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# Impact of the Covid19 pandemic on colorectal cancer care: situation in France

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Dear Editor,

We welcome Morris et al.'s study of the impact of the Covid-19 pandemic on the detection and management of colorectal cancer in England.<sup>1</sup>

We performed a similar analysis on the Electronic Health Record Database of Assistance Publique-Hôpitaux de Paris (AP-HP), the main healthcare provider in Paris' region. This database contains 11 million patient records, and AP-HP manages around 10% of cancer cases in France. We used claims data from January 1<sup>st</sup>, 2018 and October 31<sup>st</sup>, 2020, for identifying patients newly referred to APHP hospital for a colorectal cancer. The methods are detailed in the Appendix.

We observed similar trends to those published by Morris et al. In France, a first strict nationwide lockdown was implemented on March 17<sup>th</sup>, 2020 and lifted on May 11<sup>th</sup>, 2020 (a second nationwide lockdown was then enforced between October 30<sup>th</sup>, 2020 and December 15<sup>th</sup>, 2020, but the present analysis does not go beyond October 31<sup>st</sup>).

From March 1<sup>st</sup> to May 31<sup>st</sup>, the numbers of newly referred patients for colon cancer at APHP were 505, 478 and 339, in 2018, 2019 and 2020, respectively, a 31% drop between 2020 and the 2018-19 average. For rectal cancer, the numbers were 155, 166, 119, respectively, a 26% drop. New referrals of colorectal cancer remained lower than during previous years between June 1<sup>st</sup> and October 31<sup>st</sup>: -8% and -13% for colon and rectal cancers, respectively Appendix, Figure 1A).

The number of surgeries for colorectal cancer patients has also fallen between March 1<sup>st</sup> and May 31<sup>st</sup>, with 323, 320 and 212 surgeries for newly referred colorectal cancers in 2018, 2019 and 2020, respectively, a 34% drop in 2020 compared to the 2018-2019 average. Between June 1<sup>st</sup> and October 31<sup>st</sup>, there were 567, 494 and 439 surgeries for colorectal cancers for 2018, 2019 and 2020, respectively, a 17% diminution between 2020 and the 2018-19 average (Appendix, Figure 1B).

A national-level study based on claims data also found a 17.7% decrease of colorectal resections in France between January to September 2019 and January to September 2020.<sup>2</sup>

Other French studies complete the picture. For radiotherapy, evidence of hypofractionation was reported in France, although not specifically for colorectal cancer.<sup>3</sup> Indirect national-level information on screening has been published by the National Medication Safety Agency (ANSM).<sup>4</sup> During the Spring 2020 lockdown, the colonoscopy products consumption decreased by 46.4%, 85.6%, 77.4% and 66.1% during the 16-29 March 2020, 30 March-12 April 2020, 13-26 April 2020 and 27 April-10 May 2020 biweekly periods, respectively, compared to what was expected from data from the two previous years. A separate study concluded that, between January 1<sup>st</sup> and May 12<sup>th</sup> (the date of the end of the lockdown period in 2020), 152,114 fewer colonoscopies were performed in France in 2020 compared to 2019, a 32% diminution.<sup>2</sup>

Because of both delayed detection and inappropriate patient pathways, we join Morris et al. in their concerns about the probable mid-term impact of Covid-19's disruption on colorectal cancer prognosis.

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## Competing interests

The authors declare that they have no competing interests.

