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Ministry of Health

Managing Operating Rooms in General Hospitals Follow-up Audit

Managing Operating Rooms in General Hospitals – Follow-up Audit

Background

Surgeries are a core activity at hospitals, and operating rooms are a very critical component of any medical center. The mode the operating rooms in the general hospitals are managed is causing bottlenecks that result in lengthening waiting times for surgeries. Operating rooms (or "surgical beds") and their staffs constitute a valuable fundamental resource whose readiness and availability affect people's lives and their quality of life. Therefore proper management and optimal utilization is of utmost importance. Inefficient management leads to surgeries being delayed, postponed or even cancelled, lengthening the waiting time for surgeries, superfluous expenses, and inefficient utilization of the State's economic and manpower resources including the surgical infrastructure. It also has an adverse impact on the services being provided by the public health system. At the end of 2019, there were 458 surgical beds in all hospitals in Israel, representing an increase of 25 beds since 2017, since the publication of the previous State Comptroller's audit report[1].

1 See State Comptroller, **Annual Report 67B** (2017), "managing of Operating Rooms in General Hospitals," p. 316.

Key figures

45,000; 22,000; 10,000

The number of surgeries (including outpatient) performed in 2018 at Rambam Hospital (large hospital), at Assaf Harofeh Hospital (medium-sized hospital) and at Ziv Hospital in Safed (small hospital), respectively.

7–7.5 hours per day

Number of hours that operating rooms are utilized on Sundays through Thursdays at general hospitals in Israel. In other countries, operating rooms function for many more hours within the framework of public medicine (e.g.: in England, they operate from 08:00–22:00).

NIS 2,000 ($600)

The estimated cost per hour for an operating room in Israel. The cost in other countries ranges between tens of dollars per minute to several hundred dollars per minute (for complex surgeries).

17%–50%

The utilization rate of operating rooms in "small" government hospitals during the afternoon hours.

13.4%

The average surgery cancellation rate at the hospital's initiative – at Clalit hospitals in 2019.

53%

The overall ratio of patients waiting for surgeries at Clalit hospitals without any date scheduled (waiting longer than one year).

30; 365 +

30-day wait for knee replacement surgery at Assuta Ashdod; versus more than one year at Soroka Hospital in Be'er Sheva.

9.9 per 100,000 patients

The ratio of anesthetists in Israel. In other developed countries this ratio is: Denmark – 14.8; France – 16.1; Germany – 30.98.

Audit actions

The previous audit – In 2017, the Office of the State Comptroller published a report entitled "Operation of Operating Rooms in General Hospitals".

The follow-up audit – From March to September 2020, the Office of the State Comptroller audited the extent that the key deficiencies specified in the previous audit had been rectified. These deficiencies related to the management of operating rooms in government general hospitals and in Clalit Healthcare Services' hospitals. The follow-up audit was performed in the Edith Wolfson Medical Center, in the Galilee Medical Center in Nahariya, in Beilinson Hospital, in the Ministry of Health and in the General Health Services. Questionnaires were sent to these hospitals and additional information was collected. General questionnaires were also sent to nine government general hospitals, to seven Clalit general hospitals and to two public hospitals. The follow-up audit focused solely on general operating rooms.

Key findings

The Ministry of Health as a monitoring and supervising authority – The previous audit found that the Ministry of Health lacks complete and reliable information about operating room utilization and outputs. This constrains its ability to carry out its role as a supervisory authority. In its response to the previous audit the ministry's key statement was that it would form a multidisciplinary committee that will be tasked with mapping the management of the operation and processes in operating rooms and with the drafting of procedures, standards and an orderly operating doctrine. The follow-up audit found that the Ministry of Health did form such a committee towards the end of the current audit, in September 2020.

Operating room utilization at government hospitals and at Clalit hospitals (planning, allocation, scheduling and performance) – The previous audit of the Wolfson, Galilee and Beilinson hospitals found that a lack of a process-support system caused inefficiencies in the allocation of operating rooms to departments. It also affected planning of surgeries and monitoring of the number of surgeries performed compare to the scheduled surgeries. These processes were performed manually at some of the hospitals. In addition, the Ministry of Health lacked a policy regarding the mode of allocation, planning and desired utilization of operating rooms. The follow-up audit found that the Ministry of Health did not install a designated system in the hospitals. In addition no improvement occurred in the surgery scheduling method or in the mode of supervision of the departments at the audited hospitals in order to fully utilize the

existing potential. The Ministry of Health has still not defined a target utilization rate for operating rooms in government hospitals.

