




Impact of the COVID-19 Pandemic on a Cancer Fast-Track Programme

Cancer Control
Volume 29: 1–10
© The Author(s) 2022
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/10732748221131000
journals.sagepub.com/home/ccx


M. T. Martínez¹, S. Moragon¹ , B. Ortega-Morillo¹, J. Montón-Bueno¹, S. Simon¹, S. Roselló^{1,2,3}, A. Insa¹, A. Viala¹, J. Navarro^{4,5}, A. Sanmartín⁴, C. Fluixá⁶, A. Julve⁷, D. Soriano⁷, E. Buch⁸ , A. Peña⁹, J. Franco¹⁰, J. Martínez-Jabaloyas¹¹, J. Marco¹², M. J. Forner¹³, A. Cano¹⁴, A. Silvestre¹⁵, A. Teruel¹⁶, B. Bermejo^{1,2,3}, A. Cervantes^{1,2,3,†}, and I. Chirivella Gonzalez^{1,†}

Abstract

Introduction: The COVID-19 pandemic has disrupted many aspects of clinical practice in oncology, particularly regarding early cancer diagnosis, sparking public health concerns that possible delays could increase the proportion of patients diagnosed at advanced stages. In 2009, a cancer fast-track program (CFP) was implemented at the Clinico-Malvarrosa Health Department in Valencia, Spain with the aim of shortening waiting times between suspected cancer symptoms, diagnosis and therapy initiation.

Objectives: The study aimed to explore the effects of the COVID-19 pandemic on our cancer diagnosis fast-track program.

Methods: The program workflow (patients included and time periods) was analysed from the beginning of the state of alarm on March 16th, 2020 until March 15th, 2021. Data was compared with data from the same period of time from the year before (2019).

Results: During the pandemic year, 975 suspected cancer cases were submitted to the CFP. The number of submissions only decreased during times of highest COVID-19 incidence and stricter lockdown, and overall, referrals were slightly higher than in the previous 2 years. Cancer diagnosis was confirmed in 197 (24.1%) cases, among which 33% were urological, 23% breast, 16%

¹Department of Medical Oncology Department, Hospital Clínico Universitario, Biomedical Research Institute INCLIVA, University of Valencia, Valencia, Spain

²Department of Medical Oncology, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

³Instituto de Salud Carlos III, CIBERONC, Madrid, Spain

⁴Management Department, Hospital Clínico Universitario de Valencia, Biomedical Research Institute INCLIVA, University of Valencia, Valencia, Spain

⁵CIBERESP (CIBER de Epidemiología y Salud Pública), Centro Nacional de Epidemiología Del Instituto de Salud Carlos III, Madrid, Spain

⁶Alfahuir Primare Care Center, Valencia, Spain

⁷Department of Radiodiagnosis, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

⁸Department of Surgery, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

⁹Department of Medicine Digestive, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

¹⁰Department of Pneumology, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

¹¹Department of Urology, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

¹²Department of Otolaryngology, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

¹³Department of Internal Medicine, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

¹⁴Department of Gynaecology, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

¹⁵Department of Traumatology, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

¹⁶Department of Haematology, INCLIVA Biomedical Research Institute, University of Valencia, Valencia, Spain

[†]These authors have contributed equally to this work

Corresponding Author:

I. Chirivella Gonzalez, Department of Medical Oncology, INCLIVA Biomedical Research Institute, University of Valencia, Av. Blasco Ibañez 17, Valencia 46010, Spain.

Email: chirivella_isa@gva.es



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and

Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

gastrointestinal and 9% lung cancer. The median time from referral to specialist appointment was 13 days and diagnosis was reached at a median of 18 days. In confirmed cancer cases, treatment was started at around 30 days from time of diagnosis. In total, 61% of cancer disease was detected at early stage, 20% at locally advanced stage, and 19% at advanced stage, displaying time frames and case proportions similar to pre-pandemic years.

Conclusions: Our program has been able to maintain normal flow and efficacy despite the challenges of the current pandemic, and has proven a reliable tool to help primary care physicians referring suspected cancer patients.

Keywords

cancer, primary care, cancer fast track program, early diagnostic, COVID-19 pandemic

Received April 12, 2022. Received revised August 17, 2022. Accepted for publication September 12, 2022.

Highlights

- Our Cancer Fast Track program (CFP) easily connects general practitioners and hospital specialists.
- Our CFP shortens waiting times in patients with suspected cancer, enhancing quality of care.
- Our CFP has maintained normal flow and efficacy despite the challenges of the current pandemic.

Introduction

Cancer continues to be among the main causes of morbidity and mortality in the world.¹ Recognition of cancer warning symptoms may prompt physicians to refer patients to specialists in order to achieve early diagnosis. Maintaining the correct timing for diagnosis and treatment is crucial and requires an adequate integration of all available resources.^{2,3} In Europe, patients with warning symptoms of cancer often consult their primary care (PC) physicians⁴ as the first step to distinguish suspected symptoms of malignancy from those not suggestive of cancer. To provide a coordinated, efficient and affordable solution to this issue and to improve communication between primary and specialized medicine, a cancer fast-track programme (CFP) was launched in our healthcare area (Clinico-Malvarrosa Health Department) in 2009. This programme was designed to promote cooperation between PC and different hospital specialists and thus shorten waiting times between recognition of cancer-related symptoms to diagnosis and initiation of appropriate therapy.⁵ Data published over the 10 years of this program show that patients consulting their general practitioners (GPs) with suspected cancer are evaluated by the corresponding specialist in less than 15 days, with a median of 3 days to histopathological diagnosis and 34 days to treatment initiation from their first appointment at the GP.⁶

The coronavirus disease 2019 (COVID-19) pandemic was first documented in Spain on January 31st, 2020. On March 14th, the Spanish Government decreed a nationwide state of emergency and approved the population lockdown. On March 28th, all non-essential face-to-face work activities were avoided for 15 days. In Spain, up to six waves have been

declared to date and it has been estimated more than 100 000 deaths due to the COVID-19 pandemic (www.lamoncloa.gob.es). In PC centres, patients were attended by phone during the pandemic, and only emergency cases were evaluated by face-to-face visits. In hospitals, face-to-face appointments to outpatient clinics were restricted to patients with suspected oncological conditions to avoid delayed diagnoses; the remaining consultations were carried out by phone. Therefore, CFP could be the perfect tool for maintaining optimal diagnosis flow.

