



**Make Every Visit Count**  
**Point-of-care Solutions to**  
**Combat Chronic Diseases**

# Meeting Objective

**Understanding the clinical, operational and financial benefits of adopting point-of-care programs for identifying, assessing and monitoring key chronic diseases.**

# Why Is Chronic-Disease Management Important?



**21.1 million**  
Americans diagnosed  
with diabetes.<sup>1</sup>

**21.1 million**

Americans suffer  
**1.5 million** heart attacks  
and strokes each year.<sup>4</sup>

**1.5 million**



1995  
**118 million** 2030  
**171 million**

The number of people with chronic  
conditions is **increasing**.<sup>5</sup>



**8.1 million** Americans have  
undiagnosed diabetes (28%  
of diabetes is undiagnosed).<sup>2</sup>

**8.1 million**

Diabetes is the **leading** cause of  
kidney failure, accounting for **44%**  
of all new cases.<sup>2</sup>

**44%**

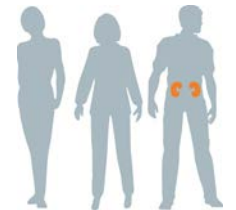


**86 million** Americans  
have prediabetes.<sup>1</sup>

**86 million**

**73 million** people in the  
U.S. are at increased  
risk of CKD or ESRD  
(**1 in 3 adults**).<sup>3</sup>

**73 million**



1. Centers for Disease Control and Prevention (CDC) National Diabetes Fact Sheet, 2014

2. American Diabetes Association (ADA) Fast Fact Sheet (Data and Statistics about Diabetes), 2013

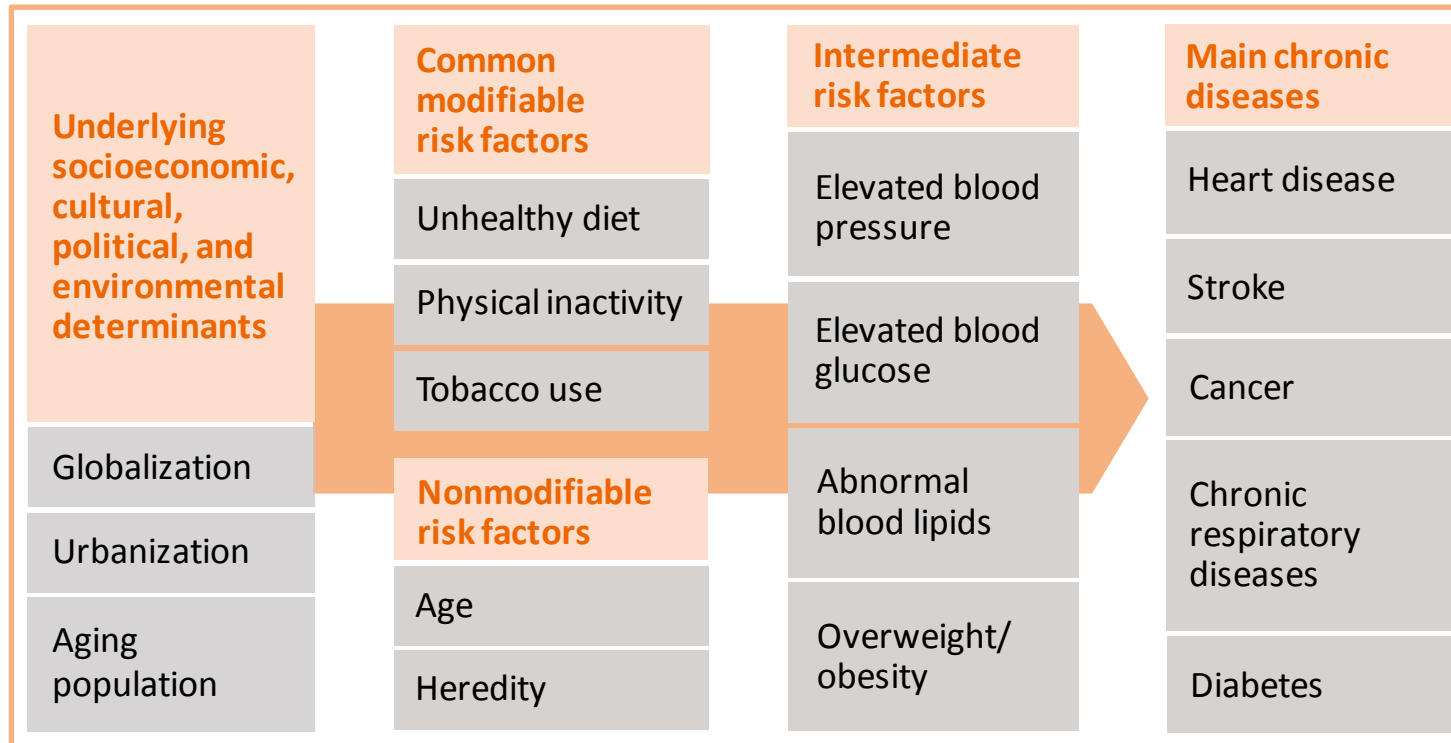
3. The American Kidney Association. The facts about CKD. 2013. Available at: [www.kidney.org](http://www.kidney.org)

4. <http://millionhearts.hhs.gov/learn-prevent/cost-consequences.html><sup>2</sup>

5. Wu, Shin-Yi, and Green, Anthony. Projection of Chronic Illness Prevalence and Cost Inflation. RAND Corporation, October 2000

# Why Is Chronic-Disease Management Relevant?

## Top Causes of Chronic Disease According to WHO



Common causes are **modifiable** by patient action.

