Health Technology Assessment & Policy-Making
The Singapore Experience

Dr Pwee Keng Ho
Deputy Director (Health Technology Assessment)
Ministry of Health, Singapore

HTA Workshop
First Global Forum on Medical Devices
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What we’ll talk about

• Welcome to Singapore
• HTA in Singapore
• Your turn
Welcome to Singapore
Who we are

• Total population = 5 million
• Singapore residents = 3.8 million
  74.1% Chinese, 13.4% Malay, 9.2% Indians, 3.3% Others
• Median age = 37.4 years

2010 figures
Who we are

Life expectancy: males = 79 yrs, females = 83.7 yrs
Infant Mortality Rate = 2.2 per 1000 live births
Maternal Mortality Ratio = 8 per 100,000 births

Top 5 causes of death

• Cancer
• Ischaemic heart disease
• Pneumonia
• Cerebrovascular disease
• Accidents, poisoning & violence

2009 & 2008 figures
Who we are

- Small country with few natural resources
- Young population in good health
- Developed country profile of diseases
Our Mission

- To promote good health and reduce illness
- To ensure access to good and affordable healthcare that is appropriate to needs
- To pursue medical excellence

Our Vision

Championing a healthy nation with our people -- to live long, live well & with peace of mind
Our Healthcare System

Dual system of healthcare delivery – public/private

Primary care  20% public : 80% private
Hospital care  80% public : 20% private

Public sector institutions
  18 Polyclinics
  15 Hospitals & specialty centres

Private sector hospitals = 16
Private medical clinics > 2300

2010 figures
Healthcare Financing in Singapore

The 3 Ms

Medisave
Medishield
Medifund
Healthcare Financing in Singapore

Philosophy:
Individual responsibility, coupled with Government subsidies to keep basic health care affordable

Medisave: National medical savings scheme

Medishield: Low-cost catastrophic illness insurance scheme

Medifund: Endowment fund; safety net for the poor
Healthcare Financing in Singapore

N.B. No price, profit or volume controls of drugs or devices
HTA in Singapore
The Standard Drugs List

The Standard Drugs List (SDL) was established in 1979.
✓ Modeled after the WHO Essential Drug List
✓ Applicable to public sector subsidised patients
✓ Access to drugs is not linked with SDL listing
✓ Healthcare providers are not limited to SDL drugs

Standard Drugs
Defined as *clinically relevant* and *cost effective* drugs that are considered as *basic therapies* and *essential* for management of *common diseases* afflicting the *majority* of the patients.
The Standard Drugs List

Categorised into two lists: SDL 1 and SDL 2

SDL 1
• Essential first line drugs
• Patient pays S$1.40 per item per week

SDL 2
• More expensive essential drugs
• Patient pays 50% of charges
The Standard Drugs List

- Public Health care institutions
- Ministry of Health (MOH)
- Drug Advisory Committee (DAC)
- STANDARD DRUGS LISTS (SDL)
The Standard Drugs List

Public Health care institutions → Ministry of Health (MOH) → Drug Advisory Committee (DAC) → HTA → STANDARD DRUGS LISTS (SDL) → Ministry of Health (MOH) → Public Health care institutions
Health Service Development Programme

• Initiated in 2001
• Funding programme for the development of new medical capabilities in the public sector
• Funding is on a pilot project basis
• S$15 million for each financial year
From Innovation to Implementation

Innovation

New Health Technology

Medical Research

Health Technology Assessment

Pilot Programme

HSDP

Health Service
Health Service Development Programme

*Three categories of new health services are funded:*

- New cutting-edge medical technology
- Advanced and costly treatments
- Major augmentations of existing management capability for key diseases
Health Service Development Programme

Applications for funding must be supported with an HTA report

• Health services research units in public sector have the capability to assist with these reports

• HTA branch in MOH assists in evaluating and appraising the applications
Health Service Development Programme

Final evaluation

*At the end of each project, a decision will be made on whether and how it will continue:*

- **Merits recurrent funding**
- **Should not be basic, but could be funded from other sources e.g. Medical Advancement Budget**
- **Requires a further period of operation and evaluation**
- **Should be terminated**
Prostate Cancer Brachytherapy

- Example of a project under category of “new medical technologies”
  - Brachytherapy treatment for prostate cancer was relatively new
- HSDP Project from FY05 to 07
- Institutions involved: SGH’s Urology Centre & NUH’s Cancer Institute
- Methods:
  - Minimally invasive radiotherapy of early stage, organ-defined prostate cancer – at a day-surgery, a small radioactive seed is implanted directly into the tumour
Prostate Cancer Brachytherapy

- Objectives:
  - Improvement in clinical outcomes
  - Improvement in side-effect profiles
  - Reduction in length of hospital stay and frequency of outpatient visits

- Results:
  - Cost-effective in the long run
  - Procedure well tolerated
  - Good clinical outcomes

- Transition into Mainstream:
  - Successful bid for Government funding from FY09 to 13
  - Rollout to full projected patient-load
HTA capabilities

