Newborn Screening Programs and Activities in Egypt

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National Newborn Screening Program for Congenital Hypothyroidism

Start: April 2000  Total Coverage: December 2003

Methods and Techniques

Screening
- ELISA for TSH measurement from a Prick heel capillary sample

Confirmation
- Chemiluminescence for human TSH and FT4 measurement

Multidisciplinary Approach for Services Delivery

MOH&P
- 3200 PHC facilities
- Outreach Program

HIO
- 15 central regional labs
- Technical processing

BO
- 25 central and follow-up of cases

Challenges
- Quality assurance
- Coverage
- Information Network
- Sustainability

No. of babies confirmed and recalled for confirmatory testing:
- 812
- 631
- 3498

Congenital Hypothyroidism Screening Program

Important Numbers, Rates and Cost

No. of babies screened since screening began:
- 4,778,549

No. of babies recalled for confirmatory testing:
- 812

No. of babies confirmed and confirmatory testing:
- 631

No. of confirmed cases:
- 3498

Recall Rate:
- 0.17%

Expected:
- >200 affected newborns/year

Study:
- Magnitude of the problem

Challenge:
- Providing special milk formula and diet

Study:
- Cost effectiveness

Expected:
- >200 affected newborns/year

Cost of medical case/year:
- 3 $0.4 $1.4 $2.5 million

Cost of medical case/year:
- 34.6

Overall:
- Cost of screening per case:
- Cost of specimen processing:
- Cost of medical case/year:
- Cost of follow-up case/year:
- 2.5 million
- 1.4 $0.4 $3 $40.5

Difficulties and Limitations

1. Financial
2. System:
   - Multiplicity of vertical programs at PHC level
   - Screening in the NCU
   - Private sector
3. HIS:
   - Registration system
   - Network
4. Culture:
   - Community awareness
   - Cultural beliefs
5. Geographical:
   - Remote and slum areas
6. Dissemination:
   - Program promotion

Most effective single intervention:
- Expanding the system of health reform to provide complete services coverage for all neonates.

Other conditions that we intend to screen:

1. PKU:
   - Expected: >200 affected newborns/year
   - Study: Magnitude of the problem
   - Study: Cost effectiveness
   - Challenge: Providing special milk formula and diet
2. Birth Defects:
   - Pilot study on screening for birth defects among newborns in East Alexandria
   - Neonates: 19,530
   - Service providers: PHC nurses, physicians, consultants
   - Follow-up: Genetic counseling clinics
   - Limitations:
     - Cost of intervention
     - Lack of reliable registration
     - Service providers
   - Screening for genital anomalies among newborns in 3 governorates.
3. Screening for hearing loss in the neonates:
- Technique: Evoked otoacoustic emissions
- Diagnosis: Complete audiological evaluation
- Limitation: High drop-out rate for referrals

4. Screening for all types of disabilities:
- Target group: Newborns & children below 6 years
- Aim: Validate an Egyptian tool for early identification of disabilities

5. Screening for β-Thalassemia carriers among secondary school students.