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COMPREHENSIVE COSTING OF SUPPORT SERVICES FOR VULNERABLE POPULATIONS: A CASE STUDY

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Abstract: Comprehensive costing of human services remains an understudied issue in evaluating health and social services. Evaluations done to date have either considered only some of the services offered to clients or restricted the examination to costs borne by programs. Most studies to date have been conducted in the United States and Britain, countries that have different systems of health and social services than Canada. This article presents a case study of the use of a "comprehensive costing approach" in a Canadian context. The approach examines the full range of costs of health and social services and other supports associated with assisting a person with severe and persistent mental illness to live in the community. The case study represents a pilot program (funded by the Ministry of Health in Ontario) to provide specialized support services for a consumer to live in the community. Cost comparisons developed around the initiation of the pilot program in the present evaluation examined the consumer's initial months in the program and a period prior to entering the program when the consumer was receiving standard care in the community, including a period of hospitalization. Costs were compared according to different domains such as accommodation, social benefits, and health and social services. Perspectives of program planners on the impact of costing evaluations for a case study are provided, followed by limitations and future directions for the methodology.

Résumé: L'établissement compréhensif des coûts des services à la personne demeure une question négligée dans le cadre de l'évalua-

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tion des services de santé et des services sociaux. Les évaluations qui ont été effectuées jusqu'à date ont considéré seulement certains des services offerts aux clients ou ont limité leurs observations aux coûts des programmes. Pour la plupart, les études effectuées jusqu'à présent ont été menées aux États-Unis ou en Grande Bretagne, c'est-à-dire dans des pays dont les systèmes de soins de santé et les services sociaux diffèrent de ceux que l'on retrouve au Canada. Cet article présente une étude de cas visant l'application dans un contexte canadien d'une approche «compréhensive» à l'établissement des coûts. L'approche examine la gamme complète des coûts des services de santé, des services sociaux et d'autres services visant à aider une personne souffrant d'une maladie mentale grave et persistante à vivre au sein de la communauté. L'étude de cas traite d'un programme pilote (financé par le ministère de la Santé de l'Ontario) visant à fournir des services de soutien spécialisés à une cliente afin qu'elle puisse s'intégrer à la communauté. Les comparaisons des coûts, qui ont été développées en se fondant sur le début du programme pilote étudié, traitent des premiers mois de services à la cliente ainsi que d'une période précédant son accession au programme, pendant laquelle elle a reçu des soins standards dans la communauté et dans un hôpital. La comparaison des coûts se divise en catégories telles que le logement, les avantages sociaux et les services sociaux. L'article présente les considérations des planificateurs du programme concernant l'impact des évaluations de l'établissement des coûts dans une étude de cas ainsi que les limites de l'étude et les perspectives d'avenir sur le plan de la méthodologie.

Despite the importance of costing services in the evaluation of human services, it remains an understudied and elusive issue in research on health and social services (Knapp, Netten, & Beecham, 1993). The fact that costing is perceived by program evaluators as extremely labour-intensive and requiring specialized training in economics has probably contributed to the paucity of research in this area. An area of human services that has received perhaps the most attention in terms of costing research has been community mental health services (i.e., mental health services that are intended to help persons with severe and persistent mental illness to live successfully in the community).

Research that has been conducted on costing community mental health services has focused especially on “case management” (Latimer, 1999), a treatment approach that covers a broad range of services and programs that share the common purpose of coordinating and providing services and supports for persons with severe

mental illness living in the community (Intagliata, 1982). The research on costing case management typically has compared different types of case management (Clark et al., 1998; Johnston et al., 1998; Quinlivan et al., 1995; Wolff et al., 1997) or compared case management with other types of services including standard mental health care (Dincin, Wasmer, Sobeck, Cook, & Razzano, 1993; Ford et al., 1997; Galster, Champney, & Williams, 1994; Hadley, McGurrin, & Fye, 1993; Hoult, Reynolds, Charbonneay-Powis, Weekes, & Briggs, 1984; Knapp et al., 1994; Lehman et al., 1999; Quinlivan et al., 1995; Salkever et al., 1999; Weisbrod, Test, & Stein, 1980). A small number of studies have also examined cost-effectiveness, relating the costs of services to client outcomes (Clark et al., 1998; Lehman et al., 1999).

