

University of Rochester Medical Center Strong Health



700 bed tertiary care medical center. Strong Health is a Trauma Center, Transplant Center (bone marrow, kidney, liver & heart). 4 adult ICU's: MICU (17 beds), SICU (14 beds), Burn/Trauma (17 beds), and Cardiovascular ICU (14 beds)

IHI Patient Safety Initiative

- URMC/Strong Health partnered with the collaborative members of the Institute for Healthcare Improvement to promote a culture of patient safety and improve outcomes for patients by improving the quality of our health care delivery.
- 1st Patient Safety Initiative 2003
 - Implement a Ventilator Bundle
 - Reduce Ventilator-associated Pneumonia

VENTILATOR BUNDLE

- Elevate HOB 30 degrees unless contraindicated
- Sedation Vacation
 - Turn off sedation until patient is able to follow commands or is fully awake.
- DVT Prophylaxis
- PUD Prophylaxis
- Daily assessment for readiness to wean
- ❖ Structured Oral Care and Mobility were added as adjunct therapies to enhance effectiveness of bundle

VAP CRITERIA

- > 48 hours on ventilator
 - At least 3 out of 5:
 - Radiographic evidence of new or progressive infiltrates
 - Fever
 - Leuckocytosis
 - Change in sputum (color and/or amount)
 - Worsening O₂ requirements
 - * Final determination of VAP diagnosis is made by the attending physician

Medical Intensive Care Unit

- **Pilot Unit**

- **17 bed ICU**

- Population includes patients commonly diagnosed with: Sepsis, ARDS, Respiratory Failure, Pneumonia, TB, CVA, GI Bleed, Pancreatitis and Drug Overdose

- **ICU Intensivist Provider Care Model**

- Closed Unit

- **Admit 1,100 patients/year**

- **70% of patients require mechanical ventilation**

Ventilator Bundle Implementation Plan

- Team Formation
- Education
- Implementation
- Communication
- Reporting Data
- Developing Champions

Implementation Process

- **Team Members**
 - **Multidisciplinary in Scope**
 - Director of Adult Critical Care
 - Associate Director of Critical Care Nursing
 - Adult Critical Care Project Manager
 - MICU Nurse Manager
 - RN Care Coordinator
 - Respiratory Therapist
 - Pharmacy
 - Critical Care Nursing Staff

Implementation Process cont'd

- **Staff Education**
 - Presentation of evidence-based findings/information about VAP to establish a solid foundation for support of the initiative
 - Extensive initial education campaign to introduce ventilator bundle initiative
 - Monthly educational presentations for the first 3 months for reinforcement
 - Regularly scheduled in-services/poster presentations
 - Ongoing 1:1 staff education and reinforcement
 - Ventilator Bundle education is included in unit orientation for staff and residents

Implementation Process cont'd

- **Establish forums for open Communication**
 - **Staff meetings**
 - Two times each week
 - **Individual discussions**
 - Daily Walk Rounds
 - **Critical Care Quality Council**
 - Initiative updates reported monthly
 - **Leadership Safety Rounds**
 - Monthly

Implementation Process, cont'd

■ Daily Goal Sheet

- Vital to implementation of the ventilator bundle
- Checklist with prompts for patient care priorities that were addressed each day during daily morning rounds by physicians, residents, nurses and the care coordinator
- Extensive modifications were required before final approval from the healthcare team
- Now part of the resident daily progress note and nursing plan of care

Implementation Process cont'd

- **Team Meetings**
 - **Weekly**
 - **Review data results**
 - **Problem solving**
 - **Planning**
 - **Plan Do Study Act Cycles (Model for Improvement)**
 - **Accountability**

Barriers

■ Resistance to practice change

■ Physicians

- Lack of buy-in
- Daily Goal Sheets time consuming
- Individual practice preferences
- Skepticism about results of research and evidence provided to support the initiative

■ Staff

- Need to learn new protocols
- Concern about compromised patient safety with sedation vacation
- Practice boundary issues between Respiratory Therapy and Nursing when RT- Driven Weaning Protocol was implemented

Barriers, cont'd

- **Perceived increased workload**
 - Staff - more paperwork
 - More time and effort required
- **Another QI project that will go away**
 - Why are we doing this?
 - Is this just another improvement project that will fall by the wayside?

