**Infant Mental Health Rounds**

**Social Pediatrics - The History, The Future**

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**Declaration of Disclosure**

I have no actual or potential conflict of interest with this program.

I also assume responsibility for ensuring the scientific validity, objectivity, and completeness of the content of my presentation.

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**Learning Objectives**

1. Summarize over-representation of disadvantaged families in our disease management system.
2. Summarize child poverty data/ranking in international comparisons.
3. Indicate how social pediatrics is embedded in the SDOH and informed by new neuroscience of EB3D and Right to Health.
4. Reflect on the intersection of early child learning and care with health equity.

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**Recognition of Social Context**

Fundamental to pediatric care since inception...

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**Abraham Jacobi (1830-1919)**

**Father of Pediatrics**
1st Professor of Diseases of Children (Columbia)
1st President of American Pediatric Society, AMA section
Focal Point of all pediatric thought and teaching
- raw (unboiled) cow’s milk, hygiene, tenements, rickets
- did hundreds of tracheostomies for diphtheria

**Father of Pediatric Social Medicine**

“It is not enough to work at the individual bedside in the hospital... (influence) school boards, health department, legislature, advisor to judge and jury, seat in council.”
Father of Pathology was also the Father of Social Medicine ...

History of Social Medicine

Virchow (1821-1902)

Father of Pathology
- Cell theory (every cell originates from a like cell)
- First to recognize leukemia
- Node - Large left SC node early sign of GI malignancy
- Triad - Mechanism of pulmonary embolism

Father of Social Medicine
- As politician, worked to improve health of Berliners including water and sewage systems
- “Disease never purely biological, often socially derived”

Pediatric Training in the 1970’s...

Home visits
- with Pediatricians in the community
- as part of Home Care rotations
- aboriginal communities

QUESTION: Have any of you been Housing like this?

Homeless Children in Toronto

Anually > 3000 Toronto children in shelters
- homeless WCFV
- motel strip (commonly without kitchen...)

Impact...e.g. School
- Absent ++ prior to shelter
- Transfer of school records limited.
- Limited school support

... AND elevated cortisol and EB3D!

Decter, Kidbuilders Report, October, 2007

All medicine is inescapably social...

Leon Eisenberg, Urban Health, 1999

”need a community-side manner…”

Holtz, PLoS, 2006
And appreciation for difficulty of lives comes from lived experience...

But in 2005, 75% of U.S. medical students from the top two quintiles

http://www.aamc.org/data/alb/albissues/albvol8_not.pdf

Sickkids Pediatrician-in-Chief
Dr. Denis Daneman

Type I Diabetics with HbAIC > 10
Refractory to traditional and research interventions

Health outcomes intimately involved with reality:
- macro-environment societal, community, and institutional
- micro-environment intra and interpersonal

Other SickKids Specialists note:

Admissions to the ICU
Asthma
  - lack of recognition of early signs, supervision of meds,
    (both parents work, has variable care givers), $$$ for meds
Diabetic Ketoacidosis
  - not receiving insulin, mother deceased, dad working

Issues for our Kidney Specialists
- ability to get to clinic appointments (no TTC fare etc.)
- ability to pay for meds, monitoring e.g. urine dipsticks, BP, special diet (salt, protein)

Issues for our Advisory Neurologist
- delay to diagnosis
- access to medications often on LT anticonvulsants
- access to early intervention services
  - in theory, should be equal access regardless of SES
  - in practice, parents of higher SES get treatment faster

GETTING BACK TO CLINIC APPOINTMENTS IS BIG PROBLEM... no work, no pay

We are "hitting the wall in our treatment" of medical conditions
Summary for SickKids Patients

- Children, families from high poverty neighbourhoods constitute:
  - 56% of Admissions
  - 62% of Total Length of Stay
  - 63% of Total Weighted Cases
  - extra 1.6 day LOS (7.6 vs 6.0)
  - 63% of Total Weighted Cases
  - extra 0.5 case intensity (2.0 vs 1.5 Resource Intensity Weighting)
  - 52% of Clinic, Emergency and Day Treatment Visits
  - 56-64% of unplanned readmissions
  - 60% of missed clinic visits

From only ¼ of Toronto neighbourhoods, the high poverty ones..

