

COVID-19 pandemic and bariatric surgery in Argentina

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Abstract

Background: The SARS-CoV2 virus pandemic pandemic has been characterized for its rapid global dispersion. Obesity is an independent risk factor for the most severe cases of COVID -19. The impact in Argentina differs from others since it was able to anticipate public health interventions in order to flatten the contagion curve. Early quarantine achieved better control of the pandemic and, following the recommendations of scientific societies in countries with higher affectation, elective bariatric surgeries (BS) and in-person consults were suspended.

Objective: Bariatric surgeons were surveyed to assess the impact of the pandemic and the measures undertaken on the practice of BS in Argentina.

Method: Between April 17 and 21, 2020, an online survey in Google forms was disseminated to bariatric surgeons residing in Argentina. It consists of 40 specific and non-specific questions regarding BS practice and COVID pandemic. Consent to participate was obtained from surgeons by completing the survey.

Results: 83 surgeons averaging 47.17 years of age responded the survey. Together they performed 10515 BS in 2019. More than 65% stated that more than 50% of their income derives from this activity, and more than 40% depend on more than 75% of it. The average hospital stay was 1.6 days and 85% reported using Intensive Care Unit (ICU) in less than 1% of their patients. According to the scores of hospital affectation issued by the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), 54% reported being in Phase I and 34% had not yet been affected by the pandemic. All, except one, suspended the elective BS 7.7 days on average before the appearance of the first local case. 95.7% offer virtual consults, but 48% obtain no retribution for them. 26% would consider performing BS without a previous endoscopic evaluation.

90% of the surgeons surveyed (75) continue performing other types of surgeries via laparoscopy. In case of operating a patient without suspected SARS-CoV-2 virus infection, 80% would use N95 masks and 56.6% would use face protection shields; two thirds would use smoke filters for the pneumoperitoneum and only 10.8% would continue with the usual protection measures. To restart the elective activity, 56.6% proposed that the hospital should be in phase 0 or I, that the patient should meet certain characteristics for their selection and that the scientific society must recommend the way to restart of the activity.

Patient selection criteria with greater consensus were testing to rule out asymptomatic COVID-positive patients, epidemiology, absence of chronic lung disease, age under 60, and immunological integrity. 19.2% regard sleeve gastrectomy as the ideal BS during the pandemic, and 88% of the surgeons would not change their chosen BS technique based on infection risk.

Conclusion: Elective BS is currently suspended in Argentina, although epidemiologically the conditions in the country are not unfavorable. Economic impact for those involved is significant. Short-term vision is pessimistic, but recommendations originating from the scientific societies that nucleate them are

expected in order to guide health authorities towards appropriate regulations suitable for the local practice.

Introduction

The SARS-CoV-2 virus pandemic has specific characteristics that have led to its rapid global dispersion, jeopardizing all levels of health services in the affected countries.⁽¹⁻⁵⁾ Human mobility around the globe has taken the virus to all five continents, across borders and controls, despite all efforts undertaken to contain its spread. Clearly, measures such as social distancing and the reinforcement of personal hygiene habits reduce the possibility of transmission.

On the other hand, failure to observe these measures enables transmission among compromised persons in a relatively high proportion of the population, and reveals the inability of health systems to contain the demands for care of those affected. This situation is associated with higher mortality rates, especially in individuals who have been identified as more vulnerable to infection. Obesity⁽⁶⁻¹³⁾ and, in particular, BMI over 35, is one of these risk factors for a poor outcome, even more significant than other conditions such as diabetes or hypertension that up to now had been considered critical. Undoubtedly, in the western world, this disease has shown unusual features. The state of the pandemic in Latin America and, especially, in Argentina, is not comparable to the northern hemisphere.¹⁴ The geographic and climatic situation of the region allowed for the implementation of public health interventions at an early phase, with the aim of flattening the curve and preparing the health system to properly address the peak intensity of the epidemic. The first case in Argentina was reported on March 3rd, 2020. On March 12, the Executive Power decreed a state of public health emergency for a period of one year (DECNU-2020-260-APN-PTE - Coronavirus (COVID-19). Disposiciones.)¹⁵ to take the necessary measures to contain the impact of the pandemic in the country. On March 16, classes were suspended on all levels (RESOL-2020-108-APN-ME)¹⁶, and by March 19 the national government had issued mandated social distancing, commencing at 00:00 hours of the 20th (DECNU-2020-297-APN-PTE - Disposiciones.)¹⁷. This decree suspended virtually all economic activities, except for the so-called essential functions, which include healthcare providers, law enforcement agencies, food provision, and provisioning of essential supplies, among others. As of March 20, 158 total cases and three fatalities caused by coronavirus had been reported, while the day before 30 new cases had been detected, mostly from people that had travelled abroad. These regulations resulted in two parallel effects: a stagnation in the number of new infections with a bigger-than-expected flattening of the curve, and a virtual halt on all programmed healthcare services, including face-to-face consults and most elective surgeries, with the logical exception of emergency surgeries and unavoidable treatments of oncology patients. This situation became widespread throughout the territory, even though Argentina is a federal nation divided into autonomous provinces capable of self-regulating, but that must comply with certain provisions established by the national government according to Article 99 of the National Constitution of the Republic. As all programmed activities began to cease, the health system began a comprehensive preparation for the upcoming reception of large number of coronavirus patients, including increasing the availability of

hospital beds, intensive care units, and general equipment, and training the medical staff for the tasks required to treat infected patients. The Argentinean healthcare system can be basically divided into two: the public health system, administered at different levels by official authorities (national, provincial or municipal) and entirely dependent on public funding, and the private healthcare system, overseen by public health agencies but privately managed and funded. Generally speaking, the former addresses the needs of a very large portion of the nation's population, most of whom lack coverage, while the latter offers care to patients covered by prepaid private health insurance or coverage plans through their employers, known as social security, with benefits similar to those of prepaid plans, but to a much lower cost to the workers. The measures implemented nationwide affected the overall functioning of the health system, both in the public and private sectors.

One month after the imposition of these measures and the general population being under the same degree of economic activity restrictions, coronavirus had registered 3031 cases, 19% of which were regarded as community transmissions, and 142 fatalities; with 90 new cases and 6 deaths reported in the last 24 hours. A few days before, on April 17, the Latin American Chapter of the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO LAC) and the local Argentinian Society for Obesity Surgery (SACO, for its acronym in Spanish) conducted a survey among bariatric surgeons to determine the impact of the pandemic and the measures undertaken on the practice of bariatric surgery in Argentina and Latin America.

The objective of this study is to report on the findings of the survey and to discuss the opinion of the surgeons regarding the actions taken, as well as to outline safe practices required to resume elective bariatric surgery.

