NOTA BIBLIOGRÁFICA 2021 n.01 (enero-marzo)

RED DE PROGRAMAS DE CRIBADO DE CÁNCER

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Cribado de cáncer de mama - general

Piggott T, Langendam M, Parmelli E, Adolfsson J, Akl EA, Armstrong D, et al. **Bringing two worlds closer together: a critical analysis of an integrated approach to guideline development and quality assurance schemes**. BMC Health Serv Res. 2021;21(1):1–12. DOI:10.1186/s12913-020-05819-w.

Resumen: *Background: Although quality indicators are frequently derived from guidelines, there is a substantial gap in collaboration between the corresponding parties. To optimise workflow, guideline recommendations and quality assurance should be aligned methodologically and practically. Learning from the European Commission Initiative on Breast Cancer (ECIBC), our objective was to bring the key knowledge and most important considerations from both worlds together to inform*

European Commission future initiatives. Methods: We undertook several steps to address the problem. First, we conducted a feasibility study that included a survey, interviews and a review of manuals for an integrated guideline and quality assurance (QA) scheme that would support the European Commission. The feasibility study drew from an assessment of the ECIBC experience that followed commonly applied strategies leading to separation of the guideline and QA development processes. Secondly, we used results of a systematic review to inform our understanding of methodologies for integrating guideline and QA development. We then, in a third step, used the findings to prepare an evidence brief and identify key aspects of a methodological framework for integrating guidelines QA through meetings with key informants. Results: Seven key themes emerged to be taken into account for integrating guidelines and QA schemes: (1) evidence-based integrated guideline and QA frameworks are possible, (2) transparency is key in clearly documenting the source and rationale for quality indicators, (3) intellectual and financial interests should be declared and managed appropriately, (4) selection processes and criteria for quality indicators need further refinement, (5) clear guidance on retirement of quality indicators should be included, (6) risks of an integrated guideline and QA Group can be mitigated, and (7) an extension of the GIN-McMaster Guideline Development Checklist should incorporate QA considerations. Discussion: We concluded that the work of guideline and QA developers can be integrated under a common methodological framework and we provided key findings and recommendations. These two worlds, that are fundamental to improving health, can both benefit from integration.

Parmelli E, Langendam M, Piggott T, Adolfsson J, Akl EA, Armstrong D, et al. **Guideline-based quality assurance: a conceptual framework for the definition of key elements**. BMC Health Serv Res. 2021;21(1):1–8. DOI:10.1186/s12913-021-06148-2.

Resumen: *Background: In 2017, the European Commission's Joint Research Centre (JRC) started developing a methodological framework for a guideline-based quality assurance (QA) scheme to improve cancer quality of care. During the first phase of the work, inconsistency emerged about the use of terminology for the definition, the conceptual underpinnings and the way QA relates to health questions that are answered in guidelines. The objective of this final of three articles is to propose a conceptual framework for an integrated approach to guideline and QA development and clarify terms and definitions for key elements. This work will inform the upcoming European Commission Initiative on Colorectal Cancer (ECICC). Methods: A multidisciplinary group of 23 experts from key organizations in the fields of guideline development, performance measurement and quality assurance participated in a mixed method approach including face-to-face dialogue and several rounds of virtual meetings. Informed by results of a systematic literature review that indicated absence of an existing framework and practical examples, we first identified the relations of key elements in guideline-based QA and then developed appropriate concepts and terminology to provide guidance. Results: Our framework connects the three key concepts of quality indicators, performance measures and performance indicators integrated with guideline development. Quality indicators are constructs used as a guide to monitor, evaluate, and improve the quality of the structure, process and outcomes of healthcare services; performance measures are tools that quantify or*

describe measurable elements of practice performance; and performance indicators are quantifiable and measurable units or scores of practice, which should be guided by guideline recommendations. Conclusions: The inconsistency in the way key terms of QA are used and defined has confused the field. Our conceptual framework defines the role, meaning and interactions of the key elements for improving quality in healthcare. It directly builds on the questions asked in guidelines and answered through recommendations. These findings will be applied in the forthcoming ECICC and for the future updates of ECIBC. These are large-scale integrated projects aimed at improving healthcare quality across Europe through the development of guideline-based QA schemes; this will help in implementing and improving our approach.

Davidović M, Zielonke N, Lansdorp-Vogelaar I, Segnan N, de Koning HJ, Heijnsdijk EA. **Disability-Adjusted Life Years Averted Versus Quality-Adjusted Life Years Gained: A Model Analysis for Breast Cancer Screening**. Value Heal. 2021;24(3):353–60. Available from: https://doi.org/10.1016/j.jval.2020.10.018DOI:10.1016/j.jval.2020.10.018.
Resumen: *ObjectivesTo quantify the impact of mammography-based screening on the quality of life, disability-adjusted life years (DALYs) averted or quality-adjusted life years (QALYs) gained can be used. We aimed to assess whether the use of DALYs averted or QALYs gained will lead to different cost-effective screening strategies.*

Herrmann C, Morant R, Walser E, Mousavi M, Thürlimann B. **Screening is associated with lower mastectomy rates in eastern Switzerland beyond stage effects**. BMC Cancer. 2021;21(1):229. Available from: https://doi.org/10.1186/s12885-021-07917-2DOI:10.1186/s12885-021-07917-2.
Resumen: *A recent study found an influence of organized mammography screening programmes (MSPs) on geographical and temporal variation of mastectomy rates. We aimed to quantify the effect on the example of one of the cantonal programmes in Switzerland.*

Graewingholt A, Duffy S. **Retrospective comparison between single reading plus an artificial intelligence algorithm and two-view digital tomosynthesis with double reading in breast screening**. J Med Screen. 2021;0969141320984198. Available from: https://doi.org/10.1177/0969141320984198DOI:10.1177/0969141320984198.
Resumen: *ObjectiveTo examine the breast cancer detection rate by single reading of an experienced radiologist supported by an artificial intelligence (AI) system, and compare with two-dimensional full-field digital mammography (2D-FFDM) double reading.Materials and methodsImages (3D-tomosynthesis) of 161 biopsy-proven cancers were re-read by the AI algorithm and compared to the results of first human reader, second human reader and consensus following double reading in screening. Detection was assessed in subgroups by tumour type, breast density and grade, and at two operating points, referred to as a lower and a higher sensitivity threshold.ResultsThe AI algorithm method gave similar results to double-reading 2D-FFDM, and the detection rate was significantly higher compared to single-reading 2D-FFDM. At the lower sensitivity threshold, the algorithm was significantly more sensitive than reader A (97.5% vs. 89.4%, p?=?0.02), non-significantly more sensitive than reader B (97.5% vs. 94.4%, p?=?0.2) and non-significantly less sensitive than the consensus from double reading (97.5% vs. 99.4%, p?=?0.2). At the higher sensitivity threshold, the algorithm was significantly more sensitive than reader A (99.4% vs.*

89.4%, p?<?0.001) and reader B (99.4% vs. 94.4%, p?=?0.02) and identical to the consensus sensitivity (99.7% in both cases, p?=?1.0). There were no significant differences in the detection capability of the AI system by tumour type, grading and density.ConclusionIn this proof of principle study, we show that sensitivity using single reading with a suitable AI algorithm is non-inferior to that of standard of care using 2D mammography with double reading, when tomosynthesis is the primary screening examination.

Brawley OW, Paller CJ. **Overdiagnosis in the Age of Digital Cancer Screening**. JNCI J Natl Cancer Inst. 2021;113(1):1–2. Available from: https://doi.org/10.1093/jnci/djaa081DOI:10.1093/jnci/djaa081.
Resumen: *In 2000, the US FDA approved digital mammography technology. Studies suggested the new technology was equivalent to older film technology in detecting cancer. There was also limited evidence that digital imaging might be more specific, meaning that it would reduce the number of callbacks for positive findings. Many also believed that the newer "improved" digital technology might find more disease and lead to fewer interval cancers (cancers diagnosed between scheduled screenings).Today, digital mammography is dominant. In a meta-analysis of 24 published studies comparing outcomes with digital and film mammography, Farber and colleagues pose the question, "Does this new technology lead to improved health outcomes?" They find the shift to digital mammography translates into higher cancer detection rates and higher recall rates but not a reduction in interval cancers (1).*

Farber R, Houssami N, Wortley S, Jacklyn G, Marinovich ML, McGeechan K, et al. **Impact of Full-Field Digital Mammography Versus Film-Screen Mammography in Population Screening: A Meta-Analysis**. JNCI J Natl Cancer Inst. 2021;113(1):16–26. Available from: https://doi.org/10.1093/jnci/djaa080DOI:10.1093/jnci/djaa080.
Resumen: *Breast screening programs replaced film mammography with digital mammography, and the effects of this practice shift in population screening on health outcomes can be measured through examination of cancer detection and interval cancer rates.A systematic review and random effects meta-analysis were undertaken. Seven databases were searched for publications that compared film with digital mammography within the same population of asymptomatic women and reported cancer detection and/or interval cancer rates.The analysis included 24 studies with 16 583 743 screening examinations (10 968 843 film and 5 614 900 digital). The pooled difference in the cancer detection rate showed an increase of 0.51 per 1000 screens (95% confidence interval [CI] = 0.19 to 0.83), greater relative increase for ductal carcinoma in situ (25.2%, 95% CI = 17.4% to 33.5%) than invasive (4%, 95% CI = −3% to 13%), and a recall rate increase of 6.95 (95% CI = 3.47 to 10.42) per 1000 screens after the transition from film to digital mammography. Seven studies (80.8% of screens) reported interval cancers: the pooled difference showed no change in the interval cancer rate with −0.02 per 1000 screens (95% CI = −0.06 to 0.03). Restricting analysis to studies at low risk of bias resulted in findings consistent with the overall pooled results for all outcomes.The increase in cancer detection following the practice shift to digital mammography did not translate into a reduction in the interval cancer rate. Recall rates were increased. These results suggest the transition from film to digital mammography did not result in health benefits for screened women. This analysis reinforces the need to carefully evaluate effects of future changes in*

technology, such as tomosynthesis, to ensure new technology leads to improved health outcomes and beyond technical gains.

Pagliarin F, Pylkkanen L, Salakari M, Deandrea S. **Are women satisfied with their experience with breast cancer screening? Systematic review of the literature**. Eur J Public Health. 2021;31(1):206–14. Available from: https://doi.org/10.1093/eurpub/ckaa202DOI:10.1093/eurpub/ckaa202.
Resumen: *The evaluation of participant experience is an essential part of monitoring the quality of breast cancer screening services. Satisfaction of services can lead to good adherence and hence affect health outcomes.We performed a systematic review to assess how satisfied women were with organized breast cancer screening programs. A literature search in Medline, CINAHL, Embase and PsycINFO from 1965 to October 2019 was performed. Articles reporting a quantitative measure of satisfaction collected via questionnaires in programs using mammography as a screening test were selected. We narratively synthesized the data and used tabulated summaries.Out of 4310 individual citations, 3099 abstracts were reviewed by two independent researchers, and 126 articles were selected for full-text reading. Finally, 48 studies, published between 1990 and 2018, were included in analysis, reporting 54 surveys in the context of an organized screening program, 37 on satisfaction with screening mammography, 14 on satisfaction with further assessments and 3 with counseling. Most studies reported a high level of satisfaction for both mammography and further assessments. Despite commonly reported temporary pain, discomfort and anxiety, the willingness to be re-screened was very high. Effective information transfer, the staff's interpersonal skills and quick delivery of results correlated with high satisfaction. Only 7 out of 54 surveys used recognized satisfaction instruments or their modifications.In general, satisfaction with breast cancer screening is high, but its evaluation is mainly performed using non-validated instruments. Emphasis should be put on effective communication, the staff´s interpersonal skills and quick delivery of results.*

Shih Y-CT, Dong W, Xu Y, Etzioni R, Shen Y. **Incorporating Baseline Breast Density When Screening Women at Average Risk for Breast Cancer**. Ann Intern Med. 2021; Available from: https://doi.org/10.7326/M20-2912DOI:10.7326/M20-2912.
Resumen: *Background: Breast density classification is largely determined by mammography, making the timing of the first screening mammogram clinically important. Objective: To evaluate the cost-effectiveness of breast cancer screening strategies that are stratified by breast density. Design: Microsimulation model to generate the natural history of breast cancer for women with and those without dense breasts and assessment of the cost-effectiveness of strategies tailored to breast density and nontailored strategies. Data Sources: Model parameters from the literature; statistical modeling; and analysis of Surveillance, Epidemiology, and End Results?Medicare data. Target Population: Women aged 40 years or older. Time Horizon: Lifetime. Perspective: Societal. Intervention: No screening; biennial or triennial mammography from age 50 to 75 years; annual mammography from age 50 to 75 years for women with dense breasts at age 50 years and biennial or triennial mammography from age 50 to 75 years for those without dense breasts at age 50 years; and annual mammography at age 40 to 75 years for women with dense breasts at age 40 years and biennial or triennial mammography at age 50 to 75 years for those without dense breasts at age 40 years. Outcome Measures: Lifetime costs and quality-*

adjusted life-years (QALYs), discounted at 3% annually. Results of Base-Case Analysis: Baseline screening at age 40 years followed by annual screening at age 40 to 75 years for women with dense breasts and biennial screening at age 50 to 75 years for women without dense breasts was effective and cost-effective, yielding an incremental cost-effectiveness ratio of $36?200 per QALY versus the biennial strategy at age 50 to 75 years. Results of Sensitivity Analysis: At a societal willingness-to-pay threshold of $100?000 per QALY, the probability that the density-stratified strategy at age 40 years was optimal was 56% compared with 6 other strategies. Limitation: Findings may not be generalizable outside the United States. Conclusion: The study findings advocate for breast density?stratified screening with baseline mammography at age 40 years. Primary Funding Source: National Cancer Institute.

