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# KNOW DIABETES BY HEART

## Clinical Practice and Health System Change Guide:

Principles of Diabetes and Cardiovascular Management for Acute Care Settings

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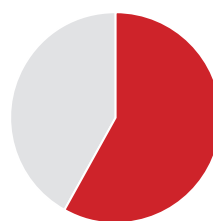
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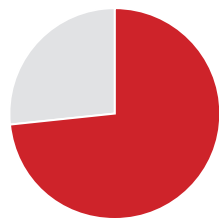
Cardiovascular disease (CVD) is the leading cause of death and a major cause of heart attacks, strokes, heart failure and disability for people with type 2 diabetes—yet only about half of the patients recognize their risk.<sup>1,2,3</sup> According to the Centers for Disease Control and Prevention, among U.S. adults age 21 years or older with diabetes (of whom 95% have type 2 diabetes):<sup>4</sup>



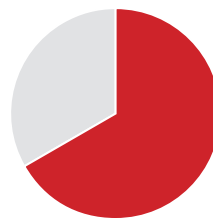
**15.6%**  
have an A1C value  
higher than 9%.



Only **58.2%**  
with no self-reported CVD who were  
eligible for statin therapy were  
on a lipid-lowering medication.



**73.6%**  
had systolic blood pressure of 140 mm Hg  
or higher or diastolic blood pressure of  
90 mm Hg or higher, or they were on prescription  
medication for high blood pressure.



Only **66.9%**  
with self-reported CVD who were  
eligible for statin therapy were  
on a lipid-lowering medication.

To comprehensively and systematically address and reduce the national public health impact of type 2 diabetes and CVD, the American Heart Association and the American Diabetes Association launched Know Diabetes by Heart™. The collaborative initiative focuses on CVD risk reduction in clinical care systems and practices by supporting patients and clinical care providers with ways to better manage type 2 diabetes patients and prevent CVD.

<sup>1</sup>Grau, Maria, et. al. Risk of Cause-Specific Death in Individuals With Diabetes: A Competing Risks Analysis; Diabetes Care 2016 Nov; 39(11): 1987-1995; <http://care.diabetesjournals.org/content/39/11/1987>.

<sup>2</sup>The Emerging Risk Factors C. Diabetes mellitus, fasting blood glucose concentration, and risk of vascular disease: a collaborative meta-analysis of 102 prospective studies. Lancet. 2010;375(9733):2215-2222. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(10\)60484-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(10)60484-9/fulltext)

<sup>3</sup>American Heart Association and American Diabetes Association. 2018. People with T2D Baseline Survey. Online survey; USA. Conducted by The Harris Poll in September 2018.

<sup>4</sup>Centers for Disease Control and Prevention. National Diabetes Statistics Report, 2017. Atlanta, GA: Centers for Disease Control and Prevention, US Department of Health and Human Services; 2017.

# INTRODUCTION

This guide provides change principles and best practices to achieve optimal cardiometabolic health management for people with type 2 diabetes. It focuses on three core areas, specifically for acute care settings:

- Principles for providers, health systems and care teams
- Population health best practices through quality improvement
- Best practices in supporting patients in care plan management

## GROUNDING BY CLINICAL SCIENCE AND OUTCOMES-BASED APPROACHES

This guide is based on the science and clinical practice guidelines of the American Heart Association and American Diabetes Association. The core principles of diabetes management and CVD prevention remain focused on the following (consistent with AHA's Life's Simple 7)

- 1 Measure and monitor height and weight (waist circumference should be considered).
- 2 Measure and track blood pressure accurately.
- 3 Measure and track A1C at intervals.
- 4 Measure and track lipid levels (total cholesterol, HDL) and assess ASCVD risk.
- 5 Assess tobacco use.
- 6 Assess physical activity level.
- 7 Assess dietary pattern.



A comprehensive patient-centered approach to a patient's lifestyle habits, blood pressure, blood glucose and estimated 10-year risk of a future ASCVD event is the first step to management. Prevention and treatment strategies must include a strong focus on lifestyle optimization (tobacco cessation and reduced exposure to secondhand smoke; improvement in diet; and increased physical activity) to reduce the risk of CVD and future ASCVD events.

