

Supplementary materials

Figure S1: Location of included studies.....	2
Figure S2. Funnel plot for subgroup metastatic vs non-metastatic analysis on breast cancer.....	3
Table S1. Study characteristics	4
Table S2. Study quality assessment ⁶⁰	20
Table S3: Synthesis of first national lockdowns and cancer screening disruptions	23
Appendix S1. Pubmed and EMBASE search equations	27
Appendix S2. Inclusion and exclusion criteria for article selection	34
Appendix S3. List of data elements we extracted from included articles	35
Appendix S4. Classification of primary cancer types.....	36

Figure S1: Location of included studies

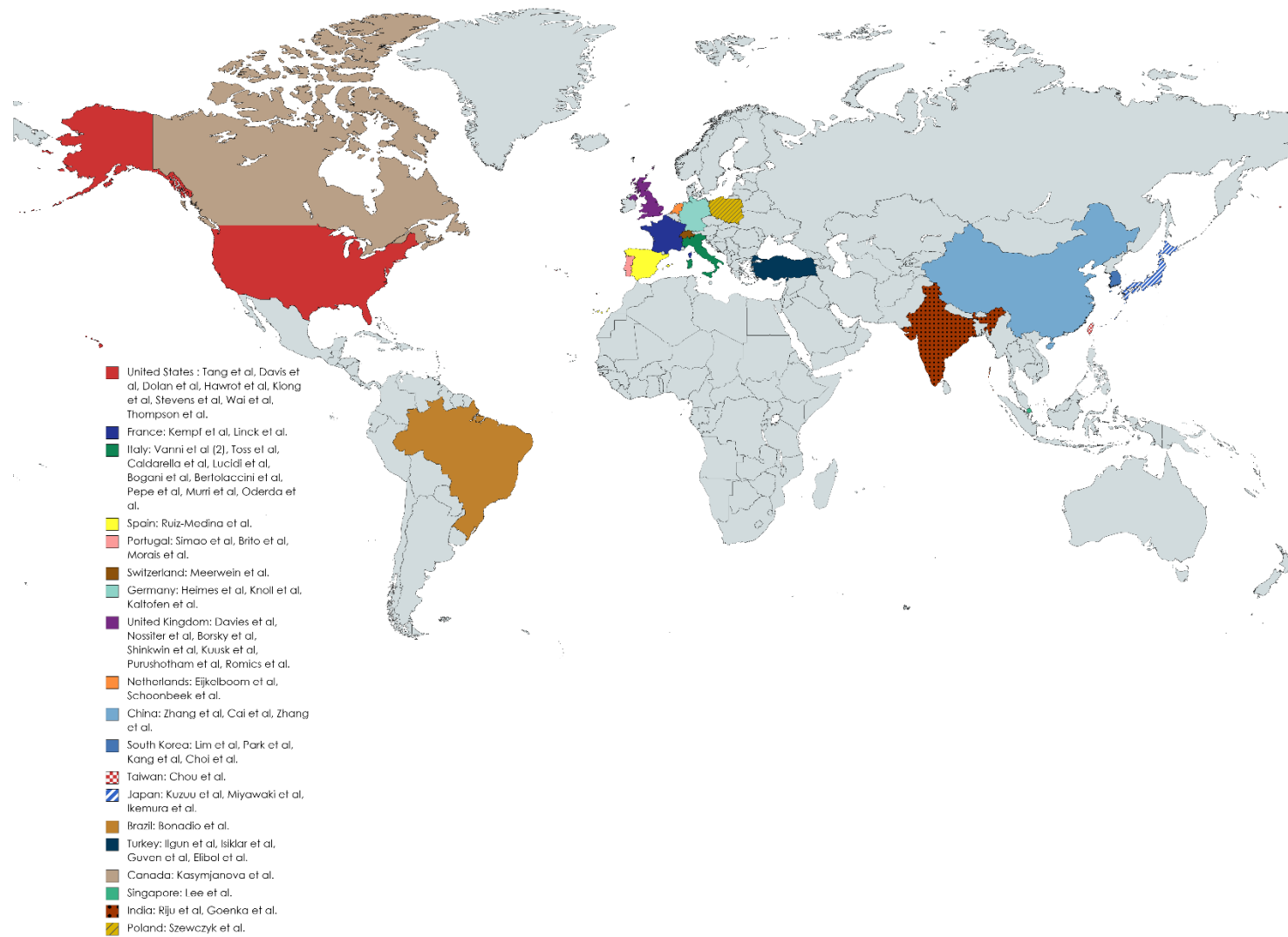


Figure S2. Funnel plot for subgroup metastatic vs non-metastatic analysis on breast cancer