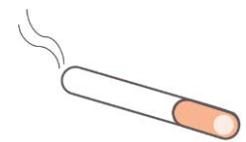
Chronic diseases are often **costly, preventable, and manageable.**



Poor diet



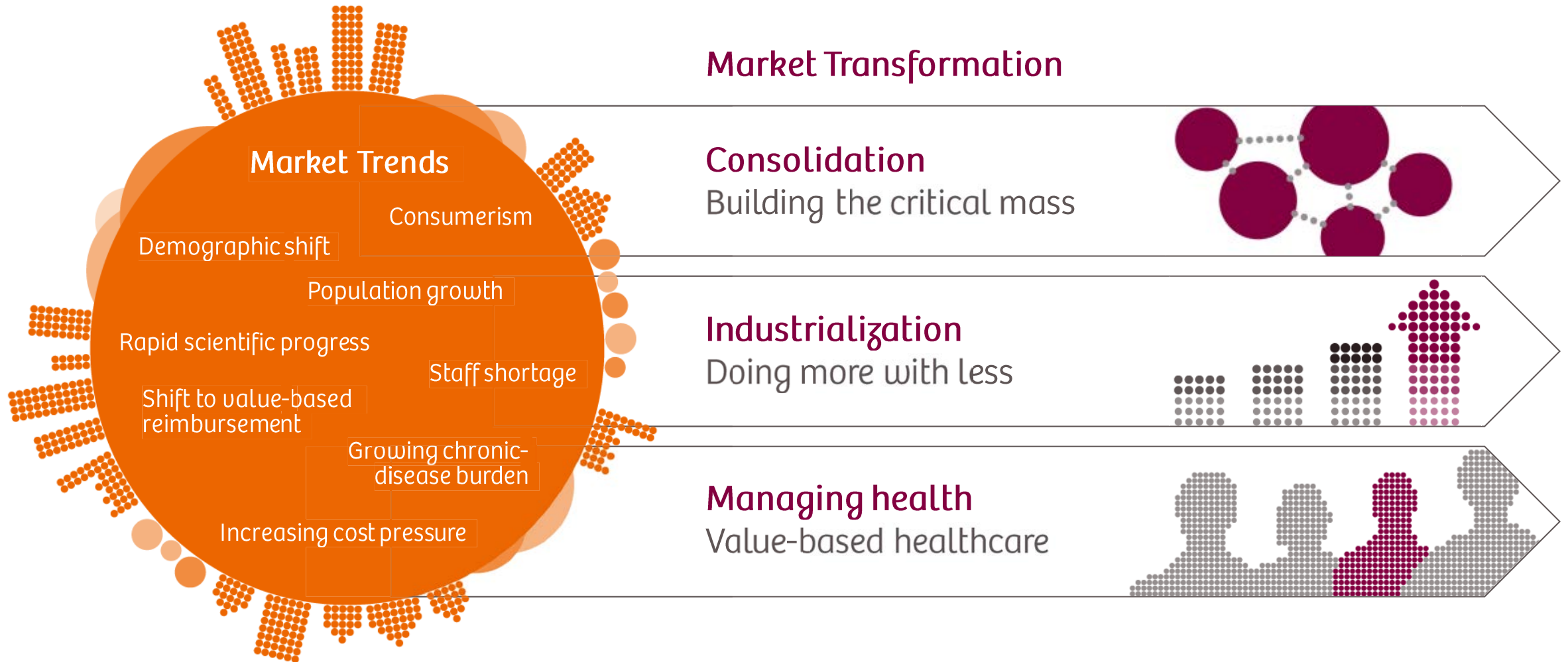
Inactivity



Smoking

Eliminating these risk factors can **prevent 80%** of type 2 diabetes.

