NOTA BIBLIOGRÁFICA

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RED DE PROGRAMAS DE CRIBADO DE CÁNCER

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Destacado(s) / Avances

Maroni R, Massat NJ, Parmar D, Dibden A, Cuzick J, Sasieni PD, et al. **A case-control study to evaluate the impact of the breast screening programme on mortality in England**. Br J Cancer. 2021;124(4):736–43. Available from: http://dx.doi.org/10.1038/s41416-020-01163-2DOI:10.1038/s41416-020-01163-2.

Conclusión: Background: Over the past 30 years since the implementation of the National Health Service Breast Screening Programme, improvements in diagnostic techniques and treatments have led to the need for an up-to-date evaluation of its benefit on risk of death from breast cancer. An initial pilot case-control study in London indicated that attending mammography screening led to a mortality reduction of 39%. Methods: Based on the same study protocol, an England-wide study was set up. Women aged 47–89 years who died of primary breast cancer in 2010 or 2011 were selected as cases (8288 cases). When possible, two controls were selected per case (15,202 controls) and were matched by date of birth and screening area. Results: Conditional logistic regressions showed a 38% reduction in breast cancer mortality after correcting for self-selection bias (OR 0.62, 95% CI 0.56–0.69) for women being screened at least once. Secondary analyses by age group, and time between last screen and breast cancer diagnosis were also performed. Conclusión: According to this England-wide case-

control study, mammography screening still plays an important role in lowering the risk of dying from breast cancer. Women aged 65 or over see a stronger and longer lasting benefit of screening compared to younger women.

Khan SA, Hernandez-Villafuerte KV, Muchadeyi MT, Schlander M. **Cost-effectiveness of risk-based breast cancer screening: A systematic review**. Int J Cancer. 2021;149(4):790–810. Available from: https://onlinelibrary.wiley.com/doi/10.1002/ijc.33593DOI:10.1002/ijc.33593.

Conclusión: To analyse published evidence on the economic evaluation of risk-based screening (RBS), a full systematic literature review was conducted. After a quality appraisal, we compared the cost-effectiveness of risk-based strategies (low-risk, medium-risk and high-risk) with no screening and age-based screening. Studies were also analysed for modelling, risk stratification methods, input parameters, data sources and harms and benefits. The 10 modelling papers analysed were based on screening performance of film-based mammography (FBM) (three); digital mammography (DM) and FBM (two); DM alone (three); DM, ultrasound (US) and magnetic resonance imaging (one) and DM and US (one). Seven studies did not include the cost of riskstratification, and one did not consider the cost of diagnosis. Disutility was incorporated in only six studies (one for screening and five for diagnosis). None of the studies reported disutility of risk-stratification (being considered as high-risk). Riskstratification methods varied from only breast density (BD) to the combination of familial risk, genetic susceptibility, lifestyle, previous biopsies, Jewish ancestry and reproductive history. Less or no screening in low-risk women and more frequent mammography screening in high-risk women was more cost-effective compared to no screening and age-based screening. High-risk women screened annually yielded a higher mortality rate reduction and more quality-adjusted life years at the expense of higher cost and false positives. RBS can be cost effective compared to the alternatives. However, heterogeneity among risk-stratification methods, input parameters, and weaknesses in the methodologies hinder the derivation of robust conclusions. Therefore, further studies are warranted to assess newer technologies and innovative riskstratification methods.

Houssami N, Zackrisson S, Blazek K, Hunter K, Bernardi D, Lång K, et al. Meta-analysis of prospective studies evaluating breast cancer detection and interval cancer rates for digital breast tomosynthesis versus mammography population screening. Eur J Cancer. 2021;148:14–23. Available from: https://www.sciencedirect.com/science/article/pii/S0959804921000666DOI:https://doi.org/10.1016/j.ejca.2021.01.035.

Conclusión: Meta-analysis shows consistent evidence that DBT significantly increased CDR compared with mammography screening; however, there was little difference between DBT and mammography in pooled ICR. This could suggest, but does not demonstrate, some over-detection. Meta-analysis using individual participant data, randomised trials and comparative studies quantifying cumulative detection and ICR over repeat DBT screen-rounds would provide valuable evidence to inform screening programs.

Haaf K, Aalst CM, Koning HJ, Kaaks R, Tammemägi MC. Personalising lung cancer screening: an overview of risk-stratification opportunities and

challenges. Int J Cancer. 2021;n/a(n/a):ijc.33578. Available from: https://doi.org/10.1002/ijc.33578DOI:10.1002/ijc.33578.

Conclusión: There are indications that risk-based approaches can negatively influence the trade-off between individual benefits and harms if not applied thoughtfully. Large-scale implementation of targeted, risk-based screening programs has been limited thus far. Consequently, questions remain on how to efficiently identify and invite high-risk individuals from the general population. Finally, while risk-based approaches may increase screening program efficiency, efficiency should be balanced with the overall impact of the screening program. In this review, we will address the opportunities and challenges in applying risk-stratification in different aspects of lung cancer screening programs, as well as the balance between screening program efficiency and impact.

Cribado de cáncer de mama - general

Khan SA, Hernandez-Villafuerte KV, Muchadeyi MT, Schlander M. **Cost-effectiveness of risk-based breast cancer screening: A systematic review**. Int J Cancer. 2021;149(4):790–810. Available from: https://onlinelibrary.wiley.com/doi/10.1002/ijc.33593DOI:10.1002/ijc.33593.