Materials And Methods

On April 17, 2020, a survey was distributed among bariatric surgeons residing in Argentina through different means of communication (email, local society webpage, WhatsApp messages, etc.). The survey, entitled COVID 19 and Bariatric Surgery in Latin America, was created online using Google Forms and is available as an Annex to this document (Annex I).

The survey was confidential, unless the respondent wanted to voluntarily offer personally identifiable information, and collected data regarding the location of the respondent and his level of activity, economic dependency on the practice of bariatric surgery, and general characteristics of the institution where he conducts his surgical activities. Additionally, the average length of stay, ICU requirement, affection phase of the institution in relation to the pandemic, distribution of regional cases, official and scientific society recommendations regarding elective surgeries, surgical cancellations, restart expectations, variations in bariatric activity in the medium term, laparoscopic surgery as an option, screening methods for coronavirus, protective measures under different scenarios, feasibility of performing an endoscopy, patient follow-up, preference for certain surgical techniques and readiness to modify these normal procedures in the midst of this pandemic, essential conditions required to restart

elective bariatric surgery, and patient selection criteria for bariatric surgery in the context of the COVID-19 pandemic.

All surveys received between April 17 and 21 were considered valid, even if some information had been omitted. Surveys that fell outside of this period were excluded, as the dynamics of the problem could render very different responses within a short time lapse.

Results

Eighty-three surgeons answered the survey during the specified time range. The average age of the respondents was 47.14 years (30-69 age range). Their geographical distribution according to the province where they conduct their surgical activities in Argentina, can be seen in Table 1. 31.3% of the respondents were located in the Autonomous City of Buenos Aires, while an additional third were from its surrounding provinces, Buenos Aires, Santa Fe and Córdoba. No surveys were completed in five provinces: Chaco (one of the provinces most affected by the epidemic), Jujuy, La Rioja, Catamarca, or Chubut.

Table 2 provides the estimates of income proportion related to the practice of bariatric surgery. More than 65% of surgeons stated that more than 50% of their income derives from their bariatric practice, and more than 40% stated that more than 75% of their income does. The 83 surgeons performed a total of 10,515 bariatric surgeries during 2019, averaging 126.7 surgeries per surgeon, which was directly proportional to the income proportion of the surgeon.

Hospitalization for patients varied between 12 and 72 hours, with an average of 38.4 hours (1.6 days), and internment in the Intensive Care Unit (ICU) varied between 0% and 5% admission of all patients, as reported by each surgeon. However, 85% of the respondents required this care for less than 1% of their patients, while an additional 7% for less than 5% of their cases. See Figures 1 and 2.

Despite the drastic measures implemented by the national government, the problems related to COVID-19 seemed to affect a very low number of institutions. According to the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) descriptions on the COVID phases (COVID-19 PHASE of Hospital or Healthcare System, published April 11,¹⁸ only 5% reported being on Phase II, while 54% reported being on Phase I, and 34% had yet to be affected by the pandemic. All surgeons except for one reported having suspended all elective bariatric surgery, most between eight days prior and four days after the first reported case at the regional level, with a mean of 7.7 days prior to the first regional case.

Projections regarding the estimated time required to restart bariatric activities and the corresponding impact that can be expected are pessimistic. Almost two thirds of the surgeons will only return to their activities when the pandemic is resolved, while almost 90% predict that their activities will be greatly reduced, and most even anticipate that by as much as 50%. See Figures 3 and 4.

95.7% of the respondents reported offering their patients virtual follow-up consults, since in-person appointments had been suspended in all but two cases. Nevertheless, 48% do not expect to obtain

retribution of any kind for these, and an additional 26% considers they will only be rewarded economically for one fourth of these services.

Seventy-five surgeons (90%) reported access to endoscopy being limited, and 85% informed studies were only being performed for medical emergencies. However, only 26% of the surgeons would consider performing bariatric surgery without a previous endoscopic evaluation.

Ninety percent of the respondents continue performing other types of surgeries via laparoscopy on patients without suspected SARS-CoV-2 virus infections.

All surgeons surveyed related conducting some sort of screening for the detection of SARS-CoV-2 virus infections in asymptomatic patients, regardless of their medical histories. Most opted for chest imaging of different types, while only 55% requested PCR testing, and 26.5% a serological test. 70% requested a specific diagnostic test combined with chest imaging (Figure 5).

The survey inquired about several personal protection measures and other measures related to pneumoperitoneum to be taken by surgeons in the event of performing surgery on patients without suspected SARS-CoV-2 virus infections and patients with suspected or confirmed SARS-CoV-2 virus infections (Figures 6 and 7). In patients without suspected infections, it was noticeable that 80% of surgeons would use face masks with high filtration efficiency (N95-rated or more), and 56.6% face shields; meanwhile, two thirds would use gas filters for the pneumoperitoneum, while only 10.8% would continue with their usual protective measures. On the other hand, in case a COVID-19 positive patient would require surgery, the proportion of surgeons that would use N95 masks rose to 96.4%, 95% would use shields, and 81.9% would use gas filters. However, so far only three surgeons have performed surgeries on patients that have tested positive.

Exploring the conditions deemed necessary to reengage in elective procedures, three general areas of concern were proposed: that institutions find themselves in phase 0 or I, and personal protection requirements are met; that patients meet certain criteria for their selection; and that the scientific society approves the resumption of activities. Forty-seven out of 83 surgeons surveyed (56.6%) agreed that the three conditions should be met, while 20.5% regarded the scientific community's recommendation as enough. Virtually all the remaining surgeons were equally divided between securing two of the three conditions and not performing surgeries until the pandemic was resolved (Figure 8).

The criteria for selecting patients ideal for elective bariatric surgery in the context of the pandemic in Argentina, which achieved a greater consensus, were associated with the possibility of ruling out an undetected infection (recent travel abroad to countries in higher risk, SARS-CoV-2 detection, or cohabitating with an infected person), the absence of chronic lung disease (only history of asthma was taken into account), age under 60, and immunological integrity (assessed as the need for immunosuppressant drugs). Even in more complex situations, other criteria often associated with comorbidities to morbid obesity did not reach consensus as criteria for selection (Figure 9).

Surgeons were also consulted whether there was a particular surgical technique they preferred in terms of the pandemic. Specifically, they were asked if a sleeve gastrectomy could be an ideal procedure, and only 19.2% agreed. 88% of the surgeons would not be willing to change their chosen technique based on an infection risk.