The present study was carried out to evaluate any pandemic-related changes occurring between March 16th, 2020 to March 15th, 2021 in the number of referrals sent from PC to the CFP, waiting times for hospital specialist assessment or time to cancer diagnosis.

Materials and Methods

The program was launched in June 2009 in the Clinical-Malvarrosa Health Department of Valencia (CMH), an area covering 33 primary care centres serving a population of around 345 026.⁷ The main objective of the CFP was to reduce waiting times between patient consultation with suspected neoplasia and assessment by the corresponding specialist. To speed up cancer diagnosis and treatment initiation in this setting, suspected cancer guidelines were initially developed for GP use for referring patients with suspected breast, colorectal, cervical, lung, bladder or otorhinolaryngological cancer. In order to assess lymph nodes and constitutional syndrome, additional areas were incorporated into the program. The initial goal of the CFP was that all patients included in this workflow had to be assessed by a specialist in less than 15 days.

We performed an observational, ecological descriptive study. We assessed how the CFP was performed during the worst year of the COVID-19 pandemic (March 2020 to March 2021) and compared with data from previous year (from March 2019 to March 2020). We also assessed if patients with suspicious cancer symptoms that were included in the CFP were evaluated by corresponding specialists within 15 days. We also investigated if PC phone appointments had led to an

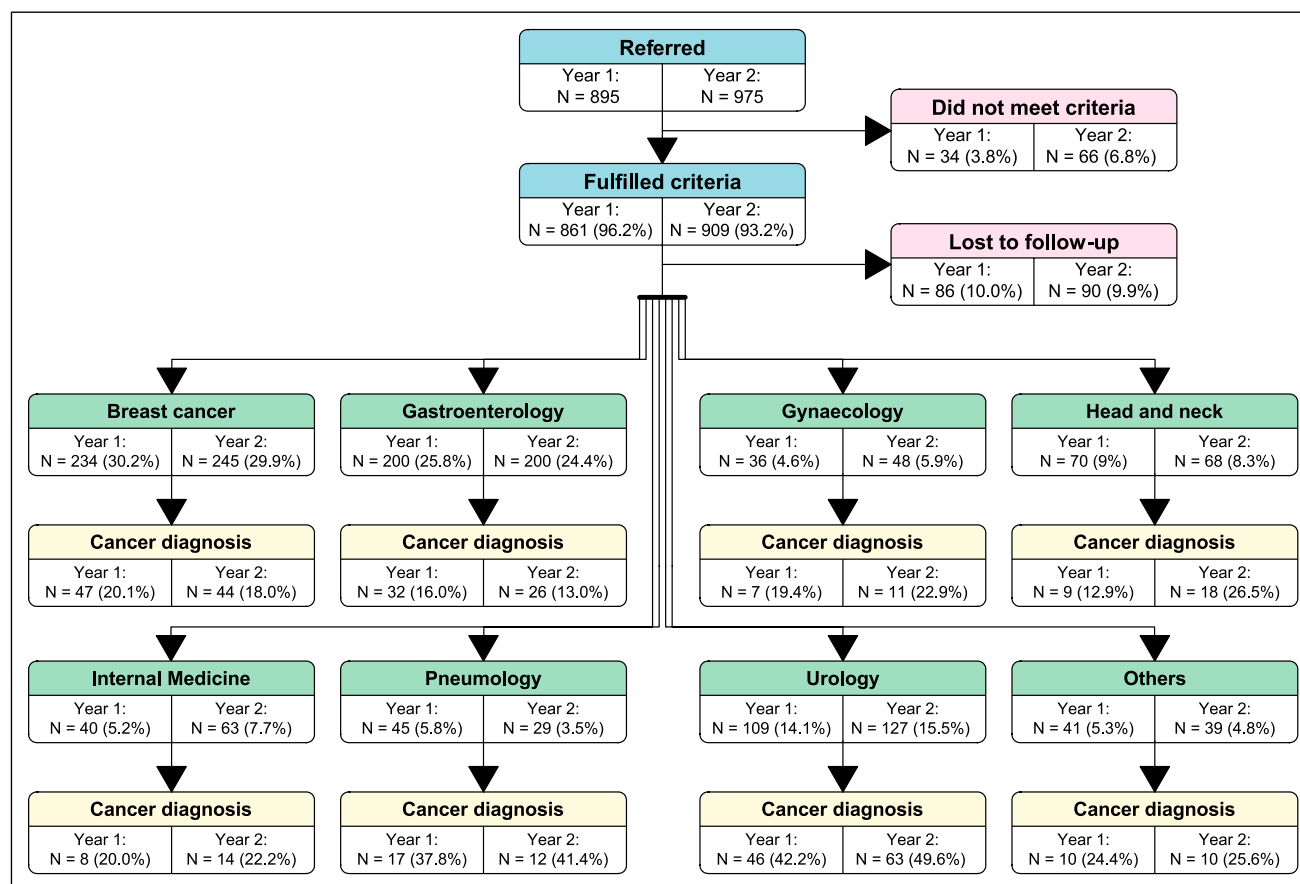


Figure 1. Consort diagram showing all referrals to different specialist units during year 1 and 2. Year 1: From March 16th, 2019 to March 15th, 2020. Year 2: From March 16th, 2020 to March 15th, 2021.

increase in CFP patient referrals with less well-founded oncological symptoms suspicion. Data was collected for this purpose from all patients referred by GPs with suspected cancer from March 2019 to March 2021. The variables studied were: referral date, first specialist evaluation date, diagnosis date, type of cancer diagnosed, treatment initiation date and tumour stage at diagnosis. This study was approved by the clinical research and ethics committee of University of Valencia, Spain (approval number 2020/312) with waiver of the informed consent.