Conclusión: To analyse published evidence on the economic evaluation of risk-based screening (RBS), a full systematic literature review was conducted. After a quality appraisal, we compared the cost-effectiveness of risk-based strategies (low-risk, medium-risk and high-risk) with no screening and age-based screening. Studies were also analysed for modelling, risk stratification methods, input parameters, data sources and harms and benefits. The 10 modelling papers analysed were based on screening performance of film-based mammography (FBM) (three); digital mammography (DM) and FBM (two); DM alone (three); DM, ultrasound (US) and magnetic resonance imaging (one) and DM and US (one). Seven studies did not include the cost of riskstratification, and one did not consider the cost of diagnosis. Disutility was incorporated in only six studies (one for screening and five for diagnosis). None of the studies reported disutility of risk-stratification (being considered as high-risk). Riskstratification methods varied from only breast density (BD) to the combination of familial risk, genetic susceptibility, lifestyle, previous biopsies, Jewish ancestry and reproductive history. Less or no screening in low-risk women and more frequent mammography screening in high-risk women was more cost-effective compared to no screening and age-based screening. High-risk women screened annually yielded a higher mortality rate reduction and more quality-adjusted life years at the expense of higher cost and false positives. RBS can be cost effective compared to the alternatives. However, heterogeneity among risk-stratification methods, input parameters, and weaknesses in the methodologies hinder the derivation of robust conclusions. Therefore,

further studies are warranted to assess newer technologies and innovative riskstratification methods.

Elmore JG, Lee CI. **Keeping Pace With Technology Advances in Breast Cancer Screening: Synthetic 2D Images Outperform Digital Mammography**. JNCI J Natl Cancer Inst. 2021;113(6):645–6. DOI:10.1093/jnci/djaa208.

Alabousi M, Wadera A, Kashif Al-Ghita M, Kashef Al-Ghetaa R, Salameh J-P, Pozdnyakov A, et al. **Performance of Digital Breast Tomosynthesis, Synthetic Mammography, and Digital Mammography in Breast Cancer Screening: A Systematic Review and Meta-Analysis**. JNCI J Natl Cancer Inst. 2021;113(6):680–90. DOI:10.1093/jnci/djaa205.

Conclusión: Our findings provide evidence on key performance metrics for DM, DBT alone, combined DBT and DM, and combined DBT and S2D, which may inform optimal application of these modalities for breast cancer screening.

Richman IB, Long JB, Hoag JR, Upneja A, Hooley R, Xu X, et al. Comparative Effectiveness of Digital Breast Tomosynthesis for Breast Cancer Screening among Women 40-64 Years Old. JNCI J Natl Cancer Inst. 2021;Richman IB, Long JB, Hoag JR, Upneja A, Hooley R,. Available from: https://doi.org/10.1093/jnci/djab063DOI:10.1093/jnci/djab063.

Conclusión: In a large population of privately insured women, DBT was associated with a slightly lower recall rate than 2 D mammography and a higher cancer detection rate. Whether this increased cancer detection improves clinical outcomes remains unknown. Castellano CR, Aguilar Angulo PM, Hernández LC, González-Carrato PS-C, González

RG, Alvarez J, et al. **Breast cancer mortality after eight years of an improved screening program using digital breast tomosynthesis**. J Med Screen. 2021;096914132110025. Available from: https://doi.org/10.1177/09691413211002556DOI:10.1177/09691413211002556.

Conclusión: The introduction of digital breast tomosynthesis improved screening quality indicators. Breast cancer mortality simultaneously decreased with respect to the rest of Castilla-La Mancha. Further research is needed to assess the long-term results, and the role that the redesign may have played in reducing mortality.

Hofvind S, Knutsvik G, Holen ÅS, Tsuruda KM, Akslen LA. **Detection and significance of small and low proliferation breast cancer**. J Med Screen. 2021;096914132110239. Available from: https://doi.org/10.1177/09691413211023970DOI:10.1177/09691413211023970.

Conclusión: SLPC was associated with very low risk of breast cancer death. Prospective randomized trials are needed to clarify whether less aggressive treatment could be a safe option for women with such early breast cancers.

Hersch J, Barratt A, McGeechan K, Jansen J, Houssami N, Dhillon H, et al. Informing Women About Overdetection in Breast Cancer Screening: Two-year Outcomes

from a Randomized Trial. JNCI J Natl Cancer Inst. 2021; Available from: https://doi.org/10.1093/jnci/djab083DOI:10.1093/jnci/djab083.

Conclusión: A brief decision aid produced lasting improvement in women's understanding of potential consequences of screening, including overdetection, without changing participation rates. These findings support the use of decision aids for breast cancer screening.

Molassiotis A, Tyrovolas S, Giné-Vázquez I, Yeo W, Aapro M, Herrstedt J. **Organized** breast cancer screening not only reduces mortality from breast cancer but also significantly decreases disability-adjusted life years: analysis of the Global Burden of Disease Study and screening programme availability in 130 countries. ESMO Open. 2021;6(3):100111. Available from: https://doi.org/10.1016/j.esmoop.2021.100111DOI:10.1016/j.esmoop.2021.1001111.

Conclusión: These data further support the positive effects of BCS in relation to agestandardized BC mortality rates, and for the first time show the impact of BCS on DALYs too. Additional factors, such as diabetes, high levels of LDL-c or smoking seemed to be related to BC mortality and disability, and could be considered as additional components of possible interventions to be used alongside BCS to optimize the BCS benefit on patients.

Bulliard J-L, Beau A-B, Njorv S, Wu WY-Y, Procopio P, Nickson C, et al. **Breast cancer screening and overdiagnosis**. Int J Cancer. 2021;n/a(n/a). Available from: https://doi.org/10.1002/ijc.33602DOI:https://doi.org/10.1002/ijc.33602.

Conclusión: The widely discrepant estimates of overdiagnosis reported from observational data could substantially be reduced by use of a cohort study design with at least 10? years of follow-up after screening stops. In contexts where concomitant opportunistic screening or gradual implementation of screening occurs, and data on valid comparison groups are not readily available, modelling of screening intervention becomes an advantageous option to obtain reliable estimates of breast cancer overdiagnosis.

Houssami N, Zackrisson S, Blazek K, Hunter K, Bernardi D, Lång K, et al. Meta-analysis of prospective studies evaluating breast cancer detection and interval cancer rates for digital breast tomosynthesis versus mammography population screening. Eur J Cancer. 2021;148:14–23. Available from: https://www.sciencedirect.com/science/article/pii/S0959804921000666DOI:https://doi.org/10.1016/j.ejca.2021.01.035.

