An Investigation of the Impact of Supplementary Health Benefits for Low-income Families in Saskatchewan

Trish Livingstone, MA¹

Lisa Lix, PhD²

Mary McNutt, MSc³

Evan Morris, MSc⁴

David Rosenbluth, PhD⁵

Doug Scott, MA⁵

Felecia Watson, MSc⁶

ABSTRACT

Objectives: To examine the changes in health service use by recipients of Family Health Benefits, a supplementary benefits program that was introduced to lower-income, working families in Saskatchewan beginning in July 1998. These benefits reduced or eliminated fees for prescription drugs and for chiropractic, optometric and dental services.

Methods: The study population included program beneficiaries between July 1998 and January 2000. Administrative data maintained by Saskatchewan Health were used to capture information on changes in benefits coverage and use of hospital, physician, prescription drug, chiropractic and optometric services from 1997 to 2000. Demographic characteristics of the study population were described. Utilization rates were compared for periods prior to and following introduction of the program.

Results: Almost three quarters of Family Health Benefit beneficiaries had not had any form of prior supplementary health coverage in the previous year. A large proportion of these beneficiaries lived in rural Saskatchewan. Distinct demographic characteristics were observed for rural and urban beneficiaries. While utilization of physician and hospitalization services was lower following the introduction of the program, utilization of prescription drugs, and both chiropractic and optometric services increased.

Conclusions: The reduction in user fees for non-insured services resulted in an increased use of these health services, suggesting that user fees can act as a barrier to the use of medical services by low-income families.

La traduction du résumé se trouve à la fin de l'article.

1. Saskatchewan Health, Regina, SK

2. Department of Community Health Sciences, University of Manitoba, Winnipeg, MB

3. Saskatchewan Learning, Regina

4. EcoTech Research Ltd., Regina

5. Research Director, Saskatchewan Social Services, Regina

6. Saskatchewan Cancer Agency, Regina

Correspondence and reprint requests: Evan Morris, EcoTech Research Ltd., 2054 Broad Street, Regina, SK S4P 1Y3, Tel: 306-352-2468, Fax: 306-352-2315, E-mail: ecotech@sasktel.net

Acknowledgements: This project was supported by a financial contribution from the Health Transition Fund, Health Canada. Data, office and computer facilities were contributed by Saskatchewan Health and Saskatchewan Social Services. The views expressed herein do not necessarily represent the official policy of the federal or provincial governments.

In 1998, the Saskatchewan government introduced a supplementary health benefits program for lower-income families as part of its *Building Independence-Investing in Families* strategy.¹ Known as Family Health Benefits (FHB), the program provides enhanced coverage to children under 18 years of age for dental, optometry, and chiropractic services, prescription drugs, ambulance transportation, and medical supplies. More limited coverage for eye care, prescription drugs, and chiropractic services is also provided to parents. Families are eligible for the Family Health Benefit if they have a child less than 18 years of age, and if the family income is below \$25,921. The income threshold increases if there are more than 3 children in the family.

The FHB program was intended to make it easier for parents on social assistance to take low-wage or part-time employment, and prevent them from returning to social assistance due to the burden of out-of-pocket expenditures for health services. It was also intended to prevent working lower income families from having to go on social assistance due to unforeseen medical costs.

Prior to the introduction of the program, these lower-income families would only have been eligible for regular benefits, which either do not cover or only partially cover these health services. Table I provides a comparison of the benefits that are provided to FHB recipients and recipients of regular benefits in Saskatchewan.²

The implementation of the FHB program provides a unique opportunity to monitor the impact that a population-based intervention has on utilization of health services. The purpose of the study is to describe the characteristics of FHB beneficiaries, and examine the relationship between health benefits coverage and the use of hospital, physician, prescription drugs, chiropractic and optometric services.

