Patterns of Child Respiratory Illness in Toronto

(City Council on July 4, 5 and 6, 2000, adopted this Clause, without amendment.)

The Community Services Committee recommends that the Toronto District Health Council be requested to conduct a cost analysis of hospitalization of children due to respiratory illness versus caring for the children in Community Health Centres; and that such analysis be undertaken in consultation with the Commissioner of Community and Neighbourhood Services and the Medical Officer of Health.

The Community Services Committee reports, for the information of Council, having:

(a) directed that the Medical Officer of Health, in consultation with the Toronto District Health Council, be requested to report to the Board of Health and the Community Services Committee on the distribution of Community Health Centres across Toronto, and on ways the City can advocate for greater distribution of such Centres; and

(b) directed that the Medical Officer of Health be requested to revisit the issue of higher hospital admittances for children with respiratory illness in Scarborough, and report thereon in the context of future report cards on children's health in the City of Toronto.

The Community Services Committee submits the following communication (May 29, 2000) from the Secretary, Board of Health:

The Board of Health, at its meeting on May 29, 2000, had before it a report (May 16, 2000) from the Medical Officer of Health informing the Board of Health of the results of an investigation into certain patterns of childhood respiratory illness in Toronto; and recommending that:

(1) the Board of Health forward this report to the Community Services Committee for information; and

(2) this report be forwarded to the Toronto District Health Council, the Ontario Medical Association, the Ontario Hospital Association, the Association of Ontario Health Centres and the Child Health Network for their consideration when planning health care services for children and their families in the Scarborough area.

The Board of Health adopted the foregoing report.
Purpose:

To inform the Board of Health of the results of an investigation into certain patterns of childhood respiratory illness in Toronto.

Financial Implications and Impact Statement:

None.

Recommendations:

It is recommended that:

1. The Board of Health forward this report to the Community Services Committee for their information; and

2. That this report be forwarded to the Toronto District Health Council, the Ontario Medical Association, the Ontario Hospital Association, the Association of Ontario Health Centres and the Child Health Network for their consideration when planning health care services for children and their families in the Scarborough area.

Background:

The Toronto Report Card on Children, 1999 was produced by staff from a variety of City Departments and community agencies and was released in September, 1999. The report “...assesses the health and well-being of children in Toronto, using a variety of social 'indicators' to evaluate the condition of the city’s children.” Information from one of these indicators shows that between 1993 and 1997, Scarborough and Rexdale were among the areas with the highest rates of children hospitalized for respiratory illness (Attachment No. 1). At the December 1999 Board of Health meeting, Public Health provided a progress report on its investigation into possible explanations for these patterns. This report presents the final findings from the investigation.

Comments:

The respiratory illnesses included in the map of respiratory hospitalization rates include asthma, croup, acute bronchitis and pneumonia. In children between two and twelve years of age, asthma accounts for the greatest proportion of these conditions. A number of factors are associated with childhood asthma. These include:

(a) genetic;
(b) demographic;
(c) socio-economic (e.g., income, education, ethnicity);
(d) indoor environments (e.g., tobacco smoke, exposure to allergens such as dust mites, cockroaches, mould and pets);
(e) outdoor environments (e.g., pollens, air pollution);
(f) respiratory infections; and
(g) medical management:

(i) ability of family to self-manage;
(ii) access to primary care;
(iii) hospital admission practices; and
(iv) treatment methods.

Initial anecdotal evidence indicated that patterns of child asthma hospitalization rates were more likely explained by non-clinical factors such as access to hospitals and hospital admission practices than by any significant differences in disease incidence or environmental exposures.

The Public Health investigation included three major components:

(1) A literature review including:

(i) clinical definition of asthma;
(ii) limitations of hospitalization data;
(iii) regional variations of hospitalization rates for asthma;
(iv) prevalence of self-reported asthma in Toronto;
(v) risk factors associated with asthma in a general context including infections, medication, self-management and others; and
(vi) risk factors associated with asthma in a Toronto-specific context including genetic/congenital, demographic and socio-economic, environmental and primary care provision;

(2) Data analysis to determine:

(i) asthma hospitalization rates;
(ii) annual trends in respiratory disease hospitalization;
(iii) respiratory hospitalization in the context of overall hospitalization;
(iv) asthma hospitalization among adults;
(v) proportion of new admissions versus readmissions; and
(vi) length of stay per admission;

(3) Surveys that examined:

(i) access to community health centres; and
(ii) hospital admission and discharge practices and patient care paths.

While recognizing that higher childhood asthma hospitalization rates exist in other areas, this investigation focuses on the central Scarborough area. The findings will, however, be relevant to other areas with high rates including Rexdale.
Results:

The major findings of this study include:

(1) Childhood hospitalization rates for respiratory diseases in Scarborough and the rest of Toronto have been declining recently.

(2) Available data suggests that outdoor air quality is not responsible for increased rates of hospital respiratory admissions in Scarborough compared to the rest of Toronto. While Toronto’s outdoor air quality has been clearly associated with increases in hospital admissions, air levels of ozone, nitrogen dioxide and sulphur dioxide are not consistently higher in Scarborough than in other parts of the City.

(3) Burden of illness estimates show that the number of respiratory hospital admissions for all ages attributed to outdoor air quality in Scarborough was lower than most other areas in the City.

(4) Hospitalization data only determines a small proportion of the prevalence of respiratory illness in the population because it does not include outpatients or individuals who present at a physician’s office or clinic instead of a hospital. Therefore, hospitalization data does not present a true picture of respiratory illness in the population.

(5) Hospitalization practices differed somewhat in Scarborough insofar as there is only one community health centre in that area. Therefore, this area may be more reliant on its hospitals to provide care for respiratory and other illness. The proportion of readmissions compared to new admissions was higher and the length of hospital stay per admission was shorter when compared to all other areas combined. These factors may lead to increased hospitalization rates. Patterns of patient care in emergency, during hospitalization, or at discharge did not reveal any major differences between geographic areas.

(6) Although other research studies indicate that socio-economic factors play an important role in regional variations of hospitalization due to asthma, analysis based on population census data did not. Population-based data were used because data on individuals hospitalized with asthma do not include information on risk or confounding factors such as socio-economics, indoor/outdoor environment, medication used at home, parents education levels etc.

Conclusion:

Preliminary information indicated that patterns of child asthma hospitalization were likely explained by non-clinical factors, such as access to hospitals, hospital admission practices and/or socio-economic patterns, rather than by local air quality differences. The evidence from this investigation showed that access to hospital care facilities, shorter lengths of stay and higher readmission rates in Scarborough hospitals explained some of the differences in childhood respiratory hospitalization rates. Other factors such as patient care practices do not appear to play a role.
While Toronto’s outdoor air quality has been clearly associated with increases in hospital admissions, air monitoring data indicate that outdoor air quality in Scarborough is not substantially or consistently worse than air quality in other parts of the City. Furthermore, a study of the burden of illness attributable to air pollution found that outdoor air quality did not result in increased hospitalization among people of all ages in Scarborough compared to other areas of the City.

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List of Attachments:

Attachment 1: Map 15 – Which areas of the City have high rates of children being hospitalized for respiratory illness?
(May 2000)

(A copy of each of the Attachments 1 and 2, referred to in the foregoing report was forwarded to all Members of Council with the agenda of the Community Services Committee for its meeting on June 15, 2000, and a copy thereof is on file in the office of the City Clerk.)