Conclusión: Meta-analysis shows consistent evidence that DBT significantly increased CDR compared with mammography screening; however, there was little difference between DBT and mammography in pooled ICR. This could suggest, but does not demonstrate, some over-detection. Meta-analysis using individual participant data, randomised trials and comparative studies quantifying cumulative detection and ICR over repeat DBT screen-rounds would provide valuable evidence to inform screening programs.

Milch V, Aranda S, Canfell K, Varlow M, Roder DM, Currow D, et al. **Overdiagnosis of screen-detected breast cancer**. Med J Aust. 2021;mja2.51045. Available from: https://onlinelibrary.wiley.com/doi/10.5694/mja2.51045DOI:10.5694/mja2.51045.

Baker SG, Prorok PC. **Breast cancer overdiagnosis in stop-screen trials: More uncertainty than previously reported**. J Med Screen. 2020;28(2):185–92. Available from: https://doi.org/10.1177/0969141320950784DOI:10.1177/0969141320950784.

Cribado de cáncer de mama - equidad

Amornsiripanitch N, Ameri SM, Goldberg RJ. Impact of Age, Race, and Socioeconomic Status on Women's Perceptions and Preferences Regarding Communication of Estimated Breast Cancer Risk. Acad Radiol . 2021 May;28(5):655-663. doi: 10.1016/j.acra.2020.03.041.

Conclusion: Sociodemographic factors influence women's interest in risk assessment and preference in risk communication about breast cancer. Screening Mammogram facilities implementing risk assessment should consider risk communication strategies that are most effective for their patient population.

Ding L, Jidkova S, Greuter MJW, Van Herck K, Goossens M, De Schutter H, Martens P, Van Hal G, de Bock GH. The Role of Socio-Demographic Factors in the Coverage of Breast Cancer Screening: Insights From a Quantile Regression Analysis. Front Public Health. 2021 Apr 15;9:648278. doi: 10.3389/fpubh.2021.648278. eCollection 2021. PMID: 33937176.

Conclusión: Women from relatively low and high SES neighborhoods tend to participate less in the BCSP, whereas women with a relatively high SES tend to participate more in opportunistic screening. For women from low SES neighborhoods, tailored interventions are needed to improve the coverage of BCSP.

Molina-Barceló A, Moreno Salas J, Peiró-Pérez R, Arroyo G, Ibáñez Cabanell J, Vanaclocha Espí M, Binefa G, García M, Salas Trejo D. [Inequalities in access to cancer screening programmes in Spain and how to reduce them: data from 2013 and 2020]. Rev Esp Salud Publica. 2021 Jan 26;95:e202101017. PMID: 33496270.

Conclusión: Inequalities in access to cancer screening programmes in Spain are identified, as well as interventions to reduce them.

Gorina Y, Elgaddal N. Patterns of Mammography, Pap Smear, and Colorectal Cancer Screening Services Among Women Aged 45 and Over. Natl Health Stat Report. 2021 Jun;(157):1-18. PMID: 34181518.

Conclusion: Differences in screening identified in this study are generally consistent with previous studies on screening for colorectal, breast, and cervical cancers for women at average risk and within the age groups recommended for screening. The results of this study support other findings showing the persistence of disparities in

cancer screening among women aged 45 and over according to most of the selected characteristics regardless of recommended age of screening.

Cribado de cáncer de cuello de útero - general

Kjaer SK, Dehlendorff C, Belmonte F, Baandrup L. Real-world Effectiveness of Human Papillomavirus Vaccination Against Cervical Cancer. JNCI J Natl Cancer Inst. 2021; Available from: https://academic.oup.com/jnci/advance-article/doi/10.1093/jnci/djab080/6227603DOI:10.1093/jnci/djab080. Ibáñez R, Mareque M, Granados R, Andía D, García-Rojo M, Quílez JC, et al. Comparative cost analysis of cervical cancer screening programme based on molecular detection of HPV in Spain. BMC Womens Health. 2021;21(1):178. Available from: https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-021-01310-8DOI:10.1186/s12905-021-01310-8.

Conclusión: Assuming that 70% of women from 35 to 65 years attend the CCS programme, the cost of screening up to the first colposcopy using AHPV would provide cost savings of up to ϵ 41.9 million versus DNA tests in Spain.

Campos NG, Chaturvedi AK, Kreimer AR. **Real-World HPV Vaccine Effectiveness Studies: Guideposts for Interpretation of Current and Future Studies.** JNCI J Natl Cancer Inst. 2021;1–8. Available from: https://academic.oup.com/jnci/advance-article/doi/10.1093/jnci/djab081/6227604DOI:10.1093/jnci/djab081.

Naslazi E, Hontelez JAC, Naber SK, van Ballegooijen M, de Kok IMCM. **The differential risk of cervical cancer in HPV vaccinated and unvaccinated women: a mathematical modelling study**. Cancer Epidemiol Biomarkers Prev. 2021;cebp.1321.2020. Available from: http://cebp.aacrjournals.org/lookup/doi/10.1158/1055-9965.EPI-20-1321DOI:10.1158/1055-9965.EPI-20-1321.

Conclusión: We found large cervical cancer risk differences between vaccinated and unvaccinated women. In general, our model shows that the relative risk is higher in lower vaccine coverages, using the nonavalent vaccine, and when vaccinating females only. Impact: To avoid a disbalance in harms and benefits between vaccinated and unvaccinated women, vaccination-based screening needs serious consideration.

■ Cribado de cáncer de cuello de útero - equidad

Kuroki LM, Massad LS, Woolfolk C, Thompson T, McQueen A, Kreuter MW. Cervical cancer risk and screening among women seeking assistance with basic needs. Am J Obstet Gynecol . 2021 Apr;224(4):368.e1-368.e8. doi: 10.1016/j.ajog.2020.12.018. Epub 2020 Dec 13.

