

## Estimating the Manpower Required in the Human Resources Department of Imam Khomeini Hospital Using the Method of Work and Time Measurement

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**Abstract:** Improving health services and realize the highest level of health in the society depend on accessibility, acceptance and high quality of manpower in the health department. So, the purpose of this study was to estimate the manpower required for Human Resource Department in Imam Khomeini hospital to solve the problems of human resource department to improve the processes in this department. This is a descriptive-analytical study. The population included the staff of Human Resource Department working at Imam Khomeini hospital and their activities. The study was conducted in nine steps and the main activities of staff in this study was gathered through direct observation and interview. Finally, the number of manpower required to implement the activities of human resource department. The results showed that the number of manpower required in Human Resource Department at Imam Khomeini Hospital is 23 people while only 32 staff are employing in this department. This indicates that there is 9 surplus manpower in this department.

**Key words:** Human resource department, manpower, work measurement, time measurement, surplus

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### INTRODUCTION

Manpower is the most valuable strategic resource in every organization compared to other organizational resources, so that every person or group can be a source to change the system (Nishtar and Ralston, 2013). Also, manpower is the most strategic resource in every organization and the most important resource to enter health system (Zarei *et al.*, 2016). Health systems can work only to manpower. Improving health services and high quality of standard depend on acceptability, acceptance and high quality of manpower in the health department. Providing manpower in the health department is not enough but the staff should be distributed fairly, staff should be qualified and have high motivation and power to provide high quality services corresponding to cultural and social expectations of people and when the manpower are supported by health system, the coverage is converted from theoretical status to an efficient status (WHO, 2016). Human resource management is related to policies, actions and systems that affect the behavior, attitude and performance of staff (Noe and Hollenbeck, 2010). Human resource management is a strategic

approach to absorb, develop, manage, motivate and access to commitment of key resources of organization, i.e., the people who are working for it (Armstrong, 2000; Decenzo and Robbins, 1988). The role of human resource management include organizational activities such as ethical and legal matters of treatment, health and safety of staff and patients, health care policies, analyze and design job, employ and select staff, staff benefits, staff training and staff retirement (Niles, 2013). Human resource will result in organizational advancement and promotion. No doubt, inattention to human resource has reverse effect on organizational life and results in activities stagnation and this is not accepted (Poureza, 2001). From perspective of WHO, human resource is important for below reasons:

- The performance of each system depends on a combination of skill, accessibility and performance of its human resource
- Considerable part of health budget is allocated to produce and update the human resource and 35 mln employees are working globally in the health department

- Human and economic cost of weak human resource in health department is high
- Due to weaknesses in human resource management in health department in some of countries, the international financial resources are allocated infinitely. Other factors such as health requirement of society and its changes, challenges of health system and underlying factors such as globalization resulted in training, correction in health system and response to human resource in the health department. The global challenges and difficulties of human resource management in health department is summarized in several words: imbalance, immigration, weak investment in human resource, low salary and weak situation in the job, weakness in initial and continuous training, ranking, unemployment

Kabene *et al.* (2006) in a study on the importance of human resource management stated that human resource management is important to promote quality of health care. The effective strategies on human resource management to gain better results and access to health care is needed across the world. At the moment some methods are used such as coefficient determination for each active bed and some methods to estimate the manpower required in each sector of hospital which specify the job volume of employees indirectly.

Tofighi and Hasani (2012) examined the number of nurses required in Jondi Shapoor Medical Science University using the proposed model by health ministry. Other method to estimate the volume of required manpower is time and work measurement method. Rouhi *et al.* (2009) examined the activities of nurses and required time to do activities in their study. Arab and Yousefi (2010) also examined the number of manpower required for reception sector in the hospital using time measurement method. Due to important role of human resource department to promote the objective of organization this department has not been concerned sufficiently in hospital. So, in this study the manpower required in human resource management is estimated to solve the problems of human resource department to improve the processes in this department.