Discussion

Clearly, humankind is experiencing one of its most uncertain times in modern history. Despite notable advances in scientific knowledge in general and viral epidemiology in particular, the planet was ill prepared to handle an event of this magnitude, even when several voices were raised in almost exact anticipation of what they deemed inevitable.¹⁹ Global dissemination of the coronavirus disease SARS-CoV-2 caught the most developed countries of the world off guard, rapidly exceeding their response capabilities and causing high death tolls amidst the impotence of well-trained physicians. The phenomenon began in the winter of the northern hemisphere, and moved slowly towards the southern hemisphere, possibly due to lower density of international flights and, to a lesser extent, to climatological reasons. Latin America had benefitted temporarily from receiving a vast amount of information regarding not only the disease itself, but the measures that could potentially mitigate the risk of contagion. In this sense, it is likely that Argentina is distinguished for being one particular nation that readily implemented severe restrictive measures, crushing the expected upward curve being replicated in all the countries massively affected. Other Latin American countries met the same fate, although not all. Limitations in health systems were quickly revealed in low-income countries, even if they showed few confirmed cases. Argentina has a healthcare system greatly impacted by the financial crisis derived from recessive and inflationary processes practically set ablaze in the past two years. This situation is exacerbated by the fact that 40% of the population does not reach the poverty threshold and largely depends on government financial aid. In this context, the forecasting efforts of the Executive Power to assess the pandemic impact quickly led to the implementation of measures that could potentially limit the spread of the disease, such as closing borders, isolating travelers from abroad, and establishing mandatory social distancing, with the subsequent economic paralysis.

The precocity of the government-issued provisions affected the operations throughout national territory, without distinguishing the epidemiological reality of each region. When the preventive and mandatory decree that introduced social distancing was issued, several provinces had not registered any confirmed cases. In light of the development of the pandemic, it is obvious that the measures had a positive effect, even if they also had undesirable economic outcomes and even affected the handling of chronic and acute pathologies, including obesity. Information stemming from the U.S. in mid-April uncovered that obesity⁸, on itself, was a factor associated with poor prognosis for the COVID-19 disease, increasing the risk of admission to the ICU and, ultimately, of death.

As the situation in Argentina stabilized, several proposals regarding the possibility of resuming elective bariatric surgeries emerged. To assess the conditions and expectations of the surgeons, the Latin American Chapter of IFSO (IFSOLAC) and SACO released the survey analyzed throughout this document.

The perception of the surgeons surveyed in Argentina outlined the foregoing: the virtual paralysis of programmed healthcare even within institutions and the epidemiological context of low risk, judged objectively by the local infection and death rates. It is not within the scope of this study to determine whether the measures dictated were suitable or not, but rather to reexamine them in the context of a stable situation. It is comprehensible that other countries massively affected by the pandemic and surpassed by their response capacities, like the U.S. and some European countries, suspended all elective bariatric procedures. However, several of them, with epidemiological conditions far worse than the Argentinean, have begun to formulate terms and conditions to restart these activities. The proposal is fostered by the need of these patients to improve a chronic disease which exposes them to a greater risk of a fatal outcome caused by a viral infection, and the need to revitalize the national and individual economies.

In Argentina, the large proportion of bariatric surgeons that depend economically on their specific surgical activity is astounding. Most of these surgeons are pessimistic on their medium-term projections, without even knowing what is at the end of the road. As of the date of this analysis, the restrictive measures regarding movement of people and economic activities remain similar throughout most of the territory. Provincial autonomy, in accordance with the central government, allows for a reassessment of the situation in different regions of the country. In any event, areas with the largest concentrations of populations remain with the same constraints.

It is remarkable how most surgeons have implemented virtual communication mechanisms to ensure appropriate follow-up with their patients. These previously non-existent practices will probably not represent any financial gains for the surgeons, but quite the contrary.

The survey analysis revealed, to a large extent, the influence of foreign colleagues on general care and protective measures to be employed in case of performing a surgery. It is evident that many surgeons emulate the situation of other countries in their place of work, even when the contexts are rather different. It is comprehensible that in areas with a high viral load and, moreover, if there is no possibility of testing, levels of personal protection are maximized to avoid infection from a potential asymptomatic carrier. However, the validity of this situation in Argentina should be questioned, especially in certain regions of the country with practically no viral circulation. This level of equipment not only represents an inappropriate use of resources, but also exposes patients and medical personnel to increased complications because of the inconvenience and impaired vision it generates.

The dissemination of the concept of potential coronavirus aerosolization in laparoscopic surgeries has been remarkable, in terms of the high number of surgeons interested in using filters for pneumoperitoneum intake, smoke outflow and gases evacuated from the patient, as well as face masks with high filtration efficiency, even when treating patients without suspected COVID-19 infection.

One of the possible explanations is the lack of PCR testing in different regions. Even though kits have been made available in several provinces, their use is regulated by the highest sanitary authority, who establishes when to apply them - and it is usually upon the suspicion of infection. Probably, this is the

reason why a large proportion of surgeons chooses a method of chest imaging as complementary screening. The shortage of this resource calls for a need to seek future alternatives to assess candidates for elective surgery.

Finally, although the expectations to resume elective surgeries are quite pessimistic, as previously described, most surgeons expressed they would make some strides in this direction if they had the backing of a more promising scenario. More than half of the respondents believe that an alignment of favorable epidemiological evolution, proper patient selection, and the endorsement of the scientific society on this matter is desirable. Obviously, though, these procedures would not take place without the consent of local and national sanitary agencies. While no surgeons considered that patient selection on its own is sufficient to perform elective surgery, 65% regards it as a requirement along with other conditions. On this subject, the main concern of surgeons is discarding possible asymptomatic infections, by rejecting patients with documented illnesses or in close contact with possible sources of transmission. There is also consensus in avoiding surgery in patients over 60 years, with chronic pulmonary disease, or immunocompromised. No agreement has been reached regarding specific characteristics of the most severe comorbidities of morbid obesity, like diabetes, hypertension, obstructive sleep apnea, and cardiopathy. There are two opposing conceptions: some surgeons propose conducting the least complex surgeries, like the sleeve gastrectomy, in less compromised patients, as suggested by Angrisani in informal presentations (webinar) at IFSO Virtual Academy last April 12th, while others like DSS group prioritize critical patients, with more severe or challenging comorbidities.²⁰ There was no consensus amongst Argentinean surgeons in this respect, nor in the specific technique that would be preferable considering this epidemiological context. Most would not modify their study algorithms or the type of surgery performed, probably not linking these issues to an increased risk for the patient. Factors that encourage this practice are the short average length of stay in the referred cases and the low percentage that require ICU admission.

Results from this survey provide a clear picture of the current situation of bariatric surgery in Argentina. Hopefully, the opinions of these colleagues will help determine the recommendations for an eventual return of elective surgery activity.

