

## Telehealth Newsletter

Official Newsletter of Telemedicine Society of India

### What is New?

Wishing all the TSI members an inspiring and successful year ahead! As we step into 2024 may we continue to break boundaries, challenge norms, and create ground breaking solutions to help our patients. Our team raises a toast for incredible achievements, endless learning, and technological wonders.

We are happy to announce that from this issue onwards, this publication will be the official newsletter of TSI.

### *Latest Developments: Telecommunication and Telemedicine in India*

India's telecommunication network, the world's second-largest in terms of telephone and internet user base, has undergone remarkable expansion. As of May 22, 2023, the country had 1.11 billion telephone subscribers, including both fixed and mobile phone users. This growth is coupled with some of the most affordable call tariffs globally.

In terms of internet usage, India stands as the world's second-largest internet user base. A joint report by the Internet and Mobile Association of India (IAMAI) and Kantar, a market data analytics firm, reveals that over 759 million Indian citizens, constituting more than half of the population, are active internet users, accessing the internet at least monthly. This number is projected to rise to 900 million by 2025. The report further highlights that out of the 759 million active users in 2022, rural India contributes 399 million users, while urban India accounts for 360 million, indicating rural areas as significant drivers of internet growth in India.

This exponential growth in telecommunications provides a fertile ground for the expansion of the Telemedicine Society of India (TSI). The increasing number of state chapters within TSI is particularly significant in light of these statistics, underscoring a massive opportunity for the society's growth and outreach.

Dr. Murthy's article spotlights this potential through the lens of the new state chapters' formation. To leverage this opportunity fully, professionalizing our approach becomes imperative. Learning from established models in the USA and Europe, especially from the American Telemedicine Association, could provide valuable insights and strategies for TSI's expansion and impact in the rapidly evolving telemedicine landscape in India.

Thank You

Dr. Sunil Shroff

Chief Editor

Vice President, TSI



## Expanding Geographical Reach of TSI: Establishment and Growth of State Chapters

**Dr. Murthy Remilla**

In a strategic move to enhance the effectiveness of Telemedicine initiatives at the grassroots level, the Telemedicine Society of India (TSI) embarked on a journey to establish state chapters. This initiative began with a criterion that each chapter would be formed in states where at least 20 Life members were enrolled. This approach has proven successful, leading to substantial growth over the years.

By 2018, TSI proudly had eight active state chapters. This number has impressively increased, and as of now, TSI boasts a network of 20 functioning state chapters. This expansion reflects our commitment to making Telemedicine services more accessible and collaborative across various regions.

I have had the privilege of contributing to this growth during my tenure as the Honorary Secretary of TSI. From November 2019 to November 2023, I served two consecutive terms, during which I played a pivotal role in the formation of 12 additional state chapters. This expansion marks a significant milestone in the TSI's history, showcasing our dedication to spreading the benefits of Telemedicine far and wide.

It is essential for every TSI member to be familiar with these state chapters. Awareness and active participation in chapter activities foster a richer exchange of knowledge and ideas, crucial for the growth and development of Telemedicine practices. Additionally, TSI members are encouraged to attend meetings of these state chapters whenever they visit respective states. Such engagements are not only beneficial for professional growth but also serve as a platform for fostering fellowship and building stronger networks within the TSI community.

Our collective efforts in nurturing these state chapters will undoubtedly propel the reach and impact of Telemedicine across the country, benefiting a larger section of society. I look forward to seeing more members actively engage with their local chapters and contribute to this vital cause. Here is a list of all the new chapters that were formed during my tenure.

### **1. UP Chapter: February 22, 2020**

As most of us are aware; Lucknow, UP is the hometown of TSI and SGPGI is the birthplace of TSI and SGPGI is the birthplace and HQ of TSI. But for some unknown reason UP state chapter came late on board. It was inaugurated **on February 22, 2020 and became** the 11th state chapter. However again, due to the Corona effects the state chapter couldn't do much activities and remained in a dormant state.



The chapter was reinvigorated on Nov 02, 2022 at Prayagraj and has since conducted good number of programmes and training camps.





At the time of writing this report, I came to know that the chapter was initially formed in 2017 itself but was dormant.

