LEVERAGING THE SOCIAL DETERMINANTS OF HEALTH: WHAT WORKS?

Executive Summary

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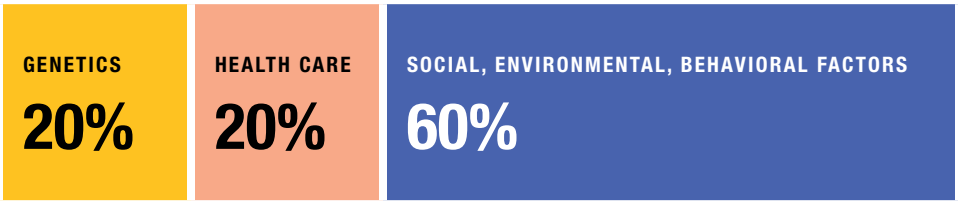
EXECUTIVE SUMMARY

Social determinants of health—which encompass social, behavioral, and environmental influences on one's health—have taken center stage in recent health policy discussions, particularly with the growing focus on global payment, accountable care organizations, and other initiatives focusing on improving population health. Research indicates that greater attention to social determinants of health may both improve Americans' health and reduce health care costs. Nevertheless, translating this evidence into actionable recommendations for policy makers and others has been challenging. This report summarizes the evidence base for interventions that address social determinants of health, paying special attention to the innovative models that may improve health outcomes and reduce health care costs and that may be applicable in the Massachusetts policy context.

First, the existing literature is clear about the importance of social determinants of health in improving the health of populations. Extensive scientific literature has investigated the relative contributions of genetics, health care, and social, environmental, and behavioral factors in promoting health and reducing premature mortality (Chiu et al., 2009; Lee & Paxman, 1997). *These studies uniformly suggest that nonmedical factors play a substantially larger role than do medical factors in health.*

WHAT DETERMINES HEALTH?
(ADAPTED FROM MCGINNIS ET AL., 2002)



Second, there is strong evidence that increased investment in selected social services as well as various models of partnership between health care and social services can confer substantial health benefits and reduce health care costs for targeted populations. These programs may be deserving of immediate attention from Massachusetts policy makers, providers, plans, and other stakeholders. The programs include:

- **Housing support for low-income individuals and families:** The evidence demonstrating a direct relationship between housing interventions and health outcomes within low-income and otherwise vulnerable populations is expansive. The studies that were reviewed indicate that providing housing support for low-income, high-need individuals can result in net savings due to reduced health care costs. In some studies, the medical savings more than offset the additional costs of providing housing supports. The net savings range from $9,000 per person per year to nearly $30,000 per person per year for the Housing First model, a harm-reduction approach in which adults who are homeless and who have behavioral health conditions are provided supportive housing without having to abstain from drugs and alcohol (Larimer et

al., 2009; Massachusetts Housing and Shelter Alliance, 2009). The 10th Decile Project found that for every $1 spent, there was a savings of $2 in reduced spending the following year and $6 savings in subsequent years (Burns, Sumner, & Lee, 2013). Furthermore, the evidence indicates that the integration of housing with health care services can result in improved health outcomes.

The **10TH DECILE PROJECT** *is a public-private partnership that provides permanent supportive housing to those homeless patients identified by hospitals as having the highest public and hospital costs.*

- **Nutritional assistance for high-risk women, infants, and children as well as older adults and people with disabilities:** The evidence base for health impacts of nutritional assistance programs is robust. For example, observation of participants in the Supplemental Nutrition Program for Women, Infants, and Children (WIC) showed lower infant mortality rates and higher average birth weights for WIC participants than for non-WIC participants (Foster, Jiang, & Gibson-Davis, 2010). Moreover, a review by the Government Accountability Office (GAO) in 1992 reported that WIC cost $296 million per year but avoided more than $472 million in expected federal and state Medicaid costs (U.S. GAO, 1992). Similarly, national evidence indicates that home-delivered meals for older adults and people with disabilities improve physical and mental health and reduce Medicaid costs. One study estimated that every $25 increase in home-delivered meals per older adult would be associated with a 1 percent decline in nursing home admissions (Thomas & Mor, 2013).

