Birth Defects Team

Michigan Birth Defects Registry (MBDR) - Vital Records and Health Data Development Section

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Birth Defects Epi
MCH Epidemiologist
"Birth defect, congenital malformation, and congenital anomaly are synonymous terms used to describe structural, behavioral, functional, and metabolic disorders present at birth."

*Langman's Medical Embryology, ed. 9*

“...an abnormality of the body's structure or inherent function present at birth, whether the abnormality is detected at the time of delivery or becomes apparent at a later date."

*MBDR Reporting Manual*
Genomics of Birth Defects

Chronic disease
metabolic / endocrine

Birth Defects

Infectious disease
syphilis / cytomegalovirus

Genetic factors
inherited / new changes

Other exposures
alcohol / toxic substances
Birth Defects Reporting

Supplemental Sources:
- NBS
- EHDI
- CSHCS
- FIMR
- Pediatric Genetic Clinics

Hospital/Lab Report
ICD-9-CM

Birth Record
Death Record

Birth Defect Case
Chondrodystrophy – 756.4

- 1/15,000 - 1/40,000
- Disproportionate short stature, symmetrical
- Autosomal dominant, often new mutation

Achondroplasia

Medical Genetics, 2nd Edition. Downloaded October 22, 2007 from the worldwide web.

MBDR has 152 cases, 1992-2003, for a birth prevalence rate of ~1/10,000.

- 1/100,000
- Multiple enchondromas near growth plates, assymetrical
- Usually sporadic

Ollier disease

Universiteit Leiden, Medical Research Center
Downloaded October 22, 2007 from the worldwide web.
1 in 33 babies is born with a birth defect

About 10,000 Michigan children are born with birth defects each year per MBDR reporting

Orofacial Clefts (2%) – 1/600

NTDs (.7%) – 1/2000
## Birth Defects Reporting - 2003

<table>
<thead>
<tr>
<th>NTDs</th>
<th>Prenatal Cases (*)</th>
<th>Postnatal MBDR</th>
<th>Postnatal MBDR+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anencephaly</td>
<td>10 (5)</td>
<td>18, <strong>1.4</strong></td>
<td>23, <strong>1.8</strong></td>
</tr>
<tr>
<td>Spina Bifida</td>
<td>10 (3)</td>
<td>48, <strong>3.7</strong></td>
<td>51, <strong>3.9</strong></td>
</tr>
<tr>
<td>Encephalocele</td>
<td>5 (4)</td>
<td>13, <strong>1.0</strong></td>
<td>17, <strong>1.3</strong></td>
</tr>
</tbody>
</table>

### Chromosomal Disorders

<table>
<thead>
<tr>
<th>NTDs</th>
<th>Prenatal Cases (*)</th>
<th>Postnatal MBDR</th>
<th>Postnatal MBDR+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trisomy 21</td>
<td>25 (18)</td>
<td>143, <strong>11.0</strong></td>
<td>161, <strong>12.4</strong></td>
</tr>
<tr>
<td>Trisomies 13/18</td>
<td>31 (22)</td>
<td>41, <strong>3.2</strong></td>
<td>63, <strong>4.9</strong></td>
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<tr>
<td>Other</td>
<td>31 (14)</td>
<td>115, <strong>8.9</strong></td>
<td>129, <strong>10.0</strong></td>
</tr>
</tbody>
</table>

* no. known miscarried/stillborn/VToP for 7 MI facilities
Key Prevention Activities

Promote healthy behaviors for women before and during pregnancy
- January is Birth Defects Prevention Month
- Also Folic Acid Awareness Week

Collaborate to develop and deliver primary prevention messages and strategies
- Listserv: DCH-BDPM@LISTSERV.MICHIGAN.GOV
- Multi-vitamin distribution to low income women in high risk regions: expanded to 40 counties in 2007
- Family history initiative for second degree relatives of children with NTD
Folic Acid Outreach and Multivitamin Distribution in Selected Michigan Counties

To distribute 30,000 bottles of free multivitamins to low-income women of childbearing age

To instill a healthy habit that will continue after project completion

To reinforce the critical role of the health professional in the delivery of prevention messages

Funded 2005-2007 by March of Dimes Community Awards Grant
Community-based programs may be most effective in reaching these at-risk women with low awareness.

These women may have limited access to information through computers, pamphlets or other specific forms of media.
Michigan Plan

- Target outreach
- Educate women
- Provide free vitamins
- Monitor distribution
- Follow-up on use

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
<th>Rate</th>
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<tbody>
<tr>
<td>State</td>
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<tr>
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<tr>
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<td>10</td>
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<td>5.5</td>
</tr>
</tbody>
</table>

NTDs in Michigan
Number and rate per 10,000 live births, MBDR 1992-2003
1. MBDR to find index NTD cases (23)

2. Contact index families (7) to identify eligible relatives (22)

3. Survey female relatives (4)

4. Folic acid outreach – information mailed to female relatives (3)

5. Follow up survey of female relatives

*Can we use family history to target folic acid outreach?*
Not everything that can be counted counts, and not everything that counts can be counted.

Albert Einstein