On behalf of the organizing committee of the 39th World Congress of ISMH, I present our sincere appreciation to all of the participants, as this is the first ever Congress held outside of Europe, I would like to introduce a long history of Japanese Onsen and Onsen medicine.

The main theme of the Congress is set as "Responses of human body to stimuli from nature". From ancient times, humans know how their bodies respond to stimuli, injuries, diseases or even disasters. Although in these days, medical science has made great strides to a level ranging to regeneration medicine, treatments and therapies could yet be considered as triggers for bodies to heal themselves.

When seeing Japanese history of Onsen, especially as for its hygienic or sanitarian aspects, "ablution" had been a very much important custom ritually and mundanely from the ancient prehistoric period. In a Japanese myth, a God who had entered in the underworld chasing his dead wife and come back to the earth ablated his foulness by water. In the 3rd century, Empress Jingu was written to have cured the troops who had been brought home from Korean Peninsula in Ureshino-Onsen in southern Kyushu region. That might be similar to that the soldiers and horses of the Roman Army were cured in hot-springs. In the 3rd century, in a Buddhist scripture brought over from ancient China, advantages of bathing were clearly described. Then, many Buddhist Saints were known as openers of many Onsens.

In Japan, we have a map symbol or logo of Onsen, and it was already appeared in an official paper in the 17th century, the early Edo Period. Establishment of Toji culture in the 17th century would be a historical matter in balneology in Japan. Not only noblemen or samurais, but also ordinary people, farmers and fishermen, went to a journey to have an Onsen-cure in their agricultural or fishery off-season every year, with their brethren. Toji, or a journey and stay for Onsen-cure, had gradually spread over almost all of Japan. In some famous wood block prints in the 19th century, Onsens abounding in Toji tourists were depicted, some of which showed landscape of one of the most famous Onsen area of Hakone. In the Edo period (1603 ～1868), quite a number of scientists or doctors tried to examine and analyze Onsens, and showed how to utilize them. Konzan Goto advocated 3 rounds of bathing; each round consisted of one week. The 1st round was for searching what was wrong with his/her body, the 2nd was for treating it, and the 3rd was for rehabilitation. Yoan Udagawa analyzed Onsen components, tried to make an artificial Onsen, and revealed aging of Onsen water.

During the Edo period, the efficacy of each Onsen in each geographical area was empirically established, like Onsen for wound, Onsen for beauty, or Onsen for eye diseases.

Surprisingly, empirically established efficacy common to some different Onsens was afterward revealed to come from a component, or a chemical property, capable to cause the efficacy. For example, Bijin-no-yu, or Onsen for beauty, has a common content of bicarbonate (HCO$_3^-$).

After the Meiji Restoration (1868), modern medicine was first introduced from western
countries, and modern balneology, as well. Western style hospitals settled by the government started mainly as army hospitals and sanatoriums, and many of them were located in Onsen areas.

For search for much more effective use of Onsen, balneology research institutes were settled in 6 national universities one after another. The first set up under a Royal edict was in Beppu, Oita prefecture, in 1931. And our BCPM started at 1935. The BCPM became the 15th member of Japanese Association of Medical Sciences, which has now 118 sub-associations.

After the World War II, over 100 presentations were yet submitted to every annual congress of BCPM.

Then several medical associations took off from BCPM. However, the number of the studies submitted has again increased to about 90, recently. Now, BCPM consists of nearly 2000 members.

When we talk about hot-springs, it would be better for us to know some differences between European hot-springs and Japanese Onsens. Some differences are between Onsen bathing and other countries’ hot-spring use. In Japan, tub bath is usual.

As for adverse events related to bathing, a high prevalence in winter was observed. A high prevalence and severe outcomes in elderly, as well.

These results concerned mainly home bathing. On the other hand, in Onsen-area, seasonality was not clear, and better outcomes were observed, compared to home bathing. These researches were sponsored by the government since BCPM have been participated in some ministerial projects.

Recent activities of BCPM for public administration include a research focused on adverse accidents related the bathing, and another was for a revision of official paper concerning Onsen-bathing.

We uploaded a glossary of balneology in 5 languages, English, German, French, Italian, and Japanese onto our website. The empty boxes could be filled by ISMH member’s co-operation.

On the basis of prior studies accumulated in BCPM, and of course in ISMH, today’s major research fields would include those described below.

- Hot and cold stimuli
- Aquatic stimuli
- Stimuli by Onsen components
- Climatological and environmental stimuli
- Other physical stimuli

Stimuli to bodies come primarily from nature, and recently they can be obtained artificially, too.

“Responses of a human body to a stimulus” is applicable for disease diagnosis, therapies, and health promotion. In this scientific meeting, most of these are just the titles of the sessions.

Among the studies presented in BCPM, I would like to introduce mines: response to cold
stimulus.

A typical example would be Raynaud phenomenon, in which circumstance, vasoconstriction is induced in periphery of extremities, and consequently skin temperature changes dramatically from finger to finger.

We focused on uneven vasoconstriction among fingers, and temperature disparity. When hands were immersed in cold water, temperature disparity among fingers appeared clearly. On the other hand, when hands immersion was in Onsen water, temperature disparity among fingers was narrowed. We can adopt this response to a stimulus for evaluating and diagnosing peripheral vasculature involvement.

I would hope this Congress serves as opportunities for the participants to present, discuss and take home many fruitful messages.