

A Description of Weekend Physiotherapy Services in Three Tertiary Hospitals in the Greater Toronto Area

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ABSTRACT

Purpose: The aims of this study were (1) to describe the cardiorespiratory physiotherapy weekend service (PWS) at three tertiary hospitals in the Greater Toronto Area (GTA) and (2) to compare measures of staff burden among the clinical service areas in one of the hospitals that had a programme-based management structure.

Method: Two focus-group meetings were held with physiotherapists from hospitals within the GTA. Thereafter, variables characterizing the PWS were collected over 8 months, using a standardized data-collection form.

Results: A total of 632 data-collection forms were received. Response rates exceeded 75% at each hospital. Workload variables, including the number of patient visits, new referrals per hour, and the proportion of staff completing unpaid overtime, differed between the hospitals ($p < 0.002$). There was no difference in any variable when data were compared between Saturday, Sunday, and statutory holidays ($p > 0.13$). Workload measures varied between clinical service areas at the hospital that provided PWS using a programme-based approach.

Conclusions: These findings highlight the important shortcomings of a programme-based management approach to providing PWS and may constitute a catalyst for change.

Key Words: hospital, physiotherapy, overtime, weekend, workload

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RÉSUMÉ

Objectif : Les objectifs de cette étude étaient : (1) de fournir une description des services de physiothérapie cardiorespiratoire offerts les fins de semaine dans trois hôpitaux tertiaires de la région du Grand Toronto; et (2) de comparer les mesures de la charge de travail du personnel dans les secteurs de services cliniques dans l'un de ces hôpitaux ayant une structure de gestion par programmes.

Méthode : Deux groupes de discussions ont été organisés avec des physiothérapeutes d'hôpitaux de la région du Grand Toronto. Par la suite, les variables caractérisant les services de physiothérapie offerts les fins de semaine ont été recueillies durant huit mois, à l'aide d'un formulaire standardisé de collecte de données.

Résultats : Au total, 632 formulaires de collectes de données ont été retournés. Le taux de réponse a dépassé les 75 % dans chaque hôpital. Les variables relatives à la charge de travail comprenaient le nombre de visites de patients, le nombre de patients dirigés vers le service chaque heure et la proportion avec laquelle le personnel effectuant des heures supplémentaires non rémunérées diffèrait selon les hôpitaux ($p < 0.002$). Il n'y avait pas de différence dans quelque variable que ce soit lorsque l'on comparait les données des samedis, dimanches et jours fériés ($p > 0.13$). Les mesures de la charge de travail variaient selon les services cliniques à l'hôpital offrant des services de physiothérapie les fins de semaine utilisant une approche par programmes.

Conclusions : Ces constatations mettent en lumière les faiblesses importantes de l'approche de gestion par programmes au moment d'assurer des services de physiothérapie les fins de semaine et cette manière de faire pourrait éventuellement devenir un catalyseur de changements.

Mots clés : charge de travail, fin de semaine, heures supplémentaires, hôpital, physiothérapie

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INTRODUCTION

Hospitals throughout Canada and other countries often provide cardiorespiratory physiotherapy services over the weekend.¹⁻⁵ A recent systematic review revealed a paucity of rigorous studies demonstrating clear benefits associated with the provision of physiotherapy weekend service (PWS) for patients with cardiorespiratory conditions.⁶ This suggests that PWS practice patterns may be shaped by factors such as historical precedent and individual therapists' judgement. Anecdotal evidence suggests that PWS is often characterized by high patient-to-therapist ratios, a lack of familiarity with the case histories of individual patients, and an increase in the complexity and acuity of the average patient scheduled for treatment. These factors vary among institutions, reflecting differences in management structure and institutional culture. Furthermore, physiotherapists (PTs) employed at hospitals that use matrix- or programme-based management approaches, in which therapists are not permitted to overlap between clinical service areas,⁷ are likely to notice inequalities in PWS provision within their facility.