Ted McNeill PhD

Medical Complications of Poverty

Birth Outcomes

- Infant mortality rate:
  - Toronto: 70% increased risk (1996-1998)
- Lowest income neighbourhoods: 7.3/1000
- Highest income neighbourhoods: 4.2/1000
- Low birth weight: 140% (7% vs 4.9%)

Asthma

- Overweight and obesity
  - NLS CY (1998-99) 25% 2-11 yr olds vs 16%
  - NLS CY (2000-01) 35% 5-17 yr olds vs 24%

Injuries

- Intentional and unintentional
  - 2.5 X risk of injury and 4.5 X risk of death due to injury

Gupta, Paed Child Health Oct. 2007

Children’s Mental Health

- Aggression: NLS CY age 4-11 40% vs 25%
- Emotional disorder-anxiety: 12% vs 7%
- High hyperactivity scores: 20% vs 12%

**Deep Poverty** (> 75% below median): highest rates of conduct disorders, hyperactivity and emotional disorders

Functional Health: low functional health 4-11 yr. 2.5 X risk; also extra financial pressures in special needs children exacerbate needs

Gupta, Paed Child Health Oct. 2007

Low Adult Life Trajectory

- poorest 1/5 vs richest 1/5 of Canadians have:
  - more than 2X the rate of diabetes and heart disease
  - nearly 2X the rate of arthritis or rheumatism
  - more than 3X the rate of bronchitis
  - 358% higher rate of disability
  - 128% more mental and behavioural disorders
  - 95% more ulcers

Poverty is Making Us Sick, Wellesley Institute, Dec. 2008
Facts about Newcomers and Child Poverty in Ontario

Overall, 1 in 3 Toronto children live in poverty (“down the mineshaft” – June Callwood)

Ontario white/Euro poverty ↓ 28%
but racialized poverty ↑ 361% (1980-2000).

Poverty rates for visible minority/immigrant/aboriginal 2X average rate in Canada.

Child poverty rate for newcomers is 39%

Recent ROOTS OF VIOLENCE REPORT
Roy McMurtry, Former Chief Justice of Ontario
Alvin Curling, December 2008

#1 Social Exclusion
#2 Racism
#3 Poverty

The 3rd Era of Medicine
– Represents an Epidemiological Transition

The First Era
(1750-1950)

- Focused on acute and infectious disease
- Infectious diseases
- High infant mortality rates
- Poor sanitation
- Poor housing
- Poor nutrition
- Diseases of overcrowding

The Second Era
(1950-present)

- Increasing focus on chronic disease
- Infectious diseases
- High infant mortality rates
- Poor sanitation
- Poor housing
- Poor nutrition
- Diseases of overcrowding

The Third Era
(NOW)

- Disorders of Bioenvironmental Interface
- Socioeconomic influences on health, including poverty
- Mental disorder
- Technological influences on health
- Overweight and obesity
- Increasing mental health concerns

Halfon and Pediatrics, 2005

Dr. D’s initiation of SickKids Social Pediatrics……

1. Medical student elective (2009-)
2. Expansion of opportunities for Residents

Defining Social Pediatrics...

Dr. Denis Daneman: “Care for disadvantaged”

Sweden (L Kohler): Conditions with social causes and social consequences require special consideration

“Seeing the patient from the other side.”

Policy for Health (vs Health Policy)
**ACTION** is a key element.

*Changing conditions* to elevate life trajectories of socially excluded.

John Snow not known for studies of cholera but for taking the handle off the Broad Street pump and ending epidemic cholera.

**Changing conditions** to elevate life trajectories of socially excluded.

**BY ACTING ON THE SOCIAL DETERMINANTS OF HEALTH**

**BECAUSE THEY DRIVE BRAIN DEVELOPMENT**

**BY THE EXPERIENCES THEY CREATE...**

**COHERENCE IS CRITICAL**

*Apply knowledge base, skill set...*** to elevate the Life Trajectory

*** informed by EB3D, SDOH, Right to Health

- in models context-sensitive
- to improve health outcomes
- with recognition of gradients, universality

Poverty and socio-economic inequality (urban, rural) including young mothers

"Apartment block kids" (where the population growth is)

Homeless, in shelters

Aboriginal/First Nations Refugees and immigrants

In protective care i.e. foster care, group home, youth

Those taking on a caring role for parents with health problems (psychiatric, alcohol) & Generational Poverty

Abuse (physical, mental, sexual, neglect)

Victims of violence (relatives, witnesses)

Incarcerated and children of the incarcerated

Sex trade workers, Transgendered

Gang-involved, drug using

Developmentally and/or physically delayed

New Neuroscience!

Experience-Based Brain and Biologic Development (EB3D)

"Neuroscience has caught up with Social Epidemiology"
The long reach of early childhood

**NOT NATURE VS NURTURE**

**BUT NATURE AND NURTURE!**

= epigenetics

Early environment powerfully influences gene expression

Skills and abilities are created...

- newborn brain cells not specialized
- require specific sensory input experiences to activate genes
  - cause neurons to form connections, pathways
  - pruning and sculpting occurs
  - “use it or lose it”
- Children in fearful environments: develop vigilance parts; reset setpoints of HPA axis
- Children in nurturing environments: develop more pathways, synapses, dendrites

Brain development is time sensitive

- Suture kittens eyes relatively briefly
  - Never see
- Suture adult cats eyes for same time
  - No problem

- Babies with cataracts require immediate removal in order to have visual stimuli to activate genes.

