Reducing Patient Risk of Venous Thromboembolic Disease: the effect of patient education and designated equipment on compliance with sequential compression devices

Nicole Pelton, RN, BSN

Susan Bohnenkamp, RN, MS, ACNS-BC, CCM

Objectives

- 1. Discuss Venous Thromboembolic Events in the Cancer population: Pathology, Risk, and Prevention
- 2. Describe the outcomes of the Sequential Compression Device Study

Cancer Patients

- 2-6 fold increase in the risk of developing VTE (Samama, et al, 2003)
- Impact on prognosis and mortality
- Deters and complicates treatment options
- In advanced disease 2-3 X higher incidence of fatal VTE (Rodrigues et al., 2010)
- Cancer-associated VTE is the leading cause of morbidity and mortality in both ambulatory and hospitalized patients (Wun and White, 2009; Khorana et al., 2007)

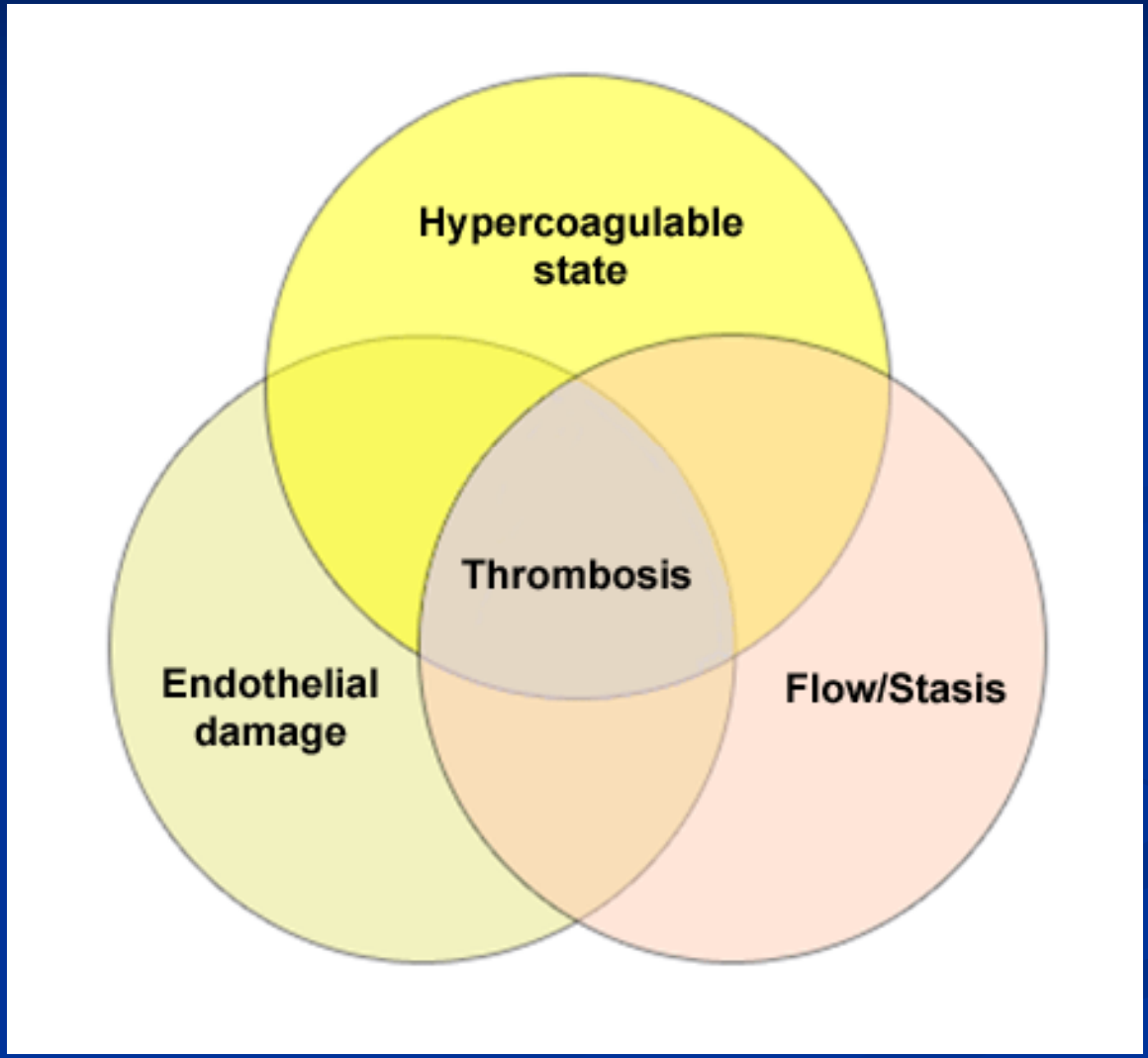
Specific Factors increase VTE

- Time from diagnosis
- Aggressiveness of cancer
- Metastatic involvement

VTE- Chemo and Surgery

- Patients receiving chemotherapy have a rate of VTE that is 47 times higher than that of the general population (Khorana, et al., 2007)
- VTE is the most common cause of death after cancer-related surgery- with a death rate triple that of non-cancer surgical patients (Agnelli et al., 2006)

Virchow's Triad



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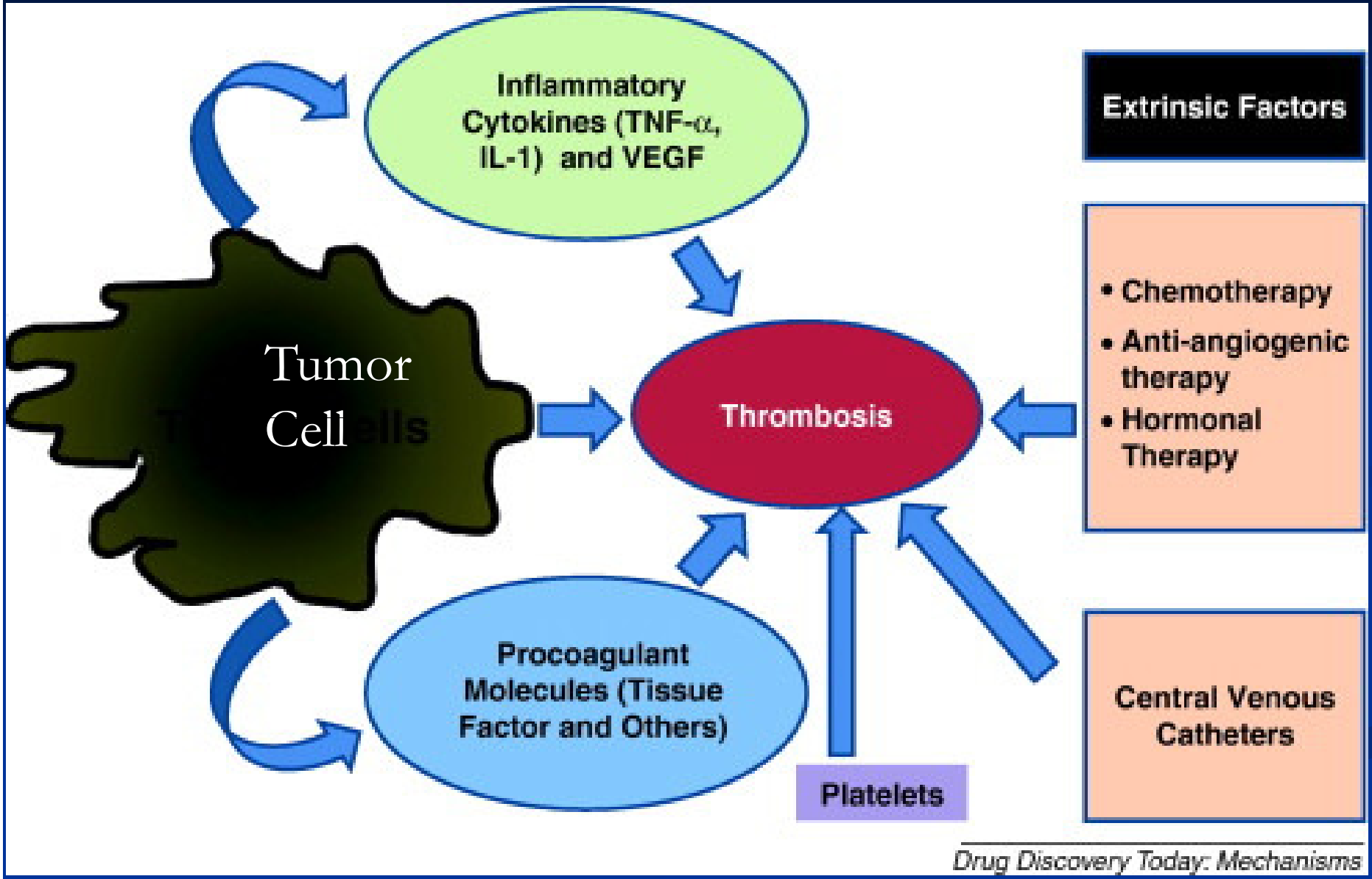
Potential Mechanism of Cancer-Associated Thrombosis