Conclusion: Low-income women seeking assistance with basic needs often lack cervical cancer screening. Health navigators triple the likelihood that women will make contact with Papanicolaou test services, but most 2-1-1 callers still fail to schedule Papanicolaou testing despite assistance from navigators. Interventions beyond health navigators are needed to reduce cervical cancer disparities.

Green LI, Mathews CS, Waller J, Kitchener H, Rebolj M; HPV Pilot Steering Committee . **Attendance at early recall and colposcopy in routine cervical screening with human papillomavirus testing**. Int J Cancer . 2021 Apr 15;148(8):1850-1857. doi: 10.1002/ijc.33348. Epub 2020 Oct 24.

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.

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 Apr;124(8):1361-1365. doi: 10.1038/s41416-021-01275-3. Epub 2021 Feb 9.

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

Gorina Y, Elgaddal N. Patterns of Mammography, Pap Smear, and Colorectal Cancer Screening Services Among Women Aged 45 and Over. Natl Health Stat Report. 2021 Jun;(157):1-18. PMID: 34181518.

Conclusion-Differences in screening identified in this study are generally consistent with previous studies on screening for colorectal, breast, and cervical cancers for women at average risk and within the age groups recommended for screening. The results of this study support other findings showing the persistence of disparities in cancer screening among women aged 45 and over according to most of the selected characteristics regardless of recommended age of screening.

Cribado de cáncer colorrectal - general

Knudsen AB, Rutter CM, Peterse EFP, Lietz AP, Seguin CL, Meester RGS, et al. Colorectal Cancer Screening: An Updated Modeling Study for the US Preventive Services Task Force. JAMA. 2021;325(19):1998–2011. Available from: https://doi.org/10.1001/jama.2021.5746DOI:10.1001/jama.2021.5746.

Conclusión: This microsimulation modeling analysis suggests that screening for colorectal cancer with stool tests, endoscopic tests, or computed tomography colonography starting at age 45 years provides an efficient balance of colonoscopy burden and life-years gained.

Cardoso R, Guo F, Heisser T, Hackl M, Ihle P, De Schutter H, et al. Colorectal cancer incidence, mortality, and stage distribution in European countries in the colorectal cancer screening era: an international population-based study. Lancet Oncol. 2021; Available from: https://doi.org/10.1016/S1470-2045(21)00199-6DOI:10.1016/S1470-2045(21)00199-6.

Conclusión: We observed divergent trends in colorectal cancer incidence, mortality, and stage distribution across European countries, which appear to be largely explained by different levels of colorectal cancer screening implementation.

Gram MA, Therkildsen C, Clarke RB, Andersen KK, Mørch LS, Tybjerg AJ. **The** influence of marital status and partner concordance on participation in colorectal cancer screening. Eur J Public Health. 2021;31(2):340–6. Available from: https://doi.org/10.1093/eurpub/ckaa206DOI:10.1093/eurpub/ckaa206.

Conclusión: Individuals married to a participating partner were five times more likely to participate than married individuals with a non-participating partner, regardless of gender. Marital status was strongly associated with participation in colorectal cancer screening, and participation was even higher in married individuals with a participating partner. Future efforts to increase participation in colorectal cancer screening could potentially benefit from considering the role of partner concordance.

USPSTF. Screening for Colorectal Cancer: US Preventive Services Task Force Recommendation Statement. JAMA. 2021;325(19):1965–77. Available from: https://doi.org/10.1001/jama.2021.6238DOI:10.1001/jama.2021.6238.

Conclusión: The USPSTF concludes with high certainty that screening for colorectal cancer in adults aged 50 to 75 years has substantial net benefit. The USPSTF concludes with moderate certainty that screening for colorectal cancer in adults aged 45 to 49 years has moderate net benefit. The USPSTF concludes with moderate certainty that screening for colorectal cancer in adults aged 76 to 85 years who have been previously screened has small net benefit. Adults who have never been screened for colorectal cancer are more likely to benefit. The USPSTF recommends screening for colorectal cancer in all adults aged 50 to 75 years. (A recommendation) The USPSTF recommends screening for colorectal cancer in adults aged 45 to 49 years. (B recommendation) The USPSTF recommends that clinicians selectively offer screening for colorectal cancer in adults aged 76 to 85 years. Evidence indicates that the net benefit of screening all persons in this age group is small. In determining whether this service is appropriate in individual cases, patients and clinicians should consider the patient's overall health, prior screening history, and preferences. (C recommendation) Bulliard J. Time to use measures of longitudinal adherence in cancer screening programmes. Int J Cancer. 2021;ijc.33582. Available from: https://onlinelibrary.wiley.com/doi/10.1002/ijc.33582DOI:10.1002/ijc.33582.

Alburquerque M, Smarrelli A, Chevarria J, Ortega S, Zaragoza A, Vargas A, et al. Outcomes of colonoscopy with non-anesthesiologist administered propofol (naap). In: ESGE Days 2019. 2019. p. 1070–6. Available from: http://www.thiemeconnect.de/DOI/DOI?10.1055/s-0039-1681659DOI:10.1055/s-0039-1681659. Conclusión: ADR in colorectal cancer screening colonoscopies performed with NAAP was equivalent to that in those performed with MAC. Similarly, there was no difference in complication rates.

Ma W, Wang K, Nguyen LH, Joshi A, Cao Y, Nishihara R, et al. Association of Screening Lower Endoscopy With Colorectal Cancer Incidence and Mortality in Adults Older Than 75 Years. JAMA Oncol. 2021; Available from: https://doi.org/10.1001/jamaoncol.2021.1364DOI:10.1001/jamaoncol.2021.1364.

Conclusión: These data support continuation of screening after 75 years of age among individuals without significant comorbidities.

Decruz GM, Ng CH, Lim KT, Devi MK, Lim F, Tai CH, et al. **Afterthoughts on colonoscopy. Was it that bad?**J Med Screen. 2020;28(2):63–9. Available from: https://doi.org/10.1177/0969141320923381DOI:10.1177/0969141320923381.