- **Unforeseen cancellations or postponements of surgeries –** The previous audit found that the Ministry of Health did not define a designated indicator for the ratio of surgeries being cancelled and postponed at the hospitals and that it also did not obligate the government hospitals to document such events. Therefore the ministry had no information, and did not analyze the extent of this phenomenon at these hospitals. Clalit also had no indicator for surgery cancellations. The follow-up audit found that the BI system (business intelligence) developed for government hospitals by the ministry includes an indicator for surgery cancellations, but it is not being used due to the differences in the work processes and in the methods for recording and coding the reasons for surgery cancellations among the hospitals. The ministry is still not requiring government hospitals to document cancellations. Clalit however, has designed two indicators for surgery cancellations – an indicator for surgery cancellations on the day of the surgery and an indicator for surgery cancellations at the hospital's initiative – and uses these indicators to evaluate the performance at its hospitals. Clalit's evaluations found average ratios of 11.9% and 13.4%, respectively, in these two indicators at all of its hospitals in 2019.

- **Utilization of operating rooms during the afternoons and evenings –** The previous audit found that many operating rooms are being utilized in the afternoons at government hospitals and at Clalit's large hospitals (which have more than 600 beds) (in various frameworks as specified hereunder), while the small hospitals utilized very few operating rooms. The follow-up audit found that only 17% to 50% of the operating rooms are used in the afternoons at the small government hospitals. For example: Galilee Hospital in Nahariya uses two to three operating rooms in the afternoons out of its 12 operating rooms; Barzilai Hospital in Ashkelon – three out of 10 operating rooms; Bnei Zion Hospital in Haifa – three out of six operating rooms; and Poriya Hospital in Tiberias – two out of seven operating rooms. At Clalit hospitals, most of their activities in the afternoons focus on emergency medicine, while the operating rooms are hardly used.

- **Post-operative stages – recovery –** The previous audit found that the ratio between surgical beds and recovery beds at most hospitals is far lower than the American and European standard that Israel had adopted – a ratio of 1.5 to 2 recovery beds. This sometimes causes a bottleneck resulting in delays transferring patients from the operating room to the recovery unit – which results in operating rooms not being available for cleaning and receiving the next patient. The follow-up audit found that the Ministry of Health has not mapped the surgical and recovery beds at all hospitals. The follow-up audit also found that there are hospitals that meet and even exceed the previously mentioned standard of 1.5. For example: at Kaplan Hospital, the ratio is 1.75, while at Galilee Hospital, the ratio at its main campus is 1.87 while the ratio at its secondary campus is 2.25. On the other hand, the ratio is far lower at other hospitals.

For example: at Rambam Hospital, the ratio is 1.2 and at Beilinson Hospital, the ratio is 0.8.

- **Waiting times for surgeries –** The previous audit found that the Ministry of Health had not formulated an orderly doctrine for the scheduling of surgeries by all hospitals with operating rooms; and that the waiting times at hospitals were not comparable and it was not possible to provide this information to the public. The follow-up audit found that the ministry has still not formulated an orderly doctrine, has still not assimilated a system or formulated a uniform methodology for evaluating waiting lists. However, in 2019, the Ministry of Health decided to provide support to the general hospitals by publishing the waiting times for 23 common surgeries on their websites, as of January 2020. The follow-up audit also found that the ministry had not formulated an evaluation methodology and that therefore, the data is not comparable. This prevents drawing of unequivocal conclusions about the waiting times for surgeries being performed at the hospitals. During the audit, the waiting times for five types of surgeries were compared. There were significant differences in the waiting times between the hospitals and sometimes, even within one hospital. The audit also found hospitals where the waiting time for most surgeries examined is long or very long. For example: At Clalit's Soroka and Emek hospitals, the waiting times for four out of the five surgeries were longer than at all other hospitals.

