller et al., 2019). The lack of access to municipal water access for rural communities is a root cause (Roller et al., 2019). Screening for air and water quality may not be part of the standard screening assessment in most EHRs and asking if the air and water are safe should be considered in high-risk areas.

SDoH Data Collection in the EHR

The Office of the National Coordinator for Health Information Technology (ONC) has listed SDoH in Version 2 of the United States Core Data for Interoperability as health data that must be expressed in Certified Health IT modules and made available for exchange in the patient EHR (ONC, 2021). Although screening is not standard in clinical practice, many healthcare organizations are incorporating the screening process into primary care and specialty care settings (Billioux et al., 2017; Olson et al., 2019). With the future requirement to capture SDoH into the patient's story, nurses can influence its integration into clinical and data collection workflows. Studies have shown that data related to SDoH improve predictive models and provide more thorough understanding of a patient's life situations (Cantor & Thorpe, 2018).

The shift from volume to value will foster increased screening and care coordination addressing SDoH to effectively manage populations' health to achieve better outcomes (Bhatt & Bathija, 2018). The establishment of the Accountable Health Communities model under the Centers for Medicare & Medicaid Innovation and the Centers for Medicare & Medicaid Services (CMS) was to examine if increased awareness of SDoH through universal and comprehensive screening and increased access through referrals should impact healthcare costs (CMS, 2016).

To advance support for underserved populations and racial equity, CMS recently sought stakeholder feedback on how to apply data on health disparities (CMS, 2021a). Currently, eligible healthcare organizations must attest to CMS on the interoperability of the EHR to capture and share patient data in a structured format (CMS, 2021b). To close the health equity gap in the United States, CMS is addressing data collection within the medical record to measure and analyze disparities across policies and programs (CMS, 2021a). In addition, CMS is considering a Hospital Equity Score to create results across social risk factors (CMS, 2021a).

Screening Tools

A key, first element to addressing SDoH is high-quality screening (Thornton & Persaud, 2018). For many health systems, the integration and interoperability of the EHR have allowed screening questions to be added to the clinical records and workflows. Clinicians, across the continuum of care, are able to address and update ongoing changes to patients' SDoH and foster a team-based approach. Screening allows the nurse to intervene on behalf of patients (Thornton & Persaud, 2018). For the screening to be more relationship driven, and less data driven, the nurse may need to develop skills to navigate sensitive questions (Sisler et al., 2019; Thornton & Persaud, 2018; Wallace et al., 2020). There are several screening tools available to providers and health systems to screen for SDoH (see Table 1).

Barriers to Screening

Although the majority of clinicians support that screening for the basic social needs is within their scope, and screening to address the SDoH is more common in health systems, less than 23% of clinicians screen in clinical practice (Schickedanz et al., 2019; Sisler et al., 2019; Wallace et al., 2020). Clinicians expressed a lack of comfort in asking patients about social needs and the lack of confidence in their ability to help patients address social needs issues (Schickedanz et al., 2019). Additional barriers include the lack of time and resources to address SDoH (Berry et al., 2020; Schickedanz et al., 2019) and unavailability of a standardized screening tool (Schwartz et al., 2020). Berry et al. (2020) found challenges with the integration of screening into existing workflows. At the patient level, language and health

Table 1. Screening Tools for Social Determinants of Health

Tool	Sponsor	Questions	Administration
Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PREPARE) (NACHA, 2016)	National Association of Community Health Centers	15 Core 15 Supplemental	Self-administered Clinician/nonclinician
The EveryONE Project–Short form (AAFP, 2018)	American Academy of Family Physicians	11	Self-administered Clinician/nonclinician
Health-related Social Needs Screening Tools (Billioux et al., 2017)	Centers for Medicare & Medicaid Services Accountable Health Communities	10	Self-administered
SINCERE (Guo et al., 2021)	College of Nursing, University of Utah	10	Self-administered or Clinician/nonclinician

Table 2. Best Practices for Social Determinants of Health Screening and Referral Program

Screening tools appropriate in terms of literacy, culture, and language
Integrate screening into existing workflows
Universal screening
Referral base for internal and community resources
Technology integration into EHR
Data tracking system for referral and receipt of services
Optimal staffing for referral program sustainability

Note. EHR = electronic health record. Data from "Social Needs Screening and Referral Program at a Large US Public Hospital System, 2017," by C. Berry, M. Paul, R. Massar, R. Marcello, and M. Krauskopf, 2020, *AJPH American Journal of Public Health, 10*(52), pp. 5211–5214. Copyright 2020 by the American Public Health Association.

literacy pose additional challenges to completion of screening (Berry et al., 2020).

Best Practices for Screening and Referral

Berry et al. (2020) identified best practices to SDoH screening and referrals during a pilot program with New York City's Health and Hospitals Systems (see Table 2).

When a patient is identified with a social need, there are community-based resources available to help clinicians connect patients to needed resources at the point of care. Examples of these resources include United Way 211, a comprehensive resource, and the Neighborhood Navigator, an interactive tool, to connect patients with supportive resources (American Academy of Family Physicians Foundation, 2020; 211, 2020).

Ongoing research is needed on the effectiveness of SDoH screening and referrals to unmet needs (Cantor & Thorpe 2018). Most of the current SDoH research is limited to program evaluations rather than patient-related outcomes (Tsai et al., 2019; Walker & Jackson, 2019), and, unfortunately, sparse randomized trials have not found significant effects on physical health or health system costs (Finkelstein et al., 2020).

