Posttraumatic stress disorder (PTSD) is twice as prevalent in women as in men, and is an established risk factor for chronic disease, but few studies have comprehensively assessed lifetime PTSD in middle-aged and older civilian women. We surveyed 33,328 women aged 54-74 from the Nurses' Health Study II from August 2018 to January 2020 to understand trauma exposure, PTSD based on the Diagnostic and Statistical Manual of Mental Disorders Version 5, and trauma-related treatment use. The majority (82.2%) of women reported one or more lifetime traumas. 10.5% of those with trauma had lifetime PTSD and 1.5% had past-month PTSD. The most common trauma types were sudden or unexpected death of a loved one (44.9%) and interpersonal or sexual violence (43.5%). Almost 30% experienced occupational (nursing-related) trauma. Interpersonal or sexual violence event types explained the largest proportion of PTSD cases (33.6%) out of seven categories of events assessed. Only 25% of women with trauma ever accessed trauma-related treatment, but this proportion was higher (66.4%) among those with diagnosable PTSD, and among those with current depression (35.9%). Treatment was most common among women who experienced interpersonal/sexual violence and lowest among those with occupational trauma, but treatment satisfaction did not vary by worst trauma type. Psychotherapy was the most common type of treatment. These results demonstrate that trauma is nearly universal in middle-aged to older women, which has important implications for their long-term health and well-being—particularly in the era of COVID-19 which is likely to produce additional trauma in this population.

Session 3600 (Symposium)

Models to Study Aging

UNIVERSAL DNA METHYLATION AGE ACROSS MAMMALIAN TISSUES

Chair: Viviana Perez Ake Lu,[1] Zhe Fei,[2] Ken Raj,[3] and Steve Horvath,[2] *1. UCLA, Los Angeles, California, United States, 2. UCLA, Los Angeles, California, United States, 3. Centre for Radiation, Chemical and Environmental Hazards, Public Health England, Chitlon, England, United Kingdom*

Aging is often perceived as a degenerative process caused by random accrual of cellular damage over time. In spite of this, age can be accurately estimated by epigenetic clocks based on DNA methylation profiles from almost any tissue of the body. Since such pan-tissue epigenetic clocks have been successfully developed for several different species, it is difficult to ignore the likelihood that a defined and shared mechanism instead, underlies the aging process. To address this, we generated over 10,000 methylation arrays, each profiling up to 37,000 cytosines in highly-conserved stretches of DNA, from over 59 tissue-types derived from 128 mammalian species. From these, we identified and characterized specific cytosines, whose methylation levels change with age across mammalian species. Genes associated with these cytosines are greatly enriched in mammalian developmental processes and implicated in age-associated diseases. From the methylation profiles of these age-related cytosines, we successfully constructed three highly accurate universal mammalian clocks for eutherians, and one universal clock for marsupials. The universal clocks for eutherians are similarly accurate for estimating ages (r>0.96) of any mammalian species and tissue with a single mathematical formula. Collectively, these new observations support the notion that aging is indeed evolutionarily conserved and coupled to developmental processes across all mammalian species - a notion that was long-debated without the benefit of this new and compelling evidence.

THE COMMON MARMOSET: A HIGHLY TRANSLATABLE SMALL NONHUMAN PRIMATE MODEL OF AGING

Ricki Colman, *University of Wisconsin, Madison*

BATS: SECRETS OF EXTENDED HEALTHSPAN

Emma Teeling, *University College Dublin, Ireland, Ireland*

Of all mammals, bat possess the most unique and peculiar adaptations that render them as excellent models to investigate the mechanisms of extended longevity and potentially halted senescence. Indeed, they are the longest-lived mammals relative to their body size, with the oldest bat caught being >41 years old, living approx. 8 times longer than expected. Bats defy the 'rate-of-living' theories that propose a positive correlation between body size and longevity as they use twice the energy as other species of considerable size, but live far longer. The mechanisms that bats use to avoid the negative physiological effects of their heightened metabolism and deal with an increased production of deleterious Reactive Oxygen Species (ROS) is not known, however it is suggested that they either prevent or repair ROS damage. Bats also appear to have resistance to many viral diseases such as rabies, SARS and Ebola and are the suspected reservoir species for a huge diversity of newly discovered viruses, including Sars-CoV-2 This suggests that their innate immunity is different to other mammals, perhaps playing a role in their unexpected longevity. Here the potential genomic basis for their rare immunity and exceptional longevity is explored across multiple bat genomes and divergent ageing and immune related markers (e.g. microbiome, telomeres, mitochondria, cellular dynamics, cytokine response) studied in wild bat populations. These findings provide a deeper understanding of the causal mechanisms of ageing and tolerant immunity, potentially uncovering the key molecular pathways that could be utilised to benefit society.

