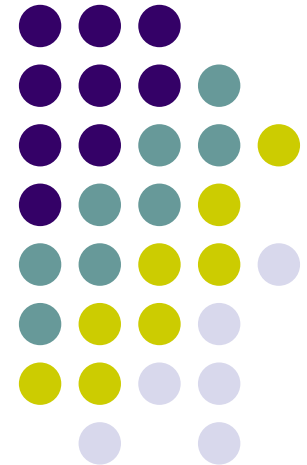


Anne Synnes, Neonatology  
Patricia Janssen, Health Care &  
Epidemiology



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**EPIC**  
**Evidence-based Practice  
Identification and Change**



# Current Methods



## RCT

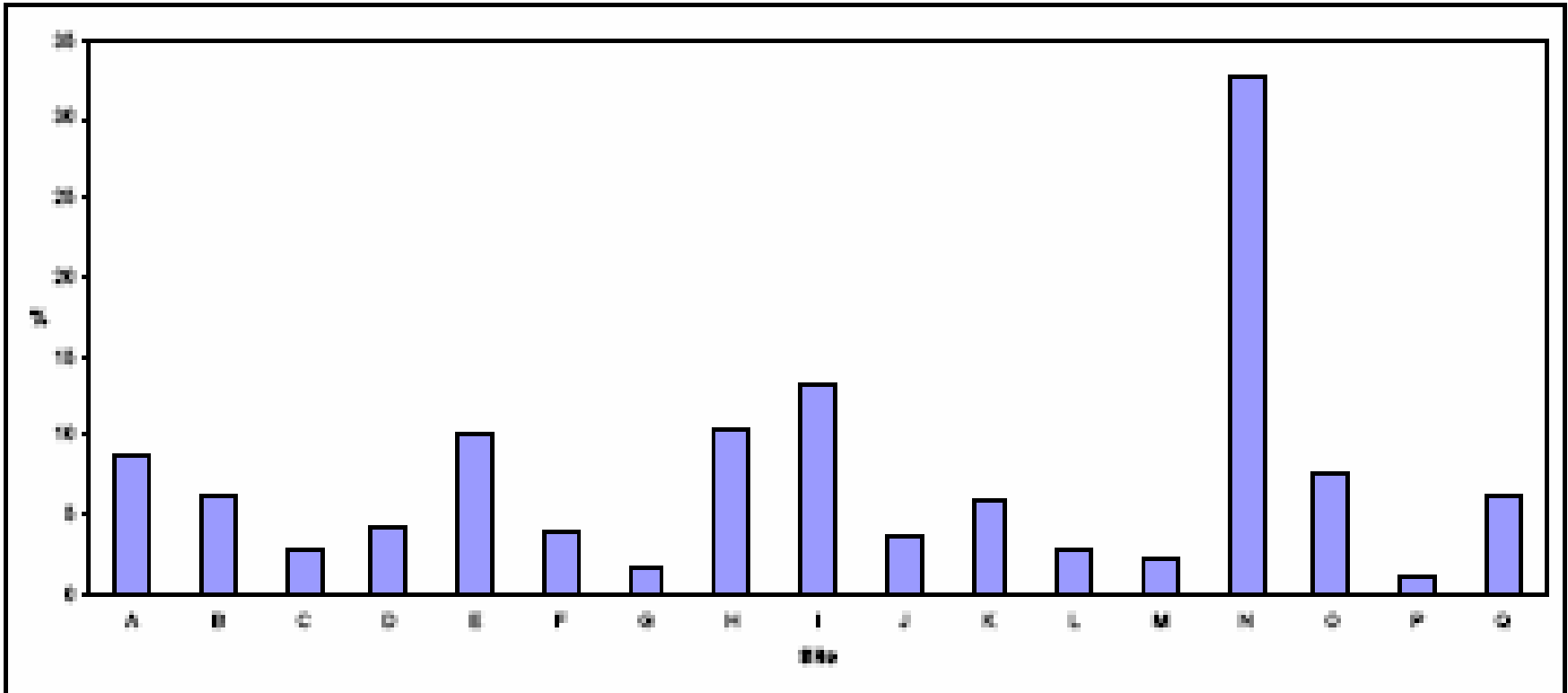
- Gold standard for evidence
- Expensive, lengthy
- Difficult to apply to multi-factorial problems
- Does not deal with how to implement change
- Does not create culture for change

## CQI

- Effective at implementing change
- Can create culture of re-evaluation and change
- Can address multi-factorial problems
- Subjective, unscientific
- Not data driven
- Intra-institutional and not generalizable



# Nosocomial infections 96-97





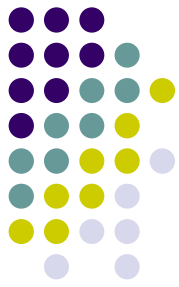
# What is EPIC

- New method to improve outcomes
- Uses **systematic review** from the published literature
- Uses **quantitative analysis** to identify practices to target for intervention
- Uses a network of experts and **quality improvement techniques** to improve outcomes
- **Evaluate outcome** to guide change



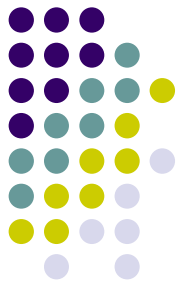
# Objectives of the EPIC Study

- Implement and evaluate the EPIC system in 12 Canadian NICUs
- Study barriers to Change
- Develop guidelines to reduce nosocomial infections and chronic lung disease
- Decrease the incidence of nosocomial infections and chronic lung disease