Conclusions

Elective bariatric surgery has been suspended in Argentina, even though the epidemiological picture is not altogether unfavorable throughout the country. The suspension has a significant economic impact on the surgeons who practice it and who have sought alternative means to help their patients, even at a greater economic loss. The possibility of not detecting asymptomatic patients, probably due to the lack of specific diagnostic resources, has raised concerns in most and, therefore, they are exploring other detection mechanisms, as well as protective measures for patients and health care provider. The vision in the near future is pessimistic, but recommendations stemming from the scientific community are expected to bring the system together and guide the sanitary authorities towards appropriate regulations suitable for the practice.

Declarations

Consent to participate was obtained from surgeons by completing the survey. There were not patients involve in this survey, so the need for consent was waived by the approving ethics committee.

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Tables

Table 1. Distribution according to province in which surgeons carry out their surgical activity along Argentina

Province	Responses (n)	Percentage
City of Buenos Aires	26	31.32
Buenos Aires	15	18.07
Córdoba	7	8.43
Santa Fe	6	7.23
Neuquén	5	6.02
Entre Ríos	3	3.61
Tucumán	3	3.61
Santiago del Estero	3	3.61
Santa Cruz	3	3.61
San Juan	2	2.41
Mendoza	2	2.41
Salta	2	2.41
La Pampa	1	1.20
Corrientes	1	1.20
Formosa	1	1.20
Tierra del Fuego	1	1.20
Misiones	1	1.20
Río Negro	1	1.20
Total	83	100

Table 2. Categories by income proportion related to bariatric surgery and mean number of surgeries for each category

Categories by income proportion related to bariatric surgery	n (%)	No. surgeries/surgeon (mean)
Less than 25%	6 (7.23)	43
26% to 49%	22 (26.50)	74
50% to 74%	21 (25.30)	139
75% to 94%	25 (30.12)	155
More than 95%	9 (10.84)	202

Figures

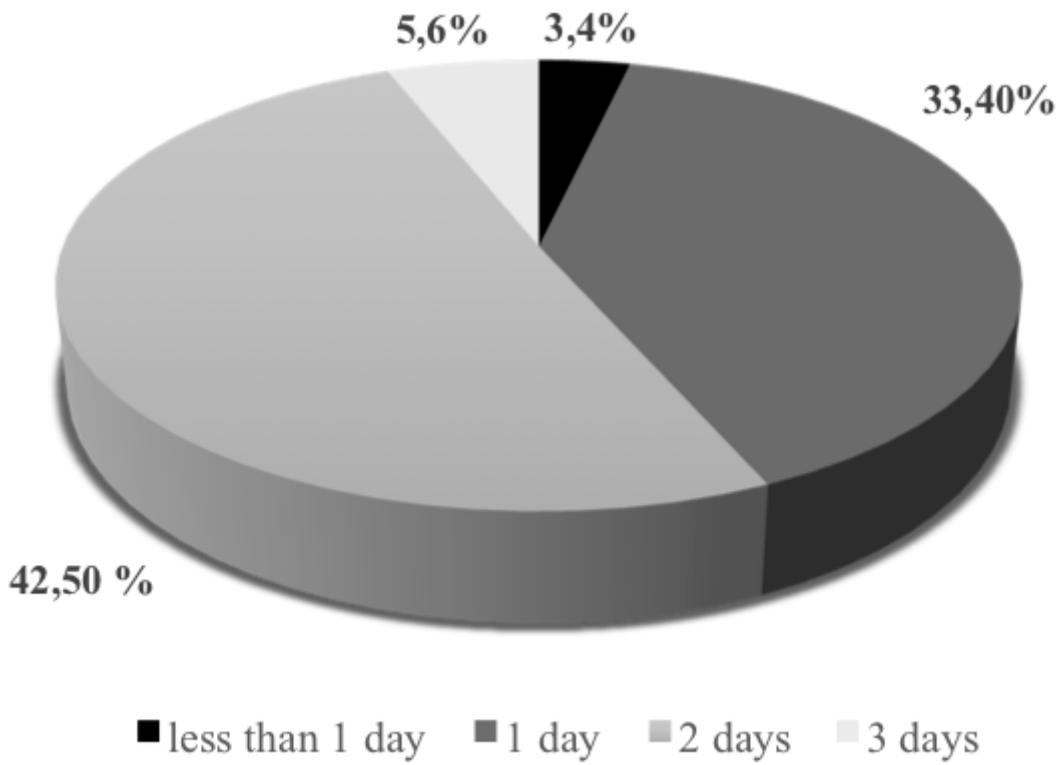


Figure 1

Estimated future variation in bariatric activity in the medium term.

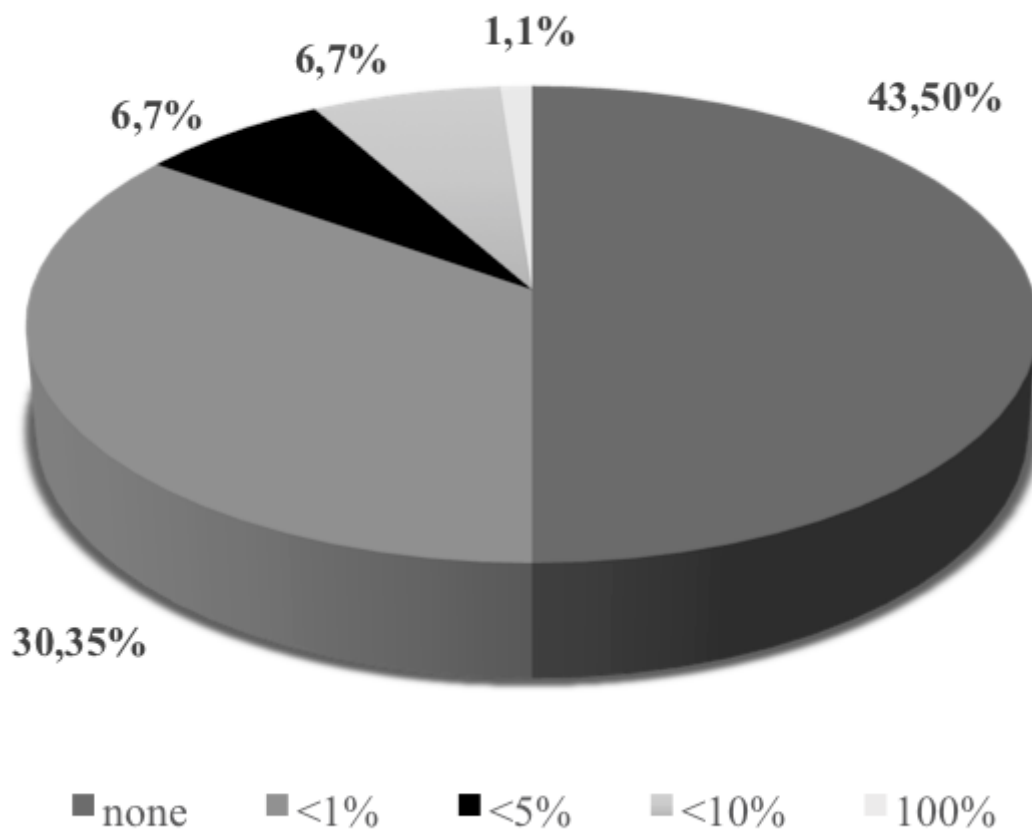


Figure 2

Percentage of patients requiring ICU admission reported by surveyed surgeons (expressed as percentage of the total respondents)