Despite the perceived variability associated with provision of this service, few studies have attempted to quantify its characteristics. To date, studies reporting measures of workload have relied on the accurate recall of relevant variables by a representative staff member⁴ or have accessed an electronic charting system for data pertaining to specific conditions.² No study has carefully described variables that characterize cardiorespiratory PWS provision using a prospective study design that involves objective data collection over an extended period. The primary aim of this study, therefore, was to describe the cardiorespiratory PWS provided at three tertiary-care hospitals located within the Greater Toronto Area (GTA) over an 8-month period, using prospective data-collection methods. The three hospitals were chosen because of the similarity of their patients in terms of acuity and complexity, which served to minimize the influence of patient characteristics as potential confounding variables explaining any difference in PWS across the facilities. The secondary aim was to compare measures of staff burden among cardiorespiratory clinical service areas in the hospital that provided PWS using a programme-based management approach. The results of this study will be of interest to PTs involved in the provision of PWS and may assist in formulating a basis for establishing benchmarks and harmonizing this service at both national and international levels.

METHODS

Data collection for this study was a two-step process. The first step comprised two separate focus-group meetings with the senior PTs from hospitals in the GTA; the

second step involved data collection for key variables pertaining to PWS at these sites over an 8-month period. As the purpose of this study was to facilitate continuous quality improvement at each hospital, approval from a research ethics board was not deemed necessary.⁸

Focus-Group Meetings

Two face-to-face meetings were scheduled with representatives from the three hospitals. Each meeting was approximately 1.5 hours in duration. During the first meeting, a representative from each site provided a brief synopsis of the PWS at that site, including (1) clinical areas receiving PWS; (2) number of staff allocated to provide PWS; and (3) criteria used to determine patient eligibility. The second meeting was used to develop a measurement tool that could be implemented across the three hospitals to quantify specific variables related to the provision of PWS.

Quantification of PWS

A standardized data-collection form was developed, along with an accompanying list of definitions (see Table 1; the data-collection form and full guidelines for its use are available from the authors on request). These were e-mailed to all PTs at each hospital site to solicit feedback, and were subsequently modified to optimize their clarity. A pilot test of the forms was conducted during the weekends of October 2007. Data to be used for analysis were collected for all Saturdays, Sundays, and statutory holidays between November 1, 2007, and May 31, 2008. At the end of each month, representatives from each hospital sent the completed forms to a central site for data entry.

Data Management and Analysis

An experienced research assistant entered all data into an electronic database. The principal investigator (KH) double-checked the database against the data-collection forms to ensure accuracy of the data entry. Two variables were computed to measure workload and staff burden: (1) patient visits per hour worked and (2) proportion of staff completing unpaid overtime. Specifically, patient visits per hour worked were defined as the total number of visits to a patient (i.e., the sum of the number of "screens," "singles," and "doubles") divided by the total number of hours worked during the shift (see Table 1 for definitions). Calculating workload in this way allowed us to combine data collected during full and half shifts (defined as 7.5 and 4 hours respectively), as the variable was independent of the number of hours worked. Staff working in excess of these hours were not remunerated or offered time off in lieu. Therefore, staff were considered to have completed unpaid overtime for any full or half shift if the data-collection

Table 1 Definitions for Data-Collection Form

Term	Definition
Patient visits	Any visit by the physiotherapist to a patient (may be a 5-minute "check" or a 30-minute treatment). If the patient requires two or more separate assessment and treatment sessions, <i>each</i> session represents one patient visit.
Screens	Any in-person check of the patient <i>or</i> review of patient records <i>or</i> discussion with the nurse and/or doctor for the purpose of assessing the need for physiotherapy treatment over the weekend
Treatment (single)	Any therapeutic intervention provided by one physiotherapist
Treatment (double)	Any therapeutic intervention that required two or more members of the health care team (minimum of one physiotherapist)
Patients seen for "chest" reasons	Any patient seen for a respiratory problem (e.g., sputum retention, postoperative). Other reasons patients may have been seen by PWS include mobility issues not related to weekend discharge from the hospital, mobility issues to facilitate weekend discharge from the hospital, and range of motion problems/exercises.

forms indicated that working hours had exceeded 8 and 4.5 hours respectively.

