

Business Profile for Ventilator Associated Pneumonia

November 15, 2005

Submitted by Barb Averyt

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1. Description of Services

The MICU wants to implement a Ventilator Associated Pneumonia (VAP) protocol that will be utilized on every ventilated patient in the MICU. This protocol will require minimal resources; however the research, development and training session of this initiative will require resources.

2. Market Demand

VAP is the leading cause of death among hospital-acquired infections. Studies cited by the Institute of Healthcare Improvement (IHI) indicate VAP occurs in 9-15% of ventilated patients. Our MICU is a 10 bed unit. Last quarter (Q1, 2005) Acme Hospital had 102 admissions and 12 patients developed VAP.

3. Revenue Influencers

It is difficult to be sure of the impact of ventilator-associated pneumonia on mortality, because many patients requiring ventilation die from their underlying condition rather than from the pneumonia that they subsequently acquired. However, the following demonstrates national data to our data (retrieved from the Q1 2005 chart audit).

| Center for Disease Control (CDC) | Acme Hospital |
|--|---------------|
| • Prolongs ICU stay by an average of 4.3 - 6.1 days | 4.7 days |
| • Results in excess costs of around \$40,000 per patient | \$32,000 |

4. Competencies

The protocol we want to implement is already established and written by the IHI in collaboration with many other hospitals and recognized as a standard of care. There are four distinct elements that must be instituted, referred to as a bundle. They are:

- Elevation of the head of the bed,
- A daily sedation vacation and daily formal assessment of readiness for weaning.
- Prophylaxis against deep venous thrombosis unless contraindicated, and
- Prophylaxis against peptic ulcer disease.

Our success will be determined by having all four elements of the protocol initiated.

5. Investment

| | |
|--|---------------------|
| • One day a week staff RN for nine months to serve as project manager ¹ . | \$12,654.90 |
| • Education materials for staff ² | \$ 410.00 |
| • Wages for 6 hours of mandatory in-service by all MICU RN and RT staff ³ | \$ 6,150.00 |
| • Food expense to present program at Critical Care Committee lunch ⁴ | \$ 225.00 |
| • Food expense to present program at Medical Director Dinner ⁵ | \$ 407.00 |
| • Contingency fund for unanticipated expenses | \$ 250.00 |
| Total: | \$ 20,503.90 |

¹ Calculated at RN hourly rate of \$27.25 for 12 hours/week for 4.3 weeks per month for 9 months = \$12,654.90 .

² MICU RN staff (21), Resp. Therapy staff (10), extras for new staff or travelers (10) for total of 41 sets at \$10.00 ea.

³ Calculated at average of \$25.00 per hour per staff for 41 current staff. New hires will get info during orientation.

⁴ \$11.25 per person for 20 people

⁵ \$18.50 per person for 22 people

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6. Net Revenue

This proposal asks for financial support of \$20,503.90 for nine months.

To calculate our net revenue we utilized the numbers from our 1 Q 2005 chart audit and National averages for savings per patient:

- Acme General VAP costs average of \$32,000 per patient.
- Studies indicate that hospitals that comply with 100% of the bundle items < 95% of the time reduce VAP rates by 40% and eventually narrow their rate to nearly non-existent.
- 1 Q 2005 VAP cases = 12

| | | | |
|---------------------------------------|----|----------------------|-------------------------------------|
| 2006 1 st quarter savings: | \$ | 0 | (Program development) |
| 2006 2 nd quarter savings: | \$ | 96,000. | (25% compliance = 3 cases impacted) |
| 2006 3 rd quarter savings | \$ | 192,000. | (50% compliance = 6 cases impacted) |
| 2006 4 th quarter savings | \$ | 288,000. | (75% compliance = 9 cases impacted) |
| 2006 Total savings: | | \$ 576,000 | |
| Nine month proposal expense: | \$ | 20,503.90 | (January 2006 – September 2006) |
| Net revenue | | \$ 555,496.10 | |

| Activity | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Prgm Develpmnt | ● | ● | ● | | | | | | | | | |
| Staff Training | | | | ● | ● | | | | | | | |
| Implement | | | | | ● | ● | ● | ● | ● | ● | ● | ● |
| Impact | | | | | | | ● | ● | ● | ● | ● | ● |
| Measure Results | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | | | | | | | | | |

7. Constituent Support

This has already been proposed to the CNO and met her approval. Dr. Smith, a pulmonologist, has agreed to be our physician champion. Sally Jones, a clinical pharmacist, Linda Wright, the infectious disease nurse, Tina York, Director of Resp. Therapy and Jim Baker, QI Director, have agreed to participate on the team for this initiative as well as staff of the MICU.