## 2. Jammu & Kashmir: October 29, 2021

One of the dreams of TSI has been to expand to the frontiers of the nation by reaching out to states like J&K. ISRO's telemedicine has been in vogue in the state since 2004 with SKIMS, Srinagar as the Super specialty Hospital and at the helm of affairs. Mr. Farooq Ahmed Wani has been a crusader for the successful running of operations across 13 ISRO TM nodes in the state established by ISRO. Again, with his active role the dream of TSI came to a reality with the inauguration of J&K chapter at SKIMS, Srinagar on Oct 29, 2021.



Quiet unexpectedly but most pleasantly, the state chapter within a period of 9 months from the formation, came forward to successfully host the mid-term conference of 2022 on Aug 26, 2022 again at the prestigious SKIMS. The participation of several young doctors and particularly students and their presentation of high quality research papers was an added attraction in the mid-term conference.



### 3. Gujarat Chapter: July 06, 2022

Expanding the TSI in the western zone, the Gujarat chapter was inaugurated on July 06, 2022 at Ahmedabad. Incidentally this is the city of DECU, ISRO the national provider and coordinator of ISRO's SatCom based TM services.



### 4. Chandigarh Chapter May 16, 2022

Dr. Meenu Singh, the then President-Elect and Professor at PGI Chandigarh completed all the formalities and sent a list of enrolled members and request to recognise the formation of a new state chapter. It is the first chapter to be formed in a Union Territory. She had a dedicated and enthusiastic young team of professional like Dr. Amit Agarwal, Dr. Biman Saikia etc.; and with all their coordination the chapter was inaugurated on 16/05/2022 under the aegis of TSI President Dr. PK Pradhan.

Interestingly during this period of formation Dr. Meenu Singh was appointed as the Executive Director at AIIMS Rishikesh and has attended the function online, by making it a Tele-inauguration of the state chapter.



### 5. Uttarakhand Chapter: November 10, 2022

The shift to AIIMS, Rishikesh of Dr. Meenu Singh worked as a catalyst for the formation of Uttarakhand Chapter. Uttarakhand chapter was inaugurated at AIIMS Rishikesh on the Nov 10, 2022.

Dr. Ankur Mittal of AIIMS has taken lead role in spreading the importance of TM and value of forming a local TSI chapter. The good news is that the chapter stood as the best chapter as declared at Goa Telemedicon AGM by conducting 12/12 programmes (12 events in 12 months period) on subjects varying from Urology, Oncology and recent annual event on Laparoscopy. As said, conducting online events is not the ultimate aim and goal of TSI or state chapters but is a step in the right direction. This keeps the state unit active and dynamic in moving ahead.





## 6. Himachal Pradesh Chapter: May 13, 2023

With active support and lead role by Dr. Vikrant Kanwar of AIIMS Bilaspur and wishes of Dr. Vir Singh Negi, Executive Director AIIMS, Bilaspur, the HP chapter was inaugurated on May 13, 2023. This is personally special and dear to me as this day was also my birthday. Dr. Vikrant came to Telemedicon2022 at Kochi and joined a parallel meeting with me along with Dr. Arti Pawaria of Haryana and got motivated to form a state chapter. An soon after their formation they magnanimously came forward to host 2024 Telemedicon at HP in Dharamshala (Kangda) in Nov 2024 which was ratified by the 2023 AGM.



## 7. HARYANA Chapter: March 04, 2023

Similar to HP chapter, the Haryana chapter also came into existence after a meeting at Kochi during the Telemedicon 2022. Dr. Arti Pawaria of Amrita Institute of Medical Sciences (AIMS), Faridabad came to Telemedicon for the first time and was so impressed with the work and potential of her desire to serve the society through Telemedicine. The Haryana chapter was inaugurated on Mar 04, 2023. Being close to Delhi which is very much crowded, but also being close to the rural Haryana on the other side, Haryana chapter has a key role to play in reaching healthcare to all in the remote regions and let's hope for an all-round development of TSI activities through Haryana Chapter.



**8. Goa Chapter:** Telemedicon 2023 was announced to be held at Goa, initially proposed to be hosted by TSI Maharashtra Chapter under the aegis of Dr. B.S. Ratta. Subsequently TSI Gujarat chapter under the presidency of Dr. Raj Rawal joined the event as a co-host. Like the tradition to preview the venue and review the arrangements, Mid-term meeting of TSI was held at Goa on July 09,2023. With the help and efforts of Dr. Suraj Bhosle of Goa joining the ongoing efforts by Dr. Ratta and Hony. Secretary TSI; the formation of Goa chapter also gained momentum and became a reality with the inauguration on the same day. Hence, the realisation of Goa Chapter and local team in the field, Telemedicon 2023 was successfully held at Goa during Nov 3-5,2023 in a grand way.