The distribution of data was examined using frequency histograms. For data that approached a normal distribution, the values of variables were compared between hospitals, days, and clinical service areas within the hospital that provided PWS using a programme-based management approach, using one-way analysis of variance (ANOVA). For highly skewed data, values of variables between hospitals, days, and clinical service areas within the hospital that provided PWS using a programme-based management approach were compared using Kruskal-Wallis tests. A chi-squared one-variable test was used to compare the average number of beds covered by a single therapist at the three sites as well as the proportions of staff completing unpaid overtime. As these analyses were exploratory, prospective power calculations were not undertaken. Statistical significance was set at $p < 0.05$. Post hoc tests were adjusted using a Bonferroni correction factor.

RESULTS

Face-to-Face Meetings

At least one representative from each hospital attended both meetings. Table 2 summarizes the characteristics of each hospital, as well as aspects related to the provision of PWS described by representatives during this first meeting. The average number of beds covered by each PT rostered to work over the weekend at hospitals 1, 2, and 3 was 230, 108, and 179, respectively ($\chi^2 = 43.6$; $df = 2$; $p < 0.001$). Post hoc tests revealed

differences among the three hospitals (χ^2 ranged from 44.0 to 6.4; $df = 2$; p values ranged from < 0.001 to 0.012).

Data Collection

Response

Of the 632 data-collection forms received, 181 (29%), 294 (46%), and 157 (25%) were completed by the staff at hospitals 1, 2, and 3 respectively. The overall response rates and the proportions of data forms excluded from the three hospitals are summarized in Table 3.

Results of the Data Collection

Table 3 summarizes the workload variables collected at the three hospitals. Differences among the three hospitals were found for the number of patients visited per hour ($F(2,572) = 119.0$, $p < 0.001$), proportion of time dedicated to patient care ($F(2,546) = 32.3$, $p < 0.001$), proportion of "screening" visits ($F(2,567) = 38.4$, $p < 0.001$), proportion of "single" treatments ($F(2,567) = 25.4$, $p < 0.001$), proportion of patients seen for "chest" reasons ($\chi^2 = 18.7$, $df = 2$, $p < 0.001$), and number of new referrals ($\chi^2 = 40.6$, $df = 2$, $p < 0.001$). Post hoc testing showed that for all these comparisons, the findings for hospital 1 were significantly different from those for hospitals 2 and 3 ($p < 0.001$); no differences were found between hospitals 2 and 3 (p values ranging from 0.083 to 0.886). The proportion of staff completing unpaid overtime differed between hospitals ($\chi^2 = 13.4$, $df = 2$, $p = 0.001$), and post hoc testing demonstrated the proportion was greater at hospital 2 than at hospitals 1 ($\chi^2 = 11.6$, $df = 1$, $p = 0.001$) and 3 ($\chi^2 = 4.5$, $df = 1$, $p = 0.034$); no difference was found between hospitals 1 and 3 ($\chi^2 = 2.3$, $df = 1$, $p = 0.132$).

Considering all three hospitals together, Table 4 presents the workload variables separated according to day. No difference was found between Saturdays, Sundays, and statutory holidays in the number of patient visits per hour ($F(2,569) = 0.5$, $p = 0.58$); the proportion of visits spent "screening" patients ($F(2,564) = 0.1$, $p = 0.93$), on "single" treatments ($F(2,564) = 0.0$, $p = 0.96$), or on "double" treatments ($p = 0.49$); the proportion of time dedicated to patient care ($F(2,544) = 0.1$, $p = 0.89$); the proportion of patients seen exclusively for "chest" reasons ($p = 0.32$); or the number of new referrals ($p = 0.14$).

