

Urban Health Literature Review

- A. Global Health, globalization and cities
- B. Urban physical and social health
- C. Morbidity in cities
- D. Health services

Of general interest:

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Topic A. Global Health, Globalization and Cities

1. Source: Int J Hyg Environ Health. 2003 Aug; 206(4-5):269-78.

Title: **Global urbanization and impact on health.**

Author: Moore M, Gould P, Keary BS.

Institution: Office of Global Health Affairs, U.S.

Abstract: Cities offer the lure of better employment, education, health care, and culture; and they contribute disproportionately to national economies. However, rapid and often unplanned urban growth is often associated with poverty, environmental degradation and population demands that outstrip service capacity. These conditions place human health at risk. Reliable urban health statistics are largely unavailable throughout the world. Disaggregated intra-urban health data, i.e., for different areas within a city, are even more rare. Data that are available indicate a range of urban health hazards and associated health risks: substandard housing, crowding, air pollution, insufficient or contaminated drinking water, inadequate sanitation and solid waste disposal services, vector-borne diseases, industrial waste, increased motor vehicle traffic, stress associated with poverty and unemployment, among others. Local and national governments and multilateral organizations are all grappling with the challenges of urbanization. Urban health risks and concerns involve many different sectors, including health, environment, housing, energy, transportation, urban planning, and others. Two main policy implications are highlighted: the need for systematic and useful urban health statistics on a disaggregated, i.e., intra-urban, basis, and the need for more effective partnering across sectors. The humanitarian and economic imperative to create livable and sustainable cities must drive us to seek and successfully overcome challenges and capitalize on opportunities. Good urban planning and governance, exchange of best practice models and the determination and leadership of stakeholders across disciplines, sectors, communities and countries will be critical elements of success.

2. Source: Indian Pediatr. 2003 Dec; 40(12): 1161-6

Title: **Urban slum-specific issues in neonatal survival.**

Author: Fernandez A, Mondkar J, Mathai S.

Institution: Department of Neonatology, LTMMC and LTMG Hospital, Sion, Mumbai, India. mcfhi@vsnl.net

Abstract: Urbanization is rapidly spreading throughout the developing world. An urban slum poses special health problems due to poverty, overcrowding, unhygienic surroundings and lack of an organized health

Infrastructure. The primary causes of neonatal mortality are sepsis, perinatal asphyxia and prematurity. Home deliveries, late recognition of neonatal illness, delay in seeking medical help and inappropriate treatment contribute to neonatal mortality. Measures to reduce neonatal mortality in urban slums should focus on health education, improvement of antenatal practices, institutional deliveries, and ensuring quality perinatal care. Success of a comprehensive health strategy would require planned health infrastructure, strengthening and unification of existing health care program and facilities; forming a system of referral and developing a program with active participation of the community.

3. Source: *Trans R Soc Trop Med Hvg.* 2003 Mar-Apr; 97(2): 129-32

Title: **Common themes in changing vector-borne disease scenarios.**

Author: Molyneux DH.

Institution: Lymphatic Filariasis Support Centre, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool L3 5QA, UK. fahy@liv.ac.uk

Abstract: The impact of climate change on disease patterns is controversial. However, global burden of disease studies suggest that infectious diseases will contribute a proportionately smaller burden of disease over the next 2 decades as non-communicable diseases emerge as public health problems. However, infectious diseases contribute proportionately more in the poorest quintile of the population.

Notwithstanding the different views of the impact of global warming on vector-borne infections this paper reviews the conditions which drive the changing epidemiology of these infections and suggests that such change is linked by common themes including interactions of generalist vectors and reservoir hosts at interfaces with humans, reduced biodiversity associated with anthropogenic environmental changes, increases in *Plasmodium falciparum*: *P. vivax* ratios and well-described land use changes such as hydrological, urbanization, agricultural, mining and forest-associated impacts (extractive activities, road building, deforestation and migration) which are seen on a global scale.

4. Source: *Bull Soc Pathol Exot.* 2003; 96(3): 145-8

Title: **African towns and health: references and stakes**

Author: Salem G, Fournet F.