# Meanwhile, the Healthcare Market Is Changing...



# ...Requiring Providers to Improve Outcomes While Decreasing Costs...

## CLINICAL



Extend  
Clinical Capabilities



Improve  
Quality of Care



Standardize  
Care

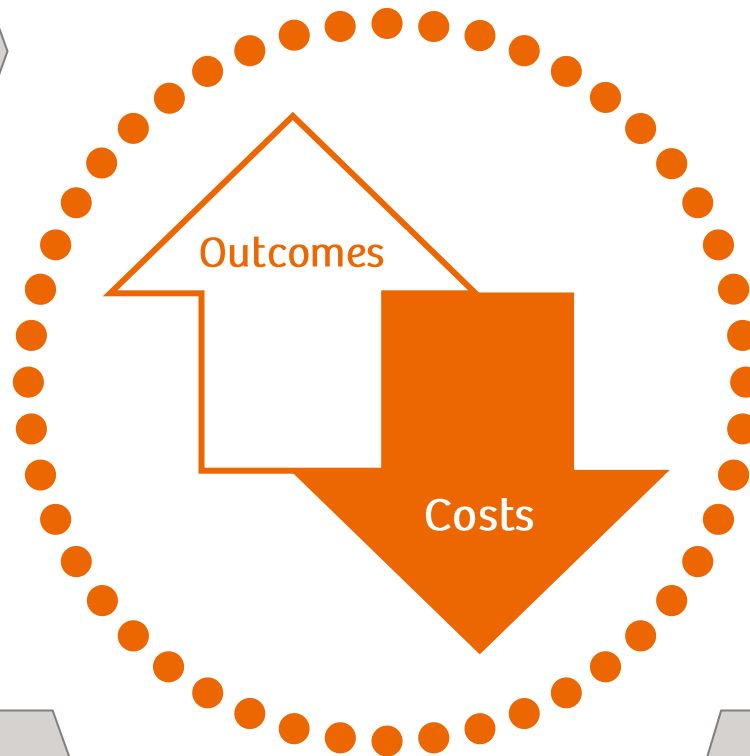
## OPERATIONAL



Increase  
Efficiency



Attract, Retain,  
Develop Workforce



## FINANCIAL



Manage  
Reputation



Improve  
Profitability



Stay  
Competitive



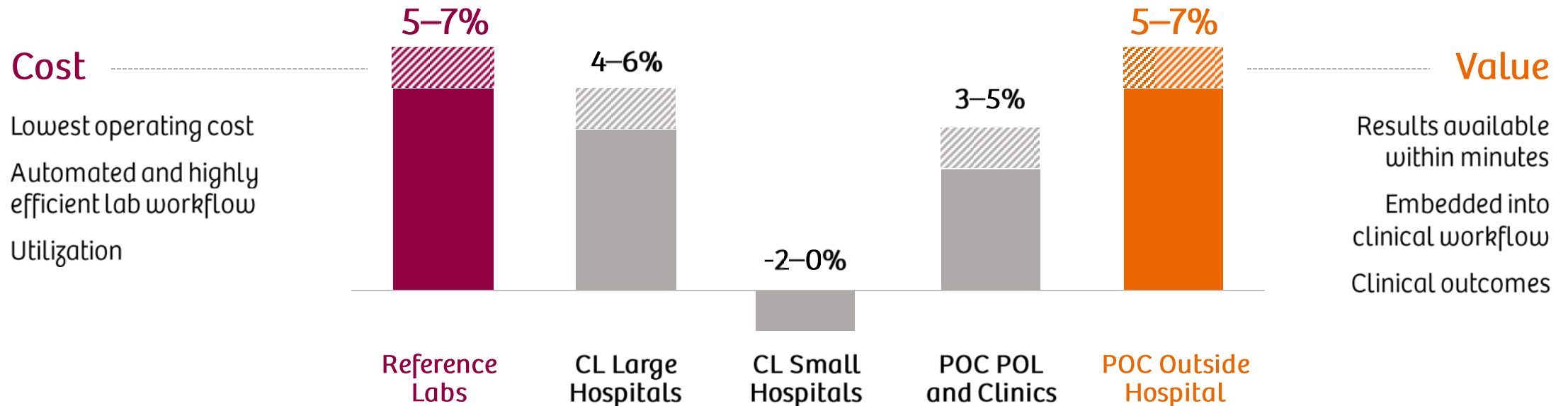
Reduce Risk and  
Act Compliant



Balance Fix  
us. Variables

# ...Leading to the Growth of Point-of-care Testing: Efficiency versus Speed of Clinical Decision Making

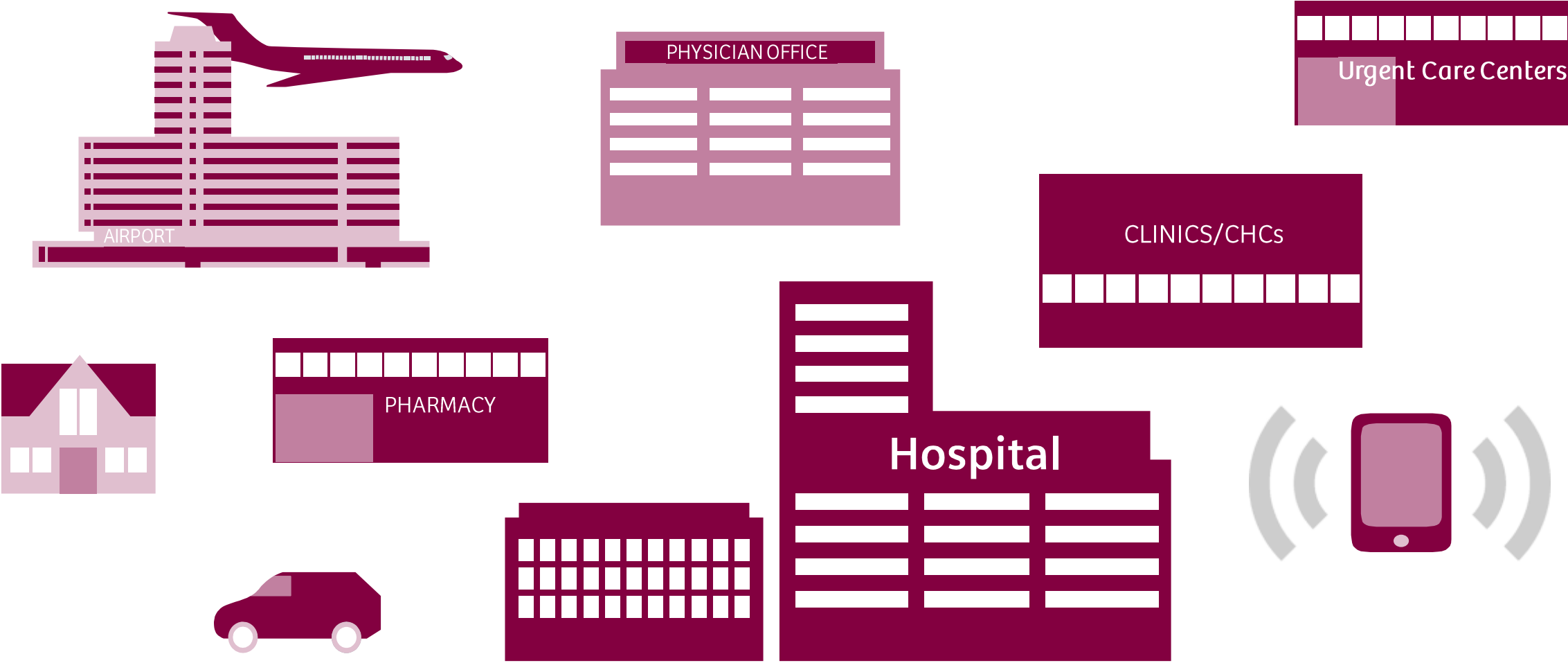
Customers: Bifurcation of IVD Testing



The outcomes achieved by the Siemens Healthineers customers described here were achieved in the customer's unique setting.

Since there is no typical hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption), there can be no guarantee that others will achieve the same results.