# Study Cohort

- 12 NICUs randomised into 2 groups:
  - **Group 1: reduce BPD, control group for NI**
  - **Group 2: reduce NI, control group for BPD**
- Study cohort:
  - **all infants < 32 wks GA**
  - **estimate 6,000 infants over 3 years**



# Project Overview

- Phase 1 (1 year)
  - review published evidence
  - examine own practices
  - identify barriers to change
  - baseline data collection
- Phase 2 (2 years)
  - develop strategy for change
  - implement change strategy
  - evaluate outcomes



# Central Tasks

- Train team representatives
  - **Workshop on systematic reviews & CQI**
- Facilitate communications between sites
- Resource for sites
- Barriers to change study
- External monitoring of outcomes
- Feedback loop - Control charts every 3 months Complete analysis at end of project
- Analyses



# Site Tasks –Phase 1

- Form multidisciplinary clinical teams at sites
- Review published evidence
  - Conduct literature review – classify evidence available
  - Share results of literature review with other sites
- Examine own site practices
  - Identify key process variables for quality improvement
- Identify barriers to change

# Phase 2 – Site Tasks

- Plan Change strategy
- Implement Change strategy
  - **Consider barriers to change**
- Study outcomes

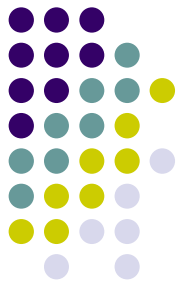


# Analysis



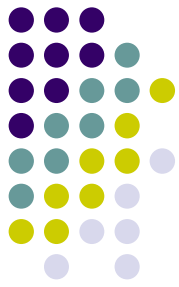
- Before and after guideline implementation:
  - **Compare outcomes between NICUs**
  - **Compare outcomes between intervention and control groups**

# Study on Barriers to Change



- Across Canadian NICUs:
  - 39 individual interviews
  - 7 focus groups

# Study on Barriers to Change



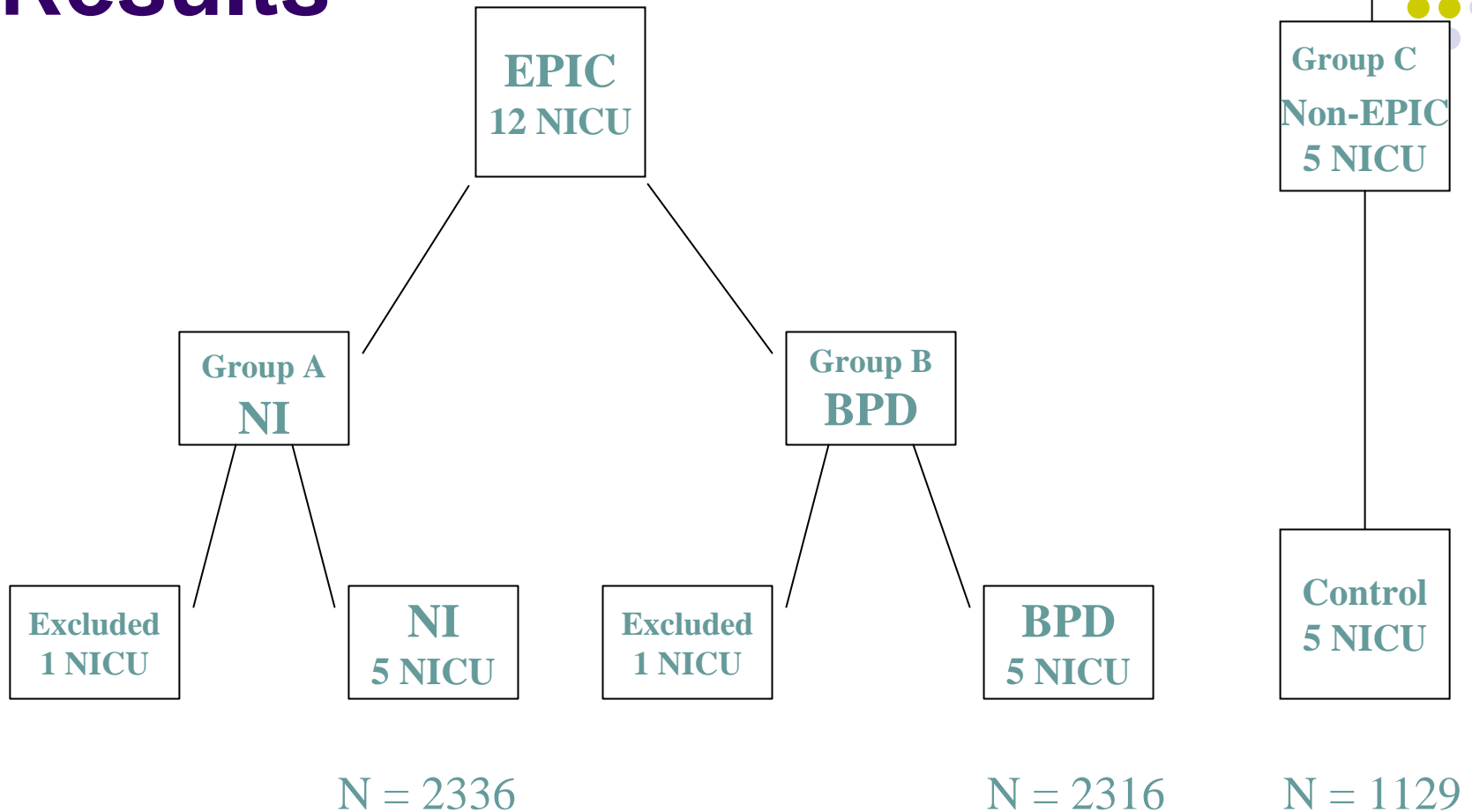
- **Results:**
  - **Current Policies and Procedures**
    - Unit specific, disconnect, environment
  - **Barriers to Change**
    - Staffing, communications, process of change
  - **Facilitating Change**
    - Understanding why, champion, leadership support