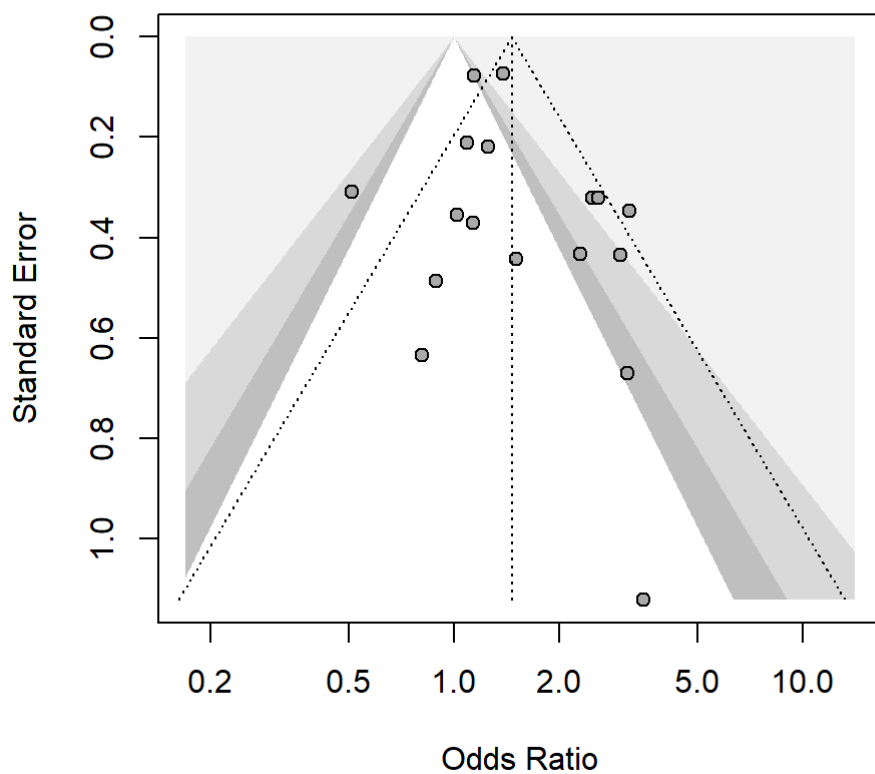


Table S1. Study characteristics

Title	Study pop.	Control pop.	Exposition	Staging
Changes in gynecologic and breast cancer diagnoses during the first wave of the COVID-19 pandemic: analysis from a tertiary academic gynecologic center in Germany ¹	patients diagnosed with gynecologic or breast cancer between January and June 2020 N= 236	Same pop. in 2019 N= 261	COVID 19	TNM
The impact of COVID-19 pandemic on the rate of newly diagnosed gynecological and breast cancers: a tertiary center perspective ²	patients diagnosed with gynecological or breast cancer from March 2020 to April 2020 and November to December 2020 N= 371	Same periods in 2019 N= 240	COVID 19	TNM/ FIGO Stages
Has the COVID-19 Pandemic Caused Upshifting in Colorectal Cancer Stage? ³	patients diagnosed with colorectal cancer for the first time from January to June 2020. N= 715	Same period from 2017 to 2019 N= 2514	COVID 19	Stage
COVID-19 is Affecting the Presentation and Treatment of Melanoma Patients in the Northeastern United States ⁴	patients undergoing surgical management for a primary diagnosis of cutaneous melanoma from May 2020-December 2020 N= 313	Same pop. from August 2019 to March 2020 N= 375	COVID 19	Stage
Impact of the COVID-19 pandemic on breast and cervical cancer stage at diagnosis in Brazil ⁵	Patients with histologically confirmed breast or cervical carcinoma of any histologic type. from from 1 September 2020 to 31 January 2021 N= 312	Same pop. from from 1 September 2019 to 31 January 2020 N= 517	COVID 19	Stages

Title	Study pop.	Control pop.	Exposition	Staging
The impact of the COVID-19 pandemic on oncological disease extent at FDG PET/CT staging: the ONCOVIPET study ⁶	Only patients ≥18 years of age with a cancer diagnosis and FDG-avid tumours, who performed a whole-body PET/CT for staging purposes for Lung, Gynecologic, Gastrointestinal, lymphoma, breast, head and neck, myeloma, melanoma from June 1 to October 31, 2020. N=371	Same pop. from June 1 to October 31, 2019 N= 240	Covid 19	TNM
Gastrointestinal Cancer Stage at Diagnosis Before and During the COVID-19 Pandemic in Japan ⁷	Patients who were diagnosed with gastrointestinal cancer from March 2020 to December 2020 N=949	Same pop. from January 2017 to February 2020 N= 4218	COVID 19	Stages
Significant Decrease in Annual Cancer Diagnoses in Spain during the COVID-19 Pandemic: A Real-Data Study ⁸	All patients diagnosed between 13 March 2020 and 13 March 2021 for 24 cancer types (cf study) N= 2340	Same pop from between 13 March 2019 and 13 March 2020 N= 2825	COVID 19	Stages
Head and Neck Cancer During Covid-19 Pandemic: Was there a Diagnostic Delay? ⁹	Patients with newly diagnosed laryngeal, salivary, skin of the head and neck, nasal, paranasal, oral, pharyngeal and occult cancer from from March 1st, 2020 to October 15th, 2020. N= 125	Same pop. from from March 1st, 2019 to October 15th, 2019. N= 139	Covid 19	Stages
How Do Breast Cancer Patients Present Following COVID-19 Early Peak in a Breast Cancer Center in Turkey? ¹⁰	New patients diagnosed for breast cancer between May and June 2020 N= 36	Same pop. from May and June 2017-2019 N= 42	COVID 19	Notion of Early/ Advanced or Metastatic disease.

