Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Telephonic triage before surgical ward admission and telemedicine during COVID-19 outbreak in Italy. Effective and easy procedures to reduce in-hospital positivity

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From December 2019, the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) outbreak has spread globally from Wuhan becoming a pandemic with over 2.250.000 infected all over the world [1]. Italy is currently facing a dramatic unprecedented health emergency, accounting for 184.000 cases and 24.648 deaths (13.4%) up to 22 of April 2020, one of the highest lethality rates recorded worldwide [1,2]. The first Italian case of Coronavirus disease 2019 (COVID-19) was reported on 21st of February and from the half of March, to help the national healthcare system to deal with the COVID-19 diffusion, the Italian government, after the declaration of national emergency, has suspended all non-urgent elective surgery until new provisions. Before the government' decision, in our surgical division at University of Study of Campania "Luigi Vanvitelli" of Naples, teaching hospital with no emergency service, in order to prevent and limit the possible hospital contagion among all hospital workers, including physicians, nurses, therapists, and technicians, and patients, we designed and adopted an exhaustive telephonic triage questionnaire [Fig. 1].

This latter was administered, via phone call, to all patients referring to our division for a surgical intervention or for outpatient visits. Three days before the ward admission a trained physician has submitted the triage questions to the patients. In case of symptoms (e.g. hyperpyrexia, cough, respiratory distress), return from high risk location, contact or cohabitation with a positive case of COVID-19 or a suspicious one, the patient was asked to procrastinate the hospital admission of almost 14 days. During the days before the Government suspension of elective surgery and outpatient activity, we screened 111 patients. Twenty-five patients reported mild clinical symptoms or possible contact with suspicious or positive COVID-19 patients and were invited to attend a quarantine period. Therefore, their ward admission was procrastinated of 14 days. It is noteworthy that all procedures were elective, and no patient necessitate emergency care. All patients admitted to our ward or at outpatient clinic were telephonically screened after 14 days. No one showed symptoms associable to SARS-CoV-2 infection. Considering the high contagiousness and the high reproduction number (R_0) of SARS-CoV-2, that was thought to be 2.68, more than double the one of seasonal flu, this simple but effective method allowed us to drastically reduce the contagion rate in our division, helping to preserve the patients' and hospital workers' health [2,3]. Moreover, considering the dramatic re-adjustment of social habits and health systems due to the COVID-19 widespread, one of the cornerstones of medicine might be partially changed: the face to face medical assessment. In our practice, in fact, we implemented and encouraged telemedicine whenever applicable. Certainly the ability to perform a comprehensive physical exam (palpation, intranasal or intraoral exam, scope evaluations, etc.) is the main limitation of this procedure, but it could allow to avoid physical attendance of the hospital and it may also be a habit to keep at the end of this emergency, to reduce healthcare costs, skipping admissions and re-admissions of remote manageable cases [4].

The COVID-19 pandemic has deeply and rapidly changed the healthcare system leaving large numbers of patients without care. Nevertheless, the restrictive policy has appeared to be the *best treatment option* to contain the coronavirus infection. Beyond the personal risk that healthcare workers are facing, hospitals personnel are a potential vehicle for the diffusion of COVID-19, considering that a large portion of infected subjects remains asymptomatic but are able to spread the pandemic [5]. These issues were confirmed also by the World Health Organization (WHO) that reported in Wuhan a rate of 41% of cases as related to hospital transmission [6]. Moreover, the loss of frontline hospital workers, experiencing often the lack of personal protective equipment, heavily contribute to the collapse of the healthcare system. Therefore, any methods potentially capable of reduce and contain the health workers' contagion is advocated.

The proposed questionnaire is a simple and reproducible triage procedure that might be applicable before the ward admission in all the hospital division with no emergency care. Its role would be probably even more important in the period of gradual re-admission of patients to hospitals for elective surgery. Also, telemedicine should be encouraged in pandemic, as providing protection both in avoiding crowds in hospitals, and in reducing the unnecessary contact with the physicians. Of course, considering the unprecedented emergency, we have not the timing and the possibility to achieve the results of a comparative or prospective study, but it seems reasonable to assume the utility of both procedures in reducing the in-hospital positivity and the exposure of healthcare workers to the contagion.