- **Patients are waiting more than a year for surgeries at Clalit hospitals –** The previous audit stated that Clalit had set a target of up to 30% for the indicator of "waiting without a date scheduled" – in other words, patients who are waiting more than one year for surgery – however, the ratio at its hospitals was actually higher than that. For example, at the Kaplan Hospital, this ratio was 46% of all patients waiting at that time. The follow-up audit found that although Clalit's target has remained at 30%, the ratio of patients waiting without any date scheduled at all of its hospitals, in May 2020, was nearly double – 53%.

- **Operating room staff –** The previous audit found that, in 2010, the ratio of anesthetists was 0.078 per 1,000 patients. In 2011, it was decided to allocate 27.5 anesthetist positions to the hospitals, but the Ministry of Health and the Ministry of Finance did not actually allocate these positions. The required number of anesthetists had been determined based on a formula that became irrelevant over the course of time. The formula for the number of operating room nurses is outdated and includes a variety of supportive care professions; and there is a shortage of hospital orderlies. The follow-up audit found that the formula for calculating the required number of operating room nurses in Israel has not been updated since the agreement of 1996[2] and until mid-2020. The follow-up audit also found that the ratio of anesthetists in Israel is lower than in

2 Special collective agreement signed on 22.9.96, which applies to the institutions included in the wage agreements; i.e.: the government, general health services and Hadassah Medical Organization.

many other developed countries. It should be noted that, because of the covid-19 pandemic, in March and July 2020, the health and finance ministries agreed to add 600 physicians and 1,550 nurses to the hospitals, but the additional staff is not intended for operating rooms.

Development of a new computerized system for government hospitals and for the systems they use – The previous audit found that the Ministry of Health had developed a dedicated computerized system (BW module)[3] to manage performance evaluations and produce management reports, but some of the results presented by the module were erroneous. The ministry had no access to the database used by the module and it failed to perform controls over the data that the government hospitals forwarded to the ministry, thereby constraining its ability to serve as the controlling authority empowered to implement improvement and efficiency. However the follow-up audit found that the Ministry of Health assimilated a new BI system in 2017 that enables the receipt and processing of data, but only from the government hospitals. However The ministry is not monitoring all existing indicators in the system in relation to these hospitals and is not analyzing them.

Patients waiting for surgery are placed on a stand-by list in case a surgery is cancelled – Clalit's response to the previous audit was that, among its other efforts to contend with surgery cancellations, it defined a list of "stand-by" patients waiting for surgery who will remain at ready for surgery at short notice. The follow-up audit found that most of Clalit's hospitals are indeed making use of this list.

Shortening of Appointment Waiting Times Initiative – The previous audit found that the Ministry of Health and the Ministry of Finance had agreed that the "Shortening of Appointment Waiting Times Initiative" should be budgeted. This should also result in a reduction of the private expenditure on healthcare and in a reduction of the premiums that the public pays for the Additional Health Services. The follow-up audit found that the initiative has been approved and budgeted and has begun operating and that it has indeed resulted in reductions in the private expenditure for healthcare and in premiums. However, many of the surgeries scheduled for government and public hospitals were diverted to private hospitals.

Ministry of Health national master plan for developing and equipping operating rooms – The previous audit found that the Ministry of Health has no multiyear national master plan for developing and equipping operating rooms and did not perform any staff work to formulate a national strategic plan for assessing future

3 BW – Business Information Warehouse: tool that enables data retrieval for process control and supports decision-making. The model is based on data in the organization's operating systems and provides visual displays of the data, such as through graphs, meters and dashboards.

needs. The follow-up audit found that the Government Medical Centers Division[4] has begun preparing master plans for the future development of the government medical centers by 2035. Several government medical centers have completed or nearly completed the preparation of master plans. The follow-up audit also found that projects for the construction of operating rooms have progressed over the last three years. Clalit has prepared a master plan for all of its hospitals, but not all plans refer to operating rooms.

Key recommendations

- The Office of the State Comptroller recommends to the Ministry of Health that it define a timetable for the work of the committee that it formed in September 2020 to formulate a work strategy for operating rooms. After examining the committee's recommendations, it should design an orderly plan that will encompass all components needed in order to improve and optimize the operation of all operating rooms. The ministry should also ascertain the resources needed for this purpose and a timetable for implementing the plan.

