CROM Symposium 2020

Consumer **R**eported **O**utcome **M**easures
in Tobacco and Nicotine Research

December 10, 2020 | 4:00 - 7:00 pm CET

A Virtual Event

Programme

AGENDA

SETTING THE SCENE FOR CROM

4:00 pm - 4:15 pm	A consortium approach for consumer-reported outcome measures for assessing tobacco and nicotine-containing products	Christelle Chrea, PhD Philip Morris Products SA
4:15 pm - 4:45 pm	The FDA Guidance on PROs and the Regulation of Modified Risk Tobacco Products (MRTP)	Donald Patrick, PhD University of Washington
4:45 pm - 5:05 pm	Audience Q&A following panel presentations	Panel presenters

CASE STUDIES ON CROM

5:05 pm - 5:25 pm	Use of qualitative research to ensure we measure what matters to users of tobacco and/or nicotine products	Esther Afolalu, PhD Philip Morris Products SA
5:25 pm - 5:45 pm	Measurement Matters: Psychometric Analysis of the PATH Youth Dependence Scale	Ryan Black, PhD JUUL Labs Inc.
5:45 p.m. - 6:00 p.m.	***Break***	
6:00 pm - 6:20 pm	Establishing traceability of self-reported dependence measurement through the use of crosswalks	Thomas Salzberger, PhD WU Wien
6:20 pm - 7:00 pm	Audience Q&A following panel presentations	Panel presenters

A consortium approach for consumer-reported outcome measures for assessing tobacco and nicotine-containing products

Authors (by alphabetic order)***:*** *Catherine Acquadro[1]; Esther Afolalu[2]; Ryan Black[3]; Xavier Cahours[4];* ***Christelle Chrea[2]****; Emilie Clerc[2]; Geoffrey Curtin[5]; Sarah Evans[6]; Lesley Giles[7]; Stacey Maccaffrey[3]; Heather Park[8]; Krishna Prasad[9]; Mohamadi Sarkar[10]; Saul Shiffman[11]; Lay Wei[10]*

[1] ICON PLC, Lyon, France; [2] Philip Morris Products SA, Switzerland; [3] JUUL Labs, Inc., USA; [4] Imperial Brands, France; [5] RAI Services Company, USA; [6] Turning Point Brands, USA; [7] JT International SA, Switzerland; [8]KT&G Research Institute, Republic of Korea; [9] British American Tobacco, U.K.; [10] Altria Client Services, USA; [11] Pinney Associates, USA

The continuum of risk of tobacco products is generally accepted among public health authorities, where combustible products like cigarettes are the most risky and noncombustible products are at the lower end of the continuum. Adult smokers (AS) unable or unwilling to quit might benefit by switching to lower-risk tobacco and nicotine-containing products. Consumer-reported outcome measures (CROM) might help inform on the switching behaviors of AS from cigarettes to noncombustible tobacco products. CROM are self-reported observations that represent information intrinsic to the consumer, which cannot be obtained otherwise. To support regulatory decision-making on such products, there is a need for developing scientifically credible standards to ensure that CROM are valid and reliable. The CROM Consortium within the CORESTA framework seeks to establish best practices and guidelines for the integration of CROM into the tobacco regulatory process. The main objective of the consortium is to provide guidance on how to develop, validate, identify, access and use CROM to evaluate tobacco and nicotine-containing products for pre-market and post-market studies. To achieve this objective, a governance structure around specific working groups has been defined, with the tasks to: (i) review existing standards and guidelines on CROM and provide recommendations for standards that are fit-for-purpose; (ii) review, select and develop a knowledge repository for storing CROM and facilitating identification and access of the most appropriate CROM in a specific context of use; (iii) disseminate the work through communications and publications to foster a dialogue on the requirements for developing common terminology, standards, and best practices for CROM in tobacco and nicotine research; and (iv) use the Consortium as a collaborative platform between the tobacco industry, academia, and regulatory and public health stakeholders to enhance harmonization in CROM-related science.

