

MCH Epidemiology: a new perspective

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“Share and Learn” – Life course perspective
October 25, 2007
Michigan





The MCH roller coaster design

1. Determine the **height of the first hill**: An electric motor will pull the coaster to the top of the first hill. After the coaster has been pulled to the top, no more external energy will be added to it = **Get into the School of Public Health/Epidemiology program**
2. Select the **shape of the first hill**: This will determine how fast the coaster can safely travel on the track and if the coaster will stay on the track = **Seriously learn epidemiology or change your mind**
3. Select the **exit path**: The path out of a hill needs to be designed so that the coaster maintains the thrill of the ride and yet provides a safe transition to the next stage of the ride = **Graduate and have your first job, a path that your predecessors paved for you**

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“Traditional” MCH Epidemiology

- ◆ The various tasks and functions of MCH Epidemiologists have been widely debated without clear resolution.
- ◆ Questions have been raised as to whether MCH epidemiologists are in fact more akin to health service researchers or biostatisticians than traditional epidemiologists.
- ◆ “Leaving the matter of having a precise job definition and a specific set of competencies open for ongoing debate may be an advantage for the present, as it will allow for **innovation and flexibility** in developing MCH Epidemiology training content that will be responsive to the **emerging and changing needs of the MCH field.**”

Greg R. Alexander, MPH, ScD, Michael D. Kogan, PhD, [The Expanding Role of MCH Epidemiologists: Evolving Job Description, Tasks and Skill Areas, and Sources of Training Support](#); Editorial, *Maternal and Child Health Journal*, Vol. 9, No. 2, June 2005

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Adding new features to the MCH roller coaster

4. Add the **second hill** and select its **height**: The second hill should help to maintain the thrill. Remember that you want to keep the feeling of speed and "weightlessness" at the highest level you can = **Apply your gained knowledge and continued to learn in the same time**

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Changes in the landscape

1. Integration of genomics into public health
2. Different population characteristics
3. More information/data collected

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Integration of genomics into public health

- ◆ Completion of human genome project in 2003: set the stage for an accelerating pace of discovery of thousands of genetic variants
- ◆ Increased understanding that most human diseases result from interaction between inherited genetic variations and numerous environmental factors (e.g., diet, infections, lifestyle, chemicals and social factors).
- ◆ Ultimate goal of genetic services: reduce mortality and morbidity; alleviate suffering associated with conditions having a genetic component in individuals, families, and populations at risk.

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“Genomics and Population Health: United States 2003”, Office of Genomics and Disease Prevention, Centers for Disease Control and Prevention



Different population characteristics

- ◆ Nearly two-thirds of all babies born in the United States are screened for more than 20 life-threatening disorders*
Use of tandem mass spectrometry (MS/MS): more health conditions that require long term care are identified
- ◆ The prevalence of overweight among children aged 6 to 11 more than doubled in the past 20 years (7% in 1980, 18.8% in 2004).
The rate among adolescents aged 12 to 19 more than tripled (5%, 17.1%). High likelihood of another generation of overweight adults who may be at risk for subsequent overweight and obesity related health conditions. **

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* March of Dimes, 2006 report card; ** Results from the 1999-2002 National Health and Nutrition Examination Survey (NHANES)



Different population characteristics (cont.)

- ◆ More mothers over 35/40 years of age
- ◆ Maternal morbidity: a serious public health problem affecting nearly 1.7 million women annually. It can have an impact on fetal and infant health and can lead to maternal death**
- ◆ Among most prevalent: Pregnancy induced hypertension
 - More likely to occur in women with pre-existing hypertension;
 - Subsequent risks: preterm births, morbidities, disabilities, need for long term special health care;

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** Isabella Danel, MD, MS, Cynthia Berg, MD, MPH, Christopher H. Johnson, MS, Hani Atrash, MD; Magnitude of Maternal Morbidity During Labor and Delivery, United States, 1993-1997, American Journal of Public Health, 2003



Information/data collected

- ◆ Strengthen our capability and ability to access and cope with the ever-increasing amount
- ◆ Analyze all available information in a reliable way
- ◆ Increase the critical evaluation of studies and advances in statistical/epidemiological methodologies