#### **9. Jharkhand Chapter: August 18, 2023**

With active support and membership drive by Dr.Maishraj of AIIMS Deogarh, the Jharkhand chapter of TSI was inaugurated on **Aug 18, 2023** under the aegis of President TSI Dr. Meenu Singh and Dr. Saurabh Varshney, Director AIIMS.



#### **10. North East Chapter: November 24, 2023**

After J&K, North East (NE) region is treated as the most important and difficult geographic terrain. The group of seven states is considered as a single block by Govt of India. Keeping this in mind, and identifying the difficulty in enrolling the required 20 members from each state, TSI also decided to allow the 20+ members from NE (7 states) to form a NE chapter to start with and gradually progress towards independent state chapters wherever possible. This was communicated to the Ad-hoc committee on Nov 01,2023 as a recognition to form the NE chapter. Subsequently the chapter was inaugurated at the Royal Global University, Guwahati on Nov 24,2023. Many engineering college students were addressed about the evolution and growth of TM and advances in technology aiding the growth of TM. There is a potential to form a student chapter of the university soon and this needs to be taken forward to other states and universities of the region.

NE chapter has also agreed to conduct the 2024 mid-term conference in the North East region and formal request during the inauguration itself as announced by the incoming president.



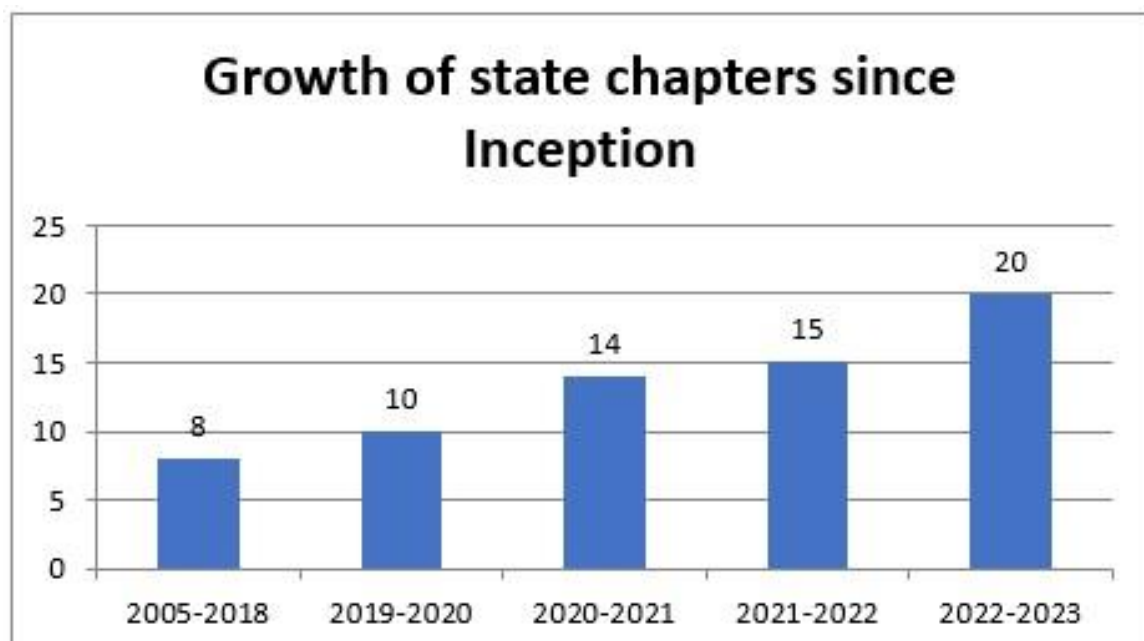
This leaves West Bengal and Bihar in the east to come up with their own state chapters and the work is in progress with the author's discussions with potential stakeholders to rope-in the required members and probably holding the 2025 conference at Kolkata perfectly matching the ideal desire of holding national Telemedicine meetings in rotation in North-East-West and South (NEWS) regions. Let's wish for the same to be realised soon.

We anticipate a surge in dynamic activities under the banner of these chapters, driven by the active involvement of our members, particularly from the younger generation.

The initial steps of hosting online and offline seminars, workshops, and training sessions form the foundational activities of these chapters. However, the next, and indeed more impactful phase of our journey, involves organizing remote and rural camps. These camps will demonstrate the real-world application and benefits of Telemedicine to the unreachable, bringing this innovative healthcare approach directly into practice.