Research focused on patient engagement demonstrates patients are receptive to SDoH screening and referrals embedded within healthcare services (Hsu et al., 2019) and should be applied universally to all patients (Wallace et al., 2020). Hsu et al. (2019) found patients are receptive to being screened for social determinants of health and specifically found that staff doing screenings and intervention services show them compassion, caring, and honesty; ultimately promoting a therapeutic relationship. Yet, Wallace et al. (2020) found that even when patients were screened positive for a social need, many patients refused follow-up and referrals. In addition, Wallace et al. (2020) found staff in the emergency department were often conflicted about doing screenings for SDoH, with some staff members determining that patients did not need to be screened because they "had insurance" or they "could tell the patient didn't have needs" based on appearance. These findings demonstrate the need to evaluate for bias, address training needs for staff on screening purpose, implicit bias, and communication techniques (Wallace et al., 2020). Research about patient receptivity and clinicians' comfort in screening and addressing SDoH is needed to learn how to support patients in meeting SDoH needs.

Implications for Orthopaedic Nursing Practice

Legacy nursing leaders Florence Nightingale and Lillian Wald highlighted how SDoH such as hygiene, nutrition, and social class affect health and care of the poor (Olshansky, 2017). As healthcare continues to move to value-based care, clinicians recognize the strong influence of a positive SDoH screening on the health outcomes. Thus, healthcare systems need to address who screens for SDoH; how to respond to a positive screening; who is responsible for referrals; how to document in the EHR to close the loop from positive screenings to referrals; and how to track data to demonstrate health improvements. Nurses are uniquely situated as frontline clinicians to assess for SDoH and positively address health equity (Thornton & Persaud, 2018).

Each healthcare setting needs an interprofessional team including stakeholders, patients, clinicians, and community resource specialists to develop strategies for helping patients navigate the social and environmental conditions impacting their health. Specific to orthopaedic nursing, SDoH have a significant effect on patient access to surgery and surgical outcomes (Fox, 2021). Orthopaedic nurses can specifically screen for social needs and integrate addressing those needs into the patient's plan of care. For instance, recognizing a patient has transportation insecurity would alert nursing to schedule follow-up appointments in a manner to accommodate transportation availability. In orthopaedic trauma cases, lack of transportation is significantly associated with low clinic appointment adherence (Sweeney et al., 2021). As part of interprofessional discharge planning, nursing should collaborate with case management or the social worker to explore additional needs and make referrals to support services for transport, medication delivery, home health, and home physical therapy as needed.

Orthopaedic nurse navigators can use the SDoH screening tools to assess the patient's resource needs prior to a surgical intervention to reduce the risk of readmission or longer hospital stays. Addressing income instability with the patient can impact postoperative needs related to nutrition and medications priorities that may impact wound healing and readmissions. Bradywood et al. (2021) found the need to add questions to aid in discharge planning among patients with spine injury related to social support available after hospital discharge and finances for medications. Delanois et al. (2021) found marital status and zip codes with food deserts and increased number of tobacco stores where patients lived had higher total cost of care and length of stay following total knee arthroplasty. With the shift of orthopaedic procedures to ambulatory surgical centers, identifying ideal candidates for appropriate settings and

addressing patient-specific factors are imperative (Delanois et al., 2021). With appropriate social interventions, medical care can be expanded to marginalized patient groups and surgical interventions can be safely performed without complications (Delanois et al., 2021).

Patient educational needs comprise another assessment that orthopaedic nurses consistently incorporate into the plan of care. Health literacy is recommended to be systematically applied as a universal precaution for our patients because it is hard to recognize and more common than we expect (AHRQ, 2020). Most healthcare settings create health education at low literacy levels and train clinicians about the evidence-based practice of teach-back and show-back. Assessing patients for their health literacy is known to make a difference in our patients and their caregivers to be able to optimally care for themselves.

Prioritizing orthopaedic nursing research on nursing interventions to connect SDoH to health outcomes to include functional outcomes and healthcare cost is needed. Efforts on SDoH screening in patients with musculoskeletal conditions may provide a link between social risk factors, interventions, and outcomes of care.

Conclusion

Nurses and allied clinicians understand that SDoH affect the health and health outcomes of our patients. As the *Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity* points out, nurses are well prepared to address SDoH in a variety of roles and across settings (National Academies of Sciences, Engineering, and Medicine [NASEM], 2021). Orthopaedic nurses can address SDoH starting with the first step of the nursing process—assessment. SDoH screening tools are available in both paper and electronic formats, and nursing leaders should work with informatics professionals to place these assessments within the EHR to mimic current workflows for ease of integration into practice.

Because there is no screening mandate at present, deciding to screen for and intervene upon unmet social needs is an intrinsically motivated, personal decision that all clinicians need to first address within themselves. Uncovering the unknown about the social and behavioral factors affecting our patients is a part of the nursing assessment. Nursing can use empathy to foster therapeutic relationships with patients, being mindful of the potential sensitivity of questions. Although sources of, and evidence about, pathways for referrals and support after SDoH assessment are still needed, patients are generally receptive to screening and understand that clinicians may not be able to address all their needs. As such, as long as screening is adopted as a universal practice, and good faith efforts are made to intervene to findings, a potential lack of referral source should not necessarily be an impediment to having conversations about SDoH: SDoH are part of our patients' stories (Byhoff et al., 2019).

As orthopaedic nurses, we can choose to embrace this health equity work—Claim it, measure it, and develop interventions and continue to build and apply evidence-based practices as SDoH are part of our patient's story. Our patients want us to know their story, and nursing is uniquely qualified to assess and intervene in support of our client's meeting their needs. Given this landscape, the purpose of this article, within this special issue of *Orthopaedic Nursing*, is to provide an overview of the factors of SDoH, identify best practices related to screening for individual social needs, and highlight nurse-directed, nurse-led interventions across all clinical settings.

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