health campaigns raising awareness about stigma and implicit bias including information on glamorization of smoking in the early days when many eligible for CT lung screening started smoking. References: Brunilda Casetta, Alejandro J Videla, Ariel Bardach, et al. Association Between Cigarette Smoking Prevalence and Income Level: A Systematic Review and Meta-Analysis, Nicotine & Tobacco Research, Volume 19, Issue 12, December 2017, Pages 1401—1407, https://doi.org/10.1093/ntr/ntw266 Sreeramareddy CT, Harper S, Ernstsen L. Educational and wealth inequalities in tobacco use among men and women in 54 low-income and middle-income countries Tobacco Control 2018;27:26-34 Tungasuvvingat Inuit and Cancer Care Ontario. Cancer Risk Factors and Screening Among Inuit in Ontario and Other Canadian Regions. Toronto, 2017. This report is available at: www.cancercare.on.ca/InuitRiskFactors Centers for Disease Control and Prevention. Lung Cancer Incidence in the American Indian and Alaska Native Population, United States Purchased/Referred Care Delivery Areas—2012—2016. U.S. Cancer Statistics data brief, no 14. Atlanta, GA: Centers for Disease Control and Prevention, US Department of Health and Human Services; 2019. Cancer Australia, 2020. Report on the Lung Cancer Screening Enquiry, Cancer Australia, Surry Hills, NSW Chiefs of Ontario, Cancer Care Ontario and Institute for Clinical Evaluative Sciences. Cancer in First Nations People in Ontario: Incidence, Mortality, Survival and Prevalence. Toronto, 2017 Aldrich MC, Mercaldo SF, Sandler KL, Blot WJ, Grogan EL, Blume JD. Evaluation of USPSTF Lung Cancer Screening Guidelines Among African American Adult Smokers. JAMA Oncol. Published online June 27, 2019. https://doi.org/10.1001/jamaoncol.2019.1402 Crosbie PA, Balata H, Evison M, et al Implementing lung cancer screening: baseline results from a community-based 'Lung Health Check' pilot in deprived areas of Manchester. Thorax. 2019 Apr;74(4):405-409. https://doi.org/10.1136/thoraxjnl-2017-211377. Epub 2018 Feb 13. PMID: 29440588. **Keywords:** Lung Cancer Screening, Health Disparities, Stigma

