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Evaluation of an Organization for Integrating Physician Services in the Home

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Key Implications for Decision Makers

- The Integrated Physician Services in the Home (IPSITH) provides an multidisciplinary model of care for treating acute and complex illnesses in the home. The IPSITH team consists of the patient, an informal caregiver, the family physician, a nurse practitioner, specialists, community nurses and a support network of laboratories, pharmacies, oxygen suppliers and diagnostic services.
- The IPSITH model may represent an alternative to hospital care in some cases.
- IPSITH cost an average of \$1,270 more per patient than the usual homecare, but provided more benefit and cost much less than hospitalization for the same diagnosis. There is evidence that patients in the IPSITH group were more severely ill and more likely candidates for hospitalization than patients in the non-IPSITH group. When compared to a similar group of hospital patients, IPSITH patients cost an average of \$400 to \$1,900 (without and with fixed hospital costs) less per episode. Because hospital costs do not include physician billings, the potential cost savings from IPSITH have been underestimated.
- IPSITH provided greater benefits than non-IPSITH homecare even though many of the IPSITH cases were more severe than the non-IPSITH cases. From the ministry of health's perspective, the average cost of an IPSITH patient was \$1,919.
- During the treatment episode, non-IPSITH patients used emergency room services at about three times more than sicker IPSITH counterparts. Additional targeted funding to CCACs might reduce preventable emergency room episodes. Further, IPSITH prevented hospital visits from illnesses representing 3.4% of London hospital discharges during one year.
- Having a nurse practitioner, inter-disciplinary team-building exercises and meetings, regular face-to-face contact among all providers, support for family caregivers, and 24-hour availability of the nurse practitioner for physicians were found to be essential for success.
- IPSITH patients, their caregivers, family physicians, and nurses reported statistically significantly higher satisfaction with care than the non-IPSITH group. Informal caregivers reported more knowledge for the IPSITH group than for the non-IPSITH group.
- Physicians cited travel time, sacrifice of office hours and personal time, and poor remuneration as barriers to caring for patients in the home. An additional barrier is the decreasing availability of highly skilled community nurses and IV nursing teams.
- The presence of the nurse practitioner was a crucial component to the success of the program. The IPSITH model provides an example of how nurse practitioners can be successfully integrated into a Community Care Access Centre care team.
- Work must be done to address the current shortage of family physicians, nurse practitioners, and highly trained homecare nurses. As well, remuneration and/or incentives will be necessary to make care in the home an attractive alternative to other types of care available.
- Full-scale long-term integration of physician services in the home may require macro-level decisions about system design, resource allocation, and professional regulations.

Executive Summary

The Context

The Integrating Physician Services in the Home (IPSITH) program addressed the issue of family physicians' contribution to acute care in the home. Patients with significant problems are being cared for in the home because of hospital downsizing, patient preferences, and other pressures. In order for their care to be of the highest quality, health services in the community urgently need to be planned, implemented, rigorously evaluated and then improved.

At the time of the initiation of the project, care in the home and community was recognized nationally as a key focus (National Health Forum 1997). Then-Minister of Health, Mr. Allan Rock, recognized that "reinvestment in community and homecare is needed" and that "doctors are no longer compartmentalized" and must integrate into teams. Provincially, the Ontario Hospital Restructuring Commission recommended home-hospitals (Health Services Restructuring Commission 1997).

The Implications

The IPSITH program developed a medical infrastructure and piloted it within existing Community Care Access Centre (CCAC of London and Middlesex) program parameters. IPSITH met all its objectives with respect to the implementation of the program. IPSITH cost more than the usual homecare but provided more benefit. IPSITH cost much less than hospitalization for the same diagnosis. IPSITH provided greater benefits than non-IPSITH homecare even though many of the IPSITH cases were more severe than the non-IPSITH cases.

While there was enthusiastic participation from a number of family physicians, there were other physicians who initially enrolled in the IPSITH project but did not admit patients to the project. Physicians cited travel time, sacrifice of office hours and personal time, and poor remuneration as barriers to caring for patients in the home. An additional barrier is the decreasing availability of highly skilled community nurses and IV nursing teams.

For the physicians who did participate, the presence of the nurse practitioner (NP) was a crucial component to the success of the program. For the duration of the project, the NP was on call 24/7, a situation which could not continue in an on-going program. At least one other NP would have to be available to share the call schedule.

The introduction of a nurse practitioner to the homecare team resulted in a redefinition and enhancement of the roles of the case manager and the visiting nurse. The IPSITH model provides an example of how nurse practitioners can be successfully integrated into a Community Care Access Centre care team.

Work must be done to address the current shortage of family physicians, nurse practitioners, and highly trained homecare nurses. As well, remuneration and/or incentives will be necessary to make care in the home an attractive alternative to other types of care available.

During the treatment episode, non-IPSITH comparison patients used emergency room services at approximately three times the rate of their sicker IPSITH counterparts. Additional targeted funding to CCACs might seek to reduce preventable emergency room episodes. Further, IPSITH prevented hospital visits from illnesses representing 3.4% of London hospital discharges during one year.