As we move forward, our goal is to ensure that the benefits of Telemedicine extend far and wide, reaching even the most remote areas. We envision a future where geography, location, and distance become irrelevant in accessing quality healthcare. With this aspiration, we extend heartfelt wishes for the success of these endeavors and the widespread adoption of Telemedicine, making quality healthcare accessible to all, regardless of their location.

Let us strive together towards this noble goal, ensuring that Telemedicine not only reaches but also positively impacts the unreachable and underserved communities.







## 3rd Edition of CII TN MedClave Healthcare 4.0: Decoding Digital Transformation

**Rajarajan S**  
Healthcare Management Professional & Mentor Insightlyst

**Chennai, 02 December, 2023: The Confederation of Indian Industry (CII) Tamil Nadu organized the 3rd Edition of MedClave** - An exclusive Conference for the healthcare sector on 02 December 2023 (Saturday) at Hotel Westin, Velacherry, Chennai. The theme for this conference was "*Healthcare 4.0: Decoding Digital Transformation*". The event saw close to 400 participants attend the same.

MedClave 2023 is one of South India's largest gathering of stakeholders from the Medical & Healthcare industry - which attracts experts, professionals, entrepreneurs & policy makers. Apart from being a knowledge transfer platform, MedClave also showcases advancements in healthcare through technology, practices and policies. This year, Telemedicine Society of India was an Associate Partner for the event.

MedClave 2023 featured exclusive sessions and panel discussions on Healthcare Data, Bridging Healthcare Gaps through Digital Transformation, AI in Healthcare, Government Initiatives and an exclusive CXO Roundtable.

Key speakers in Medclave 2023 included **Dr Sathish Devadoss**, Convenor, Healthcare Panel, CII Tamil Nadu & Chairman, Devadoss Hospitals; **Dr Ilan Kumaran**, Chairman, MedClave 2023, Co-Convenor CII TN Healthcare Panel, CEO & Senior Consultant, Dr Rela Institute and Medical Centre; **Mr Rajarajan S**, Healthcare Management Professional & Mentor - Insightlyst, **Dr. Sunil Shroff**, Urologist & Transplant Surgeon, VP TSI & Managing Trustee MOHAN Foundation,; **U K Ananthapadmanabhan**, Director & CEO, Tenxhealth Technologies Pvt Ltd **Mr Ram Natesan**, Senior VP, Network & Provider Management, Star Health Insurance; **Ms Sharmila Devadoss**, Co-chair - MedClave 2023 & Managing Director, MedloTek Health Systems P Ltd; **Mr Vybhava Srinivasan**, Managing Director, Availity India; **Dr Rohini Sridhar**, Senior VP (Medical Services), Apollo Hospitals & **Dr Iyappan Ponnuswamy**, Medical Director & Chief Radiologist, Kauvery Hospitals

This conclave deliberated on the key issues such as Quality of Care & Patient Services in a Digital World - Impact of Real World Data (RWD), Bridging gaps in the healthcare value chain through digital transformation, Artificial Intelligence in health care, Government Initiatives and Regulatory Framework in Digital Health, Challenges & Solutions in implementing digitization in hospitals. The start-up showcase event was held prior and an esteemed jury including **Dr. Umashankar**, Honorary Secretary, TSI was part of the panel.

Medclave 2023 also witnessed the honoring of individuals, hospitals and startup's for their outstanding contribution to humanity and mankind. **Dr S Chandrakumar**, Past Chairman, CII Tamil Nadu State Council & Founder, Executive Chairman, Kauvery Group of Hospitals was the Chief Guest for the same alongside TN State Chair and Co-Chair for CII.

The 3rd Edition of CII TN Medclave stands as a testament to the shared commitment towards pioneering solutions that revolutionize healthcare delivery, ensuring equitable access and better outcomes for communities across Tamil Nadu.

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## Robot-Aided Injectable Prosthesis Promotes Muscle Regeneration

**Dr. Pavithra**  
Assistant Editor, [Medindia.net](https://www.medindia.net)

In a groundbreaking study recently published in the prestigious journal Nature, a team of researchers hailing from the Institute of Basic Science (IBS) in South Korea has unveiled a remarkable advancement in the fields of biomaterial technology and rehabilitation medicine.