The **SUPPLEMENTAL NUTRITION PROGRAM FOR WOMEN, INFANTS, AND CHILDREN (WIC)** *provides federal grants to states for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk.*

- **Case management and community outreach for high-need, low-income families and older adults as well as for children with asthma:** The studies reviewed here suggest that these vulnerable populations experience health gains when their care is coordinated across primary, specialty, behavioral, and social services and that hospitalizations and emergency department visits are demonstrably reduced. For example, studies of the Nurse-Family Partnership consistently found lower rates of infant and child mortality, lower total Medicaid spending, and improved mental health relative to groups that do not participate in the Nurse-Family Partnership (Olds et al., 2007; Olds et al., 2014; Eckenrode et al., 2010; Olds et al., 2004). A cost-effectiveness analysis of the Memphis Nurse-Family Partnership site found a savings in medical and social service spending over a 12-year follow-up period that exceeded program costs by $789

The **NURSE-FAMILY PARTNERSHIP** *is a program that serves at-risk mothers who have recently had their first child and enables nurses to visit the mothers at home and assist with building competency in child care, developing self-care, completing education, and finding employment.*

per family (Olds et al., 2010). In addition, an evaluation of the Geriatric Resources for Assessment and Care of Elders (GRACE) model of care demonstrated that GRACE model participants were more likely to score better on a self-rated health survey. Moreover, the participants in the GRACE model had a lower rate of visits to the emergency department than did a comparison group that did not receive this model of care (Counsell et al., 2007). Finally, an evaluation of the Boston Children's Hospital Community Asthma Initiative (CAI) demonstrated significant declines in hospitalizations experienced by program participants relative to the control group. An analysis of these reductions as well as the program costs revealed a strong return on investment: for every $1.00 invested, $1.33 was saved (Bhaumik et al., 2013).

- **Integrated Health Care and Housing Services for at-risk individuals and families:** There is a growing literature that suggests partnerships between health care and social service providers, particularly housing service providers, have been effective in improving health outcomes in certain high-need populations. Though more cost-effectiveness analyses are needed, studies have shown health care cost reductions. The Bud Clark Commons pilot intervention in Oregon demonstrated a 55 percent decrease in total monthly Medicaid costs when comparing the year prior to the intervention with the year following participant enrollment. Evaluation of this pilot also revealed decreases of 31 and 28 percent in the number of participants reporting unmet physical and mental health needs, respectively (CORE, 2014).

Third, investments in some other social service programs result in improved health outcomes, although their impact on health care costs has not been adequately examined. These include:

- **Income support:** The income support programs for which health effects have been most carefully studied include tax credit programs and support provided to low-income individuals with disabilities. The income support programs that were analyzed for this review, specifically the Earned Income Tax Credit (EITC) and Supplemental Security Income (SSI), were associated with better health outcomes for those individuals who qualify for such programs. To date, however, studies examining the impact of these income support programs on health care costs are limited.

The **GERIATRIC RESOURCES FOR ASSESSMENT AND CARE OF ELDERS (GRACE)** *model of care provides low-income individuals age 65 and older with home-based care management by a nurse practitioner or social worker and a geriatric interdisciplinary team.*

The **COMMUNITY ASTHMA INITIATIVE (CAI)** *includes case management, family education, nurse home visits to address medication issues and compliance, connection to primary care, and home environmental remediation for patients ages 2 to 18 with a history of asthma-related hospitalizations.*

The **BUD CLARK COMMONS** *pilot intervention in Oregon was funded through a Medicaid global budget waiver and provided supportive housing services that included case management, community building exercises, and counseling for homeless Medicaid recipients.*

- **Early childhood education:** Education is often considered a cornerstone of social services and has been found to be associated with improved health outcomes, although most of the evidence supporting this premise is based on observational rather than interventional studies. Nonetheless, a seminal study in this area found that for children aged 0 to 5 years from disadvantaged backgrounds, participation in high-quality child care and preschool resulted in better health outcomes in adulthood (e.g., lower blood pressure and lower risk of metabolic syndrome) (Campbell et al., 2014). While this evidence supports high-quality early intervention as a means of improving health, previous studies have not adequately examined the impact of educational interventions on health care costs.