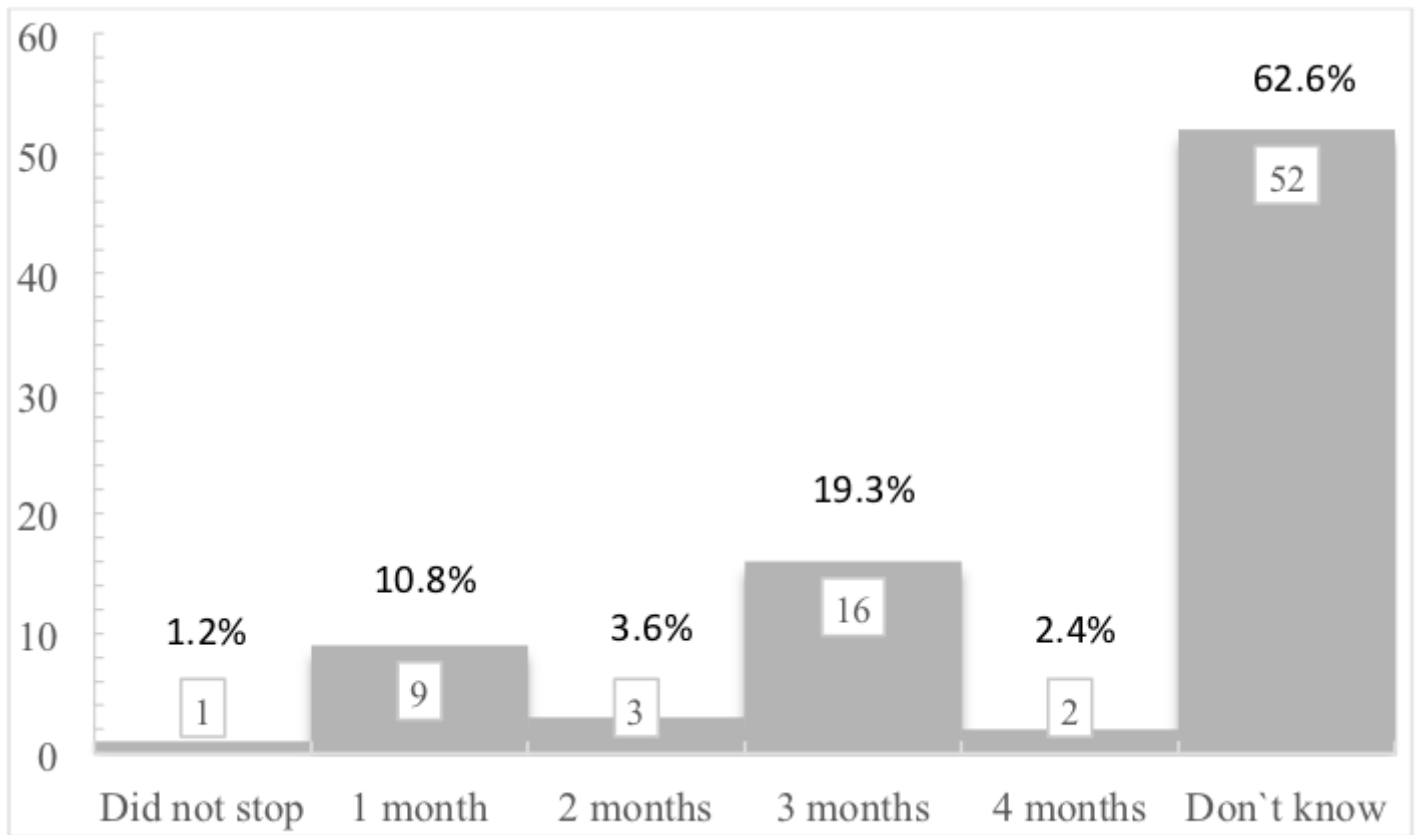


Figure 3

Mean length of stay reported by surveyed surgeons (expressed as percentage of the total respondents)

