

**SRPH** 

DOI 10.47176/sjmshm.3.4.1

SJMSHM, 2021; 3(4):1-8



# Investigating the Pattern of Direct Medical Costs of Covid-19 Patients in Hospitals of Ilam Province

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Received: 15 September, 2021 Accepted: 30 October, 2021 Published: 25 December, 2021

### ABSTRACT

Direct medical costs are the most well-known category of disease costs. This study aimed to investigate and analyze the direct medical costs of patients with Covid19 by services provided in the centers and hospitals affiliated to Ilam University of Medical Sciences. This study was a descriptive-analytical cross-sectional study using hospital costs information in Ilam province from March 2019 to September 2021. Financial information related to all patients diagnosed with Covid-19 disease was collected in all hospitals of the province and classified and reviewed using Excel 2016 software. In general, 1713711 services were provided in medical centers affiliated to Ilam University of Medical Sciences. Most of these services were provided in Shahid Mostafa Khomeini Educational and Medical Center as the main medical center for patients with Covid-19 in Ilam. The results of the study showed that among the direct medical costs, medication services (30%), laboratory (16%) and inpatient care (11%), were the highest costs in Ilam University of Medical Sciences. In total, out of the total direct medical costs, the share of patient's payments was 10%. The share of insurance companies in total expenditures was 83% and the share of government subsidy was 7%. Examining the pattern of drug consumption and pharmaceutical services can be considered as one of the key sectors by health policy makers in Ilam province, because the 30% share of pharmaceutical expenditures showed that the management of these services greatly control the medical expenditures of Ilam University of Medical Sciences.

Keywords: Direct Medical Costs, Hospital, Ilam Province, Covid-19

### Introduction

On December 31, 2019, a respiratory illness was reported in China, and the world is currently experiencing a pantomime of the disease, known as Covid-19 [1]. The spread of this disease has confronted the international community with a crisis that has been unprecedented in recent years [2]. Covid-19 is the seventh coronavirus to infect humans and the third coronavirus to cause significant mortality and disability over the past two decades [3]. In addition to causing death and disability, coronaviruses have also caused high economic costs. The results of a study in 2004 showed that if the SARS continued from 2003 to 2004, its global costs would reach more than 40 \$ billion [4]. An examination of MERS costs in Saudi Arabia also showed that the direct medical cost per person varied from 1248.41\$ to 75987.95 \$ [3].

Disease costs are generally categorized in different ways. The most well-known category of these costs is the direct medical costs. These costs are directly related to the provision of medical services to patients and include costs incurred by health centers (hospitals, outpatient clinics), staff (physicians, nurses and other specialists), medical services, alternative care, supplements and any medication [5-6]. In other words, direct medical costs are the resources that are consumed in the health sector during the evaluation of

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treatment and follow-up services for patients [7-8]. it allows managers and policymakers to make accurate comparisons between different uses of financial resources and use these analyzes as tools to track treatment patterns, cost forecasts, and issues related to measuring the efficiency and effectiveness of health services [9]. Ilam province was one of the last provinces where the first case was reported on March 31, 2017, 11 days after the official announcement of the release of Corona in the country [10]. This province is one of the most important provinces in the country, Examining disease cost information as well as analyzing which has always faced health problems and lack of infrastructure and resources [11]. According to the latest information of the Statistics Center of Iran in 2015, Ilam province with 998 fixed beds, 602 active hospital beds and nine hospitals has approximately 0.7% of active hospital beds and 1% of the country's hospitals [12]. Spatial analysis of health indices in different cities of Iran shows that Ilam province is developing in terms of health indices [8].



Map 1. Spatial analysis of health indices in the cities of Ilam province

As mentioned, Covid-19 has imposed a lot of costs on the health sector in the country, then it is necessary to study and analyze these costs due to the limited resources. Therefore, the aim of the present study was to investigate and analyze the direct medical costs of patients with Covid-19 by services provided in the centers and hospitals affiliated to Ilam University of Medical Sciences.

#### Method

The present study is a descriptive-analytical study that was conducted cross-sectionally using hospital expenditure information in Ilam province from March 2019 to September 2021. This province has nine hospitals and medical centers affiliated to Ilam University of Medical Sciences. For the present study, all financial information related to patients with Covid-19 was collected in all hospitals of the province. Therefore, sampling was not performed in this study. Financial information of patients was collected in Shahid Mostafa Khomeini Hospital in Ilam, Imam Khomeini Hospital in Ilam, Ayatollah Taleghani Hospital in Ilam, Imam Reza Hospital in Ivan, Imam Hossein Hospital in Mehran, Rasoul Akram Hospital in Abdanan, Shohada Hospital in Dehloran, and Imam Ali Hospital in Sarableh and Valiasr hospital in Darreh Shahr. Relevant information on the segregation of services performed for each hospital was classified and then classified using Excel 2016 software and reviewed and compared for different hospitals. Relevant information divided by services performed for each hospital was classified and then classified using Excel 2016 software and reviewed and compared for different hospitals.

### Findings

A total of 1713711 services were performed in hospitals of Ilam until September 2020. The frequency of services provided by hospitals is presented in Table 1.