Table 5 summarizes the workload variables for the cardiorespiratory clinical services areas within the hospital where PWS was provided using a programme-managed approach (hospital 2). Differences were found between clinical areas in the average number of patients visited each hour ($F(4,275) = 14.8$, $p < 0.001$); the proportion of visits spent "screening" patients ($F(4,273) = 6.7$, $p < 0.001$), on "single" treatments ($F(4,273) = 4.5$, $p = 0.02$), and on "double" treatments ($\chi^2 = 41.6$, $df = 4$, $p < 0.001$); the proportion of patients seen exclusively for "chest" reasons ($\chi^2 = 106.2$, $df = 4$, $p < 0.001$); the

Table 2 Description of Participating Sites and Characteristics of Cardiorespiratory PWS

	<i>Hospital 1</i>	<i>Hospital 2</i>	<i>Hospital 3</i>
Total number of beds	890	1275	462
Number of FTEs available to provide weekday services across the hospital	40.3	69	27 (in-patient services) 6 (outpatient services)
Number of FTEs available to provide weekday services in clinical service areas included in this study	33	29.4	22
Management structure	Centralized PT department	Programme-based management	Programme-based management with centralized PT weekend service
Clinical areas included in this study (i.e., those that provide PWS to patients with cardiorespiratory conditions) (<i>n</i> = number of beds in the clinical area)	General medicine and surgical wards (<i>n</i> = 211) All ICUs (<i>n</i> = 90)	General medicine (<i>n</i> = 117)	Cardiorespiratory wards including cardiovascular surgery, vascular surgery, cardiology, nephrology, neuro/trauma, general surgery (<i>n</i> = 184)
	Cardiology (<i>n</i> = 59) Cardiovascular surgery (<i>n</i> = 52)	Cardiovascular ICU, cardiology wards, coronary care unit, and cardiovascular surgery (<i>n</i> = 85)	Critical care (<i>n</i> = 64)
	ENT (<i>n</i> = 23) Transplant and thoracic wards (<i>n</i> = 81)	Trauma (<i>n</i> = 107)	Inner-city health: general medicine (<i>n</i> = 64)
	Emergency room (<i>n</i> = 75) Gynaecological surgical wards (<i>n</i> = 19)	Oncology (<i>n</i> = 104)	Inner-city health: respirology (<i>n</i> = 15)
	Neurosciences, including spinal (<i>n</i> = 81)	Critical care (<i>n</i> = 20)	Inner-city health: haematology/ oncology (<i>n</i> = 15)
Number of FTEs available to provide PWS	Saturday = 3 Sunday = 3 Statutory holidays = 3	Saturday = 4 Sunday = 4 Statutory holidays = 4	Saturday = 2.5–3 Sunday = 1.5–2 Statutory holidays = 1.5–2
Cardiorespiratory conditions given priority over the weekend	Significant atelectasis; sputum retention and risk of re-intubation	Retained secretions + ineffective cough; recently extubated and significant atelectasis	Sputum retention; significant atelectasis and deterioration in respiratory status
Strategies to deal with excessive workloads	1.0 FTE available on call if required	Nil	Nil

ENT = ears, nose, and throat; FTE = full-time equivalent; ICU = intensive care unit; PT = physiotherapy; PWS = physiotherapy weekend service

proportion of time dedicated to patient care ($F(4,260) = 5.6, p < 0.001$); the number of new referrals ($\chi^2 = 138.0, df = 4, p < 0.001$); and the proportion of staff completing unpaid overtime ($\chi^2 = 25.6, df = 4, p < 0.001$). Compared with all other clinical service areas, (1) critical care was characterized by the highest number of patient visits per hour (p values ranging from < 0.001 to 0.006) and the greatest proportion of patients seen exclusively for “chest” reasons ($p < 0.001$ for all clinical areas); (2) trauma was characterized by the smallest proportion of patients seen exclusively for chest conditions ($p < 0.001$ for all clinical areas); (3) general medicine received the largest the number of new referrals ($p < 0.001$); (4) cardiovascular services received the smallest number of new referrals ($p < 0.001$); and (5) staff working in general medicine completed the least unpaid overtime (p values ranging from < 0.001 to 0.012).

