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Hospital Financial Management in Facing Turbulence of Pandemic Covid-19

Eka Pujiyanti[1,2], Ascobat Gani[1], Astuti Giantini[2], Indah Pratiwi Suwandi[2], Sri Rizki Novita Sejati[2]

Faculty of Public Health Universitas Indonesia, Depok, Indonesia[1]
Universitas Indonesia Hospital, Depok, Indonesia[2]

Abstract— Pandemic turbulence in health services forces hospitals to be able to implement several areas of change. Universitas Indonesia Hospital as one of the covid-19 referral hospitals must respond to very dynamic changes, management must carry out financial management based on accurate financial information which is used as a basis for operational decisions designed to maintain the financial performance. This study aims to determine the pattern of hospital financial management in dealing with pandemic turbulence. The method used in this study is analysis of financial statements through trend analysis and common size analysis analysis. Highest number of visits in December 2020 was 8,949. The largest component of expenditure in November 2020 was 12% including employee costs and cost of goods sold which includes personal protective equipment, medicines, and others. The largest revenue for all services is in Covid inpatient services, and the highest in January 2021 was 22%. The higher number of visits will affect the hospital's cash flow in terms of income and expenses. Financial management strategy is needed to maintain the balance of cash flow, hospital income during the pandemic experienced an imbalance and tended to be more dependent on covid-19 services, while non-covid-19 services decreased.

Keywords: Covid-19, Turbulence, Hospital Financial Sustainability, Cash Management

1. Introduction

Coronavirus disease 2019 (COVID-19) has emerged by a novel coronavirus, now known as Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). SARS-CoV-2 is not similar to other corona viruses that usually spread in human beings causing common cold,[1] which was first discovered in Wuhan China and is an outbreak caused by Coronavirus and occurred in 2019 until now with the death rate reaching 2,622,137 people until March 10, 2021.[2] The Covid-19 pandemic has caused the world economy to be in a turbulent, stormy, uncertain, and economic slowdown phase.[3] Pandemic turbulence in health services forces hospitals to be able to implement several areas of change, including in terms of services, referrals, infrastructure, technology, marketing, ethics, law, and financing.[4] The COVID-19 pandemic cases happened so fast, in Indonesia itself the number of positives is still showing an increase until January 2021, the transmission has spread to various regions in a short time. The Covid-19 pandemic has a significant impact on the sustainability of hospital life as a health service.[5] In United States Hospital, the COVID-19 pandemic represents an authentic medical and economic challenge for the US healthcare system.[6] In the USA Hospitals, the cancelation of elective surgery and the decline of hospital visits caused by COVID-19 have shrunk revenue from these services and motivated hospitals to reduce costs from these services.[7]

The turbulence of the Covid-19 pandemic has a domino effect in a wide range of aspects, that is; health, social, economy and finance. The first one is health aspects, because the spread of cases is easy, fast, and wide, so the health sector is said to be facing a crisis because there is no medicine yet and limited medical equipment and personnel; The second is social aspects, because social restrictions in preventive efforts cause the cessation of economic activity; The third is economy aspects.[8] its hampered by consumption, investment and disrupted exports and imports; and the last is finance aspects[9] due to decreased investor confidence and flight to quality.[10] Pandemic turbulence in health services forces hospitals to be able to

implement several areas of change, including in terms of services, referrals, infrastructure, technology, marketing, ethics and law, and financing.[11] Hospitals are different from other health care organizations because they play an important role in the aftermath of an emergency by providing continued access to care;[12] therefore, they belong to that group of infrastructures called lifelines.[13] For hospitals to perform as expected traveling the emergencies, it is necessary to have developed internal concepts and methods that allow this complexity of management.[4]