Abstract: Urbanization is a fairly recent phenomenon. Thus during the 19th century, only 5% of the population was living in town. However it is more and more important as urban population has been multiplied by 15 since 1900. In Africa, this evolution is still more recent and the continent remains poorly urbanized. But the rate of urbanization is the fastest in the world and demographic forecasts indicate that by 2025, more than 50% of the African population will live in towns. Consequences of urbanization on human development are not well known. Concepts of demographic and epidemiological transitions were widely used for health. Health transition is another concept, including cultural, social and behavioral determining factors as well as ways of caring and being cared for. These processes account for the reduction of infectious diseases through a fall of mortality and birth rates and the emergence of non-transmissible diseases like cardiovascular diseases, cancers, mental diseases.... Although health situation is depicted as better in towns (better immunization, health care offer, better access to health care...), mortality and morbidity patterns seem to change more quickly in towns than in rural areas. However this is not true everywhere in urban areas where several towns are to be found within the same town and for example, health of populations living on margins may be worse than that of rural populations. Urban people resort to modern health care together with traditional healers, even informal, sometimes illegal health care, involving heavy costs but offering no guarantee as regards their quality and their efficiency for patients and society. It appears that developing countries have to face a new health care demand quite different from the one they used to face before, when they have simultaneously to cope with uncontrolled town growth. Under these conditions, urban health should become a priority.

5. Source: Soc Psychiatry Psychiatr Epidemiol. 2003 Sep; 38(9): 535-8

Title: **Urbanization as a risk indicator for psychiatric admission.**

Author: **Peen J, Dekker J.**

Institution: Mentrum Mental Health Amsterdam, Section Research & Development, Klapprozenweg 111, PO Box 75848, 1070 AV Amsterdam, The Netherlands. jaap.peen@mentrum.nl

OBJECTIVE: This study examines the independent effect of urbanization on the risk for admission irrespective of age, sex and marital status. METHOD: Logit analysis was performed on a dataset containing all first admissions to Dutch general psychiatric hospitals and psychiatric teaching clinics in 1991. RESULTS: Unmarried people and people living in urbanised municipalities have an increased risk of admission in all diagnostic groups analysed. People over 45 have an increased risk of admission for affective psychosis and organic psychosis. Women have an increased risk of affective psychosis. CONCLUSION: A high level of urbanisation increases the risk of admission in the diagnosis groups studied. However, being unmarried is a higher risk factor.

6. Source: Am J Psychiatry. 2003 Mar, 160(3): 477-82

Title: **Do urbanicity and familial liability coparticipate in causing psychosis?**

Author: van Os J, Hanssen M, Bak M, Bijl RV, Vollebergh W.

Institution: Department of Psychiatry and Neuropsychology, azM/Mondriaan/Riagg/RIBW/Vijverdal Academic Centre, EURON, Maastricht University, The Netherlands. j.vanos@sp.unimaas.nl

OBJECTIVE: The urban environment and familial liability are risk factors for psychotic illness, but it is not known whether a biological synergism exists between these two proxy causes. METHOD: The amount of biological synergism between familial liability (defined as a family history of delusions and/or hallucinations necessitating psychiatric treatment) and a five-level rating of population density of place of residence was estimated from the additive statistical interaction in a general population risk set of 5,550 individuals. RESULTS: Both the level of urbanicity (adjusted summary odds ratio=1.57, 95% CI=1.30-1.89) and familial liability (adjusted odds ratio=4.59, 95% CI=2.41-8.74) increased the risk for psychotic disorder, independently of each other. However, the effect of urbanicity on the additive scale was much larger for individuals with evidence of familial liability (risk difference=2.58%) than in those without familial liability (risk difference=0.40%). An estimated 60%-70% of the individuals exposed to both urbanicity and familial liability had developed psychotic disorder because of the synergistic action of the two proxy causes. CONCLUSIONS: Given that familial clustering of psychosis is thought to reflect the effect of shared genes, the findings support a mechanism of gene-environment interaction in the causation of psychosis.

Topic B. Urban Physical and Social Environment

7. Source: Social Science & Medicine. 2003 Feb Vol 56(3) 617-630

Title: **Sandwiching it in: Spillover of work onto food choices and family roles in low- and moderate-income urban households.**

Author: Devine, Carol M.; Connors, Margaret M.; Sobal, Jeffery; Bisogni, Carole A.

Institution: Devine, C. M.: Division of Nutritional Sciences, Cornell University, Ithaca, NY, US

Connors, M. M.: Division of Nutritional Sciences, Cornell University, Ithaca, NY, US

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Bisogni, C. A.: Division of Nutritional Sciences, Cornell University, Ithaca, NY, US

Abstract: This analysis was an examination of workers' experience of the relationship of their jobs to their food choices. Fifty-one multi-ethnic, *urban*, low- and moderate-income adults living in Upstate New York in 1995 participated in a qualitative interview study of fruit and vegetable choices and discussed employment and food choices. These workers presented a relationship that was characterized by positive and negative spillover between their jobs and their ability to fulfill family roles and promote personal *health*, linked by a spectrum of food choice strategies. Participants' narratives fit into three different domains: characterizations of work and their resources for food choice, strategies used to manage food choices within the constraints of work, and affect related to the negative and positive spillover of these strategies on family roles and on personal food choices. These findings direct attention to a broad conceptualization of the relationship of work to food choices in which the demands and resources of the work role are viewed as they spill over into the social and temporal context of other roles and values.

