Getting Back on Track or Avoiding a Secondary Sanitary Crisis After a Pandemic Wave

Voltar ao Trilho ou Como Evitar uma Crise Sanitária Secundária Após uma Vaga Pandémica

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Introduction

The world was stroked by the worst sanitary situation on modern Medicine. This caused a disturbance on healthcare systems of a dimension never seen before, provoking changes on every level and all dimension of healthcare. This impact will be long lasting (the latest estimative is that this acute phase will last at least two years)[1] and we do not know yet the real dimension of the sanitary impairment after the acute phase.

We do know that this pandemic develops in waves. During the time span of a wave, all the attention and almost all efforts of the healthcare system are focused on the pandemic management and people with other conditions avoids seeking care.[2]

This situation can create a sanitary crisis involving pre-existing or non-diagnose diseases with even more impact on patients then the pandemic wave by itself.[2] It was clear that the mortality rate increase in Portugal was bigger than the number of deceased COVID patients.[3]

So, we should give special attention to this situation to avoid these secondary victims. We need to maintain the access to Healthcare to all conditions and eradicate that fear from people. Also, after the peak of the wave, normal production should be undertaken as soon as possible, and special recovery programs should be implemented. This can be as important as the approach to COVID-19.

After the First Wave

The COVID-19 was declared by World Health Organization (WHO) as a pandemic on March 11th, 2020. Portugal registered the first case on March 2nd and the first case in Hospital de Cascais was diagnosed on March 18th.

By that time, the Disease was mainly unknown and the information we had was scarce and highly mediatized. Considering the information available and several mathematical projections that anticipated a catastrophic impact of the pandemic, the decision was made to dedicate all efforts of National Health Service (SNS) to the pandemic combat. At this stage, all elected activity was cancelled and prohibited except related with oncology.

These circumstances created a situation where:

- The mind set of healthcare workers was completely focused on COVID-19;
- The offer of care for non-COVID patients was dramatically reduced;

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- The contact between COVID and non-COVID patients inside the healthcare facilities, spite the efforts to create independent circuits, was inevitable;
- The general population avoided seeking help, on Hospitals and Primary Care facilities, due to fear of contracting the disease;
- Primary Care Doctors (the providers of elective patients to the Hospital) were involve in trace activities related with COVID patients isolated at home and with contacts in mandatory isolation, made almost all their activity by phone, which later on, reduced the referral of non-COVID patients to Hospital;
- The Authorities advised people to stay at home at all costs, so people with mild symptoms had the tendency to wait till the situation clears or worsens.

So, the care for non-COVID patients decreased significantly. For instance, ER admission dropped to 40% the normal number and to 25% on Pediatric ER and all elective appointments were cancelled or made through telemedicine means.

The Government imposed lockdown measure and General Population awareness was implement which made that the impact of the pandemic not as important as anticipated, flattening the pandemic curve, and making an effect that was called "The Portuguese Miracle" back then.[4]

During the lockdown period, Hospital de Cascais maintain contact with chronic patients through telematics means but new arrivals were reduced to a minimum. When lockdown was relieved, we did not receive immediately the same number of patients as before de pandemic, due to the fear that some people had of coming to the Hospital and to the fact that Primary Care Centers (Centros de Saúde) were still far from working with "normal" standards. The access to the General Practitioners was very limited because the amount of time they had to devote to pandemic related activities. This fact is notorious when we look at the numbers. For instance, the number of patients referred to the Hospital (sent to out-patient consultation) in all 2019 was 31 386 and 2020 (from January to December) was 22 245, which mean a reduction of 30%, including the months without lockdown or pandemic.

Also the 4 months impacted by the first wave and immediately after (March, April, May and June) in 2019, 88 276 patients were seen in our out-patient clinic and decreased to 51 712 on 2020 (a reduction of 40%), but another important fact is the reduction of the first-appointment rate that dropped from 31.5% in 2019 to 25.1% in 2020, meaning that the general reduction on outpatient appointments was even higher in first comers, that means, mainly referral by Primary Care doctors.

When lockdown was relieved on May 4th and after almost two months of inactivity, elective surgery and out-patient consultation had to be rebooted. We had to deal with several circumstances, like the need to create a secure environment, due to concern of the clinician not to be infected by the patients, to overcome the fear of the patients to come to the Hospital and to apply to all the safety rules suggested by the Health Authorities.[5]

The efforts to get production back on track were made especially on the out-patients clinic and on the OR.

Out-patients clinic

The reboot of the consultations and exams at the beginning of May was considered as a priority.

Due to the delicate situation, we were facing then, in terms of Human resources and General Population, this restart was planned and programmed. A team involving Physicians, Nurses, Management and Logistics was created in order to design, implement and audit this plan.