ES12 PUBLIC HEALTH ISSUES IN LUNG CANCER SCREENING SATURDAY, JANUARY 30, 2021 - 10:30-11:30

ES12.02
Defining High Risk

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Globally, lung cancer is the leading cause of cancer death. The National Lung Screening Trial and NELSON trial have shown that LDCT screening can reduce lung cancer mortality by ≥20%. This finding can have major public health impact. However, lung cancer screening is most effective when applied to high-risk individuals. Consequently, defining eligibility to select individuals for screening is important in determining screening programs' effectiveness. This abstract discusses select topics in defining high risk and determining eligibility for lung cancer screening. Two general approaches to determining eligibility exist. The first uses categories of age, pack-years and smoking quit-years (CATage-PKYR-QY). This method does not quantify risk. Examples include NLST, USPSTF2013 and USPSTF2020, CMS and NELSON criteria. The second method uses mathematical models describing the relationship between predictors and lung cancer. and risk is quantified. Because this approach uses many predictors, models continuous variables, and in some models handles non-linear relationships, they have generally been found to be superior to CATage-PKYR-QY approaches. Examples include the Bach, PLCOm2012 and LCRAT models. [1-3] Comparisons of the USPSTF selection criteria versus model-risk-based approaches have been made by the CISNET Lung Group using micro-simulation modeling.[4] Because modeling makes unrealistic assumptions, such as 100% participation and adherence, perhaps the best evidence to date instead comes from the *International Lung Screening Trial*, which prospectively enrolled >4000 individuals by USPSTF2013 criteria or PLCOm2012 risk.[5] At PLCOm2012 ≥1.7%/6y both criteria selected the same number for screening. Both criteria were positive for 3018 individuals. Three cancers were detected in the USPSTF+/PLCOm2012- group, and 23 cancers were detected in the PLCOm2012+/USPSTF- group. The PLCOm2012 cancer detected rate was 18.5% (95%CI 11.5%-26.7%) higher than the USPSTF criteria. Given the average age at enrollment was 63.01 for USPSTF+ and 65.38 for PLCOm2012+ and assuming average death ages for USPSTF+ and PLCOm2012+ were 78 and 76 years (assumes greater comorbidities and competing deaths in PLCOm2012+ group), a crude calculation estimates 41.5 more life-years-gained per 1000 scans by the PLCOm2012 criteria. The USPSTF2013 and USPSTF2020 criteria lead to race and gender disparities, that for Whites versus Blacks is undone using the PLCOm2012 and for men versus women are reduced. The CREST study applied USPSTF criteria and PLCOm2012 to a community-based case series of 883 lung cancer patients in the University of Illinois Hospital and Health Sciences System in Chicago.[6] For the USPSTF2020 in Whites and Blacks the criteria sensitivities were 75.4% and 70.6% and for PLCOm2012 ≥1.0%/6y (equivalent to USPSTF2020) were 82.5% and 82.8%, respectively. For the USPSTF2020 in men and women the criteria sensitivities were 71.8% and 64.6% and for PLCOm2012 ≥1.0%/6y were 80.9% and 76.7%. NLST results demonstrate that below a PLCOm2012 risk of 0.64%/6y there is no lung cancer mortality benefit conferred by LDCT screening. Indeed, there were more deaths in the LDCT arm. In the PLCO Trial there were 74,218 smokers. 4777 (6.4%) of them had PKYR ≥20 and <30 and QY≤15, representing the incremental group added by the USPSTF2020 criteria. Of these, 1025 (21.5%) have PLCOm2012 risks <0.65%/6y, and only 2 lung cancers were observed in this group (0.2%/6y). This sizeable group has risks so low that according to NLST results they have no benefit. Expansion of screening needs to be done effectively. Note that these results are based on real people and real data. Should biomarkers be used as the first stage for determining eligibility? To date, we are aware of only one biomarker test that has been evaluated in a RCT for selecting individuals for lung cancer screening: *Early Diagnosis of Lung Cancer Scotland* trial, which evaluated an autoantibody panel.[7] In the intervention arm (N=6088), individuals who tested positive (n=598) received a LDCT screen; test-negative and controls (N=6121) received regular care. 71 lung cancer were detected in the control arm and only 56 were detected in intervention arm. Sensitivity was only 32.1%. The cancer detection rate was 0.9% in 2 years and early stage occurred in 41% of cases. These findings compare poorly against pilots using PLCOm2012 for enrollment, for example, Manchester Lung Health Check had 3.0% detection in 1 year and 80% early stage[8]; Ontario Health (Cancer Care Ontario) pilot had 1.9% in 1 year and 71% early stage[9]. Cost-effectiveness analysis found no scenario in which the biomarker was more favourable. Because of greater accuracy and cheaper cost, the PLCOm2012 dominated the biomarker. Thus, in such scenarios, biomarker combined with prediction model may be superior, or biomarker may be useful to identify those at high risk who do not qualifying by other criteria. 1. Bach PB, Kattan MW, Thornquist MD, et al. Variations in lung cancer risk among smokers. Journal of the National Cancer Institute 2003;95:470-8. 2. Tammemagi MC, Katki HA, Hocking WG, et al. Selection criteria for lung-cancer screening. The New England journal of medicine 2013;368:728-36. 3. Katki HA, Kovalchik SA, Berg CD, Cheung LC, Chaturvedi AK. Development and Validation of Risk Models to Select Ever-Smokers for CT Lung Cancer Screening. JAMA 2016. 4. Meza R, Jeon J, Toumazis I, et al. Evaluation of the Benefits and Harms of Lung Cancer Screening With Low-Dose Computed Tomography: A Collaborative Modeling Study for the U.S. Preventive Services Task Force. Rockville, MD.2020. 5. Lam S, Myers R, Ruparel M, et al. PL02.02 - Lung Cancer Screenee Selection by USPSTF Versus PLCOm2012 Criteria — Interim ILST Findings. Journal of Thoracic Oncology 2019;Vol 14, Issue 10, S4. 6. Pasquinelli MM, Tammemagi MC, Kovitz KL, et al. Risk Prediction Model Versus United States Preventive Services Task Force Lung Cancer Screening Eligibility Criteria: Reducing Race Disparities. J Thorac Oncol 2020. 7. Sullivan FM, Mair FS, Anderson W, et al. Earlier diagnosis of lung