8. Source: *Lancet*. 2003 Sep Vol 362(9389) 1046-1047

Title: Can cities be designed to fight obesity? *Urban* planners and *health* experts work to get people up and about.

Author: Larkin, Marilyn

Abstract: In the US, one in three adults is obese--as are roughly one in seven children and adolescents--and Europeans are not far behind. Even China has seen the prevalence of overweight double in women and triple in men from 1989 to 1997. According to research in the USA, we tend to put on weight gradually. Adults in one study, for example, added about 2 pounds (0-9 kg) a year from age 20 to 40 years. This means they were taking in an excess of only about 100 kcal of energy a day--suggesting that if people could be induced to eat just a little less--or to move around just a little more, it might be possible to prevent obesity. And not much activity would be required, according to a new US fitness campaign called America on the Move, which maintains that Americans could burn off the extra calories by taking only 2000 extra steps a day--about 15-20 min of walking. Sounds easy enough, but the problem, experts say, is that in many modern cities, cut by busy streets and roaring expressways, it can be difficult to find a place to walk. This article addresses the problem of finding safe places to encourage physical activity in *urban* environments

9. Source: *American Journal of Public Health*. 2003 Jul Vol 93(7) 1098-1103

Title: A Case-Control Study of Female-to-Female Nonintimate Violence in an *Urban* Area

Author: Hirschinger, Nancy B.; Grisso, Jeanne Ann; Wallace, Donald B.; McCollum, Kelly Farley; Schwarz, Donald F.; Sammel, Mary D.; Brensinger, Colleen; Anderson, Elijah

Abstract: Objectives. The aims of this study were to describe the characteristics surrounding female-to-female nonpartner violence and to identify independent factors associated with risk of female-to-female intentional injuries. Methods. A case--control investigation was conducted among women who resided in an *urban*, low-income community and presented for emergency department care for injuries inflicted by female nonpartners. Results. Women were typically victimized by women they knew (88%), in outdoor locations (60%), and in the presence of others (91%). Those found to be at risk for injury typically were young and socially active, used marijuana, and had experienced other kinds of violence. Conclusions. The present results showed that women injured by female nonpartners had limited resources, experienced disorder in their lives, and were the victims of violence within multiple relationships.

10. Source: *Stroke*. 2003 Dec; 34(12):2776-80. Epub 2003 Nov 13

Title: Stroke mortality associated with living near main roads in England and wales: a geographical

study.

Author: Maheswaran R, Elliott P.

Institution: Public Health GIS Unit, School of Health and Related Research, University of Sheffield, UK.
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BACKGROUND AND PURPOSE: Air pollution is associated with stroke, and road traffic is a major source of outdoor air pollution. Using proximity to roads as a proxy for exposure to road traffic pollution, we examined the hypothesis that living near main roads increases the risk of stroke mortality. **METHODS:** We used a small-area ecological study design based on 113 465 census enumeration districts in England and Wales. Stroke mortality (International Classification of Disease, 9th revision, codes 430 through 438) in England and Wales from 1990 to 1992 for people ≥ 45 years of age was examined through the use of 1991 population denominators. Exposure was calculated as distance from each enumeration district population centroid to the nearest main road. We adjusted for age, sex, socioeconomic deprivation (using Carstairs index), regional variation, urbanization, and metropolitan area using Poisson regression. **RESULTS:** The analysis was based on 189 966 stroke deaths and a population of 19 083 979. After adjustment for potential confounders, stroke mortality was 7% (95% confidence interval [CI], 4 to 9) higher in men living within 200 m of a main road compared with men living ≥ 1000 m away. The corresponding increase in risk for women was 4% (95% CI, 2 to 6) and the risk for men and women combined was 5% (95% CI, 4 to 7). These raised risks diminished with increasing distance from main roads. **CONCLUSIONS:** Living near main roads is associated with excess risk of mortality from stroke, and if causality were assumed, approximately 990 stroke deaths per year would have been attributable to road traffic pollution.