Conclusión: Understanding colorectal cancer screening behaviour is fundamental for healthcare providers and authorities to develop system and personal level changes for the improvement of colorectal cancer screening services. The key areas include patient comfort, the use of clearer instructional aids and graphics, establishing good patient rapport, and the availability of individualized options for sedation and the procedure.

Lin JS, Perdue LA, Henrikson NB, Bean SI, Blasi PR. Screening for Colorectal Cancer: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. JAMA. 2021;325(19):1978–97. Available from: https://doi.org/10.1001/jama.2021.4417DOI:10.1001/jama.2021.4417.

Conclusión: There are several options to screen for colorectal cancer, each with a different level of evidence demonstrating its ability to reduce cancer mortality, its ability to detect cancer or precursor lesions, and its risk of harms.

Naumann DN, Kavanagh C, Hipkiss G, Potter-Concannon S, Budhoo M, Ahmed M, et al. **Impact of cumulative experience on the quality of screening colonoscopy: A 13-year observational study**. J Med Screen. 2021;096914132110095. Available from: https://doi.org/10.1177/09691413211009562.

Conclusión: There was a consistent improvement in the Global Rating Score for Bowel Cancer Screening Programme colonoscopies since the start of the programme, even when quality was already high at the start. Patients can expect high-quality colonoscopy when participating in the Bowel Cancer Screening Programme.

Bhoo-Pathy N, Bujang N-N-A, Ng C-W. Continuation of Screening Endoscopy for Colorectal Cancer in Older Adults. JAMA Oncol. 2021; Available from: https://doi.org/10.1001/jamaoncol.2021.1119DOI:10.1001/jamaoncol.2021.1119.

Conclusión: Colorectal cancer is not only one of the most common, but also one of the most preventable cancers globally. Screening for colorectal cancer has been associated with reduced disease-specific mortality through detection of cancer at earlier stages, as well as through detection and removal of its precursor lesions. While most professional

guidelines recommend routine screening of asymptomatic adults older than 50 years for colorectal cancer, there is disagreement on the age to stop screening. For example, the US Preventive Services Task Force(USPSTF) and the American College of Gastroenterology recommend screening until age 75 years, followed by individualized decision-making for people older than 75 years. In contrast, the Canadian Task Force on Preventive Health does not recommend screening adults 75 years and older for colorectal cancer. Likewise, the Asia Pacific Colorectal Cancer Working Group recommends 75 years as a reasonable age limit to stop screening. Nonetheless, these recommendations were largely made based on evidence from modeling studies and indirect evidence, such as reduced life expectancy in older individuals, and disparate inclusion of older adults in colorectal cancer screening trials.

Zorzi M, Battagello J, Selby K, Capodaglio G, Baracco S, Rizzato S, et al. Non-compliance with colonoscopy after a positive faecal immunochemical test doubles the risk of dying from colorectal cancer. Gut. 2021;1–7. DOI:10.1136/gutjnl-2020-322192.

Conclusión: The excess risk of CRC death among those not completing colonoscopy after a positive faecal occult blood test should prompt screening programmes to adopt effective interventions to increase compliance in this high-risk population.

Pilonis N, Bugajski M, Wieszczy P. **FIT and colonoscopy uptake after the first round** of testing in a randomized health services study offering competing strategies for colorectal cancer screening (piccolino study). Endoscopy. 2021;53:s18.

Conclusión: Increased participation in strategies with FIT do not translate into higher detection of AN or any adenoma.

Doria-Rose VP, Lansdorp-Vogelaar I, McCarthy S, Puricelli-Perin DM, Butera V, Segnan N, et al. Measures of longitudinal adherence to fecal-based colorectal cancer screening: Literature review and recommended approaches. Int J Cancer. 2021; (December 2020):ijc.33589. Available from: https://onlinelibrary.wiley.com/doi/10.1002/ijc.33589DOI:10.1002/ijc.33589.

Conclusion: We recommend that screening programs collect detailed longitudinal, individual-level data, not only for the screening tests themselves but additionally for diagnostic follow-up and surveillance exams, to allow for maximum flexibility in reporting adher- ence patterns using the measure of choice.

Yelorda KL, Fu SJ, Owens DK. Analysis of Survival Among Adults With Early-Onset Colorectal Cancer. JAMA Netw Open. 2021;4(6):e2112878. Available from: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2781175DOI:10.1001/jamanetworkopen.2021.12878.

Ribbing Wilén H, Saraste D, Blom J. **Gender-specific cut-off levels in colorectal** cancer screening with fecal immunochemical test: A population-based study of colonoscopy findings and costs. J Med Screen. 2021;096914132110200. Available from: https://doi.org/10.1177/09691413211020035.

Conclusión: The high rate of CRC detected in women in the lowest FIT category outweighs the minor reduction in screening costs if the same cut-off level was used as for men.

Zorzi M, Battagello J, Fiore A, Memo L, Senore C, Rugge M. Colorectal cancer incidence and mortality after negative fecal immunochemical tests by age 70: a prospective observational study. Int J Cancer. 2021;n/a(n/a). Available from: https://doi.org/10.1002/ijc.33682DOI:https://doi.org/10.1002/ijc.33682.

Conclusión:. In order to use more efficiently limited endoscopy resources, and to minimize the potential harms related to false positive results in the elderly, screening among people aged 70 to 74 might be restricted to those with zero previous negative FITs

Cribado de cáncer colorrectal - equidad

Unanue-Arza S, Solís-Ibinagagoitia M, Díaz-Seoane M, Mosquera-Metcalfe I, Idigoras I, Bilbao I, et al. **Inequalities and risk factors related to non-participation in colorectal cancer screening programmes: a systematic review**. Eur J Public Health. 2021;31(2):346–55. Available from: https://doi.org/10.1093/eurpub/ckaa203DOI:10.1093/eurpub/ckaa203.

Conclusión:. The scarcity of studies linking risk factors, social inequalities and participation in preventive activities for participation in screening in the same study makes it difficult to reach definitive patterns related to non-participation in CRC screening programmes. Nevertheless, being under 60, obese, smoker and sedentary have shown an association with non-participation as well as not visiting a doctor.