http://www.sciencedirect.com/science/article/pii/S1740676512000028#

Risk Factors for Cancer-Associated VTE

Patient-related factors

- Age>65
- African-American race
- Females with colon cancer
- Comorbidities: renal disease, infection, pulmonary disease, hepatic disease, anemia, obesity, hx VTE
- Prechemo lab: high plt and high WBC

Cancer-related factors

- Primary site of cancer: ovary, uterus, hematologic, pancreas, stomach, brain, lung, colon and kidney
- Metastatic disease, advanced stage
- Initial year after diagnosis – first 3-6 mo has highest risk

(Khorana, 2007; NCCN, 2011; Agnelli, 2006)

Treatment-related factors

- Pharmacologic management –platinum,
- Surgery
- Presence of central venous catheters
- Hospitalization

Specific Risk Factors for Postoperative VTE in the Oncology Population

- Age greater than 65
- Previous VTE
- Advanced disease
- Anesthesia lasting longer than 2 hours
- Bedrest longer than 3 days
- Risk of thrombosis after surgery extends past 21 days thus requiring lengthier anticoagulation protection (Agnelli, 2006)

Current Guidelines for VTE Prophylaxis in Cancer

- American Society of Clinical Oncology (ASCO)
- National Comprehensive Cancer Network (NCCN)
- European Society of Medical Oncology (ESMO)

Agents for prophylaxis

- Low molecular weight heparins (LMWHs)- enoxaparin 40 mg SC daily
- Unfractionated heparin (UFH)- 5,000 units SC three times a day
- Aspirin- dose individualized
- Coumadin – dose individualized

(NCCN, 2011)

American Society of Clinical Oncology and National Comprehensive Cancer Network

- Agree that prophylactic anticoagulation should be considered for all hospitalized cancer patients due to their hypercoagulable state
- Contraindications: major active bleeding, low platelets, spinal anesthesia, and high risk for falls

(Khorana, 2007)

National Comprehensive Cancer Network Recommends

- Ambulation is not sufficient for VTE prevention in the cancer patient, and hospitalized patients should wear sequential compression devices (SCDs)

(NCCN, 2011; Khosravi-Shahi & Perez-Manga, 2009)

ESMO, ASCO and NCCN Recommend for oncology surgical patients

- Patient requires anticoagulation thromobophrophylaxis both initially and 7-10 days after surgery
- Patient undergoing major abdominal or pelvic surgery with high risk features such as residual tumor, obesity, and history of VTE require prolonged anticoagulation for up to 4 weeks

Consequences of Poor VTE Prophylaxis

- DVT
- PE
- Increased hospital- acquired condition
- Death

Nursing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7West Quality Project

- A little about us…
- Starting out… Beginning a quality improvement project.
  - Collecting background data
  - Key Players
  - Permissions
  - Time Frame

Collecting Background Information

- Venous thromboembolism affects 300,000 to 600,000 people every year (Beckman et.al, 2010)
  - 60,000 to 100,000 result in death
    - 10-30% Die within one month of diagnosis
  - 50% of those affected will have long term complications
  - About 33% diagnosed with DVT/PE will have a recurrence within 10 years

- Thromboembolic Complications Result In:
  - Increased Length of Hospital Stay
  - Increased costs
  - Poor patient outcomes, including death

(Beckman et.al, 2010)

- Gynecologic Oncology populations are at increased risk
  - Multiple Risk Factors
  - Morbidity/ Mortality

