The official French rules to protect patients with cancers against SARS-CoV-2, on behalf of the *Haute Autorité de Santé Publique*.

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Upon request by the French health ministry, the *Haute Autorité de Santé Publique (HASP)* entrusted a representative group of French medical oncologists and radiotherapists (private or academic activity) with the task of preparing an official document summarizing the rules to be implemented for protecting cancer patients against SARS-CoV-2, while also maintaining the possibility of treating their cancers.

After the document finalization on March 10th 2020, the coordinator of the group (BY) was interviewed by the HASP on March 11th 2020. The rules were adopted and published on March 14th 2020.

The preparation of this document is justified by recent data suggesting high risks of respiratory complications related to SARS-CoV-2 in cancer patients. The particular susceptibility of cancer patients to influenza was described before the emergence of SARS-

CoV-2. It has been well known that the risks of hospital admission for respiratory distress, along with the risk of death, are 4 times and 10 times higher, respectively, in cancer patients infected by influenza compared to non-cancer patients. This exacerbation seems to be particularly marked in those with neutropenia or lymphopenia, a feature commonly seen in multi-treated cancer patients [1].

The recent Chinese experience suggests that cancer patients are at higher risk of infection to SARS-CoV-2 compared to the general population (1·00% vs 0·29%),which could be related to the closer medical follow-up organized in such fragile patients. More concerning, the risk of severe respiratory complications requiring intensive care unit was much higher in cancer patients compared to non-cancer patients (39% vs 8%, P=0·0003). A covariate significantly associated with this risk was a history of chemotherapy or surgery in the previous months (offs ratio = 5·34, P= 0·0026), a feature that involves the highest number of cancer patients. Finally, the cancer patients deteriorated more rapidly than those without cancer (median time to severe events 13 days vs 43 days; p<0·0001; hazard ratio 3·56, 95% CI 1·65–7·69)[2].

The following rules apply to adult patients with solid tumors only, and should be considered complementary to the standard rules adopted by the Health Authorities for the general population.

First, some prevention measures can be implemented in oncology departments. The basic principle is to avoid, as much as possible, any contact of cancer patients, and oncology/ radiotherapy departments, with subjects infected to SARS-CoV-2. Oncology and radiotherapy departments should ideally remain SARS-CoV-2-free sanctuaries. The admission of patients infected with SARS-CoV-2 in oncology or radiotherapy departments should be avoided. If despite this principle, such patients were hospitalized in oncology or radiotherapy departments, they should absolutely be isolated from other cancer patients by different protective measures, and referred to departments specialized in the fight against SARS-CoV-2, as fast as possible.

Given the susceptibility of cancer patients to SARS-CoV-2, their presence at hospital should be minimized. Any measures that would enable management of cancer patients at home should be encouraged. This includes telemedicine, phone calls to replace safety visits, etc …, as well as replacement of intra-veinous drugs by oral drugs (chemotherapy, hormone therapies …) when possible, along with structurations that would enable home care administration of intra-veinous targeted agents, normally given at hospital. Adjustment of dosing schedules of chemotherapy or radiotherapy treatments can be considered to reduce the frequency of hospitalizations (e.g. 3 weekly versus weekly administration of the same regimens, hypofractionning radiotherapy …). Moreover, some patients with slow-evolving metastatic cancers can be proposed temporary breaks in their treatments upon referent oncologist opinion, with regular assessments of disease extended every 2 to 3 months, so these patients could avoid hospital admissions.

Despite these measures, some cancer patients will have to be hospitalized for systemic treatments or radiotherapy sessions. The caregivers are advised to organize daily phone calls to cancer patients planned to be admitted the day after, to ensure these patients do not

present any symptoms compatible with SARS-CoV-2 infection before being hospitalized in oncology or radiotherapy. The cancer patients with symptoms of SARS-CoV-2 should be referred to departments specialized in the fight against SARS-CoV-2. To protect the cancer patients, open-space chemo-daycares should integrate separation measures (minimum space between seats, mobile wall …).

The cancer patients non-infected to SARS-CoV-2 (or cured from it) can continue their treatments, with the potential adjustments specified above to limit their presence at hospital.
If the access to hospital cancer cares was reduced due to requisition of facilities for management of SARS-CoV-2 infected patients, or if the likelihood of contamination to SARS-CoV-2 virus, along with life threatening related-complications, were considered too high, a selection of cancer patients to admit at hospital for cancer cares may be required. Such a selection may rely on prioritization of cancer cares.
The prioritization in the management of patients will integrate the essence of « curative » or « non-curative » intent therapeutic strategy, the age of patients, the life expectancy, the duration of the disease history since the diagnosis (e.g. early setting : recent diagnostic/first line treatment ; or late setting in patients who have been multi-treated with chemotherapy), as well as the cancer-related symptoms.
The following priority order is proposed (but remains at clinician discretion):

1) Patients with cancers managed with curative intent treatments, in favoring those < 60 years old and/or life expectancy > 5 years
2) Patients with cancers managed with non-curative intent treatments, and
    a. age < 60 years old with non-curative treatments, and/or life expectancy > 5 years
    b. in first line of the therapeutic strategy (early setting)
3) Other patients with cancers managed with non-curative intent treatments, in favoring those whose cancer extends or symptoms may jeopardize their lives quickly in the case of treatment discontinuation.

The cancer patients who need to be hospitalized for supportive cares (pain management, bacterial infections, palliative care before death …) could be referred to non-specialized cancer departments, or home care deliveries.

The cancer patients infected by SARS-CoV-2 should discontinue their systemic anti-cancer treatments until complete resolution of the SARS-CoV-2 symptoms (outside exceptions defined by the referent oncologist or radiotherapist in charge of the patient). If a hospital admission was necessary for the management of SARS-CoV-2, or of cancer-related symptoms, the patient should be admitted in departments involved in the fight against SARS-CoV-2. If a cancer patient already hospitalized in oncology/radiotherapy department developed SARS-CoV-2 symptoms or infections, he should be quickly referred to departments involved in the fight against SARS-CoV-2. The cancer patients should be maintained under close monitoring owing to their particular susceptibility to SARS-CoV-2.

In summary, the cancer patients are at very high risk of severe and fast respiratory complications, especially if they received chemotherapy or surgery in the previous months. As a consequence, they must be kept away from SARS-CoV-2 as much as possible. To

reach such an aim, their admissions at hospital for in-patient cancer cares should be reduced, while their managements at home should be favored. All measures that would contribute oncology and radiotherapy departments to remain SARS-CoV-2-free sanctuaries should be taken. In a situation of scarcity of available care facilities, prioritization should involve the patients managed with curative-intent therapeutic strategies, followed by those managed with non-curative therapeutic strategies in disease early settings or in younger patients (<60 years old and/or life expectancy > 5 years) or in jeopardizing symptomatic cancers, acknowledging the final decisions belong to patient referent clinicians. Outside exceptions, systemic anti-cancer treatments should be discontinued during infection to SARS-CoV-2, until complete resolution of the SARS-CoV-2 symptoms.

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2. Liang W, Guan W, Chen R, et al. Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China. *The Lancet Oncology* 2020; **21**(3): 335-7.