Session 3605 (Paper)

Nursing Homes

A CROSS-SECTIONAL STUDY COMPARING YOUNGER AND OLDER NURSING HOME RESIDENTS IN WESTERN CANADA

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Specialized care for younger nursing home (NH) residents may be necessary to meet their unique health and quality of life needs; however, key attributes of younger NH residents are poorly understood and limit the development of effective, tailored interventions. This study described differences in clinical and nonclinical characteristics of younger vs. older nursing NH residents. In a retrospective cohort study, we used SPSS and analyzed comprehensive Resident Assessment Instrument – Minimum Data Set (RAI-MDS 2.0) data from NHs in Western Canada, for the period from January 2016 to December 2017. We included all assessments (full and abbreviated) performed quarterly. These findings indicated that younger (age 18-64) vs. older (age >=65) NH residents differed considerably: younger residents were predominately male, single, more obese, more depressed, had higher prevalence of depression, cerebral vascular accident, and hemi- or quadriplegia, and required more assistance in activities of daily living than older residents. The findings will contribute a better comprehension of the characteristics of the younger NH population and how they differ from other residents. The study provides useful information to policymakers, providers, and researchers to guide them in developing tailored policies, programs, and interventions. Also, findings may guide consumers as they plan for long-term care needs of loved ones. Finally, the findings provide a baseline estimate as researchers continue to track the growth of and changes in, the populations served in nursing homes.

ACUITY DIFFERENCES AMONG NEWLY ADMITTED MEDICARE RESIDENTS IN RURAL AND URBAN SKILLED NURSING FACILITIES

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Using the 2015 national Minimum Data Set Version 3.0, the Area Health Resources Files, the 2015 Provider of Services File, and the Rural-Urban Commuting Area codes, this study assessed rural-urban differences in newly admitted, Medicare skilled nursing facility (SNF) residents' functional status, cognitive performance, and behavioral issues using self-performance, early loss, and late loss Activities of Daily Living (ADLs); the Cognitive Function Scale (CFS); and indicators of aggression, psychosis, or wandering, respectively. The study evaluated 686,881 unique patient assessments for newly admitted Medicare SNF residents across 15,157 facilities in 47 states. Negative binomial and generalized linear models with state fixed effects and clustering by SNFs were used to evaluate rural-urban acuity differences before and after adjusting for socio-economic factors; admission source, and market area characteristics. Compared to urban SNF residents, rural residents were more likely to be cognitively impaired (45% Isolated Small Rural, 44.5% Small Rural, 41% Large Rural, 38.8% Urban), and have behavioral issues (6.7% rural, 4.8% urban). Unadjusted and adjusted regression models confirmed bivariate findings that rural SNF residents were less functionally impaired (IRR range: 0.974-.987), but had more cognitive and behavioral issues in more remote rural locations than urban. The (unadjusted) odds of cognitive impairment were 1.1-1.3 times higher for residents of rural vs urban SNFs; while the odds of having any one of the behavioral issues were 1.2-1.6 times higher in more remote rural locations. The capacity of rural SNFs to manage complex cognitive and behavioral problems deserves further research.

FACTORS AFFECTING THE SUSTAINMENT, SUSTAINABILITY, AND SPREAD OF PRACTICE CHANGES IN CANADIAN LONG-TERM CARE HOMES

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Our understanding of the post-implementation sustainment, sustainability, and spread (SSS) of complex quality improvement interventions is limited. We explored factors that influenced the SSS of a care aide-led quality improvement initiative (Safer Care for Older Persons (in residential) Environments [SCOPE]) implemented in 6 Manitoba long-term care homes two years after the conclusion of SCOPE in 2017. We analyzed small group interview data collected from all unit- and facility-level managers who participated in SCOPE and were still working in these facilities. We asked about SCOPE implementation, post-SCOPE quality improvement activities, factors that influenced them, and about inter-unit spread of SCOPE following the project's conclusion. The interviews were audio-recorded, transcribed verbatim, de-identified, and analyzed using thematic analysis. Five of the 6 facilities reported sustained SCOPE quality improvement activities, tools, and facilitative structures. In the same 5 facilities, SCOPE benefits (e.g., increases in care aide empowerment and self-efficacy, manager belief in care aide capacity) continued post-implementation. Spread beyond the original SCOPE units had occurred in 3 facilities. Factors that influenced the SSS of SCOPE were related to the team (e.g., care aides' quality improvement capacity), to the unit and facility (e.g., culture of innovation and change), and to the long-term care system (e.g., competing imperatives). Some factors influencing SSS differ from factors known to influence implementation. The identified factors affecting SSS highlight the influence of social dynamics (i.e., interactions, communication, relationships) among staff on SSS. Further research is warranted to explore interactions among these influencing factors and how they lead to SSS.

FEASIBILITY OF ROUTINE QUALITY-OF-LIFE ASSESSMENT IN LONG-TERM CARE HOMES

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