Universitas Indonesia Hospital (RS UI) as one of the referral hospitals in Indonesia Country for Covid-19 patients has also experienced the impact of this turbulence, both positive and negative, it is like challenges in the first 3 months of the Covid-19 pandemic there was a decrease in visits and operational measures. RS UI is encouraged to adapt quickly to be ready to become a Covid-19 referral hospital both in terms of infrastructure, human resources and the risk of infection for staff and all residents of RS UI,[14] in detail the financial challenge that is felt is an increase in operational costs which include the cost of human resources: employee shift arrangements; additional volunteers; lodging; shuttle services; employee health costs include screening and treatment; laundry costs include chemicals, diesel, electricity and waste management fee covers 500-600 kg per week; employee meal costs include supplements and additional nutrition for staff and volunteers, medical gas costs. This is not an easy condition, various strategies are carried out to be able to survive in these difficult conditions that have never been felt before.[15]

It can be understood that the Covid-19 pandemic has a significant impact on the ability of hospitals to survive, so that hospitals are encouraged to adapt quickly. One of the aspects in the hospital that was significantly affected was the financial aspect, because the financial condition of the hospitals prior to the COVID-19 outbreak is an important determinant of how able they are to absorb the external financial shock, because financial performance determines the cost recovery rate.[16] This study aims to determine the pattern of hospital financial management in dealing with pandemic turbulence, by evaluating the impact of turbulence on hospital income compared to the costs required by hospitals during the Covid-19 pandemic.[17]

The method used in this study is an analysis of financial statements through trend analysis and common size analysis. The study design used is in the form of a non-experimental study by processing secondary data from hospitals such as patient visit data and the form of financial hospital data such as hospital income and expenses from March 2019 to February 2021, and Covid patient claim data from March 2020 to February 2021, as well as reviewing documents related to financial management and government policies during the Covid-19 pandemic which had an influence on the hospital. The population in this study is hospital patient visit data in March 2019-February 2021. The sample used in this study is hospital patient visit data, with a data size of 52,299 samples. The Other data in this study is financial hospital data from March 2019 to February 2021, and specified the data of covid patient claim data from March 2020 to February 2021 with a data size of 1415 samples clean from 2291 data obtained. The study location at the Universitas Indonesia Hospital, Depok City, Indonesia which is one of the hospitals currently providing services to patients with Covid-19 cases during this pandemic.

The aim of this study is to know hospital financial survival strategies in covid-19 pandemic, then variables in this study that are processed through data from hospital income and cost variables taken from outpatient, inpatient and emergency visit data during March 2019 to February 2021, covid patient claim data from March 2020 to February 2021 and Patient Visit Data from March 2019 to February 2021. The data collection process is taken from the hospital information system, which is triangulated with literature studies. All data in thisudy was obtained from hospital financial performance data from the hospital including hospital income data, hospital expenses data, patient's visit data in outpatient, inpatient and

emergency units. All information systems are processed with analysis of financial statements through trend analysis and common size analysis. The data collection process has received permission from the Universitas Indonesia Hospital as the research subject institution Ethical Approval No. 0034/SKPE/KKO/2021/00 and from Public Health Faculty Ethical Approval Ket-217/UN2.F10.D11/PPM.00.02/2021.