Nickel B, Copp T, Brennan M, Farber R, McCaffery K, Houssami N. **The Impact of Breast Density Information or Notification on Women's Cognitive, Psychological, and Behavioral Outcomes: A Systematic Review**. JNCI J Natl Cancer Inst. 2021; Available from: https://doi.org/10.1093/jnci/djab016DOI:10.1093/jnci/djab016.
Resumen: *Breast density (BD) is an independent risk factor for breast cancer and reduces the sensitivity of mammography. This systematic review aims to synthesize evidence from existing studies to understand the impact of BD information and/or notification on women's cognitive, psychological and behavioral outcomes.Studies were identified via relevant database searches up to March 2020. Two authors evaluated the eligibility of studies with verification from the study team, extracted and crosschecked data, and assessed the risk of bias.Of the 1134 titles identified, 29 studies were included. Twenty-three studies were quantitative, including only 1 randomised controlled trial of women receiving BD information, and 6 were qualitative. Twenty-seven studies were conducted in the United States, with 19 conducted post-BD legislation. The overall results in terms of BD awareness, knowledge, attitudes, perceptions and intentions were heterogeneous across included studies, with the strongest consistency demonstrated regarding the importance of communication with and involvement of healthcare professionals. Together the studies did however highlight that there is still limited awareness of BD in the community, especially in more socio-economic disadvantaged communities, and limited knowledge about what BD means and the implications for women. Importantly, BD information in the context of overall breast cancer risk has not yet been studied.There are important gaps in the understanding of the impact of BD information or notification on women and how best to communicate BD information to women. More high-quality evidence to inform both current and future practice related to BD is still needed.*

Wang J, Gottschal P, Ding L, Veldhuizen D. van, Lu W, Houssami N, et al. **Mammographic sensitivity as a function of tumor size: A novel estimation based on population-based screening data**. The Breast. 2021;55:69–74. Available from: https://doi.org/10.1016/j.breast.2020.12.003DOI:10.1016/j.breast.2020.12.003.
Resumen: *BackgroundInstead of a single value for mammographic sensitivity, a sensitivity function based on tumor size more realistically reflects mammography?s detection capability. Because previous models may have overestimated size-specific sensitivity, we aimed to provide a novel approach to improve sensitivity estimation as a function of tumor size.*

Kerlikowske K, Bibbins-Domingo K. **Toward Risk-Based Breast Cancer Screening**. Ann Intern Med. 2021;M21-0398. Available from: https://doi.org/10.7326/M21-0398DOI:10.7326/M21-0398.

van Ravesteyn NT, Schechter CB, Hampton JM, Alagoz O, van den Broek JJ, Kerlikowske K, et al. **Trade-Offs Between Harms and Benefits of Different Breast Cancer Screening Intervals Among Low-Risk Women**. JNCI J Natl Cancer Inst. 2021; Available from: https://doi.org/10.1093/jnci/djaa218DOI:10.1093/jnci/djaa218.
Resumen: *A paucity of research addresses breast cancer screening strategies for women at lower-than-average breast cancer risk. The aim of this study was to examine screening harms and benefits among women aged 50-74 years at lower-than-average breast cancer risk by breast density.Three well-established, validated Cancer Intervention and Surveillance Network models were used to estimate the lifetime benefits and harms of different screening scenarios, varying by screening interval (biennial, triennial). Breast cancer deaths averted, life-years and quality-adjusted life-years gained, false-positives, benign biopsies, and overdiagnosis were assessed by relative risk (RR) level (0.6, 0.7, 0.85, 1 [average risk]) and breast density category, for US women born in 1970.Screening benefits decreased proportionally with decreasing risk and with lower breast density. False-positives, unnecessary biopsies, and the percentage overdiagnosis also varied substantially by breast density category; false-positives and unnecessary biopsies were highest in the heterogeneously dense category. For women with fatty or scattered fibroglandular breast density and a relative risk of no more than 0.85, the additional deaths averted and life-years gained were small with biennial vs triennial screening. For these groups, undergoing 4 additional screens (screening biennially [13 screens] vs triennially [9 screens]) averted no more than 1 additional breast cancer death and gained no more than 16 life-years and no more than 10 quality-adjusted life-years per 1000 women but resulted in up to 232 more false-positives per 1000 women.Triennial screening from age 50 to 74 years may be a reasonable screening strategy for women with lower-than-average breast cancer risk and fatty or scattered fibroglandular breast density.*

Graewingholt A, Rossi PG. **Retrospective analysis of the effect on interval cancer rate of adding an artificial intelligence algorithm to the reading process for two-dimensional full-field digital mammography**. J Med Screen. 2021;096914132098804. Available from: https://doi.org/10.1177/0969141320988049DOI:10.1177/0969141320988049.
Resumen: *Interval cancers are a commonly seen problem in organized breast cancer screening programs and their rate is measured for quality assurance. Artificial intelligence algorithms have been proposed to improve mammography sensitivity, in which case it is likely that the interval cancer rate would decrease and the quality of the screening system could be improved. Interval cancers from negative screening in 2011 and 2012 of one regional unit of the national German breast cancer screening program were classified by a group of radiologists, categorizing the screening digital mammography with diagnostic images as true interval, minimal signs, false negative and occult cancer. Screening mammograms were processed using a detection algorithm based on deep learning. Of the 29 cancer cases available, artificial intelligence identified eight out of nine of those classified as minimal signs, all six false negatives and none of the true interval and occult cancers. Sensitivity for lesions judged to be*

already present in screening mammogram was 93% (95% confidence interval 68–100) and sensitivity for any interval cancer was 48% (95% confidence interval 29–67). Using an artificial intelligence algorithm as an additional reading tool has the potential to reduce interval cancers. How and if this theoretical advantage can be reached without a negative effect on recall rate is a challenge for future research.

Miglioretti DL, Bissell MCS, Kerlikowske K, Buist DSM, Cummings SR, Henderson LM, et al. **Assessment of a Risk-Based Approach for Triaging Mammography Examinations During Periods of Reduced Capacity**. JAMA Netw Open. 2021;4(3):e211974–e211974. Available from: https://doi.org/10.1001/jamanetworkopen.2021.1974DOI:10.1001/jamanetworkopen.2021.1974.

Resumen: *Breast cancer screening, surveillance, and diagnostic imaging services were profoundly limited during the initial phase of the coronavirus disease 2019 (COVID-19) pandemic.To develop a risk-based strategy for triaging mammograms during periods of decreased capacity.This population-based cohort study used data collected prospectively from mammography examinations performed in 2014 to 2019 at 92 radiology facilities in the Breast Cancer Surveillance Consortium. Participants included individuals undergoing mammography. Data were analyzed from August 10 to November 3, 2020.Clinical indication for screening, breast symptoms, personal history of breast cancer, age, time since last mammogram/screening interval, family history of breast cancer, breast density, and history of high-risk breast lesion.Combinations of clinical indication, clinical history, and breast cancer risk factors that subdivided mammograms into risk groups according to their cancer detection rate were identified using classification and regression trees.The cohort included 898 415 individuals contributing 1 878 924 mammograms (mean [SD] age at mammogram, 58.6 [11.2] years) interpreted by 448 radiologists, with 1 722 820 mammograms in individuals without a personal history of breast cancer and 156 104 mammograms in individuals with a history of breast cancer. Most individuals were aged 50 to 69 years at imaging (1 113 174 mammograms [59.2%]), and 204 305 (11.2%) were Black, 206 087 (11.3%) were Asian or Pacific Islander, 126 677 (7.0%) were Hispanic or Latina, and 40 021 (2.2%) were another race/ethnicity or mixed race/ethnicity. Cancer detection rates varied widely based on clinical indication, breast symptoms, personal history of breast cancer, and age. The 12% of mammograms with very high (89.6 [95% CI, 82.3-97.5] to 122.3 [95% CI, 108.1-138.0] cancers detected per 1000 mammograms) or high (36.1 [95% CI, 33.1-39.3] to 47.5 [95% CI, 42.4-53.3] cancers detected per 1000 mammograms) cancer detection rates accounted for 55% of all detected cancers and included mammograms to evaluate an abnormal mammogram or breast lump in individuals of all ages regardless of breast cancer history, to evaluate breast symptoms other than lump in individuals with a breast cancer history or without a history but aged 60 years or older, and for short-interval follow-up in individuals aged 60 years or older without a breast cancer history. The 44.2% of mammograms with very low cancer detection rates accounted for 1…*

Firouzbakht M, Hajian-Tilaki K, Bakhtiari A. **Comparison of competitive cognitive models in explanation of women breast cancer screening behaviours using structural equation modelling: Health belief model and theory of reasoned action**.

Eur J Cancer Care (Engl). 2021;30(1):e13328. Available from: https://doi.org/10.1111/ecc.13328DOI:https://doi.org/10.1111/ecc.13328.
Resumen: *Abstract Introduction The efficacy of the theory of reasoned action (TRA), compared with the health belief model (HBM), has not been fully elucidated in screening practices. Methods This population-based cross-sectional study was conducted with samples of 500 women aged 35?85 years, in the north of Iran. The data of demographic characteristics, awareness, health belief, subjective norms and screening behaviours were collected using standard instruments. Structural equation modelling (SEM) was applied to estimate the pathways of regression coefficients. Results The model that incorporated the health belief and the standardised coefficient of the knowledge scores influenced significantly on the health belief perception (beta = 0.375), and consequently, the health belief directly affected screening behaviours (beta = 0.73). In contrast, In TRA model, while the direct effect of knowledge on intention was negligible it has a greater indirect effect by mediating health belief and subjective norms (indirect beta = 0.35) on behaviour intention. A high coefficient of intention was observed by subjective norms (beta = 0.626), and the intention has a great positive effect on screening behaviour (beta = 0.601). All fitting indexes were quietly improved in the TRA model as compared with HBM. Conclusion Thus, the unifying structure of knowledge, health belief, subjective norms and intention improves the predictor power in breast cancer screening behaviours.*

Friedewald SM, Gupta D. **Selecting Patients for Mammographic Evaluation Based on Breast Cancer Risk During the COVID-19 Pandemic**. JAMA Netw Open. 2021;4(3):e212546–e212546. Available from: https://doi.org/10.1001/jamanetworkopen.2021.2546DOI:10.1001/jamanetworkopen.2021.2546.
Resumen: *The COVID-19 pandemic affected health care delivery throughout the US in unprecedented ways. Specifically, facilities readjusted their schedules to accommodate more patients who required ventilators and intensive care and decreased or eliminated routine surgical procedures and patient visits that would interfere with the predicted surge in patients with COVID-19. Because decisions regarding how to maneuver a rapidly evolving situation were left to individual states, there was a heterogeneous approach to triaging patient visits based on acuity.In a cohort study, Miglioretti et al proposed using patient risk factors and clinical indications to identify subgroups that had the highest likelihood of breast cancer. All patient indications (including screening and diagnostic indications) were stratified into 5 risk groups ranging from very high risk (>50 cancers detected per 1000 mammograms) to very low risk (<5 cancers detected per 1000 mammograms). The authors reported that by performing examinations for only very high- or high-risk groups, mammography volume could be limited to 12% and still detect 55% of breast cancers. The examinations that were classified in the high-risk or very high-risk category included additional imaging evaluation after a screening examination, evaluation of a lump, evaluation of symptoms other than a lump in individuals with a history of breast cancer, and short-interval follow-up or diagnostic examination for symptoms other than a lump in women 60 years or older without a history of breast cancer. These data are particularly interesting because all patients were risk stratified instead of the traditional binary assignment of patients into screening and diagnostic categories. Superficially, one might automatically consider a patient undergoing diagnostic examination at higher risk than*

a patient undergoing screening. However, based on these data, this assumption is incorrect. For example, screening of women with a history of a high-risk lesion and no personal history of breast cancer yielded a cancer detection rate (CDR) of 12.7 cancers per 1000 mammograms. This rate was higher than that among women younger than 70 with a personal history of breast cancer who underwent short-interval follow-up of a probably benign finding (CDR, 7.3 cancers per 1000 mammograms).

Louro J, Román M, Posso M, Vázquez I, Saladié F, Rodriguez-Arana A, et al. **Developing and validating an individualized breast cancer risk prediction model for women attending breast cancer screening**. Bowles EJA, editor. PLoS One. 2021;16(3):e0248930. Available from: https://dx.plos.org/10.1371/journal.pone.0248930DOI:10.1371/journal.pone.0248930.
Resumen: *Background Several studies have proposed personalized strategies based on women's individual breast cancer risk to improve the effectiveness of breast cancer screening. We designed and internally validated an individualized risk prediction model for women eligible for mammography screening. Methods Retrospective cohort study of 121,969 women aged 50 to 69 years, screened at the long-standing population-based screening program in Spain between 1995 and 2015 and followed up until 2017. We used partly conditional Cox proportional hazards regression to estimate the adjusted hazard ratios (aHR) and individual risks for age, family history of breast cancer, previous benign breast disease, and previous mammographic features. We internally validated our model with the expected-to-observed ratio and the area under the receiver operating characteristic curve. Results During a mean follow-up of 7.5 years, 2,058 women were diagnosed with breast cancer. All three risk factors were strongly associated with breast cancer risk, with the highest risk being found among women with family history of breast cancer (aHR: 1.67), a proliferative benign breast disease (aHR: 3.02) and previous calcifications (aHR: 2.52). The model was well calibrated overall (expected-to-observed ratio ranging from 0.99 at 2 years to 1.02 at 20 years) but slightly overestimated the risk in women with proliferative benign breast disease. The area under the receiver operating characteristic curve ranged from 58.7% to 64.7%, depending of the time horizon selected. Conclusions We developed a risk prediction model to estimate the short- and long-term risk of breast cancer in women eligible for mammography screening using information routinely reported at screening participation. The model could help to guiding individualized screening strategies aimed at improving the risk-benefit balance of mammography screening programs.*

Pace LE, Keating NL. **Should Women at Lower-Than-Average Risk of Breast Cancer Undergo Less Frequent Screening?** JNCI J Natl Cancer Inst. 2021; Available from: https://doi.org/10.1093/jnci/djaa219DOI:10.1093/jnci/djaa219.

Resumen: *Mammography screening lowers a woman's risk of dying from breast cancer by approximately 19% (1). As for any relative risk reduction, the absolute risk reduction varies based on a woman's risk of developing breast cancer. Because the harms of mammography screening (specifically, false-positive results and overdiagnosis) vary less consistently by breast cancer risk level, the ratio of benefits to harms is more favorable for higher-risk women compared with those at low or average risk of breast cancer (2). With growing recognition of how mammography's net benefit relates to individuals' risk, the concept of risk-based breast cancer screening has grown more accepted and is being studied in a number of settings (3).*

Cribado de cáncer de mama - equidad

Cribado de cáncer de cuello de útero - general

Partanen V-M, Dillner J, Tropé A, Ágústsson ÁI, Pankakoski M, Heinävaara S, et al. **Comparison of cytology and human papillomavirus-based primary testing in cervical screening programs in the Nordic countries**. J Med Screen. 2021;096914132199240. Available from: https://doi.org/10.1177/0969141321992404DOI:10.1177/0969141321992404.
Resumen: *ObjectiveTo compare primary test positivity in cytology and human papillomavirus-based screening between different Nordic cervical cancer screening programs using harmonized register data.MethodsThis study utilized individual-level data available in national databases in Finland, Iceland, Norway, and Sweden. Cervical test data from each country were converted to standard format and aggregated by calculating the number of test episodes for every test result for each calendar year and one-year age group and test method. Test positivity was estimated as the proportion of positive test results of all primary test episodes with a valid test result for ?any positive? and ?clearly positive? results.ResultsThe age-adjusted rate ratio for any positive test results in primary human papillomavirus-based screening compared to cytology was 1.66 (95% CI 1.64?1.68). The age-adjusted rate ratio for clearly positive test results was 1.02 (95% CI 1.00?1.05). A decreasing rate ratio by age was seen in both any positive and clearly positive test results. Test positivity increased over time in Iceland, Norway, and Sweden but slightly decreased in Finland.ConclusionsThe probability of any positive test result was higher in human papillomavirus testing than in primary cytology, even though the cross-sectional detection of a clearly positive test result was the same. Human papillomavirus testing can still lead to an improved longitudinal sensitivity through a larger number of follow-up tests and the opportunity to identify women with a persistent human papillomavirus infection. Further research on histologically verified precancerous lesions is needed in primary as well as repeat testing.*

Lim AWW. **Will COVID-19 Be the Tipping Point for Primary HPV Self-sampling?** Cancer Epidemiol Biomarkers Prev. 2021;30(2):245–7. Available from: http://cebp.aacrjournals.org/lookup/doi/10.1158/1055-9965.EPI-20-1538DOI:10.1158/1055-9965.EPI-20-1538.