A major limitation to the costing research found in many of the studies conducted on community mental health services is that they have restricted costing to only some of the services being delivered to clients, either those offered by the program under study or to health services (Dincin et al., 1993; Galster et al., 1994; Hadley et al., 1993; Hoult et al., 1984; Lehman et al., 1999; Quinlivan et al., 1995; Salkever et al., 1999; Wolff et al., 1997). The difficulty with this kind of limited costing is that it can provide a misleading picture of how and whether or not programs are contributing to lower costs, since lower costs in one studied area (e.g., hospitalizations) may be offset by higher costs in another non-studied area (e.g., housing) (Knapp, 1993).

Another important limitation to this body of research, at least from the standpoint of Canadian mental health service researchers, is the fact that most of it has been conducted in the United States or England (Latimer, 1999). To date, there is no published study that costs community mental health services delivered in a Canadian locale. Given the role that the configuration of available health and social services play in costing human services, it is unlikely that research conducted in other countries can be generalized to Canada.

In response to these limitations, the present article is intended to provide a case study of the use of "comprehensive costing methodology" in a Canadian context. The methodology is based on the "production of welfare" approach developed at the Personal Social Services Research Unit at the University of Kent at Canterbury in England (Beecham, 2000; Cambridge, Hayes, Knapp, Gould, & Fenyo, 1994; Netten & Beecham, 1993). It involves examining the full range of costs of health and social services and other natural supports (e.g., family) associated with assisting persons with severe and persistent mental illness to live in the community.

The presented case study is part of a formative evaluation of a community mental health support program, a pilot program that involved intensive "specialized home-based support services" from several community agencies to a client presenting with complex needs not being met by standard care available in the community. Although the overall objectives of the evaluation were to examine the implementation of the program and perceptions of the services provided from the vantage point of multiple stakeholders, the focus of this article is on the use of comprehensive costing methodology and the results it yielded in the evaluation.

DESCRIPTION OF THE CONSUMER OF SERVICES IN THE CASE STUDY[1]

The consumer in the case study is a middle-aged adult with severe and persistent mental health problems who had frequently accessed psychiatric treatment including multiple hospitalizations and emergency services. Compliance with treatment has been a long-standing difficulty, and the consumer frequently experienced an exacerbation of mental health symptoms as a result of not following a medication regimen. Although the consumer had received many support services, the consumer experienced repeated and cyclical difficulties with living independently in the community that ultimately resulted in hospitalizations. Unfortunately, as one stakeholder in the evaluation mentioned, "there came a time when no one (and no agency) wanted to be responsible for providing (the consumer) with shelter or services. Neither the hospital, nor the community, could adequately meet (the consumer's) challenging needs." In response to another crisis episode, the consumer was admitted to hospital and a need was identified to create specialized support services in the community upon the consumer's discharge.

CONTEXT OF THE CREATION OF SPECIALIZED COMMUNITY MENTAL HEALTH SUPPORT SERVICES

In the past decade, mental health services in Ontario have continued to evolve away from institutions toward community-based care. The provision of services in the community necessitates both innovative and coordinated planning from a variety of hospital-based and community settings. In order to support a consumer living independently in the community, all aspects of his/her care must be met.

In this context of developing community-based services, specialized support services, known as the Shared Responsibility for Care Pro-

gram, were developed by a local mental health agency in an Ontario city in partnership with a community-based health care organization (providing home-based nursing and support services) and the hospital system. The pilot program was initially designed to offer 24-hour on-site community-based support to an individual consumer (described above) and was subsequently expanded to provide services to four consumers of mental health services.

The pilot program received funding from a special grant from the Ontario Ministry of Health and Long-Term Care for a six-month period. An important aspect of the pilot program was that its implementation would be evaluated during its first six months of operation. This article describes the methodology and results of the comprehensive costing of services delivered to the first consumer receiving these services.