2. Result and Discussion

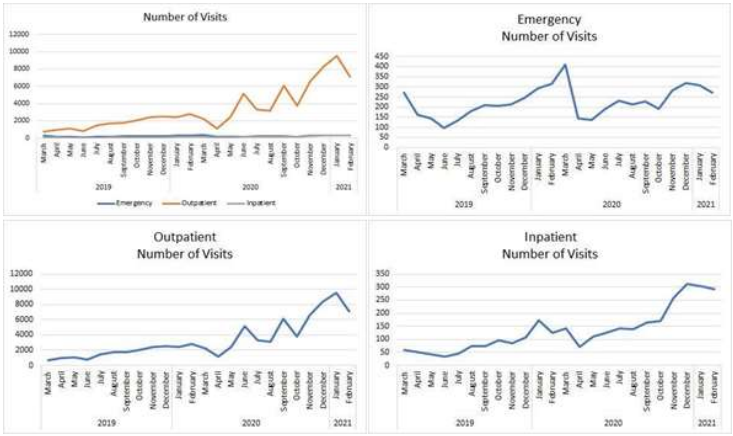
2.1 Visit

The Covid-19 pandemic that occurred throughout the world, including in Indonesia, has made many hospitals including RS UI or other health facilities have to provide services for Covid-19 patients. Number of patient visits in RS UI decreases in several months after the pandemic period started in March 2020, this happens because some people are concerned that the hospital is one of the high-risk places for the transmission of the Covid-19 disease. The highest number of visits at Universitas Indonesia Hospital (RS UI) from March 2019 to February 2021 was 10,142 in January 2021 (Pandemic period) including 308 emergency room visits, 9,530 outpatient visits, and 304 inpatient visits. The lowest were 943 visits in June 2019 (Before pandemic period) which included 98 emergency visits, 812 outpatient visits, and 33 inpatient visits (Table 1).[1]

Table 1: Number of Visits RS UI March 2019 - February 2021

Months	Emergency	Outpatient	Inpatient	Number of Visits
March (2019)	272	713	60	1.045
April (2019)	162	931	51	1.144
May (2019)	146	1.105	42	1.293
June (2019)	98	812	33	943
July (2019)	134	1.473	45	1.652
August (2019)	181	1.727	74	1.982
September (2019)	209	1.733	74	2.016
October (2019)	205	2.074	97	2.376
November (2019)	214	2.413	86	2.713
December (2019)	246	2.518	107	2.871
January (2020)	293	2.458	173	2.924
February (2020)	317	2.802	126	3.245
March (2020)	410	2.239	143	2.792
April (2020)	143	1.127	71	1.341
May (2020)	137	2.413	111	2.661
June (2020)	192	5.170	126	5.488
July (2020)	232	3.290	143	3.665
August (2020)	215	3.137	138	3.490
September (2020)	228	6.116	165	6.509
October (2020)	193	3.748	171	4.112
November (2020)	282	6.582	259	7.123
December (2020)	318	8.318	313	8.949
January (2021)	308	9.530	304	10.142
February (2021)	273	7.090	292	7.655

Figure 1: Number of Visits RS UI March 2019 - February 2021 Chart



2.2 Revenue

After April 2020, revenue services at RS UI fluctuated with the highest income in November 2020 to January 2021 with higher inpatient services income because inpatient income is an accumulation of the claims by the total billing from the treatment received by patients during treatment starting from room rent, medicine, radiology, laboratory, and various other examinations. RS UI Revenues in 2019 to 2021 generally experienced an increase (Figure 2 and Figure 3) with the highest income, in January 2021 (Pandemic period) IDR21.984.131.146 (Table 2).[18]

