

ORIGINAL ARTICLE / PRACA ORYGINALNAEwa Smoleń<sup>1,2</sup>, Anna Ksykiewicz-Dorota<sup>1</sup>**CZAS PRACY PIELEŃNIAREK PEDIATRYCZNYCH – BADANIA WSTĘPNE**

<sup>1</sup> Chair and Department of Management in Nursing, faculty of Nursing and Health Sciences,  
Medical University in Lublin  
Head: Anna Ksykiewicz-Dorota

<sup>2</sup> Nursing Department, Institute of Medicine, Grodek State Vocational High School in Sanok  
Head: Anna Bednarek

**S u m m a r y**

**Introduction:** Human resources, not counting financial or information ones, are basic resources of the enterprise, allowing achieving objectives of the organization. Management of human resources should guarantee effective applying of the knowledge and employees' abilities. On the other hand, it should prevent casting of staff, by assigning support activities to employees. The studies concerning the structure of working hours of nurses on adult department are quite frequently conducted. However, there is a lack of research on working hours of pediatric nurses, so structure of activities of this occupational group performed during hospital duty were recognized as useful to be researched.

**The aim of the study:** Determining the structure of activities performed by nurses on the general pediatric department/ward.

**Materials and method:** Preliminary survey on the structure of working hours was conducted during four 12 - hour duties: two morning and two night duties in one of hospitals of the Podkarpackie province. Constant observation was a research method, and the standardized monitoring sheet - research tool.

**Results:** Analysis of activities undertaken by nurses working at the pediatric department showed that during shift assignments the indirect care tasks constituted the largest percentage of activities (46.01%). About one third of working time was devoted to direct care (28.93%). Coordinating and organizing current work on the ward constituted 14.49%. Breaks and personal activities constituted the smallest percentage (10.57%). Amongst the activities within the direct care scope the following prevailed: performing diagnostic and healing actions and the communication of nurses with parents/carers and the child.

**Conclusions:** The study pointed at the too low percentage of working hours of pediatric nurses in the direct care. Streamlining work organization of nurses with emphasizing the care and looking after is well justified. Thorough analysis of the support activities associated with the indirect care shows that many of them could be done by outsourced employees and not necessarily at the pediatric department staff.

**S t r e s z c z e n i e**

**Wstęp:** Zasoby ludzkie nie licząc finansowych oraz informacyjnych to podstawowe zasoby przedsiębiorstwa, pozwalające na osiągnięcie celów organizacji. Zarządzanie zasobami pracowniczymi powinno z jednej strony gwarantować efektywne zastosowanie wiedzy i umiejętności pracowników. Z drugiej nie dopuszczać do marnotrawstwa kadr, poprzez przydzielanie fachowym pracownikom

czynności pomocniczych. Badania dotyczące struktury czasu pracy pielęgniarek na oddziałach dla dorosłych są stosunkowo często prowadzone. Brak jest natomiast badań dotyczących czasu pracy pielęgniarek pediatrycznych, uznano za celowe określenie struktury czynności tej grupy zawodowej wykonywanych podczas dyżurów szpitalnych. Celem pracy było określenie struktury czynności wykonywanych przez

pielęgniarki na oddziale pediatrycznym ogólnym.

**Materiał i metody:** Wstępne badanie struktury czasu pracy przeprowadzono podczas czterech dyżurów 12-to godzinnych: dwóch rannych oraz dwóch nocnych w jednym ze szpitali województwa podkarpackiego. Metodą badawczą była obserwacja ciągła, narzędziem badawczym standaryzowany arkusz obserwacyjny.

**Wyniki:** Analiza czynności podejmowanych przez pielęgniarki pracujące na oddziale pediatrycznym wykazała, że największy odsetek podczas zmian roboczych stanowiły zadania z zakresu pielęgnacji pośredniej (46,01%). Około jedną trzecią czasu pracy pielęgniarki przeznaczały na pielęgnację bezpośrednią (28,93%). Koordynowanie i bieżące organizowanie pracy na oddziale stanowiło 14,49%. Najmniejszy odsetek stanowiły przerwy i czynności

osobiste (10,57%). Wśród czynności w obrębie pielęgnacji bezpośredniej dominowały działania

z zakresu: wykonywania działań diagnostycznych i leczniczych oraz komunikacji pielęgniarek z rodzicami/opiekunami i dzieckiem.