DISCUSSION

To our knowledge, this is the first study to prospectively collect objective data pertaining to workload measures associated with the provision of PWS in tertiary hospitals over an extended period of time. The novel findings of this study are as follows:

1. On average, at all hospitals, the PWS was characterized by a large proportion of treatments’ being undertaken by a single therapist, more than 75% of working hours’ being dedicated to patient care, and less than one new referral every two hours.
2. Workload measures, including the number of patient visits per hour and the proportion of staff completing unpaid overtime, differed significantly among the hospitals.

Table 3 Summary of Responses and Practice Pattern Variables Collected across Three Sites

	<i>Hospital 1</i>	<i>Hospital 2</i>	<i>Hospital 3</i>
Response rate (<i>n</i> (%))	181 (79)	294 (76)	157 (83)
Forms excluded from analyses because of incomplete or illegible data (<i>n</i> (%))	3 (2)	13 (4)	3 (2)
Patient visits per hour*	1.1 ± 0.4 (0.3–3.1)	1.8 ± 0.5 (0.7–3.6)	1.7 ± 0.4 (0.8–2.7)
% of patients seen exclusively for a “chest” condition**	86.0 ± 37.8 (0.0–100.0)	97.0 ± 29.2 (0.0–100.0)	93.0 ± 14.0 (29.0–100.0)
Number of new referrals each hour**	0.1 ± 0.3 (0.0–1.2)	0.3 ± 0.4 (0.0–2.0)	0.3 ± 0.4 (0.0–1.1)
% of patient visits classified as “screens”**	13.2 ± 16.8 (0.0–83.3)	26.5 ± 19.5 (0.0–100.0)	30.2 ± 18.1 (0.0–72.7)
% of patient visits classified as “singles”**	82.0 ± 20.2 (16.7–100.0)	70.7 ± 19.7 (0.0–100.0)	67.2 ± 18.4 (0.0–100.0)
% of patient visits classified as “doubles”***	0.0 ± 0.0 (0.0–66.7)	0.0 ± 0.0 (0.0–50.0)	0.0 ± 0.0 (0.0–85.7)
% of total working hours spent with patients*	78.0 ± 18.6 (13.3–100.0)	87.8 ± 8.9 (37.5–100.0)	85.6 ± 8.3 (56.7–100.0)
% staff completing unpaid overtime***	3.4	18.9	7.8

See Table 1 for definition of “patient visits,” “screens,” “singles,” and “doubles.”

* Comparisons performed using one-way ANOVA; data are presented as mean ± SD (min–max).

** Comparisons performed using Kruskal-Wallis test; data are presented as median ± interquartile range (min–max).

*** Comparison performed using chi-squared one-variable test.

Table 4 Summary of Practice-Pattern Variables Collected across Different Days

	<i>Saturday</i>	<i>Sunday</i>	<i>Statutory Holiday</i>
Patient visits per hour*	1.6 ± 0.5 (0.4–3.3)	1.6 ± 0.5 (0.3–3.6)	1.5 ± 0.5 (0.4–2.7)
% of patients seen exclusively for a “chest” condition**	92.0 ± 27.5 (0.0–100.0)	90.0 ± 33.0 (0.0–100.0)	94.0 ± 25.0 (0.0–100.0)
Number of new referrals each hour**	0.2 ± 0.5 (0.0–2.0)	0.3 ± 0.4 (0.0–1.8)	0.1 ± 0.4 (0.0–1.3)
% of patient visits classified as “screens”**	23.4 ± 20.3 (0.0–100.0)	23.2 ± 19.1 (0.0–100.0)	22.2 ± 17.3 (0.0–63.6)
% of patient visits classified as “singles”**	73.5 ± 21.2 (0.0–100.0)	73.1 ± 19.5 (0.0–100.0)	74.0 ± 20.9 (27.3–100.0)
% of patient visits classified as “doubles”***	0.0 ± 0.0 (0.0–85.7)	0.0 ± 0.0 (0.0–60.0)	0.0 ± 0.0 (0.0–53.8)
% of total working hours spent with patients*	84.2 ± 12.8 (20.0–100.0)	84.2 ± 13.8 (13.3–100.0)	85.2 ± 15.0 (26.7–100.0)
% staff completing unpaid overtime***	12.6	9.5	14.3

