

## A dynamic scale for surgical activity (DYSSA) stratification during the COVID-19 pandemic

### Editor

healthcare systems worldwide are facing the “Severe Acute Respiratory Syndrome CoronaVirus 2” (SARS-CoV-2) pandemic which is responsible for the COroNa Virus Disease 2019 (COVID-19)<sup>1</sup>. It was first identified in China, in December 2019 and it is responsible for the current outbreak (elevated as Public Health Emergency of International

Concern and later to pandemic by the World Health Organization)<sup>1</sup>.

Due to its rapid diffusion, it is probable that confirmed or suspected COVID-19 patients will eventually need of surgery such as non-infected patients. In many centres, the only possible scenarios will be undeferrable emergency or elective surgeries<sup>2,3</sup>. The indication for surgery should be individualized and based on a highly accurate diagnosis, multidisciplinary committees decision and considering the hospital and the affected area conditions<sup>4</sup>. Where possible, a non-operative approach could

be considered if feasible and always evaluating patient's risk/benefit<sup>4</sup>. Due to the important repercussions that the COVID-19 pandemic is causing, it is important to consider the different scenarios that surgeons might face in their hospitals.

To provide useful and practical recommendations for surgical teams in the decision-making process, the Spanish Association of Surgery (Asociación Española de Cirujanos – AEC) established a Working Group of experts named “Surgery-AEC-COVID”<sup>5</sup> which developed the Dynamic Scale for Sur-

**Table 1** Five different phases of the Dynamic Scale for Surgical Activity (DYSSA)

#### • Phase I. Almost normal scenario

- *Census* - < 5% COVID-19 related admissions without ongoing urgent necessities
- *Resources* - no impact on hospital resources
- *Surgical activity*: no impact on normal activity

#### • Phase II. Low level alert scenario

- *Census* - 5-25% COVID-19 related admissions to ward and ICU
- *Resources* - no impact on hospital resources but with pandemia alertness in the hospital with appropriate separate triage in the emergency room for respiratory symptoms vs non respiratory symptoms
- *Surgical activity*: activity limited to:
  - Oncology
    - If an increase in the infection curve is suspected, use phase 3 scenario for oncological surgical activity
  - Urgencies
  - Priority benign pathology
    - only consider if we are in the de-escalation phase

#### • Phase III. Medium level alert scenario

- *Census* - 26-50% COVID-19 related admissions to ward and ICU
- *Resources* - impact on hospital resources with pandemia alertness in the hospital with appropriate separate triage in the ER for respiratory symptoms versus non respiratory symptoms. ICU beds and wards reserved for COVID-19 patients
- *Surgical activity*: activity limited to:
  - Oncologic patients where a lack of treatment would compromise their 3 months survival
  - Oncologic patients who cannot receive neoadjuvant treatment to slow progression of disease
  - Oncologic patients who will not require prolonged ICU stay
  - Urgent surgery

#### • Phase IV. High level alert scenario

- *Census* - 51-75% COVID-19 related admissions to ward and ICU
- *Resources* - Significant impact on hospital, healthcare workers and ICU beds.
- *Surgical activity*: activity limited to:
  - Urgencies

#### • Phase V. Emergency scenario

- *Census* - >75% COVID-19 related admissions to ward and ICU
- *Resources* - Significant impact on hospital, healthcare workers and ICU beds. Limited ICU and ventilation resources, limited OR resources or a rapid infection increase in the hospital.
- *Surgical activity*: activity limited to:
  - Urgencies where the patient will not survive unless intervened within the next few hours after a preoperative triage is done by the ethics committee.

ICU: intensive care unit.

gical Activity (DYSSA) (Table 1). It includes five phases, based on the feasibility and suitability of performing elective or emergency surgery for each hospital, that detail the progression of the COVID-19 pandemic. It is based on current literature<sup>2-4</sup> and on the cumulative experience from surgeons and centres after analyzing the situation internationally.

In order to validate if DYSSA was a useful scale, applicable to reality, a survey was sent to the AEC and to the European Association for Endoscopic Surgeons (EAES) members. DYSSA resulted “adequate” for 86.8 per cent of the AEC members (427 out of 492 answers) and for 89.1 per cent of the EAES members (271 out of 304 answers) who responded to the survey.






Several guidelines are useful for the general management of patients<sup>2-4</sup>, however, the aim of the DYSSA is to provide a dynamic classification of the situation of each hospital involved in the pandemic, to be able to help surgeons in the decision-making process, both during the expansion or the restoration of the SARS-CoV-2 infection, and to optimize the available resources. The classification in phases is based on the percentage of hospitalized COVID-19 patients, with detailed recommendations associated with each phase. DYSSA allows addressing patients to the most appropriate hospital in case of resources centralization and to sort patients in the most appropriate hospitals according to the planned surgical strategy at a regional level.

In our opinion, DYSSA is a valuable and useful tool to classify scenarios depending on the hospital global situation and to guide surgeons in the prioritization of the operations to perform. It is crucial to highlight that the current pandemic is an unexpected situation that rapidly and continuously evolves, so new and different

solutions will have to be considered dynamically.

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