- The Office of the State Comptroller recommends that the Ministry of Health, Clalit and their hospitals improve surgery scheduling and the management of operating rooms. They should use a computerized system to help manage the network of operating rooms and provide an integrated view of all operating rooms at all sites of a particular hospital. This will enable efficient use of a valuable core resource.

- The Office of the State Comptroller recommends that the Ministry of Health complete the process that will enable the reporting of surgery cancellations and postponements in its systems. It should also include the possibility of entering the reasons for them. It is recommended that the Ministry of Health ensure that all data are being entered reliably and should issue instructions to its hospitals accordingly. The ministry should also ensure that the system would be capable of producing analyses reports of surgery cancellations and postponements.

- It is recommended that the Ministry of Health consider the possibility of increasing the operating hours of the operating rooms, similar to the practice in countries where operating rooms, within the framework of public healthcare, operate nearly round the clock. Efficient use of the operating rooms could shorten the waiting times for surgeries, especially surgeries known to have very long waiting times.

4 The division was established by virtue of Government Resolution 337 of August 2015 and is responsible for all government hospitals – general, psychiatric and geriatric.

- The Ministry of Health should formulate a national master plan for developing and equipping all hospitals with operating rooms. The master plan should be based on mapping all surgical beds and recovery beds in hospitals with low ratios between surgical beds and recovery beds. The ministry should formulate a plan to meet the adopted standard.

- Information transparency in relation to the waiting times for surgeries is vital for the promotion of competition between hospitals. This would prompt them to improve and optimize their work processes. It is recommended that the Ministry of Health formulate a uniform method for evaluating the waiting times for surgeries and instruct hospitals to publish information about waiting times using this method.

- It is recommended that the Ministry of Health, in collaboration with the Ministry of Finance, the Civil Service Commission and with professional associations, consider updating the formula for determining the number of anesthetists. The formula should be d with what is customary in developed countries and in light of the current number of anesthetists in hospitals. The current standard for the number of operating room nurses should be updated according to updated needs and the number of positions filled.

Rectification of deficiencies reported in the previous audit

Audit section	Deficiency/recommendation in the previous audit	Extent to which the deficiency has been rectified according to the follow-up audit			
		Not rectified	Slightly or partially rectified	Largely rectified	Fully rectified
Ministry of Health as a monitoring and supervising authority	The Ministry of Health lacks complete and reliable information about operating room utilization and outputs, which constrains its ability to carry out its role as a supervisory authority. In its response to the previous audit, the ministry's key statement was that it would form a multidisciplinary committee, which will be tasked with mapping the management of the operation of and processes in operating rooms and with the drafting of procedures, standards and an orderly operating doctrine.		→		
Operating room utilization at government hospitals and at Clalit hospitals (planning, allocation, scheduling and performance)	Inefficiencies were found at Wolfson, Galilee and Beilinson hospitals in the allocation of operating rooms to departments. Flaws were found in the actual planning of surgeries and in the monitoring of the number of surgeries performed compare to the scheduled surgeries. This was due to the lack of a process-support system. These processes are performed manually at some of the hospitals. In addition, the Ministry of Health lacks a policy regarding the mode of allocation, planning and desired utilization of operating rooms.		→		

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		Not rectified	Slightly or partially rectified	Largely rectified	Fully rectified
Unforeseen cancellations or postponements of surgeries	The Ministry of Health did not define a designated indicator for the ratio of surgeries being cancelled and postponed. It did not obligate the hospitals to document such events. Consequently, the ministry had no information about, and did not analyze the extent of this phenomenon. Clalit also had no indicator for surgery cancellations.		The ministry	Clalit	
Utilization of operating rooms during the afternoons and evenings	The small hospitals operated very few operating rooms during the afternoon.				
Post-operative stages – recovery	The ratio between surgical beds and recovery beds at most hospitals is far lower than the American and European standard that Israel had adopted – a ratio of 1.5 to 2 recovery beds.				
Waiting times for surgeries	The Ministry of Health had not formulated an orderly doctrine for the scheduling of surgeries by all hospitals; the waiting times at hospitals were not comparable and it was not possible to provide this information to the public.				