The total expenses related to these services amounted to 249992510843 billion Rials, of which the amount of 201484799368 billion Rials was related to the insurance, the amount of 4852104416 billion Rials to supplementary insurance, the amount of 25824251109 billion Rials to the patient share and the amount of 17831355950 billion Rials was related to subsidy. The insurance share, subsidy share and patient share by

| Table 1  |                         |  |  |  |  |  |  |  |
|--|-------------------------|--|--|--|--|--|--|--|
| The frequency of services provided by hospitals. |                         |  |  |  |  |  |  |  |
| Hospital name                                    | Number of services      |  |  |  |  |  |  |  |
| 1303517  | Shahid Mostafa Khomeini |  |  |  |  |  |  |  |
| 179548   | Imam Khomeini           |  |  |  |  |  |  |  |
| 16335  | Ayatollah Taleghani     |  |  |  |  |  |  |  |
| 12429  | Imam Reza               |  |  |  |  |  |  |  |
| 15002  | Imam Hossein            |  |  |  |  |  |  |  |
| 4420   | Imam Ali                |  |  |  |  |  |  |  |
| 15626  | Rasool Akram            |  |  |  |  |  |  |  |
| 72960  | Valiasr                 |  |  |  |  |  |  |  |
| 93874  | Shohada                 |  |  |  |  |  |  |  |
| 1,713,711  | Total                   |  |  |  |  |  |  |  |

# Table 2

Insurance share, patient share and subsidy share of total expenditures in hospitals of Ilam University of Medical Sciences

|                         |              |              | Supplementary   |               |               |
|-------------------------|--------------|--------------|-----------------|---------------|---------------|
| Hospital                | Total amount | Insurance    | insurance share | Patient share | Subsidy share |
| Shahid Mostafa Khomeini | 192537683465 | 155253894467 | 4347694750      | 18566341824   | 14369752424   |
| Imam Khomeini           | 25658903323  | 21405011486  | 247709609       | 2848953828    | 1157228400    |
| Ayatollah Taleghani     | 2458358894   | 1967747341   | 0               | 191373183     | 299238370     |
| Imam Hossein            | 2065791391   | 1718040118   | 98633501        | 173891505     | 75226267      |
| Imam Reza               | 1586042771   | 1295126376   | 31857405        | 174416069     | 84642921      |
| Rasool Akram            | 2856340726   | 1940695235   | 12563571        | 647047270     | 256034650     |
| Valiasr                 | 7967631921   | 5973956751   | 24332223        | 1130274616    | 839068331     |
| Imam Ali                | 403841152    | 327773354    | 611838          | 29295270      | 46160690      |
| Shohada                 | 14457917200  | 11602554240  | 88701519        | 2062657544    | 704003897     |
| Total                   | 249992510843 | 201484799368 | 4852104416      | 25824251109   | 17831355950   |
| Percentage              | 100          | 80/6         | 1/94            | 10/33         | 7/13          |

Percentage of patient share, subsidy and insurance is presented in Figure 1. In general, the share insurance in the services provided in hospitals affiliated to Ilam University of Medical Sciences has been approximately equal to 81%. Also, the share of out-of-pocket payments for services provided in these centers was 10.33 (Figure 1).





Of the total insurance expenses, 77,1% was related to the insurance expenses of Shahid Mostafa Khomeini Hospital of Ilam, 10.6% to Imam Khomeini Hospital of Ilam and 3% to Valiasr Hospital of Darehshar. Also, the largest share of subsidy in the province with 8.6% was related to Shahid Mostafa Khomeini Hospital in Ilam and 6.5% was related to Imam Khomeini Hospital. Out-of-pocket payments in the centers were respectively equivalent to 71.9 percent of the total expenses in Shahid Mostafa Khomeini Hospital in Ilam, 11% in Imam Khomeini Hospital in Ilam and 8% in Dehloran Shohada Hospital (Table 3).

### Table 3

The share of hospital centers of Ilam University of Medical Sciences from expenditure

|                         |     | Percentage of   | Supplementary        | Percentage of | Percentage of |
|-------------------------|-----|-----------------|----------------------|---------------|---------------|
| Hospital                |     | basic insurance | insurance percentage | patient share | subsidy share |
| Shahid Mostafa Khomeini |     | 77/1            | 89/6                 | 71/9          | 80/6          |
| Imam Khomeini           |     | 10/6            | 5/1                  | 11            | 6/5           |
| Ayatollah Taleghani     |     | 1               | 0                    | 0/7           | 1/7           |
| Internet II.            |     | 0/9             | 2                    | 0/7           | 0/4           |
| Infani Hossein          |     | 0/6             | 0/7                  | 0/7           | 0/5           |
| Imam Reza               |     |                 |                      |               |               |
| Rasool Akram            | 1   | 0/3             | 2/5                  | 1/4           |               |
| Valiasr                 | 3   | 0/5             | 4/4                  | 4/7           |               |
| Imam Ali                | 0/2 | 0               | 0/1                  | 0/3           |               |
| Shohada                 | 5/8 | 1/8             | 8                    | 3/9           |               |
| Percentage              | 100 | 100             | 100                  | 100           |               |

Table 4 shows the share of each hospital by the basic and supplementary insurance, patient's share and government subsidy share. In Rasoul Akram Hospital of Abdanan city and Valiasr Hospital of Darreh Shahr hospital, the insurance share has been less than 80%. In Imam Hossein Hospital of Mehran, Imam Khomeini Hospital of Ilam and Imam Reza Hospital of Ivan, the largest share of expenses was related to insurance expenses.

In the hospitals of the province, the highest share of subsidy expenses was 12.2% for Ayatollah Taleghani Center, 11.4% for Imam Ali Hospital of Sarableh and 10.5% for Valiasr Hospital of Darreh Shahr (Figure 2).