Kalliala I, Athanasiou A, Veroniki AA, Salanti G, Efthimiou O, Raftis N, et al. **Incidence and mortality from cervical cancer and other malignancies after treatment of cervical intraepithelial neoplasia: a systematic review and meta-**

analysis of the literature. Ann Oncol. 2020;31(2):213–27. Available from: https://doi.org/10.1016/j.annonc.2019.11.004DOI:10.1016/j.annonc.2019.11.004.
Resumen: *BackgroundAlthough local treatments for cervical intraepithelial neoplasia (CIN) are highly effective, it has been reported that treated women remain at increased risk of cervical and other cancers. Our aim is to explore the risk of developing or dying from cervical cancer and other human papillomavirus (HPV)- and non-HPV-related malignancies after CIN treatment and infer its magnitude compared with the general population.*

Arbyn M, Bruni L, Kelly D, Basu P, Poljak M, Gultekin M, et al. **Tackling cervical cancer in Europe amidst the COVID-19 pandemic**. Lancet Public Heal. 2020;5(8):e425. Available from: http://dx.doi.org/10.1016/S2468-2667(20)30122-5DOI:10.1016/S2468-2667(20)30122-5.

Cadman L, Reuter C, Jitlal M, Kleeman M, Austin J, Hollingworth T, et al. **A Randomized Comparison of Different Vaginal Self-sampling Devices and Urine for Human Papillomavirus Testing—Predictors 5.1**. Cancer Epidemiol Biomarkers & Prev. 2021;30(4):661 LP – 668. Available from: http://cebp.aacrjournals.org/content/30/4/661.abstractDOI:10.1158/1055-9965.EPI-20-1226.
Resumen: *Background: Human papillomavirus (HPV)-based screening is rapidly replacing cytology as the cervical screening modality of choice. In addition to being more sensitive than cytology, it can be done on self-collected vaginal or urine samples. This study will compare the high-risk HPV positivity rates and sensitivity of self-collected vaginal samples using four different collection devices and a urine sample.Methods: A total of 620 women referred for colposcopy were invited to provide an initial stream urine sample collected with the Colli-Pee device and take two vaginal self-samples, using either a dry flocked swab (DF) and a wet dacron swab (WD), or a HerSwab (HS) and Qvintip (QT) device. HPV testing was performed by the BD Onclarity HPV Assay.Results: A total of 600 vaginal sample pairs were suitable for analysis, and 505 were accompanied by a urine sample. Similar positivity rates and sensitivities for CIN2+ and CIN3+ were seen for DF, WD, and urine, but lower values were seen for QT and HS. No clear user preferences were seen between devices, but women found urine easiest to collect, and were more confident they had taken the sample correctly. The lowest confidence in collection was reported for HS.Conclusions: Urine, a DF swab, and WD swab all performed well and were well received by the women, whereas the Qvintip and HerSwab devices were less satisfactory.Impact: This is the first study to compare five self-sampling methods in the same women taken at the same time. It supports wider use of urine or vaginal self-sampling for cervical screening.*

Gottschlich A, van Niekerk D, Smith LW, Gondara L, Melnikow J, Cook DA, et al. **Assessing 10-Year Safety of a Single Negative HPV Test for Cervical Cancer Screening: Evidence from FOCAL-DECADE Cohort**. Cancer Epidemiol Biomarkers & Prev. 2021;30(1):22 LP – 29. Available from: http://cebp.aacrjournals.org/content/30/1/22.abstractDOI:10.1158/1055-9965.EPI-20-1177.
Resumen: *Background: Long-term safety of a single negative human papillomavirus (HPV) test for cervical cancer screening is unclear. The HPV FOr cerviCAL Cancer*

Trial (FOCAL) was a randomized trial comparing HPV testing with cytology. The FOCAL-DECADE cohort tracked women who received one HPV test during FOCAL, and were HPV negative, for up to 10 years to identify cervical intraepithelial neoplasia grade 2 or worse (CIN2+) and grade 3 or worse (CIN3+) detected through a provincial screening program.Methods: FOCAL participants who received one HPV test, were negative, and had at least one post-FOCAL cervix screen were included (N = 5,537). We constructed cumulative incidence curves of CIN2+/CIN3+ detection, analyzed cumulative risk of detection at intervals post-HPV test, calculated average incidence rates for detection, and compared hazard across ages.Results: Ten years after one negative HPV test, the probability of CIN2+ detection was lower than 1%, with most lesions detected 7 years or later. Average incidence rates of CIN2+/CIN3+ lesions over follow-up were 0.50 [95% confidence interval (CI), 0.31–0.78] and 0.18 (95% CI, 0.07–0.36) per 1,000 person-years, respectively. Hazards were higher for younger ages (nonsignificant trend).Conclusions: Among women with a single negative HPV test, long-term risk of CIN2+ detection was low, particularly through 7 years of follow-up; thus, one negative HPV test appears to confer long-term protection from precancerous lesions. Even 10-year risk is sufficiently low to support extended testing intervals in average-risk populations.Impact: Our findings support the safety of screening policies using HPV testing alone at 5-year or longer intervals.

Aarnio R, Isacson I, Sanner K, Gustavsson I, Gyllensten U, Olovsson M. **Comparison of vaginal self-sampling and cervical sampling by medical professionals for the detection of HPV and CIN2+: a randomized study**. Int J Cancer. 2021;ijc.33482. Available from: https://onlinelibrary.wiley.com/doi/10.1002/ijc.33482DOI:10.1002/ijc.33482.
Resumen: *Primary screening with human papillomavirus (HPV) test is more effective in reducing cervical cancer incidence than cytology and it also offers the opportunity to self-sample. We conducted a randomized study to compare vaginal self-sampling with cervical sampling by medical professionals for HPV testing concerning prevalence of HPV and detection of cervical intraepithelial neoplasia (CIN) of grade 2 or worse (CIN2+) or grade 3 or worse (CIN3+) in primary screening. In total, 11 951 women aged 30–60 years were randomized into two groups, 5961 for self-sampling (SS arm) and 5990 for sampling by medical professionals (SMP arm). Sampling was performed with a Rovers®Vibabrush in the SS arm and a cytobrush in the SMP arm. All samples were applied to an indicating FTA elute card and analyzed for HPV using a clinically validated real-time PCR test (hpVIR). All HPVpositive women performed repeated sampling about six months later using the same procedure as used initially. All HPV-positive women in the second sampling were referred to colposcopy. The prevalence of HPV in the first test did not differ between the SS arm (6.8%, 167/2466) and the SMP arm (7.8%, 118/1519) (p=0.255). The prevalence of CIN2+ per 1000 screened women was 17 (43/2466 × 1000) (95%CI 13–24) in the SS arm and 21 (32/1519 × 1000) (95%CI 15–30) in the SMP arm. For CIN3+, the prevalence per 1000 screened women was 14 (35/2466 × 1000) (95%CI 10–20) in the SS arm and 15 (23/1519 × 1000) (95%CI 10–23) in the SMP arm. In conclusion, self-sampling and sampling by medical professionals showed the same prevalence of HPV and detection rate of CIN2+ and CIN3+ in histology.*

Burger EA, Jansen E EL, Killen J, Kok IM de, Smith MA, Sy S, et al. **Impact of COVID-19-related care disruptions on cervical cancer screening in the United States**. J Med Screen. 2021;096914132110010. Available from: https://doi.org/10.1177/09691413211001097DOI:10.1177/09691413211001097.
Resumen: *ObjectivesTo quantify the secondary impacts of the COVID-19 pandemic disruptions to cervical cancer screening in the United States, stratified by step in the screening process and primary test modality, on cervical cancer burden.MethodsWe conducted a comparative model-based analysis using three independent NCI Cancer Intervention and Surveillance Modeling Network cervical models to quantify the impact of eight alternative COVID-19-related screening disruption scenarios compared to a scenario of no disruptions. Scenarios varied by the duration of the disruption (6 or 24 months), steps in the screening process being disrupted (primary screening, surveillance, colposcopy, excisional treatment), and primary screening modality (cytology alone or cytology plus human papillomavirus ?cotesting?).ResultsThe models consistently showed that COVID-19-related disruptions yield small net increases in cervical cancer cases by 2027, which are greater for women previously screened with cytology compared with cotesting. When disruptions affected all four steps in the screening process under cytology-based screening, there were an additional 5?7 and 38?45 cases per one million screened for 6- and 24-month disruptions, respectively. In contrast, under cotesting, there were additional 4?5 and 35?45 cases per one million screened for 6- and 24-month disruptions, respectively. The majority (58?79%) of the projected increases in cases under cotesting were due to disruptions to surveillance, colposcopies, or excisional treatment, rather than to primary screening.ConclusionsWomen in need of surveillance, colposcopies, or excisional treatment, or whose last primary screen did not involve human papillomavirus testing, may comprise priority groups for reintroductions.*

Smith MA, Hall MT, Saville M, Brotherton JM, Simms KT, Lew J-B, et al. **Could HPV testing on self-collected samples be routinely used in an organised cervical screening program? A modelled analysis**. Cancer Epidemiol Biomarkers Prev. 2020;cebp.0998.2020. DOI:10.1158/1055-9965.epi-20-0998.
Resumen: *Background: Cervical screening on self-collected samples has mainly been considered for targeted use in under-screened women. Updated evidence supports equivalent sensitivity of PCR-based HPV testing on self-collected and clinician-collected samples. Methods: Using a well-established model, we compared the lifetime impact on cancer diagnoses and deaths resulting from cervical screening using self-collected samples only, with and without the existing restriction in Australia to women aged 30+ and 2+ years overdue; compared to the mainstream program of 5-yearly HPV screening on clinician-collected samples starting at 25. We conservatively assumed sensitivity of HPV testing on self-collected relative to clinician-collected samples was 0.98. Outcomes were estimated either in the context of HPV vaccination ("routinely-vaccinated cohorts"; uptake as in Australia), or the absence of HPV vaccination ("unvaccinated cohorts"). Results: In unvaccinated cohorts, the health benefits of increased participation from self-collection outweighed the worst-case (2%) loss of relative test accuracy even if only 15% of women who would not otherwise attend used it ('additional uptake'). In routinely-vaccinated cohorts, population-wide self-collection could be marginally (0.2-1.0%) less effective at 15% additional uptake, but 6.2-12.4% more effective at 50% additional uptake. Most*

(56.6-65.0%) of the loss in effectiveness in the restricted self-collection pathway in Australia results from the requirement to be 2+ years overdue. Conclusions: Even under pessimistic assumptions, any potential loss in test sensitivity from self-collection is likely outweighed by improved program effectiveness resulting from feasible levels of increased uptake. Impact: Consideration could be given to offering self-collection more widely, potentially as an equal choice for women

Ginsburg O, Basu P, Kapambwe S, Canfell K. **Eliminating cervical cancer in the COVID-19 era**. Nat Cancer. 2021;2(February):133–4. Available from: http://dx.doi.org/10.1038/s43018-021-00178-9DOI:10.1038/s43018-021-00178-9.

Giorgi Rossi P, Carozzi F, Ronco G, Allia E, Bisanzi S, Gillio-Tos A, et al. **p16/ki67 and E6/E7 mRNA Accuracy and Prognostic Value in Triaging HPV DNA-Positive Women**. JNCI J Natl Cancer Inst. 2021;113(3):292–300. Available from: https://doi.org/10.1093/jnci/djaa105DOI:10.1093/jnci/djaa105.
Resumen: *The study presents cross-sectional accuracy of E6 and E7 (E6/E7) mRNA detection and p16/ki67 dual staining, alone or in combination with cytology and human papillomavirus (HPV)16/18 genotyping, as a triage test in HPV DNA-positive women and their impact on cervical intraepithelial neoplasia (CIN2+) overdiagnosis.Women aged 25-64 years were recruited. HPV DNA-positive women were triaged with cytology and tested for E6/E7 mRNA and p16/ki67. Cytology positive women were referred to colposcopy, and negatives were randomly assigned to immediate colposcopy or to 1-year HPV retesting. Lesions found within 24 months since recruitment were included. All P values were 2-sided.40 509 women were recruited, and 3147 (7.8%) tested HPV DNA positive; 174 CIN2+ were found: sensitivity was 61.0% (95% confidence interval [CI] = 53.6 to 68.0), 94.4% (95% CI = 89.1 to 97.3), and 75.2% (95% CI = 68.1 to 81.6) for cytology, E6/E7 mRNA, and p16/ki67, respectively. Immediate referral was 25.6%, 66.8%, and 28.3%, respectively. Overall referral was 65.3%, 78.3%, and 63.3%, respectively. Cytology or p16/ki67, when combined with HPV16/18 typing, reached higher sensitivity with a small impact on referral. Among the 2306 HPV DNA-positive and cytology-negative women, relative CIN2+ detection in those randomly assigned at 1-year retesting vs immediate colposcopy suggests a -28% CIN2+ regression (95% CI = -57% to +20%); regression was higher in E6/E7 mRNA-negatives (Pinteraction = .29). HPV clearance at 1 year in E6/E7 mRNA and in p16/ki67 negative women was about 2 times higher than in positive women (Pinteraction < .001 for both).p16/ki67 showed good performance as a triage test. E6/E7 mRNA showed the highest sensitivity, at the price of too high a positivity rate to be efficient for triage. However, when negative, it showed a good prognostic value for clearance and CIN2+ regression.*

Green LI, Mathews CS, Waller J, Kitchener H, Rebolj M, Committee THPVPS. **Attendance at early recall and colposcopy in routine cervical screening with human papillomavirus testing**. Int J Cancer. 2021;148(8):1850–7. Available from: https://doi.org/10.1002/ijc.33348DOI:https://doi.org/10.1002/ijc.33348.
Resumen: *Abstract Attendance at early recall and colposcopy is crucial to attaining the benefits of primary high-risk human papillomavirus (HR-HPV)-based screening. Within the English HPV pilot, we analysed deprivation- and age-related patterns of attendance at colposcopy and 12- and 24-month early recall of HR-HPV positive women screened in 2013 to 2015 (N = 36?466). We fitted logistic regression models for adjusted odds*

ratios (OR). Despite high overall attendance, area deprivation had a small but significant impact at both early recalls, for example, attendance at 24?months was 86.3% and 83.0% in less vs more deprived areas, respectively (ORadj: 0.76; 95% CI: 0.67-0.87). Older women (≥30?years) were more likely to attend early recall than younger women (<30?years), for example, attendance at 24?months was 86.1% vs 82.3%, respectively (ORadj: 1.32, 95% CI: 1.16-1.51). Most women attended colposcopy following a baseline referral, with 96.9% attendance among more deprived and 97.8% among less deprived areas (ORadj: 0.70; 95% CI: 0.55-0.88). Differences in colposcopy attendance by deprivation level at 12 and 24?months were of approximately the same magnitude. In conclusion, attendance at early recall and colposcopy was reassuringly high. Although there were statistically significant differences by deprivation and age group, these were small in absolute terms.