All data were registered in a Microsoft Access database to facilitate subsequent evaluation and comparison between the 2 study years. Statistical analysis was performed using R software, including chi-square and Wilcoxon tests.

Results

We compared data between the year before the COVID-19 outbreak, from March 16th, 2019 to March 15th, 2020 (year 1) and the first pandemic year, from March 16th 2020 to March 15th, 2021 (year 2).

A total of 895 and 975 patients with suspected cancer were referred through the CFP by their GP during years 1 and 2, respectively.

During year 2, 66 referrals (6.8%) failed to meet acceptance criteria, compared with 34 (3.8%) during the previous year ($P < .05$). A similar percentage of referrals were lost to follow-up across the 2 cohorts: 86 (10%) in year 1 and 90 (9.9%) in year 2.

During year 2, 198 patients (24.1% of all specialist-studied referrals) were diagnosed with cancer, compared to 176 patients (22.7%) during year 1 ($P = .53$). Figure 1 shows all referrals sent to each speciality during years 1 and 2.

Among all referral types, urogenital carcinoma was the most frequently diagnosed cancer during both the pandemic (65 patients, 32.8%) and pre-pandemic year (28.4%) ($P = .42$). During the COVID-19 year, 6 patients were diagnosed at advanced stage (all prostate cancer), vs 7 patients (4 prostate, 2 bladder and 1 renal cancer) during year 1 ($P = .6$).

Breast cancer (BC) was confirmed in 45 patients (22.7%) during year 2, a similar ratio to the year before (25.5%) ($P = .6$). In total, 27 patients (60%) had localized BC, 15 (33.3%) had locally advanced disease and 3 advanced disease, showing similar figures to the pre-pandemic year. During the COVID-19 pandemic outbreak year, 25 patients (55.5%) diagnosed in our department fell outside the mammography screening

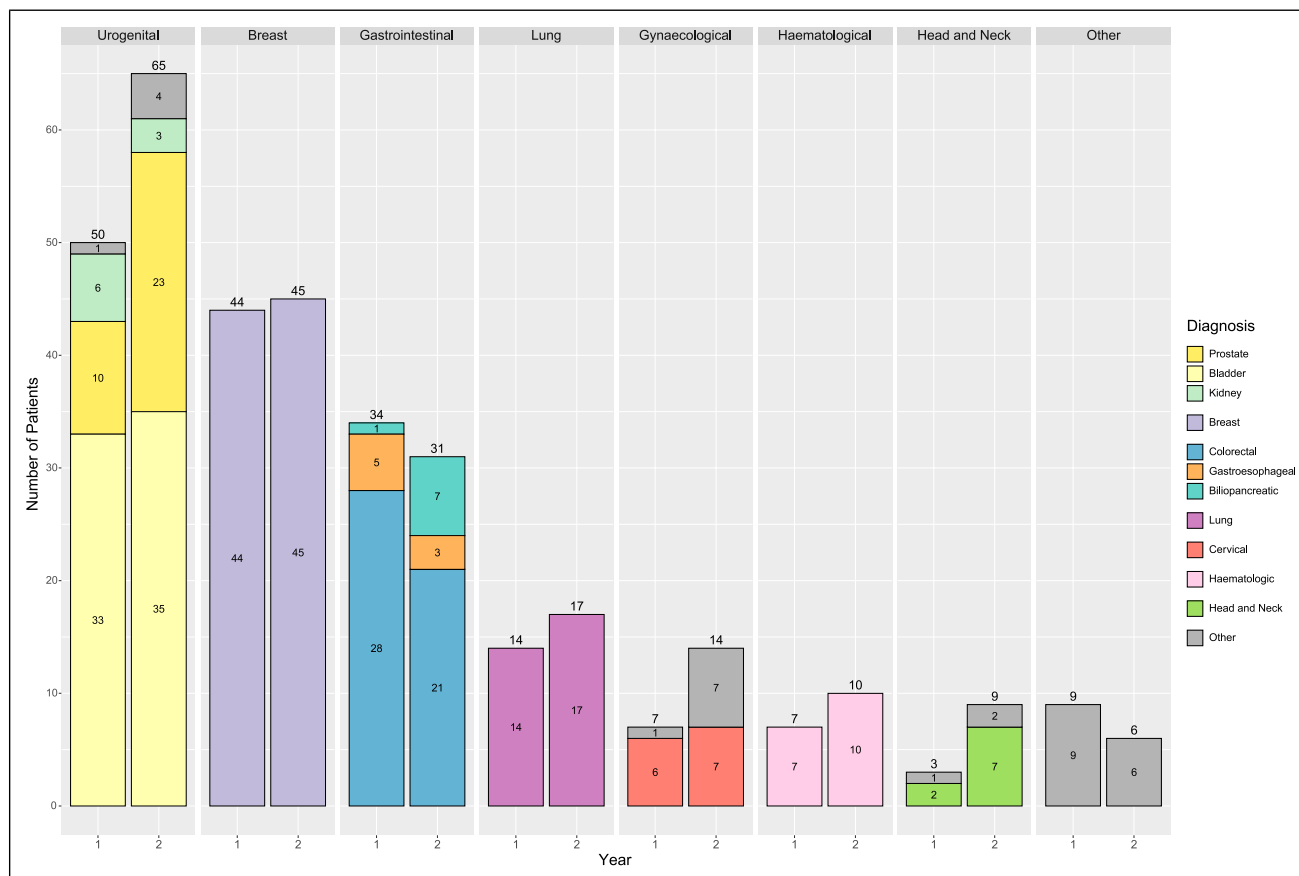


Figure 2. Diagnoses by speciality among all studied patients during years 1 and 2. Year 1: From March 16th, 2019 to March 15th, 2020. Year 2: From March 16th, 2020 to March 15th, 2021. The others group includes haematology, dermatology, traumatology and other diagnoses from the above pathologies. CIS: carcinoma in situ; H&N SCC: head and neck squamous cell carcinoma.

target age group (45-69 years), the same proportion of patients as the preceding year.