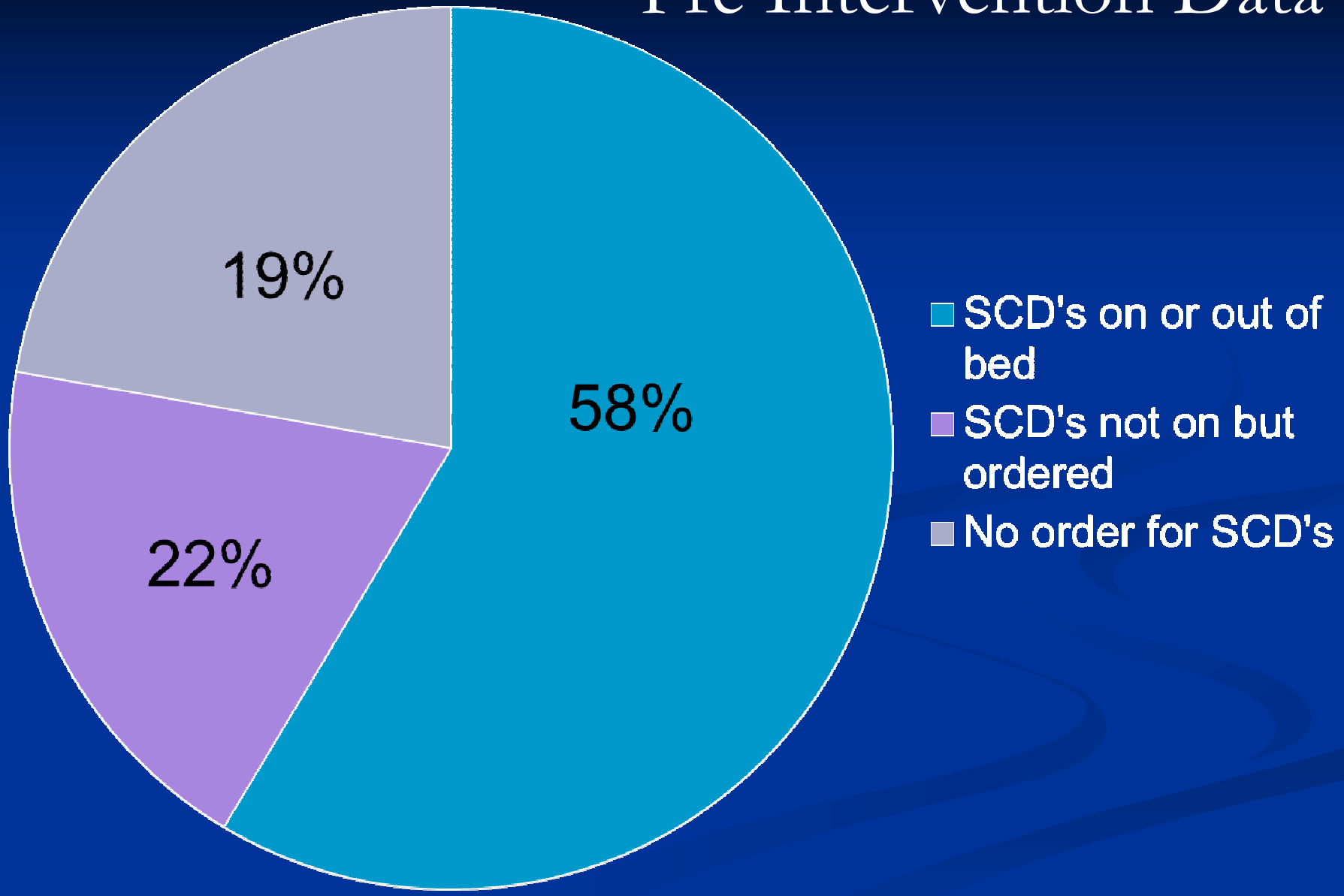
(Whitworth et.al, 2011)

- SCD use has been proven effective and cost-effective, *if utilized correctly*

  (Cornwell III et.al, 2002)
  (Summerfield, 2006)

- Patient education increases compliance with proposed treatment (Olbrys, 2011)