Title	Study pop.	Control pop.	Exposition	Staging
Impact of the COVID-19 pandemic on the diagnosis and treatment of men with prostate cancer ¹¹	all patients in England newly diagnosed with prostate cancer between between March, 23 and December, 31 2020 N= 15360	Same pop. during same period in 2019 N= 23715	COVID 19	Stage
Study of the gastrointestinal tumor progression during the COVID-19 epidemic in Wuhan ¹²	Patients with gastro intestinal tumor admitted in Wuhan Union Hospital from March To April 2020 N= 137	Same pop. in same period in 2019. N= 351	COVID 19	pTNM
Time to Treatment Initiation for Breast Cancer During the 2020 COVID-19 Pandemic ¹³	New histologic diagnosis of invasive breast cancer, ductal carcinoma in situ (DCIS), or lobular carcinoma in situ (LCIS) between January 1, 2020, and May 15, 2020 N= 162	Same pop. between 01/01/2018 and 15/05/2018 N= 198	COVID 19	Stage
Advanced Stages and Increased Need for Adjuvant Treatments in Breast Cancer Patients: The Effect of the One-year COVID-19 Pandemic ¹⁴	All patients with a diagnosis of breast cancer from February, 21, 2020 to February, 21 2021 N= 203	Same pop. from February, 21, 2019, to February, 20, 2020 N= 174	COVID 19	TNM
Impact of the first surge of the COVID-19 pandemic on a tertiary referral centre for kidney cancer ¹⁵	Patients underwent renal surgery, from 18 March 2020 until 30 September 2020. N= 104	Same pop. from April 2019 to March 2020 N= 247	COVID 19	cTNM/ pTNM
Prostate Cancer Diagnosis and Management During One Year of the COVID-19 Pandemic ¹⁶	Men with Pca between March 2020 and March 2021 N= 98	Same population between March 2019 and 2020 N= 187	COVID 19	ISUP

Title	Study pop.	Control pop.	Exposition	Staging
Digestive Oncology in the COVID-19 Pandemic Era ¹⁷	patients with an inaugural digestive cancer diagnosis from March to August 2020 N= 91	Same pop. same period In 2018 N= 128	COVID 19	Stage
The impact of national non-pharmaceutical interventions ('lockdowns') on the presentation of cancer patients ¹⁸	patients newly diagnosed with cancer in the South East London Cancer Alliance from April 2020 to September 2020. For lung, prostate, colorectal and breast cancer. N= 559	Same pop. from March 2020 to April 2020 N= 1038	COVID 19	Notions of Early and Late disease
Analysis of Early Impact of COVID-19 on Presentation and Management of Oral Cancers - an Experience from a Tertiary Care Hospital in South India ¹⁹	All patients primarily concerned with oral cancers and who underwent primary surgical management for oral cancers with a curative intend from April 2020 to June 2020 N= 26	Same pop. from April 2019 to March 2020 N= 192	COVID 19	Stage
Consequences of the COVID-19 Pandemic and Governmental Containment Policies on the Detection and Therapy of Oral Malignant Lesions-A Retrospective, Multicenter Cohort Study from Germany ²⁰	Patients with a histopathological confirmed diagnosis of oral cancer from March, 13, 2020- November 1 2020. N= 205	Same pop. in same periods in 2018 and 2019. N= 425	COVID 19	TNM

Title	Study pop.	Control pop.	Exposition	Staging
The impact of the COVID-19 pandemic on the short-term survival of patients with cancer in Northern Portugal ²¹	Cases of invasive tumors of the esophagus, skin melanoma, pancreas and prostate diagnosed between 2 March and 1 July 2020 N= 689	Same pop. in same period in 2019. N= 1264	COVID 19	Stage
Delay in Breast Cancer Treatments During the First COVID-19 Lockdown. A Multicentric Analysis of 432 Patients ²²	Patients with breast surgery from March 11, 2020 to May 30, 2020. N= 37	Same pop. in same period from March 11, 2019 to May 30, 2019 N= 46	COVID 19	TNM/ Grade
Impact of COVID-19 on presentation, staging, and treatment of head and neck mucosal squamous cell carcinoma ²³	new patients who presented to the head and neck surgical oncology clinic of Vanderbilt in Nashville from March to July 2020 N= 134	Same pop. in same period in 2019. N= 134	COVID 19	cTNM/ pTNM
The Impact of COVID-19 on the Diagnosis and Treatment of Lung Cancer at a Canadian Academic Center: A Retrospective Chart Review ²⁴	patient diagnosed with lung cancer between 1 March 2020 and 28 February 2021 N= 103	Same pop. between 1 March 2019 and 29 February 2020. N= 130	COVID 19	Notion of Early / Locoregional and Advanced disease
Reduction in healthcare services during the COVID-19 pandemic: Patient screening based on symptoms is an effective strategy for avoiding delayed laryngeal cancer diagnosis ²⁵	new histological diagnosis of laryngeal SCC from March 2020 to December 2020. N= 19	Same pop. from March 2019 to December 2019. N= 25	COVID 19	Stage