Gastrointestinal tumours were found in 31 patients (15.6%) during year 2, with 21 (67.7%) cases of colorectal carcinoma (CRC): 11 (52.3%) were localized and 4 (19%) advanced carcinoma. During year 1, 39 patients (22.1%) were diagnosed with gastrointestinal tumours (27 colorectal), a nonsignificant higher rate than in the COVID-19 year ($P = .18$). During year 2, 17 patients (80%) were diagnosed outside the CRC screening programme age range (50-69 years), whereas 60% of all patients were diagnosed outside the screening programme during year 1. [Figures S1 and S2](#) show differences between year 1 and 2 regarding diagnosis in ages included in early cancer detection programs (breast and colorectal cancer). There are no significant differences between the 2 years in age of diagnosis of breast carcinoma and colorectal cancer, despite the cessation of activity of the Screening Units ($P = .97$ and $P = .65$, respectively) [March 16th to June 1st 2020] ([Supplementary material annex 1 and 2](#)).

Lung cancer was diagnosed in 12 (9%) and 17 (8.5%) patients in year 2 and 1, respectively. During year 2, 6 patients (35.2%) were diagnosed at a localized stage, whereas 5

(29.4%) had a locally advanced disease and 6 (35.2%) had advanced disease, compared with the 9 patients (75%) diagnosed at an advanced stage in year 1 ($P = .39$).

Head and neck malignancy was confirmed in 9 cases (4.5%), of which 6 (66.6%) were diagnosed with locally advanced squamous cell carcinoma during the COVID-19 year, compared to 3 patients (1.7%) diagnosed during year 1 ($P = .21$).

Gynaecologic cancer was confirmed in 14 (7%) patients in year 2 and 7 (3.9%) in year 1, of which 85% and 50% were cervical in situ carcinoma, respectively. Haematological malignancies were diagnosed in 10 and 7 patients during year 2 and 1 respectively.

[Figure 2](#) shows all cancer diagnoses during the pandemic and pre-pandemic year. [Figure 3](#) shows the number of suspected cancer patient referrals by month and the difference between the 2 years under study, and [Figure 4](#) shows referrals by age group.

During the COVID-19 year, the median time from submission of referrals to specialist testing was 13 days (8-22 days; quartiles 1 and 3 [q1q3]), a similar interval to the previous year (12 days, 7-24 days, q1q3) ($P = .21$).

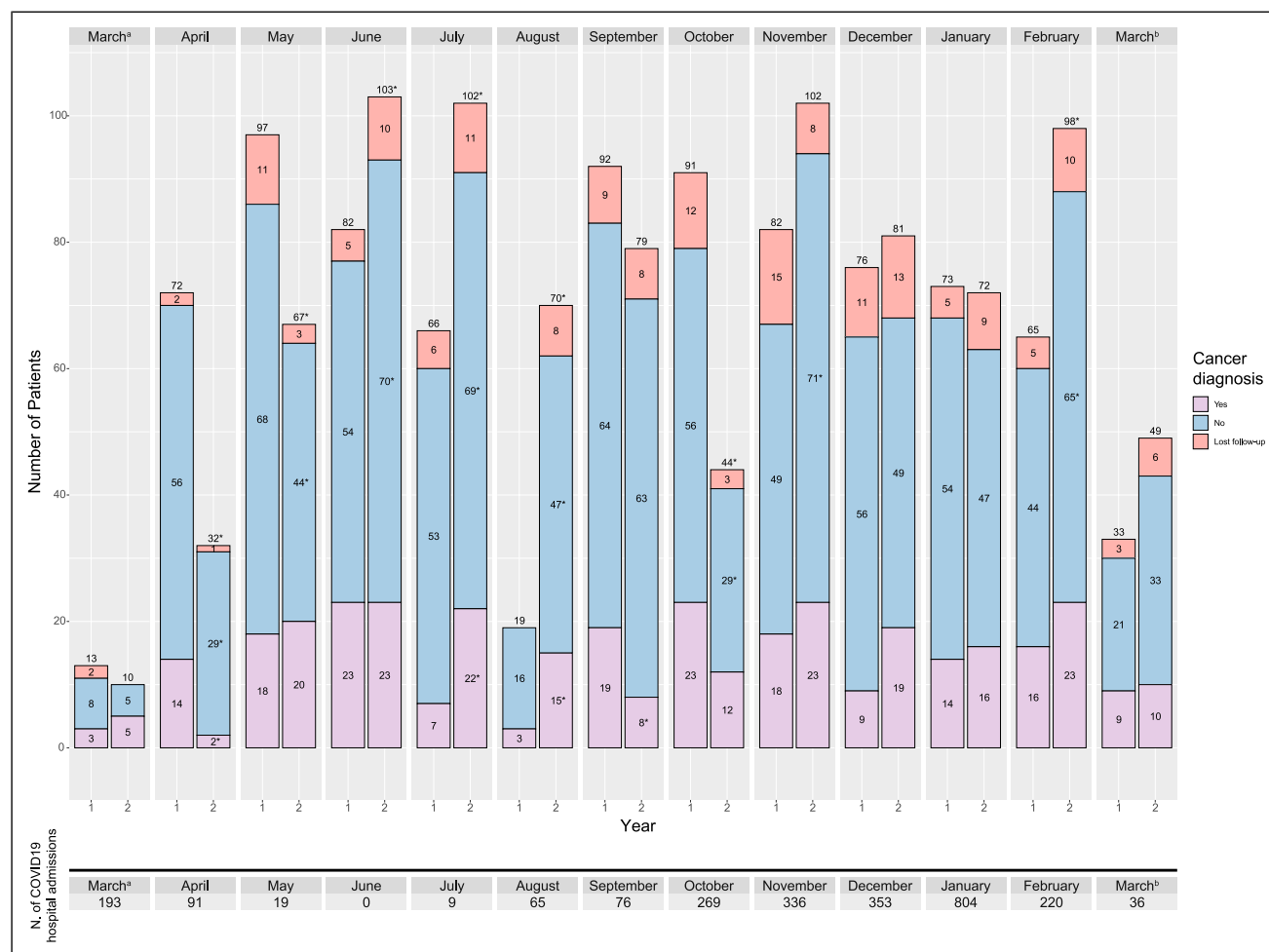


Figure 3. Referrals by month between year 1 and 2; COVID-19 admissions in our institution between every month during year 2. *: Indicates significant differences between years 1 and 2. Year 1: From March 16th, 2019 to March 15th, 2020. Year 2: From March 16th, 2020 to March 15th, 2021.