Figure2. The share of government subsidies in total expenditures in each hospital affiliated to Ilam University of Medical Sciences.

| Table | 4 |
|-------|---|
|-------|---|

| The share of h | ospital cente | rs of Ilam I | University | of Medical | Sciences | from the ex | menditures h  | w hos  | nital |
|----------------|---------------|--------------|------------|------------|----------|-------------|---------------|--------|-------|
| The share of h | ospital cente | 15 Or main v | University | of medical | Sciences | monn une ez | ipenantares c | y 1103 | pitai |

| <b>*</b>                | Percentage of basic | Supplementary        | Percentage of | Percentage of |            |
|-------------------------|---------------------|----------------------|---------------|---------------|------------|
| Hospital                | insurance           | insurance percentage | patient share | subsidy share | Percentage |
| Shahid Mostafa Khomeini | 80/6                | 2/3                  | 9/6           | 7/5           | 100        |
| Imam Khomeini           | 83/4                | 1                    | 11/1          | 4/5           | 100        |
| Ayatollah Taleghani     | 80                  | 0                    | 7/8           | 12/2          | 100        |
| Imam Hossein            | 83/2                | 4/8                  | 8/4           | 3/6           | 100        |
| Imam Reza               | 81/7                | 2                    | 11            | 5/3           | 100        |
| Rasool Akram            | 67/9                | 0/4                  | 22/7          | 9             | 100        |
| Valiasr                 | 75                  | 0/3                  | 14/2          | 10/5          | 100        |
| Imam Ali                | 81/2                | 0/2                  | 7/3           | 11/4          | 100        |
| Shohada                 | 80/3                | 0/6                  | 14/3          | 4/9           | 100        |

In these centers, the share of highest out-of-pocket payment of the total expenses of each hospital was 22.7% for Rasoul Akram Hospital, 14.3% for Shohada

Hospital and 14.2% for Valiasr Hospital in the (Figure 2).



Figure3. The share of out-of-pocket payment of the total expenses in hospitals affiliated to Ilam University of Medical Sciences

The share of basic insurance of total expenditures in hospitals affiliated to Ilam University of Medical Sciences is presented in Table 5. The largest share of basic insurance expenses in each hospital was related to Imam Khomeini Hospital in Ilam, Imam Hossein Hospital in Ilam and Imam Ali Hospital in Hospital.

Table 5

Share of basic insurance of total expenses in each hospital affiliated to Ilam University of Medical Sciences

| Hospital                | Percentage of basic insurance share |
|-------------------------|-------------------------------------|
| Shahid Mostafa Khomeini | 80/6                                |
| Imam Khomeini           | 83/4                                |
| Ayatollah Taleghani     | 80                                  |
| Imam Hossein            | 83/2                                |
| Imam Reza               | 81/7                                |
| Rasool Akram            | 67/9                                |
| Valiasr                 | 75                                  |
| Imam Ali                | 81/2                                |
| Shohada                 | 80/3                                |

In hospitals affiliated to Ilam University of Medical Sciences, services such as medication, laboratory and visits had the most expenses. Table 6 lists the 20

services with the highest frequency of provision and related costs in each hospital.