Title	Study pop.	Control pop.	Exposition	Staging
The "collateral damage" of the war on COVID-19: impact of the pandemic on the care of epithelial ovarian cancer ²⁶	Patient with EOC diagnosed and treated between 1st January 2020 and 31st December 2020. N= 39	Same pop. between 1st January 2019 and 30th September 2019. N= 43	COVID 19	Stage
Newly diagnosed cancer and the COVID-19 pandemic: tumour stage migration and higher early mortality ²⁷	newly referred patients with cancer from March to December 2020. Cancer: breast, CRC, NSCLC, melanoma, cervix. N= 383	Same pop. in same period in 2019. N= 539	COVID 19	Stage
Lung cancer stage distribution from before COVID-19 through 18 months of the pandemic: the experience of a large-volume oncological referral centre ²⁸	Patients with lung cancer analyzed by pathological staging review by a multidisciplinary tumour board from January to July 2020 and 2021 N= 255	Same pop. from January to July 2019. N= 122	COVID 19	Stage
COVID-19 pandemic impact on uro-oncological disease outcomes at an Italian tertiary referral center ²⁹	Patients treated for suspected or confirmed urologic cancer between January and December 2020. N= 186	Same pop. between January and December 2019. N= 207	COVID 19	cTNM
Impact of the Coronavirus Disease-2019 Pandemic on Pancreaticobiliary Disease Detection and Treatment ³⁰	Newly diagnosed pancreaticobiliary cancer from 7 April to 25 May 2020 AND 26 May to 31 July. N= 43	Same pop. from 1 April 2018 to 6 April 2020. N= 144	COVID 19	Stages

Title	Study pop.	Control pop.	Exposition	Staging
Impact of Coronavirus Disease 2019 on Clinical Characteristics in Patients With Lung Cancer: A Large Single-Centre Retrospective Study ³¹	patients with lung cancer in Mianyang Central Hospital from February to July 2020. N= 231	Same pop. from February to July 2019. N= 156	COVID 19	Stage
Thyroid surgery during coronavirus-19 pandemic phases I, II and III: lessons learned in China, South Korea, Iran and Italy ³²	Patients treated at the Division of Thyroid Surgery of the China-Japan Union Hospital of Jilin University from January 25 to April 20, 2020 N= 328	Same pop. from January 25 to April 20, 2019. N= 731	COVID 19	TNM
Pattern of breast cancer presentation during the COVID-19 pandemic: results from a cohort study in the UK ³³	all new breast cancer diagnoses from May to October 2020. N= 163	Same pop. from May to October 2019. N= 276	COVID 19	Stage
Head and neck surgery during the coronavirus-19 pandemic: The University of California San Francisco experience ³⁴	patients undergoing head and neck or reconstructive surgery between March 16, 2020 and April 16, 2020. N= 22	Same pop. between March 16, 2019 and April 16, 2019. N= 30	COVID 19	Stage
Delayed Breast Cancer Detection in an Asian Country (Taiwan) with Low COVID-19 Incidence ³⁵	All patients receiving a breast biopsy between January 21 and July 31, 2020. N= 115	Same pop Between January 21 and July 31, 2019. N= 128	COVID 19	Invasive VS Non Invasive
Two-month stop in mammographic screening significantly impacts on breast cancer stage at diagnosis and upfront treatment in the COVID era ³⁶	women diagnosed with BC in the province of Modena between May 2020 and July 2020. N= 164	Same pop. between May and June 2019. N= 183	COVID 19	Stage

Title	Study pop.	Control pop.	Exposition	Staging
Diagnostic pathway and stage migration of sinonasal malignancies in the era of the COVID-19 pandemic ³⁷	patients treated for sinonasal malignancies between January 2020 and December 2020. N= 19	Same pop between January 2018 and December 2019. N= 30	COVID 19	cTNM/ Stage
Impact of the COVID-19 pandemic on diagnosis, stage, and initial treatment of breast cancer in the Netherlands: a population-based study ³⁸	Women older than 18 years and diagnosed with breast cancer during weeks 2–17 of 2020. N= 4769	Same pop. during Weeks 2-17 of 2018 and 2019. N= 11502	COVID 19	Stage
The Impact of the COVID-19 Pandemic on Breast Cancer Patients ³⁹	patients with invasive breast cancer treated between March 2020 and March 2021. N= 176	Same pop. between between March 2019 and March 2020. N= 206	COVID 19	Stage
Impact of the coronavirus disease 2019 pandemic on first-visit patients with oesophageal cancer in the first infection wave in Saitama prefecture near Tokyo: a single-centre retrospective study ⁴⁰	patients with new oesophageal cancer who first visited our hospital from April 2020 to March 2021. N= 168	Same pop. from April 2018 to March 2020. N= 378	COVID 19	cTNM
The impact of the COVID-19 pandemic on the management of head and neck cancer patients at a tertiary care institution in Poland ⁴¹	all head and neck cancer patients who presented to the multidisciplinary tumour board (MTB) during the 12-month period from March 1, 2020 to February 28, 2021. N= 340	Same pop. from February 1, 2019 to February 28, 2020. N= 278	COVID 19	Locally Advanced, Regional, Advanced disease.

