Health Technology Assessment and Healthcare Delivery in Asia: Experiences from Thailand

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Health Intervention and Technology Assessment Program
History of Thai Healthcare System

- Population: 65 million
- Universal health insurance coverage established in 2002
- Three insurance schemes
  - Universal Coverage Scheme (76%)
  - Social Security Scheme (16%)
  - Civil Servants Medical Benefit Scheme for civil servants (8%)
- Health expenditure: 5% of GDP (Public 70%)
Health Benefit Schemes in Thailand

UC beneficiaries
- NHSB
  - 48.5 m
  - NHSO
    - Capitation
    - USD55/y

Civil servants
- MoF
  - 5 m
  - Comptroller General’s dept
    - Fee for service
    - USD220/y

Employees
- SSC
  - 8.5 m
  - SSS
    - Capitation
    - USD65/y

Public/private providers

Contribution
- Employers & Employees

Services

Tax

Note: Both UC and SSS also introduced vertical programs for certain services and UC introduced DRG in the case of inpatient services
Economic boom
- over investment in high-tech and expensive health technology
- poor distribution and inequity of access

Economic crisis
- the need for cost containment and efficiency in health care system
- increase burden of public health sector

Economic recovery
- Universal coverage policy → rights to access, resource constraints
- Strong civil society → evidence based policy decision, transparent
Early experience of Thai UC scheme

- ‘30 Baht-Cure-all-disease-scheme” - promise of treating all diseases!!!
- Negative list approach, saying no to ARV, renal dialysis, organ transplantation etc.
- Under-utilization of essential health services
  - Incentive to contain health care cost due to prepaid capitation for ambulatory care and case-mix for inpatient services
- Social pressure to improve essential health service utilization
Early experience of (not using HTA for) benefit package development

- Sub-committee of development of benefit package and service delivery (chaired by senior decision makers of MOPH and included professional and patient representatives)
  - Too many interventions being considered with various quality of supporting evidence
  - No systematic process—*those who 'shout the loudest' get the most out of the system*
Using HTA to inform coverage decision

- Renal dialysis

[Images of dialysis machines and patients]
Neither HD nor PD is cost-effective in Thailand (5-6 times of per capita GDP)

PD-first policy seems to be more efficient than HD especially in societal and patient’s viewpoint

The NHSO decided to introduce “PD-first policy”
Factors influencing decision making about health technology adoption determined by Thai decision makers in 2007 survey (N=450)

Knowledge of selected technical terms used in HTA among Thai decision makers in 2007 survey (N=450)

- ICER
- Sensitivity analysis
- Discounting
- QALY
- CMA
- Marginal cost
- CUA
- CBA
- CEA
- Indirect cost
- Direct cost
- Unit cost

never heard | ever heard | known (understood) | able to use

Health Intervention and Technology Assessment Program (HITAP): A semi-autonomous, non-profit research institute established in 2007

<table>
<thead>
<tr>
<th>Program (HITAP)</th>
<th>Foundation (HITAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• An associate organisation with the Bureau of Health Policy and Strategy, MoPH</td>
<td>• Autonomous Health Intervention and Technology Assessment Foundation</td>
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</tbody>
</table>
Developing a more systematic approach

- The UC benefit package development
- The development of the National List of Essential Medicines (NLEM): the Health Economic working group
Economic evaluation of providing adult diapers

Feasibility and effectiveness of reflective error screening by teachers for children aged 3-6 years
# Using economic evaluation for the UC benefit package development

<table>
<thead>
<tr>
<th>Health Interventions</th>
<th>Comparators</th>
<th>Baht/QALY (2009)</th>
<th>Coverage decisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZT+3TC+LPV/r for PMTCT</td>
<td>AZT plus single dose NVP</td>
<td>cost-saving</td>
<td>Yes</td>
</tr>
<tr>
<td>Provider-initiated HIV testing</td>
<td>Voluntary HIV counseling-testing</td>
<td>70,000</td>
<td>Yes</td>
</tr>
<tr>
<td>Statin in pop ( \geq 30% ) CVD risk</td>
<td>Exercise &amp; diet control</td>
<td>82,000</td>
<td>Yes</td>
</tr>
<tr>
<td>Bone marrow transplantation for thalasemia</td>
<td>Blood transfusion</td>
<td>120,000</td>
<td>Yes</td>
</tr>
<tr>
<td>Pioglitazone for diabetes</td>
<td>Rosiglitazone</td>
<td>211,000</td>
<td>No</td>
</tr>
<tr>
<td>HPV vaccine for girls aged 15 years</td>
<td>Pap smear q 5 years aged 35-60</td>
<td>247,000</td>
<td>No</td>
</tr>
<tr>
<td>Alendronate or Risedronate for osteoporosis</td>
<td>Calcium + vitamin D</td>
<td>2-400,000</td>
<td>No</td>
</tr>
<tr>
<td>Cochlear implantation for profoundly deaf</td>
<td>Training hand language</td>
<td>400,000</td>
<td>No</td>
</tr>
<tr>
<td>Fordable lens for cataract</td>
<td>Rigid intraocular lens</td>
<td>507,000</td>
<td>No</td>
</tr>
<tr>
<td>Atorvastatin in pop ( \geq 30% ) CVD risk</td>
<td>Exercise &amp; diet control</td>
<td>600,000</td>
<td>No</td>
</tr>
<tr>
<td>Peritoneal dialysis for ESRD</td>
<td>Palliative care</td>
<td>435,000</td>
<td>Yes</td>
</tr>
<tr>
<td>Hemodialysis for ESRD</td>
<td>Palliative care</td>
<td>449,000</td>
<td>Yes</td>
</tr>
<tr>
<td>Erythropoietin for anemia in cancer</td>
<td>Blood transfusion</td>
<td>2,700,000</td>
<td>No</td>
</tr>
</tbody>
</table>
The development of the National List of Essential Medicines (NLEM), 2010-2012 term
## Using economic evaluation for drug reimbursement list in Thailand

