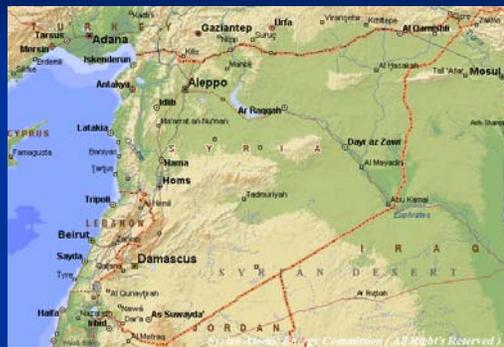


**Strengthening Newborn Screening in  
North Africa and the Middle East  
Marrakech, Morocco,  
13-15 November 2006**

Country Report  
Syrian Arab Republic  
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**Syrian Arab Republic**



**Demographic and economic data**

- Location: Arab World (Middle East)
- Country Surface: 185.200 km<sup>2</sup>
- Population: 18.600.000 (2005)
- Population Density: 100.4 / km<sup>2</sup>
- Capital: Damascus,  
Population: 3-5 million (official estimate 2003)

**Demographic and economic data**

- < 18 years = 48 %
- > 60 years = 4.7 %
- Crude Death rate: 5/1000
- Birth rate: 28/1000
- Infant mortality rate (death/1000 live births): 25
- Total fertility rate (children born/woman): 3.5

**Demographic and economic data**

- Life expectancy: Male: 68.7  
Female: 72.3
- GDP: 12.5 billion USD
- Total health exp. as % of GDP: 2.5 %
- Total health exp. / capita 65 USD
- Organisation of the health system:  
33.6 % Public  
66.4 % Private

**Demographic and economic data**

- Human resources:
  - \* 23784 physician
  - \* 12228 dentists
  - \* 27913 nurses
  - \* 5081 midwives
  - \* 13339 technicians

## Demographic and economic data

- Total No. of beds:
  - \* 12418 in Public hospitals
  - \* 6003 in Private hospitals
  - \* Average person/bed = 848

## Demographic and economic data

- Consanguinity rate: 20-50 (32 %)
- First – cousin marriages: 60 %

The trend of Consanguinity in Syria is declining  
Now .. (Health awareness)

## The only new born Screening Programme in Syria is:

### “The Neonatal Screening for Congenital Hypothyroidism”

- This programme was organised to cover the major cities in the country: (Damascus, and surrounding areas, Tartous, Lattakia) through regional IAEA project.

- All Blood Specimens taken from various medical centers and hospitals were analyzed at the central Lab at SAEC (Damascus)
- Most of the reagents used in the tests (TSH, T4) were prepared locally (SAES) with the support of the IAEA.
- 67280 newborn babies (age 4 days) were screened in this project between the years 1995-2003

- 33 cases were confirmed to have hypothyroidism (1:2000)
- The SAEC is now discussing with the health ministry the possibility to transfer this program to the health ministry to be conducted at national level as a permanent program.
- The technologies used for newborn screening in Syria were RIA, IRMA.

- The existing barriers in developing or improving newborn screening program in Syria:
  - Enough financial resources
  - Equipment to establish a central Lab at major cities level
  - Reagents (preferably locally produced reagents)

## The genetic diseases are most prevalent in Syria

1. Congenital malformations
2. Chromosomal disorders:  
mainly DOWN Syndrome

18-25	Years	1:150
25-35	Years	1:650
35-40	Years	1:300
40-45	Years	1:150
> 45	Years	1:50

- ☞ Thalassemia: 6 % carriers  
7000 cases
- ☞ Sickle cell anemia: 6 % carriers  
2000 cases
- ☞ G6PD: 20 000 cases  
confirmed in central clinic
- ☞ Congenital hypothyroids: 1: 2000

- ☞ Phenylketonuria: 73 cases under follow-up in one main center in the last 5 years
- ☞ Cystic fibrosis: 44 cases under follow-up in one main center in the last 5 years  
another 20 cases are currently under diagnosis

## The conditions we would like to screen for

1. Thalassemia
2. Sickle cell anemia
3. G6PD
4. Congenital hypothyroidism
5. Phenylketonuria
6. Cystic fibrosis

## Follow-up the genetic conditions after they are identified

1. The best possible patient treatment
2. Follow – up
3. Genetic counseling for parents

## There is no birth defects registry in Syria

Currently there is no proper research projects  
related to newborn screening in Syria ...

(some individual studies)