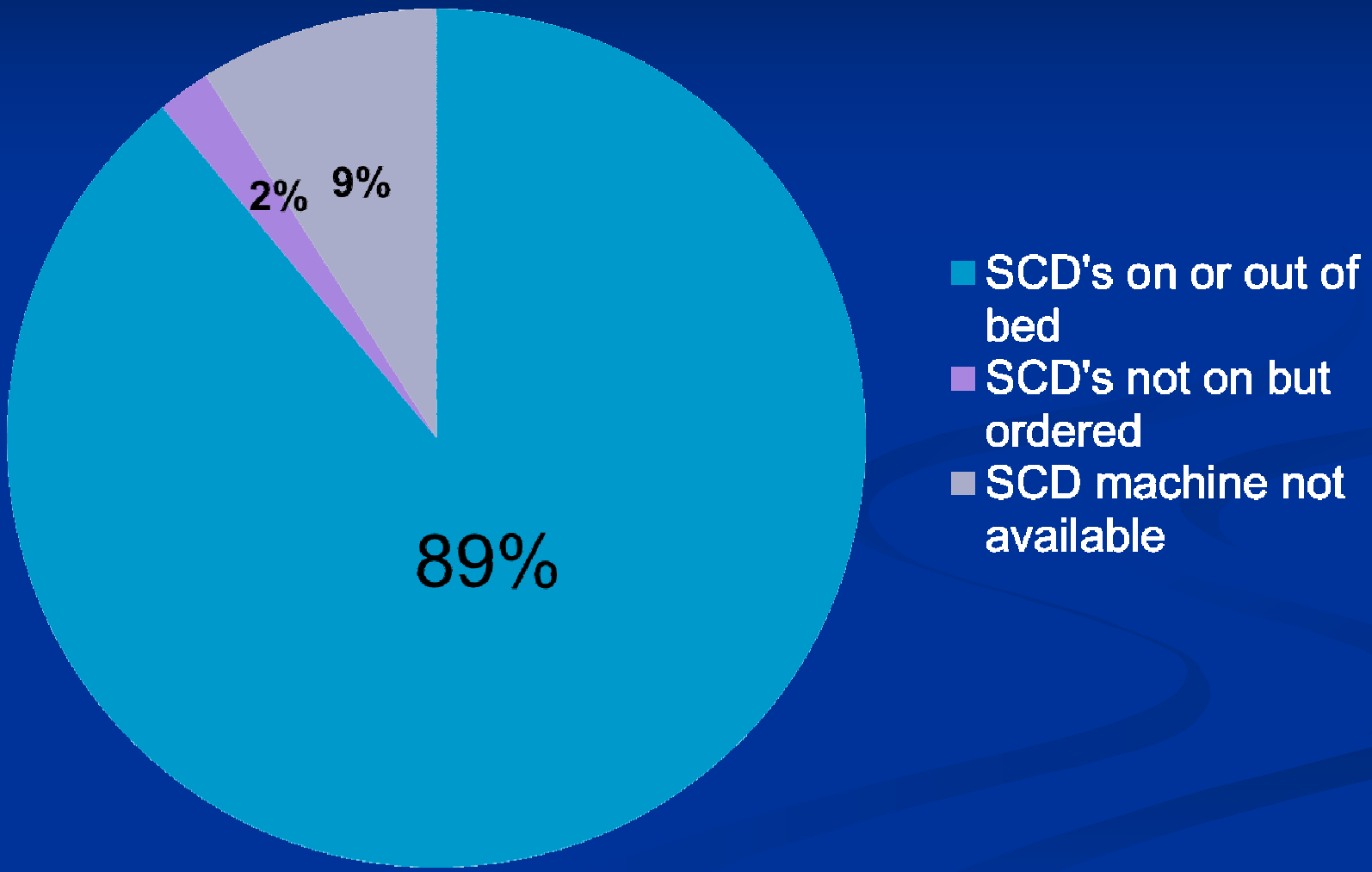
Pre Intervention Data



Interventions

- Education provided to MD to write order for SCD's.
- Provided laminated instruction sheets on SCD's – placed in rooms
- Provided patient with education sheet on importance of SCD's and to keep them on at all times while in bed.
- Provided education to staff – staff meetings, huddles, emails
- Charge nurse rounding included checking SCDs and reinforcing education
- SCDs placed in standard order sets

