

# L - PHARMACY STAFFING AND DRUG COSTS FOR SPECIFIC CLINICAL PROGRAMS AND PHARMACY SERVICES - PEDIATRIC HOSPITALS 2007/08

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In this section of the survey, respondents from pediatric facilities were asked to provide the following information for the 2007/08 fiscal year:

- pharmacy staffing resources committed to specific pediatric clinical programs (i.e. pediatric oncology, pediatric intensive care, neonatal intensive care, and pediatric medicine/surgery),
- drug costs incurred in managing the patients in each of the above programs.

For this pediatric benchmarking part of the survey, we were interested in collecting data from “stand-alone” pediatric facilities. Although the pediatric facility did not necessarily have to be based in its own separate building, we were interested in capturing data from organizations that were providing a fairly comprehensive set of pediatric services, as opposed to data from a single general pediatric unit that was part of a larger adult facility. As a general rule, if the facility operated a pediatric and neonatal ICU, it was likely that it met our criteria for inclusion in this part of the survey.

Some facilities were not able to provide data for all indicators but they were encouraged to complete as many sections of the benchmarking survey as they could. For example, some respondents were able to provide a breakdown of drug costs by clinical program, but were not able to supply data on the staffing allocated to specific clinical programs. Staffing and drug cost ratios were only calculated when sufficient data were available.

Readers are reminded that the number of respondents in each cell may be different from those in other cells. As a result, there are some minor anomalies in the data. For example, for any given clinical program in the table, the paid hours per patient day for clinical services and the paid hours per patient day for drug distribution services may not add up to the same number as the total paid hours per patient day that is in the table for that program. That is a result of the fact that the number of respondents who provided data for each of those three indicators may be different.

When evaluating the pediatric benchmarking data, readers should bear in mind that the number of “stand-alone” pediatric facilities in Canada is quite small. As a result, the mean data is more likely to be affected by “outlier” data. Although we believe that the pediatric benchmarking data is very useful, the benchmarking data from any given Hospital Pharmacy in Canada Report should be compared to similar data from earlier reports, to insure that the data has been reasonably consistent from survey to survey. Other sources of benchmarking data should also be used, whenever such data exists.

In Table L-1, data on staffing and drug costs for 4 pediatric inpatient clinical programs are presented. 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 staffing resource inputs, resulting in an upward skewing of the average.

It should be noted that total paid hours per patient day and drug distribution paid hours per patient day include both pharmacist and technician hours, whereas clinical paid hours per patient day are pharmacist hours only, and only include pharmacist hours spent in providing clinical services.

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 27% and 36% of the total paid hours per patient day required for both distributive and clinical services, suggesting that 64% to 73% of the total paid hours for pharmacists and technicians are utilized to provide drug distribution services. These results are very

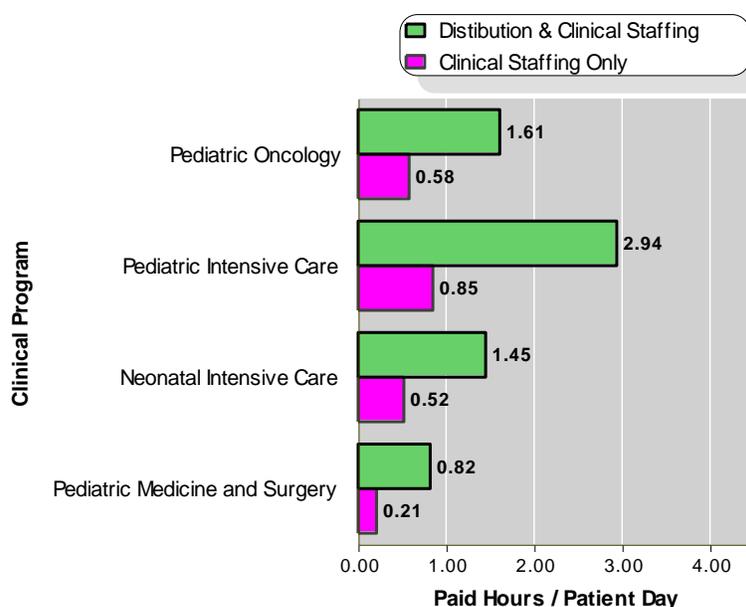
similar to those reported in the 2005/06 Hospital Pharmacy in Canada Report. The percentage breakdown for clinical and distributive services is also similar to the results reported for 2007/08 in the adult benchmarking chapter.