See Table 1 for definition of “patient visits,” “screens,” “singles,” and “doubles.” No differences were demonstrated in any variable between the days.

* Comparisons performed using one-way ANOVA; data are presented as mean ± SD (min–max).

** Comparisons performed using Kruskal-Wallis test; data are presented as median ± interquartile range (min–max).

*** Comparison performed using chi-squared one-variable test.

- The characteristics of PWS were similar for Saturdays, Sundays, and statutory holidays.
- There were large disparities in the characteristics of PWS among clinical service areas in the hospital that provided this service using a programme-based management approach.

Our finding of similarities among the hospitals in many aspects of PWS reflects concordance in the scope

of such services described during the first face-to-face meeting. As summarized in Table 2, irrespective of the clinical service area, PTs prioritized those patients with acute respiratory conditions that were expected to deteriorate significantly without a specific physiotherapy intervention. This finding concurs with earlier reports that patients are often referred to the PWS for the prevention or treatment of respiratory complications resulting from their condition, such as a chest infection with sputum

Table 5 Summary of Practice-Pattern Variables Collected at the Hospital That Provided PWS Using a Programme-Based Management Approach

	<i>General Medicine</i>	<i>Trauma</i> [†]	<i>Cardiovascular Services</i>	<i>Critical Care</i>	<i>Oncology Services</i>
Patient visits per hour*	1.6 ± 0.5 (0.8–3.0)	1.5 ± 0.4 (0.7–2.2)	1.7 ± 0.3 (0.9–3.0)	2.1 ± 0.4 (1.1–3.6)	1.8 ± 0.6 (0.8–3.4)
% of patents seen exclusively for a “chest” condition**	80.0 ± 40.0 (0.0–100.0)	52.0 ± 24.5 (25.0–80.0)	92.0 ± 17.0 (0.0–100.0)	100.0 ± 0.0 (75.0–100.0)	100.0 ± 26.2 (0.0–100.0)
Number of new referrals each hour**	0.9 ± 0.8 (0.2–2.0)	0.3 ± 0.3 (0.0–1.1)	0.1 ± 0.1 (0.0–0.6)	0.3 ± 0.3 (0.0–0.6)	0.2 ± 0.5 (0.0–1.8)
% of patient visits classified as “screens”*	27.4 ± 24.4 (0.0–100.0)	12.9 ± 12.7 (0.0–44.4)	23.5 ± 14.4 (0.0–63.6)	30.6 ± 15.4 (0.0–64.3)	33.5 ± 21.9 (0.0–71.4)
% of patient visits classified as “singles”*	71.6 ± 24.6 (0.0–100.0)	83.1 ± 12.5 (55.6–100.0)	70.3 ± 16.6 (27.3–100.0)	67.5 ± 15.6 (28.6–94.1)	65.2 ± 21.7 (28.6–100.0)
% of patient visits classified as “doubles”**	0.0 ± 0.0 (0.0–50.0)	0.0 ± 6.7 (0.0–25.0)	0.0 ± 11.1 (0.0–33.3)	0.0 ± 0.0 (0.0–27.8)	0.0 ± 0.0 (0.0–33.3)
% of total working hours spent with patients*	85.7 ± 11.0 (37.5–94.7)	87.2 ± 5.8 (71.4–100.0)	90.7 ± 7.2 (71.4–100.0)	90.1 ± 7.4 (62.5–100.0)	84.2 ± 9.0 (61.5–100.0)
% staff completing unpaid overtime**	4.1	31.4	14.9	31.3	21.1

See Table 1 for definition of “patient visits,” “screens,” “singles,” and “doubles.” Significant between-group effects were demonstrated for each variable; see text for further details.