Their innovation combines an injectable tissue prosthesis, in the form of conductive hydrogels, with a sophisticated robot-assisted rehabilitation system. This novel approach offers new hope for those suffering from severe muscle injuries and the resulting loss of motor and sensory functions.

### The Challenge of Severe Muscle Injuries

Imagine finding yourself in the vast expanse of the ocean, only to have a giant shark bite a substantial chunk of muscle out of your thigh. Such an injury would lead to a complete loss of motor and sensor function in your leg.

Left untreated, this severe muscle damage typically results in permanent loss of function and disability. The question then becomes, how can one recover from such a catastrophic injury?

Conventional rehabilitation methods for muscle injuries have long sought an efficient closed-loop gait rehabilitation system that combines lightweight exoskeletons and wearable/implantable devices.

Such a prosthetic system is crucial to assist patients in the process of regaining sensory and motor functions, particularly those linked to nerve and muscle damage. However, existing electronic materials are often rigid and incompatible with soft tissues, causing friction and potential inflammation that can impede patient rehabilitation.

### The Injectable Hydrogel Solution

To overcome these limitations, the IBS researchers turned to hyaluronic acid, a substance commonly used as a wrinkle-smoothing filler. They used this material to develop an injectable hydrogel designed for "tissue prostheses."

"This hydrogel can temporarily fill the void left by missing muscle and nerve tissues, providing essential support while regeneration occurs. What sets this hydrogel apart is its injectable nature, making it suitable for narrow, deep, or small areas without the need for invasive surgeries."

The hydrogel boasts "tissue-like" properties, seamlessly integrating with biological tissues, even in hard-to-reach areas. Its reversible and irreversible crosslinks allow it to adapt to high shear stress during injection, ensuring excellent mechanical stability.

Additionally, the incorporation of gold nanoparticles imparts decent electrical properties to the hydrogel, facilitating the transmission of electrophysiological signals between injured tissues. Importantly, the hydrogel is biodegradable, eliminating the need for further surgeries.

### Testing the Innovation

The researchers put their innovative approach to the test using rodent models. They simulated volumetric muscle loss injuries by removing a substantial portion of muscle from the hind legs of these animals.

By injecting the hydrogel and implanting stretchable tissue-interfacing devices for electrical sensing and stimulation, they successfully improved the gait in the "injured" rodents. The hydrogel prosthetics were

combined with robot assistance, guided by muscle electromyography signals, resulting in enhanced gait without the need for nerve stimulation.

Moreover, the conductive hydrogel significantly improved muscle tissue regeneration over the long term.

The injectable conductive hydrogel developed in this study excels in electrophysiological signal recording and stimulation performance, offering immense potential for various applications. It represents a fresh approach to the realm of bioelectronic devices and holds promise as a soft tissue prosthesis for rehabilitation support.

Professor SHIN Mikyung, emphasizing the significance of this research, stated, "We've created an injectable, mechanically tough, and electrically conductive soft tissue prosthesis ideal for addressing severe muscle damage requiring neuromusculoskeletal rehabilitation.

"The development of this injectable hydrogel, utilizing a novel cross-linking method, is a notable achievement. It is believed to have applicability not only in muscles and peripheral nerves but also in various organs like the brain and heart.

Professor SON Donghee added, "In this study, the closed-loop gait rehabilitation system involving the tough injectable hydrogel and stretchable, self-healing sensors could significantly enhance the rehabilitation prospects for patients with neurological and musculoskeletal challenges. It could also play a vital role in precise diagnosis and treatment across various organs in the human body."

The research team is now focused on further studies to develop new materials for nerve and muscle tissue regeneration that can be implanted minimally invasively. They are also exploring the potential for recovery in various tissue damages through the injection of the conductive hydrogel, eliminating the need for open surgery.

This groundbreaking research offers hope to those suffering from severe muscle injuries, opening the door to a brighter future of rehabilitation and recovery.

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**Guidelines for submission to TSI Newsletter-**

- 1. Report can be from 500 to 600 words**
- 2. Report should be relevant to Telemedicine or Medical Informatics**
- 3. No promotion of self or any product**
- 4. Avoid plagiarism**
- 5. All references should be included**
- 6. Provide any attributions**
- 7. Visuals are welcome including video links**
- 8. Send full authors name, degrees, and affiliations along with a passport sized photograph of good resolution. If multiple authors, only main author photo to be sent.**

**Submission may be sent to - [tsigroupn@gmail.com](mailto:tsigroupn@gmail.com)**

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