**Wnioski:** Wskazano na zbyt niski odsetek czasu pracy pielęgniarek pediatrycznych w zakresie pielęgnacji bezpośredniej. Zasadnym jest usprawnianie organizacji pracy pielęgniarek z położeniem akcentu na opiekę i pielęgnowanie. Dokładna analiza czynności pomocniczych związanych z pielęgnacją pośrednią wskazuje, że wiele z nich mogłoby być wykonane przez pracowników outsoursingu, poza oddziałem pediatrycznym.

**Key words:** working time structure, paediatric unit, nursing care

**Słowa kluczowe:** struktura czasu pracy, oddział pediatryczny, opieka pielęgniarska

## INTRODUCTION:

Human resources, not counting financial and information ones, are basic resources of the enterprise, allowing realization of the objectives of the organization [1]. Human resources management should guarantee effective applying of the knowledge and abilities of the employees [2] and on the other hand, it should aim at preventing the waste of resources such as assigning professional employees to support activities below their intellectual possibilities. This regards working hours of nurses, particularly those looking after children. They should allocate the majority of their time for the nursing of children and being in touch with their parents/carers. Working hours besides work organization are a crucial factor in streamlining the managing of organizations [3]. It constitutes also an important factor in establishing payroll needs, the operating management and planning changes in the core and support activity [4].

In the western countries for many years the study concerning the structure of working hours of nurses working on medical wards has been conducted with purpose of: setting optimum care costs [5], verification of actions taken by nurses [6], improvements of the quality of provided services [5], possibilities of applying standards in the care [7], lowering the risk of mistake incidence [6, 8] and increasing the level of the job satisfaction of nurses [8]. Studies of this scope pertain to both wards for adults and pediatric wards [7, 8, 9]. In Poland the first research on the structure of working hours of nurses on wards for adults were conducted by Lenartowicz [10]. So far determining the structure of working hours has been conducted on the following wards: cardiological, surgery, traumatic [3], obstetric [11], neonatal, psychiatric [12] and accident and emergency [13] wards.

In the western literature, the notifications concerning the course of studies and analyses of the results referring to timing the work of nurses on children's wards are widely available. Their majority was conducted on wards of the intensive care units of children, neonatal ward and the ward of intensive care of newborn babies [7, 9, 14, 15, 16]. In Poland, the pediatric ward conducted such studies in 1990-ties by Piskorz-Ogórek et al. on wards of Provincial Specialist Children's Hospital in Olsztyn. In the course of their studies authors drew up catalogues of nursing activities in order to calculate the time of their performance on individual wards [17].

Pediatrics is a specific field of medicine, where main concern is the child's health. Pediatric nursing is characterized by high quality of care provided for the child staying under the hospital's care [18]. On account of the specificity of the work on pediatric wards determining the structure of nursing activities for the optimal use of working hours, is significant. Determining the structure of performed activities by charge nurses on general pediatric ward was the purpose of the study.

Preliminary survey on the structure of working hours was conducted during four duties of 12 hours' long: two morning (7.00 - 19.00) and two night (19.00 - 7.00) in one of hospitals of Podkarpackie province in 2012 and 2013. Total time of observation amounted to 48 hours. Constant observation was a research method (photographs of a working day), monitoring sheet with standardized research tool: "Sheet of observation of the individual photograph of a working day". Measuring up of the work is systematic establishing of execution time of the specific physical labor and/or intellectual with various techniques.

Adopting a specific technique of the measurement is a condition to obtain the aim of measuring the work. One of the techniques of registering the working time is photographing a working day, used for establishing the duration of working hours' activities. The technique relies on observation of working hours of the employee in the definite time period e.g. during the working shift. Achieved results are recorded in the observation sheet [4]. The research was conducted after obtaining the bioethical approval of the board of Medical University of Lublin the No. KE-0254 / 163 / 2012.