* Comparisons performed using one-way ANOVA; data are presented as mean ± SD (min–max).

** Comparisons performed using Kruskal-Wallis test; data are presented as median ± interquartile range (min–max).

*** Comparison performed using chi-squared one-variable test.

† The clinical service area classified as “trauma” included a small proportion of elective orthopaedic patients.

retention.^{1,2} Most interventions for patients with respiratory conditions can be provided effectively by a single therapist, which explains the trivial proportion of treatments delivered as part of PWS that required two health care professionals (i.e., “doubles”). Consensus among hospitals as to the scope of PWS was reflected in the fact that more than 75% of working hours were dedicated to patient care. The consistent finding of a small number of new referrals to the PWS may indicate that most patients requiring this service were identified by the PTs working on Fridays.

Measures of workload, including the number of patient visits per hour and the proportion of staff completing unpaid overtime, differed significantly among the hospitals. Specifically, PTs working at hospitals 2 and 3 screened a higher proportion of patients to determine their need for treatment and performed a greater number of patient visits per hour than their counterparts at hospital 1. This is particularly notable because the PTs at hospital 2 and 3 covered, on average, a smaller number of beds than those at hospital 1. The reasons for the disparity in the number of patient visits are most likely multifactorial, but they may relate, at least in part, to differences in institutional culture. Staff responsible for providing the PWS at hospitals 2 and 3 were expected to “screen” patients who had undergone cardiac surgery on the first day following the procedure; furthermore, all new admissions to hospital 3 over the weekend were screened by the PTs to determine their need for PWS. In contrast, patients meeting these criteria were not routinely screened at hospital 1. Studies are needed to evaluate whether or not clinical outcomes for these patients

are similar among the hospitals prior to removing the expectation to screen them at hospitals 2 and 3 and thereby promoting harmonization of PWS within the GTA. The smaller number of patients seen per hour at hospital 1 may also relate to the availability of an additional PT to cope with excessive workloads (see Table 2). Taken together, differences in institutional culture and the availability of an on-call PT appear to have effectively reduced the maximum number of patient visits each hour and minimized the amount of unpaid overtime at hospital 1.

The characteristics of the PWS provided on Saturdays, Sundays, and statutory holidays demonstrated remarkable consistency (see Table 4), most likely because of the similarities in both the scope of the service and the number of PTs employed to provide it. The average number of patients seen by a PT over a 7.5-hour shift was 11 on statutory holidays and 12 on both Saturdays and Sundays. These estimates agree with those of Heck et al.,⁴ who reported an average caseload of 11.8 patients per shift at university-affiliated acute-care hospitals in Toronto that provided a PWS on both Saturdays and Sundays. Nevertheless, our estimates are below those reported by McAuley et al.² in 1999 (15.2 patients per weekend day), derived from a survey of nine acute-care facilities across Canada. This disparity may have arisen as a consequence of differences in methodology and sampling duration between the studies, an increase in the average acuity of patients seen by PTs over the last decade, and/or variations in the complexity of patients referred for PWS in hospitals outside the GTA.