cancer in a randomised trial of an autoantibody blood test followed by imaging. Eur Respir J 2020. 8. Crosbie PA, Balata H, Evison M, et al. Implementing lung cancer screening: baseline results from a community-based 'Lung Health Check' pilot in deprived areas of Manchester. Thorax 2019;74:405-9. 9. Darling GE, Tammemagi MC, Schmidt H, et al. Organized Lung Cancer Screening Pilot: Informing a Province-wide Program in Ontario, Canada. The Annals of thoracic surgery 2020.

ES13 PRACTICE CHANGING INITIATIVES SATURDAY, JANUARY 30, 2021 - 10:30-11:30

ES13.03
Managing the Psychological Needs of Patients in a Screening Service

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Psychological considerations within the realm of lung cancer screening are broad and span a number of areas. The aim of this talk is to give a brief overview of some of these areas. Firstly, an understanding of psychosocial factors can help program leaders develop campaigns to promote services and better target specific populations that demonstrate risk (Irwin et al., 2019; Montano et al., 1997). There are specific psychosocial factors including anxiety, fatalism, and concerns regarding stigma that impact the willingness of individuals and specific populations to accept screening (Quaife et al., 2017). Strategies for targeting these concerns include directly addressing these areas with patients, and coaching providers and medical team members to intervene. Secondly, tobacco/smoking cessation is vital to decreasing risk of lung cancer as well as a host of other illnesses and all cause mortality (Li et al., 2020). Psychology has an important role in engaging patients with quitting services and providing support and programming during quitting (Iaccarino et al., 2019). Motivational interviewing strategies have been shown to be particularly important in generating treatment engagement around addiction services in general, and tobacco cessation in particular (Miller & Rollnick, 2013). Efforts to convince patients to engage often backfire, while approaching individuals with curiosity and allowing space for patients to explore their own motivation to quit generate increased motivation. It is optimal that all program staff are aware of motivational interviewing principles and work together to create an atmosphere of partnership, acceptance, and compassion. Once tobacco/smoking cessation treatment has been accepted, matching individuals with modalities that fit their preferences, and are also most likely to generate successful outcomes, becomes important (Carter-Harris et al., 2018). Having recommendations for diverse modalities including in-person services, telephone services, text support, and apps allows patients to engage in ways that can minimize drop out from treatment. Providing a combination of medication and support resources as well as services that can provide support throughout the timeframe of quitting have also been shown to generate the greatest success in quitting. Finally, as with screening for any potentially serious diagnosis, patients can respond with significant distress at any point in the process (Byrne et al., 2008). In particular, waiting for results, receiving significant findings, or receiving inconclusive results are particularly risky times (Dunn et al., 2017). It is important for program staff to be aware of psychological signs indicating a need for additional services, and what types of services are best suited to address these concerns. Cognitive behavioral and mindfulness-based interventions have demonstrated significant positive outcomes for lessening distress in cancer patients following diagnosis and during treatment (Carlson, 2017). These treatments lessen distress by assisting patients in changing behaviors, thoughts, and their relationship to both cognitive and affective responses to stress. Byrne, M. M., Weissfeld, J., & Roberts, M. S. (2008). Anxiety, fear of cancer, and perceived risk of cancer following lung cancer screening. *Medical Decision Making 28(Nov-Dec)*, 