# Chronic Disease Testing Touchpoints Are Expanding Outside of Traditional Testing Sites





# Value of Point of Care Testing: Timely Results to Improve Workflow and Patient Outcomes



**Accurate** and  
**actionable** information

+



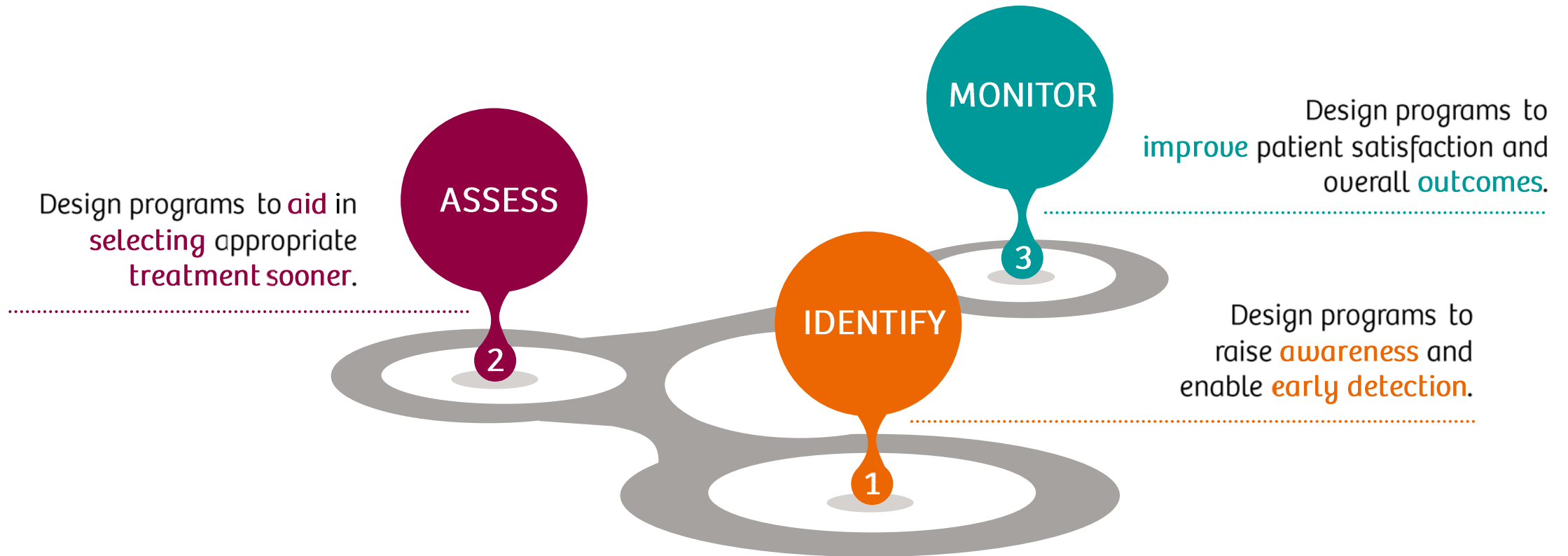
Results in  
**minutes**

=



**Immediately**  
assess and adjust  
treatment

# Point-of-care Testing for Chronic Diseases Can Help Improve Patient Care and Decrease Healthcare Costs



# Value of Hemoglobin A1c Point-of-care Testing



# What if you could have a long term impact on HbA1c levels?

## University of Texas Medical Branch

Galveston, TX

“In this large, retrospective cross-sectional study, we have evidence that availability of POC A1C not only impacts the A1C in the short term (<1.5 years), but also in the longer term.”

John R. Petersen, et al. *Diabetes Care*

March 2007; (30)3:713-715



### Profile:

UTMB, about 50 miles from Houston, is an academic health center with 11,000 employees and a medical school that is the oldest in Texas. In 2001, the University of Texas Medical Branch opened the Stark Diabetes Center to give specialized diabetes care.