Besó Delgado M, Ibáñez Cabanell J, Molina-Barceló A, Zurriaga Llorens O, Salas Trejo D. **¿Aceptan las mujeres de la Comunidad Valenciana la auto-toma como forma de cribado de cáncer de cérvix?** Rev Esp Salud Publica. 2021;95:1–18.

Resumen. F*undamentos: El uso de la auto-toma para determinación del Virus del Papiloma Humano (VPH), podría facilitar la implantación de los pro- gramas de cribado poblacional y aumentar la parti- cipación de las mujeres. El objetivo de estudio fue conocer los conocimientos y actitudes de las muje- res frente al cribado del cáncer de cérvix y la acep- tación de la auto-toma como método de cribado para la detección del VPH. Métodos: Estudio transversal analítico me- diante encuesta telefónica realizada a una muestra aleatoria de 389 mujeres entre 35 y 65 años de la Comunitat Valenciana. Se preguntó a las mujeres sobre prácticas preventivas previas, actitudes y co- nocimientos del cribado, y la preferencia por la de- terminación de VPH mediante auto-toma o por un profesional sanitario. Resultados: El 86,9% de las mujeres encuesta- das prefirieron la auto-toma como método de cri- bado y el 93,3% se habían realizado una citología cervical previa. El 51,4% de las mujeres tenían un nivel de conocimiento alto sobre el cribado del cán- cer de cérvix. Las mujeres de menor edad (POR 9,26; IC95%1,04-24,38), mayor nivel de estudios (POR 4,6; IC95%:1,92-11,00), y mayor nivel de conocimientos (POR 2,78; IC95%:1,69-9,29), pre- sentaron preferencias mayores por la determina- ción de VPH mediante auto-toma. La tendencia en la edad, nivel de estudios y conocimientos fue la misma para la prevalencia de realización de la cito- logía cervical previa. Conclusiones: La aceptación de la auto-toma como método de cribado del cáncer de cérvix es elevada entre las mujeres. Se deben dedicar esfuer- zos para aumentar el conocimiento en las mujeres para reducir posibles desigualdades de acceso y fo- mentar una participación informada*

■ Cribado de cáncer de cuello de útero - equidad

Green LI, Mathews CS, Waller J, Kitchener H, Rebolj M, Committee THPVPS. **Attendance at early recall and colposcopy in routine cervical screening with human papillomavirus testing**. Int J Cancer. 2021;148(8):1850–7. Available from: https://doi.org/10.1002/ijc.33348DOI:https://doi.org/10.1002/ijc.33348.
Resumen: *Abstract Attendance at early recall and colposcopy is crucial to attaining the benefits of primary high-risk human papillomavirus (HR-HPV)-based screening. Within the English HPV pilot, we analysed deprivation- and age-related patterns of attendance at colposcopy and 12- and 24-month early recall of HR-HPV positive women screened*

in 2013 to 2015 (N = 36?466). We fitted logistic regression models for adjusted odds ratios (OR). Despite high overall attendance, area deprivation had a small but significant impact at both early recalls, for example, attendance at 24?months was 86.3% and 83.0% in less vs more deprived areas, respectively (ORadj: 0.76; 95% CI: 0.67-0.87). Older women (≥30?years) were more likely to attend early recall than younger women (<30?years), for example, attendance at 24?months was 86.1% vs 82.3%, respectively (ORadj: 1.32, 95% CI: 1.16-1.51). Most women attended colposcopy following a baseline referral, with 96.9% attendance among more deprived and 97.8% among less deprived areas (ORadj: 0.70; 95% CI: 0.55-0.88). Differences in colposcopy attendance by deprivation level at 12 and 24?months were of approximately the same magnitude. In conclusion, attendance at early recall and colposcopy was reassuringly high. Although there were statistically significant differences by deprivation and age group, these were small in absolute terms

Besó Delgado M, Ibáñez Cabanell J, Molina-Barceló A, Zurriaga Llorens O, Salas Trejo D. **¿Aceptan las mujeres de la Comunidad Valenciana la auto-toma como forma de cribado de cáncer de cérvix?** Rev Esp Salud Publica. 2021;95:1–18.

Resumen. F*undamentos: El uso de la auto-toma para determinación del Virus del Papiloma Humano (VPH), podría facilitar la implantación de los pro- gramas de cribado poblacional y aumentar la parti- cipación de las mujeres. El objetivo de estudio fue conocer los conocimientos y actitudes de las muje- res frente al cribado del cáncer de cérvix y la acep- tación de la auto-toma como método de cribado para la detección del VPH. Métodos: Estudio transversal analítico me- diante encuesta telefónica realizada a una muestra aleatoria de 389 mujeres entre 35 y 65 años de la Comunitat Valenciana. Se preguntó a las mujeres sobre prácticas preventivas previas, actitudes y co- nocimientos del cribado, y la preferencia por la de- terminación de VPH mediante auto-toma o por un profesional sanitario. Resultados: El 86,9% de las mujeres encuesta- das prefirieron la auto-toma como método de cri- bado y el 93,3% se habían realizado una citología cervical previa. El 51,4% de las mujeres tenían un nivel de conocimiento alto sobre el cribado del cán- cer de cérvix. Las mujeres de menor edad (POR 9,26; IC95%1,04-24,38), mayor nivel de estudios (POR 4,6; IC95%:1,92-11,00), y mayor nivel de conocimientos (POR 2,78; IC95%:1,69-9,29), pre- sentaron preferencias mayores por la determina- ción de VPH mediante auto-toma. La tendencia en la edad, nivel de estudios y conocimientos fue la misma para la prevalencia de realización de la cito- logía cervical previa. Conclusiones: La aceptación de la auto-toma como método de cribado del cáncer de cérvix es elevada entre las mujeres. Se deben dedicar esfuer- zos para aumentar el conocimiento en las mujeres para reducir posibles desigualdades de acceso y fo- mentar una participación informada*

■ Cribado de cáncer colorrectal - general

Bronzwaer MES, Depla ACTM, van Lelyveld N, Spanier BWM, Oosterhout YH, van Leerdam ME, et al. ***Quality assurance of colonoscopy within the Dutch national colorectal cancer screening program****. Gastrointest Endosc. 2019;89(1):1–13. Available from:*

https://linkinghub.elsevier.com/retrieve/pii/S0016510718330372DOI:10.1016/j.gie.2018.09.011.
Resumen: Colorectal cancer (CRC) screening is capable of reducing CRC-related morbidity and mortality. Colonoscopy is the reference standard to detect CRC, also providing the opportunity to detect and resect its precursor lesions: colorectal polyps. Therefore, colonoscopy is either used as a primary screening tool or as a subsequent procedure after a positive triage test in screening programs based on non-invasive stool testing or sigmoidoscopy. However, in both settings, colonoscopy is not fully protective for the occurrence of post-colonoscopy CRCs (PCCRCs). Because most PCCRCs are the result of colonoscopy-related factors, a high-quality procedure is of paramount importance to assure optimal effectiveness of CRC screening programs. For this reason, at the start of the Dutch fecal immunochemical test (FIT)-based screening program, quality criteria for endoscopists performing colonoscopies in FIT-positive screenees, as well as for endoscopy centers, were defined. In conjunction, an accreditation and auditing system was designed and implemented. In this report, we describe the quality assurance process for endoscopists participating in the Dutch national CRC screening program, including a detailed description of the evidence-based quality criteria. We believe that our experience might serve as an example for colonoscopy quality assurance programs in other CRC screening programs.

de Jonge L, Worthington J, van Wifferen F, Iragorri N, Peterse EFP, Lew J-B, et al. ***Impact of the COVID-19 pandemic on faecal immunochemical test-based colorectal cancer screening programmes in Australia, Canada, and the Netherlands: a comparative modelling study****. Lancet Gastroenterol Hepatol. 2021;6(4):304–14. Available from: http://www.ncbi.nlm.nih.gov/pubmed/33548185DOI:10.1016/S2468-1253(21)00003-0.*
Resumen: BACKGROUND Colorectal cancer screening programmes worldwide have been disrupted during the COVID-19 pandemic. We aimed to estimate the impact of hypothetical disruptions to organised faecal immunochemical test-based colorectal cancer screening programmes on short-term and long-term colorectal cancer incidence and mortality in three countries using microsimulation modelling. METHODS In this modelling study, we used four country-specific colorectal cancer microsimulation models-Policy1-Bowel (Australia), OncoSim (Canada), and ASCCA and MISCAN-Colon (the Netherlands)-to estimate the potential impact of COVID-19-related disruptions to screening on colorectal cancer incidence and mortality in Australia, Canada, and the Netherlands annually for the period 2020-24 and cumulatively for the period 2020-50. Modelled scenarios varied by duration of disruption (3, 6, and 12 months), decreases in screening participation after the period of disruption (0%, 25%, or 50% reduction), and catch-up screening strategies (within 6 months after the disruption period or all screening delayed by 6 months). FINDINGS Without catch-up screening, our analysis predicted that colorectal cancer deaths among individuals aged 50 years and older, a 3-month disruption would result in 414-902 additional new colorectal cancer diagnoses (relative increase 0·1-0·2%) and 324-440 additional deaths (relative increase 0·2-0·3%) in the Netherlands, 1672 additional diagnoses (relative increase 0·3%) and 979 additional deaths (relative increase 0·5%) in Australia, and 1671 additional diagnoses (relative increase 0·2%) and 799 additional deaths (relative increase 0·3%) in Canada between 2020 and 2050, compared with undisrupted screening. A 6-month disruption would result in 803-1803 additional diagnoses

(relative increase 0·2-0·4%) and 678-881 additional deaths (relative increase 0·4-0·6%) in the Netherlands, 3552 additional diagnoses (relative increase 0·6%) and 1961 additional deaths (relative increase 1·0%) in Australia, and 2844 additional diagnoses (relative increase 0·3%) and 1319 additional deaths (relative increase 0·4%) in Canada between 2020 and 2050, compared with undisrupted screening. A 12-month disruption would result in 1619-3615 additional diagnoses (relative increase 0·4-0·9%) and 1360-1762 additional deaths (relative increase 0·8-1·2%) in the Netherlands, 7140 additional diagnoses (relative increase 1·2%) and 3968 additional deaths (relative increase 2·0%) in Australia, and 5212 add…

Carot L, Navarro G, Naranjo-Hans D, Iglesias-Coma M, Dalmases A, Fernández L, et al. ***Predictors of Metachronous Risk Polyps After Index Colonoscopy****. Clin Transl Gastroenterol. 2021;12(2). Available from: https://journals.lww.com/ctg/Fulltext/2021/02000/Predictors_of_Metachronous_Risk_Polyps_After_Index.13.aspxretorn Resumen: INTRODUCTION: Guidelines for surveillance after polypectomy are lacking in strong evidence. Our aim was to identify some precursors of colorectal cancer lesions at 3 years after polypectomy to improve stratification and surveillance programs. METHODS: We included patients with high-risk lesions (HRLs), defined as advanced adenoma (AA), large serrated polyps (SPs), and multiplicity (≥3 of any adenomas/SPs). Data on age, sex, cardiovascular risk factors, pharmacological treatment, and the histological characteristics in each individual, and mutations in genes involved in the most advanced index polyp, were collected. Parameters independently associated with a metachronous HRL diagnosis were evaluated through univariate and multivariate analyses. The results are reported as odds ratios and 95% confidence intervals along with P values. RESULTS: A total of 537 cases (median age: 60.7 years; 66% male) were included. Dyslipidemia and smoking correlated with metachronous HRLs. Multivariate logistic regression analysis showed that the presence of multiplicity with ≥3 polyps on the index colonoscopy was significantly associated with metachronous HRL, AA, proximal AA, and ≥3 polyps at 3 years. In addition, independent predictors of metachronous proximal AA were increasing age, female sex, and the loss of expression of the MLH1 protein. DISCUSSION: Multiplicity was a strong predictor of HRLs at 3 years, although the inclusion of other clinical variables (age, sex, smoking status, and dyslipidemia) improves surveillance recommendations. Without these risk factors, the surveillance could be extended to 5 years; we propose examining the somatic expression of MHL1 in all patients.*

Peterse EFP, Meester RGS, de Jonge L, Omidvari A-H, Alarid-Escudero F, Knudsen AB, et al. ***Comparing the Cost-Effectiveness of Innovative Colorectal Cancer Screening Tests****. JNCI J Natl Cancer Inst. 2021;113(2):154–61. Available from: https://doi.org/10.1093/jnci/djaa103DOI:10.1093/jnci/djaa103.*
Resumen: Colorectal cancer (CRC) screening with colonoscopy and the fecal immunochemical test (FIT) is underutilized. Innovative tests could increase screening acceptance. This study determined which of the available alternatives is most promising from a cost-effectiveness perspective.The previously-validated MISCAN-Colon model was used to evaluate the cost-effectiveness of screening with capsule endoscopy every 5 or 10 years, computed tomographic colonography (CTC) every 5 years, the multi-target stool DNA (mtSDNA) test every 1 or 3 years, and the methylated SEPT9 DNA plasma

assay (mSEPT9) every 1 or 2 years. We also compared these strategies to annual FIT screening and colonoscopy screening every 10 years. Quality-adjusted life-years gained (QALYG), number of colonoscopies, and incremental cost-effectiveness ratios (ICERs) were projected. We assumed a willingness-to-pay threshold of $100,000 per QALYG.Among the alternative tests, CTC every 5 years, annual mSEPT9 and annual mtSDNA screening had ICERs of $1,092, $63,253 and $214,974 per QALYG, respectively. Other screening strategies were more costly and less effective than (a combination of) these three. Under the assumption of perfect adherence, annual mSEPT9 screening resulted in more QALYG, CRC cases averted and CRC deaths averted than annual FIT screening, but led to a high rate of colonoscopy referral (51% after 3 years, 69% after 5 years). The alternative tests were not cost-effective compared to FIT and colonoscopy.This study suggests that for individuals not willing to participate in FIT or colonoscopy screening, mSEPT9 is the test of choice if the high colonoscopy referral rate is acceptable to them.

