Appendix 2: Costing methodology (as supplied by the authors)

The number of chemotherapy visits was obtained from the National Ambulatory Care Reporting System (NACRS) from 2003 onwards and from physicians' billings for chemotherapy injections in the Claims History Database of the Ontario Health Insurance Plan (OHIP) before 2003. The cost of chemotherapy visits (including the cost of the drugs administered) was estimated from the NACRS using the Resource Intensity Weight (RIW) method (1-3). The RIWs are index number values calculated by the Canadian Institute for Health Information (CIHI) (http://www.cihi.ca); they are estimated annually and represent the relative cost of patient types. We multiplied the RIW associated with each chemotherapy visit by the average provincial cost per weighted case to obtain the total cost. The average cost per visit in 2003 was then used to estimate the costs of all visits identified in the OHIP data for the pre-2003 period. In addition, we obtained the dosage and cost of chemotherapy drugs paid under the New Drug Funding Program (NDFP) from data obtained from Cancer Care Ontario. This program funds new and approved intravenous cancer drugs administered in hospitals and cancer centres.

We obtained data on radiation therapy from the Activity Level Reporting data[1] from Cancer Care Ontario (http://cancercare.on.ca). We used the National Hospital Productivity Improvement Project (NHPIP) code assigned to each fraction of radiation therapy to cost radiation therapy. We obtained the cost per NHPIP unit ($8.03 in 1995/96) from published Ontario data (4). This value includes salaries and benefits for secretaries, nurses, physicists, therapists; the cost of equipment (machines and cobalt source); the cost of supplies (medical/surgical, administration, physics, radiotherapy, planning CTs) and services (linens, lab, transcription, health information services, nutrition, clinics, department costs, offset revenues).

We obtained the number of diagnostic tests and their respective cost from the OHIP data. We divided the cost into technical and professional components. The technical component was included in the cost of diagnostic tests while the professional component was included in the cost incurred with physician services.

Individuals aged 65 years and older, long-term care residents, individuals receiving home care and other selected groups are eligible for prescription drug coverage under the Ontario Drug Benefit (ODB) Plan (http://www.health.gov.on.ca/english/public/program/drugs/drugs_mn.html). We estimated the quantity and cost of outpatient prescription drugs for all covered patients from the ODB Plan records.

We used the Discharge Abstract Database (DAD), which contains demographic, administrative and clinical data on acute care institution separations (discharges, deaths,

[1] This includes all activity occurring at the former Regional Cancer Centres in Ontario. Princess Margaret Hospital data to be introduced during fiscal year 2005/06 (Ontario Health Planning Data Guide – Release 3.0, 2006).

sign-outs, transfers) across Canada, to determine the frequency and type of inpatient hospitalizations. Costs were estimated using the RIW method (1-3).

The NACRS contains administrative, clinical, financial, and demographic data for hospital-based ambulatory care, including same day surgery (SDS), emergency department (ED) visits, medical day/night care, and high-cost ambulatory clinics, and is available from 2002/03 onwards. For the pre-NACRS period, the number of SDS was determined from the DAD while the number of ED visits was estimated from the OHIP claims history database. The RIW methodology was employed to determine the costs for SDS visits identified before 2002 (1-3). For ED visits prior to 2002 we applied the average 2002 cost.

Various funded services are available to individuals requiring care at home in Ontario (http://www.health.gov.on.ca/english/public/program/ltc/8_home_comm_mn.html), including professionals (e.g. nurses, physiotherapists), and personal, homemaking and community support. We estimated the frequency, length of stay and type of home care service from the Ontario Home Care Administrative System (pre-April 2005) and the Home Care Database (post-April 2005). Unit costs were obtained from the Community Care Access Centres, Toronto (5).

Complex continuing care (CCC) includes medical long-term care, geriatric assessment and rehabilitation, psychogeriatric care, palliative care, and respite care. The frequency and length of stay in a CCC facility were obtained from the Continuing Care Reporting System data. We estimated the cost of each stay by multiplying the length of stay in days by the average case mix index (a diagnosis-related group weight) per patient-stay and the cost per weighted day for chronic care (5).

We estimated the time spent in long-term care (LTC) facilities using the LTC flag in the Ontario Drug Benefit Plan database. We dated the onset of LTC from the first of three consecutive LTC-flagged drug claims and dated the cessation of LTC from the first of three consecutive non-LTC flagged drug claims to obtain the length of stay. The costs associated with nursing, food and programming for LTC residents are covered by the Ministry of Health and Long-term Care (http://www.health.gov.on.ca/) (5).

Finally, the number of all physician services and respective payments were estimated from the claims history database of the OHIP.

We used the health care component of the Statistics Canada Consumer Price Index for Ontario to adjust for inflation and reported all costs in 2009 Canadian dollars.

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