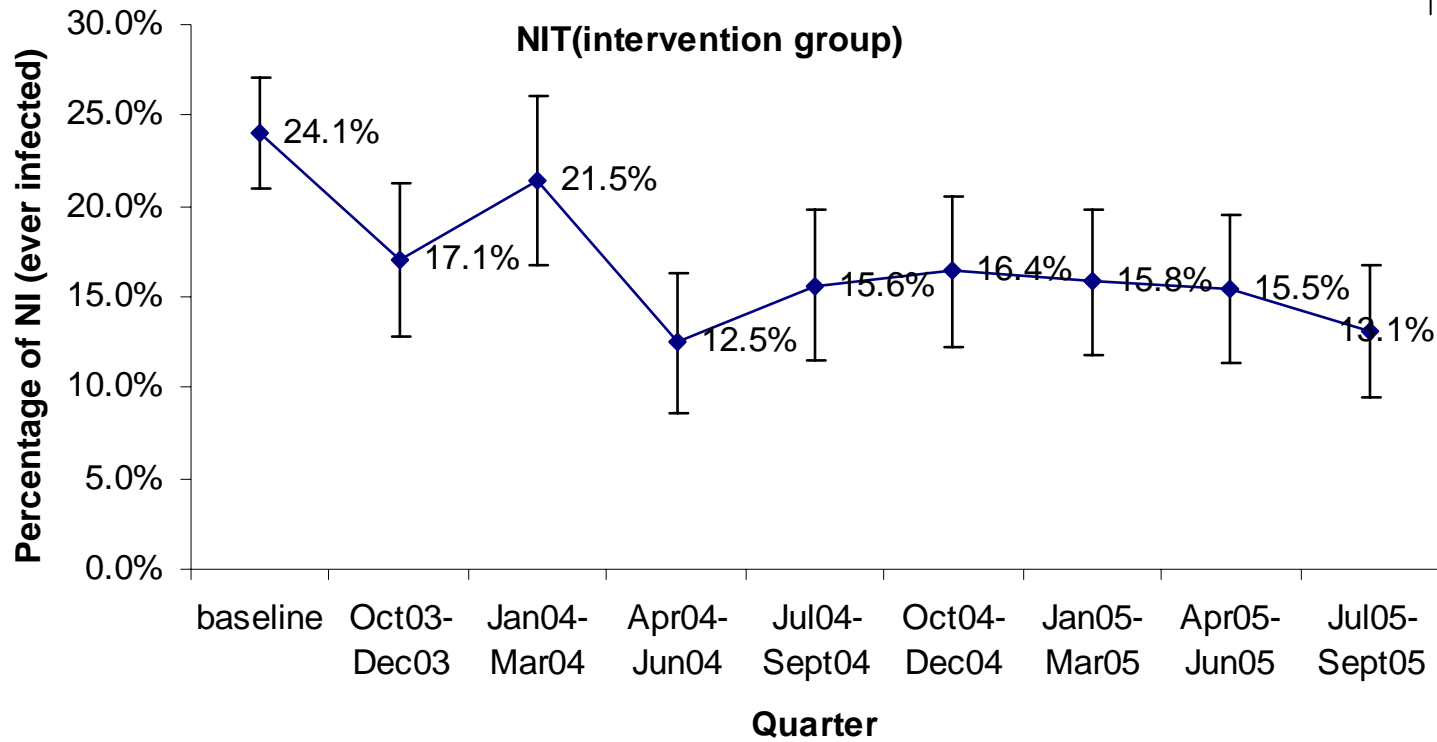
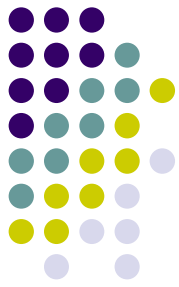
# Study on Barriers to Change

- **Recommendations:**
  - **Educational issues**
    - process, support, re-educate, responsibility
  - **Environmental issues**
    - access to hand hygiene
  - **Practice issues**
    - checklist, evaluate staff, spot checks
  - **Communication issues**
  - **Change issues**
    - leaders agree, check attitudes, feedback