It was assumed that we could not return at full power at once and several contingencies should be considered.

The first topic is the risk involved with the clinical activities. A risk matrix can be made and there are procedures and medical specialties have a greater risk for the healthcare worker and the other patients[6] (Fig. 1).

This risk matrix should orientate the order in which the activities should be shut down (in times of increased of cases) or restarted (after the peak of the wave) (Fig. 2).

On the other hand, there were also some pre-assumptions that needed to be fulfilled in order to prevent the propagation of the virus inside the Hospital facilities[5]:

- Access to the building should be conditioned (only indispensable activities);
- Companions were allowed if indispensable (children, physical or cognitive impaired, fragile persons with special needs, etc…);
- Use of face mask is mandatory;
- Mandatory body temperature measurement and hand disinfection on the Hospital entrance;
- Social distancing on all occasions;
- Disinfection of surfaces in contact with patients and companions;
- Avoid the maintenance of patient generate aerosols in suspension.

To fulfill these criteria we had to:

- Clear from the out-patient clinic and exams area the parts of the Emergency Room that were located there when it was necessary create two separate circuits (It was possible on most parts except on part of the Radiology Department);
- Create a mandatory hard stop on the main entrance of the Hospital for triage of the people coming, for temperature measurement, check the use of face mask and hand disinfection (Fig. 3);

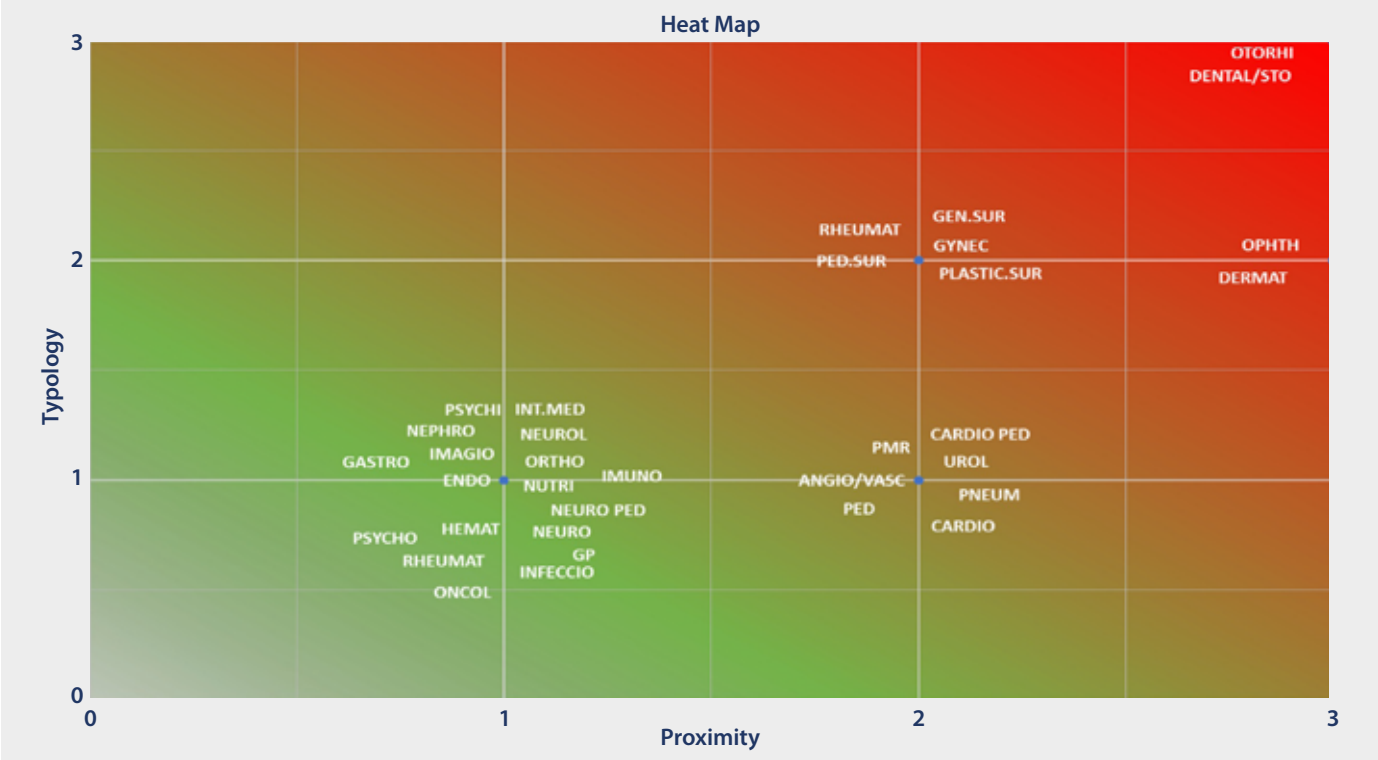

Figure 1. The risk matrix inherent to the activities of Medical Specialties.

