Infection Control Cost-Benefit Analysis

Katherine West,BSN,MSEd,CIC
Infection Control Consultant

Objectives

- Define evidence-based Practice
- Define evidence-based learning
- Apply cost-benefit analysis
- OSHA enforcement of CDC Guidelines
- Cite current CDC immunization vaccination requirements

Program Goals

Staff Protection

OSHA Compliance

Liability reduction

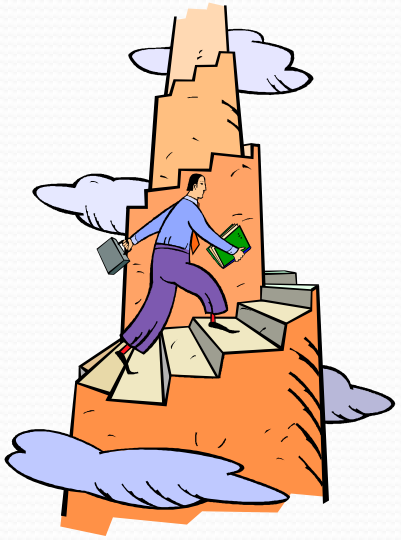
Cost reduction

Evidence-based Practice

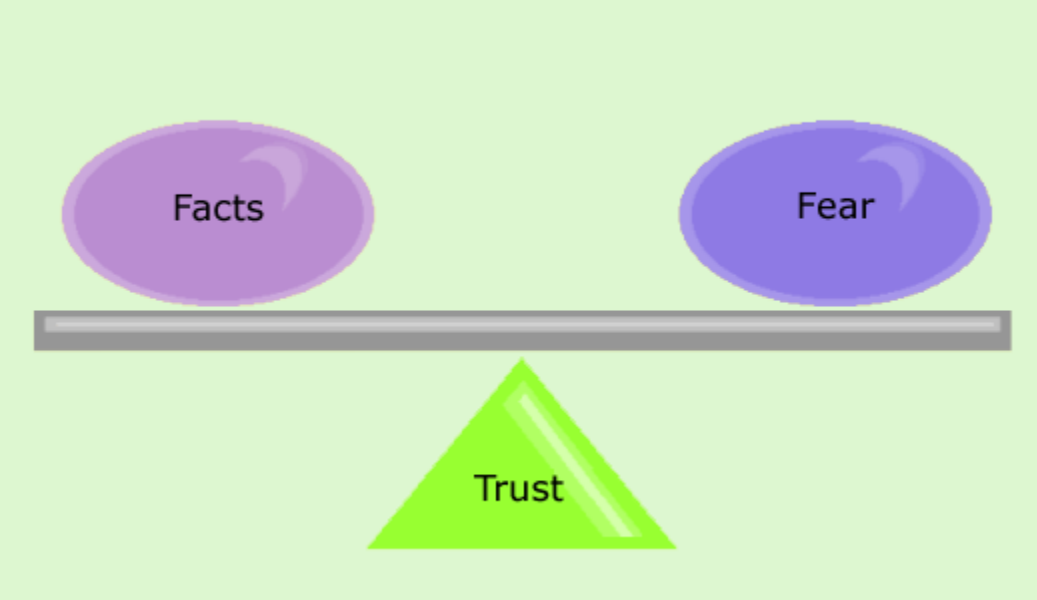
- Using science & research
  - Apply to medicine
  - Apply to practice

Process

- Select topic
- Assign research participants
- Committee review
  - Buy in by staff

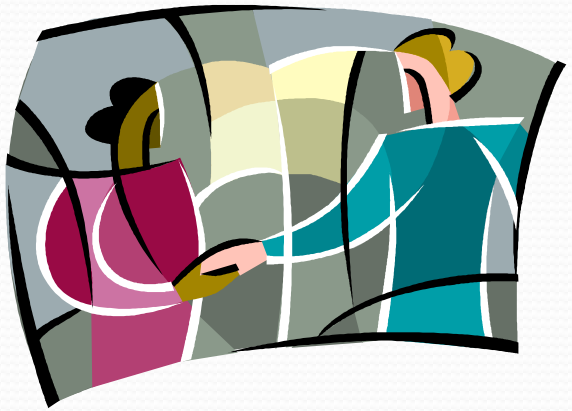


Evidence-based Learning

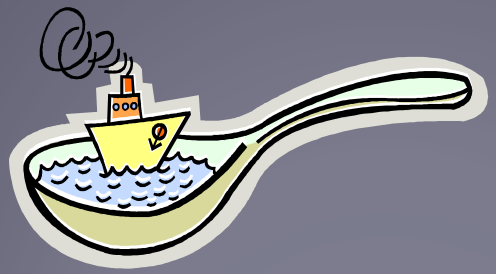


Evidence-based Learning

- Mutual inquiry –
  - Students accept responsibility for the learning process



“Spoon-feeding in the long run teaches us nothing but the shape of the spoon”



E. M. Forster

Slides

- Don’t give out all
- Note taking is a good thing!