- As was noted in the last few Hospital Pharmacy in Canada Reports, high acuity/high complexity pediatric clinical programs were reported to require 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 for pediatric oncology patients were more than twice that reported for adult oncology patients, 1.61 and 0.73, respectively. Pediatric intensive care utilized 2.94 total paid pharmacy hours per patient day, compared to 1.23 for adult patients.

**Table L-1. Mean Pharmacy Benchmarking Data for Selected Pediatric Clinical Programs 2007/08**

Pediatric hospitals				
	Pediatric Oncology (7)	Pediatric Intensive Care (11)	Neonatal Intensive Care (10)	Pediatric Medicine Surgery (9)
Geographic distribution of respondents considered for calculations	BC (1) Prairies (1) Ontario (2) Quebec (2) Atlantic (1)	BC (1) Prairies (4) Ontario (3) Quebec (2) Atlantic (1)	BC (1) Prairies (4) Ontario (2) Quebec (2) Atlantic (1)	BC (0) Prairies (4) Ontario (3) Quebec (1) Atlantic (1)
Total Paid Hours per Patient Day	1.61 (n=4)	2.94 (n=8)	1.45 (n=9)	0.82 (n=6)
Drug Distribution Paid Hours Per Patient Day	1.01 (n=4)	2.03 (n=8)	0.91 (n=9)	0.60 (n=6)
Clinical Services Paid Hours Per Patient Day	0.58 (n=6)	0.85 (n=11)	0.52 (n=10)	0.21 (n=9)
Drug Costs Per Patient Day	\$178 (n=7)	\$125 (n=10)	\$45 (n=9)	\$50 (n=8)

**Figure L-1. Mean Pharmacy Staffing (paid hours per patient day) by Clinical Program 2007/08**



The reasons for these differences in staffing requirements between pediatric and adult patient groups are likely related to a number of factors that are unique to the pediatric population. For many drugs used in children the pharmacy service must assess the dosage, prepare/compound the medication, and monitor these drugs, while

taking into account the weight, height, and/or body surface area of each child. In addition, 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. These processes are inherently labour-intensive. In addition there are sometimes differences in the way pediatric care is organized. For example, the organization of cancer treatments in children is different than that for adult patients. Almost all children receiving oncology treatments are treated as part of a research protocol (Childrens Oncology Group protocols), which requires a greater amount of data collection and documentation than would be the case if the patients were not part of a research study. In the adult population, a much smaller percentage of patients are enrolled in research studies when they are receiving chemotherapy.

- There appears to be a significant drop in the total paid hours per patient day for pediatric oncology in 2007/08 (1.61 total paid hours per patient day), compared to the 2005/06 report (3.77 total hours per patient day). However, in this year's data an extreme outlier was identified and eliminated from the analysis because of a data inconsistency that could not be resolved. Had that outlier been included in this year's average, the 2005/06 and 2007/08 numbers would have been similar. The 2007/08 number is probably a more accurate reflection of the average pharmacy staffing resources that are being utilized for pediatric oncology.
- Staffing ratios were higher in the 2007/08 report for pediatric intensive care (2.94 total pharmacy hours per patient day, versus 2.39 in 2005/06) and for neonatal intensive care (1.45 total pharmacy hours per patient day in 2007/08, versus 1.06 in 2005/06). The staffing ratios for pediatric medicine/surgery were similar in both years (0.82 total hours per patient day in 2007/08, compared to 0.81 hours in 2005/06).
- Drug cost comparisons between pediatric and adult programs suggest that drug costs per patient day are higher in pediatric oncology programs (\$178) than in adult oncology programs (\$155). However, drug costs per patient day were similar for pediatric and adult intensive care programs (\$125 and \$113, respectively).
- Reported drug costs per patient day for the neonatal intensive care (NICU) program and the pediatric medicine/surgery programs more than doubled between the 2005/06 survey and the 2007/08 surveys. Reported NICU drug costs were \$19 per patient day in 2005/06, compared to \$45 in 2007/08. Pediatric medicine/surgery drug costs per patient day were \$22 in 2005/06 versus \$50. in 2007/08. Drug costs per patient day for pediatric ICU patients were also higher in 2007/08 (\$125) than in 2005/06 (\$102). Oncology drug costs per patient day were much lower in 2007/08 (\$178) compared to 2005/06 (\$311).