METHODS

The study population consisted of all residents of Saskatchewan who were beneficiaries of the FHB program at any point between July 1, 1998 (date of program inception) and January 31, 2000.³ This population consisted of 47,021 adults and

TABLE I**Health Benefits for Regular and FHB Recipients**

Adults	Regular Coverage	FHB Coverage
Prescriptions*	\$850 semi-annual deductible. Patient pays 35% of all costs above their deductible. (The semi-annual deductibles are for families, not for each individual in a family.)	\$100 semi-annual deductible. Patient pays 35% of all drug costs above their deductible.
Chiropractic services	The government pays approximately 50% of the cost.	Covered by Saskatchewan Health.
Optometric services	Patient pays the entire amount for eye examinations and eyeglasses.	Covered for one eye examination every two years.
Dental services	Not covered.	Not covered.
Medical supplies	Not covered.	Not covered.
Emergency ambulance	Not covered.	Not covered.
Children	Regular Coverage	FHB Coverage
Prescriptions	Same as for adults.	Government pays the entire amount. There is no deductible.
Chiropractic services	Same as for adults.	Covered by Saskatchewan Health.
Optometric services	Covered for one eye examination every 12 months. Patient pays for glasses.	Covered for one eye examination every 12 months. Covered for glasses.
Dental services	Not covered.	Covered by Saskatchewan Health.
Medical supplies	Not covered.	Covered by Saskatchewan Health.
Emergency ambulance	Not covered.	Covered by Saskatchewan Health.

* Saskatchewan Health also has a Special Support Program designed to help those whose drug costs are high in relation to their income. If a family's drug costs exceed 3.4% of the adjusted family income from the previous tax year, the family qualifies for a lower co-payment, and their share of drug costs is reduced.

58,316 children. Registered Indians are not eligible for the program, and therefore are not part of the study population. Their health benefits are covered by the federal government and exceed those available through the FHB program.

The study population was described by age, sex, family structure, residence location, as well as beneficiary designation prior to, and following, receipt of the FHB program.

The methodology is a comparative study using administrative data. Data were compiled for the period from July 1, 1997 to January 31, 2000. The one-year period before introduction of the FHB program was selected to provide baseline information on the health benefits coverage that individuals received prior to their movement into the FHB program.

The following administrative files were used to capture data on the use of, and expenditures for, insured health services for the study population: hospital services file, physician billing claims, Saskatchewan Drug Plan records, chiropractor and optometry records, and dental records. The Hospital Services File captured information on all inpatient services using discharge abstracts. Physician billing claims for both fee-for-service physicians and the parallel "shadow" billing claims of most salaried physicians captured most of the physician services in the province. Saskatchewan Drug Plan records included the vast majority of prescription records generated by Saskatchewan pharmacists (approximately 90% percent of

TABLE II**Residence of Family Health Benefit Recipients, Saskatchewan, 1998-2000**

Residence	Recipients New to FHB	Recipients with Prior Supplementary Health Coverage
Regina	10.0%	19.0%
Saskatoon	12.5%	21.0%
Other cities	11.0%	20.0%
Towns	17.5%	19.0%
Villages	9.0%	8.0%
Rural municipalities	39.0%	11.0%
Reserves	1.0%	3.0%
N	75,204	30,133

TABLE III**Family Status by Type of FHB Case, Saskatchewan, January 2000**

Family Type	New Coverage (urban)	New Coverage (rural)	Prior Coverage	Total
Single parent	49.4%	9.7%	72.9%	48.0%
Two parent	50.6%	90.3%	27.1%	52.0%
Total	100.0%	100.0%	100.0%	100.0%
N	9,335	4,510	6,449	20,294

TABLE IV**Movement of Family Health Benefits Recipients Out of the Program, Saskatchewan, 1998-2000**

	Recipients with New Coverage	Recipients with Prior Coverage	Total
Stayed on FHB	68.4%	61.9%	66.5%
Moved to regular coverage	28.3%	14.6%	24.4%
Moved to social assistance	2.8%	21.3%	8.1%
Moved to other	0.5%	2.2%	1.0%
N	75,204	30,133	105,337

Saskatchewan residents are eligible for benefits under the Saskatchewan Drug Plan). These records included prescriptions where costs do not exceed the deductible. Chiropractic, optometric, and dental records were maintained by Saskatchewan Health where claims were submitted for fee-for-service reimbursement.