Shaukat A, Kaalby L, Baatrup G, Kronborg O, Duval S, Shyne M, et al. ***Effects of Screening Compliance on Long-Term Reductions in All-Cause and Colorectal Cancer Mortality****. Clin Gastroenterol Hepatol. 2020; Available from: https://doi.org/10.1016/j.cgh.2020.06.019DOI:10.1016/j.cgh.2020.06.019.*
Resumen: BACKGROUND & AIMS: Randomized trials have shown that biennial fecal occult blood test (FOBT) screening reduces mortality from colorectal cancer (CRC), but not overall mortality. Differences in benefit for men vs women, and by age, are unknown. We sought to evaluate long-term reduction in all-cause and CRC-specific mortality in men and women who comply with offered screening, and in different age groups, using individual participant data from 2 large randomized trials of biennial FOBT screening, compared with an intention to treat analysis. METHODS: We updated the CRC and all-cause mortality from the Danish CRC screening trial (n=61,933) through 30 years of follow up and pooled individual participant data with individual 30-year follow-up data from the Minnesota Colon Cancer Control trial (n=46,551). We compared the biennial screening groups to usual care (controls) in individuals 50-80 years old using Kaplan Meier estimates of relative risks and risk differences, adjusted for study differences in age, sex, and compliance. RESULTS: Through 30 years of follow up, there were 33,478 (71.9%) and 33,479 (72.2%) total deaths and 1023 (2.2%) and 1146 (2.5%) CRC deaths in the biennial screening (n=46,553) and control groups (n=46,358), respectively. Among compliers, biennial FOBT screening significantly reduced CRC mortality by 16% (relative risk [RR], 0.84; 95% CI, 0.74-0.96) and all-cause mortality by 2% (RR, 0.98; 95% CI, 0.97-0.99). Among compliers, the reduction in CRC mortality was larger for men (RR, 0.75; 95% CI, 0.62-0.90) than women (RR, 0.91; 95% CI, 0.75-1.09). The largest reduction in CRC mortality was in compliant men 60-69 years old (RR, 0.59; 95% CI, 0.42-0.81) and women 70 years and older (RR, 0.53; 95% CI, 0.30-0.94). CONCLUSIONS: Long-term CRC mortality outcomes of screening among compliers using biennial FOBT are sustained, with a statistically significant reduction in all-cause mortality. The reduction in CRC mortality is greater in men than women-the benefit in women lags that of men by about 10 years.

Cross AJ, Robbins EC, Pack K, Stenson I, Patel B, Rutter MD, et al. ***Colorectal cancer risk following polypectomy in a multicentre, retrospective, cohort study: an evaluation of the 2020 UK post-polypectomy surveillance guidelines****. Gut. 2021;gutjnl-2020-*

323411. Available from: https://gut.bmj.com/lookup/doi/10.1136/gutjnl-2020-323411DOI:10.1136/gutjnl-2020-323411.
Resumen: Objective Colonoscopy surveillance aims to reduce colorectal cancer (CRC) incidence after polypectomy. The 2020 UK guidelines recommend surveillance at 3 years for 'high- risk' patients with ≥2 premalignant polyps (PMPs), of which ≥1 is 'advanced' (serrated polyp (or adenoma) ≥10 mm or with (high- grade) dysplasia); ≥5 PMPs; or ≥1 non- pedunculated polyp ≥20 mm; 'low- risk' patients without these findings are instead encouraged to participate in population- based CRC screening. We examined the appropriateness of these risk classification criteria and recommendations. Design Retrospective analysis of patients who underwent colonoscopy and polypectomy mostly between 2000 and 2010 at 17 UK hospitals, followed- up through 2017. We examined CRC incidence by baseline characteristics, risk group and number of surveillance visits using Cox regression, and compared incidence with that in the general population using standardised incidence ratios (SIRs). results Among 21 318 patients, 368 CRCs occurred during follow- up (median: 10.1 years). Baseline CRC risk factors included age ≥55 years, ≥2 PMPs, adenomas with tubulovillous/villous/unknown histology or high- grade dysplasia, proximal polyps and a baseline visit spanning 2–90 days. Compared with the general population, CRC incidence without surveillance was higher among those with adenomas with high- grade dysplasia (SIR 1.74, 95% CI 1.21 to 2.42) or ≥2 PMPs, of which ≥1 was advanced (1.39, 1.09 to 1.75). For low- risk (71%

Zamorano-Leon JJ, López-De-andres A, Álvarez-González A, Maestre-Miquel C, Astasio-Arbiza P, López-Farré A, et al. ***Trends and predictors for the uptake of colon cancer screening using the fecal occult blood test in Spain from 2011 to 2017****. Int J Environ Res Public Health. 2020;17(17):1–17. DOI:10.3390/ijerph17176222.*
Resumen: Background: In Spain, colorectal cancer screening using the fecal occult blood test, targeted towards the 50–69 age bracket, was implemented on different dates. We aim to assess the temporal trend of colorectal cancer (CRC) screening uptake according to the year of screening implementation in each region and to identify predictors for the uptake of CRC screening. Methods: A cross-sectional study with 12,657 participants from the Spanish National Health Surveys 2011 and 2017 was used. Uptake rates were analyzed according to the date that the screening program was implemented. Results: For regions with programs implemented before 2011, the uptake rate increased 3.34-fold from 2011 to 2017 (9.8% vs. 32.7%; p < 0.001). For regions that implemented screening within the 2011–2016 period, the uptake rose from 4.3% to 13.2% (3.07-fold; p < 0.001), and for regions that implemented screening after 2016, the uptake increased from 3.4% to 8.8% (2.59-fold; p < 0.001). For the entire Spanish population, the uptake increased 3.21-fold (6.8% vs. 21.8%; p < 0.001). Positive predictors for uptake were older age, Spanish nationality, middle-to-high educational level, suffering chronic diseases, non-smoking and living in regions where screening programs were implemented earlier. Conclusions: The different periods for the implementation of CRC screening as well as sociodemographic and health inequalities may have limited the improvement in the screening uptake from 2011 to 2017 in Spain.

Petersen MM, Ferm L, Kleif J, Piper TB, Rømer E, Christensen IJ, et al. ***Triage may improve selection to colonoscopy and reduce the number of unnecessary colonoscopies****. Cancers (Basel). 2020;12(9):1–9. DOI:10.3390/cancers12092610.*

Resumen: Implementation of population screening for colorectal cancer by direct colonoscopy or follow-up colonoscopy after a positive fecal blood test has challenged the overall capacity of bowel examinations. Certain countries are facing serious colonoscopy capacity constraints, which have led to waiting lists and long time latency of follow-up examinations. Various options for improvement are considered, including increased cut-off values of the fecal blood tests. Results from major clinical studies of blood-based, cancer-associated biomarkers have, however, led to focus on a Triage concept for improved selection to colonoscopy. The Triage test may include subject age, concentration of hemoglobin in a feces test and a combination of certain blood-based cancer-associated biomarkers. Recent results have indicated that Triage may reduce the requirements for colonoscopy by around 30%. Such results may be advantageous for the capacity, the healthcare budgets and in particular, the subjects, who do not need an unnecessary, unpleasant and risk-associated bowel examination.

Ibáñez-Sanz G, Sanz-Pamplona R, Garcia M, on behalf of the MSIC-SC Research Group. ***Future Prospects of Colorectal Cancer Screening: Characterizing Interval Cancers****. Cancers (Basel). 2021;13(6):1328. Available from: https://www.mdpi.com/2072-6694/13/6/1328DOI:10.3390/cancers13061328.*
Resumen: Tumors that are not detected by screening tests are known as interval cancers and are diagnosed clinically after a negative result in the screening episode but before the next screening invitation. Clinical characteristics associated with interval colorectal cancers have been studied, but few molecular data are available that describe interval colorectal cancers. A better understanding of the clinical and biological characteristics associated with interval colorectal cancer may provide new insights into how to prevent this disease more effectively. This review aimed to summarize the current literature concerning interval colorectal cancer and its epidemiological, clinical, and molecular features.

Chiu H-M, Jen GH-H, Wang Y-W, Fann JC-Y, Hsu C-Y, Jeng Y-C, et al. ***Long-term effectiveness of faecal immunochemical test screening for proximal and distal colorectal cancers****. Gut. 2021;gutjnl-2020-322545. Available from: http://gut.bmj.com/content/early/2021/01/24/gutjnl-2020-322545.abstractDOI:10.1136/gutjnl-2020-322545.*
Resumen: Objective To measure the effects of faecal immunochemical test (FIT) for colorectal cancer (CRC) screening on overall and site-specific long-term effectiveness of population-based organised service screening.Design A prospective cohort study of Taiwanese nationwide biennial FIT screening was performed. A total of 5 417 699 eligible subjects were invited to attend screening from 2004 through 2009 and were followed up until 2014. We estimated the adjusted relative rates (aRRs) on the effectiveness of reducing advanced-stage CRC (stage II+) and CRC death by Bayesian Poisson regression models with the full adjustment for a cascade of self-selection factors (including the screening rate and the colonoscopy rate) and the completeness of colonoscopy together with demographic features.Results FIT screening (exposed vs unexposed) reduced the incidence of advanced-stage CRC (48.4 vs 75.7 per 100 000) and mortality (20.3 vs 41.3 per 100 000). Statistically significant reductions of both incidence of advanced-stage CRCs (aRR=0.66, 95% CI 0.63 to 0.70) and deaths from CRC (aRR=0.60, 95% CI 0.57 to 0.64) were noted. FIT screening was more effective in reducing distal advanced-stage CRCs (aRR=0.61, 95% CI 0.58 to 0.64) and CRC

mortality (aRR=0.56, 95% CI 0.53 to 0.69) than proximal advanced CRCs (aRR=0.84, 95% CI 0.77 to 0.92) and CRC mortality (aRR=0.72, 95% CI 0.66 to 0.80).Conclusion A large-scale population-based biennial FIT screening demonstrates 34% significant reduction of advanced-stage CRCs and 40% reduction of death from CRC with larger long-term effectiveness in the distal colon than the proximal colon. Our findings provide a strong and consistent evidence-based policy for supporting a sustainable population-based FIT organised service screening worldwide. The disparity of site-specific long-term effectiveness also provides an insight into the remedy for lower effectiveness of FIT screening in the proximal colon.

González L, Ibáñez R, Sotos F. ***Colorectal cancer screening pilot program in Castilla-La mancha. Partial results after first round: 2015-2018****. Rev Esp Salud Publica. 2021;95.*
Resumen: Objective: Colorectal cancer is considered a public health problem due to its high incidence and mortality in developed countries. Primary preventions is not easy owing to the lack of knowledge of the main risk factors and the difficulty of modifying known risk factors, but it is one of the few tumors that meet the criteria for screening. In Spain, the Colorectal Cancer Population Screening Program was implemented in Catalonia in 2000, followed by the Valencian Community in 2005, beginning in Castilla La Mancha in April 2015. The objetive was to carry out a descriptive study of the results obtained in the first round of the Colorectal Cancer Screening Program at the Virgen de la Luz Hospital in Cuenca. Methods: A retrospective, descriptive and observational study was carried out from the colonoscopies carried out from May 1, 2015 to November 2018, analyzing the number of lesions detected, the histology, the sex and the age range with the greatest affectation, as well as if there was a relationship between the different variables using Pearson's Chi square test. The qualitative variables were presented by means of their distribution in absolute and relative frequencies, and the quantitative ones by mean and standard deviation. Results: The participation rate was 48.06%. 7.25% of fecal occult blood test were positive and 89% with a positive test had a colonoscopy. The positive of inmunological fecal occult test and the detection rate of adenomas were higher in men. 70.7% of colorectal cancers were diagnosed in early stages. There was no relationship between age and the presence of advanced lesions. Conclusions: The rates of people with adenomas and people with invasive cancers in Cuenca province are lower than those registered in Castilla-La Mancha.

Cross AJ, Myles J, Greliak P, Hackshaw A, Halloran S, Benton SC, et al. ***Including a general practice endorsement letter with the testing kit in the Bowel Cancer Screening Programme: Results of a cluster randomised trial****. J Med Screen. 2021;096914132199748. Available from: https://doi.org/10.1177/0969141321997480DOI:10.1177/0969141321997480.*
Resumen: ObjectivesTo evaluate the effect of general practitioner endorsement accompanying the screening kit rather than with the invitation letter on participation in the NHS Bowel Cancer Screening Programme and on the socioeconomic gradient in participation in the Programme.MethodsThe NHS Bowel Cancer Screening Programme in England is delivered via five regional hubs. In early 2016, we carried out a cluster-randomised trial, with hub-day of invitation as the randomisation unit. We randomised 150 hub-days of invitation to the intervention group, GP endorsement on the letter accompanying the guaiac faecal occult blood testing kit (75 hub-days, 197,366

individuals) or control, usual letter (75 hub-days, 197,476 individuals). The endpoint was participation, defined as return of a valid kit within 18?weeks of initial invitation. Because of the cluster randomisation, data were analysed by a hierarchical logistic regression, allowing a random effect for date of invitation. Socioeconomic status was represented by the index of multiple deprivation.ResultsParticipation was 59.4% in the intervention group and 58.7% in the control group, a significant difference (p?=?0.04). There was no heterogeneity of the effect of intervention by index of multiple deprivation. We found that there was some confounding between date and screening episode order (first or subsequent screen). This in turn may have induced confounding with age and slightly diluted the result.ConclusionsGeneral practitioner endorsement induces a modest increase in participation in bowel cancer screening, but does not affect the socioeconomic gradient. When considering cluster randomisation as a research method, careful scrutiny of potential confounding is indicated in advance if possible and in analysis otherwise.

Cribado de cáncer colorrectal - equidad

Cribado de cáncer de pulmón - general

Oudkerk M, Liu S, Heuvelmans MA, Walter JE, Field JK. **Lung cancer LDCT screening and mortality reduction — evidence, pitfalls and future perspectives**. Nat Rev Clin Oncol. 2021;18(3):135–51. Available from: http://dx.doi.org/10.1038/s41571-020-00432-6DOI:10.1038/s41571-020-00432-6.