## RESULTS:

After making the preparatory analysis of undertaken activities by working nurses on the pediatric ward, four fractions of working hours were singled out. Based on the photographs of a working day over 150 activities performed by nurses were recorded. In order to determine the accurate structure of activities performed by nurses on the ward of general pediatrics 15 subfractions were distinguished.

The first fraction is a direct care which included activities performed on the child and in the presence of parents or carers, spending time with the child during the hospitalization with whom the nurse cooperated in the course of taking care. Actions associated with keeping the personal hygiene and the hygiene of the surroundings and activities

guaranteeing the change of position and the movement of the child were included in this fraction. Also actions associated with diagnosing, performed independently by the nurse or assisting the doctor were included in this group. These also comprised treatment activities which the nurse carried out independently on the doctor's order. Within the fraction of direct care some other activities were distinguished: communicating with the child and parent/s with carers and meeting the needs of the safety of the child.

The second fraction is indirect care which includes actions performed by nurses away from the patient, but in close relationship with the direct care. This included actions associated with the preparation for the direct care i.e.: documenting the process of care, communicating with the interdisciplinary team in relation to the condition of the child, preparing action for everyone from the group of the direct care. The third fraction of working hours is coordinating and current organizing of work, i.e. the group of actions of the nurse guaranteeing efficient and effective functioning of the ward. Here activities such as communicating in the team, supplying the ward, clerical works and cleaning and organizing were included.

Physiological breaks and extra professional activities constituted the fourth fraction of working hours of nurses. Among them the breaks intended to the rest and needs to refresh were distinguished. This fraction in the structure of working hours is time for the recuperation and eliminating effects of the tiredness and the time embracing the natural needs. Other activities are settling extra-professional matters: e.g. private phone calls, outings beyond the ward not connected with the career and the like [4, 7]. Analysis of the research material allowed the statement that nurses allocated 29.70% of working hours for the direct care. In the structure of duty activities of nurses constituted the largest percentage from the scope of the indirect care (45.58%). Coordinating and organizing current work on the ward occupied the 14.15% of working hours. The smallest percentage - breaks and personal actions filled the 10.57% (Table 1).

No.	Working time fraction	Percentage of time	Time in minutes*
1.	Direct nursing	29.70	855.24
2.	Indirect nursing	45.58	1312.51
3.	Coordination and current organisation of work in the ward	14.15	407.22
4.	Extra-professional activities	10.57	310.23
5.	Total	100.00	2880.00

\* - seconds are given in hundredths of a minute

Table I. *The structure of working time of nurses in the general pediatric ward*

Amongst the activities in the direct range of care the largest percentage (41.03%) constituted actions of nurses in carrying out medicinal properties. They were such activities as: independent administration of medicines by oral route and intra-tissue route, establishing the cannula of venflon type and nebulisation and inhalation. Nurses independently performed also laboratory tests such as: erythrocyte sedimentation rate. Slightly smaller percentage i.e. 37.27% was stated in performing diagnostic activities by nurses. Among other measurements of practical parameters to this group belonged: temperature, arterial pressure, pulse, breath.

Also evaluations of the functioning of the individual cardiovascular systems are executed by nurses in direct care (respiratory, nutritional, urinary procedures) and of mental state

of the child. In the range of diagnosing fraction such activities are included like taking materials up for studies (blood, urine, faeces). Communication with the child and parents/carers in the matters concerning the child constituted the 16.56% of working hours within the direct care. Communication with the child concerned most often relaxing the child while carrying out medicinal procedures and diagnostic tests. However, in the relation with parents information concerned the condition of the child, principles of giving medicines and performing treatments e.g. of inhalation, nebulisation. Nurses informed parents and carers of principles of looking after the child. Other activities taken by nurses as a part of the direct care were described in Table II.