Finally, the Personal Registry System (PRS) of Saskatchewan Health, which captures data on all residents of the province

who are eligible to receive health services, was used to determine the health benefits coverage and demographic characteristics of the study population. The PRS file and the administrative files were linked to capture information on service utilization across different types of health benefits coverage. Approval for data access and linkages was obtained from the Data Access Review Committee of Saskatchewan Health.

TABLE V

Change in Utilization of Health Services, Saskatchewan, 1997-2000 (rates refer to the number of services per person-year)*

Adults	Regular	FHB	Percentage Change
Physician services	9.4	8.6	-9%
Hospital discharges	232	173	-26%
Prescriptions	3.9	4.4	13%
Chiropractic services	0.4	1.4	242%
Children			
Physician services	5.2	5.1	-2%
Hospital discharges	137	74	-46%
Prescriptions	1.9	2.2	17%
Chiropractic services	0.06	0.27	389%
Optometric services	0.10	0.40	310%

* Hospital discharge rates are the number of hospital discharges per 1,000 person years.

TABLE VI

Frequency of Prescriptions by Category, Saskatchewan, 1997-2000*

Adults	Regular	FHB	Percentage Change
Central nervous system	20,662	24,376	18%
Hormones & substitutes	18,028	20,398	13%
Anti-infective agents	17,553	18,297	4%
Cardiovascular	10,750	12,993	21%
Gastrointestinal	5,171	5,792	12%
Skin & mucous membrane	4,467	4,882	9%
Autonomic drugs	3,665	4,059	11%
Eye, ear, nose & throat	3,645	4,056	11%
Electrolytic	1,885	2,199	17%
Vitamins	678	801	18%
Children			
Anti-infective agents	23,859	24,202	1%
Central nervous system	5,290	6,635	25%
Skin & mucous membrane	4,180	5,917	42%
Hormones & substitutes	3,946	5,954	51%
Eye, ear, nose & throat	3,464	4,109	19%
Autonomic drugs	3,281	4,050	23%
Unclassified	1,344	1,559	16%
Gastrointestinal	588	914	55%
Cardiovascular	448	555	24%
Diagnostic agents	322	833	159%

* These categories are used in the Saskatchewan Health Formulary. This table excludes several drug classes that had relatively few prescriptions, as well as "unclassified therapeutic agents". Cancer drugs are not included in these data as they are paid for by the Saskatchewan Cancer Agency.

Utilization rates were calculated for members of the study population during the period of time when they received regular benefits, and compared to utilization rates for the period of time when they received FHB. Utilization rates were calculated as the number of services per person-year. For physician, hospital, and chiropractic services, individuals who had not had FHB and/or regular benefits for a minimum of 90 days were excluded from the rate calculations. A 90-day period would give sufficient time for individuals to change health service use in response to changes in supplementary health coverage. For prescription drugs and optometry services, a one-year period was adopted. Prescription drugs have a six-month semi-annual deductible, and children are covered for one eye examination every 12 months. Hence changes in utilization patterns as a result of changes in benefits

coverage may not be apparent for individuals who have received either form of coverage for shorter periods of time.

Hospital and physician services were classified as preventive based on the International Classification of Diseases, 9th Revision (ICD-9) diagnostic codes, using the classification system of Kozyskyj et al.⁴ Examples of hospitalizations for preventive services include the management of pregnancy, such as bed rest to prevent pre-term birth, and management of a chronic condition, such as asthma.

Utilization rates for dental service use could not be calculated since individuals receiving regular health coverage pay the entire cost of dental treatment, and Saskatchewan Health maintains no administrative record of these services. For the same reason, utilization rates for optometry services for adults could not be determined.

