

## Improved Glucose Control in Virginia's Hospitalized Patients: *A Pay-for-Performance Program*

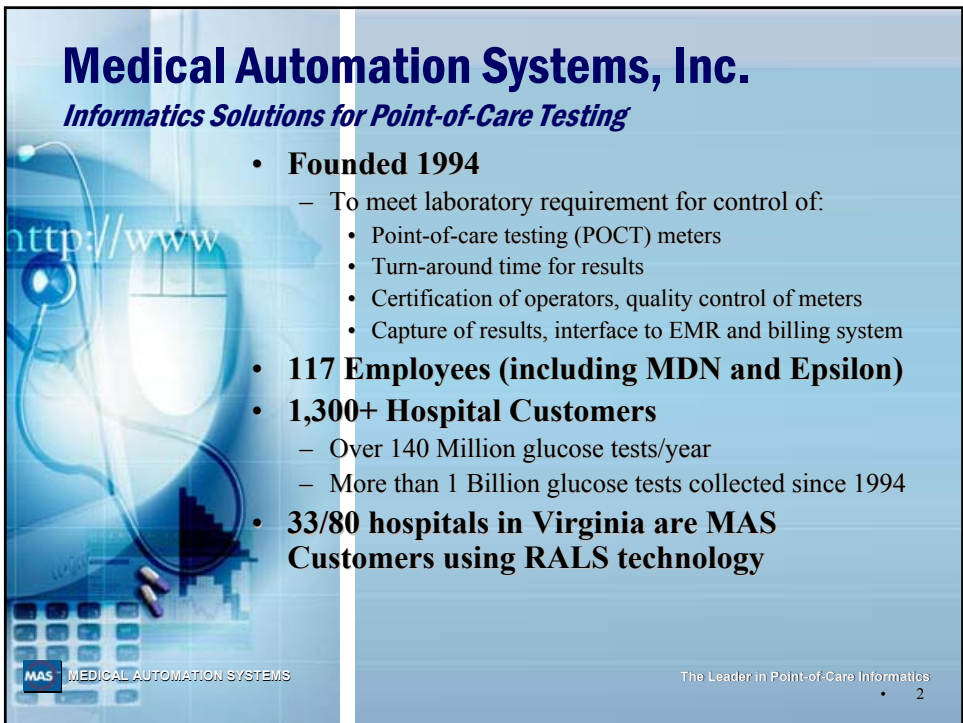
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MAS MEDICAL AUTOMATION SYSTEMS

The Leader in Point-of-Care Informatics



## **Medical Automation Systems, Inc.**

*Informatics Solutions for Point-of-Care Testing*

- **Founded 1994**
  - To meet laboratory requirement for control of:
    - Point-of-care testing (POCT) meters
    - Turn-around time for results
    - Certification of operators, quality control of meters
    - Capture of results, interface to EMR and billing system
- **117 Employees (including MDN and Epsilon)**
- **1,300+ Hospital Customers**
  - Over 140 Million glucose tests/year
  - More than 1 Billion glucose tests collected since 1994
- **33/80 hospitals in Virginia are MAS Customers using RALS technology**

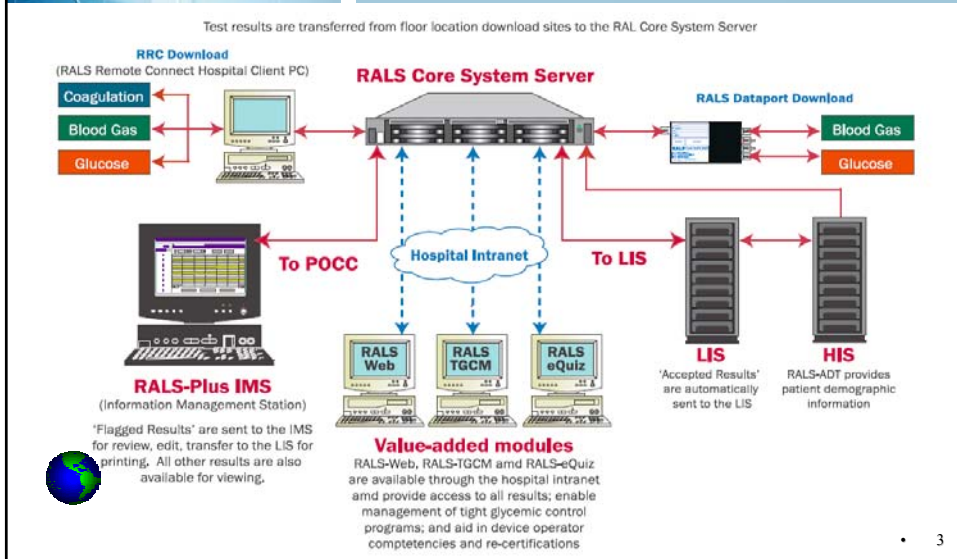
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# RALS-Plus