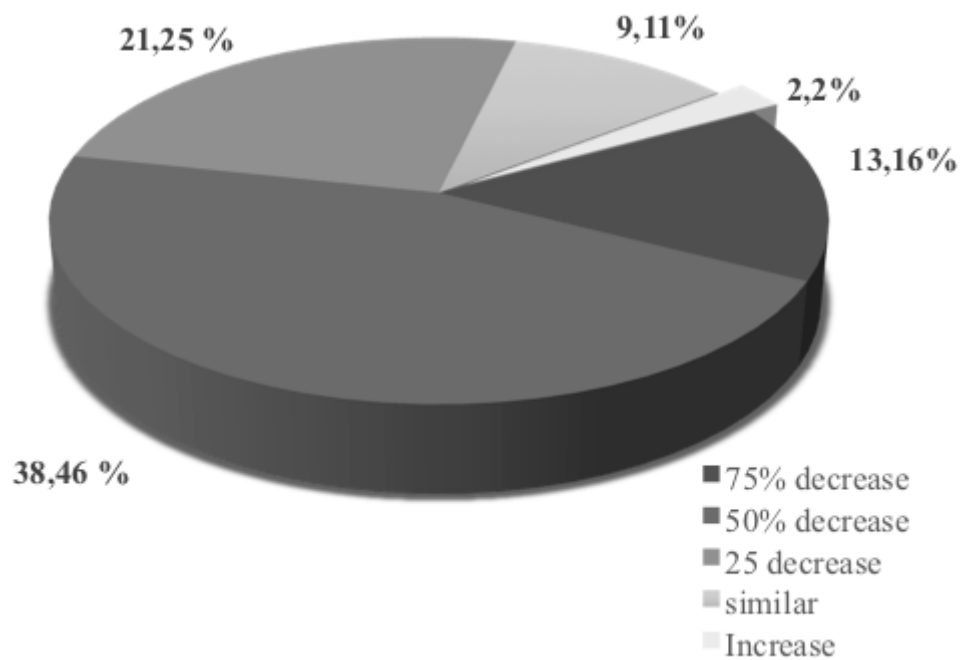


Figure 4

Complementary studies to anamnesis for SARS-Cov2 virus infection screening

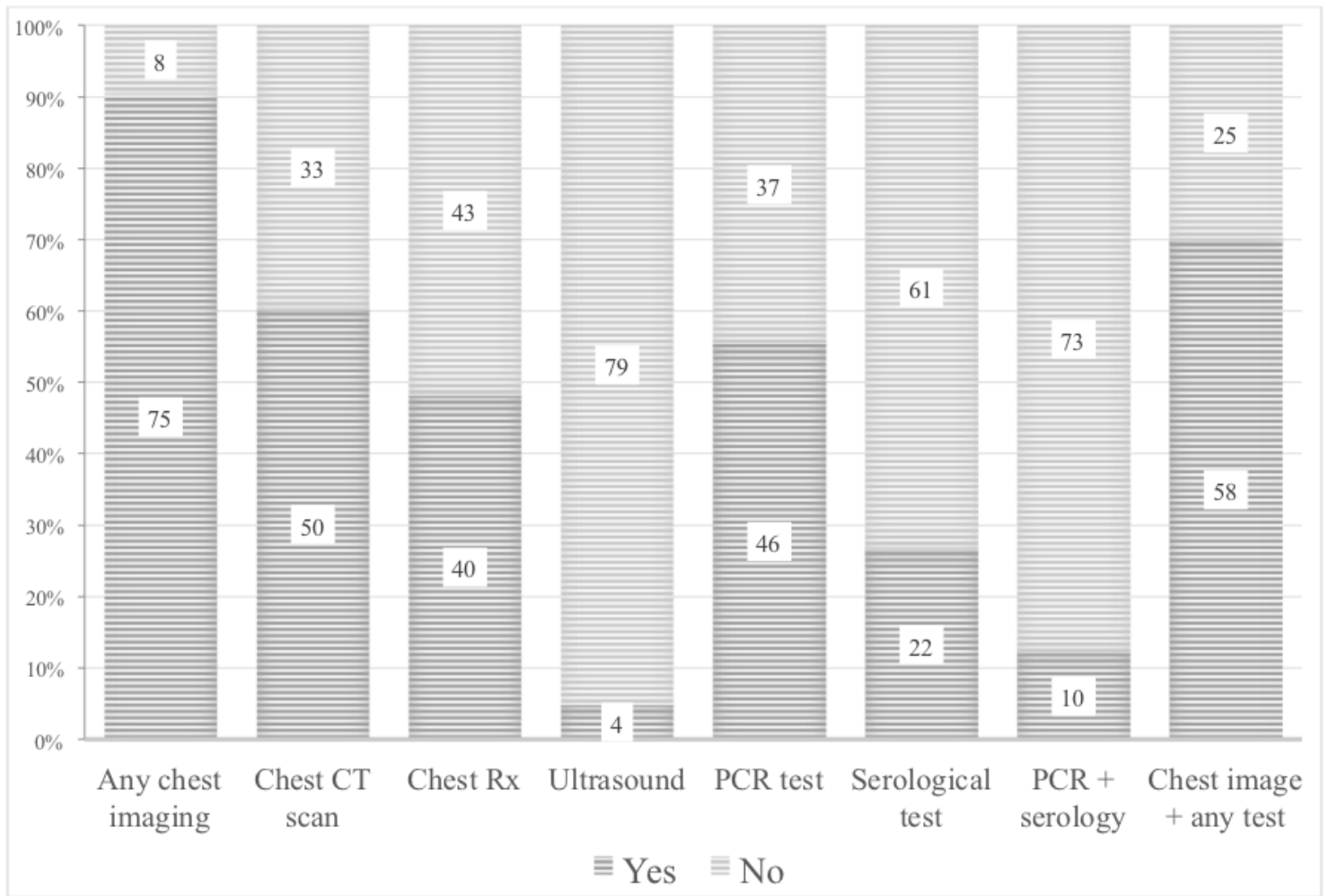


Figure 5

Expected protective measures for surgeries in patients with suspected or confirmed SARS-Cov2 virus infection (CPnED: continuous pneumoperitoneum evacuation devices)