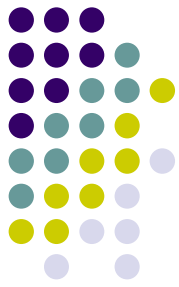
# Results



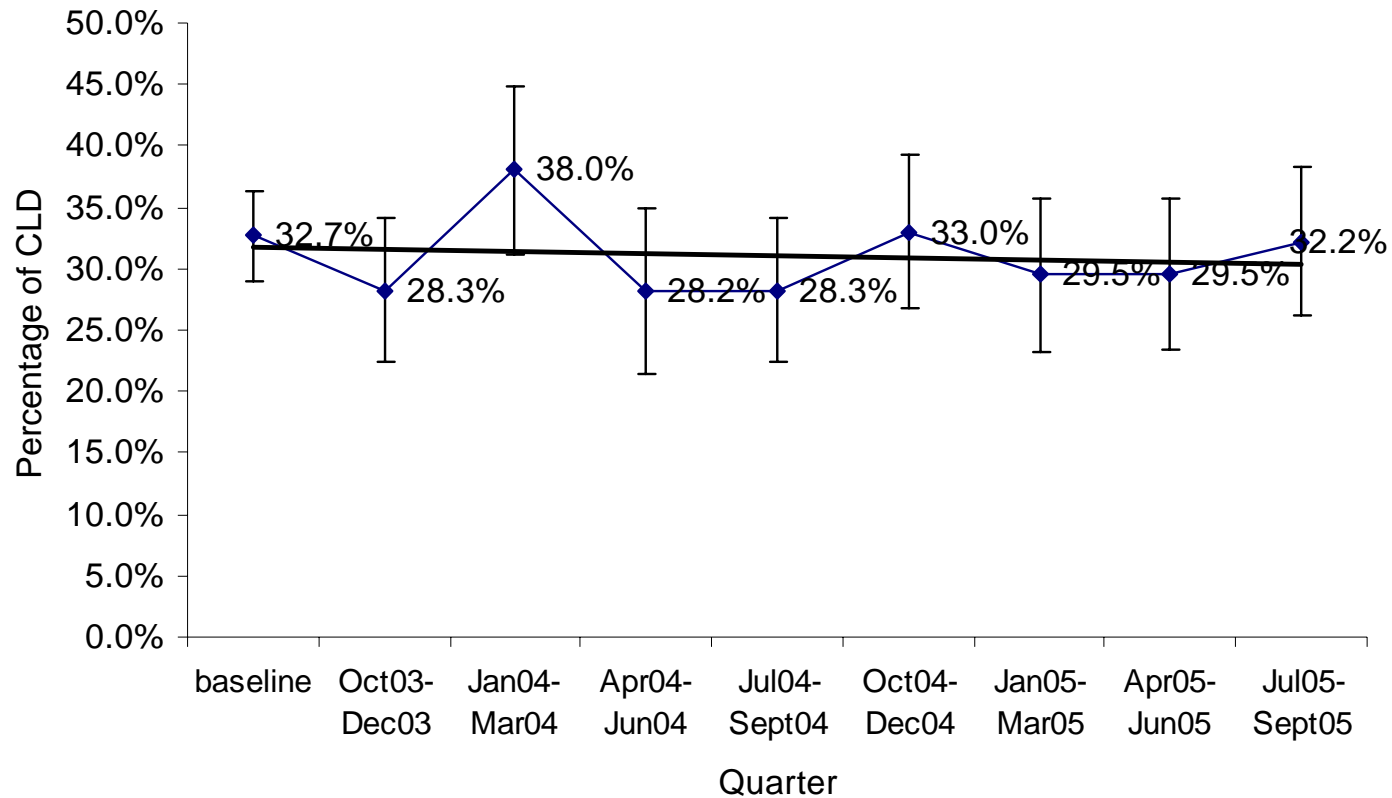
# Group A (NI) – Incidence of NI



# Group A (NI) – Incidence of BPD



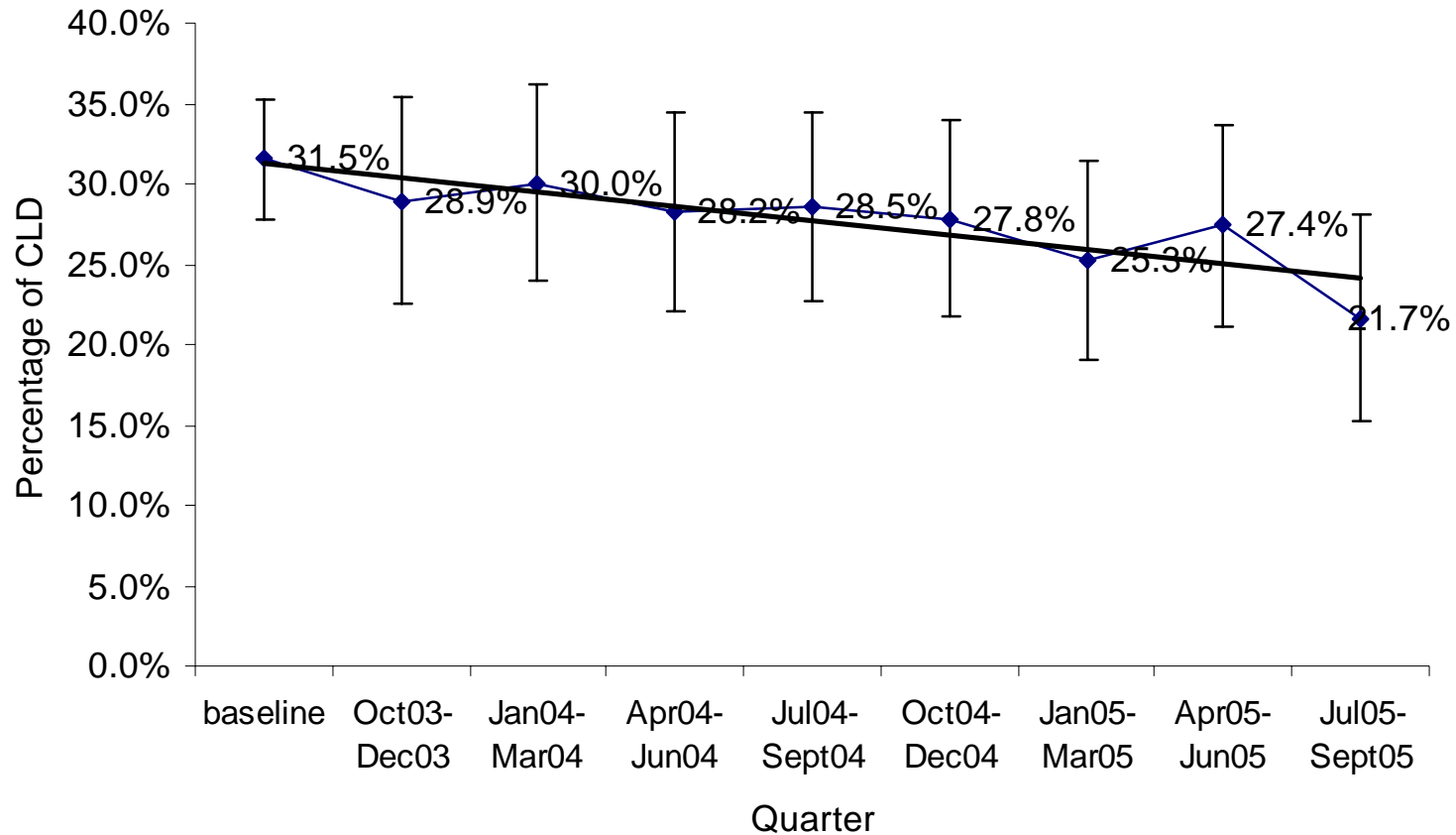
NIT (control group)