- HTA branch, MOH
- HSR units in public sector clusters
- Statutory boards – Health Sciences Authority, Health Promotion Board
- Academia – Duke-NUS Graduate Medical School
Health Technology Assessment Branch

• Performs HTA to support MOH policy development and decision-making

• Manages MOH Clinical Practice Guidelines programme

• Promotes Evidence-Based Medicine
Health Technology Assessment Branch

Staff

1 Branch head (public health doctor)
2 Executives/Researchers
1 Executive/Project Manager
1 Health Economist
1 Information Specialist
2 Management Support Officers
Health Technology Assessment Branch

HTA for policy development / decision-making

Rapid reviews
• Vision therapy
• Magnetic resonance guided focused ultrasound surgery

Longer assessments
• Pneumococcal vaccine
• Human Papilloma Virus vaccine
Health Technology Assessment Branch

MOH Clinical Practice Guidelines Programme

66 CPGs since 1998

CPGs in development

• Management of Hepatitis B (review)
• Screening for cardiovascular disease and risk factors
• Blood transfusion (HSA-MOH CPG)
• Depression (review)
• Schizophrenia (review)
• Gambling addiction
• Dental implants in edentulism
• Diabetes mellitus (review)
• Bipolar disorders
• Infertility (AMS-MOH CPG)
• Age-related macular degeneration (AMS-MOH CPG)

Building capacity

• Annual CPG development course
• Collaborative development of CPGs
Health Technology Assessment Branch

Promotion of EBM

Training for CPG workgroups

Critical appraisal workshops

Organising conferences
  • 6th Health Technology Assessment International Annual Meeting
  • 5th Asian Regional HTA Conference
Example of HTA for decision-making

HTA of Pneumococcal vaccination of children in Singapore
Pneumococcal disease

- *Streptococcus pneumoniae* is a principal cause of meningitis, bacteremia, pneumonia, and otitis media
- Pneumococcal disease is the leading cause of vaccine-preventable death in young children worldwide
- Penicillin is first-line drug for treatment
- Increasing antibiotic resistance is a world-wide trend for *S. pneumoniae*
- Disease caused by *S. pneumoniae* is usually more severe than disease caused by other bacterial agents or by viruses
PCV7 vaccination

• Prevnar® is the PCV7 vaccine by Wyeth Pharmaceuticals that protects against the 7 most common and most virulent serotypes of pneumococcus
• Serotypes have been selected to most effectively cover U.S. and European distribution of strains
• Vaccine is recommended for infants, and administered in 4 doses
Objectives

• Goal was to estimate the costs, impact, and cost-effectiveness of widespread pneumococcal vaccination in Singapore
• Analysis was from the health sector perspective, including costs to patient and to health care payer; indirect costs were not included
Economic evaluation of pneumococcal vaccine

• Cost-effectiveness analyses with the following outcomes:
  – Costs per death averted
  – Costs per life year gained

• Cost-utility analysis with the following outcome:
  – Costs per Quality Adjusted Life Year (QALY) gained
Economic evaluation of pneumococcal vaccine

• Data from scientific literature and local databases (financial & administrative databases)
• Markov model
• Base case
  – cost/QALY of adding pneumococcal vaccination to immunisation programme was estimated at: S$7,362
Markov model diagram
Economic evaluation of pneumococcal vaccine

Expert Committee on Immunisation

**Vaccination against pneumococcal disease**

a. pneumococcal disease causes significant morbidity and mortality in Singapore

b. PCV is a safe and effective vaccine.

c. childhood vaccination is cost-effective

MOH has accepted the ECI’s recommendation and has included pneumococcal vaccination as the 10th vaccine in the NCIP.
Economic evaluation of pneumococcal vaccine

- Policy decision was to allow the use of Medisave for pneumococcal vaccination
7 Standards of Utilization

Impact
Implementation
Adoptive Effort
Reference
Discussion
Cognition
Reception

If Dissemination Is the Solution, What Is the Problem?
Jack Knott and Aaron Wildavsky
Science Communication 1980: 1: 537
Economic evaluation of pneumococcal vaccine

• **Reception:** The Expert Committee on Immunization (ECI) was consulted on the results of the cost-effectiveness study.

• **Cognition:** The ECI submitted its recommendations to the MOH.

• **Reference:** Policy-makers in MOH noted and agreed with the recommendations by the ECI.

• **Effort, Adoption:** MOH took necessary actions to make changes to relevant health policies.

• **Implementation:** Pneumococcal vaccination added into our National Childhood Immunisation Programme and Medisave use allowed from 1 Nov 09.
In conclusion

- Singapore’s circumstances shape its policies
  - Public and private healthcare sectors
  - Hybrid healthcare financing system
- HTA informs public policy development and decision-making
- HTA requires resources; need to be selective in prioritising topics for evaluation
- HTA is a tool for knowledge translation – good HTA should make an impact
Your turn
Group discussion

Divide yourselves into groups. Choose a country for the purposes of discussion.

How can HTA help inform decision-making in my country?

What is needed to implement the use of HTA in my country?

What are the possible barriers and how can they be overcome?
Thank You