Mie Agermose Gram, Christina Therkildsen, Rebecca B Clarke, Klaus K Andersen, Lina S Mørch, Anne Julie Tybjerg. **The influence of marital status and partner concordance on participation in colorectal cancer screening.** Eur J Public Health . 2021 Apr 24;31(2):340-346. doi: 10.1093/eurpub/ckaa206.

Conclusión: Marital status was strongly associated with participation in colorectal cancer screening, and participation was even higher in married individuals with a participating partner. Future efforts to increase participation in colorectal cancer screening could potentially benefit from considering the role of partner concordance.

Kiara N Mayhand, Elizabeth A Handorf, Angel G Ortiz, Evelyn T Gonzalez, Amie Devlin, Kristen A Sorice, Nestor Esnaola, Susan Fisher, Shannon M Lynch. **Effect of Neighborhood and Individual-Level Socioeconomic Factors on Colorectal Cancer Screening Adherence**. Int J Environ Res Public Health . 2021 Apr 21;18(9):4398. doi: 10.3390/ijerph18094398.

Conclusion: After comprehensive variable methods were applied, socioeconomic indicators at the neighborhood and individual level were found to contribute to low CRC screening adherence.

Akimoto N, Ugai T, Zhong R, Hamada T, Fujiyoshi K, Giannakis M, Wu K, Cao Y, Ng K, Ogino S. **Rising incidence of early-onset colorectal cancer - a call to action**. Nat Rev Clin Oncol . 2021 Apr;18(4):230-243. doi: 10.1038/s41571-020-00445-1 PMID: 33219329.

Conclusión: In this Perspective, we summarize our current understanding of early-onset CRC and discuss how we should strategize future research to improve its prevention and clinical management.

Greiner B, Gandhi R, Abrol R, Patel M, Hartwell M. National disparities in colorectal cancer screening in patients with comorbid conditions: an analysis of the Behavioral Risk Factor Surveillance System. J Osteopath Med. 2021 Apr 26;121(7):657-662. doi: 10.1515/jom-2021-0066.

Conclusión: Patients with one or more comorbidities were more likely to be screened than those without comorbidities, but those with five or more conditions were less likely to be screened than patients with two to four conditions. This indicates that physicians may be more fatigued and less likely to recommend CRC screening to patients with many comorbidities compared with patients diagnosed with only a few conditions. The results of this study add to the literature by identifying an interaction between the number of comorbidities and likelihood of being screened for CRC.

Krieger JL, Neil JM, Duke KA, Zalake MS, Tavassoli F, Vilaro MJ, Wilson-Howard DS, Chavez SY, Laber EB, Davidian M, George TJ, Modave FP, Odedina FT, Lok BC. A Pilot Study Examining the Efficacy of Delivering Colorectal Cancer Screening Messages via Virtual Health Assistants. Am J Prev Med. 2021 Aug;61(2):251-255. doi: 10.1016/j.amepre.2021.01.014. Epub 2021 Apr 20. PMID: 33888362.

Conclusión: Animated virtual healthcare assistants were efficacious compared with the static virtual healthcare assistant and attention control conditions. The influence of race concordance between source and participant was inconsistent across conditions. This warrants additional investigation in future studies given the potential for virtual healthcare assistant—assisted interventions to promote colorectal cancer screening within guidelines.

Molina-Barceló A, Moreno Salas J, Peiró-Pérez R, Arroyo G, Ibáñez Cabanell J, Vanaclocha Espí M, Binefa G, García M, Salas Trejo D. [Inequalities in access to cancer screening programmes in Spain and how to reduce them: data from 2013 and 2020]. Rev Esp Salud Publica. 2021 Jan 26;95:e202101017. PMID: 33496270

Conclusión: Inequalities in access to cancer screening programmes in Spain are identified, as well as interventions to reduce them.

Rollet Q, Tron L, De Mil R, Launoy G, Guillaume É. Contextual factors associated with cancer screening uptake: A systematic review of observational studies. Prev

Med. 2021 Sep;150:106692. doi: 10.1016/j.ypmed.2021.106692. Epub 2021 Jun 21. PMID: 34166675

Conclusión: Context, in its diversity, influences individual screening uptake and lots of contextual inequities in screening are commonly shared worldwide. However, there is a lack of frameworks, standards and definitions that are needed to better understand what context is, how it could modify individual behaviour and the ways of measuring and modifying it.

Gorina Y, Elgaddal N. Patterns of Mammography, Pap Smear, and Colorectal Cancer Screening Services Among Women Aged 45 and Over. Natl Health Stat Report. 2021 Jun;(157):1-18. PMID: 34181518.

Conclusion-Differences in screening identified in this study are generally consistent with previous studies on screening for colorectal, breast, and cervical cancers for women at average risk and within the age groups recommended for screening. The results of this study support other findings showing the persistence of disparities in cancer screening among women aged 45 and over according to most of the selected characteristics regardless of recommended age of screening.

Cribado de cáncer de pulmón - general

Haaf K, Aalst CM, Koning HJ, Kaaks R, Tammemägi MC. **Personalising lung cancer screening: an overview of risk-stratification opportunities and challenges**. Int J Cancer. 2021;n/a(n/a):ijc.33578. Available from: https://doi.org/10.1002/ijc.33578DOI:10.1002/ijc.33578.

Conclusion: There are indications that risk-based approaches can negatively influence the trade-off between individual benefits and harms if not applied thoughtfully. Large-scale implementation of targeted, risk-based screening programs has been limited thus far. Consequently, questions remain on how to efficiently identify and invite high-risk individuals from the general population. Finally, while risk-based approaches may increase screening program efficiency, efficiency should be balanced with the overall impact of the screening program. In this review, we will address the opportunities and challenges in applying risk-stratification in different aspects of lung cancer screening programs, as well as the balance between screening program efficiency and impact.