Our Ventilator Bundle Challenges

- **HOB Noncompliance**
 - Inaccurate perception of 30 degrees
 - Posted bedside signs and measurement cues
 - HOB position documentation required on Flow Sheet
- **Sedation Vacation**
 - Nursing Resistance (perceived risk to patient safety)
 - Medical Director appealed to staff to develop a nurse-driven sedation
- **Daily Assessment for Ability to Wean**
 - Mechanical Ventilator Liberation Protocol presented issues of practice boundaries between Nursing and Respiratory Therapy
 - Extensive in-services, 1:1 education and reinforcement required before successful implementation achieved

Practice Changes During Ventilator Bundle Implementation

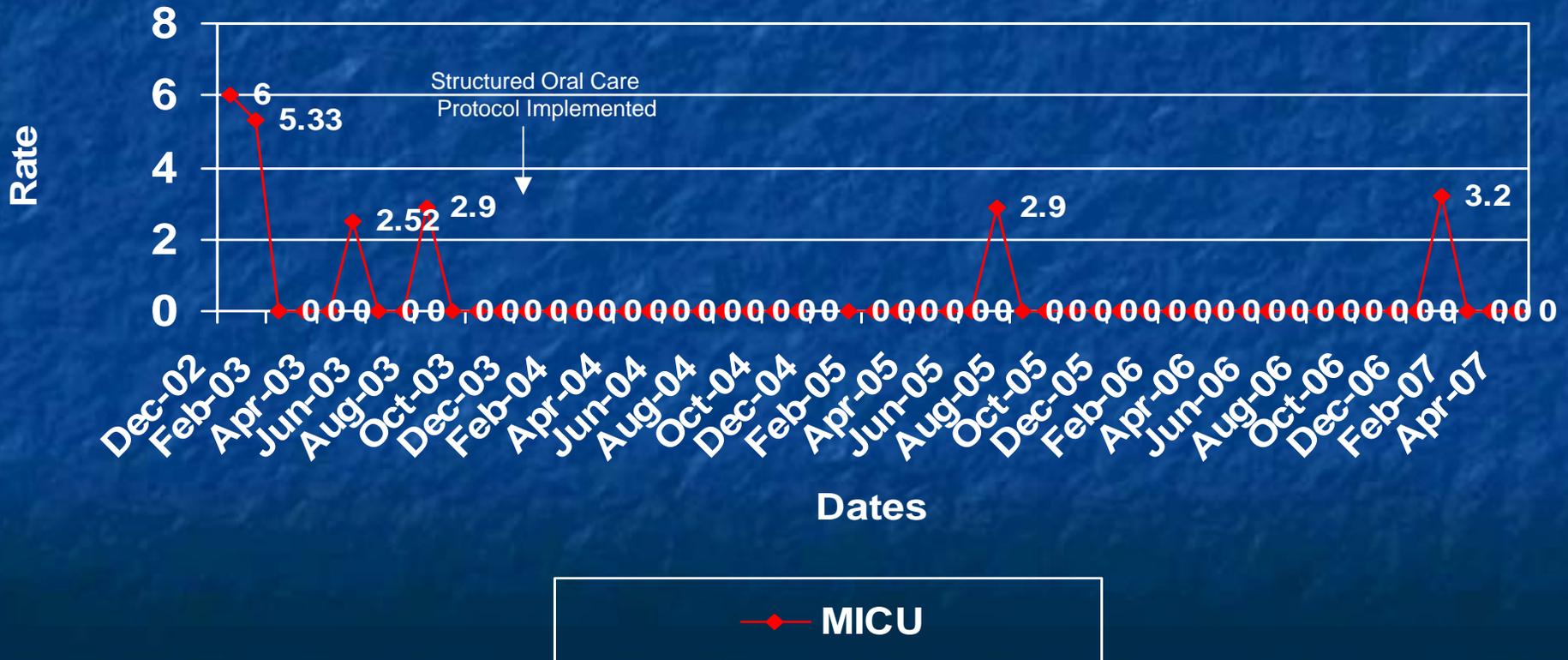
■ Protocols/Guidelines

- Revision of Mechanical Ventilator Orders/Guidelines
- Nurse-driven Sedation/Delirium/Sleep Wake Protocol
- Respiratory Therapist-driven Weaning Protocol
- Structured Oral Care Protocol for ventilator patients
- Mobility Guidelines (Carried out a pilot study and implemented a Lift Team)
- Glucose Management Protocol
- Daily Goal Sheet incorporated into daily resident note
- Adult Critical Care Goal Sheet/Nursing Care Plan