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# Appendix

Figure 1

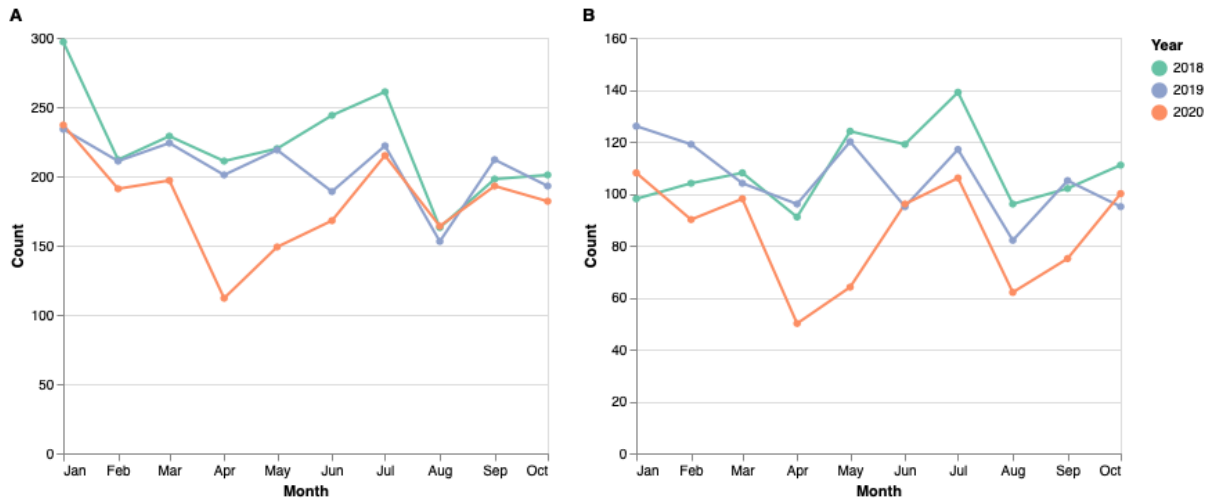


Figure 1. Number of patients newly referred to APHP hospitals for a colorectal cancer (A), number of colorectal surgeries on colorectal cancer patients performed at AP-HP (B).

## Methods for identifying patients in the claims database

Searches were performed on the Electronic Health Record database (*Entrepôt de Données de Santé* in French) of Assistance Publique Hôpitaux de Paris. This database aggregates data from multiple clinical and administrative databases. For the present work, we used claims data. Data from January 1<sup>st</sup>, 2016 to October 31<sup>st</sup>, 2020 were used to identify the study population.

As this is part of a broader study, the identification of newly referred patients with a colorectal cancer proceeded in two steps: first, we identified newly referred patients with any type of cancer; second, we filtered patients with a colorectal cancer.

### 1. Selection of newly referred cancer cases

We selected patients with cancer using a list of the International Classification of Diseases 10<sup>th</sup> revision (ICD-10) codes related to cancer diagnosis (see Table 1).

We reviewed all care encounters from January 1<sup>st</sup>, 2018. For patients for which one of the codes listed in Table 1 appeared, either as a principal or related diagnosis (in French, *diagnostic principal* and *diagnostic relié*), we checked whether the same cancer type had been

used in the previous two years. If not, then this cancer was identified as “newly referred to APHP”.

With this approach, a single patient could be included for multiple “newly referred cancers” (e.g. if the patient had a code for lung cancer and another for liver cancer).

## 2. Selection of newly referred patients with colorectal cancer (CRC)

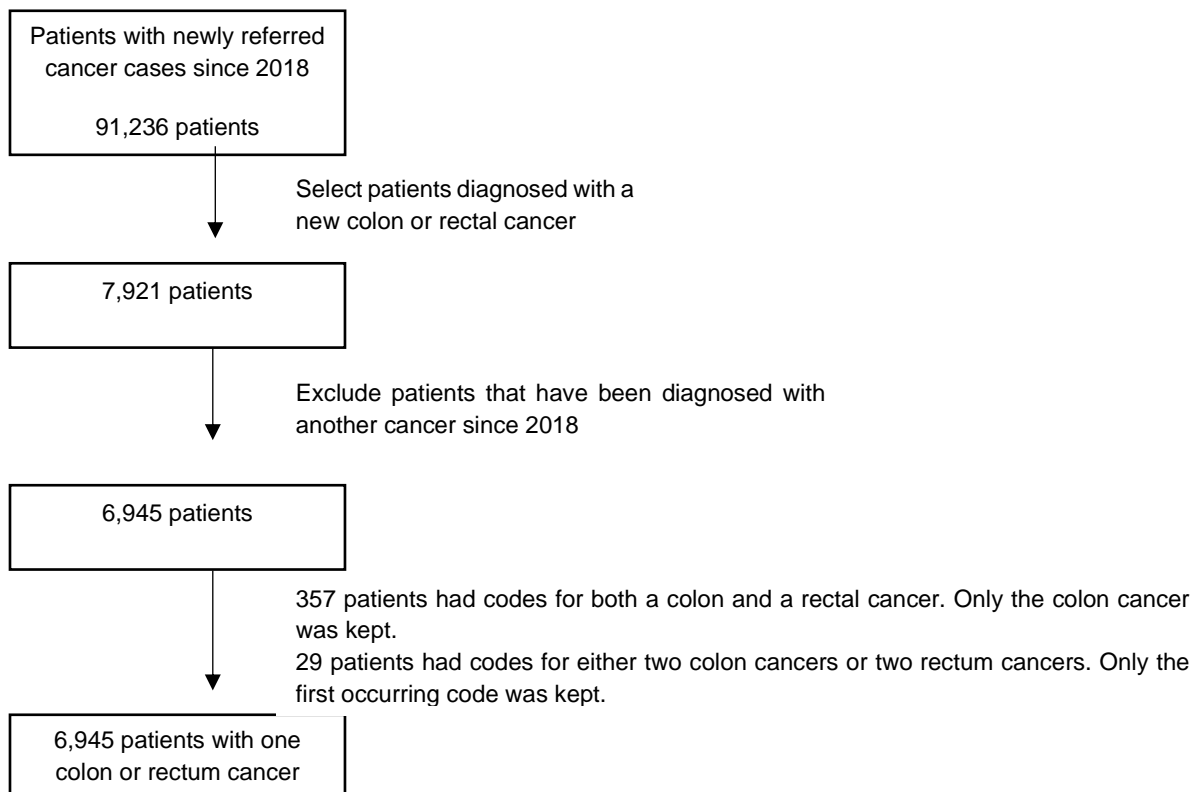
From the population identified in the first phase, we selected patients who had a code for a colon or rectum cancer.