There were important disparities between clinical

services areas in the characteristics of PWS at the facility that used a programme-based management approach, the most notable being the number of patient visits per hour and the proportion of staff completing unpaid overtime. The problems arising for PTs employed in facilities that use this management system have been documented to include blurred lines of responsibility, reduced opportunity for professional interaction and support, inequalities in access to professional development events and replacement staff, and premature specialization as a result of the inability of junior staff to rotate among different clinical service areas.^{7,9} Importantly, our data demonstrate that the inability to “share” caseloads across clinical service areas over the weekend at hospital 2 led to a greater proportion of staff completing in excess of 30 minutes of unpaid overtime per rostered shift, which may be of concern for our profession. Health care, especially in the acute-care setting, often involves a degree of unpaid overtime, as it is difficult to constrain the provision of such services to stringent paid working hours—for example, it is difficult for a PT to “clock off” midway through treating a patient with profound secretion retention who is facing possible re-intubation. As little as 15 to 20 minutes of unpaid overtime per day will add up to 1 week of unpaid work each year.¹⁰ In the current study, we defined unpaid overtime as periods in excess of 30 minutes; a less conservative estimate would have produced considerably higher numbers on this measure. It is likely that the capacity for PTs to cross clinical service areas and share workloads contributed to the lower proportion of therapists completing unpaid overtime at the hospitals that used a centralized discipline-specific management approach to provide PWS. The results of this study confirm the shortcomings associated with providing PWS within a programme-based management approach. A discipline-specific management structure that optimizes the efficiency with which physiotherapy resources can be allocated to meet variable clinical demands appears to be the superior management approach for the provision of PWS.

LIMITATIONS

The capacity to compare our data with data from other facilities may be limited by differences in patient acuity or complexity. The hospitals that participated in this study are all large university-affiliated facilities that admit patients of similar complexity; the average patient admitted to these hospitals is more complex than those admitted to smaller, community-based hospitals. Patients with multiple medical problems often require prolonged assessment and treatment sessions. A high proportion of such patients would reduce the average number of patient visits completed per hour and might inappropriately appear to represent a “lighter” workload for the therapist. Differences in the average acuity and complexity of patients referred to the PWS likely account

for the higher number of patients seen per hour in community hospitals compared with tertiary hospitals.⁴ A standardized measurement of patient complexity would be needed for any study that aimed to compare PWS practice patterns between tertiary and community-based hospitals. As data collection for this study did not extend over a 12-month period, we were unable to comment on the potential impact of seasonal variation on PWS. Although this study was considered a quality-improvement initiative, we collected measures of workload quantity rather than quality. Nevertheless, inequality in workload between clinical areas in the programme-based management facility, if left unchecked, has the potential to result in dissatisfaction, fatigue, and burnout on the part of therapists, which, over time, could compromise the quality of service provided. Finally, it was beyond the scope of the current study to collect data that might have provided insight into the effectiveness of PWS, such as length of hospital stay. These are important considerations for future studies in this area.

CONCLUSION

This is the first study to use a prospective design to carefully characterize PWS using objective data collected over an extended period. Our data demonstrate important similarities and differences in PWS among three tertiary hospitals in the GTA. Most notably, our results highlight the important shortcomings of providing PWS using a programme-based management approach. Specifically, by comparing objective markers of staff burden between facilities and clinical areas, we have identified important inequalities in the operational delivery of this service, which may constitute a catalyst for change. Such changes should aim to minimize inefficiencies in staffing patterns by optimizing the equitable distribution of workload and patient-care responsibilities.

KEY MESSAGES

What Is Already Known on This Subject

Hospitals throughout Canada often provide PWS to patients hospitalized with cardiorespiratory conditions. The lack of strong evidence to guide this service is likely to result in considerable disparity among hospitals in both scope and expectations. The few studies that have attempted to quantify the characteristics of PWS have relied on the accurate recall of relevant variables by a representative staff member or have accessed an electronic charting system for data pertaining to specific conditions.

What This Study Adds

To our knowledge, this is the first study to use a prospective design to carefully characterize PWS using objective data collected over an extended period. Our data

demonstrate important similarities and differences in PWS provision among three tertiary hospitals within the GTA. Most notably, the study highlights the important shortcomings of a programme-based management approach to providing PWS.

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