Zhang EW, Shepard J-AO, Kuo A, Chintanapakdee W, Keane F, Gainor JF, et al. Characteristics and outcomes of lung cancers detected on low-dose lung cancer screening CT. Cancer Epidemiol Biomarkers & Epidemiol Biomarkers & 2021;cebp.1847.2021. Available from: http://cebp.aacrjournals.org/content/early/2021/06/09/1055-9965.EPI-20-1847.abstractDOI:10.1158/1055-9965.EPI-20-1847.

Conclusion: LCS implementation achieved higher cancer detection rate, detection of early stage cancers, and more multifocal lung cancers compared to the NLST, with low complications and mortality. Impact: The real-world implementation of LCS has been successful for detection of lung cancer with favorable outcomes.

Lam S, Tammemagi M. Contemporary issues in the implementation of lung cancer screening. Eur Respir Rev. 2021;30(161):200288. Available from: http://dx.doi.org/10.1183/16000617.0288-2020DOI:10.1183/16000617.0288-2020.

Conclusión: Lung cancer screening with low-dose computed tomography can reduce death from lung cancer by 20–24% in high-risk smokers. National lung cancer screening programmes have been implemented in the USA and Korea and are being implemented in Europe, Canada and other countries. Lung cancer screening is a process, not a test. It requires an organised programmatic approach to replicate the lung cancer mortality reduction and safety of pivotal clinical trials. Cost-effectiveness of a screening programme is strongly influenced by screening sensitivity and specificity, age to stop screening, integration of smoking cessation intervention for current smokers, screening uptake, nodule management and treatment costs. Appropriate management of screen-detected lung nodules has significant implications for healthcare resource utilisation and minimising harm from radiation exposure related to imaging studies, invasive procedures and clinically significant distress. This review focuses on selected contemporary issues in the path to implement a cost-effective lung cancer screening at the population level. The future impact of emerging technologies such as deep learning and biomarkers are also discussed.

Cribado de cáncer de pulmón - equidad

Williams LB, Looney SW, Joshua T, McCall A, Tingen MS. Promoting Community Awareness of Lung Cancer Screening Among Disparate Populations: Results of the cancer-Community Awareness Access Research and Education Project. Cancer Nurs . 2021 Mar-Apr 01;44(2):89-97. doi: 10.1097/NCC.00000000000000748

Conclusión: Community health workers are effective in increasing awareness of lung cancer screening and affecting behavior change among disparate populations.

Sayani A, Vahabi M, O'Brien MA, Liu G, Hwang S, Selby P, Nicholson E, Giuliani M, Eng L, Lofters A. Advancing health equity in cancer care: The lived experiences of poverty and access to lung cancer screening. PLoS One. 2021 May 6;16(5):e0251264. doi: 10.1371/journal.pone.0251264. eCollection 2021.

Conclusion: Underserved populations will require multiprong interventions that work at the individual, system and structural level to reduce inequities in lung-cancer risk and access to healthcare services such as cancer screening.

Sayani A, Ali MA, Corrado AM, Ziegler C, Sadler A, Williams C, Lofters A. Interventions designed to increase the uptake of lung cancer screening and implications for priority populations: a scoping review protocol. The objective of this scoping review is to describe intervention(s) designed to increase the uptake of lung cancer screening, including the health impact on priority populations and to describe knowledge and implementation gaps to inform the design of equitable lung cancer

screening. The knowledge synthesised will be used to inform the equitable design of lung cancer screening and disseminated through conferences, publications and shared with relevant partners. The study does not require research ethics approval as literature is available online.

Cribado de cáncer de próstata - general

Bernal-Soriano MC, Parker LA, López-Garrigós M, Hernández-Aguado I, Gómez-Pérez L, Caballero-Romeu J-P, et al. **Do the Prostate-Specific Antigen (PSA) Tests That Are Ordered in Clinical Practice Adhere to the Pertinent Guidelines?**J Clin Med. 2021;10(12):2650. Available from: https://www.mdpi.com/2077-0383/10/12/2650DOI:10.3390/jcm10122650.

Conclusión: Real world data shows that patients are still frequently exposed to overdiagnosis risk with a PSA potentially non-compliant with recommendations. Patients diagnosed with another neoplasm or non-consumers of toxic substances were more exposed, probably due to increased contact with doctors or health-seeking behaviour.

Nyame YA, Gulati R, Heijnsdijk EAM, Tsodikov A, Mariotto AB, Gore JL, et al. **The Impact of Intensifying Prostate Cancer Screening in Black Men: A Model-Based Analysis**. JNCI J Natl Cancer Inst. 2021; Available from: https://doi.org/10.1093/jnci/djab072DOI:10.1093/jnci/djab072.

Conclusión: Annual screening in Black men is expected to reduce mortality more than that estimated under historical screening. Limiting screening to men below 70 years is expected to help to reduce overdiagnosis.

Becker DJ, Rude T, Walter D, Wang C, Loeb S, Li H, et al. **The Association of Veterans' PSA Screening Rates With Changes in USPSTF Recommendations**. JNCI J Natl Cancer Inst. 2021;113(5):626–31. Available from: https://doi.org/10.1093/jnci/djaa120DOI:10.1093/jnci/djaa120.

Conclusión In this analysis of PSA screening rates among veterans before and after the 2012 USPSTF recommendation against screening, we found that overall PSA screening decreased only modestly, continuing for more than one-half of the men in our study. Veterans of different races had similar screening rates, suggesting that VA care may minimize racial disparities. Veterans of varying ages experienced statistically significantly differences in PSA screening trends.

Cribado de cáncer de próstata - equidad

Lu CD, Adeyemi O, Anderson WE, Hetherington TC, Slawson DC, Tapp H, Eaton TA, Burgess EF, Grigg CM, Zhu JZ, Gaston KE, Riggs SB, Clark PE, Taylor YJ, Kearns JT. Racial Disparities in Prostate Specific Antigen Screening and Referral to Urology in a Large, Integrated Health Care System: A Retrospective Cohort Study. J Urol.