### Technology:

DCA Vantage® Analyzer for onsite HbA1c test

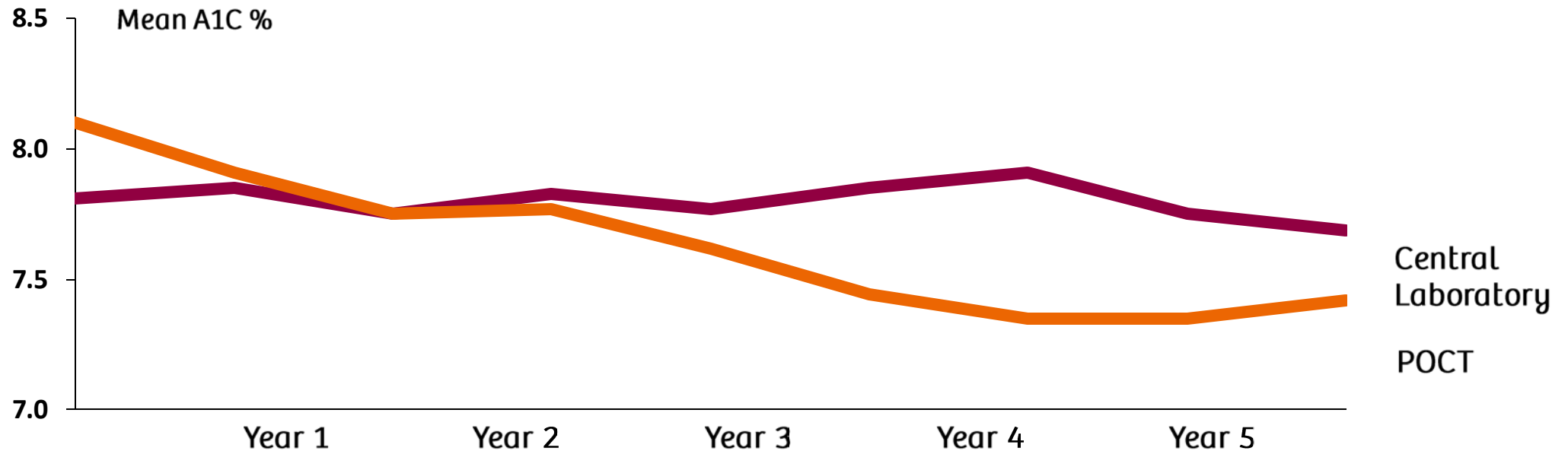
# Clinical Value/Triple Win of Point of Care: HbA1c Testing Outside the Hospital



## Improved Patient Outcomes

Near-patient testing **reduces** HbA1c levels **more effectively**.

A **reduction** in HbA1c can **improve** microvascular complications by as much as **25%!**



Sources: 1. Petersen JR, et al. Effect of point-of-care on the maintenance of glycemic control as measured by A1c. Diabetes care. 2007 Mar;30(3):713-15. 2. Abdelhafiz and Sinclair. Low HbA1c and Increased Mortality Risk-is Frailty a Confounding Factor? Aging Dis. 2015 Aug; 6(4): 262-270.

The outcomes achieved by Siemens Healthineers customers described herein were achieved in each customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT options) there can be no guarantee that others will achieve the same result.

# Clinical Value/Triple Win of Point of Care: HbA1c Testing Outside the Hospital



## Better Patient Compliance

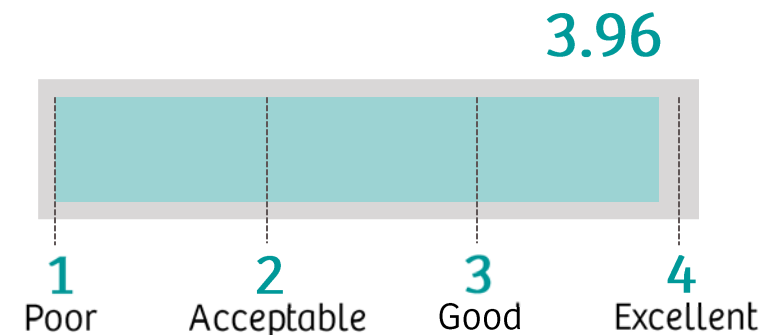
Patient satisfaction goes **up**:

“**Wonderful** to have the results and directions for medications.”

“**100/100 satisfied** about everything. Well-done job, I will **definitely** keep coming to get well.”

“Nice to have results **before** end of visit.”

“Thorough, sensitive, I feel **well cared for**.”



Source: Crocker, et al. Clinica Chimica Acta. 2013;424:8-11.

The outcomes achieved by Siemens Healthineers customers described herein were achieved in each customer's unique setting. Since there is no “typical” hospital and many variables exist (e.g., hospital size, case mix, level of IT options) there can be no guarantee that others will achieve the same result.

# Clinical Value/Triple Win of Point of Care: HbA1c Testing Outside the Hospital



**Improved Operational Efficiency**  
Improves workflow and overall efficiency

-89%

Follow-up  
Phone Calls

-85%

Follow-up  
Letters

-61%

Revisits

-21%

Tests Ordered  
(per patient)

Source: Crocker, et al. Am J Clin Pathol. 2014;142:640-646.

The outcomes achieved by Siemens Healthineers customers described herein were achieved in each customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT options) there can be no guarantee that others will achieve the same result.