11. Source: Soc Behav. 2003 Mar: 44(1):34-44

Title: **Stressful neighborhoods and depression: a prospective study of the impact of neighborhood disorder.**

Author: Latkin CA, Curry AD.

Institution: Johns Hopkins University, Johns Hopkins School of Hygiene and Public Health, Department of Health Policy and Management, Faculty of Social and Behavioral Sciences, 624 North Broadway, Baltimore, MD 21205, USA. clatkin@jhsph.edu

Abstract: Quantitative and qualitative research suggests that urban disadvantaged environments may be highly stressful to their inhabitants. Social disorganization may be deleterious to both physical and mental health. The relationships among perceptions of one's neighborhood, measures of social support and social integration, and level of subsequent depressive symptoms was examined with a community sample of 818 individuals screened for an HIV prevention intervention, most of whom were current or former drug users. After adjusting for baseline levels of depressive symptoms, perceptions of neighborhood characteristics (vandalism, litter or trash, vacant housing, teenagers hanging out, burglary, drug selling, and robbery) predicted depressive symptoms at a 9-month follow-up interview. Measures of social support and social integration, entered as interactions with neighborhood perceptions, did not buffer the effect of neighborhood perceptions. However, CES-D scores at follow-up for frequent church attendees were lower. The data support theories of social disorganization and social stress and suggest the need for structural intervention.

Topic C. Morbidity in cities

12. Source: Thorax. 2003 Dec: 58(12): 1071-6

Title: **Lung Cancer and air pollution: a 27 year follow up of 16 209 Norwegian men.**

Author: Nafstad P, Haheim LL, Oftedal B, Gram F, Holme I, Hjerermann I, Leren P.

Institution: Division of Epidemiology, Norwegian Institute of Public Health, Oslo, Norway.

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BACKGROUND: The well documented urban/rural difference in lung cancer incidence and the detection of known carcinogens in the atmosphere have produced the hypothesis that long term air pollution may have an effect on lung cancer. The association between incidence of lung cancer and long term air pollution exposure was investigated in a cohort of Oslo men followed from 1972/73 to 1998. **METHODS:** Data from a follow up study on cardiovascular risk factors among 16 209 40 to 49 year old Oslo men in 1972/73 were linked to data from the Norwegian cancer register, the Norwegian death register, and estimates of average yearly air pollution levels at the participants' home address in 1974 to 1998. Survival analyses, including Cox proportional hazards regression, were used to estimate associations between exposure and the incidence of lung cancer. **RESULTS:** During the follow up period, 418 men developed lung cancer. Controlling for age, smoking habits, and length of education, the adjusted risk ratio for developing lung cancer was 1.08 (95% confidence interval, 1.02 to 1.15) for a 10 micro g/m(3) increase in average home address nitrogen oxide (NO(x)) exposure between 1974 and 1978. Corresponding figures for a 10 micro g/m(3) increase in sulphur dioxide (SO(2)) were 1.01 (0.94 to 1.08). **CONCLUSIONS:** Urban air pollution may increase the risk of developing lung cancer

13. Source: Int J Hyg Environ Health. 2003 Aug;206(4-5):315-22

Title: The health impact of environmental pollutants: a special focus on lead exposure in South Africa

Author: Harper CC, Mathee A, von Schirnding Y, De Rosa CT, Falk H.

Institution: Agency for Toxic Substances and Disease Registry, 1600 Clifton Road, Atlanta, GA 30329, USA.

New studies show even relatively low lead levels to have detrimental effects on cognitive function in young children. Large numbers of South African inner-city and other children have been shown to have unacceptably high blood lead levels. Studies indicate that blood lead levels of children living in South Africa's urban areas are higher than those of children in most developed countries, including Great Britain, Europe, and the United States. Although data and reported studies are very sparse, mean blood lead levels of approximately 15 microg/dl have been reported in children. Elevated blood lead levels were associated with socioeconomic status and housing conditions. Key environmental risk factors for elevated blood levels were contaminated soil and dust in the urban environment, and the still large number of automobiles using leaded gasoline.

In view of emerging evidence linking lead at increasingly lower levels to adverse effects in children, the South African government is taking actions to reduce lead exposure among vulnerable groups.

Currently, South Africa has no national lead surveillance program. The government, therefore, has developed international and regional partnerships to prevent and address the problem of lead exposure

14. Source: Soc Sci Med. 2004 Mar; 58(6): 1137-46

Title: Effects of urbanization, economic development, and migration of workers on suicide mortality in Japan.