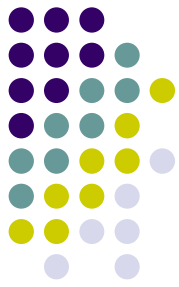
# Group B (BPD) – Incidence of BPD



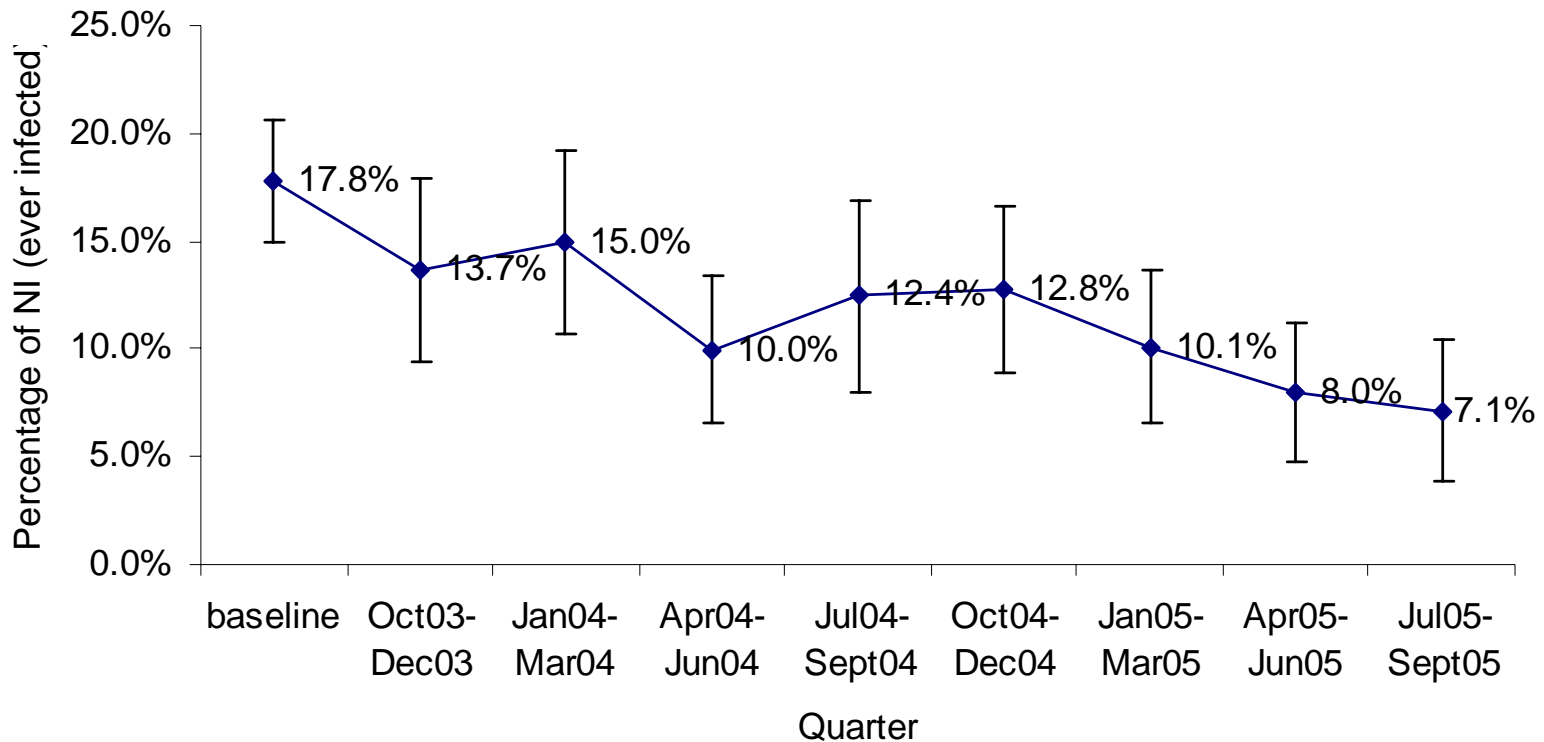
CLD (intervention group)