# Deliver Comprehensive Diabetes Care Driving the HEDIS<sup>1</sup> Quality Measures



## What are HEDIS Measures?

- National Committee for Quality Assurance (NCQA) sets program to measure healthcare delivery effectiveness.
- Healthcare Effectiveness Information and DataSets defined called , HEDIS measures. There are xxx.
- Comprehensive Diabetes Care (CDC) is a program with HEDIS metrics reported annually by members.

% of diabetes patients tested:  
HbA1c test  
Had an HbA1c test > 8%  
Eye exam  
Kidney check

Note: HEDIS guidelines list ACR or PCR as options for kidney checks

Maria Peluso-Lapsley | Chronic Disease Marketing



# What if you could identify 45% of high risk individuals that needed follow-up care for diabetes and/or diabetic nephropathy?

## Nuestra Clinica Del Valle (NCDV)

Rio Grande, TX

### Featured at AACC 2016

“Armed with the Siemens POC tests, we brought diabetes testing and education to high risk individuals in a community location, the flea market. Following the 2016 ADA Standards of Medical Care, we identified that 45% of those tested in our pilot study needed medical follow-up for diabetes and diabetic nephropathy.”

### Dr. Brian Wickwire

Internal Medicine, Ph.D. Biochemistry



### Profile:

Nuestra Clinica Del Valle (NCDV) is a community-health center with 11 clinics in 2 counties serving 30,000 patients (7,000 diabetics). Headquarters reside in San Juan, Texas.

### Technology:

DCA Vantage® Analyzer

DCA® Hemoglobin A1c Test

CLINITEK Status®+ Analyzer

CLINITEK® Microalbumin 2 Test Strip

# What if POC diabetes solutions could help reach and empower patients to seek care and reduce %HbA1c by 5.0%?

## Nuestra Clinica Del Valle (NCDV)

Rio Grande, TX

### Challenge:

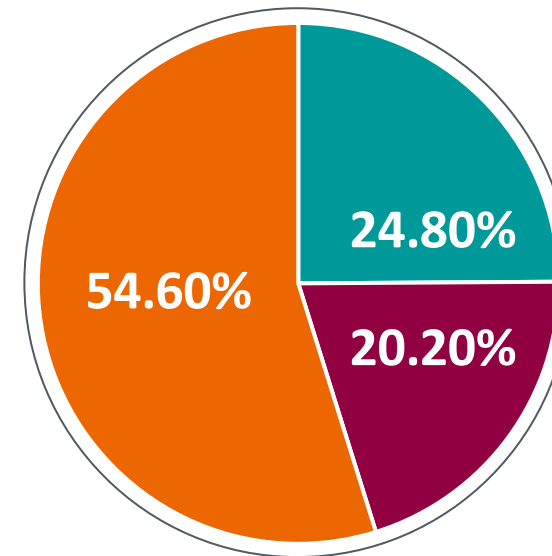
- Reach high risk and underserved population.
- Deliver education on diabetes and complications prevention.
- Have results available during visit to impact follow-up.

### Outcome and Benefits:

- A flea market testing center offers HbA1c and Albumin-to-Creatinine Ratio (ACR) testing to identify pre-diabetes\*, diabetes and kidney disease to encourage steps for follow-up care.
- DCA Vantage® HbA1c test identified that 45% needed follow up care.
- 50% of persons that went to healthcare center showed a reduction in %HbA1c of ~5.0% over 11 months.

\*DCA® HbA1c test kit 10698915 (an aid to diagnose diabetes and identify patients at risk for developing diabetes) is not available for sale in the U.S. Product availability varies by country.

The outcomes obtained by the Siemens customer described here were realized in the customer's unique setting. Since there is no typical laboratory, and many variables exist, there can be no guarantee that others will achieve the same results.



- HbA1c >= 6.5%\*
- HbA1c 5.7 - 6.4%\*
- HbA1c <= 5.4%

\* Referred for follow-up care.

### Hemoglobin A1c (HbA1c)

N = 498

# What if a CLIA-waived urine test could help avoid \$250,000 per year in hemodialysis costs?

## Nuestra Clinica Del Valle (NCDV)

Rio Grande, TX

“Through our pilot<sup>1</sup> with a simple CLIA-waived urine test, we identified 25% of diabetics at high risk of developing nephropathy in our community location, the flea market. 7.4% had severely increased albuminuria (ACR >300 mg/g) and needed immediate medical follow-up. Early identification and treatment has the potential to avoid emergency hemodialysis which can cost more than \$250,000 per year<sup>2</sup>.”

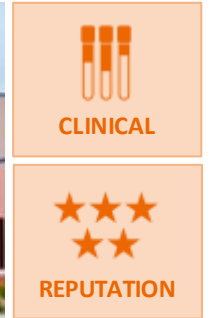
### Dr. Brian Wickwire

Internal Medicine, Ph.D. Biochemistry

Normal UACR is defined as <30 mg/g Cr, and increased urinary albumin excretion is defined as > or = 30 mg/g Cr. Because of variability in urinary albumin excretion, two of three specimens of UACR collected within a 3- to 6-month period should be abnormal before considering a patient to have albuminuria.

Sources: 1. POD2ER: Prevention and Organization against Diabetes Dialysis with Education and Resources: Murtuza, Mohammed M., et al. Poster. 2. Am Kidney Dis 55:181-191.