| Share of hospital centers from the expenses of 20 patients presented in hospitals affiliated to Ilam University of Medical Sciences    Shahit    Mostafa  Imam  Mayatollah  Imam  Rasoot    Hospital  Khomeini  Taleghani  Imam  Rasoot    Mostafa  Khomeini  Taleghani  Imam  Rasoot    Mostafa  Khomeini  Taleghani  Imam  Rasoot    Medication  6442505786  502100799  190840644  45709706  0  0  0  64073245200  101005075786  8347580  41144000  2196000  3260331  1003716  350471  2509206  620045368  786458424  6370534  844166    Consumalse  8456825268  171784407  171731924  550000  | I able 0              |                     |                   |                  |                     |                  |                   |            |           |         |
|--|-----------------------|---------------------|-------------------|------------------|---------------------|------------------|-------------------|------------|-----------|---------|
| Shahid  Imam  Ayatollah  Imam  Imam  Rasoi    Hospital  Khomeini  Khomeini  Taleghani  Hossein  Reza  Akram  Valiasr  Imam Ali  Shohada    Medication  64425057786  5022109799  190840644  457093760  355594798  361543754  2330479031  106963558  0722068    ICU bed  30673245200  9069819000  577408000  21448000  321678000  0  0  0  6930500  1580201    Inpatient care  21949332796  1050045756  88347580  401486280  318503100  22001620  1679829200  66936500  1589201    Inbaratory  1516852043  1583821332  100558721  25697853  32603331  19947164  35041305  13541200  16792284  709520  6746812    Consumables  845682568  1721784407  177431924  5687853  32603331  19947164  35043065  1379120  6746812    CT Scan  3048007081  647298122  31817163  <   | Share of hospital cer | nters from the expe | nses of 20 patier | nts presented in | hospitals affiliate | ed to Ilam Unive | ersity of Medical | Sciences   |           |         |
| Mostafa<br>HospitalImam<br>RkomeiniAyatollah<br>TaleghaniImase<br>HosseinReza<br>RezaAkramValiasrImam Ali<br>MadioHospitalKhomeiniTaleghaniHosseinRezaAkramValiasrImam AliShohadaMedication $64425057786$ $5022109799$ 19084064 $457093760$ $555594798$ $361543754$ $230479031$ $106963558$ $0722068$ ICU bed $30673245200$ $9069819000$ $577408000$ $214480000$ $288925000$ $9758000$ $2277810000$ $118492000$ $52960000$ Inpatient care $21949332796$ $105095756$ $88347580$ $401486280$ $318503100$ $02001620$ $167982200$ $66936560$ $15850203$ Laboratory $1516852043$ $1583821332$ $100558721$ $25503926$ $96626582$ $560045368$ $786458424$ $36370534$ $8484166$ Consumables $845682568$ $1721784407$ $177431924$ $56877853$ $3200331$ $109347164$ $350413056$ $13541200$ $1612957$ Nursing services $304800781$ $647298122$ $31817163$ $166247563$ $0$ $48021502$ $315079046$ $0$ Consulting $252364280$ $685591200$ $88302200$ $4882960$ $12439020$ $9578000$ $40012940$ $11763840$ $9833080$ Surgery $226563028$ $149185444$ $49658768$ $25620$ $1871520$ $12891240$ $0$ $0$ $0$ CCU bed $102489000$ $0$ $0$ $0$ $0$ $0$ |                       | Shahid              |                   |                  |                     |                  |                   |            |           |         |
| HospitalKhomeiniKhomeiniTaleghaniHoseinRezaAkramValiasrImam AliShohadaMedication6442505778650221097991908406444570937603555947983615437542330479031100635580722068ICU bed30673245200906981900057740800021448000032167800000006750000Regular bed2720585200014742440002199600003434080002889250009575800022778100001184920005296000Inpatient care2194933279610500457568834758040148628031850310020200162016798220066936501585020Laboratory1516852043158382133210055872125503206966265825604536878645842430307348484166Consumables845682526817217840717743192456877853326033110947164350413056135412001612957Nursing services33630866764846690024394523021983280388548001960695612792284471095206746812CT Scan304800708164729812231817163166247563048021250231507904600Surgery22563628149185444496587682562200187152012989240350450503077872267340Surgery2265636928149185444496587682562200187152012982403150450030778722673940CU bed10248900000  |                       | Mostafa             | Imam              | Ayatollah        | Imam                | Imam             | Rasool            |            |           |         |
| Medication  64425057786  5022109799  190840644  457093760  355594798  361543754  2330479031  106963558  0722068    ICU bed  30673245200  9069819000  577408000  21480000  321678000  0  0  0  0  6750000    Regular bed  27205852000  1474244000  219960000  343408000  288925000  9575800  2277810000  118492000  66936560  1585020    Laboratory  1516852043  1583821332  100558721  255039206  96626582  560045368  786458424  36370534  8484166    Consumables  8456825268  1721784407  177431924  56877853  3260331  109347164  350413056  13541200  1612957    Nursing services  3363086676  484669002  43945230  21983280  38854800  1906956  127922844  7109520  6746812    Consulting  252364280  685591200  88302200  45829960  12439020  95758000  40012940  11763840  9833080  | Hospital              | Khomeini            | Khomeini          | Taleghani        | Hossein             | Reza             | Akram             | Valiasr    | Imam Ali  | Shohada |
| ICU bed3067324520090698190005774080002144800003216780000006750000Regular bed272058520001474244000219960000349400002889250009575800022778100001184920005296000Inpatient care21949332796105004575688347580401486280318503100202011620167982920066936501585020Laboratory15168520431583821332100558722550320696626582560045368786458424363705348484166Consumables845682526817217844071774319245687785332603331109347164350413056135412001612957Nursing services336308667648466900243945230219828038854800196065612792284471095206746812Consulting252364280685591200883022004582960124390209575800040012940117638409833080Surgery22656369281491854444966587682562001871520129892403560456030778722673940Psychiatric bed186804600000036977000229800001261120004563000Amesthesia79328149238652396014653279200369770029800001261120001624332ECG726694808332656605614260507382341083412868467600728474383183922942140Physiotherap65676308010175693  | Medication            | 64425057786         | 5022109799        | 190840644        | 457093760           | 355594798        | 361543754         | 2330479031 | 106963558 | 0722068 |
| Regular bed2720585200014742440002199600003434080002889250009575800022778100001184920005296000Inpatient care219493327961050045756883475804014862803185031002020016201679829200669365031585020Laboratory15168522043158382133210055872125503920696626582560045368786458424363705348484166Consumables845682526817217844071774319245687785332603331100347164350413056135412001612957Nursing services33630866764846690024394523021983280388548001960695612792284471095206746812CT Scan304800708164729812231817163166247563048021250231507904600Surgery2265636928149185444449665876825622001871520129892403560450030778722673940Surgery2265636928149185444449665876825622001871520129892403560450030778722673940CCU bed10248900000000012611200004563000Ambulance922732500016250000664255004400000027511000011944400007319000Anesthesia7932814923362656056142605073823410834128684676007284743831838922942140ECG7266948083302676054142650738234 </td <td>ICU bed</td> <td>30673245200</td> <td>9069819000</td> <td>577408000</td> <td>214480000</td> <td>321678000</td> <td>0</td> <td>0</td> <td>0</td> <td>6750000</td>                  | ICU bed               | 30673245200         | 9069819000        | 577408000        | 214480000           | 321678000        | 0                 | 0          | 0         | 6750000 |