Sensitive periods in early human brain development

Graph developed by Council for Early Child Development (ref: Nash, 1997; Early Years Study, 1999; Shonkoff, 2001.)
Synaptic (Connection) Density - experience-based

Your neuroscience is for everyone...
1. Basic brain development, time sensitive
2. Set-points for how we react
3. Cortisol damages the brain
   - brain is environmentally sensitive organ like lung, others
   - nature + nurture/what epigenetics means

Skills and abilities are created...
- Children in nurturing environments
  - develop more pathways
  - develop more synapses
  - develop more dendrites
- Children in fearful environments
  - develop vigilance parts
  - reset setpoints of HPA axis
  - Good if you are living in the wilderness...!!

Teen Brain also under construction...

SUCCESS TO 24 YEARS (+ by 6 yr.)

Prefrontal Cortex - executive function
Anterior Cingulate Gyrus - attention
Amygdala and Hippocampus – fear/flight response

J. Clinton

ERIC LAMAZE
OLYMPIC GOLD 2008

Intrauterine/neonatal cocaine
Unknown father
Raised by alcoholic grandmother; Mother I/O jail
Teenage substance abuse
School D/O in Gr. 7

"It’s a long journey...you need great friends. Great people that believe in you. People that push you to come back, a 2nd or 3rd chance to the struggling"
ERIC LAMAZE
OLYMPIC GOLD
2008
Social Skills and Mentoring
Job training

“IT's a long journey…you need great friends. Great people that believe in you. People that push you to come back, a 2nd or 3rd chance to the struggling”

Social Determinants of Health

How to remember these...
“ITHELP5”
Income and food
Transportation
Housing
Education
Literacy
Legal needs
Personal safety
Support

Adapted from Zimmerman, Sept.
2007 Pediatrics; Newshack, Pediatrics, August, 2008

% poor health by #social risk factors i.e. low mater.
mental health, family conflict, unsafe neighbourhood

“ITHELP5”
Income and food
Transportation
Housing
Education
Literacy
Legal needs
Personal safety
Support

Adapted from Zimmerman, Sept.
2007 Pediatrics; Newshack, Pediatrics, August, 2008

“Right to Health”
and 20th Anniversary
of UNCRC signing Nov. 20, 2009
(a) Comment 14 – British Medical Association
(b) U.N. Convention on the Rights of the Child
24 Health
27 Standard of Living
28 Education
Canada reports every 5 years
(c) Special Rapporteur e.g. Guantanamo Bay
(d) Child-conscious decisions

Good response to
Civil Rights, Women’s
Rights, Gay Rights
(GLBT)...

“RIGHT TO HEALTH”


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THE LANCET

“Thinking about health as the
right of every citizen provides
a framework for protecting and
advancing the outcomes that
the Right seeks to achieve.”
"Child Friendly City is local system of good governance committed to fulfilling rights" (UNICEF)

- Influence decisions about their city
- Express their opinion on the city they want
- Participate in family, community and social life
- Receive basic services such as health care and education
- Drink safe water and have access to proper sanitation
- Be protected from exploitation, violence and abuse
- Walk safely in the streets on their own
- Meet friends and play
- Have green spaces for plants and animals
- Live in an unpolluted environment
- Participate in cultural and social events
- Be an equal citizen of their city with access to every service, regardless of ethnic origin, religion, income, gender or disability

The Child, Youth Life Trajectory

Social Paediatric and Advocacy Network

Strategies to improve life trajectories early, middle childhood, youth

We know that Canada is not doing well in international rankings of well-being
Child well-being (OECD) and social expenditure as % GDP 2001 Bradshaw 2006

POVERTY LARGELY BEATEN IN SENIORS

In 1970’s, 20% of seniors age ≥ 65 yr. in poverty

Guaranteed annual supplement to old-age-pension

By 2000 ↓ to 4%! (vs 25% in U.S.) “NORDIC SENIORS POLICY”

CHILD POVERTY IMPROVING IN QUEBEC

1998 23.8%
2005 9.6%

AND THE RESULT OF PROVIDING INCOME TO FAMILIES...

...REDUCED CONDUCT DISORDERS!

American Indian Pop
- income intervention of opening casino
- reduced child disruptive behaviour
- ↑ parental supervision of children
- ↑ parental engagement

↓ conduct/oppositional disorders by ↓ poverty

Heckman, Ann NY Acad Sci 2008; 1136:307
Costello, JAMA 2003; 290:2023
Per Capita Health Care Spending in Various Countries in 2006, According to the Country’s Relative Wealth

Education has not been the great equalizer.