Phase One: Post Intervention Data



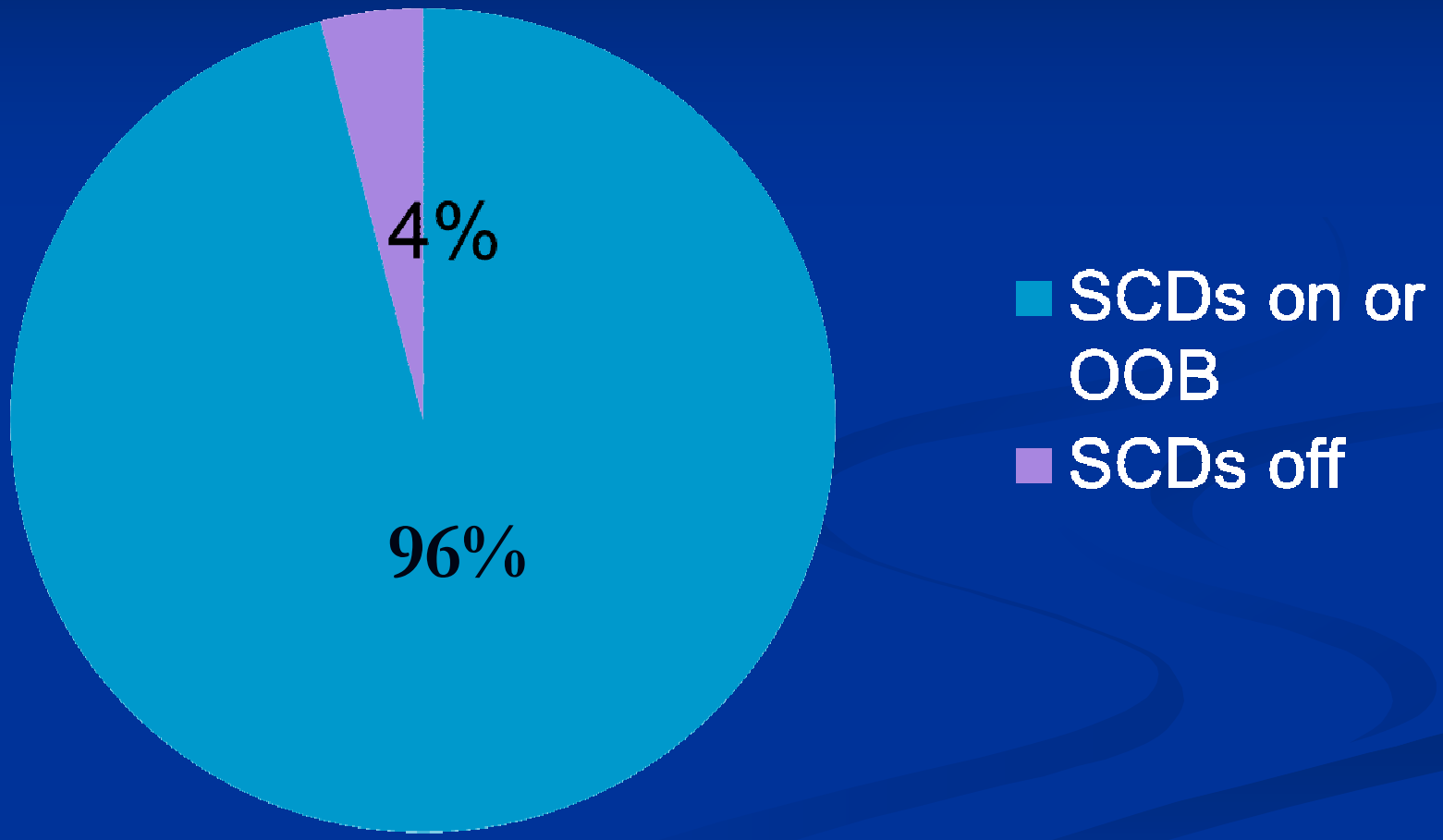
Phase Two: Interventions

- Designated SCD machines for each patient room
- Continue education to staff and physicians
  - Huddles, emails, fliers, 1:1 education as needed
- Continue education to patients/ families
- Continue charge nurse rounding
- Shift checks to verify SCD machines are present (not lost or broken)