Resumen: *In the past decade, the introduction of molecularly targeted agents and immune-checkpoint inhibitors has led to improved survival outcomes for patients with advanced-stage lung cancer; however, this disease remains the leading cause of cancer-related mortality worldwide. Two large randomized controlled trials of low-dose CT (LDCT)-based lung cancer screening in high-risk populations — the US National Lung Screening Trial (NLST) and NELSON — have provided evidence of a statistically significant mortality reduction in patients. LDCT-based screening programmes for individuals at a high risk of lung cancer have already been implemented in the USA. Furthermore, implementation programmes are currently underway in the UK following the success of the UK Lung Cancer Screening (UKLS) trial, which included the Liverpool Health Lung Project, Manchester Lung Health Check, the Lung Screen Uptake Trial, the West London Lung Cancer Screening pilot and the Yorkshire Lung Screening trial. In this Review, we focus on the current evidence on LDCT-based lung cancer screening and discuss the clinical developments in high-risk populations worldwide; additionally, we address aspects such as cost-effectiveness. We present a framework to define the scope of future implementation research on lung cancer screening programmes referred to as Screening Planning and Implementation RAtionale for Lung cancer (SPIRAL).*

Krilaviciute A, Brenner H. **Low positive predictive value of computed tomography screening for lung cancer irrespective of commonly employed definitions of target population**. Int J Cancer. 2021;n/a(n/a):ijc.33522. Available from: https://doi.org/10.1002/ijc.33522DOI:10.1002/ijc.33522.
Resumen: *Abstract Screening for lung cancer (LC) by low-dose computed tomography (LDCT) has been demonstrated to reduce LC mortality in randomized clinical trials (RCTs), and its implementation is in preparation in many countries. However, definition of the target population, which was based on various combinations of age ranges and definitions of heavy smoking in the RCTs, is subject to ongoing debate. Using epidemiological data from Germany, we aimed to estimate prevalence of preclinical LC and positive predictive value (PPV) of LDCT in potential target populations defined by age and smoking history. Populations aged 50-69, 55-69, 50-74 and 55-79?years were considered in this analysis. Sex-specific prevalence of preclinical LC was estimated using LC incidence data within those age ranges and annual transition rates from preclinical to clinical LC obtained by meta-analysis. Prevalence of preclinical LC among heavy smokers (defined by various pack-year thresholds) within those age ranges was estimated by combining LC prevalence in the general population with proportions of heavy smokers and relative risks for LC among them derived from epidemiological studies. PPVs were calculated by combining these prevalences with sensitivity and specificity estimates of LDCT. Estimated prevalence of LC was 0.3-0.5% (men) and 0.2-0.3% (women) in the general population and 0.8-1.7% in target populations of heavy smokers. Estimates of PPV of LDCT were <20% for all definitions of target populations of heavy smokers. Refined preselection of target populations would be highly desirable to increase PPV and efficiency of LDCT screening and to reduce numbers of false positive LDCT findings.*

Landy R, Young CD, Skarzynski M, Cheung LC, Berg CD, Rivera MP, et al. **Using Prediction-Models to Reduce Persistent Racial/Ethnic Disparities in Draft 2020 USPSTF Lung-Cancer Screening Guidelines**. JNCI J Natl Cancer Inst. 2021; Available from: https://doi.org/10.1093/jnci/djaa211DOI:10.1093/jnci/djaa211.
Resumen: *We examined whether draft 2020 United States Preventive Services Task Force (USPSTF) lung-cancer screening recommendations "partially ameliorate racial disparities in screening eligibility" compared to 2013 guidelines, as claimed. Using data from the 2015 National Health Interview Survey, USPSTF-2020 increased eligibility by similar proportions for minorities (97.1%) and Whites (78.3%). Contrary to the intent of USPSTF-2020, the relative disparity (differences in percentages of model-estimated gainable life-years from National Lung Screening Trial-like screening by eligible Whites vs minorities) actually increased from USPSTF-2013 to USPSTF-2020 (African Americans: 48.3%–33.4%=15.0% to 64.5%–48.5%=16.0%; Asian Americans: 48.3%–35.6%=12.7% to 64.5%–45.2%=19.3%; Hispanic Americans: 48.3%–24.8%=23.5% to 64.5%–37.0%=27.5%). However, augmenting USPSTF-2020 with high-benefit individuals selected by the Life-Years From Screening with Computed Tomography (LYFS-CT) model nearly eliminated disparities for African Americans (76.8%–75.5%=1.2%), and improved screening efficiency for Asian/Hispanic Americans, although disparities were reduced only slightly (Hispanic Americans) or unchanged (Asian Americans). Draft USPSTF-2020 guidelines increased the number of eligible minorities versus USPSTF-2013 but may inadvertently increase racial/ethnic*

disparities. LYFS-CT could reduce disparities in screening eligibility by identifying ineligible people with high predicted benefit, regardless of race/ethnicity.

Leleu O, Basille D, Auquier M, Clarot C, Hoguet E, Pétigny V, et al. **Lung Cancer Screening by Low-Dose CT Scan: Baseline Results of a French Prospective Study**. Clin Lung Cancer. 2020;21(2):145–52. Available from: https://doi.org/10.1016/j.cllc.2019.10.014DOI:10.1016/j.cllc.2019.10.014.
Resumen: *BackgroundLung cancer mortality has been found to decrease significantly with low-dose (LD) computed tomographic (CT) screening among current or former smokers. However, such a screening program is not implemented in France. This study assessed the feasibility of a lung cancer screening program using LD CT scan in a French administrative territory. We report here the results of the first screening round.*

Ruparel M, Quaife SL, Dickson JL, Horst C, Tisi S, Hall H, et al. **Lung Screen Uptake Trial: results from a single lung cancer screening round**. Thorax. 2020;75(10):908–12. Available from: https://thorax.bmj.com/lookup/doi/10.1136/thoraxjnl-2020-214703DOI:10.1136/thoraxjnl-2020-214703.
Resumen: *The Lung Screen Uptake Trial tested a novel invitation strategy to improve uptake and reduce socioeconomic and smoking-related inequalities in lung cancer screening (LCS) participation. It provides one of the first UK-based 'real-world' LCS cohorts. Of 2012 invited, 1058 (52.6%) attended a 'lung health check'. 768/996 (77.1%) in the present analysis underwent a low-dose CT scan. 92 (11.9%) and 33 (4.3%) participants had indeterminate pulmonary nodules requiring 3-month and 12-month surveillance, respectively; 36 lung cancers (4.7%) were diagnosed (median follow-up: 1044 days). 72.2% of lung cancers were stage I/II and 79.4% of non-small cell lung cancer had curative-intent treatment.*

González Maldonado S, Motsch E, Trotter A, Kauczor H-U, Heussel C-P, Hermann S, et al. **Overdiagnosis in lung cancer screening: Estimates from the German Lung Cancer Screening Intervention Trial**. Int J Cancer. 2021;148(5):1097–105. Available from: https://doi.org/10.1002/ijc.33295DOI:https://doi.org/10.1002/ijc.33295.
Resumen: *Abstract Overdiagnosis is a major potential harm of lung cancer screening; knowing its potential magnitude helps to optimize screening eligibility criteria. The German Lung Screening Intervention Trial (?LUSI?) is a randomized trial among 4052 long-term smokers (2622 men), 50.3 to 71.9?years of age from the general population around Heidelberg, Germany, comparing five annual rounds of low-dose computed tomography (n = 2029) with a control arm without intervention (n = 2023). After a median follow-up of 9.77?years postrandomization and 5.73?years since last screening, 74 participants were diagnosed with lung cancer in the control arm and 90 in the screening arm: 69 during the active screening period; of which 63 screen-detected and 6 interval cancers. The excess cumulative incidence in the screening arm (N = 16) represented 25.4% (95% confidence interval: ?11.3, 64.3] of screen-detected cancer cases (N = 63). Analyzed by histologic subtype, excess incidence in the screening arm appeared largely driven by adenocarcinomas. Statistical modeling yielded an estimated mean preclinical sojourn time (MPST) of 5.38 (4.76, 5.88) years and a screen-test sensitivity of 81.6 (74.4%, 88.8%) for lung cancer overall, all histologic subtypes combined. Based on modeling, we further estimated that about 48% (47.5% [43.2%, 50.7%]) of screen-detected tumors have a lead time ≥4?years, whereas about 33% (32.8% [28.4%, 36.1%]) have a lead time ≥6?years, 23% (22.6% [18.6%, 25.7%])*

≥8?years, 16% (15.6% [12.2%, 18.3%]) ≥10?years and 11% (10.7% [8.0%, 13.0%]) ≥12?years. The high proportions of tumors with relatively long lead times suggest a major risk of overdiagnosis for individuals with comparatively short remaining life expectancies.

Paci E, Puliti D, Carozzi FM, Carrozzi L, Falaschi F, Pegna AL, et al. **Prognostic selection and long-term survival analysis to assess overdiagnosis risk in lung cancer screening randomized trials**. J Med Screen. 2021;28(1):39–47. Available from: https://doi.org/10.1177/0969141320923030DOI:10.1177/0969141320923030.
Resumen: *ObjectivesOverdiagnosis in low-dose computed tomography randomized screening trials varies from 0 to 67%. The National Lung Screening Trial (extended follow-up) and ITALUNG (Italian Lung Cancer Screening Trial) have reported cumulative incidence estimates at long-term follow-up showing low or no overdiagnosis. The Danish Lung Cancer Screening Trial attributed the high overdiagnosis estimate to a likely selection for risk of the active arm. Here, we applied a method already used in benefit and overdiagnosis assessments to compute the long-term survival rates in the ITALUNG arms in order to confirm incidence-excess method assessment.MethodsSubjects in the active arm were invited for four screening rounds, while controls were in usual care. Follow-up was extended to 11.3?years. Kaplan-Meyer 5- and 10-year survivals of ?resected and early? (stage I or II and resected) and ?unresected or late? (stage III or IV or not resected or unclassified) lung cancer cases were compared between arms.ResultsThe updated ITALUNG control arm cumulative incidence rate was lower than in the active arm, but this was not statistically significant (RR: 0.89; 95% CI: 0.67?1.18). A compensatory drop of late cases was observed after baseline screening. The proportion of ?resected and early? cases was 38% and 19%, in the active and control arms, respectively. The 10-year survival rates were 64% and 60% in the active and control arms, respectively (p?=?0.689). The five-year survival rates for ?unresected or late? cases were 10% and 7% in the active and control arms, respectively (p?=?0.679).ConclusionsThis long-term survival analysis, by prognostic categories, concluded against the long-term risk of overdiagnosis and contributed to revealing how screening works.*

■ Cribado de cáncer de pulmón - equidad

■ Cribado de cáncer de próstata - general

Lange J, Remmers S, Gulati R, Bill-Axelson A, Johansson J-E, Kwiatkowski M, et al. **Impact of cancer screening on metastasis: A prostate cancer case study**. J Med Screen. 2021;0969141321989738. Available from: https://doi.org/10.1177/0969141321989738DOI:10.1177/0969141321989738.
Resumen: *BackgroundTrials of cancer screening present results in terms of deaths prevented, but metastasis is also a key endpoint that screening seeks to prevent. We developed a framework for projecting overall (de novo and progressive) metastases prevented in a screening trial using prostate cancer screening as a case*

study.MethodsMechanistic simulation model in which screening shifts a fraction of cases that would be metastatic at diagnosis to being non-metastatic. This shift increases the incidence of non-overdiagnosed, organ-confined cases. We use estimates of the risk of metastatic progression for these cases to project how many progress to metastasis after diagnosis and tally the projected de novo and progressive metastatic cases with and without screening. We use data on stage shift from the European Randomized Study of Screening for Prostate Cancer (ERSPC) and data on the risk of metastatic progression from the Scandinavian Prostate Cancer Group-4 trial. We estimate the relative risk and absolute risk reductions in metastatic disease at diagnosis and compare these with reductions in overall metastases.ResultsAssuming no effect of screening beyond initial stage shift at diagnosis, the model projects a 43% reduction in metastasis at diagnosis but a 22% reduction in the cumulative probability of metastasis over 12?years in favor of screening. These results are consistent with the empirical findings from the ERSPC.ConclusionAny reduction in metastatic disease at diagnosis under screening is likely to be an overly optimistic predictor of the impact of screening on overall metastasis and disease-specific mortality.

Lee SI, O'Shea A. **Community-Based Screening for Prostate Cancer: A Role for Magnetic Resonance Imaging?** JAMA Oncol. 2021;7(3):402–3. Available from: https://doi.org/10.1001/jamaoncol.2020.7294DOI:10.1001/jamaoncol.2020.7294.
Resumen: *The US Preventive Services Task Force recommends serum prostate-specific antigen (PSA)–based screening for men aged 55 to 69 years, guided by patient preference, following a full discussion of the potential risks and benefits of screening. Randomized clinical trials have shown that the prostate-specific survival benefit of screening using PSA testing is small and should be balanced against the potential harms to the quality of life. False-positive results can lead to unnecessary biopsy, overdiagnosis, and overtreatment with associated morbidities. Moreover, PSA screening also leads to underdiagnosis, with clinically significant cancers being missed. Thus, prostate cancer screening is in need of a better testing strategy that yields fewer false positives and false negatives.*

Jemal A, Culp MB, Ma J, Islami F, Fedewa SA. **Prostate Cancer Incidence 5 Years After US Preventive Services Task Force Recommendations Against Screening**. JNCI J Natl Cancer Inst. 2021;113(1):64–71. Available from: https://doi.org/10.1093/jnci/djaa068DOI:10.1093/jnci/djaa068.
Resumen: *Previous studies reported that prostate cancer incidence rates in the United States declined for local-stage disease and increased for regional- and distant-stage disease following the US Preventive Services Task Force recommendations against prostate-specific antigen-based screening for men aged 75 years and older in 2008 and for all men in 2012. It is unknown, however, whether these patterns persisted through 2016.Based on the US Cancer Statistics Public Use Research Database, we examined temporal trends in invasive prostate cancer incidence from 2005 to 2016 in men aged 50 years and older stratified by stage (local, regional, and distant), age group (50-74 years and 75 years and older), and race and ethnicity (all races and ethnicities, non-Hispanic Whites, and non-Hispanic Blacks) with joinpoint regression models to estimate annual percent changes. Tests of statistical significance are 2-sided (P < .05).For all races and ethnicities combined, incidence for local-stage disease declined beginning in 2007 in men aged 50-74 years and 75 years and older, although the*

decline stabilized during 2013-2016 in men aged 75 years and older. Incidence decreased by 6.4% (95% CI = 4.9%-9% to 7.9%) per year from 2007 to 2016 in men aged 50-74 years and by 10.7% (95% CI = 6.2% to 15.0%) per year from 2007 to 2013 in men aged 75 years and older. In contrast, incidence for regional- and distant-stage disease increased in both age groups during the study period. For example, distant-stage incidence in men aged 75 years and older increased by 5.2% (95% CI = 4.2% to 6.1%) per year from 2010 to 2016.Regional- and distant-stage prostate cancer incidence continue to increase in the United States in men aged 50 years and older, and future studies are needed to identify reasons for the rising trends.

