

Pharmacy Staffing and Drug Costs for Specific Clinical Programs and Pharmacy Services – Pediatric Hospitals

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In past years, the benchmark survey was sent to a small group of pediatric teaching hospitals in Canada. The Canadian Association of Pediatric Health Centers (CAPHC) has 41 members in the country but the number of dedicated pediatric teaching facilities is much smaller. It was primarily the latter group that was sent the benchmarking survey in the past, while in the present survey all pediatric facilities were given the opportunity to contribute whatever data they could regarding the staffing inputs and drug costs associated with providing service to specific patient care programs.

While the approach for the 2005/06 benchmarking survey had the impact of increasing the overall number of responses from pediatric facilities, the number of respondents from stand-alone pediatric hospitals (well-organized pediatric programs, operated relatively autonomously from adult programs) has stayed about the same (e.g. 7 in 2005/06, 4 in 2003/04 and 7 in 2001/02). Hospitals that primarily provide service to adult acute patients were also able to report data for specific pediatric programs (e.g. neonatal ICU) that were provided by their facility.

As in the acute care adult hospital section, specific clinical programs (i.e. pediatric oncology, pediatric intensive care, neonatal intensive care, and pediatric medicine/surgery) were identified in the survey and respondents were asked to provide information on the pharmacy staffing resources committed to those programs, and the drug costs incurred in managing the patients in that program. Some facilities were not able to provide data for all indicators; ratios were only calculated when sufficient data were available.

In Table L-1, data on staffing and drug costs for 4 inpatient clinical programs are presented, along with a geographic breakdown. The stand-alone pediatric hospitals were classified as teaching hospitals, whereas data from adult facilities, with a pediatric service component, were classified as non-teaching. In almost all cases, calculated means were higher than median values, suggesting that the data is not evenly distributed. For each pediatric clinical program area, there were a few hospitals that reported very large pharmacy resource inputs, resulting in an upward skewing of the data.

The data suggest that:

- High acuity/high complexity pediatric clinical programs consume significantly larger amounts of pharmacy staffing, on a paid hour per patient day basis, than did similar adult clinical programs. For instance, total paid hours per patient day were almost four times larger in pediatric oncology (3.77) than adult oncology/BMT (0.92) clinical programs, and were more than two times higher for pediatric intensive care (2.39) than adult intensive care (0.99) clinical programs. The survey was not designed to capture the reasons for any differences in the resources consumed by adult versus pediatric programs. However, a significant proportion of marketed drugs in Canada have not been studied in children prior to their market release, requiring much more care and diligence when they are used in children. In addition, for many drugs used in children, pharmacists have to compound, monitor and adjust these drugs taking into account the weight, height, and/or body surface area of the child. These processes are inherently labour-intensive.
- Notwithstanding the new methodology used this year, total paid hours per patient day were relatively similar in the last two surveys for pediatric oncology (3.77 in 2005/05 vs 3.4 in 2003/04), pediatric intensive care (2.39 in 2005/05 vs 3.1 in 2003/04) and neonatal intensive care (1.06 in 2005/05 vs 1.2 in 2003/04).
- When comparing the total paid hours per patient day for medicine and surgery clinical programs in pediatric teaching hospitals, to the total paid hours per day for pediatric programs in adult hospitals, the ratios were similar (0.81 vs 0.71 paid hours per patient day).

- Drug cost comparisons between pediatric and adult programs suggest that drug costs per patient day are much higher in pediatric oncology programs (\$311.34) than in adult oncology programs (\$133.15). However, drug costs per patient day were similar for pediatric and adult intensive care programs (\$102.47 and \$113.64, respectively).
- Drug costs per patient day for neonatal intensive care (NICU) programs were lower (\$19.44) than pediatric medicine-surgery clinical programs (\$21.81). Given the acuity of neonatal intensive care patients, it may be surprising to have a lower/similar drug cost per patient day than for medicine-surgery patients. This can be partly explained by the lower doses required for the neonatal population, and the limited arsenal of drugs used in neonates.

Table L-1 Mean Pharmacy Benchmarking Data for Selected Pediatric Clinical Programs

	Pediatric teaching hospitals				All hospitals
	Pediatric Oncology	Pediatric Intensive Care	Neonatal Intensive Care	Pediatric Medicine-Surgery	Pediatrics (from Table K-1)
Geographic distribution of respondents considered in the calculations	Prairies (1) Ontario (2) Quebec (3)	Prairies (2) Ontario (2) Quebec (3) Atlantic (1)	BC (1) Prairies (2) Ontario (6) Quebec (1) Atlantic(1)	BC (2) Prairies (3) Ontario (3) Quebec (2)	BC (3) Prairies (5) Ontario (17) Quebec (9) Atlantic (2)
Total Paid Hours per Patient Day	3.77 (n=5)	2.39 (n=6)	1.06 (n=7)	0.81 (n=7)	0.71 (n=10)
Drug Distribution Paid Hours Per Patient Day	2.57 (n=5)	1.55 (n=6)	0.65 (n=7)	0.63 (n=7)	0.47 (n=14)
Clinical Services Paid Hours Per Patient Day	1.15 (n=6)	0.78 (n=8)	0.36 (n=10)	0.19 (n=10)	0.19 (n=22)
Drug Costs Per Patient Day	\$311.34 (n=4)	\$102.47 (n=6)	\$19.44 (n=11)	\$21.81 (n=9)	\$16.83 (n=36)

In Figure L-1, a comparison of the data for distributive and clinical services is presented. The data suggest that:

- Paid hours per patient day for clinical are between 23% and 33% of the total paid hours per patient day required for both distributive and clinical services, suggesting that 67% to 77% of the total paid hours for pharmacists and technicians are utilized to provide drug distribution services. A similar trend was reported in the adult benchmarking chapter.

Figure L-1 Mean Pharmacy Staffing