| Inpatient care  21949332796  1050045756  88347580  401486280  318503100  20201620  1679829200  66936560  1585020    Laboratory  15168522043  1583821332  100558721  255039206  96626582  560045368  786458424  36370534  8484166    Consumables  8456825268  1721784407  177431924  56877853  32603331  109347164  350413056  13541200  1612957    CT Scan  3048007081  647298122  31817163  166247563  0  480212502  315079046  0    Consulting  2523364280  685591200  88302200  45829960  12439020  95758000  40012940  11763840  9833080    Surgery  2265636928  1491854444  49658768  2562200  1871520  12989240  35604560  3077872  2673940    Surgery  2265636928  1491854444  49658768  2562200  1871520  12989240  35604560  3077872  2673940    CCU bed  1024890000  0 <t< td=""><td>Regular bed</td><td>27205852000</td><td>1474244000</td><td>219960000</td><td>343408000</td><td>288925000</td><td>95758000</td><td>2277810000</td><td>118492000</td><td>5296000</td></t<>  | Regular bed           | 27205852000         | 1474244000        | 219960000        | 343408000           | 288925000        | 95758000          | 2277810000 | 118492000 | 5296000 |
| Laboratory15168522043158382133210055872125503920696626582560045368786458424363705348484166Consumables845682526817217844071774319245687785332603331109347164350413056135412001612957Nursing services33630866764846690024394523021983280388548001960695612792284471095206746812CT Scan30480070816472981223181716316624756304802120231507904600Consulting25233642806855912008830220045829960124390209575800040012940117638409833080Surgery2265636928149185444449665876825622001871520129892403560456030778722673940Psychiatric bed186804600000000012611200004563000Ambulance922732500016250000664250044000002298000012611200007319000Anesthesia79328149238652396016632792004286672353001601624332ECG726694808332656005614260507382341083412868467600728474383183892292140Physiotherapy67062685062367980000871506058841970468225071769201372260Pharmaceuticalservices63266578935029724158481290463925390414 <t< td=""><td>Inpatient care</td><td>21949332796</td><td>1050045756</td><td>88347580</td><td>401486280</td><td>318503100</td><td>202001620</td><td>1679829200</td><td>66936560</td><td>1585020</td></t<>                   | Inpatient care        | 21949332796         | 1050045756        | 88347580         | 401486280           | 318503100        | 202001620         | 1679829200 | 66936560  | 1585020 |
| Consumables845682526817217844071774319245687785332603331109347164350413056135412001612957Nursing services33630866764846690024394523021983280388548001960695612792284471095206746812CT Scan304800708164729812231817163166247563048021250231507904600Consulting2523364280685591200883022004582996012439020957580040012940117638409833080Surgery2265636928149185444449665876825622001871520129892403560456030778722873940Psychiatric bed1868046000000003128112000CCU bed10248900000003697700022980000012611200004563000Ambulance922732500016250000664255004400000027511000011944400007319000Anesthesia793281492386523960146532792004286672353001601624332ECG7266948083326566056142605073823410834128684676007284743831838922942140Physiotherapy6706268506236798000871506058841970468225071769201372260Pharmaceuticalservices632665789350297241584812904639253904143408218378793992053980 <t< td=""><td>Laboratory</td><td>15168522043</td><td>1583821332</td><td>100558721</td><td>255039206</td><td>96626582</td><td>560045368</td><td>786458424</td><td>36370534</td><td>8484166</td></t<>  | Laboratory            | 15168522043         | 1583821332        | 100558721        | 255039206           | 96626582         | 560045368         | 786458424  | 36370534  | 8484166 |
| Nursing services33630866764846690024394523021983280388548001960695612792284471095206746812CT Scan30480070816472981223181716316624756304802125023150790460Consulting25233642806855912008830220045829960124390209575800040012940117638409833080Surgery2265636928149185444449665876825622001871520129892403560456030778722673940Psychiatric bed18680460000000031281120004563000CCU bed1024890000000369770002298000012611200004563000Ambulance922732500016250000664255004400000027511000011944400007319000Anesthesia793281492386523960146532792004286672353001601624332ECG7266948083326566056142605073823410834128684676007284743831838922942140Physiotherapy67062685062367980000871506058841970468225071769201372260Pharmaceuticalservices6326657893502972415848129046392539041434082183787939920539804538866managementservices6326657893502972415848129046392539041434082181058414612  | Consumables           | 8456825268          | 1721784407        | 177431924        | 56877853            | 32603331         | 109347164         | 350413056  | 13541200  | 1612957 |
| CT Scan30480070816472981223181716316624756304802125023150790460Consulting25233642806855912008830220045829960124390209575800040012940117638409833080Surgery2265636928149185444449665876825622001871520129892403560456030778722673940Psychiatric bed186804600000000000312811200CCU bed10248900000000369770002298000012611200004563000Amesthesia79328149238652396014653279200428667235301601624332ECG726694808332656605614205073823410834128684676007284743831838922942140Physiotherapy6706268506236798000003995750002951300Ecocardiography65676308010175693029866800871506058841970468225071769201372260Pharmaceuticalservices6326657893502972415848129046392539041434082183787939920539804538866management11569143215741111127179814435524567078610584146127381040903295Surgery room6068742854032786411013219840362600419580051122402411220 <td>Nursing services</td> <td>3363086676</td> <td>484669002</td> <td>43945230</td> <td>21983280</td> <td>38854800</td> <td>19606956</td> <td>127922844</td> <td>7109520</td> <td>6746812</td>   | Nursing services      | 3363086676          | 484669002         | 43945230         | 21983280            | 38854800         | 19606956          | 127922844  | 7109520   | 6746812 |
| Consulting25233642806855912008830220045829960124390209575800040012940117638409833080Surgery2265636928149185444449665876825622001871520129892403560456030778722673940Psychiatric bed18680460000000000312811200CCU bed102489000000000369770002298000012611200004563000Ambulance92273250001625000066425500440000027511000011944400007319000Anesthesia7932814923865239601465327920004286672353001601624332ECG7266948083326566056142605073823410834128684676007284743831838922942140Physiotherapy6706268506236798000000371506058841970468225071769201372260Pharmaceuticalservices6326657893502972415848129046392539041434082183787939920539804538866managementrrrrr127179814435524567078610584146127381040903295Surgery room6068742854032786411013219840362600419580051122402411220   | CT Scan               | 3048007081          | 647298122         | 31817163         | 166247563           | 0                | 480212502         | 315079046  | 0         |         |