COMPREHENSIVE COSTING METHODOLOGY

Services accessed by the client were identified by an interview protocol developed from the Client Service Receipt Interview (CSRI) (Beecham & Knapp, 1992) for services available to persons with severe mental illness in Ontario. In line with Beecham and Knapp (1992), the process of comprehensively costing services involved three steps: (a) identification of services used by clients, (b) pricing of these services, and (c) costing of the full care package by multiplying services used by costs. Cost areas examined in the CSRI include accommodations, health and social services, employment earnings and/or social benefits, and informal care contributions from family and friends. For the CSRI, information on services and supports received by clients is provided by service providers who are closely and regularly involved with them. In cases where information is missing, the client is queried.

Costs were calculated using information on facility or program specific accounts and provincial and local data on fees and salaries related to health care and social services. Costs for services were calculated at a constant unit that is relevant to the type of service received. Interview data were merged with information on service costs to estimate the costs of the different elements of the community care package. A summing of the client's average weekly use of services multiplied by the relevant unit costs of services provided the total cost of community care. There are no psychometric data available on the CSRI. However, the presence of group differences related to type of accommodation and the relationship of costs to client charac-

teristics and treatment outcome in British research on community care for persons with psychiatric disabilities using the CSRI suggest that the measure is reliable (Beecham, Knapp, & Fenyo, 1993).

Cost comparisons developed around the initiation of the pilot program in the present evaluation examined the initial months of the program and a similar time frame immediately preceding the program. The consumer spent two months as an in-patient before the initiation of the program, so in order to perform a like-with-like comparison, the period of community living preceding the in-patient stay was used as the comparison for the time frame of the pilot program. In addition, the costing of the in-patient stay was included as a representation of costs of the consumer's care in this type of service setting.

COMPREHENSIVE COSTING RESULTS

Tables 1 to 3 provide comprehensive costing estimates for three time periods: (a) a comparison period of living in the community prior to receiving services from the pilot program (214 days); (b) a two-month period of hospitalization (63 days); and (c) a five-month period while receiving services from the pilot program (152 days). In each time period, costs are summed for the categories of housing, social benefits, and health and social services, which include regular and emergency services. The consumer received no support from family members, friends, or volunteers during the periods under study. Therefore, no costs related to informal care were incurred or accounted. Total and per diem costs are presented for each time period.

Comparison of Total Costs Between Study Periods

In a comparison of total costs for each of the three periods examined, the results show that the costs for services consumed while participating in the pilot program ($461 per day) are comparable to the period of community living prior to participating in the program ($459 per day) but less expensive than hospital care ($522 per day). However, two important issues need to be considered in the interpretation of these comparisons.

First, in the period of community living prior to participating in the pilot program, the costs of police services and the involvement of the client with the judicial system were not available. Informal sources of information (such as reports from service providers) suggest that there may have been as many as eight encounters with the police department and four separate contacts with the judicial

Table 1
Prior Period of Community Living

Type of Expense	*Description*	*Cost (in dollars)*[a]
Housing	Emergency shelter services (13 days x $25.91/day)	336.83
	Subsidized apartment (rent geared to income)	4,018.00
	Damage to apartment (fire and inflicted damage)	8,075.71
	Refurbishing costs	5,132.50
	Subtotal	17,562.84
	Per diem	82.07/day
Social Benefits	Benefits received (for 7 months at $598 per month)	4,186.00
Health Care and Social Services	3 in-patient stays (20 days total) (per diem rate: $362/day)	8,327.83
	MD consultations (14) ($114.55/consultation)	1,605.70
	2 emergency room assessments for IP stays ($400/assessment)	800.00
	2 additional ER assessments	800.00
	2 MD consultations	229.10
	Case manager (240 hrs. x $21.50/hr.)	5,160.00
	2 outreach workers (109.8 hrs. x $20.96/hr.)	2,901.41
	Emergency-based support	13,775.00
	Subtotal	33,599.04
	Per diem	157/day
Health Care and Social Services – Emergency Services	Ambulance: 4 calls x $240/trip (land)	960.00
	Fire department: ($3,000/call)	33,000.00
	1 apartment fire x 1.5 hr.	9,000.00
	Police services and legal costs: Consent for release not provided	Not known
	Subtotal	42,960.00
	Per diem	34.56/day
	Total costs available[b]	98,306.08
	Total cost divided by number of days in time period (214 days)	459.37/day

Note: While subsidized housing cost $32/month for the consumer (apportioned from the shelter allowance portion of the consumer's social assistance), the nonprofit housing provider received a subsidy from the Ontario government. Hidden costs that remained uncalculated included: damage costs to nearby apartments, additional costs incurred by other residents as a result of the fire, the costs of the consumer's personal possessions destroyed in the fire, and the cost to the management company for the inability to rent the apartment for the time that it was being restored.