For additional guidance on care for people with type 2 diabetes, please go to the AHA/ACC's 2019 Guideline on the Primary Prevention of Cardiovascular Disease and the ADA's 2019 Standards of Medical Care in Diabetes. <sup>5,6</sup>

<sup>5</sup> Arnett DK, Blumenthal RS, Albert MA, Buroker AB, Goldberger ZD, Hahn EJ, Himmelfarb CD, Khera A, Lloyd-Jones D, McEvoy JW, Michos ED, Miedema MD, Munoz D, Smith SC Jr, Virani SS, Williams KA Sr, Yeboah J, Ziaeian B. 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation*. 2019; 000:000-000. DOI: 10.1161/CIR.0000000000000678

<sup>6</sup> American Diabetes Association. Standards of Medical Care in Diabetes—2019. *Diabetes Care*; 42(Supplement 1): S1—S93. [https://care.diabetesjournals.org/content/42/Supplement\\_1](https://care.diabetesjournals.org/content/42/Supplement_1)

# COMPREHENSIVE PATIENT-CENTERED APPROACH FOR THE MANAGEMENT OF TYPE 2 DIABETES AND CARDIOVASCULAR DISEASE

## Principles for Health Care Systems, Providers and Care Teams

Principle	Inpatient Strategy	Resources
Establishing Foundational Concepts for Teams		
Make diabetes management and reduction of CVD risk a priority for the health system.	Designate a diabetes and cardiovascular champion(s) in your hospital.	ASCVD Risk Calculator <a href="http://www.KnowDiabetesbyHeart.org/riskcalc">http://www.KnowDiabetesbyHeart.org/riskcalc</a>  ADA Standards of Medical Care for Diabetes Management – 2019 <a href="https://professional.diabetes.org/content-page/practice-guidelines-resources">https://professional.diabetes.org/content-page/practice-guidelines-resources</a>
	Ensure that the inpatient care teams have delineated roles and responsibilities for intake, recording of vital signs, diagnosis and treatment plan, counseling, discharge and follow-up referral. Discharge should consider referral to PCP, cardiologist, neurologist and/or endocrinologist and/or services for nutrition counseling and DSMES as appropriate.	
	Identify an appropriate treatment and referral plans for patients with diabetes to ensure diabetes is managed ongoing.	
	Assess for ASCVD risk factors, ASCVD, staging of chronic kidney disease, heart failure history and hypoglycemia risk event. Consider barriers to care (socioeconomic, transportation, etc.).	
Identifying and Assessing Processes		
Develop a policy and process to address cardiometabolic health for every patient.	Develop protocols/flowcharts for how patients with diabetes and CVD should be identified, managed and tracked.	Know Diabetes by Heart Pocket Guide <a href="http://www.KnowDiabetesbyHeart.org/Professional">http://www.KnowDiabetesbyHeart.org/Professional</a>  Life's Simple 7 <a href="https://www.heart.org/en/healthy-living/healthy-lifestyle/my-life-check-lifes-simple-7">https://www.heart.org/en/healthy-living/healthy-lifestyle/my-life-check-lifes-simple-7</a>
	Identify follow-up referral protocols for patients post-discharge.	
Train and evaluate direct care staff on blood glucose management and recording and accurate blood pressure measurement.	Provide resources for guidance and education.	
	Assess appropriate readiness for lifestyle and pharmacological management and determine referrals to support as appropriate.	
Identifying Clinical Processes		
Systematically leverage evidence-based guidelines and treatment protocols for diabetes and CVD.	Effectively implement new diabetes science, specifically AHA and ADA guidelines.	ADA Standards of Medical Care for Diabetes Management – 2019. <a href="https://professional.diabetes.org/content-page/practice-guidelines-resources">https://professional.diabetes.org/content-page/practice-guidelines-resources</a>  ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. Arnett et al. Circulation. 2019. November 2018. <a href="https://doi.org/10.1161/CIR.0000000000000678">https://doi.org/10.1161/CIR.0000000000000678</a>
	Develop and deploy diabetes, hypertension, renal, lipid control and smoking protocols as appropriate.	
	Refer recalcitrant/resistant patients (A1C, BP, lipids) to specialists, particularly certified diabetes educators.	
Equip direct care staff to facilitate patient self-management.	Implement a discharge plan to support lifestyle and medication management.	
	Establish referral or follow-ups to support blood glucose and/or blood pressure monitoring at home.	
Assessing Impact		
Assessing change and adapting results.	Conduct a quarterly assessment of the organization's adherence to policies and protocols. Metrics that are tracked should focus on patient outcomes.	
	Establish review processes to understand the effect of changes and shifts in priorities. Identify needed changes. Complete Plan Do Study Act Plan (PDSA) - test and document changes of change plan.	