The outcomes obtained by the Siemens customer described here were realized in the customer's unique setting. Since there is no typical laboratory, and many variables exist, there can be no guarantee that others will achieve the same results.



### Profile:

Nuestra Clinica Del Valle (NCDV) is a community-health center with 11 clinics in 2 counties serving 30,000 patients (7,000 diabetics). Headquarters reside in San Juan, Texas.

### Technology:

DCA Vantage<sup>®</sup> Analyzer

CLINITEK Status<sup>®</sup>+ Analyzer

CLINITEK<sup>®</sup> Microalbumin 2 Reagent Strips

# What if you had a POC device that could identify 7.4% of patients who needed follow-up for severe diabetic nephropathy?

## Nuestra Clinica Del Valle (NCDV)

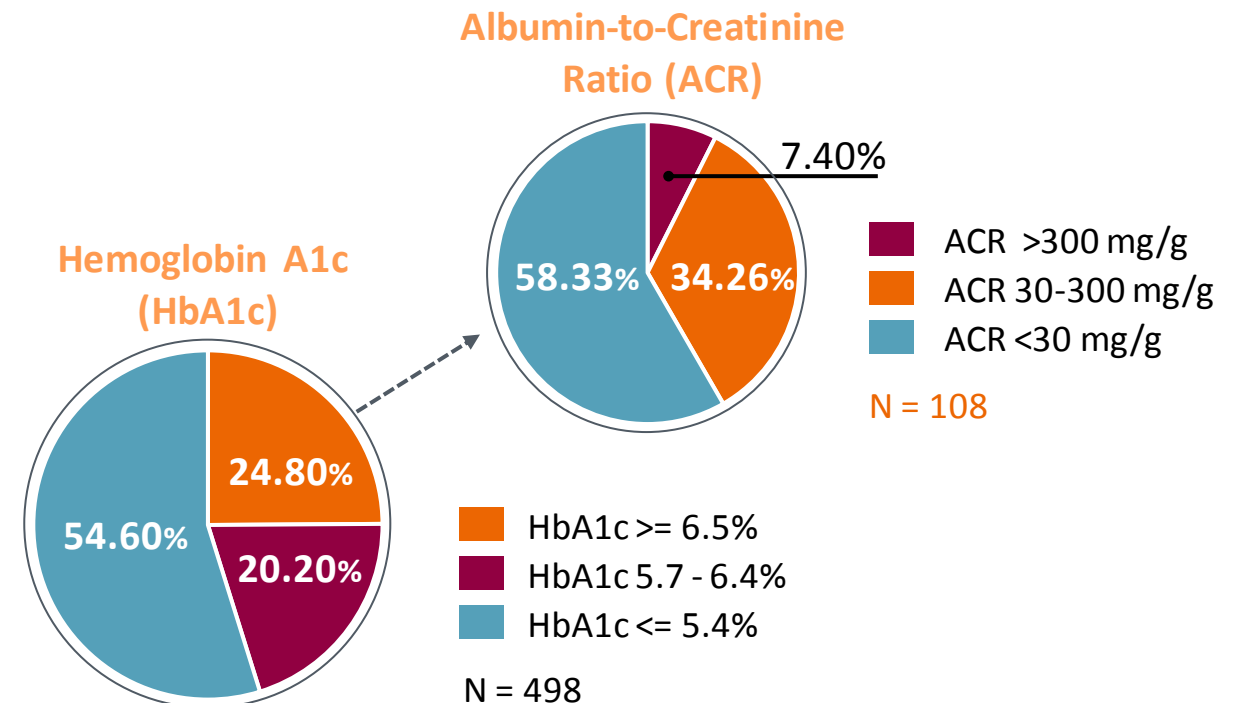
Rio Grande, TX

### Challenge:

- Reach high risk and underserved population at risk of diabetes progressing to severe kidney disease.
- Deliver education on diabetes and kidney disease prevention.
- Have results available during visit to impact follow-up.

### Outcome and Benefits:

- A flea market testing center offers Albumin-to-Creatinine Ratio (ACR) testing to patients with HbA1c levels above 6.5% for follow-up.
- Pilot testing identified 25% of patients at high risk of developing diabetic neuropathy.
- CLINITEK Microalbumin 2 urine strip identified that 7.4% needed follow up for severe diabetic nephropathy.



Normal UACR is defined as <30 mg/g Cr, and increased urinary albumin excretion is defined as > or = 30 mg/g Cr. Because of variability in urinary albumin excretion, two of three specimens of UACR collected within a 3- to 6-month period should be abnormal before considering a patient to have albuminuria.

Maria Peluso-Lapsley | Chronic Disease Marketing

# New Guidelines For Stroke Assessment

## What Guidelines Mean to You

The new cardiovascular prevention guidelines were written based on years of scientific research to develop the best approaches to preventing heart disease and stroke—the leading causes of death in the world. Here's what you need to know about the guidelines, released Nov. 12 by the American Heart Association and American College of Cardiology:



IT ALL STARTS WITH AN ASSESSMENT OF YOUR RISKS PERFORMED BY YOUR HEALTHCARE PROVIDER



DISCUSSIONS WITH YOUR HEALTHCARE PROVIDER WILL HELP YOU UNDERSTAND YOUR RISKS AND OVERALL HEALTH



THOSE DISCUSSIONS DRIVE PERSONALIZED TREATMENT FOR EACH PATIENT.