Fourth, additional research on the return on investment is needed to fully appreciate and quantify the value of these types of programs. Though return on investment can be challenging to determine given the fragmentation endemic to the U.S. health care and social service sectors, such evidence is key for funders and policy makers. There are also a number of areas in which more research is warranted to substantiate the results of existing smaller-scale studies or to more comprehensively evaluate the impact of social services on health and health care costs. Lack of evidence to date does not necessarily indicate that a particular program fails to improve health or could result in diminished utilization of services or reduced costs; rather, it often means that sufficient evaluation has yet to be conducted. For instance, more comprehensive evaluations of interventions in the areas of education, income support, the Supplemental Nutrition Assistance Program (SNAP), neighborhood safety and cohesion, and transportation services that examine both health and health care cost impacts would be helpful. Additionally, research on larger-scale implementation of case management and community outreach efforts (such as the use of mobile clinics and community health workers for targeted populations) may yield positive findings to substantiate existing smaller-scale studies. Last, partnerships between health care and social services other than housing such as education, nutrition assistance, or neighborhood renewal projects are limited; greater experimentation in these areas may prove valuable.

Fifth and finally, Massachusetts may wish to accelerate ongoing efforts to link health care services and social services. Successful movement forward will require careful and persistent attention toward facilitating collaboration across sectors. Mechanisms to support such efforts include reinforcement of a common agenda across service providers, linked data and information-sharing systems, and budgeting and evaluation metrics that are aligned to foster joint accountability to common goals across sectors. On a local level, some of these mechanisms are already being explored and created by entrepreneurial programs. From a policy perspective, multiple levers to promote cross-sector collaborations and greater attention to social determinants of health are available, including legislative actions as well as regulatory and reimbursement policies.

Passage of Chapter 224 of the Acts of 2012, *An Act Improving the Quality of Health Care and Reducing Costs through Increased Transparency, Efficiency, and Innovation*, has increased attention to health care spending in the state, and it has also focused attention on the need to ensure "coordinated, patient-centered, high quality health care that integrates behavioral and physical health and produces better outcomes and improved health status" (Massachusetts Health Policy Commission, 2015). Though this vision has largely focused on integration and coordination

across physical and behavioral health services, there has been growing interest and attention to the role of nonmedical determinants of health as key components to providing a more integrated system of care and driving toward improved population health (Massachusetts Health Policy Commission, 2015). Development of Patient-Centered Medical Home (PCMH) and Accountable Care Organization (ACO) certification programs provides one means of encouraging provider and payer communities to forge cross-sector collaborations and develop service delivery models that consider the role of both medical and nonmedical services on improving health outcomes. The move toward alternative payment methods and the proliferation of risk-based contracts may also provide vehicles to incentivize stronger focus on the role that social determinants of health play in shaping health outcomes and impacting costs.

BIBLIOGRAPHY

Bhaumik, U., Norris, K., Charron, G., Walker, S. P., Sommer, S. J., Chan, E., . . . Woods, E. R. (2013). A cost analysis for a community-based case management intervention program for pediatric asthma. *J Asthma, 50*(3), 310-317. doi: 10.3109/02770903.2013.765447

Burns, P., Sumner, G., & Lee, S. (2013). Getting Home: Outcomes from Housing High Cost Homeless Hospital Patients: Economic Roundtable.

Campbell, F., Conti, G., Heckman, J. J., Moon, S. H., Pinto, R., Pungello, E., & Pan, Y. (2014). Early childhood investments substantially boost adult health. *Science, 343*(6178), 1478-1485. doi: 10.1126/science.1248429

Chiu, G. R., Araujo, A. B., Travison, T. G., Hall, S. A., & McKinlay, J. B. (2009). Relative contributions of multiple determinants to bone mineral density in men. *Osteoporos Int, 20*(12), 2035-2047. doi: 10.1007/s00198-009-0895-0

Center for Outcomes Research and Education (CORE) (2014). Integrating housing and health: A health-focused evaluation of the apartments at Bud Clark. Retrieved 5/13, 2015, from http://shnny.org/images/uploads/Oregon-SH-Report.pdf.