Search of the literature

Reliable Sources

- CDC.gov
- NIH.gov
- FDA.gov
- EPA.gov

Example

- Surgical masks v. respirators

Personal Protection - Masks

- Surgical mask v. respirators
  - Surgical mask on patient
    - no science to support increased protection from respirators

Mask Issue

- 3 Studies demonstrate surgical masks as protective as respirators

See reference sheet

Product Evaluation

Compare Cost Against Need and Purpose

- Cost of surgical mask
- Cost of respirators
- Cost of Respiratory protection program
  - Medical evaluation
  - Fit testing
  - Pulmonary function testing

Role of Designated Infection Control Officer (DICO)

DICO Tasks

- Make first call on an exposure
- Insures proper care & counseling

In Practice

No DICO

- Refer to medical facility
- Medical evaluation

DICO

- DICO reviews the event
- No exposure

Cost - Benefit Analysis-Current Approach

- **Exposure Evaluation Medical Facility – no DO**
  - **ED Fee** **$650.00**
  - **MD fee** **$650.00**

DICO Making Determination

- Cost = $ 0.00
- Department savings

Exposure Documented

- Source patient testing drives employee testing
- Source is negative = no testing of the employee

No Source Testing

- Employee testing for 12 weeks
- Cost & Concern

ED Use for Post Exposure

ED fee	$650.00
MD fee	$650.00
Lab fee for patient	Cost plus 300% mark up
Lab fee for employee	Cost plus 300% mark up

Selection Medical Care Provider

- ID physician
- Occupational medicine Group

Cost - Benefit Analysis-Current Approach

- **Post Exposure**
  - **ED Fee** **$0.00**
  - **MD fee** **$150.00- $450.00**
  - **Lab work Pt.** **$200.00 + mark up (hosp. controls)**
  - **Lab work Emp.** **$100 .00**

Cost-Benefit Analysis

- **Post Exposure HIV (Old Way)**
  - **$650.00 ED visit**
  - **$650.00 MD fee**
  - **EIA & Western Blot**
  - **Start employee on meds awaiting results - $600.00 plus mark up (2 days)**
  - **$200.00 blood work baselines plus mark up**
  - **$200.00 baseline labs for meds**

Current HIV Testing

- Rapid testing answer in 1 hour
  - Cost $10 - $20
  - No prophylactic meds

Hepatitis C Testing

- Old Way
  - Antibody testing (50%-80% false positive results)
  - Confirmatory testing –RIBA
    - Cost $250.00 -$275.00

Hepatitis C Testing

- New Way
  - Rapid test –OraQuick HCV
  - No confirmatory testing needed
  - Results in 1 hour

Rural Medical Facilities - Waiver

- Health & Human Services has issued a “waiver” for CLIA compliance
  - OraQuick
  - Uni-Gold
  - Clearview

- Ideal for small rural areas

Problems - Labs

- Lack of awareness of new tests
- Lack of awareness of CDC guidelines/recommendations
- Lack of awareness of OSHA enforcement of CDC guidelines
- Labs are contracted service
  - Control time and services

Labs lack of Cooperation

- Make more money

Cost Saving – s/co testing

- Florida Study=
  - Feb. 2004 – Sept. 2004
    - Savings of $61,000.00 in supplemental HCV testing
    - Savings -$3,723 in technologist time

Nat. Viral Hepatitis Prevention Conference, DC Dec. 2005

Cost/Benefit Analysis

- Vaccine Immunization Program
  - Cost of Vaccine & Administration
  - Cost of Illness