The IPSITH model may represent an alternative to hospital care in some cases. Consequently, costs of care are shifted from institutions to the community and from the Ministry of Health to the family. The magnitude of this shift warrants further investigation in terms of more precise estimates of the caregiver costs and health care system cost savings.

The researchers conclude that integration of services takes time, money, and a sustained commitment. Informed choice and a fair remuneration system remain important considerations for family physicians. Full-scale long-term integration of physician services in the home may require macro-level decisions about system design, resource allocation, and professional regulations.

The Approach

The IPSITH program was evaluated employing both qualitative and quantitative methods. Qualitative interviews were conducted with key informants at the beginning of the program and again at the 18-month point. Quantitative data were gathered from interviews, surveys, chart audits, and various health care data sources such as the Community Care Access Centre database. Qualitative data were analyzed and interpreted, identifying themes and patterns. Qualitative data were analyzed using various techniques including analysis of variance and economic evaluation.

The Results

Findings from the first set of qualitative interviews conducted at the beginning of the IPSITH program revealed the potential for enhanced continuity of care and interdisciplinary team functioning. Having a nurse practitioner, inter-disciplinary team-building exercises and meetings, regular face-to-face contact among all providers, support for family caregivers, and 24-hour availability of the nurse practitioner for physicians were found to be essential for success.

The second set of qualitative interviews was conducted at the 18-month point in the program's implementation. Findings revealed the central role of the nurse practitioner, who served as a clinical expert, case co-ordinator, and educator. Several unsolved issues were identified: the extent to which homecare is a viable alternative to hospitalization, the feasibility of physician involvement, redundancies with hospital emergency services, and the limitations of system resources for funding such services.

Eighty-two patients participated in the quantitative components of the study. Prompt initial medical assessment and subsequent written plan and orders were provided for all patients. Quick and effective communication occurred between the family physician and homecare providers including the nurse practitioner.

Outcomes were compared for IPSITH patients and non-IPSITH patients receiving usual homecare provided by CCAC, controlling for severity of the patients' conditions. Fewer IPSITH patients went to the emergency department during the treatment period and for six weeks after. IPSITH patients, their caregivers, family physicians, and nurses reported statistically significantly higher satisfaction with care than the non-IPSITH group. Caregivers reported more knowledge for the IPSITH group than for the non-IPSITH group.

The economic analysis was designed to provide estimates of: 1) the average total cost of an IPSITH subject; 2) the cost-effectiveness of IPSITH versus standard non-IPSITH care; and 3) a comparison of IPSITH and similar hospital patients.

From the Ministry of Health's perspective, the average cost of an IPSITH patient was \$1,919. In addition, there were personal costs (e.g., time spent providing informal care) borne by the caregivers of IPSITH patients. Time spent on providing informal care ranged from 0 to 168 hours with a median value of 15 hours. Caregivers of non-IPSITH patients spent a median 12 hours performing caregiver duties.

When compared to non-IPSITH patients, IPSITH patients enjoyed extra benefits including lower likelihood of an emergency room visit, higher patient satisfaction and greater caregiver knowledge. The additional cost of better outcomes averaged \$1,270 per patient.

There is evidence that patients in the IPSITH group were more severely ill and more likely candidates for hospitalization than patients in the non-IPSITH group. Consequently, hospital patients rather than standard CCAC clients may be a more appropriate comparison group. When compared to a similar group of hospital patients, IPSITH patients cost an average of \$400 to \$1,900 (without and with fixed hospital costs) less per episode. Because hospital costs do not include physician billings, the potential cost savings from IPSITH have been underestimated.

Additional Resources

Throughout the implementation and evaluation of the IPSITH project, investigators have been disseminating information to various stakeholders. This dissemination has taken the form of newsletters, presentations, posters, a web site, and peer-reviewed journal articles. The final results have been compiled in a multi-media presentation available on CD that incorporates research results with audio clips of the experiences of various members of the health care team.

Further Research

Further research should focus on evaluating the process of taking IPSITH to a wider group of family physicians. Work needs to be done to further identify the barriers that prevent widespread involvement and to pilot and evaluate programs aimed at overcoming barriers. Patients can be identified not only by the family physician but also by the hospital emergency department and Community Care Access Centre. A pilot of a wider integration than IPSITH is needed, providing and evaluating a more seamless transition from emergency departments to homecare, from hospital to homecare, from homecare to family physician and vice versa. Patients who do not have a family physician need a system to support their acute care in the home; such a system needs to be developed, implemented and evaluated.

Another key area of further research concerns the role of the nurse practitioner. Is the efficiency demonstrated to date, generalizable to other nurse practitioners and locations? What number of nurse practitioners would be required for a specific population of patients? What are the key effective components of the role, such as health promotion and continuity of NP care?

Other related issues concern the role of the in-home nurse in the delivery of clinically challenging acute and complex care, such as attitudes, protocols, interdisciplinary teamwork and remuneration.