| Surgery2265636928149185444449665876825622001871520129892403560456030778722673940Psychiatric bed1868046000000000312811200CCU bed10248900000000369770002298000012611200004563000Ambulance922732500016250000664255004400000027511000011944400007319000Anesthesia793281492386523960146532792004286672353001601624332ECG7266948083326560056142605073823410834128684676007284743831838922942140Physiotherapy6706268506236798000003995750002951300Ecocardiography65676308010175693029866800871506058841970468225071769201372260Pharmaceuticalservices6326657893502972415848129046392539041434082183787939920539804538866managementranagementranagementranagementranagementranagementranagementranagementranagement2411220Radiology6068742854032786411013219840362600419580051122402411220   | Consulting            | 2523364280          | 685591200         | 88302200         | 45829960            | 12439020         | 95758000          | 40012940   | 11763840  | 9833080 |
| Psychiatric bed  1868046000  0  0  0  0  31281120  0    CCU bed  1024890000  0  0  0  36977000  22980000  126112000  0  4563000    Ambulance  922732500  0  16250000  66425500  44000000  275110000  119444000  0  7319000    Anesthesia  793281492  386523960  146532792  0  0  4286672  3530016  0  1624332    ECG  726694808  33265660  5614260  50738234  10834128  68467600  72847438  3183892  2942140    Physiotherapy  670626850  623679800  0  0  0  3995750  0  0  2951300    Ecocardiography  656763080  101756930  2986680  0  8715060  58841970  4682250  7176920  1372260    Pharmaceutical  services  632665789  35029724  1584812  9046392  5390414  3408218  37879399  2053980<   | Surgery               | 2265636928          | 1491854444        | 496658768        | 2562200             | 1871520          | 12989240          | 35604560   | 3077872   | 2673940 |
| CČU bed1024890000000369770002298000012611200004563000Ambulance922732500016250000664255004400000027511000011944400007319000Anesthesia793281492386523960146532792004286672353001601624332ECG726694808332656056142605073823410834128684676007284743831838922942140Physiotherapy6706268506236798000003995750002951300Ecocardiography65676308010175693029866800871506058841970468225071769201372260Pharmaceuticalservices6326657893502972415848129046392539041434082183787939920539804538866managementservices6326657893502972415848129046392539041434082183787939920539804538866Radiology62040216511569143215741111127179814435524567078610584146127381040903295Surgery room6068742854032786411013219840362600419580051122402411220  | Psychiatric bed       | 1868046000          | 0                 | 0                | 0                   | 0                | 0                 | 31281120   | 0         |         |
| Ambulance922732500016250000664255004400000027511000011944400007319000Anesthesia793281492386523960146532792004286672353001601624332ECG7260948083326566056142605073823410834128684676007284743831838922942140Physiotherapy670626850623679800000039957500002951300Eccardiography656763080101756930298666800871506058841970468225071769201372260Pharmaceuticalservices6326657893502972415848129046392539041434082183787939920539804538866managementservices62040216511569143215741111127179814435524567078610584146127381040903295Surgery room6068742854032786411013219840362600419580051122402411220  | CCU bed               | 1024890000          | 0                 | 0                | 0                   | 36977000         | 229800000         | 126112000  | 0         | 4563000 |
| Anesthesia  793281492  386523960  146532792  0  0  4286672  3530016  0  1624332    ECG  726694808  33265660  5614260  50738234  10834128  68467600  72847438  3183892  2942140    Physiotherapy  670626850  623679800  0  0  0  3995750  0  0  2951300    Eccardiography  656763080  101756930  29866680  0  8715060  58841970  4682250  7176920  1372260    Pharmaceutical  services  632665789  35029724  1584812  9046392  5390414  3408218  37879399  2053980  4538866    management   | Ambulance             | 922732500           | 0                 | 16250000         | 66425500            | 44000000         | 275110000         | 119444000  | 0         | 7319000 |
| ECG7266948083326566056142605073823410834128684676007284743831838922942140Physiotherapy6706268506236798000003995750002951300Ecocardiography656763080101756930298666800871506058841970468225071769201372260Pharmaceuticalservices6326657893502972415848129046392539041434082183787939920539804538866managementRadiology6204021651156914321574111127179814435524567078610584146127381040903295Surgery room6068742854032786411013219840362600419580051122402411220   | Anesthesia            | 793281492           | 386523960         | 146532792        | 0                   | 0                | 4286672           | 3530016    | 0         | 1624332 |
| Physiotherapy  670626850  623679800  0  0  0  3995750  0  0  2951300    Ecocardiography  656763080  101756930  29866680  0  8715060  58841970  4682250  7176920  1372260    Pharmaceutical<br>services  632665789  35029724  1584812  9046392  5390414  3408218  37879399  2053980  4538866    management        0  362600  41435524  5670786  10584146  12738104  0903295    Surgery room  606874285  403278641  101321984  0  362600  4195800  5112240  2411220  | ECG                   | 726694808           | 33265660          | 5614260          | 50738234            | 10834128         | 68467600          | 72847438   | 3183892   | 2942140 |
| Ecocardiography  656763080  101756930  29866680  0  8715060  58841970  4682250  7176920  1372260    Pharmaceutical<br>services  632665789  35029724  1584812  9046392  5390414  3408218  37879399  2053980  4538866    management  | Physiotherapy         | 670626850           | 623679800         | 0                | 0                   | 0                | 3995750           | 0          | 0         | 2951300 |
| Pharmaceutical<br>services  632665789  35029724  1584812  9046392  5390414  3408218  37879399  2053980  4538866    management  | Ecocardiography       | 656763080           | 101756930         | 29866680         | 0                   | 8715060          | 58841970          | 4682250    | 7176920   | 1372260 |
| services  632665789  35029724  1584812  9046392  5390414  3408218  37879399  2053980  4538866    management  | Pharmaceutical        |                     |                   |                  |                     |                  |                   |            |           |         |
| management    Radiology  620402165  115691432  15741111  1271798  14435524  5670786  10584146  12738104  0903295    Surgery room  606874285  403278641  101321984  0  362600  4195800  5112240  2411220  | services              | 632665789           | 35029724          | 1584812          | 9046392             | 5390414          | 3408218           | 37879399   | 2053980   | 4538866 |
| Radiology  620402165  115691432  1574111  1271798  14435524  5670786  10584146  12738104  0903295    Surgery room  606874285  403278641  101321984  0  362600  4195800  5112240  2411220   | management            |                     |                   |                  |                     |                  |                   |            |           |         |
| Surgery room  606874285  403278641  101321984  0  362600  4195800  5112240  2411220  | Radiology             | 620402165           | 115691432         | 15741111         | 1271798             | 14435524         | 5670786           | 10584146   | 12738104  | 0903295 |
|  | Surgery room          | 606874285           | 403278641         | 101321984        | 0                   | 362600           | 4195800           | 5112240    |           | 2411220 |

