



1101 Nott Street, Schenectady, New York 12308 • 518 243-4000

July 19, 2001

Cathy Blake, Director
State of New York Department of Health
Corning Tower, Empire State Plaza
Albany, NY 12237

Dear Ms. Blake:

We are pleased to provide you with the following initiative for consideration in the New York State Hospital Patient Safety Award, 2001.

The enclosed application represents our most recent effort to reduce medical error in our facility. The initiative was aimed at establishing a protocol for prevention of hospital acquired deep vein thrombosis and pulmonary embolus. The task force utilized the most current recommendations from the American College of Chest Physicians to benchmark our initiative.

As both an alpha and beta site participant in the New York State Patient Occurrence and Report Tracking System, we have considered it imperative to utilize the comparative report data to design risk reduction strategies. We are confident that our consistent reporting of NYPORTS events allows us to utilize the data as both an external and internal benchmark.

We thank you for your consideration and welcome your feedback or questions.

Sincerely,

Robert E. Smanik, FACHE
President/CEO

RES:sr
Enc.

I. Hospital name and address:

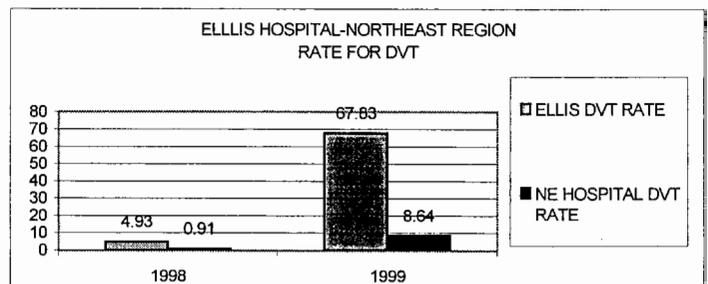
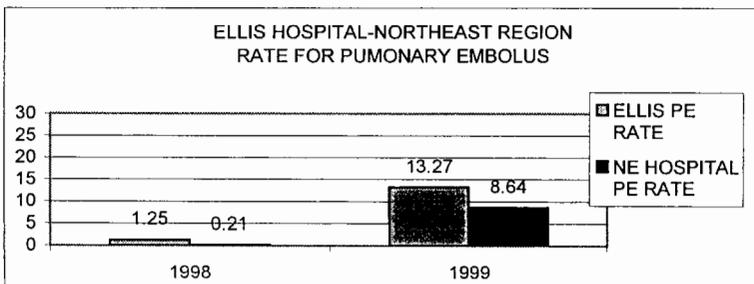
ELLIS HOSPITAL
1011 Nott Street
Schenectady, NY 12308

II. Number of certified acute beds: 368

III. Name of hospital network: N/A

IV. Description of effort to reduce medical error: Ellis Hospital is committed to the philosophy of continuous quality improvement. This commitment has resulted in performance improvement initiatives that are based on comparative data sources, both internal and external to the organization. One external data source that Ellis has utilized is the New York State Patient Occurrence Report and Tracking System. As an extension of our alpha and beta site participation in NYPORTS, Ellis has continued to utilize this system as a major quality assurance data base which allows us to compare our facility against regional and statewide rates.

A. Analysis of target area: From 1998-1999, Ellis Hospital had a reported rate of DVT(NYPORTS code 402) and pulmonary embolus(NYPORTS code 401) which was greater than five to eight times the northeast region's rate. This was a source of increasing concern to the Medical-Dental Staff. However, the catalyst for the DVT initiative was the death of a patient in 1999 that was related to a hospital acquired pulmonary embolus. During root cause analysis of that event, it was determined that the hospital lacked a standardized approach to DVT prevention. Although specific pathways had prophylaxis measures built into their clinical pathways, the measures were outdated and not effective in preventing DVT. Therefore, the root cause analysis team proposed a task force be formed to address the issue of developing a standardized approach to prevention of this potentially fatal and unacceptable nosocomial complication. The completion of this protocol would serve as a corrective action plan item to the patient death, and was viewed as a major opportunity to improve patient outcome for all patient populations. The Quality Resource committee and the Medical Dental Executive Committee endorsed the endeavor and became the primary oversight committees of the task force.