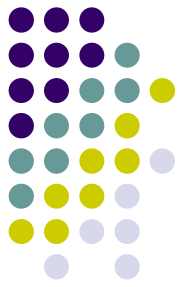
# Group B (BPD) – Incidence of NI



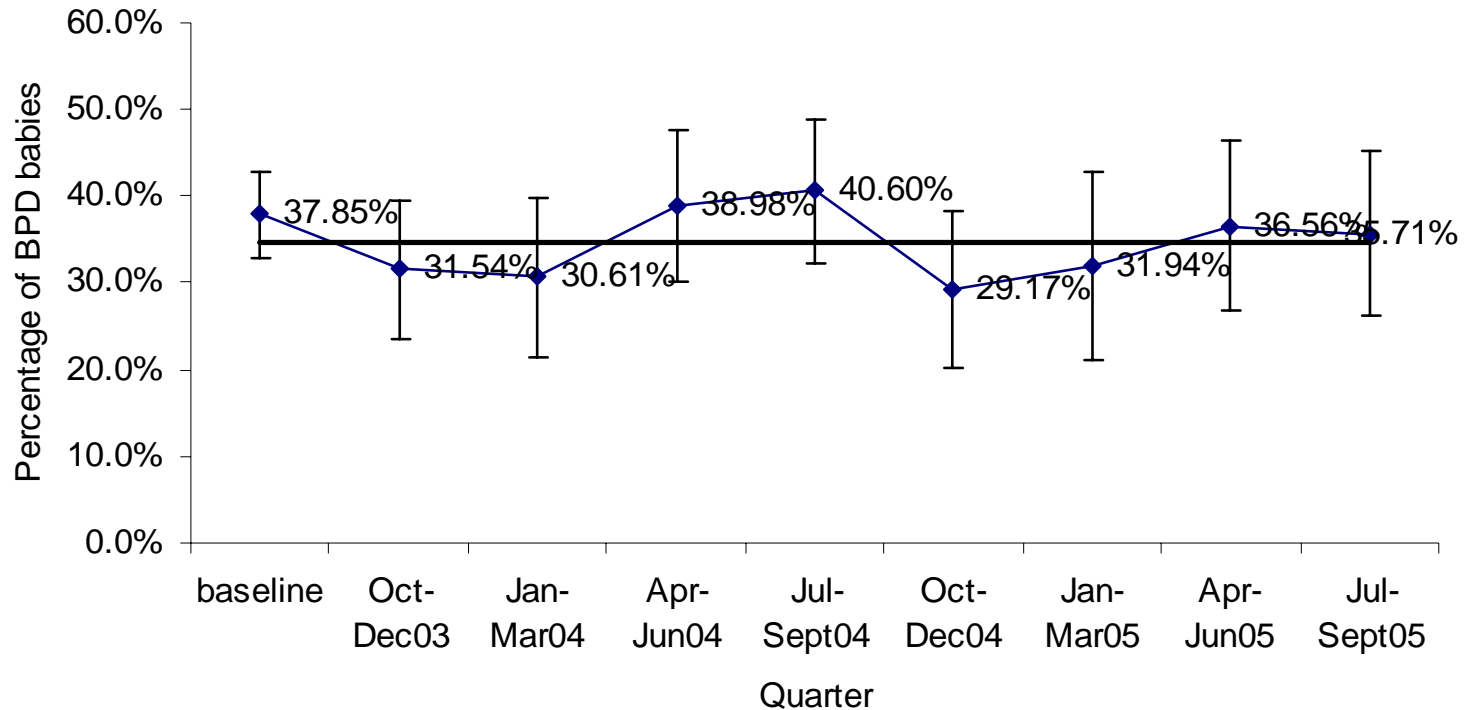
CLD (control grup)



# Group C (Controls) – Incidence of BPD



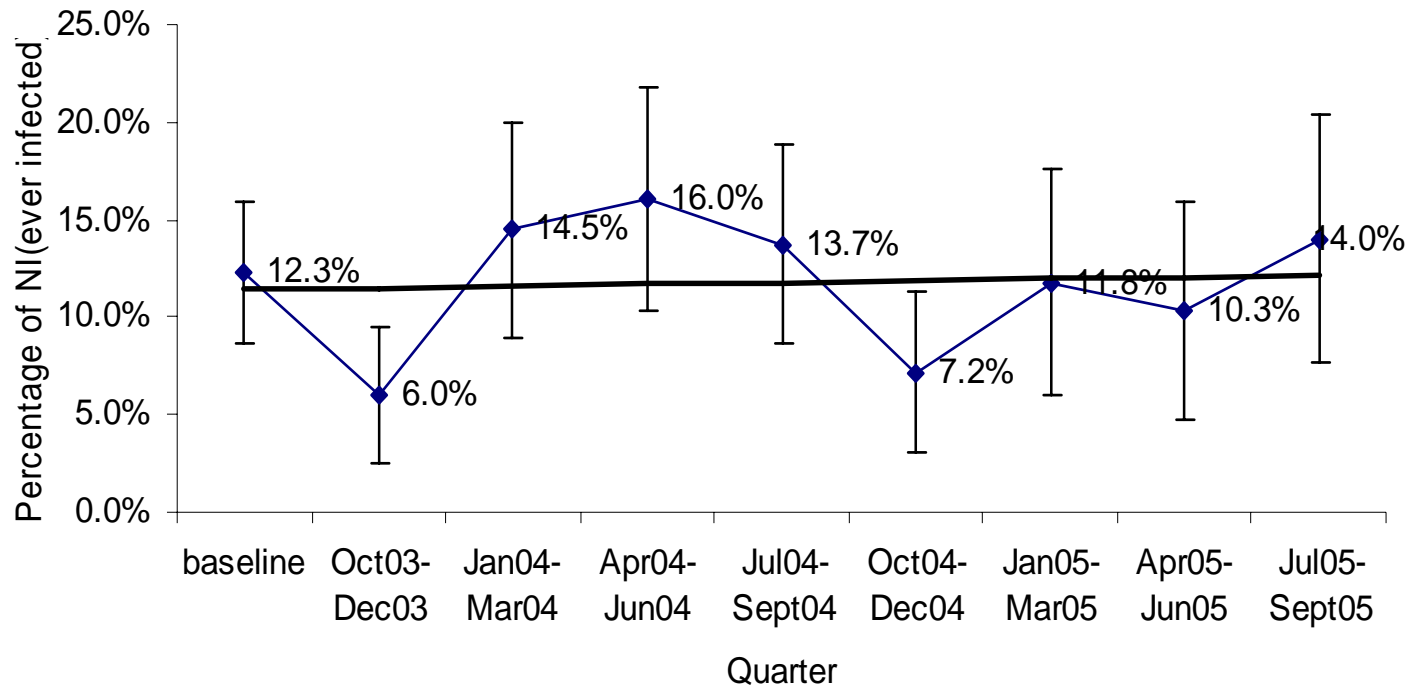
control group (Non-EPIC group)