Surgery, CT scans, and nursing services accounted for approximately 2% of total hospital expenditures

The percentage of each hospital expenses of the above services is reported in Table 7. 84.7% of the total expenses was related to the medication of all hospitals affiliated to the University of Medical Sciences of the province, 72.9% to ICS beds, 77.2% to regular beds, 77.9% to inpatient care, 72.8% to laboratories, etc. (Table 7).

# Table 7

Table 6

| Hospital                | Shahid Mostafa | Imam     | Ayatollah | Imam    | Imam | Rasool |         |          |         |
|-------------------------|----------------|----------|-----------|---------|------|--------|---------|----------|---------|
| service                 | Khomeini       | Khomeini | Taleghani | Hossein | Reza | Akram  | Valiasr | Imam Ali | Shohada |
| Medication              | 84/7           | 6/6      | 0/3       | 0/6     | 0/5  | 0/5    | 3/1     | 0/1      | 3/7     |
| ICU bed                 | 72/9           | 21/6     | 1/4       | 0/5     | 0/8  | 0      | 0       | 0        | 2/8     |
| Regular bed             | 77/2           | 4/2      | 0/6       | 1/0     | 0/8  | 0/3    | 6/5     | 0/3      | 9/1     |
| Inpatient care          | 77/9           | 3/7      | 0/3       | 1/4     | 1/1  | 0/7    | 6/0     | 0/2      | 8/6     |
| Laboratory              | 72/8           | 7/6      | 0/5       | 1/2     | 0/5  | 2/7    | 3/8     | 0/2      | 10/7    |
| Consumables             | 73/9           | 15/0     | 1/6       | 0/5     | 0/3  | 1      | 3/1     | 0/1      | 4/6     |
| Nursing services        | 78/5           | 11/3     | 1/0       | 0/5     | 0/9  | 0/5    | 3       | 0/2      | 4/1     |
| CT Scan                 | 65/0           | 13/8     | 0/7       | 3/5     | 0    | 10/2   | 6/7     | 0        | 0       |
| Consulting              | 66/9           | 18/2     | 2/3       | 1/2     | 0/3  | 2/5    | 1/1     | 0/3      | 7/2     |
| Surgery                 | 47/0           | 30/9     | 10/3      | 0/1     | 0    | 0/3    | 0/7     | 0/1      | 10/6    |
| Psychiatric bed         | 98/4           | 0        | 0         | 0       | 0    | 0      | 1/6     | 0        | 0       |
| CCU bed                 | 62/0           | 0        | 0         | 0       | 2/2  | 13/9   | 7/6     | 0        | 14/2    |
| Ambulance               | 50/7           | 0        | 0/9       | 3/6     | 2/4  | 15/1   | 6/6     | 0        | 20/7    |
| Anesthesia              | 52/3           | 25/5     | 9/7       | 0       | 0    | 0/3    | 0/2     | 0        | 12      |
| ECG                     | 69/6           | 3/2      | 0/5       | 4/9     | 1/0  | 6/6    | 7/0     | 0/3      | 7       |
| Physiotherapy           | 5              | 46/5     | 0         | 0       | 0    | 0/3    | 0       | 0        | 3/2     |
| Eco cardiography        | 67/8           | 10/5     | 3/1       | 0       | 0/9  | 6/1    | 0/5     | 0/7      | 10/5    |
| Pharmaceutical services | 80/9           | 4/5      | 0/2       | 1/2     | 0/7  | 0/4    | 4/8     | 0/3      | 7/0     |
| Radiology               | 62/8           | 11/7     | 1/6       | 0/1     | 1/5  | 0/6    | 1/1     | 1/3      | 19/3    |
| Surgery room            | 50/8           | 33/8     | 8/5       | 0       | 0/0  | 0/4    | 0/4     | 0        | 6/1     |

# Table 8

| Percentage | of each | hospital | from 20 | common | services | in t | the | hospital | centers | affiliated | to | Ilam | University | of | Medical |
|------------|---------|----------|---------|--------|----------|------|-----|----------|---------|------------|----|------|------------|----|---------|
| Sciences.  |         |          |         |        |          |      |     |          |         |            |    |      |            |    |         |