Table 2: Revenues RS UI March 2019 - February 2021

Months	Emergency	Outpatient	Inpatient	Total Income
March (2019)	111.599.998	227.621.572	439.930.269	779.151.839
April (2019)	99.438.211	403.641.073	357.880.783	860.960.067
May (2019)	98.441.260	465.358.778	449.440.831	1.013.240.869
June (2019)	55.634.001	446.060.259	374.685.572	876.379.831
July (2019)	115.031.774	744.996.023	442.396.024	1.302.423.821
August (2019)	163.393.205	1.079.342.606	1.586.946.206	2.829.682.016
September (2019)	159.694.229	1.036.344.697	1.373.513.371	2.569.552.297
October (2019)	157.638.508	1.320.354.899	1.315.714.366	2.793.707.773
November (2019)	145.865.703	1.606.515.284	1.313.184.027	3.065.565.015
December (2019)	201.537.226	1.639.649.919	1.812.922.990	3.654.110.136
January (2020)	270.027.649	1.621.740.496	2.144.811.409	4.036.579.554
February (2020)	242.923.851	1.704.828.888	3.031.246.745	4.978.999.484
March (2020)	409.128.129	1.520.449.242	2.523.388.310	4.452.965.681
April (2020)	253.378.145	1.096.877.514	2.810.383.029	4.160.638.689
May (2020)	134.716.779	1.323.785.627	3.033.271.583	4.491.773.989
June (2020)	183.888.363	1.676.732.581	4.266.620.624	6.127.241.567
July (2020)	242.994.415	1.577.627.681	6.503.224.632	8.323.846.727
August (2020)	236.092.463	2.587.893.854	5.655.859.279	8.479.845.596
September (2020)	178.102.266	7.577.174.747	7.660.969.107	15.416.246.120
October (2020)	108.978.189	3.103.033.303	8.429.153.012	11.641.164.504
November (2020)	130.412.141	3.755.591.084	9.599.944.326	13.485.947.551
December (2020)	154.735.646	5.056.532.932	12.302.522.680	17.513.791.258
January (2021)	142.147.377	4.558.575.207	17.283.408.562	21.984.131.146
February (2021)	88.359.312	2.678.485.965	16.761.977.336	19.528.822.613

Figure 2: Revenues by Services RS UI March 2019 - February 2021 Chart

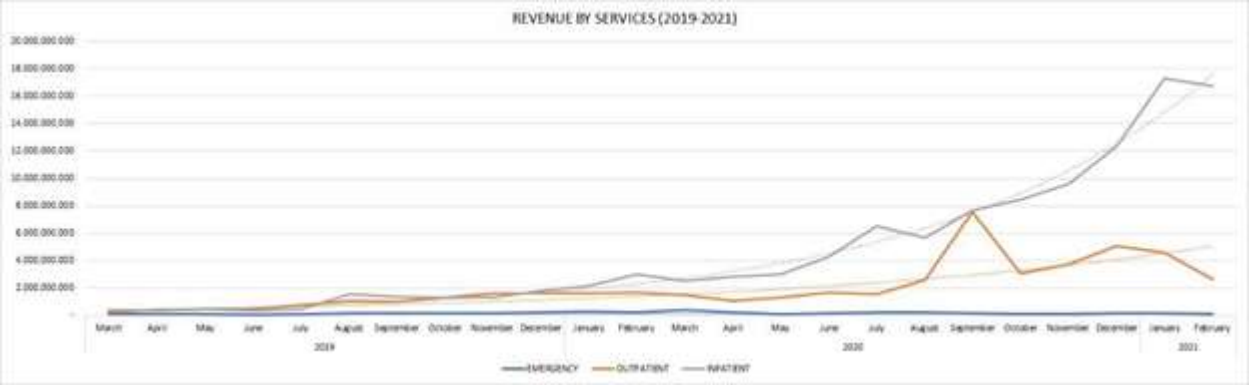
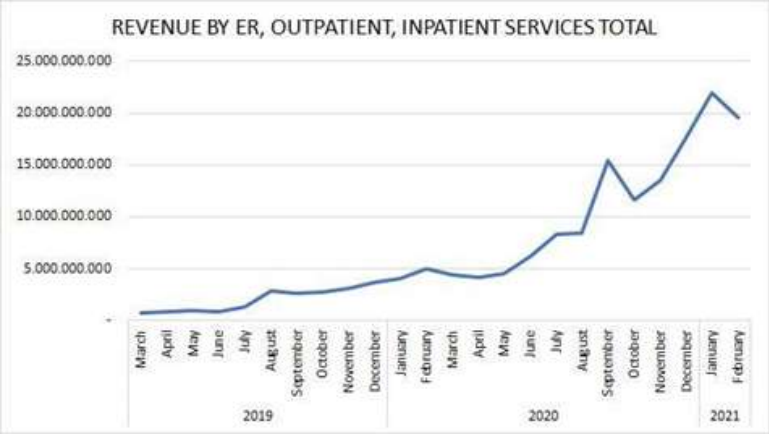