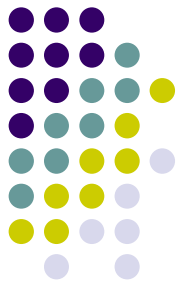
# Group C (Controls) – Incidence of NI



control group (Non-EPIC group)

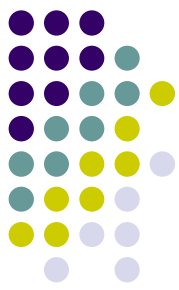


# Conclusions



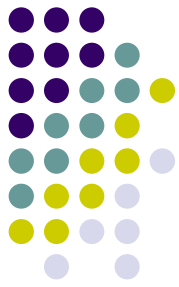
- EPIC is effective at reducing NI and BPD in the NICU
- Interventions targeting one outcome may affect other outcomes
- EPIC may be more effective and less costly at improving quality of care than traditional CQI methods

# Acknowledgements to CIHR & Canadian Neonatal Network™



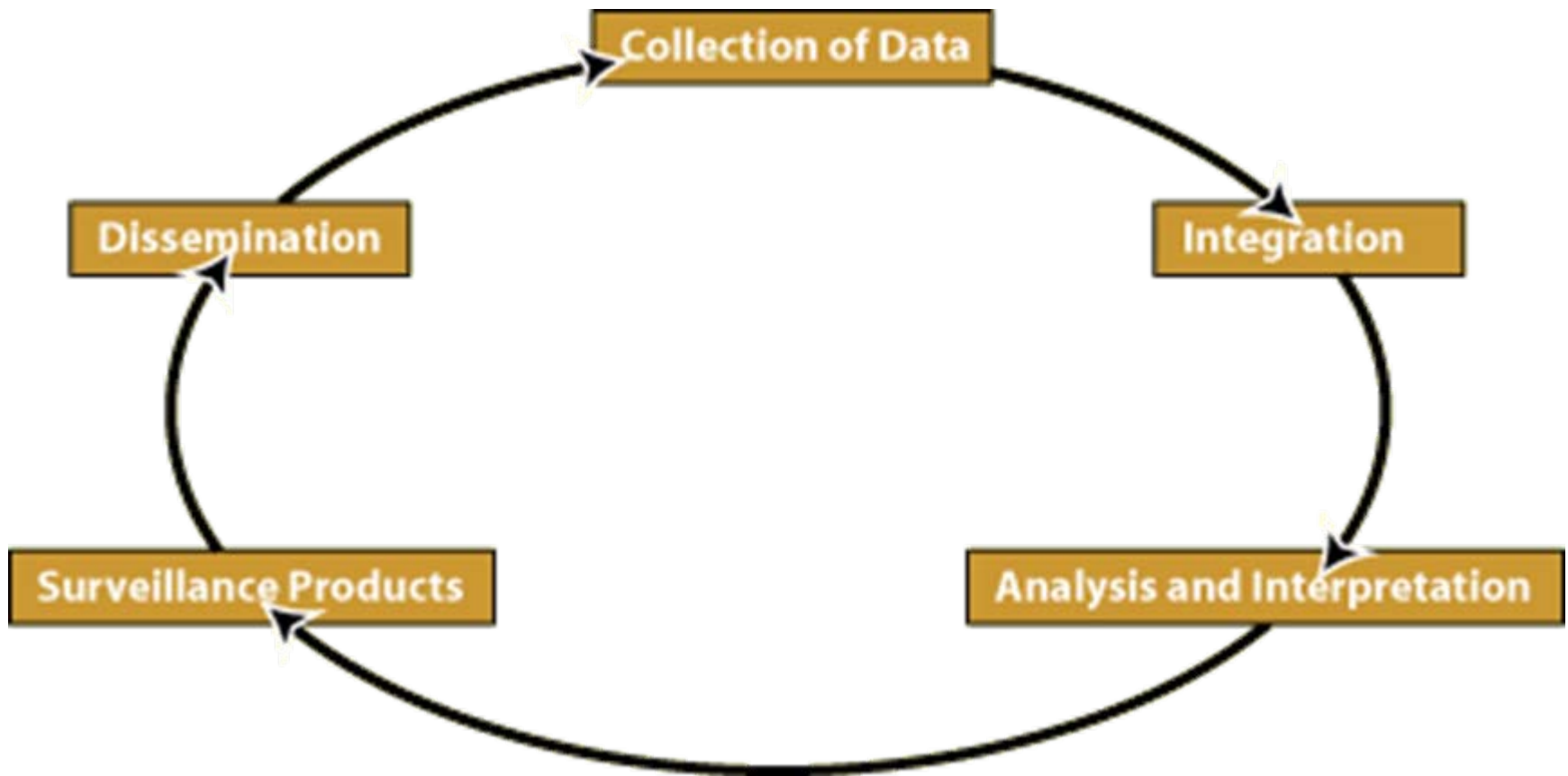
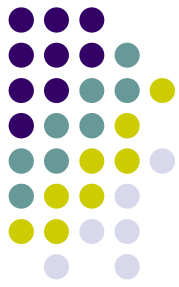
- Khalid Aziz, *Memorial U*
- Ross Baker, *U of Toronto*
- Keith Barrington, *McGill U*
- Catherine Cronin, *U Manitoba*
- Jill Hoube, *UBC*
- Andrew James, *U Toronto*
- Joanne Langley, *Dalhousie*
- David SC Lee, *UWO*
- Shoo K Lee, *U Alberta*
- Robert Liston, *UBC*
- Ying MacNab, *UBC*
- Claudio Martin, *UWO*
- Derek Matthew, *Victoria Gen H*
- Jochen Moehr, *U Victoria*
- Arne Ohlsson, *U Toronto*
- Abraham Peliowski, *U Alberta*
- Robert Platt, *McGill U*
- K. Sankaran, *U Saskatchewan*
- Mary Seshia, *U Manitoba*
- Nalini Singhal, *U Calgary*
- Bonnie Stevens, *U Toronto*
- Anne Synnes, *UBC*
- Paul Thiesen, *BCCH*
- Peter Von Dadelszen, *UBC*
- Robin Walker, *U Ottawa*
- Elizabeth Whynot, *BC Women's*
- Robin Whyte, *Dalhousie U*
- John Zupancic, *Harvard U*