Title	Study pop.	Control pop.	Exposition	Staging
Characteristics and patterns of care of endometrial cancer before and during COVID-19 pandemic ⁴²	newly diagnosed EC treated in Italy from April 1, 2020 to March 31, 2021. N= 2446	Same pop. from March 1, 2019 to February 29, 2020. N= 2718	COVID 19	FIGO Stage
Impact of the COVID-19 Pandemic on Surgical Treatment Patterns for Colorectal Cancer in a Tertiary Medical Facility in Korea ⁴³	Patients with colon and rectal cancer who underwent surgery at the Asan Medical Center March to September 2020. N= 643	Same pop. from same period in 2019. N= 1413	COVID 19	Stage
Esophagectomy for Esophageal Cancer Performed During the Early Phase of the COVID-19 Pandemic ⁴⁴	all patients who underwent esophagectomy for esophageal cancer from March 1, 2020 to June 30, 2020. N= 32	Same pop. from January 1, 2019, to December 31, 2019. N= 67	COVID 19	Stage
Impact of two waves of Sars-Cov2 outbreak on the number, clinical presentation, care trajectories and survival of patients newly referred for a colorectal cancer: A French multicentric cohort study from a large group of University hospitals ⁴⁵	new CRC cases between 1 January 2020 and 31 December 2020. N= 176	Same pop. in Same period in 2018 and 2019. N= 413	COVID 19	Stage
Impact of the COVID-19 Pandemic on the Diagnosis and Surgery of Breast Cancer: A Multi-Institutional Study ⁴⁶	patients diagnosed with breast cancer from 1 February to 31 July 2020. N= 1023	Same pop in same period in 2019. N= 1044	COVID 19	Stage

Title	Study pop.	Control pop.	Exposition	Staging
Fewer head and neck cancer diagnoses and faster treatment initiation during COVID-19 in 2020: A nationwide population-based analysis ⁴⁷	all patients with a pathologically confirmed first primary head and neck malignancy from 1 June to 31 December 2020. N= 1641	Same pop. in same periods in 2018-2019. N= 3287	COVID 19	Stage
Cervical cancer and COVID-an assessment of the initial effect of the pandemic and subsequent projection of impact for women in England: A cohort study ⁴⁸	all cervical cancers between May and October 2020. N= 152	Same pop. between May and October 2019. N= 208	COVID 19	Stage
The effect of COVID-19 pandemic on laryngeal cancer in a tertiary referral center ⁴⁹	patients who operated due to laryngeal cancer in a tertiary referral hospital's ENT department, period not clear. N= 40	Same pop, period not clear. N= 57	COVID 19	cTNM
Care in the time of COVID-19: impact on the diagnosis and treatment of breast cancer in a large, integrated health care system ⁵⁰	patients with breast cancer diagnosed between March 17 and May 17, 2020. N= 247	Same pop. between March 17 and May 17, 2019. N= 703	COVID 19	cTNM/ Grade
Collateral effects of the coronavirus disease 2019 pandemic on lung cancer diagnosis in Korea ⁵¹	patients, aged 18 years or older, who were diagnosed with pathological lung cancer between February and June 2020. N= 169	Same pop between February and June during 2017–2019. N= 443.	COVID 19	Stage
COVID-19 and the emergency presentation of colorectal cancer ⁵²	Patients with diagnosis of Colorectal adenocarcinoma in 2020. N= 267	Same pop. in 2018-2019. N= 539	COVID 19	pTNM