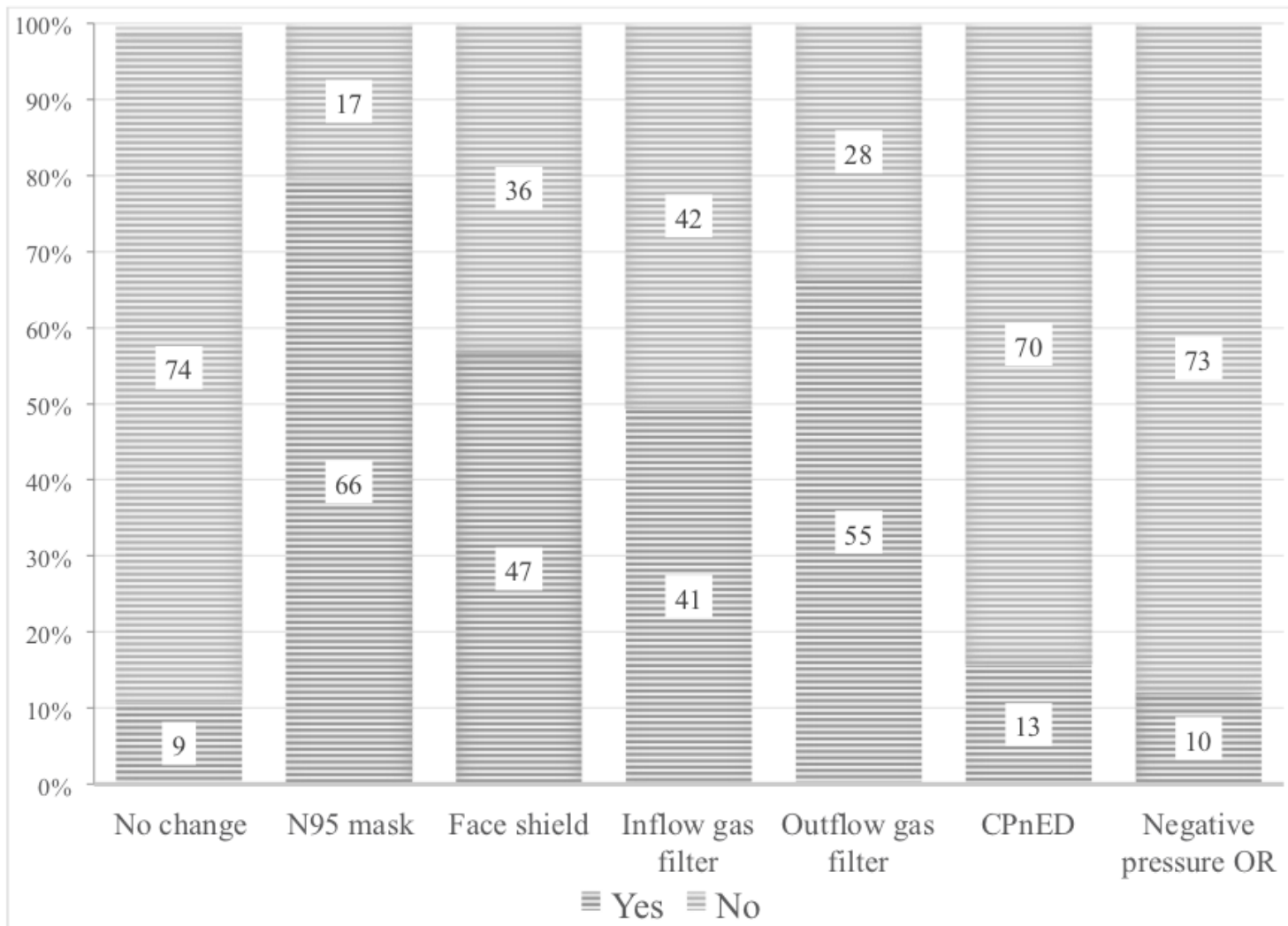


Figure 6

Essential conditions to restart elective bariatric surgery.

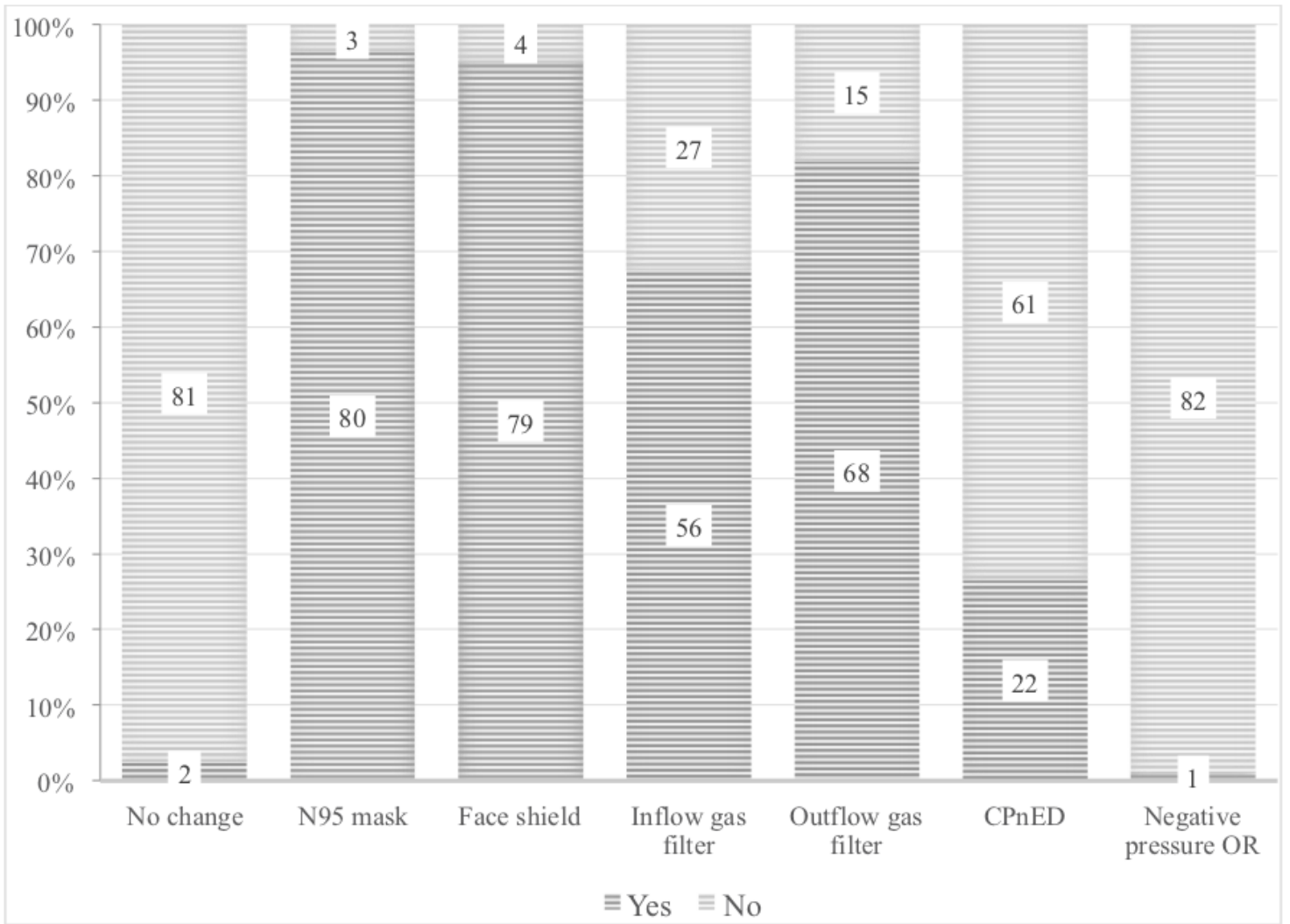


Figure 7

Agreement of selection criteria for ideal candidate to elective bariatric surgery in COVID-19 pandemic context.