[a] Costs are based on estimates provided by the Ontario Ministry of Health and Long-Term Care, respective hospitals and service agencies, and information from the consumer's service file (reviewed with permission).

[b] Informal care contributions not recorded or known by service providers or client.

system. Therefore it can be assumed that the provision of an estimate of police and judicial costs will significantly increase the total cost of care for that time period.

Second, during the period of community living prior to participation in the pilot program, the consumer was described as posing a high risk to self and the community. The placement in the community was largely a time of crisis management for the consumer (see emergency costs), and resulted in an in-patient psychiatric admission. In contrast, the consumer has not used police or legal services while receiving services from the pilot program and was described as a much lower risk to self and the community.

Comparison of Costs Between Study Periods by Service Area

In more fine-grained analyses of costs according to areas of services and supports, differences between the examined periods are evident. Differences were particularly apparent in the area of housing, with

Table 2
Costs for Period of Hospitalization

Type of Expense	*Description*	*Cost (in dollars)*
Housing	No specific rental expenses due to hospitalization	0.00
Social Benefits	Benefits received (2 months)[a]	1,032.00
Health Care and Social Services	*Health Care*	
	63 days x $362/day	22,850.10
	Medication costs	2,300.00
	25 MD consultations	2,978.30
	1 ER MD consultation	114.55
	1 ambulance trip	240.00
	1 ER assessment	400.00
	Social Services	
	Case manager (30 hours)	645.00
	Outreach worker (3 hours)	62.88
	Special support (initiation): 4 hrs./day x 20 days	1,676.80
	Total cost[b]	32,933.63
	Total cost divided by 63 days	522.76/day

a Amount differed due to no need for rental subsidy.
b Informal care contributions not recorded or known by service providers or client.

higher costs in the pre-participation in the pilot program associated with stays in emergency shelters and damage caused by the consumer to the consumer's apartment and belongings. In contrast, no costs were incurred in these areas during the period the consumer was receiving services from the pilot program.

In the area of health and social services, costs associated with in-patient treatment and emergency services are lower during the consumer's participation in the program compared to living in the community prior to program participation. Differences in the costs of support services varied dramatically across the time periods compared, as can be expected by the mandate of the Shared Responsibility of Care to provide 24-hour support to the consumer. Specifically, costs associated with home care support were higher for the period of participation in the pilot program.

Table 3
Costs for Period Receiving Services from the Pilot Program

Type of Expense	*Description*	*Cost (in dollars)*
Housing	Rent geared to income ($414 subsidy)	2,070.00
	Per diem	13.62/day
Social Benefits	Benefits received (5 months) No employment earnings	2,580.00
Health Care and Social Services	In-patient stay (2 nights)	825.40
	1 ER consultation (arrived by private car)	400.00
	2 MD consultations	229.10
	Psychologist consultation	2,500.00[a]
	On-site support (2774.25 hrs.)	42,170.75[a]
	Specialized support worker (40 hrs./week)	17,606.40[a]
	Case manager (81 hrs.)	1,741.50
	Subtotal	65,473.15
	Per diem	430.74/day
Health Care and Social Services — Emergency Services	None used	0.00
	Total costs to date[b] (152 of the 180 days of the pilot)	70,123.68
	Total cost divided by 152 days	461.34/day

[a] Money designated in Shared Responsibility for Care Grant from Ministry of Health.
[b] Informal care contributions not recorded or known by service providers or client.