Turnaround time from referral to diagnosis was a median of 18 days (10-30 days; q1q3) and 15 days (8-33 days; q1q3) during years 2 and 1 respectively ($P = .09$). Patients ultimately receiving a cancer diagnosis during year 2 received specialist assessment at a median of 10 days (6-18 days; q1q3), and histopathological diagnosis was made at a median of 17 days (10-28 days; q1q3) from referral. Treatment (surgery or chemotherapy) was started at a median of 30 days (13-51 days; q1q3) from diagnosis. During year 1, patients were assessed by the specialist at a median of 10 days (6-16 days; q1q3) and histopathological diagnosis was achieved at a median of 14 days (9-30 days; q1q3) from submission. Treatment (surgery or systemic treatment) was started at a median of 35 days (16-57 days; q1q3) from diagnosis. Therefore, there are no significant differences between both years ($P = .94$, $P = .39$, $P = .10$ respectively).

In patients in whom cancer diagnosis was ultimately ruled out, the median time from referral to first appointment was similar in years 2 and 1: 14 days (8-25 days; q1q3) and 12 days

(7-24 days; q1q3), respectively ($P = .2$); and rule-out diagnosis was reached at a median of 18 days (11-30.5 days; q1q3) and 15 days (8-33 days; q1q3) from referral during year 2 and 1 respectively ($P = .21$).

Table 1 shows waiting times from PC referral by speciality in patients with a confirmed oncological diagnosis.

Discussion

In the Spanish health care system (GPs and specialists), cancer patient access to oncology departments is via different pathways such as screening programmes, emergency presentation and GP referrals. Spanish cancer detection programs are available for the whole Spanish population and include colorectal cancer detection by faecal occult blood test from age 50 and breast cancer detection with mammography from 45 to 50 years old onwards. Patients with suspected cancer symptoms are usually referred by their GPs for specialist consultation, a process taking several weeks before the CFP

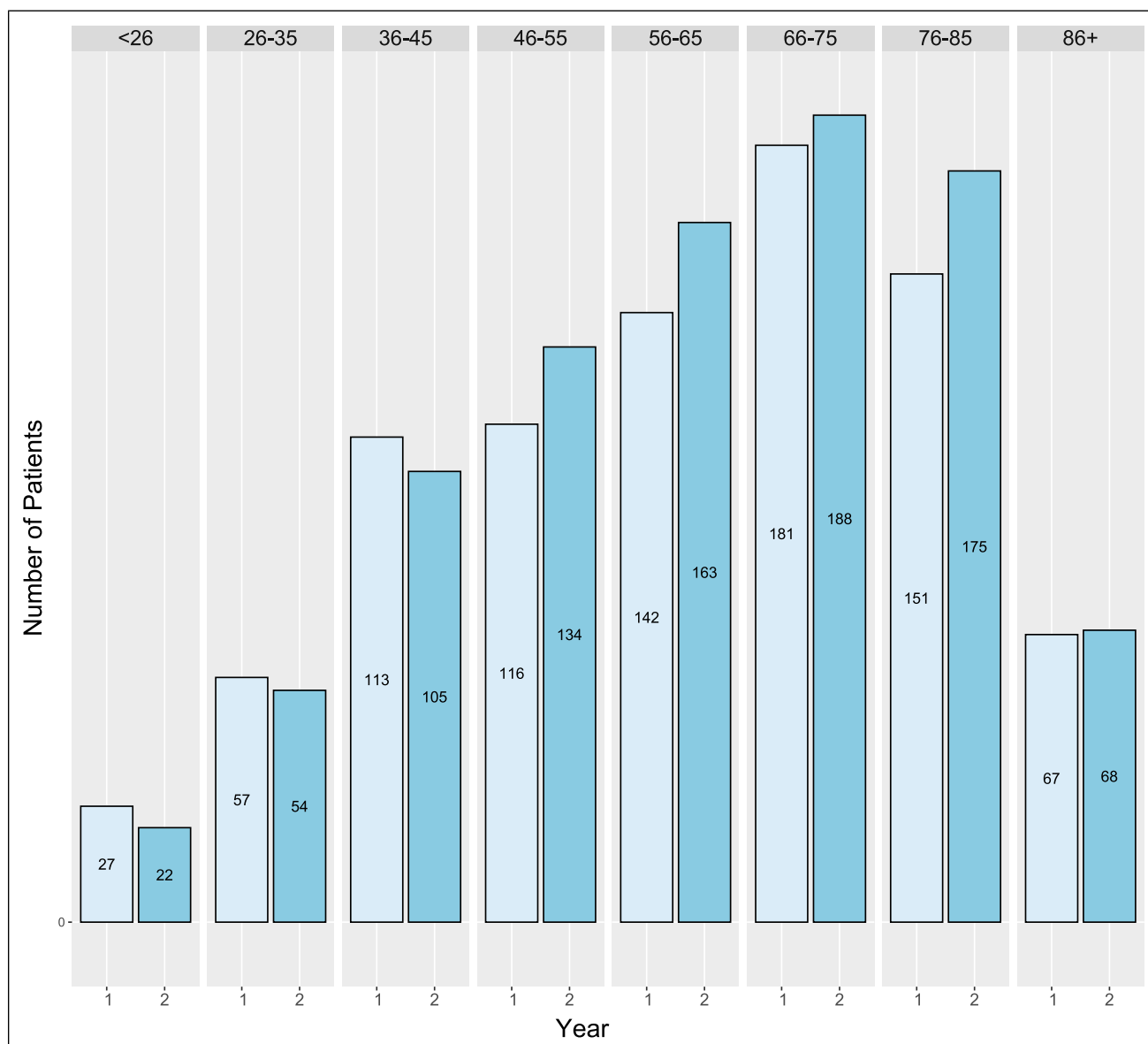


Figure 4. Referrals by age range across year 1 and 2. There are no statistically significant changes between groups of age. Year 1: From March 16th, 2019 to March 15th, 2020. Year 2: From March 16th, 2020 to March 15th, 2021.