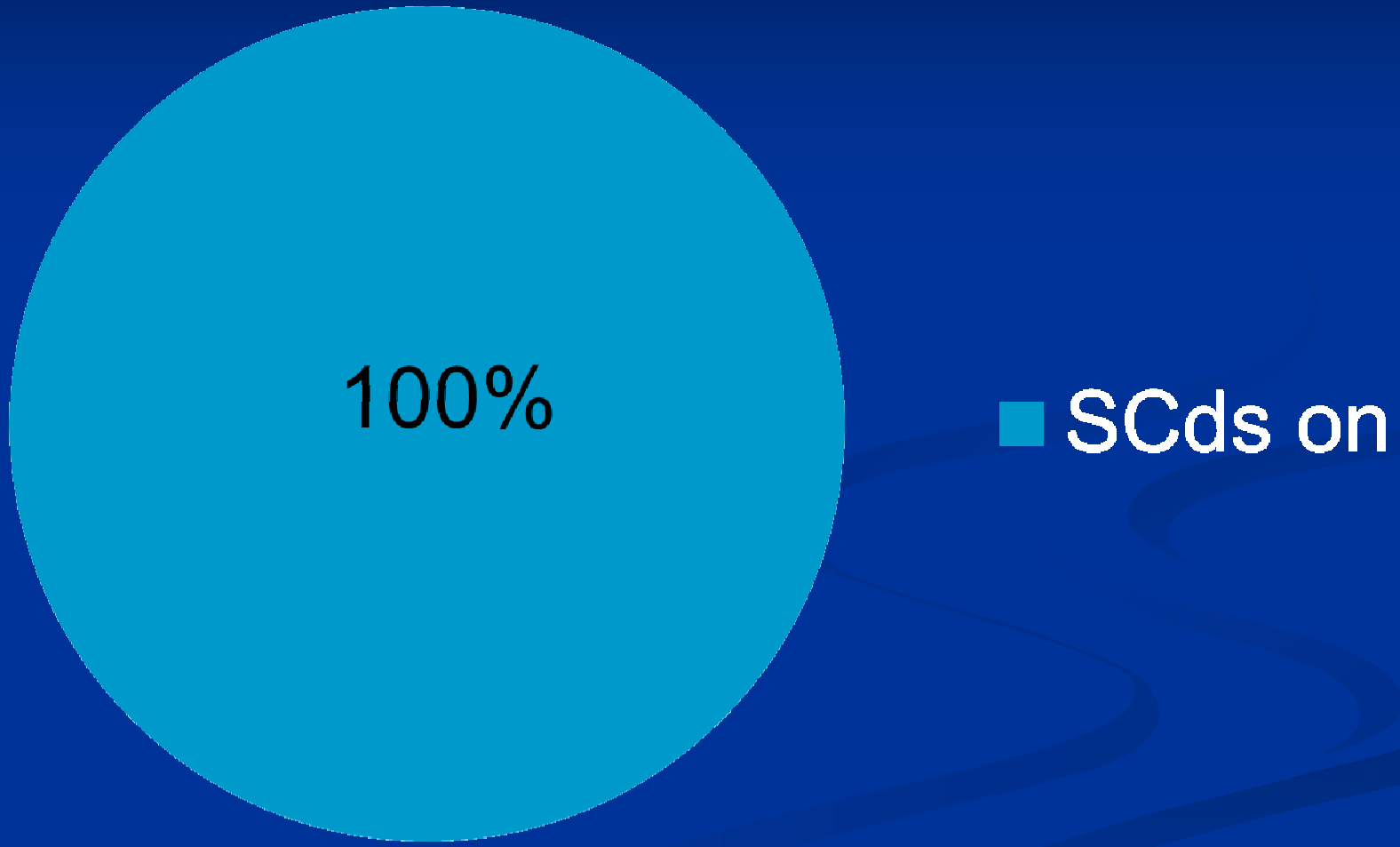
Phase Two Continued

- Applied for and received IRB approval for SCD study
  - Data collection began December 1st
  - Survey urology and gynecologic oncology patients
    - Random times/ dates
  - Data collection completed Dec. 31st
- Re-educated staff on providing patient education
- Data collection repeated in February to complete study

