

Building Sustainable Healthy Communities

.... one house at a time

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Outline

- § What's wrong with our houses?
- § What's wrong with our health care system?
- § Intent of this paper – to find a sustainable answer
- § SCBA
- § Conclusions

The problem with our Houses

- § Damp environments generate mould
- § Mould is a significant contributor to asthma
- § Asthma debilitates quality of life
- § Asthma and the toxic effects of mould cost each member of the Canadian society

- § But it appears we don't know this!

§ 38% of Canadian homes are damp

§ Dampness causes mould

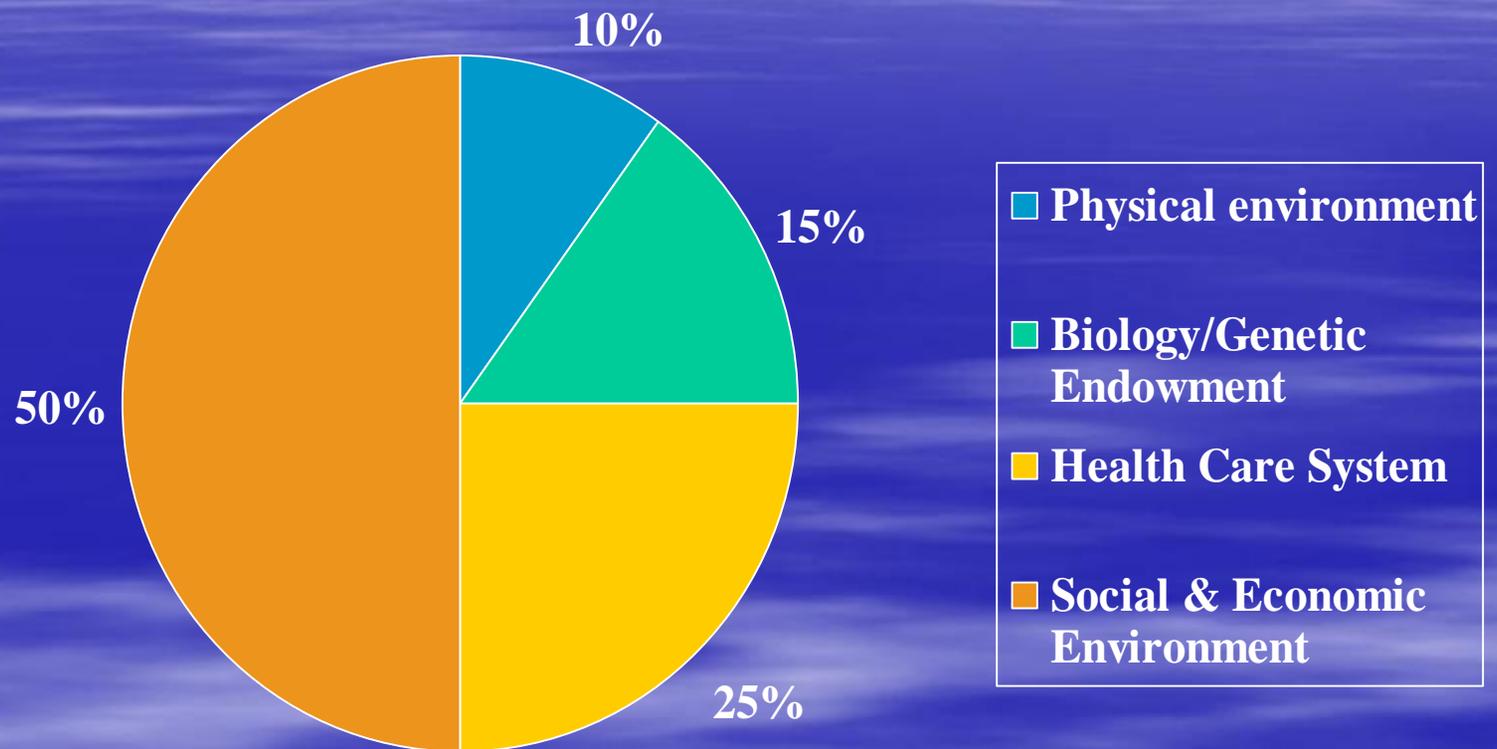
§ 35% of asthma cases are due to mould

§ An asthma attack will cause 1.4 ER visits and 2.5 bed nights a year at the hospital plus drugs to control