RESULTS

Characteristics of FHB beneficiaries

During the first 19 months of the FHB program, almost three quarters (71% or 75,204) of the FHB recipients were new beneficiaries. In other words, they had not been receiving any supplementary health benefits in the year prior to the implementation of the FHB program. Twenty percent of recipients had previously received coverage through the province's social assistance program, and the remainder (9%) had been participating in other supplementary health programs for low-income persons.

A large proportion (39%) of new recipients resided in rural areas. In contrast, only 11% of FHB recipients with prior supplementary health coverage were rural residents (Table II).

Family structure was quite different for new beneficiaries and beneficiaries who had received prior supplementary health coverage. In all, 48% of FHB families were headed by a single parent (Table III), compared to 12% for the province as a whole.⁵ Almost three quarters (73%) of families who had been on prior health benefit programs were single-parent families. New FHB families from rural areas were far less likely to be single-parent families (10%) than families from urban areas (49%).

Two thirds of individuals on FHB stayed on the program throughout the study period (Table IV). Those for whom FHB was a new service were more likely to stay than other individuals. When they did change their coverage, the new FHB recipients were more likely to move to regular health coverage than to social assistance. By comparison, those who came from other income security programs were more likely to return to social assistance upon leaving the FHB program.

Changes in utilization for regular and FHB coverage

Utilization rates for all health services for those beneficiaries who moved from regular benefits to FHB during the study period are shown in Table V. For both adults and children, rates of hospital and physician utilization decreased, although the magnitude of the change was greater for hospital services than for physician services. The change in utilization for physi-

cian services was almost negligible for children. This is consistent with changes in the rate of these services for the entire Saskatchewan population. Between 1997/98 and 1999/2000, the physician service rate per person increased marginally from 10.2 to 10.4.⁶⁻⁹ Between 1997/98 and 1998/99, the crude rate of hospitalizations fell from 155 separations per 1,000 individuals to 150 separations per 1,000.¹⁰

Utilization of the remaining health services increased as individuals moved from regular to FHB coverage. Prescription utilization increased more for adults than for children. While the percentage increase was substantial for chiropractic services, overall utilization was extremely low, making the difference almost negligible. Optometric services (almost entirely eye examinations) increased by 310% after children moved from regular to FHB coverage.

When adults and children moved from regular to FHB coverage, the proportion of physician services that were classified as preventive remained largely the same. In all, 14% of physician services for adults and 7% of services for children were preventive. Among adults, there was a slight increase in hospital discharges for preventive services when going from regular to FHB coverage (6% to 8%). Children had very few hospitalizations for preventive services. The proportion of children's hospitalizations for preventive services dropped from 1.0% to 0.4% when they moved from regular to FHB coverage.

Changes in types of prescriptions

There were increases in prescription use in almost all drug classes for adults who moved from regular to FHB coverage (Table VI). There were large relative increases for cardiovascular and central nervous system drugs, many of which are essential for disease management and prevention.

Increases in prescription rates were greater for children (17%) than for adults (13%) who moved to FHB coverage (Table V). The greatest percent increase among children was observed for '*diagnostic agents*' to monitor diabetes. Diagnostic strips can be quite costly depending on the frequency of testing. The next highest percent increases were for gastrointestinal drugs (for which the volume is low) and hormones (for which the volume is high).

Within the '*hormones and substitutes*' category, the majority of the prescriptions were for inhaled steroids, used to treat asthma and other respiratory conditions. There was a 34% increase in prescriptions for inhaled steroids. There was also a 23% increase in prescriptions for bronchodilators. Other drugs included in the hormones class are anti-diabetic drugs and oral contraceptives. Anti-diabetic drugs used to treat child-onset diabetes increased by 26%. Prescriptions for oral contraceptives increased by 247%.

DISCUSSION

These study findings suggest that user fees can act as a barrier to the use of medical services by lower-income families. The reduction or removal of user fees for prescription drugs and optometric and chiropractic services resulted in increases in service rates when families received FHB. In relative terms, prescription drug use increased much less than optometric and chiropractic services when the FHB program was introduced. This can be largely explained by the presence of Saskatchewan Health's Special Support Program, which paid a higher proportion of prescription drug costs for families where drug costs were high in proportion to their income. This program was in effect before and after the FHB program. The increase in drug utilization due to the FHB program was probably due to increased usage by low-income families who did not have very high annual drug costs.