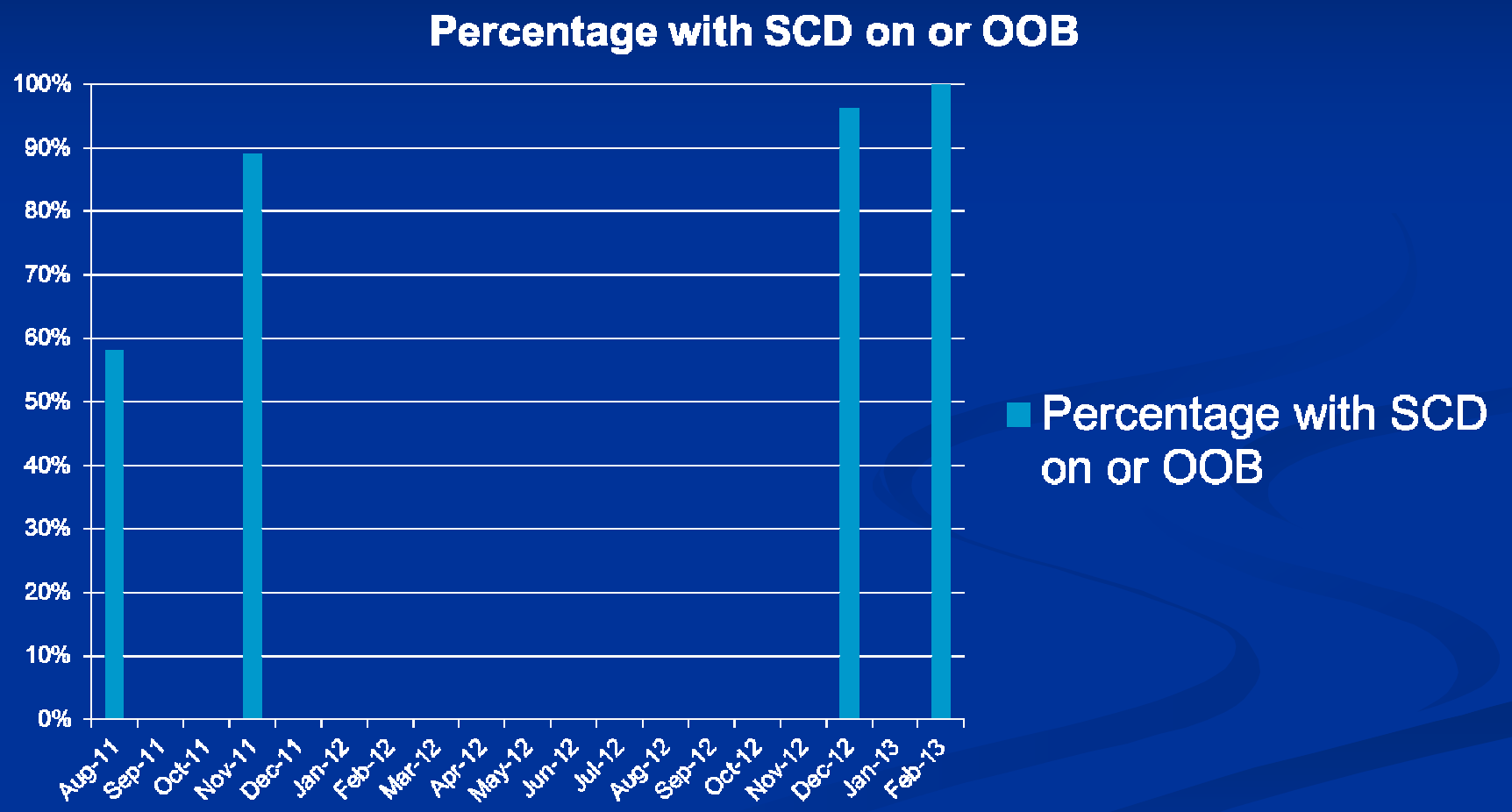
December Data: before the final study



Phase Two: Final Data Collection



Summary of Data



Communication of Results

- Staff members
- Patient Care Executive Committee
- Attending MDs and Medical Directors
- Quality Improvement Committee


Thank You!