Eldred-Evans D, Burak P, Connor MJ, Day E, Evans M, Fiorentino F, et al. **Population-Based Prostate Cancer Screening With Magnetic Resonance Imaging or Ultrasonography**. JAMA Oncol. 2021;7(3):395. Available from: https://doi.org/10.1001/jamaoncol.2020.7456DOI:10.1001/jamaoncol.2020.7456.
Resumen: *Screening for prostate cancer using prostate-specific antigen (PSA) testing can lead to problems of underdiagnosis and overdiagnosis. Short, noncontrast magnetic resonance imaging (MRI) or transrectal ultrasonography might overcome these limitations.To compare the performance of PSA testing, MRI, and ultrasonography as screening tests for prostate cancer.This prospective, population-based, blinded cohort study was conducted at 7 primary care practices and 2 imaging centers in the United Kingdom. Men 50 to 69 years of age were invited for prostate cancer screening from October 10, 2018, to May 15, 2019.All participants underwent screening with a PSA test, MRI (T2 weighted and diffusion), and ultrasonography (B-mode and shear wave elastography). The tests were independently interpreted without knowledge of other results. Both imaging tests were reported on a validated 5-point scale of suspicion. If any test result was positive, a systematic 12-core biopsy was performed. Additional image fusion–targeted biopsies were performed if the MRI or ultrasonography results were positive.The main outcome was the proportion of men with positive MRI or ultrasonography (defined as a score of 3-5 or 4-5) or PSA test (defined as PSA ≥3 μg/L) results. Key secondary outcomes were the number of clinically significant and clinically insignificant cancers detected if each test was used exclusively. Clinically significant cancer was defined as any Gleason score of 3+4 or higher.A total of 2034 men were invited to participate; of 411 who attended screening, 408 consented to receive all screening tests. The proportion with positive MRI results (score, 3-5) was higher than the proportion with positive PSA test results (72 [17.7%; 95% CI, 14.3%-21.8%] vs 40 [9.9%; 95% CI, 7.3%-13.2%]; P < .001). The proportion with positive ultrasonography results (score, 3-5) was also higher than the proportion of those with positive PSA test results (96 [23.7%; 95% CI, 19.8%-28.1%]; P < .001). For an imaging threshold of score 4 to 5, the proportion with positive MRI results was similar to the proportion with positive PSA test results (43 [10.6%; 95% CI, 7.9%-14.0%]; P = .71), as was the proportion with positive ultrasonography results (52 [12.8%; 95% CI, 9.9%-16.5%]; P = .15). The PSA test (≥3 ng/mL) detected 7 clinically significant cancers, an MRI score of 3 to 5 detected 14 cancers, an MRI score of 4 to 5 detected 11 cancers, an ultrasonography score of 3 to 5 detected 9 cancer, and an ultra…*

Lee SI, O'Shea A. **Community-Based Screening for Prostate Cancer**. JAMA Oncol. 2021; Available from: https://doi.org/10.1001/jamaoncol.2020.7294DOI:10.1001/jamaoncol.2020.7294.

Resumen: *The US Preventive Services Task Force recommends serum prostate-specific antigen (PSA)–based screening for men aged 55 to 69 years, guided by patient preference, following a full discussion of the potential risks and benefits of screening. Randomized clinical trials have shown that the prostate-specific survival benefit of screening using PSA testing is small and should be balanced against the potential harms to the quality of life. False-positive results can lead to unnecessary biopsy, overdiagnosis, and overtreatment with associated morbidities. Moreover, PSA screening also leads to underdiagnosis, with clinically significant cancers being missed. Thus, prostate cancer screening is in need of a better testing strategy that yields fewer false positives and false negatives.*

Cribado de cáncer de próstata - equidad

Cribado de otros cánceres - general

Heijnsdijk EAM, Supit SJ, Looijenga LHJ, Koning HJ. **Screening for cancers with a good prognosis: The case of testicular germ cell cancer**. Cancer Med. 2021;(December 2020):cam4.3837. Available from: https://onlinelibrary.wiley.com/doi/10.1002/cam4.3837DOI:10.1002/cam4.3837.
Resumen: *Background: To determine, using testicular germ cell cancer screening as an example, whether screening can also be effective for cancers with a good prognosis. Methods: Based on the Dutch incidence, stage distribution, and survival and mortality data of testicular germ cell cancer, we developed a microsimulation model. This model simulates screening scenarios varying in screening age, interval, self-examination or screening by the general practitioner (GP), and screening of a defined high-risk group (cryptorchidism). For each scenario, the number of clinically and screen-detected cancers by stage, referrals, testicular germ cell cancer deaths, and life-years gained were projected. Results: Annual self-examination from age 20 to 30 years resulted in 767 cancers detected per 100,000 men followed over life-time, of which 123 (16%) by screening. In this scenario, 19.2 men died from the disease, 4.7 (20%) less than without screening, and 230 life-years were gained. Around 14,000 visits to the GP and 2080 visits to an urologist were required. This scenario resulted in the most favorable ratio between extra visits to the GP or urologist and deaths prevented (1418 and 116 respectively). Monthly screening, or screening until age 40 resulted in less favorable ratios. Self-examination by only the high-risk population prevented 1.0 death per 100,00 men in the general population. In all scenarios, 46–50 life-years were gained for each testicular germ cell cancer death prevented. Conclusion: Despite the good prognosis, self-examination at young ages for testicular germ cell cancer could be considered.*

Koopmann BDM, Harinck F, Kroep S, Konings ICAW, Naber SK, Lansdorp-Vogelaar I, et al. **Identifying Key Factors For The Effectiveness Of Pancreatic Cancer Screening: A Model-based Analysis**. Int J Cancer. 2021;n/a(n/a). Available from: https://doi.org/10.1002/ijc.33540DOI:https://doi.org/10.1002/ijc.33540.

Resumen: *ABSTRACT Pancreatic cancer (PC) survival is poor, as detection usually occurs late, when treatment options are limited. Screening of high-risk individuals may enable early detection and a more favorable prognosis. Knowledge gaps prohibit establishing the effectiveness of screening. We developed a microsimulation screening analysis (MISCAN) model to analyze the impact of relevant uncertainties on the effect of PC screening in high-risk individuals. The model simulates two base cases: one in which lesions always progress to PC and one in which indolent and faster progressive lesions co-exist. For each base case, the effect of annual and 5-yearly screening with endoscopic ultrasonography / magnetic resonance imaging was evaluated. The impact of variance in PC risk, screening test characteristics, and surgery-related mortality was evaluated using sensitivity analyses. Screening resulted in a reduction of PC mortality by at least 16% in all simulated scenarios. This reduction depended strongly on the natural disease course (annual screening: -57% for ?Progressive-only? vs -41% for ?Indolent Included?). The number of screen and surveillance tests needed to prevent one cancer death was impacted most by PC risk. A 10% increase in test sensitivity reduced mortality by 1.9% at most. Test specificity is important for the number of surveillance tests. In conclusion, screening reduces PC mortality in all modeled scenarios. The natural disease course and PC risk strongly determines the effectiveness of screening. Test sensitivity seems of lesser influence than specificity. Future research should gain more insight in PC pathobiology to establish the true value of PC screening in high-risk individuals. This article is protected by copyright. All rights reserved.*

Cribado de otros cánceres y general sobre cribado - equidad

General sobre cribado - general

Wald N. **Efficacy and effectiveness**. J Med Screen. 2021;6(10):096914132199522. Available from: https://linkinghub.elsevier.com/retrieve/pii/S1548531511702868DOI:10.1177/0969141321995223.
Resumen: *Efficacy studies ask the question, "Can an intervention work when given under the most optimal circumstances," whereas effectiveness trials ask, "Does it work when delivered as it would be in the real world?" Nearer which end of the continuum the study falls dictates issues of sample selection, the conditions under which the intervention is delivered, who is counted, and how the data are analyzed. Both types of studies are necessary, but it's important to know which type you are reading in order to determine the applicability of the results to your practice. © 2009 Elsevier Inc. All rights reserved.*

Bakouny Z, Paciotti M, Schmidt AL, Lipsitz SR, Choueiri TK, Trinh Q-D. **Cancer Screening Tests and Cancer Diagnoses During the COVID-19 Pandemic**. JAMA Oncol. 2021; Available from: https://doi.org/10.1001/jamaoncol.2020.7600DOI:10.1001/jamaoncol.2020.7600.

Resumen: *Oncology patient care may be disrupted secondary to coronavirus disease 2019 (COVID-19) through delays in diagnostic investigations and surgical procedures, as well as delayed cancer diagnoses because of reduced cancer screening. This study assesses the number of patients undergoing cancer screening tests and of ensuing cancer diagnoses during the COVID-19 pandemic in the largest health care system in the northeastern United States, Massachusetts General Brigham.*

Rahbek OJ, Jauernik CP, Ploug T, Brodersen J. **Categories of systematic influences applied to increase cancer screening participation: a literature review and analysis**. Eur J Public Health. 2021;31(1):200–6. Available from: https://academic.oup.com/eurpub/article/31/1/200/5902144DOI:10.1093/eurpub/ckaa158.

Resumen: *Background Health authorities can influence citizens in subtle ways that render them more likely to participate in cancer screening programmes, and thereby possibly increase the beneficial effects. If the influences become too severe, the citizens' ability to make a personal choice may be lost on the way. The purpose of this analysis was to identify and categorize the influences while questioning whether they still permit the citizens to make their own choices regarding participation. Methods A two-stringed approach was used to obtain empirical examples of systematic influences that aim to raise participation rates in cancer screening programmes: First, a systematic literature search was conducted on three databases. Second, relevant experts were contacted via internationally based e-mail lists and asked for examples of systematic influences in cancer screening. The present analysis was based on direct, conventional content analysis to address different categories of systematic influences. Results The literature search yielded 19 included articles and the expert inquiry yielded 11 empirical examples of which content analysis of the empirical examples generated six major categories of systematic influence: (i) misleading presentation of statistics, (ii) misrepresentation of harms vs. benefits, (iii) opt-out systems, (iv) recommendation of participation, (v) fear appeals and (vi) influencing the general practitioners and other healthcare professionals. Conclusion The six categories of identified influences work through psychological biases and personal costs and are still in widely use. The use of these types of influence remains ethically questionable in cancer screening programmes since they might compromise informed decision making.*

Old R, Pharoah P, Wald N. **NHS announces a pilot of a blood test for early detection of many cancers**. J Med Screen. 2021;28(1):1–2. Available from: http://journals.sagepub.com/doi/10.1177/0969141320986823DOI:10.1177/0969141320986682

■ Cribado y COVID-19

Issaka RB, Taylor P, Baxi A, Inadomi JM, Ramsey SD, Roth J. ***Model-Based Estimation of Colorectal Cancer Screening and Outcomes During the COVID-19 Pandemic.*** *JAMA Netw open. 2021;4(4):e216454. Available from: http://www.ncbi.nlm.nih.gov/pubmed/33843997DOI:10.1001/jamanetworkopen.2021.6454.*

Resumen: Importance COVID-19 has decreased colorectal cancer screenings. Objective To estimate the degree to which expanding fecal immunochemical test-based colorectal cancer screening participation during the COVID-19 pandemic is associated with clinical outcomes. Design, Setting, and Participants A previously developed simulation model was adopted to estimate how much COVID-19 may have contributed to colorectal cancer outcomes. The model included the US population estimated to have completed colorectal cancer screening pre-COVID-19 according the American Cancer Society. The model was designed to estimate colorectal cancer outcomes between 2020 and 2023. This analysis was completed between July and December 2020. Exposures Adults screened for colorectal cancer and colorectal cancer cases detected by stage. Main Outcomes and Measures Estimates of colorectal cancer outcomes across 4 scenarios: (1) 9 months of 50% colorectal cancer screenings followed by 21 months of 75% colorectal cancer screenings; (2) 18 months of 50% screening followed by 12 months of 75% screening; (3) scenario 1 with increased use of fecal immunochemical tests; and (4) scenario 2 with increased use of fecal immunochemical tests. Results In our simulation model, COVID-19-related reductions in care utilization resulted in an estimated 1 176 942 to 2 014 164 fewer colorectal cancer screenings, 8346 to 12 894 fewer colorectal cancer diagnoses, and 6113 to 9301 fewer early-stage colorectal cancer diagnoses between 2020 and 2023. With an abbreviated period of reduced colorectal cancer screenings, increasing fecal immunochemical test use was associated with an estimated additional 588 844 colorectal cancer screenings and 2836 colorectal cancer diagnoses, of which 1953 (68.9%) were early stage. In the event of a prolonged period of reduced colorectal cancer screenings, increasing fecal immunochemical test use was associated with an estimated additional 655 825 colorectal cancer screenings and 2715 colorectal cancer diagnoses, of which 1944 (71.6%) were early stage. Conclusions and Relevance These results suggest that the increased use of fecal immunochemical tests during the COVID-19 pandemic was associated with increased colorectal cancer screening participation and more colorectal cancer diagnoses at earlier stages. If our estimates are borne out in real-world clinical practice, increasing fecal immunochemical test-based colorectal cancer screening participation during the COVID-19 pandemic could …

Suárez J, Mata E, Guerra A, Jiménez G, Montes M, Arias F, et al. ***Impact of the COVID-19 pandemic during Spain's state of emergency on the diagnosis of colorectal cancer****. J Surg Oncol. 2021;123(1):32–6. Available from: https://onlinelibrary.wiley.com/doi/10.1002/jso.26263DOI:10.1002/jso.26263. Resumen: Introduction: We evaluate the impact of COVID-epidemic in colorectal cancer (CRC) diagnosis during Spain's state of emergency. Methods: We compared newly diagnosed patients with patients diagnosed in the same period of 2019. Results: A new diagnosis of CRC decreased 48% with a higher rate of patients diagnosed in the emergency setting (12.1% vs. 3.6%; p =.048) and a lower rate diagnosed in the screening program (5.2% vs. 33.3%; p =.000). Conclusions: Fewer patients have been diagnosed with CRC, with a higher rate of patients diagnosed in an emergency setting.*

de Jonge L, Worthington J, van Wifferen F, Iragorri N, Peterse EFP, Lew J-B, et al. ***Impact of the COVID-19 pandemic on faecal immunochemical test-based colorectal cancer screening programmes in Australia, Canada, and the Netherlands: a comparative modelling study****. Lancet Gastroenterol Hepatol. 2021;6(4):304–14.*

Available from: http://www.ncbi.nlm.nih.gov/pubmed/33548185DOI:10.1016/S2468-1253(21)00003-0.
Resumen: BACKGROUND Colorectal cancer screening programmes worldwide have been disrupted during the COVID-19 pandemic. We aimed to estimate the impact of hypothetical disruptions to organised faecal immunochemical test-based colorectal cancer screening programmes on short-term and long-term colorectal cancer incidence and mortality in three countries using microsimulation modelling. METHODS In this modelling study, we used four country-specific colorectal cancer microsimulation models-Policy1-Bowel (Australia), OncoSim (Canada), and ASCCA and MISCAN-Colon (the Netherlands)-to estimate the potential impact of COVID-19-related disruptions to screening on colorectal cancer incidence and mortality in Australia, Canada, and the Netherlands annually for the period 2020-24 and cumulatively for the period 2020-50. Modelled scenarios varied by duration of disruption (3, 6, and 12 months), decreases in screening participation after the period of disruption (0%, 25%, or 50% reduction), and catch-up screening strategies (within 6 months after the disruption period or all screening delayed by 6 months). FINDINGS Without catch-up screening, our analysis predicted that colorectal cancer deaths among individuals aged 50 years and older, a 3-month disruption would result in 414-902 additional new colorectal cancer diagnoses (relative increase 0·1-0·2%) and 324-440 additional deaths (relative increase 0·2-0·3%) in the Netherlands, 1672 additional diagnoses (relative increase 0·3%) and 979 additional deaths (relative increase 0·5%) in Australia, and 1671 additional diagnoses (relative increase 0·2%) and 799 additional deaths (relative increase 0·3%) in Canada between 2020 and 2050, compared with undisrupted screening. A 6-month disruption would result in 803-1803 additional diagnoses (relative increase 0·2-0·4%) and 678-881 additional deaths (relative increase 0·4-0·6%) in the Netherlands, 3552 additional diagnoses (relative increase 0·6%) and 1961 additional deaths (relative increase 1·0%) in Australia, and 2844 additional diagnoses (relative increase 0·3%) and 1319 additional deaths (relative increase 0·4%) in Canada between 2020 and 2050, compared with undisrupted screening. A 12-month disruption would result in 1619-3615 additional diagnoses (relative increase 0·4-0·9%) and 1360-1762 additional deaths (relative increase 0·8-1·2%) in the Netherlands, 7140 additional diagnoses (relative increase 1·2%) and 3968 additional deaths (relative increase 2·0%) in Australia, and 5212 add…