No.	Subfractions as for direct care	Fraction I	
		(min/s) *	%
1.	Maintaining personal hygiene of the child and of the surrounding	23.16	2.72
2.	Providing security to children	4.47	0.56
3.	Movement / relocation of a child	15.56	1.86
4.	Diagnosing	318.47	37.27
5.	Treatment	350.57	41.03
6.	Communicating with a child, parents/caretakers- as for the child care	141.41	16.56
Total		855.24	100.00

\* - seconds are given in hundredths of a minute

Table II. *The division of different subfractions in the working time of nurses as for direct care in the general pediatric ward*

As for the indirect care (the III table) nurses most often took actions associated with documenting the process of care which constituted half of the structure of the time of the indirect care (48.28%). On a children's ward two forms of documenting actions by nurses were observed: paper and electronic one. Slightly over one third of the indirect care was preparing for the direct care by completing sets of constituted activities such as: laboratory tests, inhalation, and measurement of basic practical parameters, giving medicines in different routes, performing of hegar and preparing to the visit, the execution and assisting in diagnostic investigation.

No.	Subfractions as for direct care	Fraction II	
		(min/s) *	%
1.	Documenting of the nursing process	633.52	48.28
2.	Communicating with the ward workers and hospital workers as for the child's condition	232.31	17.71
3.	Preparation to direct care	446.28	34.01
Total		1312.51	100.00

\* - seconds are given in hundredths of a minute

Table III. *The division of different subfractions in the working time of nurses as for indirect care in the general pediatric ward*

Over the half of actions (58.22%) distinguished in the third fraction, i.e. the coordination and the labor organization, constituted activities connected with cleaning and organizing. Nearly one third (30.40%) of working hours in frames of the fraction nurses donated to communicating in the team and providing the smooth functioning of the ward. The last but not the least was the scope of the coordination and activities concerned with labor organization, office and supplying the ward (Table IV).

No.	Subfractions as for coordinating and work organization	Fraction III	
		(min/s) *	%
1.	Informing in the team	123.51	30.40
2.	Supplying of the ward	18.53	4.64
3.	Office work	27.28	6.74
4.	Claeaning and maintainace	237.10	58.22
Total		407.22	100.00

\* - seconds are given in hundredths of a minute

Table IV. *The division of different subfractions in the working time of nurses as for coordinating and work organization in the general pediatric ward*

In the fourth smallest fraction of working time one could find some extra professional activities covering breaks and the no activity periods with the majority (83.26%) of breaks for physiological needs (Table V).

No.	Subfractions as for extra-professional activities	Fraction IV	
		(min/s) *	%
1.	Physiological breaks	253.11	83.26
2.	Other activities	50.57	16.74
Total		304.23	100.00

\* - seconds are given in hundredths of a minute

Table V. *The division of different subfractions in the working time of nurses as for extra-professional activities*

Within incidental activities nurses most often performed such activities as: private conversations in the interdisciplinary team and private phone calls.

## DISCUSSION:

Analysis of activities undertaken by nurses on a children's ward in one of hospitals of the Podkarpackie province showed that less than one third of working hours (29.70%) was allocated for the direct care. As for direct care, diagnostic and healing activities were dominating. In Pillay et al studies of English hospitals it was showed that newborn babies were provided with the special care of nurses who had allocated almost twice more time (57.00%) for action in the framework of the direct care [9].

As it results from so far conducted studies the time set aside for the direct care was diversified depending on a children's ward type, where the care of the newborn baby was performed in. In studies on the ward of the intensive neonatal care Williams et al. showed that nurses had allocated from the 67.80% up to the 77.20% of working hours for the direct care [15]. Similarly high interest of the direct care of newborn babies requiring the increased care of the 70.50%, and on the intensive care was demonstrated by Pillay et al. - 72.00%. [9]. In Poland on the children's ward nurses allocated much smaller percentage of the time for the direct care e.g. on the neonatal ward it was 42.50% [11]. From analysis of direct activity in the range and the fraction of the care on the pediatric ward in the Podkarpackie hospital - medicinal properties dominated. Over one tenth of general working hours of nurses (10.70%) were connected with administration of medicines.

