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## Dai-ichi Life Holdings to Establish Joint Research Course at Shimane University Faculty of Medicine

### Our Challenge in Healthcare Innovation by Mental Health x Digital

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Dai-ichi Life Holdings, Inc. ("Dai-ichi Life") and Shimane University have announced to establish "Dai-ichi Life Mental Health Care Joint Research Course" ("Course").

In the Course, we aim to integrate Shimane University's technology related to visualizing stress<sup>1</sup> with digital technology and Dai-ichi Life's system nurtured over 100 years that delivers security and peace of mind to society through life insurance services and conduct research and development on how to build an innovative and inclusive mental-healthcare system as well as to improve ME-BYO<sup>2</sup> state. With the aim of implementing the novel system in society, we will challenge the ME-BYO and prevention fields.

#### Highlights of the Course

- ✓ **Visualize stress that adversely affects the body without the person being aware of it and improve mental health problems at ME-BYO state**
- ✓ **Create healthcare innovation by integrating Mental Health, InsTech and Digital**
- ✓ **Help generating ecosystems that produces new businesses and jobs to empower the local community**

#### 【Mental Health as Social Issue】

In 2021, the Ministry of Health, Labour and Welfare (MHLW) decided to add mental illness to make the "5 Deadliest Diseases" in addition to the four diseases; cancer, stroke, acute myocardial infraction, and diabetes, and in accordance with the revision of the "Industrial Safety and Health Act" from December 2015, it has been mandatory for workplaces with 50 or more employees to have their employees take a stress checking questionnaire once a year. However, even after the law became effective in 2015, the number of cases of leave of absence and claims for workers' compensation due to mental illness have not decreased since 2015

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<sup>1</sup> Recent clinical research has reported that biopyrrins increase in urine when subjected to excessive psychological stress or when a person develops mental illness.<sup>i-v</sup> Biopyrrins are the end product of oxidation reactions of bilirubin with reactive oxygen and it is believed that the onset of mental illness could be prevented if we understand that biopyrrin level begins to rise from ARMS stage<sup>vi</sup> and monitor the ME-BYO state with the right care.

<sup>2</sup> ME-BYO is a concept of health that our state of mind and body changes gradually and continuously between healthy and sick rather than the binary concept of either one is "healthy" or "sick". The concept of ME-BYO represents the process of all of these changes. (Courtesy of Kanagawa Prefectural Government)

(refer to the MHLW "Status of Workers' Compensation for Death by Overwork, etc. FY2020), and it remains a significant social issue. In addition, the impact COVID-19 left to the world cannot be ignored. Researches have reported neurological symptoms such as cognitive impairments after infection with COVID-19<sup>i</sup>, also, the MHLW study in 2021 revealed stress and anxiety people experienced associated with COVID-19 infection and behavior changes forced by infection control measures. The mental health issues after COVID-19 have been drawing attention worldwide.

**【Visualization of stress and Approach to ME-BYO】**

The Department of Psychiatry, Shimane University Faculty of Medicine has long been studying the relationship between biopyrrins and psychiatric disorders, focusing on urinary biopyrrins as a biomarker of psychiatric disorders and stress. Clinical studies have shown that the biopyrrin level begins to increase in At Risk Mental State (ARMS) (Wake, 2021) and decreases as patients progresses toward recovery (Yasukawa, 2007)<sup>vii</sup>.

Since 2014, Dai-ichi Life has been a member of the "ME-BYO Industry Study Group," which Kanagawa Prefectural Government serves as the organizer, and has been making efforts in alliance with ME-BYO policies. Along with it, in November 2022, Dai-ichi Life's research project with Shimane University was accepted for the Kanagawa ME-BYO Living Lab ("Living Lab") in which the Kanagawa Prefectural Government supports companies to do research in Kanagawa Prefecture. In the Living Lab, we are conducting an IRB approved clinical research to reveal the correlation between subjective stress and underlying unaware stress in corporate employees using the ME-BYO Brand "Biopyrrin Test Service Pack". Though the research with the Living Lab will be completed at the end of March 2024, with the establishment of the Course, we will continue to promote industry-academia-government collaboration with Shimane University and Kanagawa Prefecture to contribute to solving issues, creating business opportunities, and expanding industries in the area of mental health.