- B. Definition of Initiative: Upon recommendations from the hospital administration and quality improvement staff, a multidisciplinary task force was formed and charged with the task of providing an algorithm for prevention of DVT. The task force defined their goal as developing an algorithm for prevention of DVT that would encompass drug, device, and nursing care modalities and would reduce the reported rate of DVT and PE to regional norms per NYPORTS data.
- C. Scope of work- The multidisciplinary task force defined their scope of work as the following:
1. Research current literature for best practice and current prevention modalities.
 2. Develop a method of communication to physicians for patients deemed at moderate , high and highest risk.
 3. Incorporation of assessments/protocols into computerized documentation and paper format without creating re-work.
 4. Develop education programs for proposed protocol to nursing and medical staffs.
 5. Provide status reports to administration and quality improvement departments.
 6. Determine measures of effectiveness and conduct post-implementation study.
- D. Committee membership and expected contribution:
1. Chairman- Physician Advisor for Healthcare Resource Management: provide physician leadership, facilitation and act as liaison to medical staff and administration.
 2. Clinical Pharmacist: Provide best practice information and pharmacological recommendations.
 3. Clinical Nurse Specialist for surgery and orthopedics: Coordination of nursing practice related to documentation, communication and education of new protocol.
 4. Internal Medicine Physician: Provide physician leadership, liaison with medical staff, and specific education responsibilities to Department of Internal Medicine.
 5. Orthopedic Surgeon: Provide physician leadership, liaison with surgical staff, and clinical expertise related to best practice.
 6. PA from the Dept. of General and Vascular Surgery: Liaison with surgical staff and assume key role in implementing new protocols for prevention.
 7. Nurse Manager from the PACU and PAT center: Represent the pre-admission area of patient assessment, and provide link to non-computerized documentation system. (PAT and Day surgery Unit not incorporated into nursing's computerized documentation at time of task force)
 8. Quality Improvement Specialist : Provide data for pre- and post- implementation comparison, facilitate group's use of CQI tools. (PDSA cycles, flow charting, root cause analysis)

9. Ad hoc members: The Director of Nursing Education was a frequent consultant regarding finalizing nursing education plans , and was responsible for incorporating the assessment form into the existing paper and computerized nursing assessments.

E. Timeframe for development and implementation

Sept. 99: DVT task force committee recommended by Hospital Quality Resource Committee and endorsed by Medical Dental Executive Committee

October 99: Current DVT prophylaxis methods reviewed by committee as compared with best practice per literature search

November-December 99: Pilot of risk assessment tool #1 conducted.

January-March 00: Refinement of risk assessment tool with recommendations to Nurse Executive Committee

April 00: Task force receives recommendations from NEC regarding resource concerns and protocol detail

May-June 00: Task force finalizes assessment tool for presentation to Medical Dental Executive Committee and plans education strategies for medical and nursing staff.

July00: Medical Dental Executive Committee endorses protocol with recommendation to exclude ambulatory surgery patients; specifically ophthalmology.

August-September 00: Education presented to medical and nursing staff.

October 16, 2000: Full implementation of DVT prophylaxis protocol.

January 2001: Post- protocol implementation study done.

Two patient populations were studied for adherence to the protocol: those patients with known hospital-acquired DVT/PE (n=7) and a random sample of patient discharges for the time period 10/16/01- 12/31/00 (n=31)

V. Project - Qualitative and Quantitative Results

A. Risk assessment tool- Measurement of use and adherence to protocol

1. Qualitative Result: A risk assessment tool was developed that allowed nurses to consider fifteen established risk factors that are weighted for their likelihood to contribute to the development of DVT/PE. The factors are then totaled and the patient is assigned a risk category based on that number. Risk categories are identified as "low", "moderate", "high" and "highest". Attached to each risk category is a recommended prophylactic measure including drug, device, and nursing actions. (see attachment A.)
2. Quantitative result: Measurement of compliance with assessment protocol on admission

POST IMPLEMENTATION STUDY RESULTS:

Study group "A"- patients who developed DVT and or PE during hospitalization:

71% had evidence of admission assessment for DVT risk using the protocol.

One patient had evidence of ongoing assessment, and was identified as "high" risk and treated.

One patient was excluded from treatment due to contraindicating condition.

Study group "B"- randomly sampled patients admitted and discharged during study timeframe.

87% of patients were assessed utilizing protocol guidelines on admission

77% of patients had evidence of ongoing assessment during hospitalization.