## Data Management for POCT



# Diabetes: Virginia

- **Huge problem**
  - 6<sup>th</sup> leading cause of death
  - 535,000 adults Virginians have it
  - Hospital discharge cost
    - Primary diagnosis: > \$ 172 million
    - Contributing component: > \$ 2 Billion
- **Growing**
  - 41% increase in prevalence in 1990's (Nationally)
  - 850,000-1,100,000 are pre-diabetic (Virginia)
- **Challenges for Care Improvement**
  - Cause for Admission: Diabetes is often a co-morbidity
  - Education: No single point of contact
  - Old Care vs. New Care
    - Long term control vs. short term control

<http://www.vahealth.org/cdpc/diabetes/statistics.asp>  
<http://www.vahealth.org/cdpc/diabetes/inVA.asp>

## Tight Glycemic Control

- **Van den Berge** *NEJM* 2001; 345:1359-1367
  - Improved survival (10.9 to 7.2,  $p = .01$ )
- **Furnary** *Ann Thorac Surg* 1999;67:352– 62.  
*J Thorac Cardiovasc Surg* 2003;125: 1007-21
  - Reduced infections (2.0% to 0.8%,  $p = .01$ )
  - Reduced mortality (5.3% to 2.4%,  $p = .0001$ )
- **Krinsley** *CHEST* 2006; 129:644–650
  - Mortality
    - 36% reduction (Diabetics)
    - 28% reduction (Non-diabetics)
  - Cost savings
    - \$ 1.3 Million per year (measured, at Stamford Hospital)
    - \$ 5.1 Billion nationally (est. 52,954 beds in U.S., \$ 95,679 savings/bed)

## Endocrinology Responds

- “Call to Action – Consensus Development Conference” <sup>1/06</sup>
  - American Association of Clinical Endocrinologists (AACE)
  - American College of Endocrinology (ACE)
  - American Diabetes Association (ADA)
- **Conclusion:**

“Major Medical Associations call for better blood glucose management in hospitalized patients”
- **Recommendation:**

“Implement structured protocols for aggressive control of blood glucose in both intensive care units and other hospital settings.”

# Pay for performance solution:

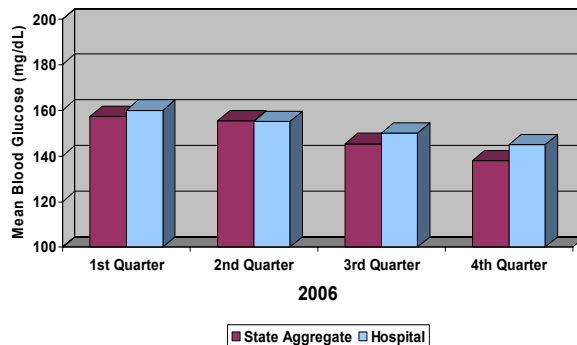
## Benchmarking

- **Evaluate the glucose care of Va. Hospitals**
  - Invite all Hospitals (RALS, flat file)
  - Accommodate any hospital, protocol, order sets
- **Rewards**
  - Lowest ICU glucose
  - Lowest hypoglycemic percentage
- **Multiple other P4P options**
  - Lowest ward figures
  - Most rapid achievement of goal
  - Best maintenance of within goal
  - Minimal glucose variability

# RALS-Report

## Quarterly Benchmarking Service

Mean Blood Glucose: ICU Measurements\*



\* AACE/ACE guidelines recommend <110 mg/dL in the ICU.

## Expected Outcomes and Benefits

- **Reduced adverse outcomes** CHEST 2006; 129:644-650
  - Improved survival *10.9 to 7.2 deaths per ICU*
  - Number of ICU hours: *17.2% reduction*
  - Ventilator hours: *19.0% reduction*
  - Lab costs: *24.3% reduction*
  - Pharmacy costs: *16.7% reduction*
  - Imaging costs: *5.0% reduction*
  - LOS after ICU *Reduced from 5 to 4 days*
- **Cost savings in Virginia** (1,392 ICU beds in Virginia)
  - Total Savings \$ 133 Million/yr
  - Medicaid portion \$ 9.5 Million/yr  
(Neither includes additional reductions or non-ICU figures)
- **Show that P4P can work for everyone**
  - Truly a leadership position for Virginia

## Thank You

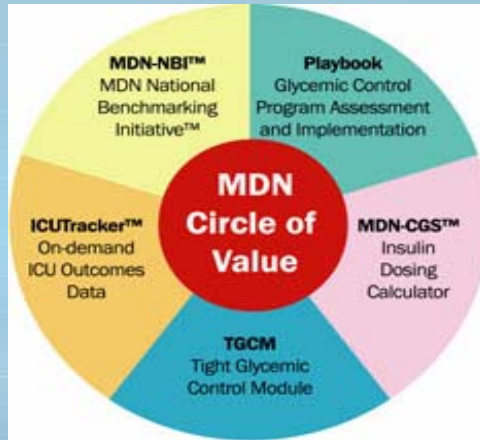
### Discussion and Questions

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# Glycemic Control—Applying Informatics to Existing Data



**Medical Decisions Network  
(MAS Subsidiary)**

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