<table>
<thead>
<tr>
<th>Drugs under consideration</th>
<th>ICER (Baht/QALY)</th>
<th>Coverage decisions</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pegylate interferon alpha 2b plus ribavirin for treatment of chronic hepatitis C subtype 2, 3</td>
<td>cost-saving</td>
<td>Yes</td>
<td>2011</td>
</tr>
<tr>
<td>Pegylate interferon alpha 2a plus ribavirin for treatment of chronic hepatitis C subtype 2, 3</td>
<td>cost-saving</td>
<td>Yes</td>
<td>2011</td>
</tr>
<tr>
<td>Lamivudine or tenofovir for treatment of chronic hepatitis B</td>
<td>cost-saving</td>
<td>Yes</td>
<td>2011</td>
</tr>
<tr>
<td>Simvastatin for primary prevention of cardiovascular disease</td>
<td>82,000</td>
<td>Yes</td>
<td>2011</td>
</tr>
<tr>
<td>Nilotinib for the second-line treatment of chronic myeloid leukemia</td>
<td>86,000</td>
<td>Yes</td>
<td>2012</td>
</tr>
<tr>
<td>Oxaliplatin (FOLFOX) for treatment of advance colorectal cancer</td>
<td>126,000</td>
<td>Yes</td>
<td>2012</td>
</tr>
<tr>
<td>Galantamine for treatment of mild-to-moderate Alzheimer's disease</td>
<td>157,000</td>
<td>No</td>
<td>2010</td>
</tr>
<tr>
<td>Donepezil, rivastigmine for treatment of mild-to-moderate Alzheimer's disease</td>
<td>180,000-240,000</td>
<td>No</td>
<td>2010</td>
</tr>
<tr>
<td>Osteoporosis drugs (alendronate, risedronate, raloxifene) for primary and secondary prevention of osteoporotic fractures</td>
<td>300,000-800,000</td>
<td>No</td>
<td>2009</td>
</tr>
<tr>
<td>Imiglucerase for treatment of Gaucher disease type 1</td>
<td>6,300,000</td>
<td>Yes</td>
<td>2012</td>
</tr>
<tr>
<td>Atorvastatin, fluvastatin, pravastatin for primary prevention of cardiovascular disease</td>
<td>negative dominant</td>
<td>No</td>
<td>2009</td>
</tr>
<tr>
<td>Recombinant human erythropoietin (rHuEPO) treatment in chemotherapy-induced anemia</td>
<td>negative dominant</td>
<td>No</td>
<td>2008</td>
</tr>
<tr>
<td>Adefovir, entecavir, telbivudine, pegylate interferon alpha 2a for treatment of chronic hepatitis B</td>
<td>negative dominant</td>
<td>No</td>
<td>2011</td>
</tr>
</tbody>
</table>
Not just about listing... Pricing negotiation & identifying alternatives

<table>
<thead>
<tr>
<th>Health technology</th>
<th>Original price (Baht)</th>
<th>Negotiated price (Baht)</th>
<th>Potential saving (per annual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenofovir</td>
<td>43</td>
<td>12</td>
<td>375 million</td>
</tr>
<tr>
<td>Peg-2a 180 mcg</td>
<td>9,241</td>
<td>3,150</td>
<td>600 million</td>
</tr>
<tr>
<td>Angiogenesis inhibitor (Ranibizumab)</td>
<td>40,000</td>
<td>1,000</td>
<td>1,600 million</td>
</tr>
<tr>
<td>Angiogenesis inhibitor (Bevacizumab)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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Threshold price at 1 per capita GDP/QALY (2007)
Threshold price at cost-saving (2011)
Discussions

- HTA has been employed for health benefit package development under the UC in Thailand
- Systematic and transparent way of setting priority on HTA topics are equal important to the assessment
- Local data is vital for HTA use, esp. for the benefit package development—the need for service model development as well as feasibility studies
- Future challenges: other social values, HTA for disinvestment