In the structure of working hours of nurses on the pediatric ward in the Podkarpackie province indirect care activities (45.58%), such as: establishing the nursing diagnosis and preparing for the performance of activities as part of the direct care prevailed. As it results from analysis of studies so far conducted, the amount of time for the indirect care depending on the state a newborn baby is changeable. It ranges from 22.00% on the intensive care, 22.50% in increased care up to the 33.00% in the specialist care [9]. In Poland from the conducted studies on the pediatric ward it results that nurses during duty allocated less time for the performance of activities within the indirect care (23.00%). In our own studies within fraction II, the main activities were those associated with the record-keeping, transport of patients beyond the ward, preparing for the direct care.

Communicating constituted 17.37% of working hours and comprised: communicating in the interdisciplinary team as for child subject - 8.07%, communicating with mother/child - 4.91% and communicating in the team - 4.29%. Thorough analysis of the support activities associated with the indirect care on the general pediatric ward shows that many of them could be made in frames of outsourcing by support employees. They are such tasks as: transport of materials to the laboratory, supplying the ward, performing laboratory tests outside the ward and organizing and cleaning including disinfection. Taking over of this action by other employees may mean deburdening of nurses, increasing the work input in the process of basic care and proper care the hospitalized child.

Similar conclusions were reached in one of hospitals in Sao Paulo, distinguishing activities performed by nurses which could be done by other employees of the hospital as: office activities, printing ID badges and test results, transport materials to the laboratory and taking patients for medical examinations [19]. Similarly to Garcia, Williams et al. emphasized that taking over such duties as e.g. clerical works and cleaning and organizing by persons not holding the law of the practicing a profession of the nurse will deburden nurses and will let set this time aside for them e.g. for the direct care [15].

Within coordinating and organizing the work (14.15%) on the pediatric ward, over the half of the time nurses devoted to organizing and cleaning, and nearly one third for communicating in the team. Activities associated with organizing, performed by nurses in coordinating and the labour organization, do not require professional qualifications; therefore, should not constitute such considerable burdening of working hours. Similar results in her studies on the neonatal ward were obtained by Karauda et al. In order to streamline the work of nurses and to slow down performing of the above duties it is possible to commission support employees to performing of these tasks [11]. In Karaudy's studies the activities connected with the coordination and the labor organization constituted only 10.00% of working hours [11].

However, the smallest percentage in the structure of working hours devoted to coordinating and organizing current work was noted for nurses in England, only 7.00% at one of hospitals on the pediatric ward with the special care, 4.00% at the nursing supervision and the 3.00% on the ward of the intensive care [9]. Physiological breaks and extra-professional activities constituted the 10.57% of working hours. Definitely more time was devoted to the fourth fraction on the neonatal ward 24.5% [11]. Wards, in which the definitely smaller percentage of working hours of nurses was shown in studies, allocated only 3.00% for the break and the personal activities on neonatal wards [9].

## CONCLUSIONS:

Not efficient enough using of working hours of pediatric nurses was demonstrated in the direct care. This was admittedly comparable with using working hours in the direct care on wards for adults; however, on account of the specificity, it is hard to regard it as optimal as for pediatric care. Thorough analysis of the support activities associated with the indirect care, one shows that many of them could be made by employees in the outsourcing, outside the pediatric ward. This requires both the knowledge and breaking stereotypes of employees managing the hospital. Streamlining the labor organization of



nurses with emphasize on care is recommended.

The research and preparing of work was financed from European Union funds in frames of the Scholarship "Specialization and Competence - expansion program of Medical higher education in Lublin". Project co-financed from European Union funds in frames of the European Social Fund.