Christelle Chrea, PhD is a behavioural scientist with extensive technical expertise in the design, development and testing of psychometric instruments and survey questionnaires to address consumer-centric measurement gaps in clinical research or real world setting. She has 15+ years international experience in regulated consumer products industries and she is currently managing the Behavioral Sciences group at Philip Morris Products SA. In collaboration with international experts in patient-reported outcomes (PRO), Christelle Chrea and her team are advancing the development of well defined, developed and validated consumer-reported outcome measures (CROM) through the ABOUT™ Toolbox initiative, to support smoke-free products' assessment strategies, in line with requirements by regulatory agencies. Since November 2018, she is the coordinator and chair of the CORESTA CROM Taskforce, an inter-industry consortium which goal is to establish best practices and guidelines for the integration of CROM in tobacco regulatory research.

The FDA Guidance on PROs and the Regulation of Modified Risk Tobacco Products (MRTP)

***Author: Donald Patrick**, PhD*

Department of Health Services, University of Washington

The FDA PRO Guidance, over a decade in development and more than a decade after approval, set standards for incorporating the patient voice into medical product labeling. The regulatory context necessitates substantial evidence of effectiveness and well-defined and reliable assessments of patients' views. Built on existing standards for psychological assessment, the Guidance advanced regulatory science of PRO measures (PROMS) with an emphasis on establishing the validity of content through qualitative research and the separation of the measurement of change from the assignment of meaning to that change. In other words, are we measuring what matters most to people using the products and can we conclude from the evidence presented that the changes reported are indeed important at the level of the population? The Roadmap accompanying the Guidance and division-specific recommendations help to evaluate the assertion that the product "works" as well as the evidence suggests. These principles, now integrated into regulatory decision-making throughout the FDA, impact how MRTP are evaluated and approved. Developers of MRTP must demonstrate that they will significantly reduce harm to individual tobacco users and benefit population health, taking into account both users of the products and persons who do not currently use tobacco. CROMs supplement toxicological evidence with consumer perceptions of information, benefits, and harms. Studies must assess consumer understanding of the claims that reducing exposure to harmful chemicals is relative to smoking, requiring exclusive use of MRTP. Building content-valid CROMs that can assess if meaningful change has occurred requires long-term development of an individual assessment strategy as well as a population impact model. Required are rigorous cross-cultural investigation of what MRTP mean to consumers, how consumers evaluate risks and benefits, and how these translate into stopping smoking tobacco. Particular attention has to be paid to youthful smokers. Painstaking studies with novel instruments are in development to assess how replicable findings will be across different populations and how much change in attitude and use we expect and observe. Consumer reported outcomes provide important and necessary evidence to evaluate reduced harm in using tobacco and/or nicotine-containing products more safely.

Professor Donald Patrick, PhD MPH is an international expert in health outcomes and quality of life in both population health and clinical applications with adults and children. He is a Professor Emeritus at the University of Washington and the Fred Hutchinson Cancer Research Center. He has developed many health outcome measures for government and industry use. He was a Special Government Employee with the U.S. Food and Drug Administration for over a decade and contributed significantly to the Agency's Guidance for using Patient Reported Outcomes in Medical Product Approval. He is a member of the US National Academy of Medicine. He was Inaugural President of the International Society for Quality of Life Research and has contributed widely to the International Society for Pharmacoeconomics and Outcomes as a former member of the Board and on the Health Policy Council, winning the Donabedian Lifetime Achievement Award. He is author of numerous articles and monographs. A bibliography of publications is available here.