Figure 3: Revenues by Services Total RS UI March 2019 - February 2021 Chart



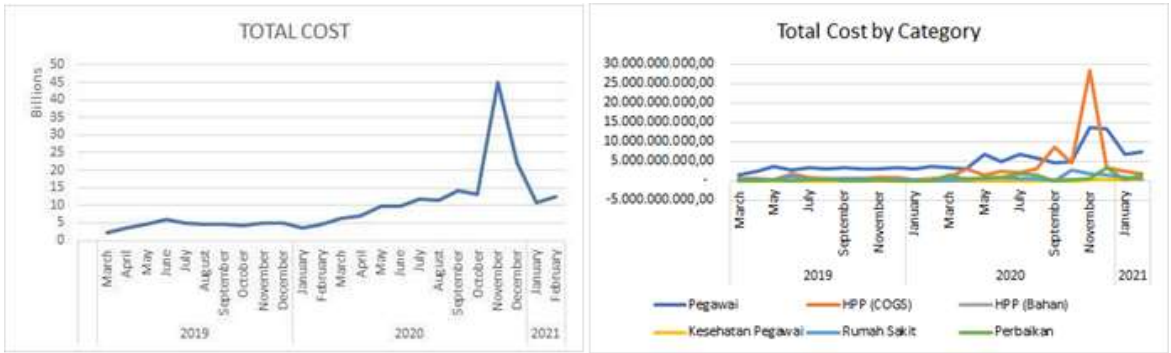
2.3 Expenditure

RS UI expenses also fluctuated with the highest expenses also occurring in November 2020. The highest income and expenditure both occurred since November 2020, which means that the high income was also followed by the high expenses to provide patient care needs for example employee, COGS, repairment, etc. RS UI expenditures in 2019 to 2021 generally experienced an increase (Figure 4) with the highest expenditure in November 2020 IDR 45.043.659.313 including Employee cost, COGS, Repairment (Table 3).[18]

