Knowledge exchange

A doctor’s point of view

Clinical practice to research

Pediatr Allergy Immunol 2004: 15: 72–78
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PEDIATRIC ALLERGY AND IMMUNOLOGY

Increasing prevalence of allergic rhinitis but not asthma among children in Hong Kong from 1995 to 2001 (Phase 3 International Study of Asthma and Allergies in Childhood)

Lee S-L, Wong W, Lau Y-L. Increasing prevalence of allergic rhinitis but not asthma among children in Hong Kong from 1995 to 2001 (Phase 3 International Study of Asthma and Allergies in Childhood). Pediatr Allergy Immunol 2004: 15: 72–78. ©2004 Blackwell Munksgaard

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Clinical and Experimental Allergy, **36**, 1138–1146

ORIGINAL PAPER

Association between air pollution and asthma admission among children in Hong Kong

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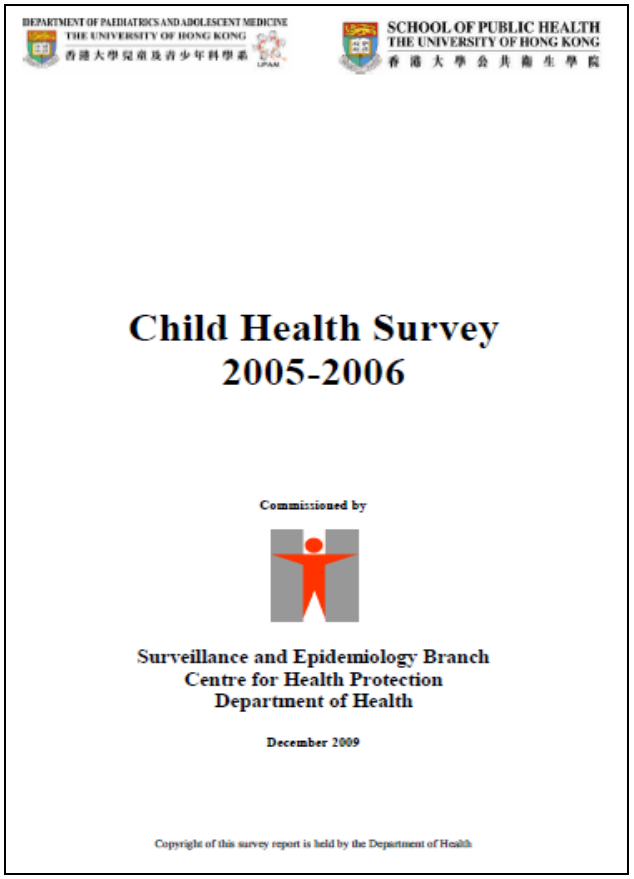
Sharing of important research information with the public

- We calculated the avoidable cost based on the study finding:

  "a reduction of ambient level of air pollutants including NO_2, PM_{10} and ozone by an average of around 50% of those recorded level during the 6-year study period could have avoided 570 hospital admissions for asthma in children each year (totaled 3400 admissions)"

Child Health Survey 2005-06



Top 5 most prevalent chronic health conditions were visual problems, allergic rhinitis, eczema, food allergy and asthma

Indicator	Female	Male	Overall
Prevalence of top five chronic health conditions			
• Visual problems	28.1%	26.6%	27.3%
• Allergic rhinitis	20.6%	28.3%	24.5%
• Eczema	12.7%	12.1%	12.4%
• Food allergy	4.6%	5.5%	5.1%
• Asthma	3.6%	4.5%	4.1%

KNOWLEDGE EXCHANGE CONFERENCE

香 港 大 學
THE UNIVERSITY OF HONG KONG

A series of books on important paediatric diseases for the public

- Top 5 acute health conditions in the 4 weeks preceding the survey were common cold/influenza-like illness, snoring, persistent cough, diarrhoea and vomiting

Indicator	Female	Male	Overall
Top five acute health conditions in the four weeks preceding the survey			
• Common cold / influenza-like illness	29.7%	29.5%	29.6%
• Snoring	4.1%	5.4%	4.8%
• Persistent cough (for more than 2 weeks)	2.2%	3.0%	2.6%
• Diarrhoea	2.1%	2.0%	2.0%
• Vomiting	2.1%	1.6%	1.9%

Eur J Pediatr (2011) 170:1317–1324
DOI 10.1007/s00431-011-1446-1

ORIGINAL PAPER

Is respiratory viral infection really an important trigger of asthma exacerbations in children?

So-lun Lee · Shui-seng Susan Chiu · Peiris Joseph S. Malik · Kwok-hung Chan · Hing-sang Wilfred Wong · Yu-lung Lau

- prospectively FU 114 children aged 6–14 years with chronic stable asthma and on regular inhaled steroid over 1 year in 2004
- respiratory viruses were detected in 61 of 166 episodes of respiratory illnesses (36.7%)
- no significant difference in virus detection rate between asthma exacerbations (32 /92, 34.8%) and non-asthma respiratory illnesses (29/79,39.2%)

Conclusions

- not all viral infections in children with asthma lead to an asthma exacerbation
- much lower virus detection rate than older reports
  - >80% of asthma exacerbations in children in a UK study in early 1990s (Johnston SL et al BMJ 1995)
  - ~60% in a Canadian study in early 2000 (Johnston NM et al JACI 2005)
- some other important local factors may account this observation?