Among adults, there was a large relative increase in cardiovascular and central nervous system prescriptions. Many of these drugs are used in the management of chronic conditions and in disease prevention. The large increase in these categories indicates that some adults may have gone without needed treatment or access to preventive services because of financial barriers. It is likely that the drop in user fees in Saskatchewan could result in fewer hospitalizations in the future. A study from Quebec suggests that when costs for drugs increased among seniors and welfare recipients, hospital admissions among these individuals also increased.¹¹ A study of the health of 54 Albertans living in working poor families indicated that study participants who sought and obtained necessary

prescription medication had a better health status than participants who failed to obtain the necessary prescription treatment.¹²

Among children, there was an increase in prescriptions used to monitor and control chronic conditions such as asthma and diabetes. Poor quality primary care for asthma and diabetes has been associated with increased hospitalizations, and high physician office and emergency room visits.¹³

Inhaled steroids for asthma and other respiratory conditions are relatively expensive, and the 34% increase in their use after the introduction of the FHB program suggests that more children in lower-income families are benefiting from better asthma management practices. Proper management of asthma can reduce hospitalizations and mortality due to the disease.¹⁴ Asthma is a major cause of hospitalization for children in Canada, and Saskatchewan has the third highest rate of asthma hospitalizations in the country.¹⁵ Asthma is also a leading reason for school absenteeism, and involves high direct and indirect costs.¹⁶⁻¹⁸

Among children, anti-infective agents made up one half of all prescriptions. However the number of prescriptions increased only marginally once families moved from regular to FHB coverage. This suggests that parents made it a priority to purchase prescriptions when their children had infections regardless of their current level of health coverage.

The increase in eye exams by children suggests that more parents take their children for exams once eyeglasses are covered by health insurance. If parents cannot afford glasses, there is less incentive for them to take their children for an eye exam. Changes in eye examinations for adults could not be calculated, as Saskatchewan Health has no administrative records for optometric services by adults on regular coverage. In 1998, Alberta introduced the Alberta Child Health Benefit program to provide free dental, optical and prescription drug coverage for children in low-income families. A survey of program participants indicates that families may have forgone optical and dental services for children without the program.¹⁹

There are some limitations to this study that should be identified. The use of

administrative databases limited the information that could be collected and analyzed. For example, no administrative record is maintained for optometry services among adults or for dental services among regular health benefit recipients. This study was also limited to quantitative data. Future qualitative research is planned to further investigate financial and other barriers to the use of medical services by lower-income families.

The findings of this study emphasize the importance of forms of transitional benefits to families once they leave social assistance. They also highlight the need for investing in programs that ensure affordable access to health services for all low-income people, regardless of their position in or out of the labour market. Over the long term, these programs will enhance the health of adults and children living in low-income families. Better health among those living in low-income families will ultimately decrease the need for public expenditures on more costly and intensive health care.