Table 3: Expenses by Group Cost RS UI March 2019 - February 2021

Months	Employee	COGS	COGS (Material)	Employee health	Hospital	Repairment	Total Cost
March (2019)	1.448.726.933,00	484.334.891,54	19.231.700,00	3.933.530,00	260.870.220,85	17.211.347,00	2.234.308.622
April (2019)	2.382.564.407,00	743.037.332,91	56.435.000,00	17.202.735,00	267.275.579,60	23.181.262,50	3.489.696.317
May (2019)	3.681.662.378,00	366.194.130,58	33.816.262,00	38.484.874,00	158.935.776,48	201.614.160,00	4.480.707.581
June (2019)	2.876.775.570,97	1.696.463.034,45	18.373.200,00	248.405.379,00	1.148.879.674,40	26.465.000,00	6.015.361.859
July (2019)	3.385.603.116,34	748.957.416,76	36.517.800,00	80.507.221,00	393.224.679,63	196.799.291,75	4.841.609.525
August (2019)	2.984.661.111,00	700.070.463,65	63.983.350,00	49.940.734,00	352.003.719,98	468.398.477,00	4.619.057.856
September (2019)	3.341.322.962,59	671.756.635,64	65.528.950,00	72.013.064,00	596.240.460,88	20.959.594,00	4.767.821.667
October (2019)	3.002.667.074,52	575.932.823,42	88.965.000,00	70.633.722,00	487.970.454,39	30.899.000,00	4.257.068.074
November (2019)	3.228.622.246,00	918.059.949,20	95.591.150,00	124.739.247,00	423.485.709,91	171.966.155,00	4.962.464.457
December (2019)	3.382.497.909,00	1.048.561.615,16	96.022.300,00	172.979.373,98	348.146.921,97	33.435.000,00	5.081.643.120
January (2020)	3.055.910.058,89	305.596.316,86	90.676.000,00	88.835.173,00	354.300.919,45	-160.830.694,00	3.734.487.774
February (2020)	3.787.787.705,17	468.147.045,57	209.196.951,72	82.599.294,00	87.797.370,00	64.696.603,00	4.700.224.969
March (2020)	3.365.691.118,33	886.424.273,46	115.833.453,00	154.200.839,00	255.947.926,53	1.677.515.742,30	6.455.613.353
April (2020)	3.142.909.809,61	3.000.564.110,54	67.856.650,00	170.196.040,00	567.504.027,08	181.566.800,00	7.130.597.437
May (2020)	6.745.137.706,58	1.590.456.663,56	61.545.650,00	68.569.339,00	559.641.335,58	817.182.705,25	9.842.533.400
June (2020)	4.964.925.514,17	2.530.205.184,63	272.949.425,00	80.463.579,00	889.373.257,33	1.041.938.150,00	9.779.855.110
July (2020)	6.928.631.417,15	2.030.179.023,14	392.966.400,00	112.153.838,00	571.212.338,81	1.705.786.335,70	11.740.929.353
August (2020)	5.993.086.981,68	3.175.224.350,70	164.661.645,00	76.336.134,00	462.385.425,00	1.481.371.184,70	11.353.065.721
September (2020)	4.733.262.083,16	8.591.306.543,42	313.992.295,00	204.817.074,00	96.222.757,50	102.137.220,00	14.041.737.973
October (2020)	4.944.494.792,26	4.500.231.096,76	378.739.200,00	116.843.344,00	2.881.750.179,24	221.482.581,00	13.043.541.193
November (2020)	13.746.304.760,71	28.422.036.685,38	270.721.125,00	152.863.125,00	1.714.136.164,57	737.597.452,00	45.043.659.313
December (2020)	13.399.755.906,49	3.357.370.274,48	217.231.700,00	162.255.473,00	1.654.170.550,54	3.443.834.688,91	22.234.618.593
January (2021)	6.926.134.015,40	2.458.757.365,69	314.697.426,00	223.350.861,99	764.846.094,48	252.687.000,00	10.940.472.764
February (2021)	7.516.957.764,08	1.898.206.651,29	480.327.950,00	153.168.238,00	629.356.186,47	1.659.773.621,01	12.337.790.411

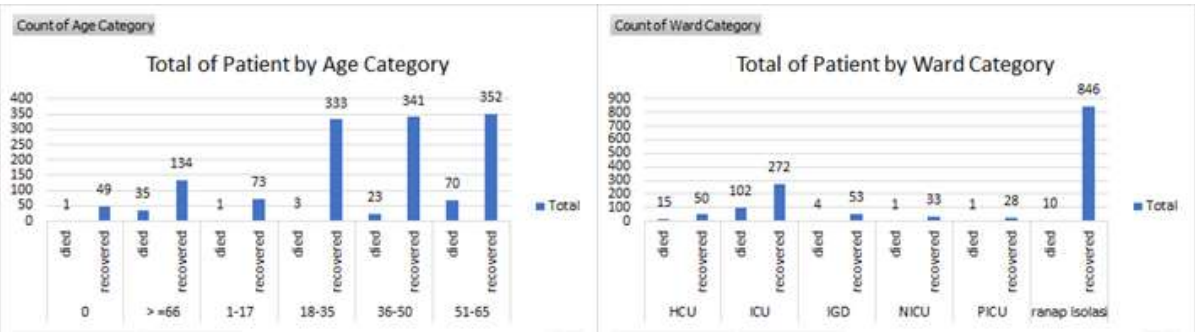
Figure 4: Expenses by Group Cost Total RS UI March 2019 - February 2021 Chart



2.4 Total of Covid-19 Patient

Based on the age group, it can be seen that the highest patients were in the 51-65 age group with 352 recovered patients and 70 patients died. Based on the treatment room group, it can be seen that the highest patients were in the isolation room with 846 recovered patients and 10 patients died (Figure 5).