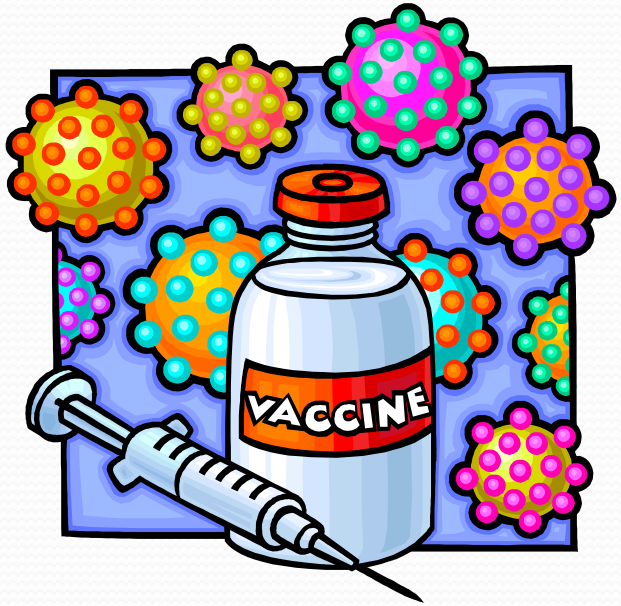
Data Collection

- Contact Safety officer
- Collect work comp data- numbers!

- Cost for medical follow up - exposures

Vaccines/Immunizations

- HBV vaccine
- TB Testing
- MMR Vaccine
- Chickenpox Vaccine
- Tdap booster
- Flu vaccine



Getting Real Perspective

Disease Numbers 2008-2009

- 2008
- AIDS –39,202
- Hepatitis B – 4,033
- Hepatitis C – 877
- Syphilis – 13,048
- TB –13,299
- WNV – 1,356

- 2009
- AIDS – 36,870
- Hepatitis B – 3,020
- Hepatitis C – 782
- Syphilis – 12,833
- TB – 11,540
- WNV – 663

•CDC, MMWR, August 19, 2010

Other Key Diseases

- Measles cases – 74
- Mumps – 1,991
- Pertussis (whooping cough) – 16,858
- Chickenpox – 20,480

August 19, 2010

Why ?

- Dr. Andrew Wakefield

Reminder -

- One study has no scientific validity
- Need 3 or more -

Employees to Request Records

- High schools
- Colleges
- Training schools
- Previous employers

Cost for Copies

- If on hire- cost is employees
- If on staff- cost is the employers

Records =Savings

- Document immunity
  - Aids post exposure follow up
  - CDC – “records must be readily available at the work location”
- No cost for titers

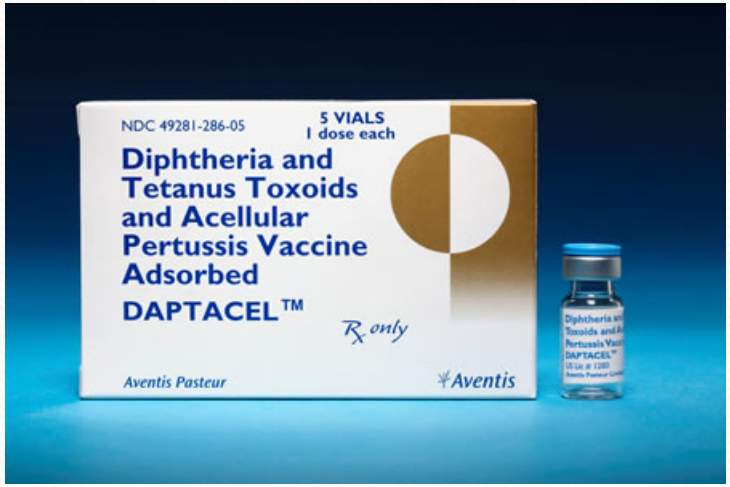
HBV Vaccine – Cost Issues

- Protective for life
- No boosters
- No periodic titer testing
- Series interrupted – no need to restart

CDC, Dec. 8, 2006

Tdap Booster

- Care of children
- Child care providers
- Parents



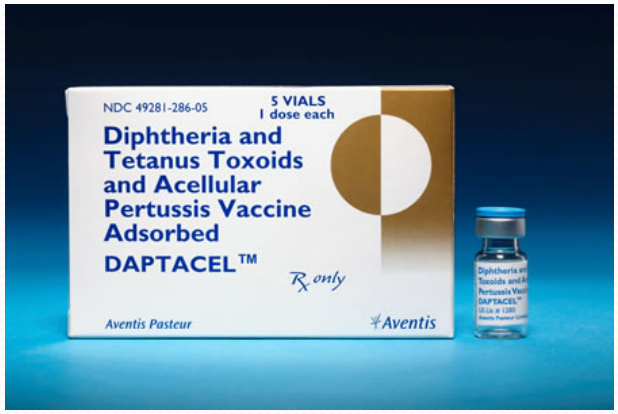
Tdap Cost

CDC price

- $28.54

Retail Price

- $37.43



Post Exposure

- **Pertussis**

- Active
- Exclude from duty
- From beginning of catarrhal stage through 3rd week after onset of paroxysms or until 5 days after start of effective antimicrobial therapy