**MATERIAL AND METHODS**

This was a descriptive-analytical study. The statistical population included all employees at human resource department of Imam Khomeini hospital and their activities. Work and time measurement method adopted by Arab and Yousefi (2010) and Yousefi *et al.* (2014) studies have been used as:

- Listing the activities: preparing the list of main activities in human resource department by direct observation and interview
- Time measurement: time of performing each activity by existence in the department and direct observation calculated using optimistic, pessimistic and probable time:

$$\text{Expected time} = \frac{\text{Probability} \times 4 + \text{Pessimistic time} + \text{Optimistic time}}{6}$$

- Specify the tolerance: based on human requirement such as cleaning, pray, lunch time and tiredness and some uncontrolled barrier such as internet or electricity disconnect, lack of cooperation in other department and lack of complete the information, the time of each activity is added
- Opinion of employees and chief about times and tolerances and finalize it
- Determine the final coefficient of each activity: 1 + tolerance
- Estimate the adjusted time: final coefficient × expected time
- Total time to do a process in a month = adjusted time of each activity × number of repetition of activity in month
- Estimating working department: this number is estimated in contractual form. Total time to do a process in moth is divided on at least 10 working time in a month (regarding 2.5 day of vocation for each employee in month) which is 164.5 h
- Number of working hour per hour: every working unit is 10 min and in 1 h is 6 working unit
- Least working unit in month is least working hour × number of working unit in 1 h:

$$6 \times 164.5 = 987$$

- Finally specify the number of manpower required: total working unit of human resource department is divided on least working unit expected in month by employees

The activities were conducted once a year estimated based on the mentioned steps and finally divided on 12 to obtain the conducted time monthly. Excel 2010 Software was used to analyze the steps.

**RESULTS AND DISCUSSION**

The number of employees working in human resource department of Imam Khomeini hospital is 34

people. About 1 human resource manager, 1 chief of administrative affair, 4 head and 28 employees. Human resource department has 4 subsidiary which is controlled by head including employment and attendance system, faculty board affair, job classification, retirement and welfare department, plan, contractual, archive and Secretariat. About 14 employees were men and 21 were women. Most of employees (15 people) had diploma and lower degree. Kind of employment was formal and contractual (Table 1).

According to findings, the number of standard manpower in the human resource department is 23 people while there are 32 employees in this department, so there are 9 surplus manpower in human resource department. Out of 23 standard manpower, 6 employees belongs to job classification department, faculty board and statistic. About 7 manpower belonged to employment, correspondence and attendance system. About 3 manpower belongs to welfare and retirement departments and finally 8 manpower belongs to plan, organizational, contract, archive and secretariat departments. The total number of manpower available in job classification and faculty board was calculated and there is one person difference. Attendance and vacation of faculty board need 2 manpower while 3 manpower are working and other affairs need 4 employees and work with 4 employees.

Employment, correspondence and attendance system have one surplus manpower while one manpower is in maternity vacation. There are 4 manpower in welfare and retirement department, 2 manpower are working in welfare affair and 2 manpower are working in retirement affair. In plan, contract, archive and secretariat, there are 3 surplus

manpower, 2 manpower are surplus in contract and plan department and there is one surplus manpower in archive department (Table 2).

Human resource department plays important role in promoting organizational objective and satisfaction of employees in other departments including medical department depend on proper performance of human resource department (such as organizational promotion, providing salary list, benefits, etc.). This department help the organization to maximize the efficiency in the organization and to gain the objective of organization in long-term and lowest cost. In this study, the activities and time measurement of surplus manpower in human resource department of Imam Khomeini hospital was observed. In a case study by Shaikebarsisiri *et al.* (2015) on distribution and qualification of human resource in Iran hospitals in 2001-2015, it was founded that most of hospitals face insufficient distribution of human resources especially in nursing and medical department but in administrative, financial, paraclinical and paramedical departments, no shortage was observed.

By proper distribution of manpower in the department, the plurality of manpower in one department and shortage of manpower in other department and job pressure in other departments are prevented. One of main factors of surplus force in this department is official employees with high work experience and they are not motivated to place or train or match to updated needs. In addition, the efficiency of manpower cannot be compared. In the departments with plurality of manpower with obtained standard, high work load in some employees was observed. Some programs such as empowerment and job reward and promotion is suggested based on qualification to distribute employees.