2021 Aug;206(2):270-278. doi: 10.1097/JU.000000000001763. Epub 2021 Apr 1. PMID: 33793294

Conclusión: There was a continued significant decline in prostate cancer screening between 2014 and 2019. Despite having modestly elevated odds of being screened for prostate cancer compared to White men, Black men are relatively underscreened when considering that those who undergo prostate specific antigen screening are more likely to be referred by primary care to urology for additional prostate cancer diagnostic evaluation.

Cribado de otros cánceres - general

Menon U, Gentry-Maharaj A, Burnell M, Singh N, Ryan A, Karpinskyj C, et al. Ovarian cancer population screening and mortality after long-term follow-up in the UK Collaborative Trial of Ovarian Cancer Screening (UKCTOCS): a randomised controlled trial. Lancet. 2021; Available from: https://www.sciencedirect.com/science/article/pii/S0140673621007315DOI:https://doi.org/10.1016/S0140-6736(21)00731-5.

Conclusión: Given that screening did not significantly reduce ovarian and tubal cancer deaths, general population screening cannot be recommended.

General sobre cribado - general

Taksler GB, Peterse EFP, Willems I, ten Haaf K, Jansen EEL, de Kok IMCM, et al. **Modeling Strategies to Optimize Cancer Screening in USPTSF Guideline—Noncompliant Women.** JAMA Oncol. 2021; Available from: https://doi.org/10.1001/jamaoncol.2021.0952DOI:10.1001/jamaoncol.2021.0952. Conclusión: This modeling study of 45 cancer screening strategies suggests that women who are noncompliant with cancer screening guidelines may be able to reduce USPSTF-recommended screening intensity with minimal reduction in overall benefits.

Gini A, van Ravesteyn NT, Jansen EEL, Heijnsdijk EAM, Senore C, Anttila A, et al. **The EU-TOPIA evaluation tool: An online modelling-based tool for informing breast, cervical, and colorectal cancer screening decisions in Europe**. Prev Med Reports. 2021;22(April):101392. Available from: https://linkinghub.elsevier.com/retrieve/pii/S2211335521000826DOI:10.1016/j.pmedr.2021.101392.

Conclusión: Our study presents an essential online tool for stakeholders and medical societies to quantify estimates of benefits and harms of early cancer detection in Europe.

Robra B-P. **Ethical Challenges in Cancer Diagnosis and Therapy**. In: Bauer AW, Hofheinz R-D, Utikal JS, editors. Cham: Springer International Publishing; 2021. p. 85–104. Available from: https://doi.org/10.1007/978-3-030-63749-1_7DOI:10.1007/978-3-030-63749-1_7.

Conclusión: In recommending and offering screening, health services make a health claim ('it's good for you'). This article considers ethical aspects of establishing the case for cancer screening, building a service programme, monitoring its operation, improving its quality and integrating it with medical progress. The value of (first) screening is derived as a function of key parameters: prevalence of the target lesion in the detectable pre-clinical phase, the validity of the test and the respective net utilities or values attributed to four health states—true positives, false positives, false negatives and true negatives. Decision makers as diverse as public regulatory agencies, medical associations, health insurance funds or individual screenees can legitimately come up with different values even when presented with the same evidence base. The main intended benefit of screening is the reduction of cause-specific mortality. All-cause mortality is not measurably affected. Overdiagnosis and false-positive tests with their sequelae are the main harms. Harms and benefits accrue to distinct individuals. Hence the health claim is an invitation to a lottery with benefits for few and harms to many, a violation of the non-maleficence principle. While a public decision maker may still propose a justified screening programme, respect for individual rights and values requires preference-sensitive, autonomy-enhancing educational materials—even at the expense of programme effectiveness. Opt-in recommendations and more 'consumeroriented' qualitative research are needed.

General sobre cribado - equidad

■ Cribado y COVID-19

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.

Conclusión: 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.

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.

D'Ovidio V, Lucidi C, Bruno G, Lisi D, Miglioresi L, Bazuro ME. Impact of COVID-19

Pandemic on Colorectal Cancer Screening Program. Clin Colorectal Cancer.

2021;20(1):e5–11. Available from:

https://linkinghub.elsevier.com/ratrigve/pii/S1533002820301018DQI:10.1016/j.clcc.202

https://linkinghub.elsevier.com/retrieve/pii/S1533002820301018DOI:10.1016/j.clcc.2020.07.006.

Conclusión: The overall adherence to CRCS decreased during the pandemic, but the continuation of CRCS colonoscopies was efficacious and safe.

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.

Conclusión: 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 mitigate the consequences of reduced screening rates during the pandemic for colorectal cancer outcomes.

Chen RC, Haynes K, Du S, Barron J, Katz AJ. **Association of Cancer Screening Deficit in the United States with the COVID-19 Pandemic**. JAMA Oncol. 2021;7(6):878–84. DOI:10.1001/jamaoncol.2021.0884.

Conclusión: Public health efforts are needed to address the large cancer screening deficit associated with the COVID-19 pandemic, including increased use of screening modalities that do not require a procedure.

Morrison DS. Recovering cancer screening in the pandemic: strategies and their impacts. Br J Cancer. 2021;(January):2020–1. Available from: http://dx.doi.org/10.1038/s41416-021-01264-6DOI:10.1038/s41416-021-01264-6.

Conclusión: The coronavirus pandemic has disrupted cancer screening programmes. Kregting and colleagues' microsimulation models indicate that attempting to quickly catch up with missed screens while simultaneously restarting the ongoing programme would achieve better outcomes but require substantial increases in normal screening capacity that may not be feasible.

Kregting LM, Kaljouw S, de Jonge L, Jansen EEL, Peterse EFP, Heijnsdijk EAM, et al. **Effects of cancer screening restart strategies after COVID-19 disruption**. Br J Cancer. 2021;124(9):1516–23. Available from: http://dx.doi.org/10.1038/s41416-021-01261-9DOI:10.1038/s41416-021-01261-9.

Conclusión: Strategies with the smallest loss in health effects were also the most burdensome for the screening organisations. Which strategy is preferred depends on the organisation and available capacity in a country.

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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