1. Improved personal hygiene persisted shortly after the SARS period

- supporting evidences:
  - low average number of respiratory illnesses per person-year FU c.f. previous studies - 2.6 in current study vs. 3.1 in USA studies (Monto AS AM J Med 2002)
  - significantly lower respiratory virus circulation in the community in the immediate post-SARS period (Lo JY et al. Emerg Infect Dis. 2005)

2. Better control of asthma symptoms

- supporting evidence:
  - a Canadian study showed that those asthma children attending A/E for exacerbations with viruses isolated were less likely to be on regular inhaled steroid treatment (Johnston NM et al JACI 2005)

3. Environmental air pollution in HK

- supporting evidences
  - cumulating studies to show significant associations between ambient air pollution with hospital admissions for asthma and wheezy episodes (Giovannini M et al. 2010; Silverman RA et al. 2010; Mann JK et al. 2010)
  - our local study (Lee SL and Lau YL 2006)

4. Increasing exposure to second hand smoking

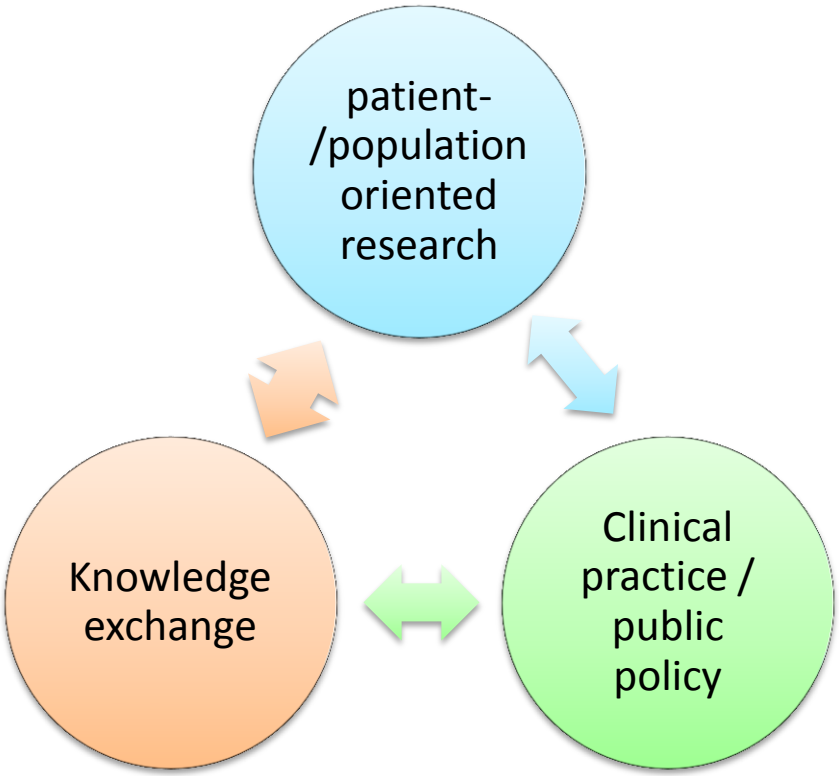
- Supporting evidences:
  - Unequivocal evidence that children with asthma experience more frequent and severe attacks on exposure to SHS and babies born to smoking mother had poorer lung function (U.S. Surgeon General Report 2006)
  - Around 30% of children in HK were exposed to SHS in household (Child Health survey 2005-2006)

- An alarmingly high, around 30% prevalence of maternal exposure during pregnancy was noted in the Child health survey even higher than 24% reported in a cross-sectional survey in the USA (Ahluwalia IB et al. Am J Epidemiol 1997)
- Will 3rd hand smoking had any effect on children with asthma?

- children of non-smoking mother that expose to SHS during pregnancy had significantly increased risk of wheeze ever (OR 2.05), current wheeze (OR 2.06)
- children of mother who smoked during pregnancy was significantly associated with asthma ever (OR 2.10), wheeze ever (OR 2.46) and current wheeze (OR 2.74)

Foetal exposure to maternal passive smoking is associated with childhood asthma, allergic rhinitis and eczema. Lee SL, Lam TH, Leung TH, Wong WH, Schooling M, Leung GM, Lau YL. World Scientific journal 2012 (in press)

Translate research to clinical practice /public health policy and knowledge exchange



Prevention of respiratory illnesses

- should reinforce public health education on precautionary measures especially on hand hygiene against various types of respiratory viruses

Improve standard of asthma management – clinical guidelines

Management of co-morbid conditions

- good evidences that better management of allergic rhinitis helped to decrease the no. and severity of asthma exacerbations

New book on childhood asthma

Choice of medication

Appropriate use of different types of inhalers

Allergens Avoidance

Impact on public health policy

Smoking cessation campaign

Air Quality Objective Review

		WHO 2006				HK proposed
Pollutants	Avg time	IT-1 (ug/m^3)	IT-2 (ug/m^3)	IT-3 (ug/m^3)	AQG (ug/m^3)	AQO (ug/m^3)
SO_2	10- min				500	500
	24-hour	125	50		20	125
PM_{10}	24-hour	150	100	75	50	100
	1-year	70	50	30	20	50
$PM_{2.5}$	24-hour	75	50	37.5	25	75
	1-year	35	25	15	10	35
NO_2	1-hour				200	200
	1-year				40	40
O_3	8-hour	160			100	160
CO	15-min				100,000	--
	30-min				60,000	--
	1-hour				30,000	30,000
	8-hour				10,000	10,000
Pb	1-year				0.5	0.5

AQO Consultation Report 2010

	Agree		Disagree		No comment / undefined	
Group	I	II	I	II	I	II
New AQOs to benchmark against WHO AQGs and adopt staged approach towards achieving WHO AQGs	38%	68%	62% [1]	22% [2]	0%	10%
Proposed AQOs acceptable	< 1%	67%	95% [1]	24% [2]	5%	9%

- A divergent view from the respondents. Group I in favour of adopting a tighter set of new AQOs while majority of the views expressed by other individuals found the new AQOs agreeable

Future Sky of Hong Kong