was created. In CMH in Valencia, a CFP was set up in 2009 aimed at reducing waiting times between patient GP consultation with suspected cancer and assessment by the corresponding specialist, as well as improving GP–specialist communication. During 10 years under the CFP, 4493 patients with suspected cancer were referred from primary care and most were evaluated by the hospital specialist within 15 days.⁶ As well as shortening time to cancer diagnosis, the CFP also reduces anxiety in patients with suspected disease and improves quality of care by enhancing primary–specialized care coordination. The objective of this retrospective study was to investigate the impact of the COVID-19 pandemic on cancer diagnostics in general and specialized practices in a region of

Valencia (Spain), as well as to determine whether cancer diagnosis was made in early or advanced stages.

The three initial official waves in Spain since the declared state of emergency are the second nights of March–June 2020, October–December 2020 and January–March 2021. Subsequently, there were three more waves of infections, but with less consequences on the functioning of healthcare system. The COVID-19 pandemic is estimated to have caused more than 100 000 deaths in Spain so far, over 51 000 confirmed by Polymerase chain reaction (PCR). The Spanish Government decreed a nationwide state of emergency on March 14th 2020; a population lockdown started after that, restricting free movement to essential activities such as purchase of food and

Table 1. Median Waiting Times From Patient Referral to First Specialist Visit, Diagnosis and Treatment Initiation (Patients Diagnosed With Oncological Disease Only), in Year 1 (From March 16th, 2019 to March 15th, 2020) and Year 2 (from March 16th, 2020 to March 15th, 2021).

Patients with cancer	From PC to specialist (days), median (quartile I – quartile 3)		From PC to cancer diagnosis, median (quartile I – quartile 3)		From cancer diagnosis to treatment, median (quartile I – quartile 3)	
	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2
All specialities	10 (6-16)	10 (6-18) < >P< > = .94	14 (9-30)	17 (10-28) < >P< > = .39	35 (16-57)	30 (13-50) < >P< > = .10
Breast cancer unit	10 (6-12)	10.5 (7-14)	11 (7-13)	13 (9-17)	29 (20-43)	24 (16-46)
Gastroenterology	20.5 (11-33)	11.5 (5-19)	24 (12-35)	19 (8-24)	35 (8-54.5)	27 (17-52)
Gynaecology	19.5 (12-26)	18 (13-23)	26.5 (14-50)	26 (15-32)	74 (41-99)	53.5 (36-72)
Internal medicine	10 (6-22)	6.5 (3-15)	18 (9-31)	21 (10-29)	14.5 (6-30)	13.5 (8-20)
Pneumology	6 (5-8)	4 (3-5)	15 (13-26)	16 (10-23)	35 (16-55)	30 (10-36)
Head and neck unit	6 (2-8)	7.5 (4-11)	13 (8-28)	12 (6-16)	28 (16-48)	46 (36-56)
Urology	13 (8-21)	13.5 (9-21)	22 (10-41)	29.5 (15-53)	51 (40-81)	35 (12-63)
Other specialities	5 (3-7)	3.5 (1-8)	13 (6-34)	10.5 (13-15)	13 (0-32)	12.5 (6-20)

The other specialities group includes haematology, dermatology and traumatology.

medicine products or travel to and from medical centres or the workplace. On March 28th 2020, all non-essential face-to-face work activity was suspended for 15 days (www.lamoncloa.gob.es). The risk of disease spread within crowded hospitals led the American Society of Clinical Oncology (ASCO) to recommend deferring all clinical appointments that could be postponed without risk to the patient.^{8,9} To reduce the risk of the health system overload observed in other countries,^{10,11} the Spanish government and the different autonomous communities took drastic measures from March 2020. These included postponing non-urgent clinical appointments, substituting face-to-face visits for phone appointments in both primary care centres and hospitals, cancelling non-urgent surgeries, increasing intensive care unit capacity and restricting social contact with a national lockdown.¹² The COVID-19 pandemic also affected therapeutic compliance, as fear of COVID-19 infection delayed diagnostic and therapeutic procedures; screening programmes for breast, colorectal and cervical cancers were also suspended.¹³ Numerous authors found a reduction in cancer diagnoses of up to 45% in 2020 owing to the above factors.¹⁴ Although effective in reducing the number of new COVID-19 infections,¹⁵ these measures may also have had a detrimental knock-on effect on diagnosis of other medical pathologies such as cardiac,¹⁶ neurological,¹⁷ and oncological disease.¹⁸⁻²⁴ Multiple studies have shown that cancer incidence decreased during the state of emergency in several countries, especially in cancers reliant on screening, due to closure of screening units.^{9,14,25-33} Early diagnosis is crucial to achieve curative treatment in cancer, so delays in cancer diagnosis due to the COVID-19 pandemic could trigger a rise in disease-related mortality.³⁴