- A. Device use analysis: Recommended prophylaxis utilizing sequential compression devices was developed.
 1. Qualitative Result: To fulfill the cost restraint of not purchasing additional devices, protocols were developed for prioritization of patient populations, and guidelines for discontinuance.
 2. Quantitative Result:
 - a.) No additional devices were purchased as a result of the protocol implementation
 - b.) For patients in the moderate, high, and highest risk category, the use of device therapy increased from 9% pre-implementation to 38% post-implementation. Device therapy was primarily utilized by surgical populations in both phases of study. An opportunity exists to improve the use of this therapy for medical patients for whom drug therapy is contraindicated.
- B. Drug therapy- The protocol recommended specific drug therapies for patients in all but the low risk category, and for those with contraindications to anti-coagulant treatment.
 1. Qualitative result- The approved drug prophylaxis was simple to apply, and provided clear dosage and frequency recommendation.
 2. Quantitative results
 - a.) Study group A- For those patient s who developed DVT during their hospitalization, there was only one patient who was treated according to the protocol recommendations for drug therapy. That patient developed DVT despite Heparin SQ as ordered, and required placement of IVC filter.
 - b.) Study group B- 16% of patients were assessed as appropriate for drug prophylaxis as a **minimum** treatment. (high and highest risk patients) Of that population, 41% were treated appropriately utilizing the recommended prophylaxis.

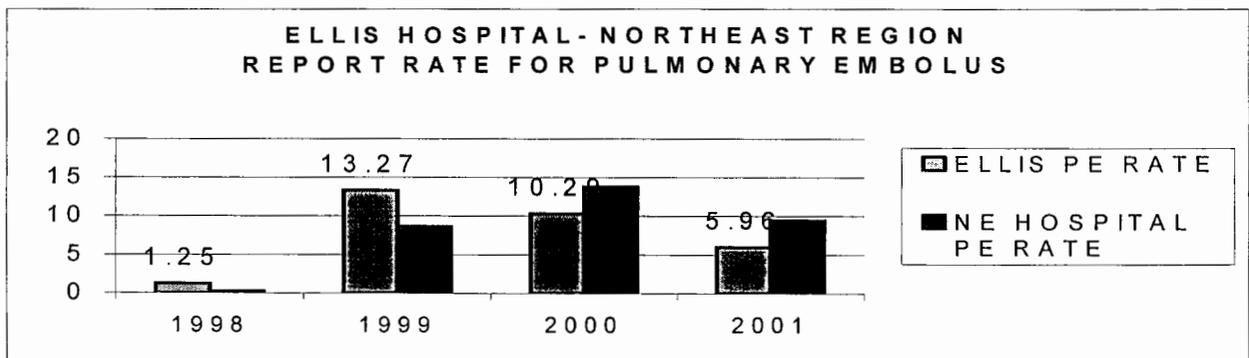
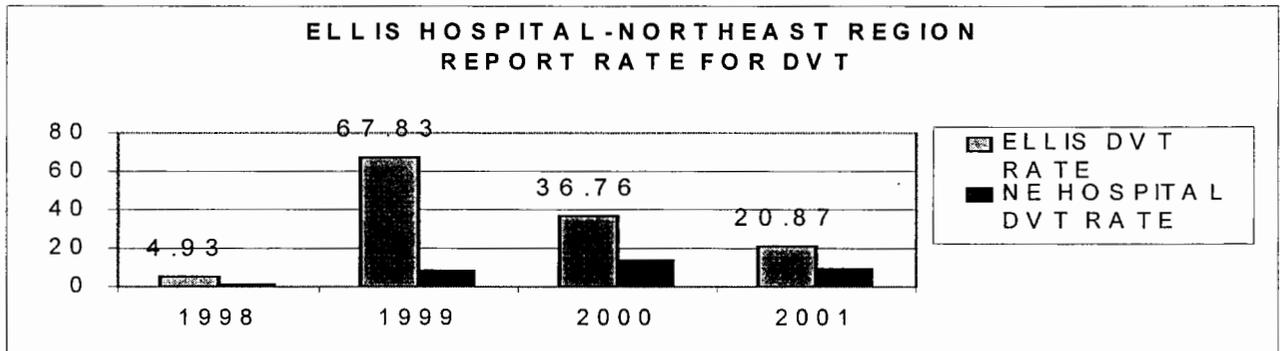
c.) In the moderate category, 85% of patients received appropriate drug prevention in combination with early ambulation and device therapy.