Table 1: Demographic findings of hyman resource department

Title human resources manager	Gender		Marriage status		Work history (years)		Educational history					Kind of employment		Total
	Men	Women	Single	Married	>10	<10	Diploma and lower	Associate degree	BA	MA	Ph.D	Formal	Contractual	
Chief administrative affairs	1			1	1						1	1		1
Academic affairs, job classification, statistics	1			1	1				1			1		1
Attendance faculty		4	2	2	2	2		1				1		4
Staffing, correspondence	2	1		3	3		3					3		3
Attendance	2	2		4	4		1	1	2			3	1	4
Design and corporate affairs	2	2		4	3	1	3	1				1	3	4
Archive		3	1	2	2	1		1	1	1		3		3
Secretariat	1	2		3	3		2	1				1	2	3
Retirement	2	2	1	3	2	2	1	1	2				4	4
Welfare		3		3	3			1	2			2	1	3
Total	3	1		4	2	2	4					2	2	4
Title	14	20	4	30	26	8	14	7	8	4	1	19	15	34

Table 2: Estimate the number of manpower required in human resource department based on time and work measurement of activities

Activity	Expected time	Probability	Pessimistic	Optimistic	Tolerance	Final coefficient	Adjusted time	Repetition (month)	Total time (month)	No. of working dept.	No. of std. man power	No. of available man power
<b>Attendance system of faculty board</b>												
Hours of work/month	15.00	15	20	10	0.2	1.2	18.00	300	5400.00	540.00	2	3
Attendance system	406.67	400	480	360	0.1	1.1	447.33	26	11630.67	1163.07		
<b>Faculty board</b>												
Correspondence	19.17	20	25	10	0.1	1.1	21.08	60	1265.00	126.50	4	4
Sick	15.00	15	20	10	0.2	1.2	18.00	2	36.00	3.60		
Certificate of Employment	9.67	8	16	10	0.1	1.1	10.63	30	319.00	31.90		
Delivery show sentence	7.83	8	10	5	0.1	1.1	8.62	60	517.00	51.70		
<b>Employees classification</b>												
Floor encouragement	21.67	20	35	15	0.3	1.3	28.17	10	281.67	28.17		
Preparing the summary information	107.67	95	180	50	0.8	1.8	183.00	100	18300.00	1830.00		
Organizing committee	267.67	280	300	240	0.1	1.1	304.33	1	304.33	30.43		
Information to employees and completing documents	25.83	25	40	15	0.4	1.4	36.17	60	2170.00	217.00		
Preparing the agenda	217.50	220	230	195	0.1	1.1	239.25	4	957.00	95.70		
Correspondence-appointment conversion state-record	24.67	25	30	18	0.1	1.1	27.13	65	1763.67	176.37		
Responding to staff	15.00	15	20	10	0.3	1.3	19.50	60	1170.00	117.00		
<b>Statistic</b>												
Updated Statistics for staff and faculty	50.00	50	55	45	0.6	1.6	80.00	26	2080.00	208.00		
Complete lists of domestic and foreign demand	543.33	580	820	120	0.8	1.8	978.00	4	3912.00	391.20		
Adjusted activities in month									761.14			
Total										5771.77	6	7
<b>Selection</b>												
Verdict	15.00	15	20	10	0.4	1.4	21.00	350	7350.00	735.00	3	4
Assembly and reform of the personnel system	15.00	15	20	10	0.4	1.4	21.00	300	6300.00	630.00		
Print verdict and sent to the archives	5.17	5	8	3	0.3	1.3	6.72	350	2350.83	235.08		
Show sentence and l persone accountability	10.50	10	15	8	0.1	1.1	11.55	30	346.5	34.65		
<b>Correspondence</b>												
Transportation and mission		14	14	18	10	0.1	1.10	15.4	45	693	69.3	
Certificate of Employment	7.17	7	10	5	0.1	1.1	7.88	30	236.5	23.65		
Jurisdictions	10.67	10	16	8	0.2	1.2	12.80	6	76.8	7.68		
Other requests	13.83	15	18	5	0.1	1.1	15.22	60	913	91.3		
Accountability	10.83	10	20	5	0.1	1.1	11.92	50	595.83	59.58		
Adjusted year-to-month affairs (contract-evaluation)										833.89		
<b>Attendance</b>												
Print monthly performance of staff	4.83	5	6	3	0.4	1.4	6.77	1700	11503.33	1150.33	4	4
Review and complete work list	7.17	7	10	6	0.5	1.5	10.75	1700	18275	1827.5		
Completing the list of fee	2.00	2	3	1	0.2	1.2	2.40	1700	4080	408		
Accountability	15.67	16	20	10	0.3	1.3	20.37	100	2036.67	203.67		
Approved vacation leave and save	9.50	10	12	5	0.1	1.1	10.45	100	1045	104.5		
Definition Cards	10.17	10	15	6	0.2	1.2	12.20	15	183	18.3		
Adjusted year-to-month affairs (save annual leave-holiday shift)										457.5		
Total										6432.44	7	8