#### REFERENCES:

1. Bartkowiak G.: Geneza i teoretyczne podstawy zarządzania zasobami ludzkimi. w: Podstawy zarządzania zakładem opieki zdrowotnej. Wydawnictwo Naukowe PWN, Warszawa 2008: 315-331.
2. Charns MP., Lockhart CA.: Projektowanie stanowisk pracy. W: Podstawy zarządzania opieką zdrowotną. Shorell SM., Kaluzny AD. (red.). Fundacja Zdrowia Publicznego. Uniwersyteckie Wydawnictwo Vesalius. Kraków 2001: 215-238.
3. Ksykiewicz-Dorota A.: Planowanie obsad pielęgniarskich w lecznictwie stacjonarnym. Wyd. Czelej, Lublin 2001.
4. Mikołajczyk Z.: Techniki organizatorskie w rozwiązywaniu problemów zarządzania. Wyd. Naukowe PWN, Warszawa 1994.
5. Padilha KG., Márcia Cardoso de Sousa RM., Garcia PC., Bento T., Finardic EM., Hatarashi RHK.: Nursing workload and staff allocation in an intensive care unit: A pilot study according to Nursing Activities Score (NAS) Paulo. Intensive and Critical Care Nursing. 2010; 26: 108-113.
6. Rauhala A., Fagerstrom L., Are nurses' assessments of their workload affected by non-patient factors? An analysis of the RAFAELA system. Journal of Nursing Management. 2007; 15: 490-499.
7. Nortern Neonatal Network. Measuring neonatal nursing workload. Arch Dis in Child. 1993; 68: 539-543.
8. Westbrook JL., Duffield Ch., Li L., Creswick NJ.: How much time do nurses have for patients? a longitudinal study quantifying hospital nurses' patterns of task time distribution and interactions with health professionals BMC Health Services Research. 2011; 11: 319-330.
9. Pillay T, Nightingale P, Owen S, et al. Neonatal nurse staffing and delivery of clinical care in the SSBC Newborn Network. Arch Dis Child Fetal Neonatal Ed. 2011; 10: 1136-1141.
10. Karauda M., Ksykiewicz-Dorota A.: Czynności wykonywane przez położne sprawujące opiekę nad położnicą i noworodkiem w systemie rooming-in. Zdrowie Publiczne. 2005; 115(1): 53-56.
11. Cebulak M., Ksykiewicz-Dorota A.: Struktura wykorzystania czasu pracy na oddziałach psychiatrycznych – badania wstępne. Medical and Biological Sciences. 2009; 23(4): 23-29.
12. Klukow J., Ksykiewicz-Dorota A.: Struktura wykorzystania czasu pracy pielęgniarek zatrudnionych w szpitalnych oddziałach ratunkowych – badania wstępne. Pielęgniarstwo XXI Wieku. 2010; 3-4(32-33): 55-59.
13. Spence K., Tarnow-Mordi W., Duncan G., Jayasuryia N., Elliott J., King J., Kite F.: Measuring nursing workload in neonatal intensive care. Journal of Nursing Management. 2006; 14: 227-234.
14. Williams S., Whelan A., Weindiling AM., Cooke RWI, Nursing staff requirements for neonatal intensive care Arch Dis in Child. 1993; 68: 534-538.
15. Hamilton KESTC., Redshaw ME., Tranow-Mordi W.: Nurse staffing in relation to risk-adjusted mortality in neonatal care. Arch Dis in Child Fetal Neonatal. 2007; 92: 99-103.
16. Piskorz-Ogórek K., Wieremiej L.: Określanie zapotrzebowania na opiekę pielęgniarską w oddziałach pediatrii. Wojewódzki Specjalistyczny Szpital Dziecięcy w Olsztynie. Olsztyn 1996.
17. Rakowska-Różewicz D., Bloch J., Kamieniecka E., Smak J. (red.): Wybrane standardy i procedury w pielęgniarstwie pediatrycznym, Wyd. Czelej, Lublin 2001: 22-24.
18. Lenartowicz H.: Kadra pielęgniarska w lecznictwie stacjonarnym. (Z badań nad wykorzystaniem czasu pracy i kwalifikacji zawodowych). Praca habilitacyjna. AM Lublin 1987.
19. Garcia E. de A., Togeiro Fugulin RM.: Nurses' work time distribution at the emergency service. Rev Esc Enferm USP. 2010; 44(4): 1027-1033.

#### Address for correspondence:

Ewa Smoleń  
Nursing Department, Institute of Medicine,  
Grodek State Vocational High School in Sanok  
Mickiewicza 21, 38-500 Sanok  
tel. 13 465 59 60, fax 13 465 59 59  
e-mail ewasmolen@op.pl

Received: 15.12.2013

Accepted for publication: 20.01.2014