Objective of paper

- § **Conduct a comprehensive lit review**
- § **Review risks and opportunities for an economical solution to toxic home environments**
- § **Use of SCBA to develop a sustainable solution**
- § **Determine necessary innovations for future and ongoing success**

Estimated Impact of Determinants of Health on Health Status



Canadian Institute for Advanced Research, 1997

The problem with our Medical system

- § Doctors treat ill-health exclusive of the environment that may be causing it (thereby allowing mould affects to go unnoticed)
- § Ill-health from mould ingestion is a significant burden on the health care system but they are NOT tracking the impact

Environment matters

“The worst thing for a physician (clinician) to do is to help someone get well and then send them back into the situation that got them sick in the first place”.

Sir Michael Marmot (WHO)

Intent of this paper

§ Determine the real cost of not resolving indoor air quality issues in homes – specifically due to mould development in damp homes.

Health Solution Model

§ Repair homes with poor IAQ

§ Focus on health affected homes

- Ventilation

- Humidity control

- Remove visible moulds

- HEPA scrub the air

- Teach homeowners better IAQ

Health Solution Model - benefits

- § Financial benefit to Health Authority
- § IAQ enhanced housing stock
- § Public awareness drives change
- § Health system awareness drives change
- § A better world for our children

An illustration of the impact of the Social Determinants of Health

... “a rundown apartment can exacerbate a child’s asthma, which leads to a call for an ambulance, which generates a medical bill that cannot be paid, which ruins a credit record, which hikes the interest rate on an auto loan, which forces the purchase of an unreliable used car, which jeopardizes a mother’s punctuality at work, which limits her promotions and earning capacity, which confines her to poor housing...”

*David K. Shipler’s new book **The Working Poor: Invisible in America***

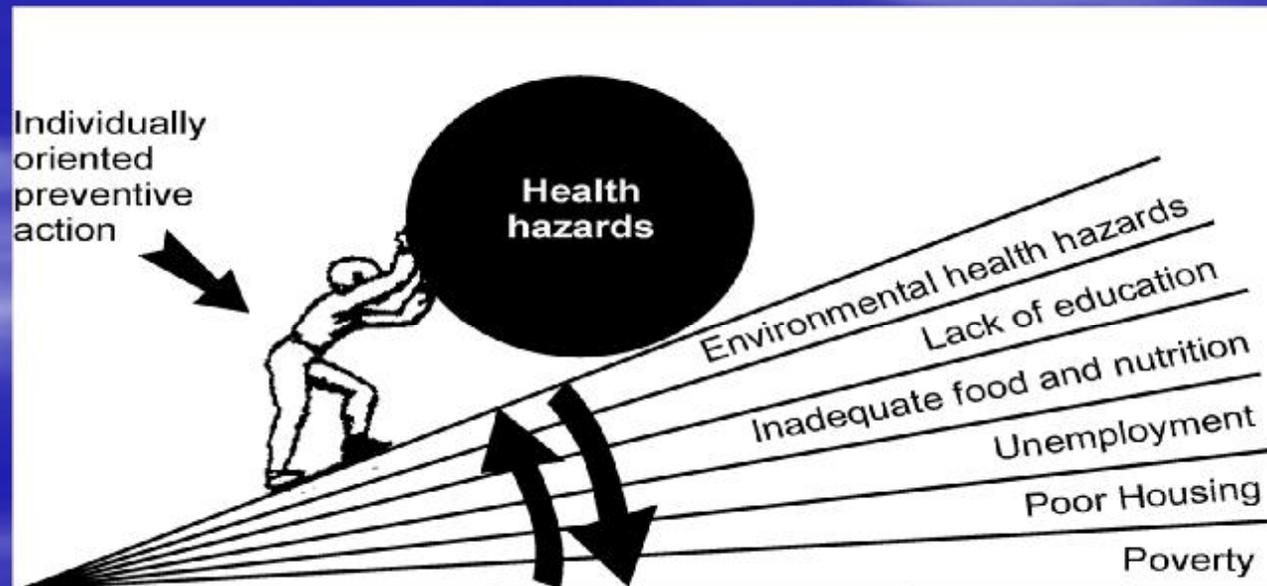
§ The impact of stress, lone parenting & isolation are not even mentioned ...