FADE OUT PROCESS

During COVIT-19 pandemic, the programmed outpatient areas should be the first ones to deactivate due to the risk they represent to the healthcare professionals (≥ 5).

≥ 7: HIGH RISK	4-6: MODERATE RISK	3: LOW RISK
1- OPHTHALMOLOGY	1- ANGIO/ VASCULAR SURGERY	1- ENDOCRINOLOGY
2- OTORHINOLARYNGOLOGY	2- CARDIOLOGY	2- GASTROENTEROLOGY
3- DENTAL/STOMATOLOGY	3- PEDIATRIC CARDIOLOGY	3- IMMUNOALERGOLOGY
4- DERMATOLOGY	4- PEDIATRIC SURGERY	4- INFECTIVITY
	5- GENERAL SURGERY	5- INTERNAL MEDICINE
	6- PLASTIC SURGERY	6- GENERAL AND FAMILY MEDICINE
	7- GYNECOLOGY	7- NEUROLOGY
	8- OBSTETRICS	8- NEUROSURGERY / PED.NEUROSURGERY
	9- PNEUMOLOGY	9- CLINICAL NUTRITION
	10- UROLOGY	10- ORTHOPEDICS
	11- PEDIATRICS / NEONATALOGY	11- ONCOLOGY
	12- PHYSICAL MEDICINE AND REHABILITATION	12- PSYCHIATRY / PSYCHOLOGY
	13- RHEUMATOLOGY TECHNIQUES	13- RHEUMATOLOG
		14- HEMATOLOGY
		15- NEPHROLOGY
		16- IMMUNOHEMOTHERAPY
		17 - IMAGIOLOGY

PHASE IN PROCESS

These programmed outpatient areas should also be the last ones to activate in a controlled fade in phase.

Figure 2. The way that Medical Specialties were organized considering the inherent risk and the order in which they were close or open.

- Adjustment of waiting room furniture in order to promote social distancing;
- Maintenance of a separate circuit for oncologic patient;
- Make other change like diminishing the occupancy of the Endoscopic Exams Recovery Room to allow larger separation between patients;
- Promote ventilation of the room where exams that potentially could originate aerosols, inclusively with the possibility of opening windows (usually prohibited for energy saving matters);
- Add physical barrier between the professionals and the patients (acrylic screens on the counters, movable acrylic wall with a hole to make ultrasounds, etc…) (Fig. 4);
- Circuits should be clearly marked in order to minimize the contact between patients and avoid unnecessary agglomeration of people.

All coordinators of the different areas were involved on the discussion of this program and the objectives of this plan were

explained in detail to the clinicians and permanent audits were made to the implementation of these measures and it impact on the staff and patients.

On top of all this changes, the schedules had to be redone to allow time between consultation or exam to clean the space where the patient was and ventilation of the room (especially with potentially generating aerosols exams).

This originated a reduction of the offer of the Hospital in terms of consultation and exams, so we had to open new consultation periods and promote the use of telematics means when possible.

The use of phone and video consultations had become increasingly more prevalent on the way we dealt with our patients, whenever possible. From April to June 2020, 24 161 medical consultations were made in the Hospital, of those 10 839 were tele-appointments (45%). Some departments made the majority of the appointments telematic (Anesthesiology – 97%, Pediatrics – 81%, Cardiology – 73%, Psychiatry – 70%, Internal Medicine – 69%, Urology – 65% and Neurology – 64%) and for other Specialties it was marginal (Ophthalmology – 0.1%, Immunohemotherapy – 3%, Gynecology/Obstetrics – 3.5% and Physical Medicine and Rehabilitation – 5%). The rest of the departments made approximately two fifths to one third of consultations by telematics.

Figure 3. First version of the desk for body temperature measurement at the Hospital main entrance.

Figure 4. Acrylic wall to make ultrasonographies.

All this process was implemented with some general assumptions: Clinical, Quality and Safety requirements; Planning and Operationalization, Auditing and Continuous Improvement principles.

This program ran without any major problem and by the end of the year we were able to achieve the same level of production in terms of consultations and exams and were able to compensate the period of complete stop that occurred in March and April 2020.

Operating room

Before the peak of first pandemic wave, some structural changes were made in the OR and a separate circuit for COVID Positive patients, with two rooms dedicated exclusively to these patients. Two other rooms were dedicated to urgent and trauma patients and another to oncologic surgery.