Use of qualitative research to ensure we measure what matters to users of tobacco and/or nicotine products

***Authors**: **Afolalu EF**[1], Clerc E[1], Abetz-Webb L[2], Chrea C[1]*

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Cigarette smoking has a profound impact not on only physiological health but also perceived health and quality of life. There is currently a public health focus on cigarette smokers who switch to alternative smoke-free tobacco and nicotine-containing products (TNPs) (such as e-cigarettes, smokeless tobacco, and heated tobacco products) and a timely need for a valid and fit-for-purpose outcome measure for accurately assessing the impact of these products on the perceived health and functioning status of consumers. This led to the initiation of the development of a new self-reported health and functioning measure related to TNP use. In 2018, we presented the preparatory phase of the development, which included identification of 69 concepts through expert opinion, a scoping literature review and re-analysis of qualitative data from focus groups, and individual interviews assessing perceived risk and dependence associated with TNP use. This presentation presents qualitative research activities (qualitative item mapping, longitudinal interviews, retrospective individual interviews, and focus groups) for eliciting health- and functioning-related concepts in cigarettes smokers who have switched to alternative smoke-free TNPs and specifically for understanding essential concepts that are most likely to change (improve/deteriorate) or remain stable with such a switch. The data from these studies will be used to document content validity, refine the conceptual and measurement model for the new health and functioning measure, and support item bank generation for further assessment of its psychometric performance.

Esther F. Afolalu, PhD, is a Senior Behavioral Scientist at Philips Morris International, where she provides technical leadership to support strategies for behavioral research and operational activities regarding the development, validation, and implementation of consumer reported measures of health and behavioral outcomes related to use of tobacco and nicotine products. Her research expertise spans the fields of Behavioral Science, Clinical and Health Psychology, Population Health, Outcomes Research, and Epidemiology. She has a PhD in Psychology (University of Warwick, UK) and her doctoral research focused on multi-methodological experimental and observational epidemiological studies on the associations of sleep disturbances with pain and health outcomes. She also has pharmaceutical clinical trials experience in therapeutic areas of sleep, psychopharmacology, oncology, immunology, and vaccine development.

Measurement Matters: Psychometric Analysis of the PATH Youth Dependence Scale

***Authors: Ryan A. Black**, Ph.D.[1], Saul Shiffman, Ph.D.[2], & Michael J. Hannon, M.A.[2]*

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Background. Dependence on nicotine-containing products is of interest to regulatory agencies, as it bears on continued use of regulated products. However, dependence is a highly complex construct, requiring sound application of the science of behavioral measurement (psychometrics). While there are widely used scales available to measure adults' dependence on cigarette smoking, attempting to apply these scales to assessing dependence on ENDS, and applying them to new populations, such as youth, raises significant psychometric challenges. One such example is the use in the FDA and NIH sponsored *Population Assessment of Tobacco and Health* (PATH) youth survey of the Wisconsin Inventory of Smoking Dependence Motives (WISDM) scale. This scale was initially developed and validated to measure cigarette dependence in adults, but PATH used six adapted WISDM items to measure cigarette and ENDS dependence in youth. It is unknown whether use of these six items to assess and compare dependence on ENDS and cigarettes in youth is psychometrically appropriate. ***Objective***. This analysis aimed to determine the reliability and validity of the scale scores obtained from the 6-item scale in assessing and comparing cigarette and ENDS dependence in youth who were either dual users of cigarettes and ENDS or exclusive users of either product. Where psychometrically appropriate, analyses compared dependence on cigarette smoking to dependence on ENDS use. ***Methods***. A comprehensive psychometric evaluation of the 6-item scale was conducted, including assessing reliability, convergent/discriminant validity, item response function (IRT methods), internal structure (dimensionality), and scale invariance (CFA methods). ***Sample***. Data were obtained from respondents to waves 3 and 4 of the PATH Youth survey who were currently (past 30 day) either dual users (*n=106*) or exclusive users of cigarettes (*n=142*) or of ENDS (*n=367*). ***Results***. Initial analyses indicated that two items measuring perceived positive effects (i.e., "helps me feel better," "helps me think better") did not fit with the scale. With these items deleted, the scale was found to be unidimensional and reliable and valid for comparisons among youth dual users. The analyses showed that in this population, ENDS use was associated with lower dependence than was cigarette smoking. It was also determined, however, that the scale was not psychometrically appropriate for comparisons among youth exclusive users. ***Conclusion***. The findings from this study reinforce the need to formally evaluate psychometric properties of scales used when assessing and comparing dependence across various populations or products. Without this, their use could lead to inaccurate assessment of dependence, and ultimately influence adoption of ill-advised public health policy.