§ People need an impetus to change. Some just need help.

Income Distribution & Health

This relationship between income & health is:

- § complex – individuals, families, communities, and governments all play a role
- § a result of systems, or how our society is organized



Source: adapted from Making Partners: intersectoral action for health.

*As a doctor, I recognize that an **unequal society** is the biggest contributor to ill health. It's my obligation to make that known.'*

Dr. Stephen Bezruchka

University of Washington: School of Public Health

Home environments & Health

Strategies must be comprehensive and include systems level change. Ours include:

- § No \$\$ by affected tenants
- § Offset investment costs for Health region
- § Positive PR for health industry
- § Positive PR for municipality
- § Private sector participates in product delivery and becomes inclusive in solution

Government is here to help

- § Underwrites first initiatives
- § Supports the program with communications implementation

The key role of local government

“Many would be surprised to learn that the greatest contribution to the health of the nation over the past 150 years was made, not by doctors or hospitals, but by *local government*.”

Dr. Jessie Parfitt, in *The Health of a City: Oxford*
Public Health Physician

The facts (this is how we do it) ...

§ **Basic home Remediation: clean surfaces and the air, minor repairs and upgrades = \$3,500 one time cost**

§ **Compare to:**

§ **Yearly health affected cost of:**

- **Emergency room visits: 1 @ \$250**
- **Hospital stays: 2.5 days @ 1,000/day = \$ 2,500**
- **Drugs @ \$500 per year**
- **= \$ 3,250 * 35% from mould effects = \$ 1,137/ yr**
- **Based on an IRR of 10%, payback is less that 4 years**
- **PW savings after expenditure of \$ 6,180 for a 20 yr period per person**

American asthma facts

- § US population study for asthma had 1.97 mil ER visits
- § Based on CBA, with 35% of asthma due to mould, a burden of \$ 340 million a year from mould induced asthma
- § This would fund 97,000 home remediations a year!

Office and business impacts

- § Mould impacts on offices: \$ 50 bil a year due to lost productivity, sick days.
- § Cost to businesses \$100/ all employees/ year
- § Cost to upgrade office buildings provides up to a 40% rate of return on investment – less than three year payback.

Benefits to businesses:

- § Lower sick days
- § Lower employee turnover with higher happiness rating.
- § Lower insurance costs
- § Fantastic rate of return on capital expenditure!

LEED building benefits

§ even greater:

§ Benefit cost ratios in the 10 – 31 range based on 25 yr duration; 3% inflation; 6% discount rate.

§ Rates of return varied from 50% to 167% externally verified. (a 1 – 2 year payback)

Innovation

Systems, product and services innovation is a necessary part of the ongoing success of this strategic health initiative.

Innovations I can foresee

- § Municipal regulations to enforce construction of healthy homes and conduct proper maintenance
- § Development of IAQ betterment equipment and systems
- § Clean technology
- § Sharing technology across boundaries

Innovation – cont'd

- § Health care focus based on environment**
- § Health industry drilling down to determine cause of SBS based maladies**
- § Government standards for maximum chemical and biological levels in homes**
- § Smart systems to identify and repair poor IAQ before affects on health**

The wealth of evidence...

§ ...Positive personal externalities abound!

§ These include **healthier** lifestyles, better **physical health**, improved **recovery** from illness, fewer limitations in daily living; higher educational attainment, more social cohesion & engagement and improved quality of life.

Mental health, resiliency and inequalities

WHO Europe, Dr. Lynne Friedl 2009

Summary

§ A progressive SCBA model for sustainable health care and IAQ betterment in homes is shown to be effective not only financially but also from the perspective of societal betterment by way of a happy and healthy population

and a right sized health care system.