Table 2: Continue

Activity	Expected time	Probability	Pessimistic	Optimistic	Tolerance	Final coefficient	Adjusted time	Repetition (month)	Total time (month)	No. of working dept.	No. of std. man power	No. of available man power
<b>Welfare</b>												
Welfare issued notifications	6.17	6	8	5	0.1	1.1	6.78	4	27.13	2.71	1	5
Get a loan	10.00	10	15	5	0.6	1.6	16.00	100	1600	160		
Lottery loan and Travel	96.67	100	120	60	0.3	1.3	125.67	1	125.67	12.57		
Lottery results	35.00	35	40	30	0.2	1.2	42.00	1	42	4.2		
Complete loan file	20.50	20	28	15	0.4	1.4	28.70	100	2870	287		
Receiving a request accommodations	10.00	10	15	5	0.5	1.5	15.00	100	1500	150		
Child allowance and the family form the database	12.17	12	15	10	0.3	1.3	15.82	3	47.45	4.75		
Responding to staff	15.00	15	20	10	0.5	1.5	22.50	300	6750	675		
Correspondence	20.00	20	25	15	0.2	1.2	24.00	10	240	24		
<b>Retirement</b>												
Investigate and complete	80.83	80	105	60	0.4	1.4	113.17	5	565.83	56.58	1	2
Pension sentence	50.00	50	60	40	0.6	1.6	80.00	5	400	40		
Correspondence clearing premium	20.00	20	25	15	0.4	1.4	28.00	3	84	8.4		
Debt, pension contributions	29.83	30	34	25	0.4	1.4	41.77	2	83.53	8.35		
Sentencing amendment	27.83	28	30	25	0.4	1.4	38.97	15	584.5	58.45		
Complete documentation and follow-up forms	24.67	25	28	20	0.3	1.3	32.07	26	833.73	83.37		
Accountability Adjusted affairs n month (list of annual retirement)	25.50	25	35	18	0.3	1.3	33.15	40	1326	132.6		
Total										1720.14	2	7
<b>The project, corporate and contractual</b>												
Confirm the need	16.33	17	20	10	0.2	1.2	19.60	15	294	29.4	1	3
Start working	12.83	13	15	10	0.1	1.1	14.12	16	225.87	22.59		
end of work	12.83	13	15	10	0.1	1.1	14.12	16	225.87	22.59		
Completing the list of employees	5	4	9	5	0.2	1.20	6	10.00	60	6		
Prepare monthly performance	10.00	10	15	5	0.4	1.4	14.00	260	3640.00	364		
Other correspondence	14.50	15	22	5	0.1	1.1	15.95	40	638.00	63.8		
Accountability	15.00	15	20	10	0.2	1.2	18.00	60	1080.00	108		
<b>Archive</b>												
Printing a daily	2.83	3	4	1	0.1	1.1	3.12	500	1558.33	155.83	2	3
Files letters	7.83	8	10	5	0.5	1.5	11.75	1500	17625.00	1762.5		
File delivery office staff	4.33	4	8	2	0.2	1.2	5.20	450	2340.00	234/00		
Archive	29.17	30	35	20	0.5	1.5	43.75	1	43.75	4.38		
<b>Secretariat</b>												
Issue letters	6.33	6	10	4	0.2	1.2	7.60	3000	22800.00	2280	4	4
Print letters and delivered to the people	5.50	5	10	3	0.2	1.2	6.60	500	3300.00	330		
Print and send a notification to a	5.50	5	10	3	0.2	1.2	6.60	700	4620.00	462		
Issuing circulars and notifications	18.67	18	25	15	0.3	1.3	24.27	5	121.33	12.13		
Accountability	13.67	13	20	10	0.3	1.3	17.77	650	11548.33	1154.83		
Total										7012.5	7	10
Total manpower required (total of working departments in each month/987)						23	32					

## CONCLUSION

Based on the conducted activities and time measurement, the number of surplus manpower in human resource department of Imam Khomeini Hospital have been revealed. By proper distributing of manpower in the departments, plurality of manpower in one department and shortage of manpower in other department also and pressure on other departments can be prevented.

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