Author: Otsu A, Araki S, Sakai R, Yokoyama K, Scott Voorhees A.

Institution: Department of Public Health and Occupational Medicine, Graduate School of Medicine and School of Medicine, The University of Tokyo, Bunkyo-ku, 113-8654, Tokyo, Japan

Abstract: The relationships between male or female age-adjusted suicide mortality and social life factors for all 47 Japanese prefectures in 1980, 1985 and 1990 were investigated by stepwise multiple regression analysis after classification of 20 social life indicators by factor analysis. During this period, Japan experienced the second economic crisis (the so-called secondary oil crisis) in 1980-1983 and economic

prosperity (bubble economy) in 1986-1990. In all the three years, male suicide mortality was significantly related inversely to the urbanization and economic development factor, the result of which was consistent with the data in our previous study for the years 1970 and 1975. Similarly, the male mortality was positively related to the factor of migration of workers in the three years. No factor significantly related to female mortality for all the three years was found. It is suggested that (1) urbanization was a major determinant which prevented male suicide mortality during the past 20 years (1970-1990) in Japan; (2) migration of workers became an important factor for male suicide mortality during these 10 years; and (3) female suicide mortality was less vulnerable to social life factors for these 20 years than the male mortality.

15. Source: *Int J Epidemiol*. 2003 Dec; 32(6): 1007-1014

Title: **Suicides after the 1999 Taiwan earthquake.**

Author: Chou YJ, Huang N, Lee CH, Tsai SL, Tsay JH, Chen LS, Chou P.

Institution: Department of Social Medicine, National Yang-Ming University, Taipei, Taiwan. Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD, USA. Institute of Health Care and Hospital Administration, National Yang-Ming University, Taipei, Taiwan. Bureau of National Health Insurance, Taipei, Taiwan. Academia Sinica, Taipei, Taiwan. Institute of Public Health, National Yang-Ming University, Taipei, Taiwan.

BACKGROUND: The impact of a disaster on extreme post-traumatic responses of the victims, such as suicide, remains unclear. We conducted this study to investigate the risk of committing suicide between victims and non-victims after the 1999 Taiwan earthquake. **METHODS:** This population cohort study linked the National Health Insurance files, family registration, and death certificates. It consists of the 3 432 705 residents aged ≥ 15 years of central Taiwan, 1998-2000. They were stratified into victims ($n = 301\ 327$) and non-victims ($n = 3\ 131\ 378$). Victims refer to those who lost co-resident family members, were injured, or experienced property loss during the earthquake. Non-victims refers to all others. The suicide rate was calculated for the period 2-15 months after the earthquake. Adjusted odds ratios were estimated with logistic regression. **RESULTS:** After adjusting for residential location, age, gender, major disease status, and level of urbanization, we found that victims were 1.46 times more likely than non-victims to commit suicide following an earthquake (95% CI: 1.11, 1.92). **CONCLUSIONS:** Given the large study population and individual information available to identify victim status, this study was able to detect a statistically significant earthquake effect on suicide rate. This effect on suicide might be diluted if only geographically based stratification were possible, as opposed to victim status stratifications. Mental health programmes or other preventive strategies might be more effective by specifically targeting victims rather than by simply targeting individuals living in earthquake-affected areas.

16. Source: *J Epidemiol Community Health*. 2003 Oct; 57(10):792-7

Title: **Labour market income inequality and mortality in North American metropolitan areas.**

Author: Sanmartin C, Ross NA, Tremblay S, Wolfson M, Dunn JR, Lynch J.

Institution: Health Analysis and Measurement Group, Statistics Canada, RH Coats Building, 24th Floor Section R, Ottawa, Ontario, Canada K1A 0T6. claudia.sanmartin@statcan.ca

OBJECTIVE: To investigate relations between labour market income inequality and mortality in North American metropolitan areas. **METHODS:** An ecological cross sectional study of relations between income inequality and working age (25-64 years) mortality in 53 Canadian (1991) and 282 US (1990) metropolitan areas using four measures of income inequality. Two labour market income concepts were used: labour market income for households with non-trivial attachment to the labour market and labour market income for all households, including those with zero and negative incomes. Relations were assessed with weighted and unweighted bivariate and multiple regression analyses. **RESULTS:** US metropolitan areas were more unequal than their Canadian counterparts, across inequality measures and income concepts. The

association between labour market income inequality and working age mortality was robust in the US to both the inequality measure and income concept, but the association was inconsistent in Canada. Three of four inequality measures were significantly related to mortality in Canada when households with zero and negative incomes were included. In North American models, increases in earnings inequality were associated with hypothetical increases in working age mortality rates of between 23 and 33 deaths per 100 000, even after adjustment for median metropolitan incomes. CONCLUSIONS: This analysis of labour market inequality provides more evidence regarding the robust nature of the relation between income inequality and mortality in the US. It also provides a more refined understanding of the nature of the relation in Canada, pointing to the role of unemployment in generating Canadian metropolitan level health inequalities.