Title	Study pop.	Control pop.	Exposition	Staging
Impact of the Novel Coronavirus 2019 (COVID-19) Pandemic on Head and Neck Cancer Care ⁵³	Patients over 18 years of age who presented for head and neck oncologic care from March 18, 2020, to May 20, 2020. N= 117	Same pop. in same period in 2019. N= 69	COVID 19	cTNM
Did the COVID-19 lockdown result in a delay of colorectal cancer presentation and outcomes? A single centre review ⁵⁴	Initial and revised diagnosis between 7/4/20 and 7/10/20. N= 53	Same pop. between 6/10/19 and 6/4/20. N= 38	COVID 19	pTNM
What Has Changed During the COVID-19 Pandemic? - The Effect on an Academic Breast Department in Portugal ⁵⁵	Breast cancer patients between March 2020 and March 2021. N= 97	Same pop. same period one year previously. N= 162	COVID 19	Stage
The impact of COVID-19 on head and neck cancer diagnosis and disease extent ⁵⁶	Patients presenting with newly diagnosed or recurrent HNC from May 14, 2020 to June 18, 2020. N= 117	Same pop. in same period from from May 16, 2019 to June 20, 2019. N= 156	COVID 19	cTNM
Impact of the COVID-19 lockdown in France on the diagnosis and staging of breast cancers in a tertiary cancer centre ⁵⁷	patients who underwent an imaging-guided percutaneous breast biopsy performed from January to July 2020. N= 134	Same period in 2019. N= 120	Covid 19	TNM
A prospective cohort study of the safety of breast cancer surgery during COVID-19 pandemic in the West of Scotland ⁵⁸	People with surgical treatment for invasive or non-invasive breast cancer between 23 March 2020 and 15 May 2020. N= 168	Same pop. in 2015. N= 1390	COVID 19	cTNM/ pTNM/ Grade

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Table S2. Study quality assessment⁶⁰

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
Kaltofen ¹	N	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Knoll ²	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Lim ³	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Davis ⁴	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Bonadio ⁵	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Caldarella ⁶	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Kuzuu ⁷	Y	Y	Y	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Ruiz-Medina ⁸	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Lucidi ⁹	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Işıklar ¹⁰	Y	Y	NR	N	N	N	UK	NA	Y	NA	Y	N	UK	N
Nossiter ¹¹	Y	Y	Y	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Cal ¹²	Y	Y	Y	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Hawrot ¹³	Y	Y	Y	N	N	N	UK	NA	Y	NA	Y	N	UK	N
Vanni ¹⁴	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Kuus ¹⁵	N	N	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Pepe ¹⁶	N	N	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Brito ¹⁷	Y	Y	NR	Y	N	N	UK	NA	Y	NA	N	N	UK	N
Purushotham ¹⁸	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Riju ¹⁹	N	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Heimes ²⁰	N	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Morais ²¹	Y	Y	Y	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Vanni ²²	Y	Y	NR	Y	N	N	UK	NA	Y	NA	N	N	UK	N
Stevens ²³	Y	Y	Y	Y	N	N	UK	NA	Y	NA	N	N	UK	N
Kasymjanova ²⁴	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Murri ²⁵	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Goenka ²⁶	N	Y	NR	N	N	N	UK	NA	Y	NA	Y	N	UK	N
Guyen ²⁷	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Bertolaccini ²⁸	Y	N	NR	NR	N	N	UK	NA	Y	NA	Y	N	UK	N
Oderda ²⁹	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Ikemura ³⁰	N	N	NR	NR	N	N	UK	NA	Y	NA	CD	N	UK	N
Zhang ³¹	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Zhang ³²	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Borsky ³³	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Wai ³⁴	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Chou ³⁵	Y	Y	NR	Y	N	N	UK	NA	Y	NA	CD	N	UK	N
Toss ³⁶	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Meerwein ³⁷	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	Y
Eijkelboom ³⁸	Y	Y	Y	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
İlgün ³⁹	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Miyawaki ⁴⁰	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Szewczyk ⁴¹	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
Bogani ⁴²	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Choi ⁴³	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Dolan ⁴⁴	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Kempf ⁴⁵	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Kang ⁴⁶	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Schoonbeek ⁴⁷	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Davies ⁴⁸	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Elibol ⁴⁹	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Tang ⁵⁰	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Park ⁵¹	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Shinkwin ⁵²	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Thompson ⁵³	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Lee ⁵⁴	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Simão ⁵⁵	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Kiong ⁵⁶	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Linck ⁵⁷	Y	Y	NR	Y	N	N	UK	NA	Y	NA	Y	N	UK	N
Romics ⁵⁸	Y	Y	NR	Y	N	N	UK	NA	Y	NA	N	N	UK	N

Abbreviations: Y = Yes, N = No, UK = Unknown NA= Not Applicable NR= Not Reported CD= Can not Determined

Questions:

1. Was the research question or objective in this paper clearly stated?
2. Was the study population clearly specified and defined?
3. Was the participation rate of eligible people at least 50%?
4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?
5. Was a sample size justification, power description, or variance and effect estimates provided?
6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?
7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?
8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?
9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?
10. Was the exposure(s) assessed more than once over time?
11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?

