Appendix Table 1. Patient and Stakeholder Developed Research Topics for Diet and Behavioral Management of Diabetes and Hypertension

Risk factors and health behaviors
1. Does a person's functional capacity (physical and cognitive) influence their ability to follow their diet? ❖ Among people with diabetes or hypertension, how do functional capacity (physical and cognitive) and geriatric conditions (such as visual impairment, mobility) impact the ability to follow dietary recommendations? ❖ How and why does a person's functional capacity influence their ability to follow the recommended diet for diabetes and hypertension? ❖ What are the long-term diabetes and hypertension-related health outcomes for people with limited functional capacity or geriatric conditions?
2. What is the impact of drug and alcohol use on diet compliance? ❖ What are optimal and practical ways to screen for co-morbid substance abuse disorder in patients with diabetes or hypertension? ❖ Can health care providers use information on type and frequency of substance use to inform dietary recommendations? ❖ What is the efficacy and cost-effectiveness of substance abuse screening, brief intervention, and referral to treatment (SBIRT) in improving outcomes for individuals with coexisting substance use disorder and diabetes? ❖ What is the comparative effectiveness of different interventions that integrating SBIRT for alcohol and other drug use problems into diabetes care models?
3. Do cognitive impairment and dementia impact self-care behaviors and health outcomes in people with diabetes and hypertension? ❖ What are the healthcare needs of patients with cognitive impairment and diabetes and what are the needs of their caregivers? How are these different from the needs of patients without cognitive impairment? ❖ What are the most effective strategies for successfully managing both cognitive impairment and diabetes? ❖ At what levels of cognitive impairment are patients most likely to become at risk of non-adherence to diabetes self-care management?
4. Does not having enough sleep affect diet for people with diabetes and hypertension, and how do specific sleep patterns affect diet? ❖ What are the current levels of patients' knowledge, perceptions and understanding of the relationship between sleep and health outcomes related to diabetes and hypertension?

- ❖ Are health care providers regularly and effectively communicating with patients about the impact of sleep duration on weight, glucose control, diabetes risk and hypertension?
- ❖ Which interventions can improve sleep duration among patients with diabetes or hypertension? What is the effectiveness among at risk populations, including African Americans, shift workers, younger, and low-income groups?
- ❖ What communication strategies or tools can improve patient-centered information about the risk of insomnia and changes in sleep patterns related to anti-hypertensive agents and other drugs for hypertension or diabetes?

Healthcare communication/knowledge and perceptions

5. What strategies are available to identify and enhance patients' sense of control related to following the recommended diet?

- ❖ What is the comparative effectiveness of interventions for increasing patients' empowerment and improving dietary compliance over time? (Strategies include empowerment-based diabetes self-management education programs; web-based tools and social media)
- ❖ How can interventions for empowering patients be incorporated into different clinical settings?

6. If mental health patients were given nutrition guidelines and information, would it affect overall health?

- ❖ What strategies and interventions are most effective in improving the diet and nutrition of people with severe mental illnesses, particularly those who continue to have uncontrolled diabetes or hypertension?
- ❖ What strategies and interventions are most effective in improving the diet and nutrition for elderly patients with severe mental illnesses?
- ❖ Which health professionals or service providers are best able to assist patients with severe mental illness, especially those navigating multiple systems and medication routines?

7. Will controlling diabetes and hypertension prevent other diseases or more serious illness?

- ❖ What are the most effective strategies for communicating risk of complications to patients with diabetes or hypertension?
- ❖ What are the most effective strategies for communicating risk information among special populations, such as patients with low health literacy, low income, and elderly patients and are they being used in care settings?
- ❖ How do patients' understanding of risk information and related health beliefs predict clinical outcomes and development of complications?
- ❖ What is the effect of diabetes combined self-management education and training (DSME/T) on clinical outcomes and development of complications?

8. How does knowing about your diet and risks help with understanding diabetes?

- What are the strongest influences on patient perception (knowledge, understanding, attitudes) of diabetes, and what are the best practices for altering perceptions that prevent effective disease management?
- What are the most effective strategies for integrating nutrition education into regular diabetes care administered by health professionals to improve diet?
- How does patient perception of diabetes differ by age and health literacy?

9. How could provider/patient communication about the science of nutrition and exercise be simplified and made more interactive?

- How can nutrition and physical activity counseling in primary care be improved and made more understandable for patients?
- What strategies and messages are being utilized during a primary care visit or over a course of visits? How can messages be tailored to the health literacy, cultural context, and motivation of individual patients?
- What is the comparative effectiveness of different nutrition counseling strategies in patient uptake and outcomes? What about physical activity counseling?
- What are effective strategies for combining primary-care based counseling with follow up interventions and access to information (e.g., telephone, web and text-based delivery) and getting those services reimbursed?