Topic D. Health services

17. Source: J Urban Health. 2003 Dec 1; 80(4): 532-533

Title: Health Issues in Prisons and Jails: Implications for Urban Health

Abstract; This article is a study of 569 offenders who also had a history of substance abuse or dependence prior to incarceration and were subsequently approved for early parole to a community-based substance abuse treatment facility. Of these, 74 were paroled directly to the community due to prison overcrowding without substance abuse treatment. This study evaluated the criminal record for all participants 24 months following parole. New convictions as a result of a new crime committed during the 24-month window following parole were tracked. Overall, 22% of offenders paroled to a substance abuse treatment facility were convicted of a new crime compared to 34% of offenders paroled directly to the community ($P \leq .03$). A logistic regression analysis shows that more prior convictions ($P \leq .001$) and younger age ($P \leq .001$) were strongly significant predictors of a new conviction, whereas cocaine dependence and parole without treatment were also predictive of a new conviction. Offenders who completed treatment were less likely to be convicted of a new crime (12% vs. 29%) ($P \leq .01$). The authors conclude that early parole to a substance abuse treatment center should be considered to reduce prison sentences for addicted offenders.

18. Source: J Nurs Scholarsh. 2003; 35(3): 275-81.

Title: The nurse-community health advocate team for urban immigrant primary health care.

Author: McElmurry BJ, Park CG, Buseh AG.

Institution: University of Illinois at Chicago, College of Nursing, 845 S. Damen Ave., Room 1126, Chicago, IL 60612, USA. mcelmurr@uic.edu

Abstract: To describe: (a) development and implementation of an urban outreach health program for Latino immigrants; (b) nurse-community-health advocate (CHA) partnership roles in primary health care delivery, and (c) lessons learned from these activities over 7 years in urban community settings. **METHODS:** Descriptive study of a community-based health project in a large Midwestern American city. Information was gathered from participants and staff, from observing staff, and from a variety of sources to describe the program and its individual, family, and community effects. **FINDINGS:** Major findings pertain to the project team's ability to address the health promotion needs of Latino immigrant families and to successfully incorporate CHAs in planning and implementing the program. CHAs were a "bridge" between health programs and the community, promoting cultural sensitivity. CHAs and nurses provided a range of services including health education and promotion, outreach through home visits, assessment of family needs for referrals to appropriate resources, and follow-up support. **CONCLUSIONS:** The nurse-CHA team was an

effective strategy for promoting Latino immigrant families' access to needed health care. This framework allowed for flexibility in assisting clients of different cultural backgrounds to obtain appropriate health care.

19. Source: American Lung Association http://lungusa.org/press/association/download/flu_study.pdf

**Title: A Shot of Prevention: An Analysis of the Impact of Flu Vaccinations on Asthmatic Populations
By the American Lung Association**

Author: American Lung Association

Abstract: Nearly 20.3 million Americans, 6.3 million of them under the age of 18, currently have asthma. People with asthma are more likely to develop serious complications and die from the flu than people who do not have asthma. Hospitalization rates for people with asthma increase two- to three-fold during major flu epidemics. Influenza vaccination is the primary method for preventing influenza and its severe complications, yet, until recently, medical experts were concerned that the influenza vaccine may worsen or exacerbate current asthma. A 2001 study conducted by the American Lung Association Asthma Clinical Research Center Network and published in the *New England Journal of Medicine* found that the opposite was true: results showed the vaccination was perfectly safe to administer to adults and children. It has long been postulated that many asthma exacerbations are precipitated by influenza but there are few studies assessing the incidence of influenza in patients hospitalized with acute asthma. One study concluded that vaccinating all children with asthma could prevent 59 to 78 percent of asthma hospitalizations during the influenza season. A second study, conducted in Australia, found that 19 percent of adults hospitalized for asthma had recent evidence of the influenza virus. In the attached appendix, we provide a state-by-state analysis of the number of hospitalizations due to asthma that could potentially be avoided by administering the flu vaccination. The analysis is broken down by adults and by children under 15 years of age.