REFERENCES

1. Building Independence – Investing in Families. Regina: Government of Saskatchewan, 1998.
2. Saskatchewan Health. Family Health Benefits. Regina: Government of Saskatchewan, 1999.
3. Saskatchewan Health and Saskatchewan Social Services. Monitoring the Effects of Family Health Benefits for Low-Income Families in Saskatchewan. Regina: Government of Saskatchewan; 2001. Available from: http://www.health.gov.sk.ca/info_center_pub_mon_efits_of_fam_hlth_ben_lif.pdf
4. Kozyrskyj A, Mustard S, Derksen S. Considering the health care needs of children living in households receiving social assistance in Manitoba. Manitoba Centre for Health Policy and Evaluation, December 2000.
5. Statistics Canada. Census Profile Series: Saskatchewan (Cat #95F0262XCB96000). Ottawa: Government of Canada, 1996.
6. Saskatchewan Health. Medical Services and Health Registration Branch Annual Statistical Report, 1996-97. Regina: Government of Saskatchewan.
7. Saskatchewan Health. Medical Services and Health Registration Branch Annual Statistical Report, 1997-98. Regina: Government of Saskatchewan.
8. Saskatchewan Health. Medical Services and Health Registration Branch Annual Statistical Report, 1998-99. Regina: Government of Saskatchewan.
9. Saskatchewan Health. Medical Services and Health Registration Branch Annual Statistical Report, 1999-2000. Regina: Government of Saskatchewan.
10. Saskatchewan Health, Corporate Information and Technology Branch. Government of Saskatchewan.
11. Tamblyn R, Laprise R, Hanley J, Abrahamowicz M, Scott S, Mayo N, et al. Adverse events associated with prescription drug cost-sharing among poor and elderly persons. *JAMA* 2001;285(4):421-29.
12. Williamson D, Fast J. Poverty status, health behaviours and health: Implications for social assistance and health care policy. *Can Public Policy/Analyse de Politiques* 1998;24(1):1-25.
13. Gordon D, Shaw M, Dorling D, Davey Smith G (Eds.). *Inequalities in Health: The Evidence*. UK: Policy Press, 1999.
14. National Asthma Control Task Force. The Prevention and Management of Asthma in Canada. Health Canada, 2000.
15. Canadian Institute for Health Information, Canadian Lung Association, Health Canada, Statistics Canada (Eds.). *Respiratory Disease in Canada*. Ottawa: Health Canada, 2001.
16. Health Canada. Laboratory Centre for Disease Control, Respiratory Disease Division. Childhood Asthma in Sentinel Health Units: Findings of the Student Lung Health Survey 1995-1996. Ottawa: Health Canada, 1998.
17. Hessel P, Sliwkanich T, Michaelchuk D, White H, Nguyen T. Asthma and limitation of activities in Fort Saskatchewan, Alberta. *Can J Public Health* 1996;87(6):397-400.
18. Krahn M, Berka C, Langlois P, Detsky A. Direct and indirect costs of asthma in Canada, 1990. *CMAJ* 1996;154(6):821-29.
19. Alberta Human Resources and Employment. Final Report: Evaluation of the Alberta Child Health Benefit. Edmonton: Government of Alberta, 2001.

Received: December 5, 2002

Accepted: May 16, 2003

RÉSUMÉ

Objectifs : Analyser l'évolution de l'utilisation des services de santé par les bénéficiaires des Prestations familiales de maladie de la Saskatchewan, un programme d'allocations complémentaires auquel ont accès depuis juillet 1998 les familles à faible revenu qui travaillent. Ces prestations ont réduit ou éliminé les frais des médicaments sur ordonnance et les frais des services de chiropractie, d'optométrie et de soins dentaires.

Méthode : La population à l'étude comprenait les bénéficiaires du programme entre juillet 1998 et janvier 2000. Les données administratives du ministère de la Santé de la Saskatchewan ont servi à saisir l'information sur les changements concernant la protection et le recours aux hôpitaux, aux médecins, aux médicaments sur ordonnance et aux services de chiropractie et d'optométrie entre 1997 et 2000. Le profil démographique de la population à l'étude est fourni. Les taux d'utilisation ont été comparés à ceux des périodes antérieure et postérieure au lancement du programme.

Résultats : Près des trois quarts des bénéficiaires des Prestations familiales de maladie ne jouissaient d'aucune protection médicale complémentaire l'année précédente. Une vaste proportion des bénéficiaires vivait en milieu rural. Les bénéficiaires des milieux ruraux et urbains affichaient un profil démographique distinct. Le recours aux services médicaux et hospitaliers a diminué après le lancement du programme, mais l'utilisation des médicaments sur ordonnance et des services de chiropractie et d'optométrie s'est accrue.

Conclusions : La réduction des frais modérateurs pour les services inassurés a entraîné une hausse dans l'utilisation de ces services, ce qui porte à croire que les frais modérateurs font obstacle à l'utilisation des services de santé dans les familles à faible revenu.