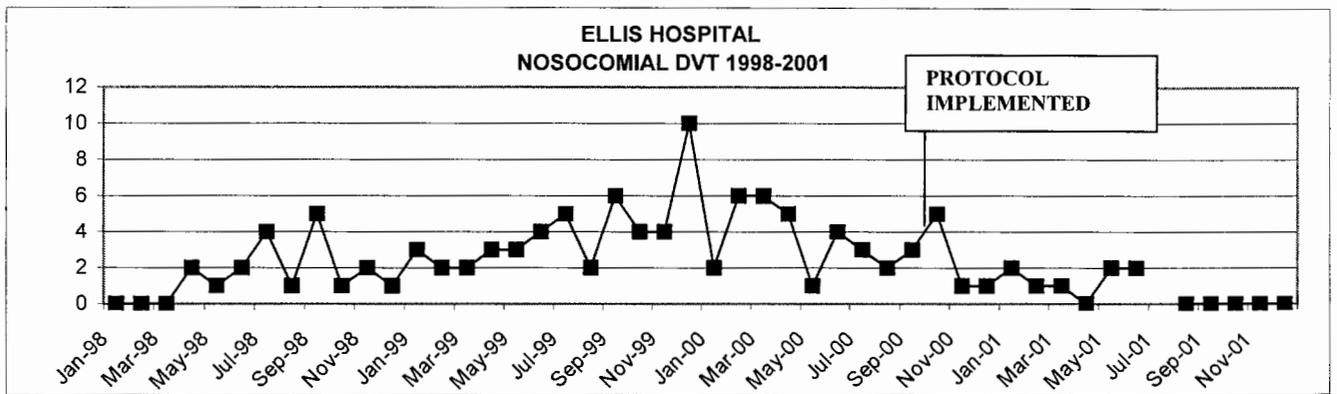
D. Nursing care interventions- On admission, all patients and families were to receive nursing education specific to the prevention of DVT.

1. Qualitative result: A nursing care plan was adopted for assignment at the time of admission for all patients scoring in the moderate and above categories. Specific nursing actions are aimed at exercises to promote blood flow, long-term preventative measures such as smoking cessation and avoidance of stationary positioning. In addition, nursing adopted guidelines for the use of sequential compression devices.

2. Quantitative result: All patients in the post-implementation study had evidence of patient teaching and enactment of the nursing care plan entitled "Alteration in Tissue Perfusion – Actual or Potential"

VI. **Summary-** The protocol for prevention of DVT has now been in place for the past eight months at Ellis. While our reported rate for DVT is still not below the Northeast region's reported rate, it has shown a decrease of over 50% per year since reaching the highest rate in 1999, and is within 80% of the northeast region's rate. Of particular note is the hospital's reported rate decrease for the potentially fatal complication of pulmonary embolus. That rate began to decrease in 2000, and has decreased by 50% in the past six months alone.





VII. Future Improvements in error reduction strategy

- A. Improve integration of protocols with hospital's computerized documentation system- We anticipate implementing the next phase of computerized documentation which will allow for protocols to be pre-selected based on patient diagnoses at time of admission.
- B. Continued analysis of NYPORTS and other external data sources as a source for identifying potential medical error reduction initiatives.
- C. Continued integration of all internal departments efforts to reduce medical error and improve patient safety by analysis of internal measures.

Respectfully submitted by,
 Suzanne Hendricks, RN
 Quality Improvement Specialist

Ellis Hospital DVT Risk Assessment

Directions: Check all appropriate risk factors and TOTAL

1. Determine Risk Category from factor total
2. Contact Physician for recommended prophylaxis orders
3. Document Physician orders in PATIENT CHART and initiate treatment
4. Initiate Patient Care Plan: "Altered Peripheral Tissue Perfusion (224)"
5. Keep this document with the nursing admission assessment

DATE: _____

RISK CATEGORY: _____

RN SIGNATURE: _____

RISK FACTOR	WEIGHT	TOTAL
1. Age		
41-60 yrs	1	
61-70 yrs	2	
>70 yrs	3	
2. Prolonged immobility (>72 hours)	1	
3. Cancer-past or present	1	
4. CHF-acute	1	
5. MI-Acute or R/O	1	
6. Stroke-new onset (non-hemorrhagic)	4	
7. Prior DVT	3	
8. Planned Major surgery involving- • Abdomen • Pelvis • Lower extremities • Laparoscopic procedure lasting >45 minutes	1 each	
9. Hypercoagulability-acquired • Lupus anticoagulant • Nephrotic syndrome • Polycythemia vera • Hormone replacement therapy or oral contraceptive agent	1 each	
10. Hypercoagulability-inherited • Antithrombin III deficiency • Dysfibrinogenemia • Plasminogen disorders • Protein C, Protein S deficiency	1 each	
11. New fracture of • Pelvis • Hip • Long bone	1 each	
12. Indwelling femoral catheter (current)	1	
13. Morbid obesity: >40% ideal body weight	1	
14. Multiple trauma	4	
Total Factors _____ →		