The guidelines help healthcare providers provide the best treatment focused on four important areas:

### ASSESSMENT OF RISK

(for heart disease, stroke and other cardiovascular diseases.)

1. Calculators used to assess your personal risk set stage for discussions with healthcare provider
2. Risks for African-Americans specified for the first time
3. Stroke risks included for the first time



### OBESITY

1. Team-based treatment
2. Weight-loss strategies based on body mass index
3. Diet, exercise still best bets



### CHOLESTEROL

1. Overall health status and risks guide treatment
2. "Bad cholesterol number" no longer main factor guiding treatment
3. Decisions for drug treatment based on discussions with healthcare provider



### LIFESTYLE

1. 40 minutes of exercise 3-4 days a week
2. Eat lots of fruit, veggies
3. Most Americans should reduce sodium intake



For more information, please visit [Heart.org](http://Heart.org)

## LEHIGH VALLEY HOSPITAL Stroke Risk Scorecard

Each box that applies to you equals 1 point. Total your score at the bottom of each column and compare with the stroke risk levels at the bottom of page.



RISK FACTOR	HIGH RISK	CAUTION	LOW RISK
Blood Pressure	■ >140/90 or unknown	■ 120-139/80-89	■ <120/80
Atrial Fibrillation	■ Irregular heartbeat	■ I don't know	■ Regular heartbeat
Smoking	■ Smoker	■ Trying to quit	■ Nonsmoker
Cholesterol	■ >240 or unknown	■ 200-239	■ <200
Diabetes	■ Yes	■ Borderline	■ No
Exercise	■ Couch potato	■ Some exercise	■ Regular exercise
Diet	■ Overweight	■ Slightly overweight	■ Healthy weight
Stroke in Family	■ Yes	■ Not sure	■ No
<b>Total Score</b>	■ High risk	■ Caution	■ Low risk

- High Risk ≥ 3 Ask about stroke prevention right away.
- Caution 4-6 A good start. Work on reducing risk.
- Low Risk 6-8 You're doing very well at controlling stroke risk!



# Robust Point of Care Testing Shown to Improve Patient Management and Satisfaction

## DCA Vantage



### DIABETES/KIDNEY DISEASE HbA1c and ACR<sup>1</sup>

- POC HbA1c testing offers benefits for patients who experience barriers to traveling to physician sites for repeated follow-ups visits<sup>1</sup>
- Immediate feedback of HbA1c levels improves glycemic control in type 1 and type 2 diabetic patients<sup>2</sup>
- Improve 3 out of 4 HEDIS measures to assess the quality of diabetes management

## CLINITEK Family



### KIDNEY DISEASE/HYPERTENSION ACR, PCR, and Other Key UA Tests

- Early screening can prevent or delay the progression of kidney disease<sup>3</sup>
- POC UTI screening outside of hospitals can reduce penalties from hospital re-admissions due to UTI
- Early screening to detect conditions causing and/or exacerbating high blood pressure can help evaluate the risk of cardiovascular disease

## Xprecia Stride



### STROKE/CVD/ANTICOAGULATION PT/INR

- A systematic approach to anticoagulation management, focused at the point of care, can increase the time patients are in range and reduce the risk of adverse events<sup>4</sup>
- Adopting POC PT/INR monitoring lowers costs for managing patients on oral warfarin therapy, increase overall revenue, and improve patient satisfaction<sup>4</sup>

Sources: 1) Khunti K, Stone MA, Burden AC, et al. *Br J Gen Pract* 2006  
2) Cagliero E, Levina EV, Nathan DM. *Diabetes Care* 1999  
3) Bo Feldt-Rasmussen. *Diabetes Voice*, 2003  
4) Tim Huston. *Medical Laboratory Observer*, 2009

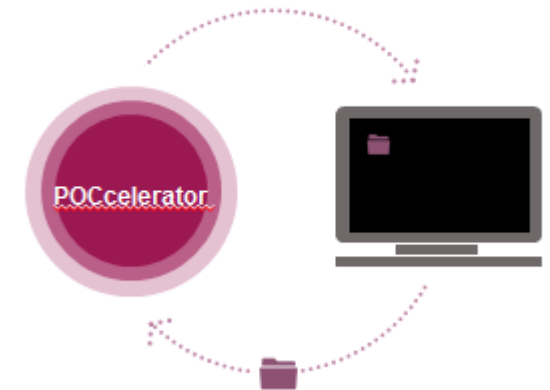
# Siemens Healthineers POC IT Suite of Solutions: Aid in Keeping POC Testing Process In Control



Dozens of sites, hundreds of Siemens devices and thousands of operators all controlled with the **RAPIDComm** Data Management System.



Seamlessly transmit data from analyzers to EMR with **RELAYMED** a subscription-based cloud solution.\*



Open data-management middleware solution, **POCcelerator** connects devices from **multiple** manufacturers.

\* Designed to connect physician offices with other EHR systems, including Epic, Allscripts, eClinicalWorks, NEXTGEN, GE Healthcare, Centricity, Greenway Health, and Athena Health

# Attributes of a Solid Point-of-Care Solution





# Trust Our Chronic Disease Portfolio to Make EVERY Visit Count

SIEMENS  
Healthineers



# Thank You!

## **Maria Peluso-Lapsley, MBA**

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