12. Were the outcome assessors blinded to the exposure status of participants?

13. Was loss to follow-up after baseline 20% or less?

14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)

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Table S3: Synthesis of first national lockdowns and cancer screening disruptions

Country	Date of First National Lockdown	Cancer Screening Disruptions
Italy	09/03/2020 – 03/05/2020 ⁶¹	From March to May 2020 ⁶¹
Netherlands	from 15 March until early June 2020 ⁶²	From March, 12, 2020 to mid May 2020 ⁶³
Spain	14/03/2020 - 09/05/2020 ^{64,65}	From 12/03/2020 to mid May 2020 ^{66,67}
Turkey	29/04/2021 – 14/05/2021 ⁶⁸ . No national lockdown in 2020.	From March 2020 to June, 1st 2020 ⁶⁹
USA	<p>Main lockdowns:</p> <ul style="list-style-type: none"> California: 19/03/2020 – 15/06/2021⁷⁰ Connecticut: 23/03/2020 – 22/04/2020^{71,72} Illinois: 21/03/2020 – 30/05/2020⁷³ Kansas: 24/03/2020 – 19/04/2020⁷⁴ Massachusetts: 24/03/2020 – 04/05/2020⁷⁵ Michigan: 24/03/2020 – 13/04/2020⁷⁶ New York: 22/03/2020 – 13/06/2020⁷⁷ Oregon: 24/03/2020 – 15/05/2020⁷⁸ Wisconsin: 24/03/2020 – 13/05/2020⁷⁹ 	Mid March to Mid July 2020 ⁸⁰
Taiwan	No national lockdown ⁸¹	No cancer screenings suspension ⁸²
Switzerland	17/03/2020 – 27/04/2020 ⁸³	From mid March 2020 to 6 weeks later ⁸⁴
Germany	22/03/2020 – 20/04/2020 ⁸⁵	From late March to late April 2020 ⁸⁶
Portugal	18/03/2020 – 02/05/2020 ⁸⁷	From mid March to May 2020 ⁸⁷
China	<p>Main provinces⁸⁸:</p> <ul style="list-style-type: none"> Hubei: 23/01/2020 - 25/03/2020 Zhejiang: 02/02/2020 – 20/02/2020 Xinjiang: 18/07/2020 – 26/08/2020 Hebei: 07/01/2021 – 31/01/2021 Shaanxi: 22/12/2021 – 16/01/2022 Henan: 10/01/2022 – 03/02/2022 Guangdong: 14/03/2022 – 21/03/2022 Shangai: 01/04/2022 – 01/06/2022 	No clear national datas
France	17/03/2020 – 11/05/2020 ⁸⁹	From mid March to 15/06/2020 ⁹⁰
Canada	<p>Main provinces:</p> <ul style="list-style-type: none"> Ontario: 17/03/2020 – 14/05/2020⁹¹ British Columbia: 18/03/2020 – 18/05/2020⁹² Quebec: 18/03/2020 – 05/04/2020⁹³ 	23/03/2020 – 26/05/2020 ⁷²
United Kingdom	23/03/2020 – 10/05/2020 ⁹⁴	Between March and April 2020 ⁹⁵
South Korea	No national lockdown ⁹⁶	No cancer screening suspension ⁹⁷
Japan	No national lockdown ⁹⁸	From April 7 to May 25 2020 ⁹⁹
Brazil	No national lockdown ^{100,101}	No population-based cancer screening programs in Brazil ¹⁰¹
Singapore	07/04/2020 – 01/06/2020 ^{102,103}	07/04/2020 – 01/06/2020 ¹⁰⁴
Poland	13/03/2023-19/04/2020 ^{105,106}	April-May 2020 ¹⁰⁷
India	25/03/2020-08/06/2020 ^{108,109}	During 2020 Lockdown ¹¹⁰

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Appendix S1. Pubmed and EMBASE search equations

