The Neonatal Screening Programme in Thailand

Wiyada CHAROENSIRIWIWATANA

B.Sc. (Chemistry), Chulalongkorn University, Thailand
M.Sc. (Pharmaceutical Analysis and Quality Control), London University, England
Certificate in Senior Executive Management, London Business School, England
Certificate in Advance Management Program, Harvard Business School, USA.
1. Cretinism and Neonatal Screening in Thailand
2. Researches and Innovations in the Neonatal Screening Programme

2.1 The Congenital Hypothyroidism:
- TSH Neonate Heel-prick Blood spots by DMSc Monoclonal Antibodies ELISA kit

2.2 The Phenylketonuria:
- PKU Neonate Heel-prick Blood spots by DMSc Microbiological Bacterial Inhibition assay
2.3. The Establishment of **Pilot Model** for National Neonatal Screening Programme in Thailand

2.4. The Establishment of Website **“Neoscreen.go.th”** and Programme **“NNSPLimsPlus”** to Online Report the Results of Neonate TSH and PKU Screening in National Neonatal Screening Programme

2.5 The Application of **GIS in TSH Neonatal Screening** for Monitoring Iodine Deficiency Areas in Thailand
2.6 The Medical Science for Communities Project: Enriched Iodine Eggs and Iodine Vegetables in Food Chains to Solve the Iodine Deficiency Endemic for Remote areas in Thailand
3. Impacts on the Public Health System in Thailand and International Credibility

3.1 The Neonatal Screening Technology Transfer to the Provinces and District Hospitals in Thailand: 1,248 Health Service units (Government and Private)

3.2 The Numbers of Neonate TSH and PKU Screening and Economic Benefits in the Years 1996 - 2014

<table>
<thead>
<tr>
<th>Years</th>
<th>Neonates Screening</th>
<th>Neonates CHT</th>
<th>Neonates PKU</th>
<th>Economic Benefit (million Baht)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996 to 2014</td>
<td>11,314,423</td>
<td>6,256</td>
<td>62</td>
<td>52,439</td>
</tr>
</tbody>
</table>

Cost Benefit Ratio (CHT&PKU) = 1 : 8.3 million Baht
3.3 Privilege set for All Neonates in Thailand’s Universal Health Care from The National Health Security Office

<table>
<thead>
<tr>
<th>Years</th>
<th>Neonate Screening</th>
<th>Income from NHSO (Baht)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005 - 2014</td>
<td>7,589,192</td>
<td>939,541,969</td>
</tr>
</tbody>
</table>

3.4 UN-International Atomic Energy Agency (IAEA) supported the Neonatal Screening Pilot Project, Expert Missions, Training fellowships in Years 1990 to 1998
3.5 UN-IAEA Award 2001: The Best Achievement Pilot Model for Developing Countries

3.6 UN-IAEA Invited Expert in Years 2002 to 2008

4. Challenges in Neonatal Screening Programme in the Future

4.1 Thailand Digital Economics 4.0

4.2 The Smartphone TSH Immunoassay for the Point-of-Care in Newborn Thyroid Screening
นักวิทยาศาสตร์การแพทย์ยิ่งคืบหน้า:
ผู้ริเริ่มการตรวจคัดกรองสุขภาพทารกแรกเกิดตั้งแต่แต่เดิม
และจัดตั้งระบบการตรวจทางห้องปฏิบัติการ TSH, PKU
d้วยการพัฒนาเทคโนโลยีขั้นสูงในประเทศ

"เพิ่มไอโอดีน.....เพิ่ม IQ....ลดตายั้งยิ่ง....เดินไอโอดีนทุกกัน..."