Dr. Ryan Black is a clinical and research psychologist with expertise in psychometrics, statistical methods and population health impact modeling. He currently works in the regulatory science department at Juul Labs, Inc., serving as Senior Director of Behavioral Affairs, Health Economics & Data Analytics. Dr. Black previously led the population science team in the regulatory science department at Altria. As part of his role, he led the PHIM work and presented the ALCS PHIM at various venues, including TPSAC, CORESTA, FDLI and academic institutions. Dr. Black has held the position of Director of Biostatistics and Methodology at Inflexxion, Inc., in which he served as co-PI/lead biostatistician on several NIH-funded behavioral research grants. During this time, Dr. Black developed and executed the data analytic strategy used to evaluate abuse of prescription opioid products as part of broader postmarket surveillance programs in support of regulatory engagement by various prescription opioid manufacturers. Dr. Black has published extensively in the areas of psychometric methods, substance use and tobacco regulatory research.

Saul Shiffman, Ph.D. is Research Professor of Psychology (Clinical and Health Psychology), Psychiatry, Pharmaceutical Sciences, and Clinical Translational Science at the University of Pittsburgh. He also serves as Senior Scientific Advisor at Pinney Associates, which consults to JUUL Laboratories on e-cigarettes and tobacco harm reduction. Dr. Shiffman has been conducting behavioral research on nicotine and tobacco for 45 years, and has published over 400 scientific papers on topics including smoking patterns, nicotine dependence, smoking cessation and relapse, smoking cessation treatment, and issues in tobacco harm reduction. Dr. Shiffman is the recipient of the Ovid Ferno Award “for breakthroughs in clinical research,” awarded by the Society for Research on Nicotine and Tobacco and the Research-to-Practice award “for exemplary work in translating or extending behavioral medicine from research into practical application,” awarded by the Society for Behavioral Medicine. Dr. Shiffman has been elected a Fellow of the American Psychological Association, the Association for Psychological Science, the Society of Behavioral Medicine, and the Society for Research on Nicotine and Tobacco, and has served on advisory panels to the US National Institutes of Health and to a number of NGOs internationally.

Establishing traceability of self-reported dependence measurement through the use of crosswalks

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Measurement in the social sciences has been characterized by deficient justification and underdeveloped conceptual theories. Instruments supposed to measure the same measurand typically do not provide comparable measurements. From the perspective of metrological traceability, the state of affairs has thus been unsatisfactory. Today, better instruments can be developed as psychometrics provides tools for invariant measurement (Rasch measurement theory), where measurements are justifiable, linear, and sample-independent. Different instruments can be linked to a common metric of the measurand by means of co-calibration of item parameters. Such linkages, referred to as crosswalks, are an important and practically useful contribution to traceability, when common references have not been developed, yet. The measurement of dependence on tobacco and/or nicotine-containing products through self-report instruments illustrates the limitations of traditional measurement, how they can be overcome by new instrument development, and how a network of crosswalks with existing legacy instruments can be established.

Dr. Thomas Salzberger is a senior lecturer at the Institute for Statistics and Mathematics and the Institute for Marketing Management at the WU Vienna (Vienna University of Economics and Business). He also teaches at various universities of applied science and works as a consultant. He earned a doctorate in 1998 on the comparison of traditional test theory and Rasch measurement for assessing cross-cultural measurement equivalence. In 2008, he completed the habilitation on an alternative framework for the measurement of latent variables in marketing research. Besides research in consumer behaviour and international marketing, he focuses on the application of the Rasch model for measurement in the social sciences and the fundamental underpinnings of the model. His work has been published in the Journal of Business Research, European Journal of Marketing, Frontiers in Quantitative Psychology and Measurement, Advances in International Marketing, International Marketing Review and Journal of Advertising. He is also in charge of the Matilda Bay Cub (MBC) discussion list.