What % of Ontario children are failing standardized Gr. 3 literacy testing? 
...roughly 47%

Failing Gr. 3 Literacy - what does this mean?
- Poor preschool/kindergarten readiness (EDI)
- Parents/support
- Early education and learning (EEL)
- High school completion
  - 20 (-50)% of local youth not completing
- Future Prison Cell needs...
  - U.S. Cities using Gr. 3 Literacy.

How to measure Kindergarten readiness
Early Development Instrument (EDI)
- Physical health and well-being
- Social knowledge and competence
- Emotional health/maturity
- Language and cognitive development
- Communication skills, general knowledge
### EDI Results - Vancouver Districts

<table>
<thead>
<tr>
<th>District</th>
<th>Income</th>
<th>EDI Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>% scoring in bottom 10%</td>
</tr>
<tr>
<td>1</td>
<td>12,000-24,000</td>
<td>34.5</td>
</tr>
<tr>
<td>2</td>
<td>24,000-37,000</td>
<td>27.5</td>
</tr>
<tr>
<td>3</td>
<td>37,000-49,000</td>
<td>21.5</td>
</tr>
<tr>
<td>4</td>
<td>49,000-62,000</td>
<td>15.0</td>
</tr>
<tr>
<td>5</td>
<td>62,000-74,000</td>
<td>8.5</td>
</tr>
</tbody>
</table>

### WORDS IN AND WORDS OUT BY SES

Some mothers live with so much pressure and stress they do not have the energy to talk to their children (Jody Heymann).

<table>
<thead>
<tr>
<th>SES</th>
<th>Words in (age 48 mo.)</th>
<th>Words out (age 36 mo.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>45</td>
<td>1100</td>
</tr>
<tr>
<td>Middle</td>
<td>26</td>
<td>700</td>
</tr>
<tr>
<td>Low</td>
<td>13</td>
<td>500</td>
</tr>
</tbody>
</table>

### DOCTORS MAKE A DIFFERENCE!

“Speak, Sing, Read/talk about pictures”

- at office visits
  - books to take home
  - community volunteers read in waiting room
  - learning
  - book reading at home
  - reading in early school yrs

Zuckerman Contemp Peds 19:51 2001

### Preschool Programs

Age 2-5 years
Includes
- play groups
- nursery school, child care centres, Head Start
- child development programs
Recognize good preschool is one of smartest investments governments can make (economists, neuroscientists, educators, developmental psychologists)
BUT need Quality, maximizing learning and development

### Why prisons instead of preschool?

“Early Education instead of Prison” (prison $80,000/yr.)
Chicago Longitudinal Study Perry School/Headstart
Low income students age 3-4 yr.; 12 hr. /wk.
Follow-up at age 24 yr.
- More high school grads (71% vs 64 % p=.01)
- More attend 4-yr. college
- More employed FT (43% vs 36% p=.04)
- Less serious crime (17% vs 21% p=.02), incarceration
- Less depression
- Emotionally nurturing environments
- produce more capable learners

Arch Pediatr Adol Med 2007; 161:809

### Readiness To Learn

- Senior Kindergarten Children Not Ready to Learn at School, by Health Planning Area, Toronto, 2004/05
SCHOOL IS NOT THE GREAT EQUALIZER FOR CHILDREN

- Unless there is
  - Quality preschool education and learning
  - Nutrition (breakfast, lunch)
  - Additional Social Skills, numeracy, literacy
    - Extended school day
    - Extended school year
  - Sports, arts, music, dance, drama

- WITH PARENTAL RESPECT AND INVOLVEMENT

PROVINCIAL INTERVENTIONS
ACROSS THE AGES AND STAGES

Early Learning Advisory Report (Pascal)
Roots of Violence (McMurtry Curling)
Our Youth Matter! (Lankin, McMurtry)
Middle Childhood Matters Coalition

Video Clip
– City Hall, Toronto October, 2007

Jim Dunn, PhD
CIHR Chair, Applied Public Health

Need new ways of seeing and acting
Need Coherence in our endeavours...

- follow IMP lead! (Neuroscience+++)
- elevate Child Life Trajectory
- pop'n based interventions
  - shift thinking upstream to SDOH
- it is about rights, not charity (Swedish Model)
- ”sectors without silos” approach

The rich developed societies have reached turning point in human history

Politics should now be about the quality of social relations and how we can develop harmonious and sustainable societies.
 NEW CONVERSATION ("A JOLT")

- return of academic medicine to historic roots
- improving health of public


Solutions lie outside of the individual's office.

but remember Kipling's Law of the Jungle
“...the strength of the pack is the wolf
.....the strength of the wolf is the pack..”