Results

MICU VAP RATE

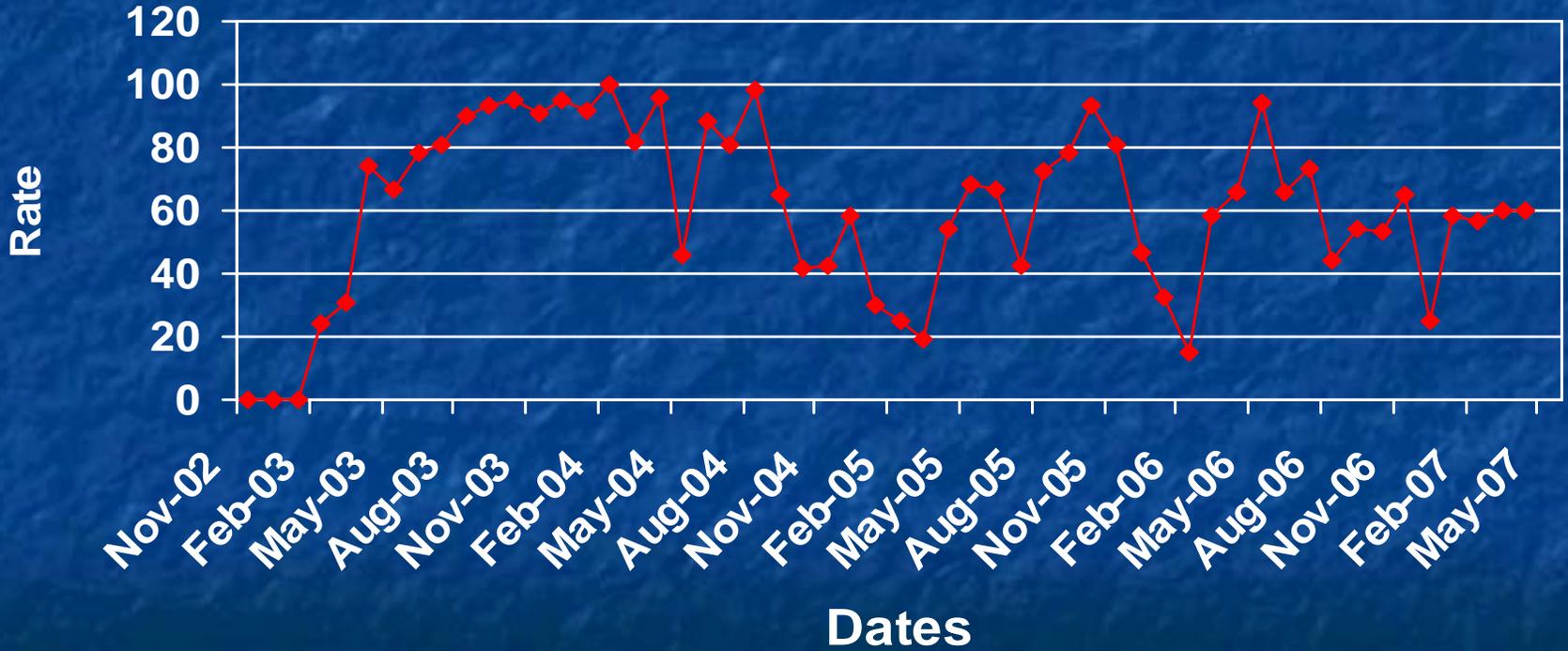
(# VAP/Vent Days x 1,000)