CDC, Work Restriction Guidelines

MMR

- No documentation of immunity
- Vaccinate
  - Less costly than titers

Measles – Virginia 2008

- 8 EMS personnel exposed
- No documentation of immunity
  - Off duty 36 hours/testing
  - Cost- $14,400.00

2008

VA Case Measles Exposure

- Cost MMR Vaccine
  - CDC rate = $33.61
  - Retail rate = $48.31

Mumps Exposure

- Vaccine not effective post exposure
- Off duty – day 12 – 26
  - Work comp
  - Sick leave

Chickenpox

- Titer
- Vaccine 2 doses over 2 months

Cost of Vaccine

CDC Price

- $55.36

Retail Price

- $80.58

Times 2 doses

Cost of Post Exposure

- ED fee
- MD fee
- Titer test
  - negative
- Vaccine – 1st dose
- Off duty – day 10 – day 21 plus 7 more days
- Replacement cost

Common Call

- My chief wants to cut flu shots from the budget to save money

Example - Vaccine Program

- **Flu Vaccine**
  - Cost vaccine $3.00/dose
  - Syringe $1.79/ea.
  - RN Time $48.75/hr.

Cost/Benefit

- 3-5 Days off for illness
- Hourly Rate =

Purchasing Vaccine

- Pharmacy price
- CDC contract price for public safety

Benefit of Compliance

- CDC guidelines/ OSHA enforced on offering annual flu vaccine
- NFPA 1581 states annual flu vaccine

CDC Flu Vaccine Program

- Employers must offer
- Employers must pay
- Employees who decline - sign a declination form

CDC, February 24, 2006/2008/2009, NFPA 1581

TB Risk Assessment & Testing

Risk Assessment

- Based on number of active-untreated TB patients *transported* in the past year

CDC, 2005

Risk Assessment - TB

- Low Risk
  - Transported less than 3 TB patients
- Medium Risk
  - Transported more than 3 TB patients

CDC TB Guidelines, 2005, pg. 134

Testing

Low Risk

- Test on hire
- No annual testing
- Test post exposure

Medium Risk

- Test on hire
- Annual Testing
- Test post exposure

TB Testing

- TST
  - 2 – step
    - 1 then read in 72 hours
    - Repeat in 1-2 weeks
    - Read in 72 hours
    - False positives
- QFT-G in tube
  - One draw
  - More accurate
  - CDC prefers
  - Cost savings

Cost Benefit - Program

- **OLD**
  - history of PPD positive do yearly chest x-ray
- **NEW**
  - use questionnaire no x-rays needed