Counsell, S. R., Calahan, C. M., Clark, D. O., Tu, W., Buttar, A. B., Stump, T. E., & Ricketts, G. D. (2007). Geriatric care management for low-income seniors: a randomized controlled trial. *JAMA, 298*(22), 2623-2633. doi: 10.1001/jama.298.22.2623

Eckenrode, J., Campa, M., Luckey, D. W., Henderson, C. R., Cole, R., Kitzman, H., . . . Olds, D. (2010). Long-term effects of prenatal and infancy nurse home visitation on the life course of youths: 19-year follow-up of a randomized trial. *Arch Pediatr Adolesc Med, 164*(1), 9-15. doi: 10.1001/archpediatrics.2009.240

Foster, E. M., Jiang, M., & Gibson-Davis, C. M. (2010). The effect of the WIC program on the health of newborns. *Health Serv Res, 45*(4), 1083-1104. doi: 10.1111/j.1475-6773.2010.01115.x

Larimer, M. E., Malone, D. K., Garner, M. D., Atkins, D. C., Burlingham, B., Lonczak, H. S., . . . Marlatt, G. A. (2009). Health care and public service use and costs before and after provision of housing for chronically homeless persons with severe alcohol problems. *JAMA, 301*(13), 1349-1357. doi: 10.1001/jama.2009.414

Lee, P., & Paxman, D. (1997). Reinventing public health. *Annu Rev Public Health, 18,* 1-35. doi: 10.1146/annurev.publhealth.18.1.1

Massachusetts Health Policy Commission, C. o. M. H. P. (2015). January 20, 2015, board meeting presentation. Boston, MA: Health Policy Commission.

Massachusetts Housing and Shelter Alliance. Home and Healthy for Good: A Statewide Housing First Program Progress Report. (2009). Boston, MA: Massachusetts Housing and Shelter Alliance. http://shnny.org/uploads/Home_and_Healthy_for_Good.pdf.

McGinnis, J. M., Williams-Russo, P., & Knickman, J. R. (2002). The case for more active policy attention to health promotion. *Health Aff (Millwood),* 21(2), 78-93.

Olds, D. L., Kitzman, H., Knudtson, M. D., Anson, E., Smith, J. A., & Cole, R. (2014). Effect of home visiting by nurses on maternal and child mortality: results of a 2-decade follow-up of a randomized clinical trial. *JAMA Pediatr,* 168(9), 800-806. doi: 10.1001/jamapediatrics.2014.472

Olds, D. L., Kitzman, H., Hanks, C., Cole, R., Anson, E., Sidora-Arcoleo, K., . . . Bondy, J. (2007). Effects of nurse home visiting on maternal and child functioning: age-9 follow-up of a randomized trial. *Pediatrics, 120*(4), e832-845. doi: 10.1542/peds.2006-2111

Olds, D. L., Kitzman, H. J., Cole, R. E., Hanks, C. A., Arcoleo, K. J., Anson, E. A., . . . Stevenson, A. J. (2010). Enduring effects of prenatal and infancy home visiting by nurses on maternal life course and government spending: follow-up of a randomized trial among children at age 12 years. *Arch Pediatr Adolesc Med,* 164(5), 419-424. doi: 10.1001/archpediatrics.2010.49

Olds, D. L., Robinson, J., Pettitt, L., Luckey, D. W., Holmberg, J., Ng, R. K., . . . Henderson, C. R. (2004). Effects of home visits by paraprofessionals and by nurses: age 4 follow-up results of a randomized trial. *Pediatrics, 114*(6), 1560-1568. doi: 10.1542/peds.2004-0961

Thomas, K. S., & Mor, V. (2013). The relationship between Older Americans Act Title III state costs and prevalence of low-care nursing home residents. *Health Serv Res, 48*(3), 1215-1226. doi: 10.1111/1475-6773.12015

U.S. Government Accountability Office (1992). Early Intervention: Federal Investments Like WIC Can Produce Savings. Washington, DC: GAO.

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