917-925. https://doi.org/10.1177/0272989X08322013 Carlson, M. (2017). *CBT for psychological well-being in cancer: A skills training manual integrating DBT, ACT, behavioral activation and motivational interviewing* (1st ed.). John Wiley & Sons Ltd. https://doi.org/10.1002/9781119161370 Carter-Harris, L., Shwindt, R., Bakoyannis, G., Ceppa, D. P. (2018). Current smokers' preferences for receiving cessation information in a lung cancer screening setting. *Journal of Cancer Education 33(5)*, 1120-1125. https://doi.org/10.1007/s13187-017-1222-7 Dunn, C. E., Edwards, A., Carter, B., Field, J. K., Brain, K., & Lifford, K. J. (2017). The role of screening expectations in modifying short-term psychological responses to low-dose computed tomography lung cancer screening among high risk individuals. *Patient Education and Counseling 100*, 1572-1579. https://dx.doi.org/10.1016.j.pec.2017.02.024 Iaccarino, J. M., Duran, C., Slatore, C. G., Weiner, R. S., & Kathuria, H. (2019). Combining smoking cessation intervention with LDCT lung cancer screening: A systematic review. *Preventive Medicine 121*, 24-32. https://doi.org/10.1016/j.ypmed.2019.02.016 Irwin, K. E., Stefens, E. B., Yoon, Y., Flores, E., J., Knight, H. P., Pirl, W. F., Freudenreich, O., Henderson, D. C., & Park, E. R. (2019). Lung cancer screening eligibility, risk perceptions, and clinician delivery of tobacco cessation among patients with schizophrenia. *Psychiatric Services 70*, 927-934. https://doi.org/10.1176/appi.ps.201900044 Li, J., Chung, S., Martinez, M. C., & Luft, H. S. (2020). Smoking-cessation interventions after lung cancer screening guidelines change. *American Journal of Preventive Medicine 59(1)*, 88-97. https://doi.org/10.1016/j.amepre.2020.01.031 Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing* (3rd ed.). The Guilford Press. Montano, D. E., Kasprzyk, D., Taplin, S. H. (1997). The theory of reasoned action and the theory of planned behavior. In K. Glanz, F. M. Lewis, & B. K. Rimer (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 85-112). Jossey-Bass Inc. Quaife, S. L., Marlow, L. A. V., McEwen, A., Janes, S. M., & Wardle, J. (2017). Attitudes towards lung cancer screening in socioeconomically deprived and heavy smoking communities: informing screening communication. *Health Expectations 20*, 563-573. https://doi.org/10.1111/hex.12481

ES13 PRACTICE CHANGING INITIATIVES SATURDAY, JANUARY 30, 2021 - 10:30-11:30

ES13.06
Developing a Care Board

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Interprofessional supportive care improves patient's quality of life and might even impact overall survival. In the Department of Oncology at Lausanne University Hospital (CHUV) we developed and introduced an interprofessional board called "Care-Board" during early treatment phase that is organized in parallel to the Tumor-Board. The aim of the Care-Board is to facilitate a standardised interprofessional consensus process and agreement on supportive care recommendations for patients. Between 2017-2018, we piloted the Care-Board targeted on patients diagnosed with lung cancer. This pilot study showed promising results for the feasibility and acceptability of the Care-Board. Indeed all participating health care professionals declared to be favorable to continue the Care-Board in the future and integrate this model in the usual care for lung cancer patients. It was also found that the goal of the Care-Board needed clarification and clear inclusion criteria evaluating the complexity of patients' supportive care needs was recommended. It was also recommended to open the Care Board to other patient groups and to increase the frequency of Care Boards to allow a rapid action to address problems and needs. In 2020 we introduced a new model of the Care Board open to all cancer patients fulfilling the following inclusion criteria: clinical evidence of moderate / high distress (score >4 on the NCCN distress thermometer) and/or a high number of problems on the problem checklist, and/ or management by the oncology team