Adapted from PubMed's 'Cancer filter', discontinued in 2019 ¹

#1

neoplasms OR American Cancer Society OR angiogenesis inducing agents OR antibodies, neoplasm OR antigens, neoplasm OR antineoplastic agents OR antineoplastic protocols OR biomarkers, tumor OR biopsy OR biopsy OR bone marrow purging OR bone marrow transplantation OR cancer care facilities OR cancer vaccines OR carcinogenicity tests OR carcinogens OR chemoembolization, therapeutic OR clonal evolution OR clonal evolution OR colonography, computed tomographic OR colonoscopy OR colposcopy OR combined modality therapy OR cryosurgery OR cytopheresis OR dna, neoplasm OR drug resistance, neoplasm OR drug screening assays, antitumor OR early detection of cancer OR gene expression regulation, neoplastic OR genes, neoplasm OR graft vs tumor effect OR hematopoietic stem cell transplantation OR hematopoietic stem cell mobilization OR immunotherapy, adoptive OR lymph node excision OR tumor-infiltrating OR mammography OR mastectomy OR medical oncology OR metastasectomy OR mohs surgery OR neoplasm grading OR neoplasm proteins OR neoplasm staging OR neoplasm transplantation OR neoplastic processes OR neoplastic stem cells OR oncogene fusion OR oncogenic viruses OR oncology nursing OR oncology service, hospital OR oncolytic viruses OR papanicolaou test OR papillomavirus vaccines OR peripheral blood stem cell transplantation OR polyomavirus OR radiotherapy OR radiotherapy planning, computer assisted OR rna, neoplasm OR second-look surgery OR SEER program OR stem cell transplantation OR transplantation conditioning OR tumor cells, cultured OR tumor escape OR tumor lysis syndrome OR tumor necrosis factors OR receptors, tumor necrosis factor OR tumor necrosis factor receptor-associated peptides and proteins OR ultrasonography, mammary OR AACR OR AJCC OR (ASCO NOT fungi) OR IARC OR "National Cancer Institute (U.S.)" OR UICC OR aCML OR AGCUS OR AILD OR AML OR ANLL OR ASCUS OR ATLL OR BRCA OR BRCA1 OR BRCA2 OR CIN OR CLL OR CMML OR CMPD OR ECCL OR EGIST OR FMTC OR GLNH OR HNPCC OR HNSCC OR HPV OR HSIL OR ICD O OR JCML OR JMML OR LGLL OR MGUS OR MLH1 OR MPD OR MSH2 OR NSCLC OR RAEB OR RCMD OR SCLC OR VOD OR 5q syndrome OR BCR ABL OR c erbB 2 OR c erbB2 OR carney complex OR cone biopsy OR denys drash OR estrogen receptor negative OR estrogen receptor positive OR li fraumeni OR meigs syndrome OR molar pregnancy OR peutz jeghers OR sentinel lymph node OR struma ovarii OR sturge weber OR zollinger ellison OR (aberrant AND crypt AND foci) OR ((anti-n-methyl-d-aspartate OR anti-nmda) AND encephalitis) OR (barrett AND esophagus) OR (gestational AND trophoblastic) OR (microsatellite AND instability) OR (paget AND (breast OR nipple)) OR (polycythemia AND vera) OR (radiation AND therapy) OR (WAGR AND syndrome) OR (pap AND (smear OR smears)) OR cervical smear OR cervical smears OR pap test OR pap tests OR (PSA AND prostate) OR PSA test OR PSA testing OR (prostate AND specific AND antigen) OR acanthoma OR acanthomas OR acrochordon OR acrochordons OR acrospiroma OR acrospiromas OR adamantinoma OR adamantinomas OR adenoacanthoma OR adenoacanthomas OR adenoameloblastoma OR adenoameloblastomas OR adenocanthoma

¹ https://www.nlm.nih.gov/bsd/pubmed_subsets/cancer_strategy.html, consulted on 24 May 2023

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#2

Neoplasm Staging[MeSH Terms] OR Neoplasm Metastasis[MeSH Terms] OR (stage[Title/Abstract] OR metasta*[Title/Abstract] OR pTNM[Title/Abstract] OR TNM[Title/Abstract])

#3

LitCGeneral[sb]

#4

Address OR Autobiography OR Biography OR Clinical Trial, Veterinary OR Dictionary OR Directory OR Duplicate Publication OR Expression of Concern OR Festschrift OR Historical Article OR Interactive Tutorial OR Interview OR Lecture OR Legal Case OR Legislation OR News OR Newspaper Article OR

Observational Study, Veterinary OR Patient Education Handout OR Periodical Index OR Personal Narrative OR Portrait OR Preprint OR Published Erratum OR Randomized Controlled Trial, Veterinary OR Retracted Publication OR Retraction of Publication OR Scientific Integrity Review OR Technical Report OR Video-Audio Media OR Webcast

#5

"animals"[mh:noexp]

((#1 AND #2) AND #3) NOT #4 NOT #5

Appendix S2. Inclusion and exclusion criteria for article selection

Inclusion criteria:

- Studies published between January 2020 and April 2022 in PubMed or Embase
- English language only
- Patients >18 years old only
- Solid tumors only
- New cancer diagnosis
- Articles comparing stages before and after the outbreak of the Sars-Cov-2 pandemic

Exclusion criteria:

- Abstracts
- Posters
- Letters to the editor
- Guidelines
- Systematic reviews and other types of literature reviews
- Short communications
- Articles unpublished or from grey literature
- Articles with no or insufficient cancer staging information
- Articles focusing only on pre or post Sars-Cov-2 results (e.g., cross-sectional studies of cancer staging during the pandemic)
- Articles that only included metastatic patients

Appendix S3. List of data elements we extracted from included articles

1. Identification of articles:

- First author
- Titles
- PMID

2. Method-related items

- Country
- Study type
- Type of data collection (Cancer register, care records, other types)
- Mono or multicentric status
- Type of care center (primary, secondary or tertiary)
- Inclusion criteria
- Cancer type
- Period of interest
- Comparative period
- Notion of cancer screening postponement
- Notion of national lockdown
- Primary outcome
- Secondary outcomes

3. Result-related items

- Number of patients included for each period.
- Median or mean age for each period
- % of male patients for each period
- Time between diagnosis and treatment for each period
- Cancer staging for each period

Appendix S4. Classification of primary cancer types

- Breast cancer
- Colorectal cancer
- Other gastro: Esophageal, gastric, pancreatic, biliary tract, liver.
- Gynecologic cancer: Cervix, endometre, ovaries, vulvar/vagina.
- Genito-urinary: Kidney, bladder
- Other cancer: Head and neck (sinonasal, oral, thyroid), sarcoma, germ cells, CUP, mesothelioma.
- Melanoma
- Prostate
- Lungs