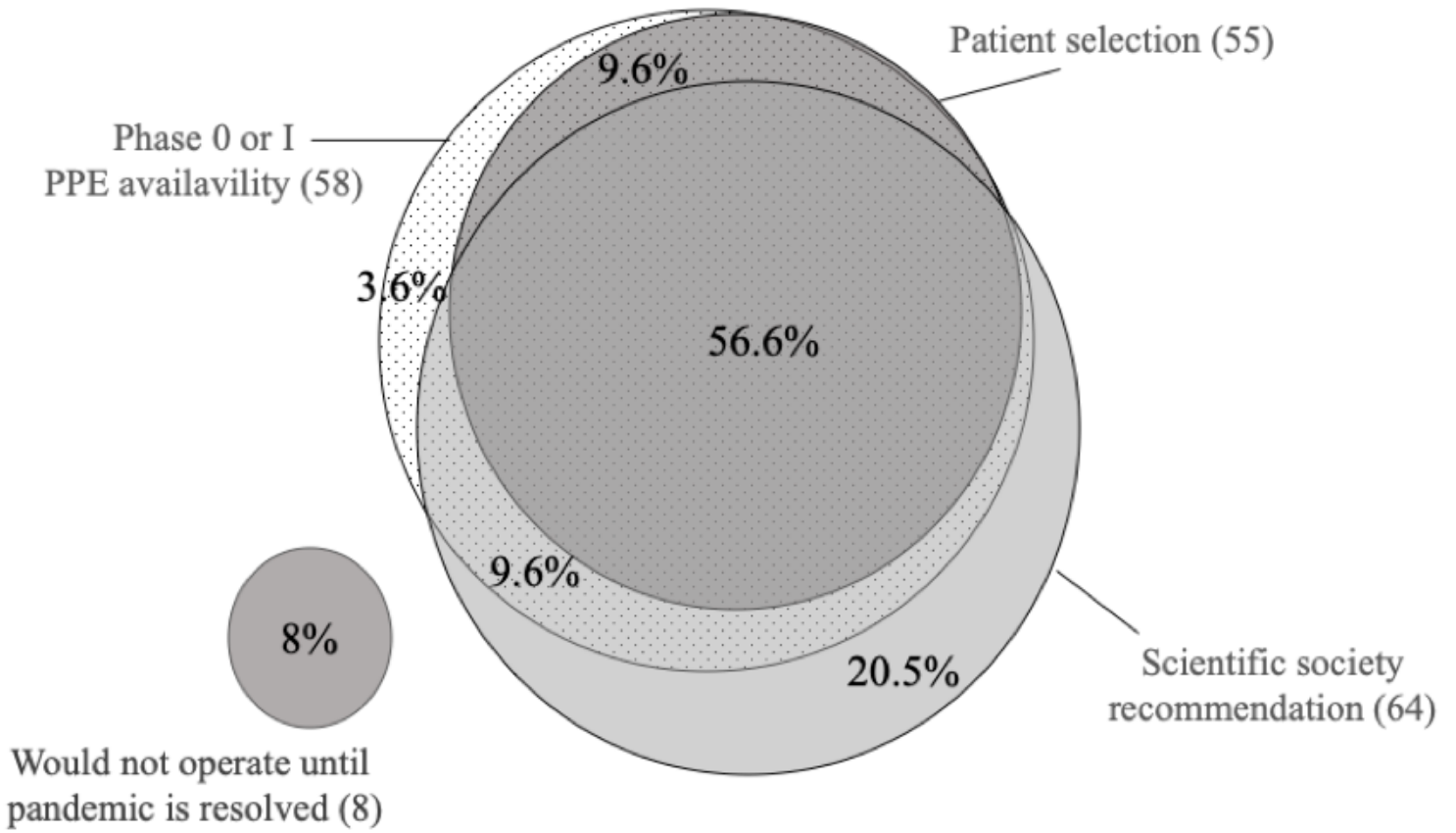


Figure 8

Estimated time required to restart elective bariatric surgery.

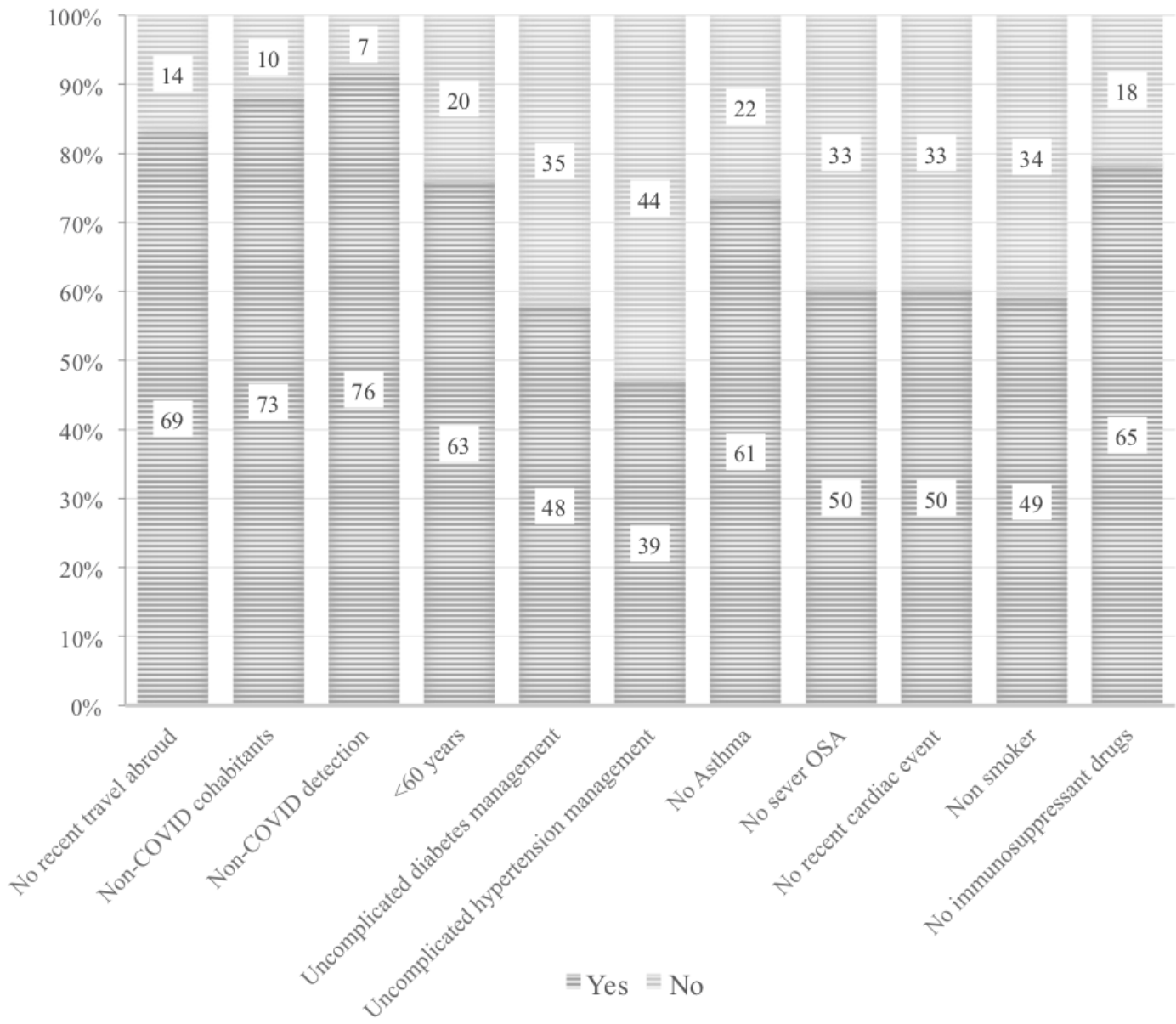


Figure 9

Expected protective measures for surgeries in patients without suspected SARS-Cov2 virus infection (CPnED: continuous pneumoperitoneum evacuation devices)