FACTOR TOTAL	RISK CATEGORY	RECOMMENDED PROPHYLAXIS
1	Low risk	Early ambulation
2-3	Moderate risk	Early ambulation AND Heparin 5000 units SC BID OR Sequential compression device (SCD's)
4	High risk	Early ambulation and SCD's AND Heparin 5000 units SC BID OR Enoxaparin (LMWH) 40 mg. SC QD
5 or >	Highest risk	Early ambulation and SCD's AND Heparin infusion/warfarin anticoagulation OR Enoxaparin 30 mg. SC BID

ADDRESSOGRAPH HERE

ELLIS HOSPITAL

Protocol for the Prevention of Deep Venous Thrombosis

- A. A risk factor assessment will be done on all patients at the time of pre-admission testing (surgical patients) ,when admission orders are written (including ED) and daily as a part of RN assessment.
Exceptions:
- pediatric patients (< 18 years of age)
 - patients admitted to psychiatric units unless the patient becomes sedentary
 - Patients admitted for ambulatory surgical procedures.
- B. Risk factors to be considered in the assessment are based on the 3 known pre-disposing factors for DVT: stasis, trauma, hypercoagulability.
- C. Risk factors are given a value of 1 unless otherwise stated.

RISK FACTOR	WEIGHT	TOTALS
1. AGE:		
41-60 YEAR	1	
61-70 YEARS	2	
>70 YEARS	3	
2. Prolonged immobility (>72 hours)	1	
3. Cancer-past or present	1	
4. CHF- acute	1	
5. MI (ACUTE OR R/O)	1	
6. Stroke – new onset	4	
7. Prior DVT	3	
8. Major surgery involving	1 each	
• Abdomen		
• Pelvis		
• Lower extremities		
• Laparoscopic procedure lasting > 45 minutes		
9. Hypercoagulability- acquired	1 each	
• Lupus anticoagulant		
• Nephrotic syndrome		
• Polycythemia vera		
• Hormone replacement therapy or oral contraceptive use		
10. Hypercoagulability- inherited:	1 each	
• Antithrombin III deficiency		
• Dysfibrinogenemia		
• Plasminogen disorders		
• Protein c, Protein S deficiency		
11. Fracture :	1	
• Pelvis		
• Hip		
• Long-bone		
12. Indwelling femoral catheter (current)	1	
13. Multiple trauma	4	
TOTAL FACTORS		

D. DVT Prevention Protocol will be initiated by physician order, using the following guidelines:

FACTOR TOTAL	RISK CATEGORY	RECOMMENDED PROPHYLAXIS
1	Low risk	Early ambulation
2-3	Moderate risk	Early Ambulation AND Heparin 5000 units SC BID OR Sequential compression device (SCDs)
4	High risk	Early Ambulation and Sequential compression device (SCDs) AND Heparin 5000 units SC BID OR Enoxaparin(LMWH) 40 mg. SC QD
5 or >	Highest risk	Early Ambulation and Sequential compression device (SCDs) AND Heparin infusion /warfarin anticoagulation OR Enoxaparin 30 mg. SC BID

E. Nursing will notify attending physician of patients at moderate/high/highest risk as soon as risk identified with suggested treatment, as per protocol, and the following will occur:

1. "DVT alert" sticker will be placed on the front of the chart.
2. When recommended prophylaxis is NOT initiated by MD, a Patient Occurrence Tracking form will be completed and forwarded to HRM.

F. Contraindications to Use of Anticoagulant Therapy

1. Thrombocytopenia
2. Active or Suspected Bleeding (including neurological sources)
3. Hx of Gastric Ulcer
4. Patients already on oral anticoagulant
5. Patients with known hypersensitivity to Heparin

G. Guidelines for Prioritizing Sequential Compression Devices Use:

- patient in which anticoagulation is contraindicated
- neurosurgery
- Total Joint Replacement
- gastric bypass patients