Villain P, Carvalho AL, Lucas E, Mosquera I, Zhang L, Muwonge R, et al.
***Cross-sectional survey of the impact of the COVID-19 pandemic on cancer screening programmes in selected low- and middle-income countries: study from the IARC COVID-19 impact study group**. Int J Cancer. 2021;n/a(n/a):ijc.33500. Available from: https://doi.org/10.1002/ijc.33500DOI:10.1002/ijc.33500.*
Resumen: Abstract We conducted a study to document the impact of COVID-19 pandemic on cancer screening continuum in selected low- and middle-income countries (LMICs). LMICs having an operational cancer control plan committed to screen eligible individuals were selected. Managers/supervisors of cancer screening programs were invited to participate in an online survey and subsequent in-depth interview. Managers/supervisors from 18 programs in 17 countries participated. Lockdown was imposed in all countries except Brazil. Screening was suspended for at least 30?days in 13 countries, while diagnostic-services for screen-positives were suspended in 9 countries. All countries except Cameroon, Bangladesh, India, Honduras and China

managed to continue with cancer treatment throughout the outbreak. The participants rated service availability compared to pre-COVID days on a scale of 0 (no activities) to 100 (same as before). A rating of ≤50 was given for screening services by 61.1%, diagnostic services by 44.4% and treatment services by 22.2% participants. At least 70% participants strongly agreed that increased noncompliance of screen-positive individuals and staff being overloaded or overwhelmed with backlogs would deeply impact screening programs in the next 6 months at least. Although many of the LMICs were deficient in following the ?best practices? to minimize service disruptions, at least some of them made significant efforts to improve screening participation, treatment compliance and program organization. A well-coordinated effort is needed to reinitiate screening services in the LMICs, starting with a situational analysis. Innovative strategies adopted by the programs to keep services on-track should be mutually shared.

Ginsburg O, Basu P, Kapambwe S, Canfell K. ***Eliminating cervical cancer in the COVID-19 era****. Nat Cancer. 2021;2(February):133–4. Available from: http://dx.doi.org/10.1038/s43018-021-00178-9DOI:10.1038/s43018-021-00178-9.*

Castanon A, Rebolj M, Pesola F, Sasieni P. ***Recovery strategies following COVID-19 disruption to cervical cancer screening and their impact on excess diagnoses****. Br J Cancer. 2021;124(8):1361–5. Available from: http://dx.doi.org/10.1038/s41416-021-01275-3DOI:10.1038/s41416-021-01275-3.*
Resumen: Background: The COVID-19 pandemic has disrupted cervical cancer screening services. Assuming increases to screening capacity are unrealistic, we propose two recovery strategies: one extends the screening interval by 6 months for all and the other extends the interval by 36/60 months, but only for women who have already missed being screened. Methods: Using routine statistics from England we estimate the number of women affected by delays to screening. We used published research to estimate the proportion of screening age women with high-grade cervical intraepithelial neoplasia and progression rates to cancer. Under two recovery scenarios, we estimate the impact of COVID-19 on cervical cancer over one screening cycle (3 years at ages 25–49 and 5 years at ages 50–64 years). The duration of disruption in both scenarios is 6 months. In the first scenario, 10.7 million women have their screening interval extended by 6 months. In the second, 1.5 million women (those due to be screened during the disruption) miss one screening cycle, but most women have no delay. Results: Both scenarios result in similar numbers of excess cervical cancers: 630 vs. 632 (both 4.3 per 100,000 women in the population). However, the scenario in which some women miss one screening cycle creates inequalities—they would have much higher rates of excess cancer: 41.5 per 100,000 delayed for screened women compared to those with a 6-month delay (5.9 per 100,000). Conclusion: To ensure equity for those affected by COVID-19 related screening delays additional screening capacity will need to be paired with prioritising the screening of overdue women.

Friedewald SM, Gupta D. ***Selecting Patients for Mammographic Evaluation Based on Breast Cancer Risk During the COVID-19 Pandemic****. JAMA Netw Open. 2021;4(3):e212546–e212546. Available from: https://doi.org/10.1001/jamanetworkopen.2021.2546DOI:10.1001/jamanetworkopen.2021.2546.*

Resumen: The COVID-19 pandemic affected health care delivery throughout the US in unprecedented ways. Specifically, facilities readjusted their schedules to accommodate more patients who required ventilators and intensive care and decreased or eliminated routine surgical procedures and patient visits that would interfere with the predicted surge in patients with COVID-19. Because decisions regarding how to maneuver a rapidly evolving situation were left to individual states, there was a heterogeneous approach to triaging patient visits based on acuity.In a cohort study, Miglioretti et al proposed using patient risk factors and clinical indications to identify subgroups that had the highest likelihood of breast cancer. All patient indications (including screening and diagnostic indications) were stratified into 5 risk groups ranging from very high risk (>50 cancers detected per 1000 mammograms) to very low risk (<5 cancers detected per 1000 mammograms). The authors reported that by performing examinations for only very high- or high-risk groups, mammography volume could be limited to 12% and still detect 55% of breast cancers. The examinations that were classified in the high-risk or very high-risk category included additional imaging evaluation after a screening examination, evaluation of a lump, evaluation of symptoms other than a lump in individuals with a history of breast cancer, and short-interval follow-up or diagnostic examination for symptoms other than a lump in women 60 years or older without a history of breast cancer. These data are particularly interesting because all patients were risk stratified instead of the traditional binary assignment of patients into screening and diagnostic categories. Superficially, one might automatically consider a patient undergoing diagnostic examination at higher risk than a patient undergoing screening. However, based on these data, this assumption is incorrect. For example, screening of women with a history of a high-risk lesion and no personal history of breast cancer yielded a cancer detection rate (CDR) of 12.7 cancers per 1000 mammograms. This rate was higher than that among women younger than 70 with a personal history of breast cancer who underwent short-interval follow-up of a probably benign finding (CDR, 7.3 cancers per 1000 mammograms).

Bakouny Z, Paciotti M, Schmidt AL, Lipsitz SR, Choueiri TK, Trinh Q-D. ***Cancer Screening Tests and Cancer Diagnoses During the COVID-19 Pandemic****. JAMA Oncol. 2021; Available from: https://doi.org/10.1001/jamaoncol.2020.7600DOI:10.1001/jamaoncol.2020.7600.*
Resumen: Oncology patient care may be disrupted secondary to coronavirus disease 2019 (COVID-19) through delays in diagnostic investigations and surgical procedures, as well as delayed cancer diagnoses because of reduced cancer screening. This study assesses the number of patients undergoing cancer screening tests and of ensuing cancer diagnoses during the COVID-19 pandemic in the largest health care system in the northeastern United States, Massachusetts General Brigham.

Nechuta S, Wallace H. ***Screening and Diagnostic Mammography Utilization during the COVID-19 Pandemic: Public Health Implications and Future Research Needs****. JNCI J Natl Cancer Inst. 2021; Available from: https://doi.org/10.1093/jnci/djab046DOI:10.1093/jnci/djab046.*

Sprague BL, Lowry KP, Miglioretti DL, Alsheik N, Bowles EJA, Tosteson ANA, et al. ***Changes in Mammography Utilization by Women's Characteristics during the First 5***

Months of the COVID-19 Pandemic. *JNCI J Natl Cancer Inst. 2021; Available from: https://doi.org/10.1093/jnci/djab045DOI:10.1093/jnci/djab045.*
Resumen: The coronavirus disease 2019 (COVID-19) pandemic led to a near-total cessation of mammography services in the United States in mid-March 2020. It is unclear if screening and diagnostic mammography volumes have recovered to pre-pandemic levels and whether utilization has varied by women's characteristics.We collected data on 461,083 screening mammograms and 112,207 diagnostic mammograms conducted during January 2019 through July 2020 at 62 radiology facilities in the Breast Cancer Surveillance Consortium. We compared monthly screening and diagnostic mammography volumes before and during the pandemic, stratified by age, race/ethnicity, breast density, and family history of breast cancer.Screening and diagnostic mammography volumes in April 2020 were 1.1% (95% confidence interval [CI] = 0.5% to 2.4%) and 21.4% (95% CI = 18.7% to 24.4%) of April 2019 pre-pandemic volumes, respectively, but by July 2020 rebounded to 89.7% (95% CI = 79.6% to 101.1%) and 101.6% (95% CI = 93.8% to 110.1%) of July 2019 pre-pandemic volumes, respectively. The year-to-date cumulative volume of screening and diagnostic mammograms performed through July 2020 was 66.2% (95% CI = 60.3% to 72.6%) and 79.9% (95% CI = 75.4% to 84.6%), respectively, of year-to-date volume through July 2019. Screening mammography rebound was similar across age groups and by family history of breast cancer. Monthly screening mammography volume in July 2020 for Black, White, Hispanic, and Asian women reached 96.7% (95% CI = 88.1% to 106.1%), 92.9% (95% CI = 82.9% to 104.0%), 72.7% (95% CI = 56.5% to 93.6%), and 51.3% (95% CI = 39.7% to 66.2%) of July 2019 pre-pandemic volume, respectively.Despite a strong overall rebound in mammography volume by July 2020, the rebound lagged among Asian and Hispanic women and a substantial cumulative deficit in missed mammograms accumulated, which may have important health consequences.

Lim AWW. ***Will COVID-19 Be the Tipping Point for Primary HPV Self-sampling?*** *Cancer Epidemiol Biomarkers Prev. 2021;30(2):245–7. Available from: http://cebp.aacrjournals.org/lookup/doi/10.1158/1055-9965.EPI-20-1538DOI:10.1158/1055-9965.EPI-20-1538.*

Miglioretti DL, Bissell MCS, Kerlikowske K, Buist DSM, Cummings SR, Henderson LM, et al. ***Assessment of a Risk-Based Approach for Triaging Mammography Examinations During Periods of Reduced Capacity***. *JAMA Netw Open. 2021;4(3):e211974–e211974. Available from: https://doi.org/10.1001/jamanetworkopen.2021.1974DOI:10.1001/jamanetworkopen.2021.1974.*
Resumen: Breast cancer screening, surveillance, and diagnostic imaging services were profoundly limited during the initial phase of the coronavirus disease 2019 (COVID-19) pandemic.To develop a risk-based strategy for triaging mammograms during periods of decreased capacity.This population-based cohort study used data collected prospectively from mammography examinations performed in 2014 to 2019 at 92 radiology facilities in the Breast Cancer Surveillance Consortium. Participants included individuals undergoing mammography. Data were analyzed from August 10 to November 3, 2020.Clinical indication for screening, breast symptoms, personal history of breast cancer, age, time since last mammogram/screening interval, family history of

breast cancer, breast density, and history of high-risk breast lesion.Combinations of clinical indication, clinical history, and breast cancer risk factors that subdivided mammograms into risk groups according to their cancer detection rate were identified using classification and regression trees.The cohort included 898 415 individuals contributing 1 878 924 mammograms (mean [SD] age at mammogram, 58.6 [11.2] years) interpreted by 448 radiologists, with 1 722 820 mammograms in individuals without a personal history of breast cancer and 156 104 mammograms in individuals with a history of breast cancer. Most individuals were aged 50 to 69 years at imaging (1 113 174 mammograms [59.2%]), and 204 305 (11.2%) were Black, 206 087 (11.3%) were Asian or Pacific Islander, 126 677 (7.0%) were Hispanic or Latina, and 40 021 (2.2%) were another race/ethnicity or mixed race/ethnicity. Cancer detection rates varied widely based on clinical indication, breast symptoms, personal history of breast cancer, and age. The 12% of mammograms with very high (89.6 [95% CI, 82.3-97.5] to 122.3 [95% CI, 108.1-138.0] cancers detected per 1000 mammograms) or high (36.1 [95% CI, 33.1-39.3] to 47.5 [95% CI, 42.4-53.3] cancers detected per 1000 mammograms) cancer detection rates accounted for 55% of all detected cancers and included mammograms to evaluate an abnormal mammogram or breast lump in individuals of all ages regardless of breast cancer history, to evaluate breast symptoms other than lump in individuals with a breast cancer history or without a history but aged 60 years or older, and for short-interval follow-up in individuals aged 60 years or older without a breast cancer history. The 44.2% of mammograms with very low cancer detection rates accounted for 1…

Burger EA, Jansen E EL, Killen J, Kok IM de, Smith MA, Sy S, et al. ***Impact of COVID-19-related care disruptions on cervical cancer screening in the United States****. J Med Screen. 2021;096914132110010. Available from: https://doi.org/10.1177/09691413211001097DOI:10.1177/09691413211001097. Resumen: ObjectivesTo quantify the secondary impacts of the COVID-19 pandemic disruptions to cervical cancer screening in the United States, stratified by step in the screening process and primary test modality, on cervical cancer burden.MethodsWe conducted a comparative model-based analysis using three independent NCI Cancer Intervention and Surveillance Modeling Network cervical models to quantify the impact of eight alternative COVID-19-related screening disruption scenarios compared to a scenario of no disruptions. Scenarios varied by the duration of the disruption (6 or 24 months), steps in the screening process being disrupted (primary screening, surveillance, colposcopy, excisional treatment), and primary screening modality (cytology alone or cytology plus human papillomavirus ?cotesting?).ResultsThe models consistently showed that COVID-19-related disruptions yield small net increases in cervical cancer cases by 2027, which are greater for women previously screened with cytology compared with cotesting. When disruptions affected all four steps in the screening process under cytology-based screening, there were an additional 5?7 and 38?45 cases per one million screened for 6- and 24-month disruptions, respectively. In contrast, under cotesting, there were additional 4?5 and 35?45 cases per one million screened for 6- and 24-month disruptions, respectively. The majority (58?79%) of the projected increases in cases under cotesting were due to disruptions to surveillance, colposcopies, or excisional treatment, rather than to primary screening.ConclusionsWomen in need of surveillance, colposcopies, or excisional treatment, or whose last primary screen did not involve human papillomavirus testing, may comprise priority groups for reintroductions.*

NOTA BIBLIOGRÁFICA
RED DE PROGRAMAS DE CRIBADO DE CÁNCER

Esta Nota es una recopilación de publicaciones (artículos, informes, libros) sobre cribado de cáncer resultado de una revisión no sistemática de la literatura. Podeis encontrar todas las Notas Bibliográficas en: http://www.cribadocancer.es

Podéis dirigir vuestros comentarios o sugerencias sobre la Nota a:

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