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5. Add a **loop**: Adding a loop to the coaster adds the thrill of inversion to the other elements of speed and the pull of gravity. Loops and/or rolling loops are considered a "necessity" for any steel coaster and you want at least one of them = **Be aware of any changes, be flexible, be ready**

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Future challenges/ Next steps

- ◆ Develop better understanding of women/mothers' health beyond pregnancies
- ◆ Develop new data collection (i.e. disease specific registries/surveillance ?)
- ◆ Continue to explore the impact of chronic diseases debut in childhood
- ◆ Define and strengthen the collaborative efforts between MCH and Chronic disease epidemiology
- ◆ Explore the life course approach in epidemiology

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MCH Epidemiology Section

- ◆ Section Manager: Vacant
Acting: Violanda Grigorescu, State MCH Epidemiologist,
Division Director
- ◆ Cassandre Larrieux, MCH epidemiologist
Women Infant Children (WIC) Nutrition
- ◆ Michael Paustian, MCH epidemiologist
Oral health/CSHCS
- ◆ Steve Korzeniewski, MCH epidemiologist
Newborn Screening
- ◆ PRAMS coordinator/ MCH epidemiologist: Vacant
Acting roles shared between Violanda and Cassie
- ◆ MCH epidemiologist, EHDI/BD: Vacant

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MCH Epidemiology Section Presentations

- ◆ WIC
 - ◆ PRAMS
 - ◆ CSHCS
- } On the agenda

Not on the agenda:

- ◆ Oral health: Michael attending an oral health meeting
- ◆ EHDI/BD: Vacant position

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Oral health

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Building Oral Health Surveillance

- ◆ Logic model developed, 2003-2004
- ◆ Evaluation of the Michigan Oral Health Data (MOD), 2003-2004
- ◆ Burden of Disease Document, 2004-2005
- ◆ Count Your Smiles, 2005-06
 - Statewide sample of 1,586 third grade children from 79 schools
 - Survey and Screening

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Building Oral Health Surveillance (cont.)

- ◆ Annual licensing surveys for dentists and hygienists beginning in 2006
- ◆ Addition of questions to BRFS, PRAMS, YTS
- ◆ Burden of Oral Disease annual surveillance reports beginning in 2005
- ◆ Recognized as Best Practice approach by the Association of State and Territorial Dental Directors (ASTDD), 2007

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Oral Health Presentations

- ◆ 2007: Regional inequality in the distribution of dental caries among Michigan third grade children
 - Use of a Lorenz curve and associated measures of inequality to assess feasibility of targeting interventions
- ◆ 2006: Oral health in Michigan third grade children: multiple approaches to assess disparities
 - Variability in results based upon regression techniques used
- ◆ 2005: Early Medicaid Dental Utilization in a Michigan Birth Cohort
 - Factors predicting use of early preventive or emergency dental care in Medicaid participants

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EHDI/BD

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Epidemiological support

- ◆ EHDI evaluation: EIS officer
- ◆ BDR evaluation: CSTE fellow
- ◆ BD annual report
- ◆ EHDI newsletter
- ◆ Epidemiological studies, presentations and posters at the local and national meetings

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More epidemiologists needed

Need for more evaluation and epidemiological approaches/studies. To name a few:

- ◆ Infant Mortality and FIMR
- ◆ Maternal Mortality
- ◆ Women's health and maternal morbidity
- ◆ Family planning
- ◆ MIHP new program

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Transition to a new “roller coaster” design (?)

- ◆ Do we need to add new features (collaboration, data and epidemiological methods, etc.) to our “roller coaster” to address the landscape changes?
- ◆ Are we ready to ride a new “roller coaster”?

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Life course epidemiology



PAULINE GEORGE STITT

Dr. Pauline Stitt's vision:

"All of the population, everybody of every age, were all at one time children and they bring into their maturity and old age the strengths and scars of an entire lifetime"

"All of tomorrow's productive, mature citizens are located today someplace along the MCH continuum and they are at some point in their creation, either being conceived or born or nurtured for the years to come"

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Questions??????



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