# COMPREHENSIVE PATIENT-CENTERED APPROACH FOR THE MANAGEMENT OF TYPE 2 DIABETES AND CARDIOVASCULAR DISEASE

## Population Health: Quality Improvement through Health Systems

Principle	Inpatient Strategy	Resources
Use a clinical registry to identify, track and manage dyslipidemia and hypertension in patients with type 2 diabetes.	Implement a hospital registry for patients with heart failure, heart attacks or stroke. Encourage hospitals to engage in GWTG-Heart Failure and GWTG-Stroke..	Target: Type 2 Diabetes™ Improvement Program (Stroke, Heart Failure) <a href="http://www.heart.org/en/professional/targettype2diabetes">www.heart.org/en/professional/targettype2diabetes</a> Get With The Guidelines® <a href="https://www.heart.org/gwtg">https://www.heart.org/gwtg</a>
	Consider using electronic medical records to support listing of diagnoses.	
	Make reporting accessible for administration and providers on a consistent basis. Quarterly reviews are recommended.	
	Use a defined process for follow-up and identify and engage patients not otherwise engaging in their care plan.	
Use clinician-managed protocols for management and treatment.	Develop protocol templates and customize to hospital protocols.	Management of hyperglycaemia in type 2 diabetes, 2018. A consensus report by the American Diabetes Association (ADA) and European Association for Study of Diabetes (EASD). <a href="http://diabetologia-journal.org/wp-content/uploads/2018/09/EASD-ADA.pdf">http://diabetologia-journal.org/wp-content/uploads/2018/09/EASD-ADA.pdf</a> ADA Standards of Medical Care for Diabetes Management – 2019. <a href="https://professional.diabetes.org/content-page/practice-guidelines-resources">https://professional.diabetes.org/content-page/practice-guidelines-resources</a>
Use practice data for performance and quality improvement.	Track relevant discharge data.	
	Ensure that data reports are reviewed systematically among care teams and are driving improvement activities across the organization (Informing Plan Do Study Act - PDSA Plan).	
	Regularly use dashboard with goals, metrics and outcomes.	
Assess impact.	Implement a quality improvement review process to monitor change and adapt processes.	
Optimize transition of care on discharge.	Provide patient with tools to support discharge, goal-setting and a treatment plan prior to discharge.	
	Provide education and tools to document risk factors (A1C, BP and lipids) and renal function as appropriate at home or with caregivers.	
	Discuss lifestyle changes (Life's Simple 7), psychosocial barriers, smoking status and a treatment plan.	
	Reconcile medications (cardiovascular and renal).	





## Best Practices for Supporting Patients in Managing Their Care Plan

Principle	Inpatient Strategy	Resources
Use each patient encounter to optimize treatment.	Provide patient with tools to support discharge, goal-setting and a treatment plan.	<a href="http://www.KnowDiabetesbyHeart.org">http://www.KnowDiabetesbyHeart.org</a> for patient materials <a href="http://www.Diabetes.org">http://www.Diabetes.org</a> <a href="http://www.heart.org/diabetes">http://www.heart.org/diabetes</a> Life's Simple 7 <a href="https://www.heart.org/en/healthy-living/healthy-lifestyle/my-life-check-lifes-simple-7">https://www.heart.org/en/healthy-living/healthy-lifestyle/my-life-check-lifes-simple-7</a> DSMES Locator <a href="https://www.diabeteseducator.org/living-with-diabetes/find-an-education-program">https://www.diabeteseducator.org/living-with-diabetes/find-an-education-program</a>
	For post-discharge follow up, develop a treatment plan that includes lifestyle and medical adherence, or ensure that patient is referred to appropriate provider if required.	
	For post-discharge follow up, measure and document renal function and risk factors, as appropriate, and/or ensure that patient is referred to appropriate provider if required.	
	Reconcile medications or schedule follow-ups with specialists as needed.	
Support patients in self-management.	Use an online portal or other mechanism to provide patients with self-management information and tools at home.	
	Develop training plans for staff that optimize education for patients and caregivers.	
Prepare patients and care team for effective diabetes and CVD management during inpatient encounter.	Provide self-management support to patients, and when appropriate, referrals for DSME or lifestyle change programs. Be familiar with DSMES programs in the community and have these available for patients when referrals are made.	
	Track relevant discharge data.	
	Ensure that data reports are reviewed systematically among care teams and are driving improvement activities across the organization (Informing Plan Do Study Act - PDSA).	
	Regularly use dashboard with goals, metrics and outcomes.	
	Implement a quality improvement review process to monitor change and adapt processes.	





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