Also, the OR recovery room was occupied non-COVID critical patients, that is, became the non-COVID UCI, because the regular UCI was completely devoted to COVID patients. The staff that took care of the critical patients in the recovery room was anesthesiologists and OR nurses. This arrangement makes difficult the reboot of elective surgery because two rooms were reserved to the few COVID patients, the recovery room was partial with UCI patients occupied and OR staff was attributed to Critical Care.

The first change was to alter the OR dedication to COVID patients. The segregated circuit was maintained and one of the rooms devoted to COVID patients as destined to Urgent and Trauma cases. As the COVID-19 positive patients were all Urgent and Trauma (because is not correct to make elective surgery in COVID -19 positive patients), if a COVID-19 patient had to be operated, the Secure Circuit was use, the Urgency room was used, the AC of the room would be switch to negative pressure during entubation and extubation and the room would be thoroughly clean between patients, so this room could have a mix utilization. The other COVID-19 devoted room was allocated to "normal elective activity.

The Recovery Room was cleared of Critical Patients and the OR staff return to their previous workplace and the OR could return to its normal occupancy.

Nevertheless, there were safety rules, regarding the protection of workers and patients that had to be implemented like the mandatory testing of patients with less of 72 hours from the operations and changes on the anesthetic techniques and procedures.[7] At a first look, it seems that these changes would lead to a reduction of the efficiency of the OR but, with time, no significant reduction was noted.

The almost complete OR shutdown for two months generated a backlog of patients in-need of elective surgery. To deal with this waiting list, it was decided to prolong the available operating time in each room, whenever possible, and to do elective surgery on weekends, resulting on a full occupancy on Saturdays and some rooms operating also on Sunday. This effort resulted in 1569 additional surgeries.

After the Third wave

During Spring and Summer, the incidence of the disease was kept on a relatively low level and, at the middle of September, as was expected, the number of cases started to increase and generate a double wave (with two peaks) divided by Christmas Holidays, the so called second and third wave.

The way the Hospital faced this increased of cases was slightly different from the approach to the first wave.

In terms of human resources, the purpose should not be to put resources indiscriminately here are need without assessing the adequacy of their skills to the job they are supposed to perform. That is, to put an Urologist taking care of ventilated patients only will result on an excess of work to the rest of the team. Put an Orthopedic Surgeon in the "covidarium" would have a similar effect because of lack of capacity for decision making. So, the resources were mobilized according to their specific skills. The same method was used with nurses and other staff.

The logic is to place people where was need but people that could perform the function and could be replaced by someone else on his/her usual workplace/job.

Unlike on the first wave, there was not a complete shutdown of elective activity but a selective interruption. For instance, if more nurses and anesthesiologist were necessary in the UCI, one operating room would close, if an out-patient clinic nurse is need in a ward, part of day-care would be canceled.

Of course, this was not decided on a day-to-day basis but planned for periods of time.

This allowed us to keep at least two ORs functioning for elective patients, even on the very peak of the pandemic. Also, to avoid creating a big backlog of patients, the Hospital rented ORs on Private Hospitals and some surgical patients were diverted there but operated by our surgical teams. We did 352 operations using this method.

We did not have to shut down any type of medical consultation but did some temporary cancelations. New slot of consultations was open with physicians that were available and in specialties with patients in waiting.

As the Hospital maintain is operations as close to normal as possible, the return to "normal" activities with the decrease of cases was done naturally with any special measures other than intensifying what was already in course, like additional surgery and the opening of extra slots of consultations.

Conclusion

This pandemic is an extraordinary experience that put our healthcare system in tremendous stress. It was extremely demanding to workers and devastating to patients.

This situation taught us some lessons. The first one probably the most important is "when we get to healthcare, we are already too late". The other misassumption (that is perpetuated by most people) is that this pandemic can be won with and inside UCIs, but the experience shown us that uncontrolled pandemic can "swallow" as much UCI as one can create. This kind of sanitary crisis is won with prevention measures. A UCI patient can be a "winner" but starts definitely as a "looser". Another important notion, that is not a novelty, is the fundamental relevance of preparation and planning. The existence of contingency plan is vital and involving all the stakeholders in its design is extremely important. The plan should be followed as much as possible with continuous audits and the search for improvement opportunities. Decision must be made based on data and consistent observations and not on projection or assumptions. Thresholds and turning points should be defined in advance and orientate our decision making. There is a "silent majority" that endures the suffering without coming to the spotlights that are the non-COVID patients, which needs much more attention and specific care.

The last lesson (but not the least) is that our biggest asset is people. The Human factor is vital on any subject but specially in this matter. This pandemic showed us clearly on people can go beyond the call of duty and do what would be unimaginable to reach and care for a fellow person. This pandemic draw us together, show us the necessity of the human touch, taught us the relevance of quality time with those dear to us.

We are sure that we can win this war because of people.

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