**Concept of ME-BYO**

Images courtesy of Kanagawa Prefectural Government

### **【Mental Health x Digital forms Healthcare Innovation focusing on Visualization】**

In order to deliver “Trustworthy relief” and “Fulfilling health support” to our customers for life, Dai-ichi Life has been working on unique Innovation by “InsTech” from both the insurance and technology perspectives and accelerating collaborations with various companies and organizations to acquire new capabilities. In this Course, we will continue this approach and send one of our employees with the expertise in mental health to the Department of Psychiatry Faculty of Medicine Shimane University as a visiting scholar. This will enhance Dai-ichi Life’s expertise and credibility in the medical field and the course will be able to provide Dai-ichi Life necessary scientific data and evidence to support business decisions on its new and existing mental healthcare opportunities. As such, the Course will enable the company to develop high-quality new insurance services based on medical science.

Medical Innovations have always lied within making invisible visible, such as X-ray, MRI, and ultrasound imaging devices. In this Course, utilizing biopyrrin testing technology at Shimane University, we aim for society where measuring one’s mental health is as common as measuring one’s weight in a bathroom at home and study a novel mental healthcare index with the integration of mental health and digital technology.

### **【Generating Ecosystem Development and Empowering Shimane Local Community】**

In this Course, we aim to build an ecosystem that can widely co-exist and co-prosper with the local communities and residents in Sanin region including Shimane Prefecture. Specifically, we are considering conducting research related activities to improve mental health among Shimane local residents and building a biopyrrin testing facility in Shimane Prefecture, which should lead to create jobs and empower local communities. Also, Dai-ichi Life had signed a comprehensive partnership agreement with both Shimane prefecture and Izumo City. We have engaged in healthcare projects such as increasing the cancer screening attendance rate. Our Total Life Plan Designers at the Shimane Branch are ready to provide local support for the Course and the local communities for better mental health.

Shimane University and Dai-ichi Life are committed to collaborate and cooperate toward achieving a sustainable society and strive to contribute to solving social issues.

#### **SDGs Actions achievable by this Course**



### ■Message from Dai-ichi Life Holdings CIO/CDO Stephen Barnham

Dai-ichi Life Holdings is proud to announce a groundbreaking collaboration with Shimane University to advance mental health research. This partnership combines Dai-ichi Life's commitment to the well-being of our clients with Shimane University's expertise in mental health studies. Together, we aim to develop innovative strategies to support mental health, improve treatment outcomes, and enhance the quality of life for individuals worldwide. Our collaboration is a testament to the power of combining resources and knowledge for the greater good of mental health awareness and care.

### ■Message from Department of Psychiatry Faculty of Medicine Shimane University

Mental Health is an essential part to overall physical health and we have been contributing to maintain and improve people's good health including mental health at the Faculty of Medicine, Shimane University. We believe that this collaboration between Dai-ichi Life Holdings will further advance our work and we highly expect that together we are able to introduce innovative system in society by integrating our expertise and Dai-ichi Life's experience in delivering security and peace of mind to society. We continue to strive to maintain and improve people's health.



### ■About Shimane University

Shimane University is currently consisted of seven faculties, four graduate schools, its university hospital and an affiliated elementary and junior high school, where approximately 6,000 students including international students study across two campuses in Matsue City and Izumo City. For more than 70 years since its establishment as a national university in 1949, the university has guided advanced research achievements in the humanities, sciences, and medicine, and has been fostering talents who are active in Japan and abroad. The university has developed together with the community through developing talents who will contribute to regional development, industry-academia collaboration, and initiatives in the medical field. In 2019, the university established the SDGs action guidelines, which are the core of the university's management, aiming to achieve the SDGs and global environmental issues such as decarbonization, and to contribute to a sustainable and inclusive society.

## References

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