Notable differences in costing are also apparent in contrasting the use of emergency services (i.e., police and fire department) over the two periods of community living. For example, there was no involvement of ambulance services, police, or fire department during participation in the pilot program in contrast to $42,000 of services consumed on these services prior to participation in the pilot program.

Impact of the Costing Evaluation

Program managers responsible for the development and administration of the Shared Responsibility for Care program reflected on the impact of comprehensive costing findings on the participating agencies and the communication of them to the Ontario Ministry of Health and Long Term Care. Managers spoke of the delineation of costs, both before and during the program, as crucial in understanding the allocation of resources to support persons living in the community, including the need for intensive specialized services. For example, even though the overall cost per day of caring for the consumer in the community was not significantly different before or during the pilot program, the differential expenditure of resources to different domains (such as crisis response in the pre-program time versus supportive services during the program) helped to underscore improvements in the consumer's adaptation to living in the community. The costing analysis also identified the overuse of certain costly services (such as emergency-based services) separate from mental health services, providing a rationale for more intensive home care services.

Program managers noted that the comprehensive costing results enabled them to make the case to the Ontario Ministry of Health and Long Term Care for funding these types of services. In particular, the results demonstrated that although the program was expensive, it was less expensive to have the consumer living in the community with intensive specialized support than to remain hospitalized, and no more expensive than the standard community care option. The comparisons between the different service options were particularly important given the relatively high cost (i.e., greater than $168,000 per year) associated with the specialized services. This amount is several times greater than what has typically been estimated as the cost of supporting consumers of community mental health services in the U.S. (Clark et al., 1998; Lehman et al., 1999; Weisbrod et al., 1980). It was expected that the intensity of specialized services would be diminished for the consumer once the consumer's functioning had stabilized.

CONCLUSIONS

This article provides a case study of the use of a "comprehensive costing approach" in a Canadian context by examining the costs of supporting one consumer to live independently in the community with the use of specialized support services. The use of comprehensive costing allowed three periods of the consumer's life to be compared in terms of total costing, costing per area of service, and variations in the proportion of costs incurred by society, program, and consumer. In the completed case study, costs were examined in the context of the consumer's functioning and adaptation to living in the community. The evaluation findings sensitized program planners and funders to the relative costs involved in supporting consumers to live independently in the community versus alternative forms of care, including psychiatric hospitalization.

The present study represents a specialized case study. As such, the contribution it provides to the evaluation literature is methodological rather than substantive. It demonstrates the importance of including comprehensive costing in the evaluation of human services (even very specialized individual services), but its specific results apply only to the consumer served by this program. The findings of the case study also highlight the value of considering costs in the development of specialized programs, such as the Shared Responsibility for Care Program. As demonstrated, comprehensive costing methodologies can be applied to individualized programs using a case study design to examine the full range of costs associated with supporting a consumer to live independently in the community. Comprehensive costing allows for flexibility in its application, as it can be completed even in circumstances where a variety of health and social services are used by a consumer, allowing for an estimate of resource allocation.

A limitation of the costing methodology is the reliability of the information on actual services received by the consumer, given that the information is being provided primarily by a knowledgeable service provider and supplemented by the consumer when necessary. If anything, the methodology probably leads to an underestimate of actual costs since information recovered in this manner may be affected by the extent that it is readily remembered by service providers and/or consumers. In the case of the current studied case, the major costs have likely been identified, since these involved meeting basic needs and services associated with crises.

Another limitation encountered in the present study was the difficulty of accessing information on the costs of health and social services used by the consumer. Either the information is not readily available or organizations are reluctant to share it. A certain amount of persistence was required to obtain the best possible estimate of different services and supports. Finally, even though the presented methodology can be applied to consumers receiving a wide range of human services, the information gathered on one case cannot in any way be considered generalizable for the program under study or for similar programs. Beecham et al. (1993) demonstrated the large variability in total costs of services delivered to different consumers with severe mental illness living in the community.

Despite these limitations, we believe that comprehensive costing should be more frequently applied in the evaluation of human services. We hope that the present article demonstrates the feasibility and value of using this methodology.

NOTE

1. In order to ensure the anonymity of the study participant, the case description has been kept purposefully general and certain information about the participant has been changed.

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