We also compared referral and diagnosis numbers by month during the past year, as the incidence of COVID-19 varied across the different pandemic waves. Our hospital has 582 beds available, and the months showing the highest number of hospital admissions due to COVID-19 disease were March 2020 ($n = 193$ admitted), October–December 2020 (average of 300 monthly admissions) and January 2021, with 804 patients requiring hospital admission. No effects on CFP performance or quality were observed, as reflected in the accompanying figures and [Table 1](#). As shown in [Figure 3](#), far fewer referrals were made during April and May 2020 than in the year before, coinciding with the first wave and lockdown (72 vs 32 referrals in April 2019 and 2020, respectively; 97 vs 67 in May 2019 and 2020, respectively). Interestingly, during June, July and August 2020 the number of cancer referrals and diagnoses increased considerably compared to 2019 (54, 53 and 16 diagnosed cases for year 1; 70, 69 and 47 for year 2), possibly offsetting the paucity of referrals during the previous months. The number of patients allocated to the CFP fell again at the beginning of the second wave (91 vs 44 in years 1 and 2, respectively), but recovered during November, December and January, even increasing during the third wave (February 2021), the largest and most complicated wave in our department. Nevertheless, the percentage of positive cases

during this time period remained almost identical (21.7% vs 22.9% for year 1 and 2, respectively). During the year under study, non-urgent surgeries and scheduled appointments were suspended in our health department, but patients referred via the CFP continued to be assessed, diagnosed and if necessary treated for oncological disease. A key finding was that lung neoplasms were detected in earlier stages, inviting hypotheses as to the role of the COVID-19 pandemic in diagnosis of this cancer. One possible explanation is that patients in this collective attributed respiratory symptoms including persistent cough to COVID-19, and consulted their GP more promptly than populations in previous years. Notwithstanding with these findings, differences were not statistically significant. For GPs, the COVID-19 pandemic has brought changes in medical practice, ushering in the first steps towards digital care such as increased use of telephone consultations and fewer face-to-face appointments. The findings of the study and in particular the proportion of cancer diagnoses (24%) demonstrate that clinical intuition has not been lost. Patients with well-known warning symptoms such as breast lump or rectal bleeding are also likely to continue to seek primary care. With COVID-19 at the forefront, however, patients might overlook vague cancer symptoms such as fatigue or weight loss, while conversely, respiratory symptoms possibly attributed to COVID-19 could prompt them towards earlier consultation.

This study shows that although PC has often been obscured by the COVID-19 pandemic, symptoms suggestive of cancer are still present and alert doctors to use the CFP. Likewise, we have shown that despite the serious situation in hospitals, care for suspected cancer patients is still a priority and cancer diagnosis and treatment have not been delayed across the past year. The CFP was maintained during the COVID-19 pandemic thanks to the extensive efforts of PC and hospital specialists. Our program has certain limitations which must be considered, such as the fact that our referral guidelines are not standardized but rather based on clinical practice and medical literature. Nonetheless, the CFP has remained a useful diagnostic tool for patients with suspected cancer in the face of the adverse health situation caused by SARS-CoV-2 coronavirus. The indirect conclusions of our findings are that telephone contact has been correctly used in PC, since emergencies were attended in person, and telephone consultations deemed urgent were also dealt with face-to-face. Longitudinally in PC and GP knowledge of patients has enabled an efficient use of telephone contact to arrange second face-to-face appointments to confirm suspicions and thus make timely referrals to the CFP. The CFP has continued to function as a form of rapid contact between different care levels for patients with suspected cancer, and both diagnostic and therapeutic in-hospital care has been maintained, with similar waiting times despite the COVID-19 pandemic. This study also has several important implications and strengths: firstly, we found that patients benefitted from the close relationship between PC and hospital specialists

maintained by the CFP, notwithstanding the COVID-19-related health crisis; and secondly, ours is one of the few studies which showed a reduction in diagnostic waiting times for patients with suspected cancer during the COVID-19 pandemic.

Conclusion

The COVID-19 pandemic has forced doctors to make changes to patient care protocols, and many delayed diagnoses of serious diseases have occurred during this period.

Our program has proven a reliable tool for GPs referring patients with suspected cancer, helping to maintain a normal, efficient workflow despite the current pandemic.

Appendix

Abbreviations

BC	Breast cancer
CFP	Cancer fast-track programme
CMH	Clinico-Malvarrosa Health Department
CRC	Colorectal cancer
COVID-19	pandemic
GP	General practitioner
PC	Primary care
PCR	Polymerase chain reaction
ASCO	American School of Clinical Oncology

Acknowledgments

We would like to thank all patients and GPs.

Author Contributions

AC, IC, JN, and AS conceived the study and created CF. IC and MM supervised the study, coordinate, and design all aspects of the work. BO, SS, JM, and SM contributed data collection and computational analysis. IC, MM, AJ, EB, AP, JF, JM, MF, AT, AS, AV, AC, AI, BB, DS, and SR contributed clinical patient data. MM, IC, and AC wrote the manuscript. All authors reviewed, read and approved the final manuscript.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethics Statement

This study was approved by the clinical research and ethics committee of University of Valencia, Spain (approval number 2020/312) with waiver of the informed consent.

ORCID iDs

S. Moragon  <https://orcid.org/0000-0001-6490-6977>

E. Buch  <https://orcid.org/0000-0001-7800-9935>

Supplemental Material

Supplemental material for this article is available online.

References

1. Sung H, Ferlay J, Siegel RL, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA A Cancer J Clin*. 2021;2021: 1-41.
2. Huebner J, Follmann M. Complementary medicine in guidelines of the German guideline program in oncology: Comparison of the evidence base between complementary and conventional therapy. *J Cancer Res Clin Oncol*. 2013;139(9):1481-1488.
3. Morris EJ, Whitehouse LE, Farrell T, et al. A retrospective observational study examining the characteristics and outcomes of tumours diagnosed within and without of the English NHS Bowel Cancer Screening Programme. *Br J Cancer*. 2012; 107(5):757-764.
4. Allgar VL, Neal RD. General practitioners' management of cancer in England: secondary analysis of data from the National Survey of NHS Patients-Cancer. *Eur J Cancer Care*. 2005; 14(5):409-416.
5. Martínez MT, González I, Tarazona N, et al. Implementation and assessment of a fast-track programme to improve communication between primary and specialized care in patients with suspected cancer: how to shorten time between initial symptoms of cancer, diagnosis and initiation of treatment. *Clin Transl Oncol*. 2015;17(2):167-172.
6. Martínez MT, Montón-Bueno J, Simon S, et al. Ten-year assessment of a cancer fast-track programme to connect primary care with oncology: reducing time from initial symptoms to diagnosis and treatment initiation. *ESMO Open*. 2021;6(3): 100148.
7. <http://clinicomalvarrosa.san.gva.es/memorias-departamento>
8. American Society of Clinical Oncology. Patient care information. <https://www.asco.org/asco-coronavirus-information/care-individuals-cancer-during-covid-19> (Accessed May 20, 2020).
9. Harper CA, Satchell LP, Fido D, Lutzman RD. Functional fear predicts public health compliance in the COVID-19 pandemic. *Int J Ment Health Addiction*. 2021;19(5):1875-1888.
10. Armocida B, Formenti B, Ussai S, Palestra F, Missoni E. The Italian health system and the COVID-19 challenge. *Lancet Public Health*. 2020;5:e253.
11. Verelst F, Kuylen E, Beutels P. Indications for healthcare surge capacity in European countries facing an exponential increase in coronavirus disease (COVID-19) cases, March 2020. *Euro Surveill*. 2020;25:2000323.
12. Real Decreto 463/2020, de 14 de marzo. <https://www.boe.es/eli/es/rd/2020/03/14/463>
13. De Vincentiis L, Carr RA, Mariani MP, Ferrara G. Cancer diagnostic rates during the 2020 'lockdown,' due to COVID-19

