State of Maryland Syndromic Surveillance System

ECONOMIC EVALUATION MODEL

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Overview

- Background
  - Syndromic Surveillance System
  - Economic Evaluation
- Method
- Model Design
- Discussion
Syndromic Surveillance System

Threat of biologic terrorism and resurgence of virulent form of infectious diseases

Response: Applied technologic advances to disease surveillance
Syndromic Surveillance System

Based on existing computerized Health care data

ESSENCE

Alerting system

Others emerging health conditions
National Capital Region

- Montgomery County
- District of Columbia
- Prince George's County
- Fairfax County
- Prince William County
- Loudoun County
- Arlington County
- Alexandria
Why Economic evaluation of the Syndromic Surveillance System?

- Health Department resources allocation issue because resources are scarce
- Vulnerability of the population: cost of doing nothing
- Substantial costs to obtaining data
Economic Evaluation

CEA

CUA

CBA
Economic Evaluation

Cost-Effectiveness Analysis
Comparing the costs and health effects of an intervention to assess whether it is worth doing from the economic perspective.

Cost-Utility Analysis
A type of Cost Effectiveness analysis in which benefits are expressed in terms of cost per QALY gained.
Cost-Benefit Analysis

Used to answer the question whether the given goal is worth pursuing. Cost and Benefit in monetary units. More appropriate for business purposes.
**Economic Evaluation**

- **Cost-Effectiveness**
  - The minimum cost for a given benefit,
  - The maximum benefit for a given Cost
  - Or a balance of low costs and high benefits that has maximum utility

- **Cost-Effectiveness Ratio**
  - Total cost of investment
  - Total Accrued benefits
  - In term of both dollars and benefit value
Method

Sensitivity Test

No Management Variables

Software TreeAge Pro 2007

Intervention Variables

CEA
Model Design

VARIABLES

No Management
- Event Incidence
- Case Fatality
- Population Size
- Cost of Intervention
- Incidence Reduction
- Mortality Reduction

Intervention
- Population Covered
- Adherence from Health care providers
- Intervention Cost
- Incidence Reduction
- Mortality Reduction
- Willingness to pay

Outcomes:
1. Deaths
2. Costs
3. CEA
Model design

Payoffs
1. Deaths
2. Cost of the system
3. CEA

1. No Incidence Reduction
2. Cost of Intervention
3. Mortality Reduction
Discussions

Strengths

- Improve technical and productive efficiency
- DHMH decision support tool
- Measure the effect of intervention on natural unit

Weaknesses

- Multiples sources of data for costs evaluation
- No data available
Recommendations

- Inclusion of economic evaluation on the framework for evaluating Syndromic Surveillance System
  - Cost Benefit Analysis
  - Cost effectiveness Analysis
  - Cost Utility Analysis
- Uses of this model in another study to evaluate the cost effectiveness of the system in the State of Maryland
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