We excluded patients that had been diagnosed with another cancer (i.e., patients with a code for colon or rectum cancer AND a code for another cancer, such as lung cancer or breast cancer). This is because the therapeutic strategy for the second cancer type might interfere with the resection of CRC cancer.

Patients with codes for both a colon and a rectum cancer were identified as colon cancer cases. This is because high rectal cancer may undergo the same treatment as colon cancer, leading to a classification bias.

For patients with two different codes for either a colon cancer (e.g. C18 and C19) or a rectum cancer (e.g. C20 and D37.5), we kept the first occurring code.

Figure 2 describes the flowchart of the patient selection process.



**Figure 2. Flowchart of the patient selection process.**

### 3. Identifying surgeries for colorectal cancer

We used the CCAM (French national insurance system) French coding system of clinical procedures to identify the therapeutic strategies (type of surgery for CRC) (Classification Commune des Actes Médicaux, CCAM): HHFA018, HHFA009, HHFA026, HHFA023, HHFA006, HHFA022, HHFA008, HHFA021, HHFA017, HHFA010, HHFA014, HHFA005, HHFA024, HHFA004, HHFA002, HJFC023, HJFA012, HHFC296, HHFC040, HHFA030, HHFA031, HJFA006, HJFA007, HJFA019, HJFA005, HJFA003, HJFA018, HJFD002, HJFA004, HJFA002, HJFA001, HJFA015, HJFA016, HHFA029, HJFA017, HHFA028

Table 1. ICD-10 codes used to identify patients with cancer.

Cancer type	ICD-10 Code
Anus	C21
Biliary duct	C23 C24 D01.5 D37.6
Bladder	C66 C67 C68 D09.0 D09.1 D41.2 D41.3 D41.4 D41.7 D41.9
Bowel	C17 D01.4 D37.2
Breast	C50 D05 D48.6
Cervix	C53 D06
CNS	C70 C71 C72.0 C72.2 C72.3 C72.8 C72.9 D42 D43.0 D43.1 D43.2 D43.4 D43.7 D43.9
Colon	C18 C19 D01.0 D01.1 D37.3 D37.4
CUP	C76 C80 C97 D09.7 D09.9 D48.7 D48.9 D48.3
Endometrium	C54 C55 D07.0 D39.0
Eye	C69 D09.2
Gastric	C16 D00.2 D37.1
Head & neck	C0 C10 C11 C12 C13 C14 C30 C31 C32 D00.0 D02.0 D37.0 D38.0
Hodgkin lymphoma	C81
Kidney	C6.4 C6.5 D41.0 D41.1
Leukemia	C91 C92 C93 C94.0 C94.1 C94.2 C94.3 C94.4 C94.5 C94.7 C95
Liver	C22
Lung	C33 C34 D02.1 D02.2 D38.1
Melanoma	C43 D03
Mesothelioma	C45.0 C45.1 C45.2 C45.7 C45.9
Myeloma	C90
Non-Hodgkin lymphoma	C82 C83 C84 C85 C86



Œsophagus	C15 D00.1
Osteosarcoma	C40 C41 D48.0
Other digestive	C26 C48 D01.7 D01.9 D37.7 D37.9 D48.4
Other endocrinal	C74 C75 D09.3 D44.1 D44.2 D44.3 D44.4 D44.5 D44.6 D44.7 D44.8 D44.9 D444.0 D444.8
Other gynecology	C51 C52 C57 C58 D07.1 D07.3 D39.2 D39.7 D39.9
Other hematologic malignancies	C88 C96 C94.6 D45 D46 D47
Other pneumology	C37 C38 C39 D02.3 D02.4 D38.2 D38.3 D38.4 D38.5 D38.6
Other urothelial	C60 C63 D07.4 D07.6 D40.7 D40.9
Ovary	C56 D39.1
Pancreas	C25
PNS	C47 C72.1 C72.4 C72.5 D43.3 D48.2
Prostate	C61 D07.5 D40.0
Rectum	C20 D01.2 D37.5
Other skin	C44 D04 D48.5
Soft tissue	C46 C49 D48.1
Testis	C62
Thyroid	C73 D44.0