# The British Columbia Perinatal Health Program

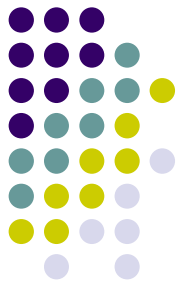


- **Maintains a registry of all births in the province**
- **Reports individualized data for each hospital for selected indicators**
- **Develops and disseminates evidence-based obstetric care guidelines**
- **Provides educational workshops**
- **Works with a “perinatal lead” from each regional health authority to plan care and develop policy.**

# Surveillance



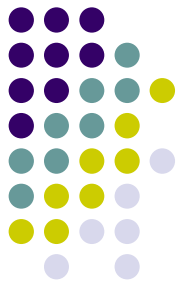
# Planning change with EPIC



## BC Perinatal Health Program

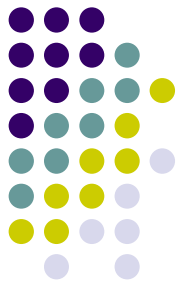
- Disseminates synthesized **systematic reviews** of practices relevant to caesarean section
- Prepares and distribute anonymous graphs comparing baseline **outcome data** for each participating health authority

# Planning Practice Change



- **Regional Health Authorities**
  - Assemble **multidisciplinary teams** from the hospital birthing programs in their region
  - Teams meet with BCPHP to review findings of **systematic reviews.**
  - **Identify areas for practice change**, develop indicators and benchmarks to monitor change.
  - **Identify barriers to change** and incorporate strategies to overcome barriers as part of the critical pathways
  - **Plan strategies** developed in concert with planned practice change

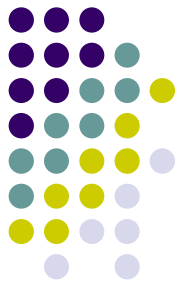
# Implementing Change



## Regional Health Authorities/Hospitals

- **Develop materials to support change (standard orders, documentation forms, procedure manuals)**
- **Inform hospital staff of changes and provide training**

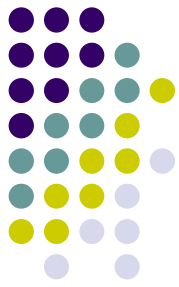
# Implementing Change



## BC Perinatal Health Program

- Develop **communication aids** – for working with health authorities: listserv, expansion of website to encompass a bulletin board, monthly teleconferences, newsletter.
- New data fields for **perinatal database**
- Disseminate **patient education tools**

# Clinical Outcomes



- Overall **cesarean section rate among selected groups:**
  - Nulliparous women at term carrying a singleton fetus in cephalic position
  - Healthy women with one prior cesarean delivery
- **Maternal knowledge** re. risks/benefits of cesarean section and procedures predisposing to cesarean section
- Maternal request for cesarean section

# Evaluating Change

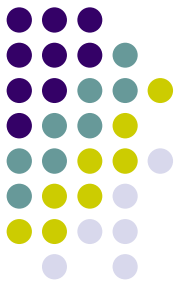


- **Feedback** provided by BCPHP on selected indicators every three months
- Process and outcome **indicators reviewed** within and among EPIC teams in health authorities
- **Evaluate** measures of uptake of practice change among relevant staff
- Women surveyed with regard to changes in knowledge and preferences for mode of delivery before and after exposure to education materials
- **Strategies** reviewed and **revised** as necessary

# Sustainability



- Consistency of practice after change initiated within health authorities
- New practice consistently documented and monitored
- Roles of EPIC team members built into job descriptions of appropriate personnel
- Resource implications of EPIC subsumed into operating budgets



**Thank You**

**Questions?**