Healthcare delivery and quality

10. Will having a regular doctor improve diabetes and hypertension self-management?

- What factors affect the relationship between having a regular doctor and patient-centered health outcomes among patients with diabetes and hypertension? What is the role of race/ethnicity, mental health conditions, and low socioeconomic status?
- What are the most effective strategies for arranging a regular doctor for patients with diabetes/hypertension, including patients with mental health challenges, with a regular care provider or medical home?

11. How are healthcare quality and trust in one's doctor related, and how does that impact diabetes and hypertension management?

- How does continuity of care impact patient trust in patients with diabetes/hypertension who are uninsured or have limited access to care? What are the best strategies for increasing continuity of care in this population?
- What aspects of care continuity predict patient trust and improved health outcomes?
- What are the most effective interventions for increasing patient trust, especially among vulnerable populations?

12. Would communicating with your primary care provider for longer periods of time during a given visit lead to better prioritizing and self-management behavior for diabetes and hypertension?

- How does the length of consultation with primary care physicians impact self-management behaviors and clinical outcomes in patients with diabetes and hypertension? Does an increase in appointment length lead to improved clinical outcomes and patient self-management behaviors?

Health economics

13. How does the inability to pay an insurance co-payment affect your health care?

- How does cost sharing affect health care utilization for patients with diabetes or hypertension who have low- and very low incomes, including those who are food insecure?
- Among people with diabetes or hypertension, what types of health care services are reduced as a result of cost sharing?
- How do long-term health outcomes of people with diabetes or hypertension differ with cost sharing versus those not subject to cost sharing?
- What is the impact on health care utilization and health outcomes of programs that reduce or cap cost sharing among vulnerable low-income groups? What is the impact by race/ethnicity?
- How do co-payments affect health care utilization decisions, including patient perceptions, knowledge, preferences, strategies and the impact of competing needs? How do patients describe the impact of co-payments on these decisions and strategies?

Policy

14. How is the amount of Supplemental Nutrition Assistance Program (SNAP) benefits determined for those who qualify and how does that match up with need?

- How can SNAP qualifications and benefit levels be adjusted to reflect the needs of individuals with chronic, diet-sensitive conditions?
- How can the SNAP program work with individuals with diet-sensitive conditions to improve diet quality and diabetes self-management?
- What is the risk, based on longitudinal data, for negative health outcomes among food insecure individuals with (or at risk of) diabetes or hypertension? What role do SNAP benefits play in mitigating negative outcomes?

15. How could we encourage communities to focus on economic development in high risk areas to have the highest impact on dietary compliance?

- What is the impact of local food initiatives (urban agriculture, community supported agriculture (CSA's), farmers markets, community gardens, farm to school/institution) on local economies, jobs, income supplementation, workforce integration, and social capital development?
- Do local food initiatives improve food security, diet quality and long-term health outcomes of individuals with diabetes or hypertension?

- How effective are incentive programs such as farmers market vouchers and other interventions (e.g., food demonstrations and educational initiatives) at increasing the impact of local food initiatives on diet quality for individuals with diabetes or hypertension in low-income or food insecure households?

Physical and social environment

16. What role does food play in one's family and upbringing, and how does that affect individuals' relationship with food as adults?

- What culturally-sensitive strategies are effective in changing social norms around eating and in achieving long-term behavior change and healthy eating?
- Can programs that adapt culturally preferred foods into healthy eating plans affect diet compliance for people with diabetes or hypertension?
- Is healthy eating affected more by personal preferences and social norms or by the availability of household/community resources on healthy eating? How does knowledge of healthy eating mediate those relationships?

17. How does the local environment, such as access to stores, affect the diet of people with diabetes or hypertension?

- For those with diet-sensitive conditions (ex. hypertension and diabetes), what role does the food environment play in individual's ability to adhere to the diet? How do individuals adapt to or navigate their existing food environment to meet their dietary needs or goals?
- How can food retailers and others in adverse food environments be better engaged to carry and promote healthier food options?
- What role can individuals, community organizations, and businesses play in promoting healthier food choices and policies that encourage healthier food environments?

18. How does lack of transportation affect the likelihood of seeking medical treatment, resources, and services among individuals with diabetes and hypertension?

- What interventions by communities, health service providers, and health systems to reduce transportation barriers positively impact service usage among those living with chronic conditions?
- Are telemedicine and internet enabled home-based care viable (in terms of cost, feasibility, and effectiveness) alternatives to regular outpatient diabetes or hypertensive care among those who lack transportation?
- For patients with chronic diseases, how do transportation barriers vary across urban, suburban, or rural areas?
- Do transportation-only interventions improve treatment compliance among patients with multiple challenges or needs?