Handwashing

- The use of antibacterial products for routine handwashing is not recommended

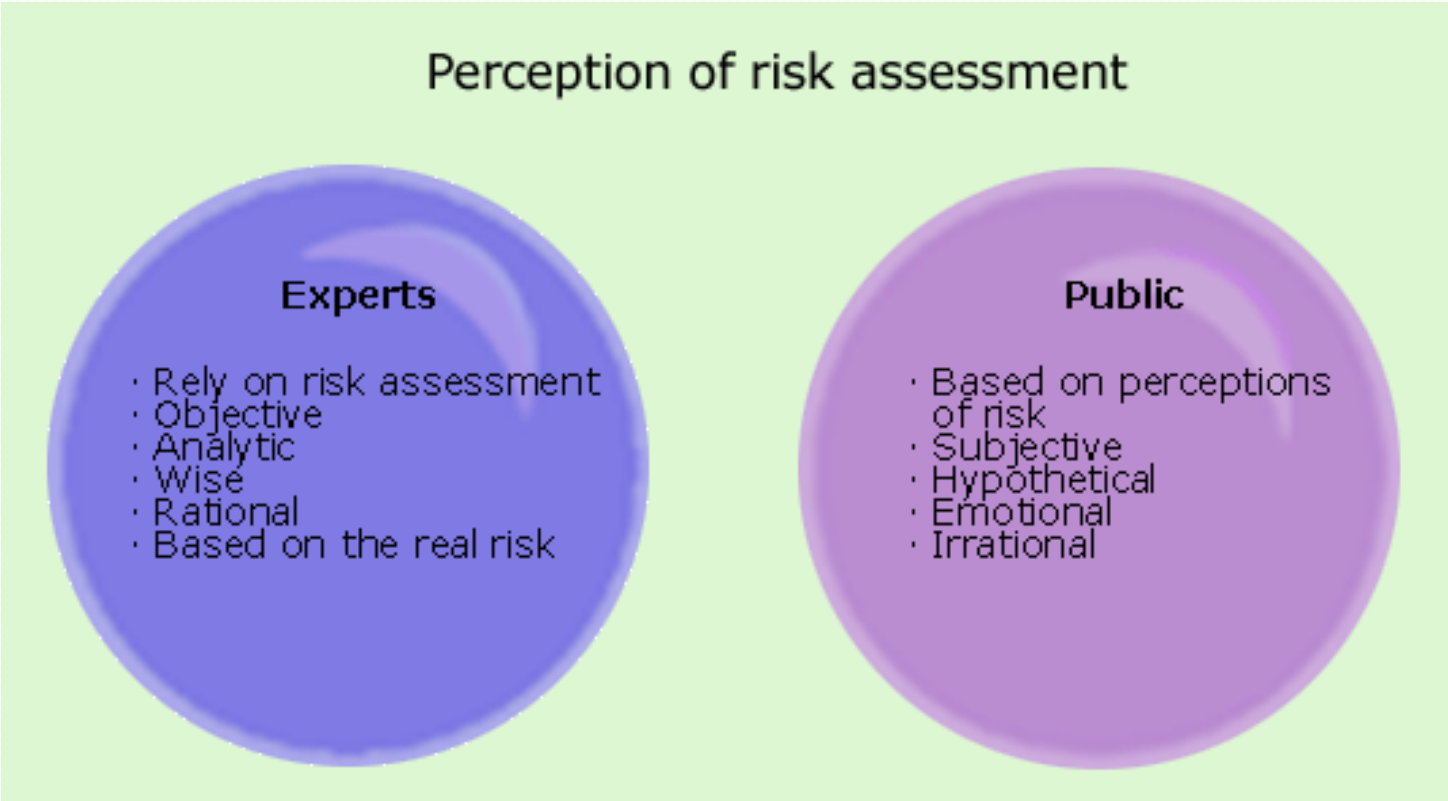
Cost Benefit - Product

- **Old**
  - Antibacterial Soap
- **New**
  - **non-antibacterial**

Evidence-based

- No antibacterials
- FDA warning

Marketing v. Science



Product Evaluation

- **Compare Cost Against Need and Purpose**

Vehicle Decon

- Old Way
  - Cost of disinfectant
  - Cost of salary to clean
  - No vehicle downtime
  - Storage space
- New Marketing
  - Cost of machine
  - Cost for downtime
  - Cost of salary
  - Storage space

Good Union Issues

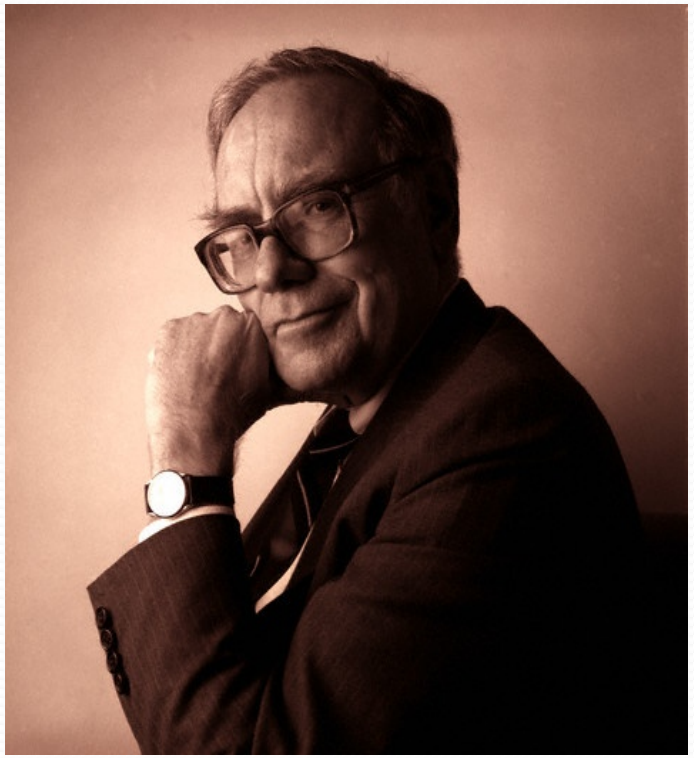
- Rapid testing
- Infection Control Programs
- Trained Designated Officers
- Qualified Trainers- evidence-based learning

Goals

- Staff Protection
- OSHA Compliance
- Liability reduction
- Science over fear/emotion
- Cost savings

Marketing 2008

- “ Be fearful when others are greedy; be greedy when others are fearful”
  - Warren Buffett, 2008



Questions & Answers

703-365-8388

info@ic-ec.com