- pandemic, compared with the 2018-2019: an audit study from cellular pathology. *J Clin Pathol.* 2021;74(3):187-189.
14. Ferrara G, De Vincentiis L, Ambrosini-Spaltro A, et al. Cancer diagnostic delay in northern and central Italy during the 2020 lockdown due to the coronavirus disease 2019 pandemic. *Am J Clin Pathol.* 2021;155(1):64-68.
 15. Alfano V, Ercolano S. The efficacy of lockdown against COVID-19: A cross-country panel analysis. *Appl Health Econ Health Pol.* 2020;18:509-517.
 16. Colivicchi F, Di Fusco SA, Magnanti M, Cipriani M, Imperoli G. The impact of the coronavirus disease-2019 pandemic and Italian Lockdown measures on clinical presentation and management of acute heart failure. *J Card Fail.* 2020;26:464-465.
 17. Siegler JE, Heslin ME, Thau L, Smith A, Jovin TG. Falling stroke rates during COVID-19 pandemic at a comprehensive stroke center. *J Stroke Cerebrovasc Dis.* 2020;29:104953.
 18. Amador M, Matias-Guiu X, Sancho-Pardo G, et al. Impact of the COVID-19 pandemic on the care of cancer patients in Spain. *ESMO Open.* 2021;6(3):100157.
 19. Castelo-Branco L, Awada A, Pentheroudakis G, et al. Beyond the lessons learned from the COVID-19 pandemic: opportunities to optimize clinical trial implementation in oncology. *ESMO Open.* 2021;6(5):100237.
 20. Petrova D, Pérez-Gómez B, Pollán M, Sánchez MJ. Implicaciones de la pandemia por COVID-19 sobre el cáncer en España [Implications of the COVID-19 pandemic for cancer in Spain]. *Med Clin.* 2020;155(6):263-266.
 21. Vose JM. Delay in cancer screening and diagnosis during the COVID-19 pandemic: What is the cost? *Oncology.* 2020;34(9):343.
 22. Patt D, Gordan L, Diaz M, et al. Impact of COVID-19 on cancer care: How the pandemic is delaying cancer diagnosis and treatment for American seniors. *JCO Clin Cancer Inform.* 2020; 4:1059-1071.
 23. COVIDSurg Collaborative. Effect of COVID-19 pandemic lockdowns on planned cancer surgery for 15 tumour types in 61 countries: an international, prospective, cohort study. *Lancet Oncol.* 2021;22(11):1507-1517.
 24. Santoro GA, Grossi U, Murad-Regadas S, et al. Delayed COLOrectal cancer care during COVID-19 Pandemic (DECOR-19): Global perspective from an international survey. *Surgery.* 2021;169(4):796-807.
 25. Dinmohamed AG, Visser O, Verhoeven RHA, et al. Fewer cancer diagnoses during the COVID-19 epidemic in the Netherlands. *Lancet Oncol.* 2020;21:750-751.
 26. Earnshaw CH, Hunter HJA, McMullen E, Griffiths CEM, Warren RB. Reduction in skin cancer diagnosis, and overall cancer referrals, during the COVID-19 pandemic. *Br J Dermatol.* 2020;183:792-794.
 27. Kaufman HW, Chen Z, Niles J, Fesko Y. Changes in the number of US patients with newly identified cancer before and during the coronavirus disease 2019 (COVID-19) pandemic. *JAMA Netw Open* 2020;3:e2017267.
 28. Langabeer SE. Reduction in molecular diagnostics of myeloproliferative neoplasms during the COVID-19 pandemic. *Ir J Med Sci* 2020;2020:1-2.
 29. Mahase E. Covid-19: Urgent cancer referrals fall by 60%, showing “brutal” impact of pandemic. *BMJ* 2020;369:m2386.
 30. Rutter MD, Brookes M, Lee TJ, Rogers P, Sharp L. Impact of the COVID-19 pandemic on UK endoscopic activity and cancer detection: A National Endoscopy Database Analysis. *Gut* 2020.
 31. Zadnik V, Mihor A, Tomsic S, et al. Impact of COVID-19 on cancer diagnosis and management in Slovenia—preliminary results. *Radiol Oncol.* 2020;54:329-334.
 32. Jacob L, Loosen SH, Kalder M, et al. Impact of the COVID-19 pandemic on cancer diagnoses in general and specialized practices in Germany. *Cancers.* 2021;13(3):408.
 33. Walker MJ, Meggetto O, Gao J, et al. Measuring the impact of the COVID-19 pandemic on organized cancer screening and diagnostic follow-up care in Ontario, Canada: A provincial, population-based study. *Prev Med.* 2021;151:106586.
 34. Maringe C, Spicer J, Morris M, et al. The impact of the COVID-19 pandemic on cancer deaths due to delays in diagnosis in England, UK: A national, population-based, modelling study. *Lancet Oncol.* 2020;21:1023-1034.