| Hospital            | Shahid Mostafa | a Imam   | Ayatollah | Imam    | Imam | Rasool |         |          |         |
|---------------------|----------------|----------|-----------|---------|------|--------|---------|----------|---------|
| services            | Khomeini       | Khomeini | Taleghani | Hossein | Reza | Akram  | Valiasr | Imam Ali | Shohada |
| Medication          | 84/7           | 6/6      | 0/3       | 0/6     | 0/5  | 0/5    | 3/1     | 0/1      | 3/7     |
| ICU bed             | 72/9           | 21/6     | 1/4       | 0/5     | 0/8  | 0      | 0       | 0        | 2/8     |
| Regular bed         | 77/2           | 4/2      | 0/6       | 1       | 0/8  | 0/3    | 6/5     | 0/3      | 9/1     |
| Inpatient care      | 77/9           | 3/7      | 0/3       | 1/4     | 1/1  | 0/7    | 6       | 0/2      | 8/6     |
| Laboratory          | 72/8           | 7/6      | 0/5       | 1/2     | 0/5  | 2/7    | 3/8     | 0/2      | 10/7    |
| Consumables         | 73/9           | 15       | 1/6       | 0/5     | 0/3  | 1      | 3/1     | 0/1      | 4/6     |
| Nursing services    | 78/5           | 11/3     | 1         | 0/5     | 0/9  | 0/5    | 3       | 0/2      | 4/1     |
| CT Scan             | 65             | 13/8     | 0/7       | 3/5     | 0    | 10/2   | 6/7     | 0        | 0       |
| Consulting          | 66/9           | 18/2     | 2/3       | 1/2     | 0/3  | 2/5    | 1/1     | 0/3      | 7/2     |
| Surgery             | 47             | 30/9     | 10/3      | 0/1     | 0    | 0/3    | 0/7     | 0/1      | 10/6    |
| Psychiatric bed     | 98/4           | 0        | 0         | 0       | 0    | 0      | 1/6     | 0        | 0       |
| CCU bed             | 62             | 0        | 0         | 0       | 2/2  | 13/9   | 7/6     | 0        | 14/2    |
| Ambulance           | 50/7           | 0        | 0/9       | 3/6     | 2/4  | 15/1   | 6/6     | 0        | 20/7    |
| Anesthesia          | 52/3           | 25/5     | 9/7       | 0       | 0    | 0/3    | 0/2     | 0        | 12      |
| ECG                 | 69/6           | 3/2      | 0/5       | 4/9     | 1    | 6/6    | 7/0     | 0/3      | 7       |
| Physiotherapy       | 5              | 46/5     | 0         | 0       | 0    | 0/3    | 0       | 0        | 3/2     |
| Eco cardiography    | 67/8           | 10/5     | 3/1       | 0       | 0/9  | 6/1    | 0/5     | 0/7      | 10/5    |
| Pharmaceutical      | 20/0           | 4/5      | 0/2       | 1 / 2   | 0/7  | 0/4    | 4/0     | 0/2      | 7       |
| services management | 80/9           | 4/5      | 0/2       | 1/2     | 077  | 0/4    | 4/8     | 0/3      | /       |
| Radiology           | 62/8           | 11/7     | 1/6       | 0/1     | 1/5  | 0/6    | 1/1     | 1/3      | 19/3    |
| Surgery room        | 50/8           | 33/8     | 8/5       | 0       | 0    | 0/4    | 0/4     | 0        | 6/1     |

The table above shows each hospital's share of these 20 services in the form of a percentage. To the medication service, the share of Shahid Mostafa Khomeinii Hospital in Ilam accounted for 84.74%, the share of Imam Khomeinii Hospital in Ilam 6.6%, the share of Ayatollah Taleghani Hospital 0.3%, Imam Hossein Hospital 0.6%, Imam Reza and Rasoul Akram Hospital 0.5%, Valiasr Hospital 3.1%, Hospital Imam Ali accounted for 0.1%, and Shohada Hospital 3% of total expenditures.

# Conclusion

In hospitals of Ilam University of Medical Sciences, the highest expenses were related to medicine, laboratory services and visits. The main expenses were related to medical services and hospitalization. The highest expenses were related to the pharmaceutical services in most centers. The share of out-of-pocket payments in university hospitals was equal to 10.33% of total expenditures. Some of the services provided in these centers may be outside the insurance obligations and were not subject to government subsidies. Consumption pattern and consumer services in these centers should be examined to identify these services and sectors that have high out-of-pocket payments. The important point is that some of the higher paying centers were in low-income and poor cities in terms of health indices. Abdanan (22%), Hospital and Dehloran (14%) have more than 10% out-of-pocket payments.

Since the share of basic insurance in Corona inpatient services should be at least 90%, it seems that the share of basic insurance is less than 90% in these centers and the rest is paid by patients. This is probably due to the consumption pattern as well as the type of service. For example, in Abdanan, which has the largest share of out-of-pocket payments, services such as laboratory, CT scan, medicine and ambulance have the highest costs. In Darashahr, pharmaceutical services, regular beds, laboratories and consumables had the most expenses. The details of these services in the above centers should be examined. These centers will affect the general indices of the province and will cause a change in the results of financial and cost information of the university. The sharp decline in hospital revenues and, consequently, the limited financial resources of the university, science and medicine, show the need to pay attention to these issues. As it was said, in Abdanan Hospital, which had the most out-ofpocket payments, most of the expenses were related to diagnostic services, while in Mostafa Khomeini Hospital, as the main medical center for patients with Corona, the most expenses were related to medicine, bed, ICU, regular bed and hospitalization; The share of patients in this center has been less than 10%.

The high share of diagnostic services in some city centers of the province showed a lack of attention to the principles of health economics. Health resources in these centers were spent on diagnostic services, while the managers of these centers have to allocate the limited financial resources, equipment and facilities to the most cost-effective services in the current critical situation.

### Acknowledgments

This study was the result of a research project approved by Ilam University of Medical Sciences with the code of ethics IR.MEDILAM.REC.1399.087. Researchers consider it necessary to appreciate the officials of the university for their cooperation.

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Citation: Sadeghifar J, Karimi F, Bayar M, Veisi M, Soleymani Y, Radabadi M. Investigating the Pattern of Direct Medical Costs of Covid-19 Patients in Hospitals of Ilam Province. SJMSHM, 2021; 3(4)1-8.

https://doi.org/10.47176/sjmshm.3.4.1