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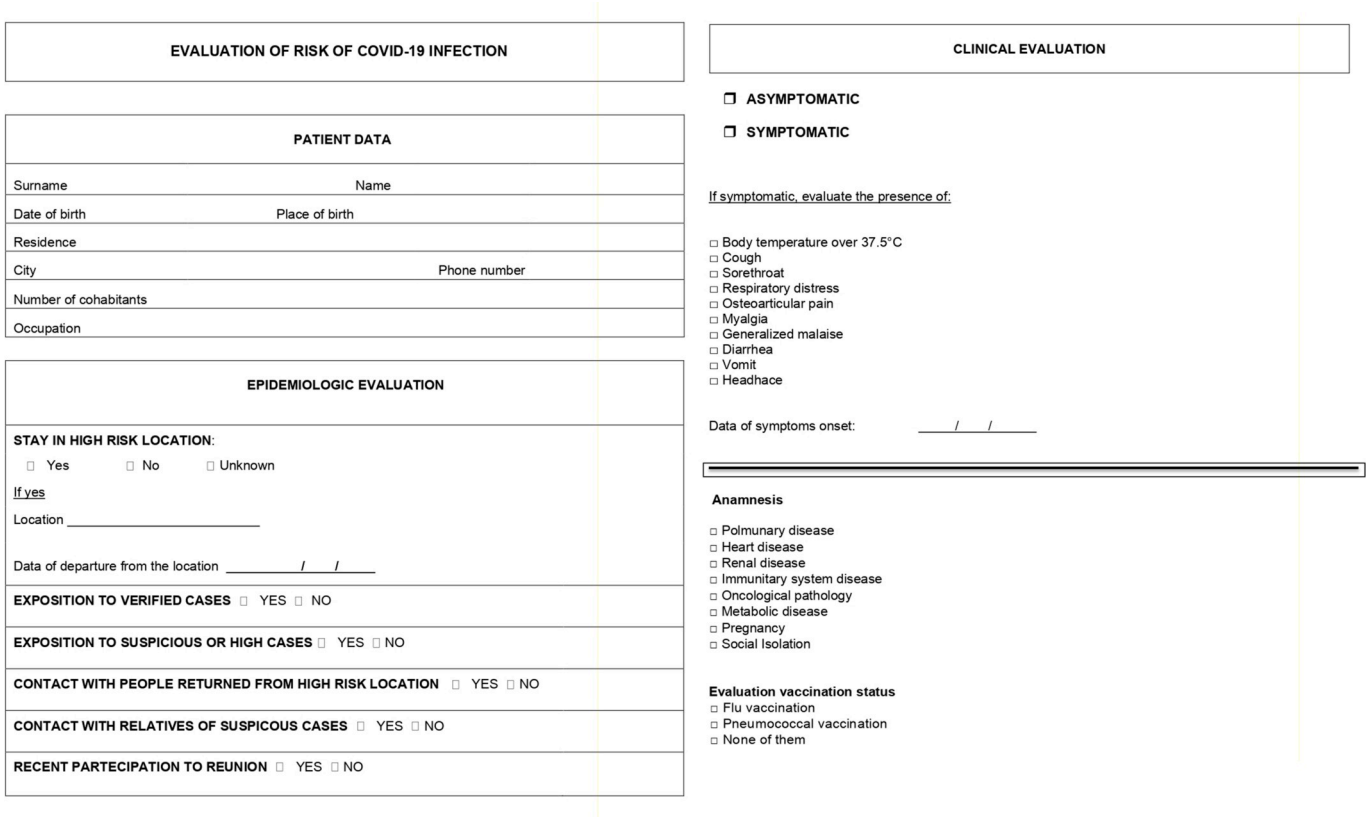

EVALUATION OF RISK OF COVID-19 INFECTION

PATIENT DATA

Surname Name

Date of birth Place of birth

Residence

City Phone number

Number of cohabitants

Occupation

EPIDEMIOLOGIC EVALUATION

STAY IN HIGH RISK LOCATION:

□ Yes □ No □ Unknown

If yes

Location _____

Data of departure from the location ____/____/____

EXPOSITION TO VERIFIED CASES □ YES □ NO

EXPOSITION TO SUSPICIOUS OR HIGH CASES □ YES □ NO

CONTACT WITH PEOPLE RETURNED FROM HIGH RISK LOCATION □ YES □ NO

CONTACT WITH RELATIVES OF SUSPICOUS CASES □ YES □ NO

RECENT PARTECIPATION TO REUNION □ YES □ NO

CLINICAL EVALUATION

❒ ASYMPTOMATIC

❒ SYMPTOMATIC

If symptomatic, evaluate the presence of:

□ Body temperature over 37.5°C
□ Cough
□ Sorethroat
□ Respiratory distress
□ Osteoarticular pain
□ Myalgia
□ Generalized malaise
□ Diarrhea
□ Vomit
□ Headhace

Data of symptoms onset: ____/____/____

Anamnesis

□ Polmunary disease
□ Heart disease
□ Renal disease
□ Immunitary system disease
□ Oncological pathology
□ Metabolic disease
□ Pregnancy
□ Social Isolation

Evaluation vaccination status

□ Flu vaccination
□ Pneumococcal vaccination
□ None of them

Fig. 1. Telephonic triage questionnaire for evaluation of COVID-19′ risk.

Ethical approval

N/A.

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Author contribution

ST: Participated substantially in conception, design and execution of the study; also participated substantially in the drafting and editing of the manuscript.

CG: Participated substantially in conception, design and execution of the study; also participated substantially in the drafting and editing of the manuscript.

LB: Participated substantially in conception, design and execution of the paper.

GDG: Participated substantially in conception, design and execution of the paper.

FSL: Participated substantially in conception, design and execution of the paper.

LD: Participated substantially in conception, design and execution of the paper.

Trial registry number

1. Name of the registry:
2. Unique Identifying number or registration ID:
3. Hyperlink to your specific registration (must be publicly accessible and will be checked):

Guarantor

Salvatore Tolone, the First Author.

Provenance and peer review

Not Commissioned, internally reviewed.

Data statement

The data that support the findings of this study are available from the corresponding author, [CG], upon reasonable request.

Declaration of competing interest

None.

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N/A.

References

[1] E. Dong, H. Du, L. Gardner, An interactive web-based dashboard to track COVID-19 in real time, Lancet Infect. Dis. (2019 Feb 19), https://doi.org/10.1016/S1473-3099(20)30120-1 pii: S1473-3099(20)30120-1.

[2] M. Sorbello, K. El-Boghdadly, I. Di Giacinto, R. Cataldo, C. Esposito, S. Falcetta, G. Merli, G. Cortese, R.M. Corso, F. Bressan, S. Pintaudi, R. Greif, A. Donati, F. Petrini, Società Italiana di Anestesia Analgesia Rianimazione e Terapia Intensiva (SIAARTI) Airway Research Group, and The European Airway Management Society, The Italian coronavirus disease 2019 outbreak: recommendations from clinical practice, Anaesthesia (2020), https://doi.org/10.1111/anae.15049 Mar 27.

[3] A.S. Fauci, H.C. Lane, R.R. Redfield, Covid-19 - navigating the uncharted, N. Engl. J. Med. 382 (13) (2020) 1268–1269, https://doi.org/10.1056/NEJMe2002387 Epub 2020 Feb 28.

[4] K.M. Augestad, A.M. Sneve, R.O. Lindsetmo, Telemedicine in postoperative follow-up

of STOMa PAtients: a randomized clinical trial (the STOMPA trial), Br. J. Surg. 107 (5) (2020) 509–518, https://doi.org/10.1002/bjs.11491.
[5] F. Anelli, G. Leoni, R. Monaco, C. Nume, R.C. Rossi, G. Marinoni, G. Spata, D. De Giorgi, L. Peccarisi, A. Miani, E. Burgio, I. Gentile, A. Colao, M. Triassi, P. Piscitelli, Italian doctors call for protecting healthcare workers and boosting community surveillance during covid-19 outbreak, BMJ 368 (2020) m1254, https://doi.org/10.1136/bmj.m1254.
[6] Z. Wu, J.M. McGoogan, Characteristics of and important lessons from the coronavirus disease 2019 (covid-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention, JAMA (2020), https://doi.org/10.1001/jama.2020.2648.32091533.

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