Results

MICU Ventilator Bundle Compliance

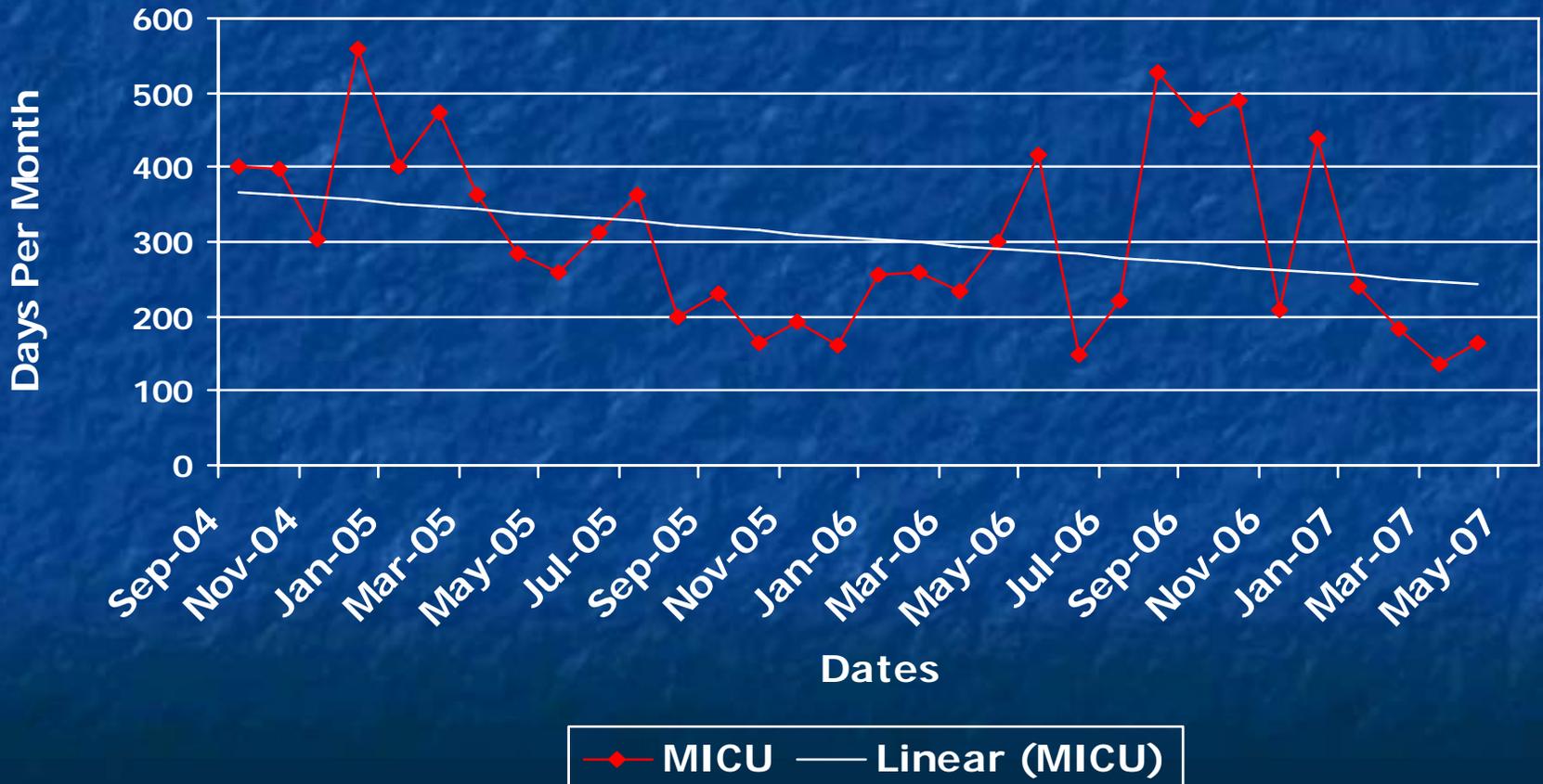
All Components Completed



—◆— MICU

Results

MICU Sedation Days



Benefits of our Initiative: Reduction in LOS \$\$\$\$ and Lives Saved

- Average cost of ICU day ~ \$2,000/day
- Decrease LOS from 7.5 days to 6 days (1.5 days/patient)
- 1100 patients/year
- 1,650 days saved per year
- \$3,300,000 saved per year
- (Plus beds available for elective cases)
- Mortality rate associated with VAP high