Audit section	Deficiency/recommendation in the previous audit	Extent to which the deficiency has been rectified according to the follow-up audit			
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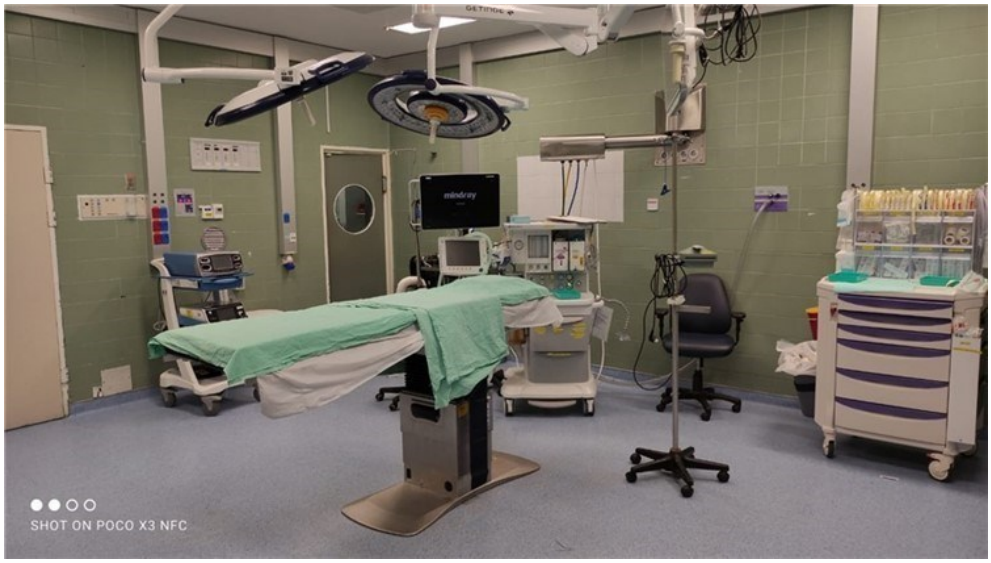
Patients are waiting more than a year for surgeries at Clalit hospitals	Clalit had set a target of up to 30% for the indicator of "waiting without a date scheduled" – in other words, patients who are waiting longer than one year for surgery – however, the ratio at its hospitals was actually higher than that.				
Operating room staff	The number of positions for anesthetists had been determined based on a formula that became irrelevant over the course of time. The formula for determining the number of operating room nurses is outdated and includes a variety of supportive care professions. There is a shortage of hospital orderlies.				
Development of a new computerized system for government hospitals and for the systems they use	The Ministry of Health had developed a dedicated computerized system (BW module) to manage performance evaluations and produce management reports, but some of the results presented by the module were erroneous. The ministry had no access to the database used by the module and failed to perform controls over the data that the government hospitals forwarded to the ministry. This constrained its ability to serve as the controlling authority empowered to implement improvement and efficiency.				

Audit section	Deficiency/recommendation in the previous audit	Extent to which the deficiency has been rectified according to the follow-up audit			
		Not rectified	Slightly or partially rectified	Largely rectified	Fully rectified
Ministry of Health national master plan for developing and equipping operating rooms	The Ministry of Health has no multiyear national master plan for developing and equipping operating rooms. It did not perform any staff work to formulate a strategic plan for assessing the future needs.		→		

Operating room at Wolfson Hospital



Summary

The previous audit specified deficiencies in the management of operating rooms at hospitals – deficiencies relating to the Ministry of Health's responsibilities and activities, deficiencies relating to the government hospitals' responsibilities and deficiencies relating to Clalit's responsibilities. The follow-up audit found that some of the deficiencies have been rectified. For example: the Ministry of Health developed a BI system to provide information about the management and operation of operating rooms, and formed a committee to optimize operating room processes; Clalit built indicators for cancellations and postponements of surgeries and established appointment scheduling centers at its hospitals. At the same time, the follow-up audit found that some of the deficiencies have not been rectified, and that operating rooms and staffs involved in their operation – surgeons, nurses and orderlies – are still not being optimally utilized. Cancellations and postponements of surgeries are also common phenomena. Surgery scheduling is not managed optimally.

The Ministry of Health, Clalit and hospital directors should take action to rectify the deficiencies that have not been corrected since the previous audit. They should implement the processes necessary for improving and optimizing the management of operating rooms in Israel.