Figure 5: Patient Total RS UI March 2020 - February 2021



2.5 Covid-19 Patient Billing and Claim

There are new rules in government policies related to reimbursement (claims) of costs for handling Covid-19 patients to health service facilities by the Ministry of Health in accordance with the costs incurred by the hospital compared to the costs set by the government. Based on the location of the ward, there are the lowest and highest numbers of hospital bills according to the level of patient needs and length of stay (Table 4). In addition, it can also be seen the lowest and highest figures of the value of claims submitted to the government according to the costs that have been set (Table 5).

Table 4: Lowest and Highest Billing Total

No.	Ward	Patient Total	Average Days	Average Billing	Lowest Billing	Highest Billing
1	IGD (Emergency)	57	1	6.532.840	1.582.000	26.997.300
2	NICU (Neonatal)	34	4	14.596.091	3.398.300	46.173.454
3	PICU (Pediatric)	29	7	23.430.486	6.931.580	83.085.390
4	HCU (High-care)	65	14	76.491.781	6.266.900	306.836.986
5	ICU (Intensive-care)	274	16	110.011.230	2.720.800	583.125.814
6	Isolation room	856	11	33.352.339	2.010.310	262.259.875

Table 5: Lowest and Highest Claim Total

No.	Ward	Lowest Total Claim	Highest Total Claim
1	IGD (Emergency)	332.900	69.000.000
2	NICU (Neonatal)	8.339.000	84.391.000
3	PICU (Pediatric)	24.000.000	214.500.000
4	HCU (High-care)	16.235.000	493.000.000
5	ICU (Intensive-care)	8.891.000	857.260.000
6	Isolation room	332.900	308.517.000

Conditions that have fluctuated quite drastically since the Covid-19 pandemic have made hospitals have to develop strategies related to financial management, also healthcare systems generally take on an external environmental perspective in order to establish strategic choice.[19] Several strategies from RS UI include maintaining the balance of cash inflow through accelerating the collection of Covid-19 claims receivables to the Ministry of Health and compiling a special Covid-19 budget, while in terms of cash outflow by extending the term of payment and optimizing supplies.[15] This is in accordance with what Stenberg (2003) stated that in dealing with disasters it is necessary to formulate a plan, which is internal disaster planning encompasses mitigation and preparedness (plus long-term recovery planning, which is not discussed in his article).[20]

Preparedness is more intellectually challenging because it sets the stage for actions carried out during the uncertainties of crisis. To disaster planners working in the pre-crisis period, the particulars of any eventual crisis are subject to numerous uncertainties. Though there are some recurrent features of crisis that can be foreseen, these uncertainties, and the enormous possibility spaces they generate, make crises partly intractable for traditional planning approaches. Otherwise, preparedness plans should aim to develop institutional capacities for resilience. The resilience plan should: (1) reduce uncertainties in real time (intelligence acquisition and dissemination); (2) conceptualize courses of actions (for complex resource management and mobility management); (3) invest in facilities and equipment that facilitate flexibility (design for spatial mobility, interoperable communications systems); (4) manage multi-organizational participants in ambiguous conditions (incident command); and (5) educate personnel for crisis versatility (especially through exercises).[15]

3. Conclusion

This study shows that hospital conditions affected by turbulence due to the covid-19 pandemic as seen from hospital income during the covid-19 pandemic experienced an imbalance and tended to be more dependent on covid-19 services, while non-covid-19 services decreased. Financial management strategy is needed to maintain the balance of cash inflow and cash outflow. Cash inflow strategies for example are accelerating the collection of Ministry of Health claims and minimizing the number of dispute claims. Cash outflow strategy is to extend the payment period to the vendor (term off payment) by waiting for the claim payment from the Ministry of Health.

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