August 2023

www.ifssh.info VOLUME 13 | ISSUE 3 | NUMBER 51 | AUGUST 2023

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SHARE SECTION
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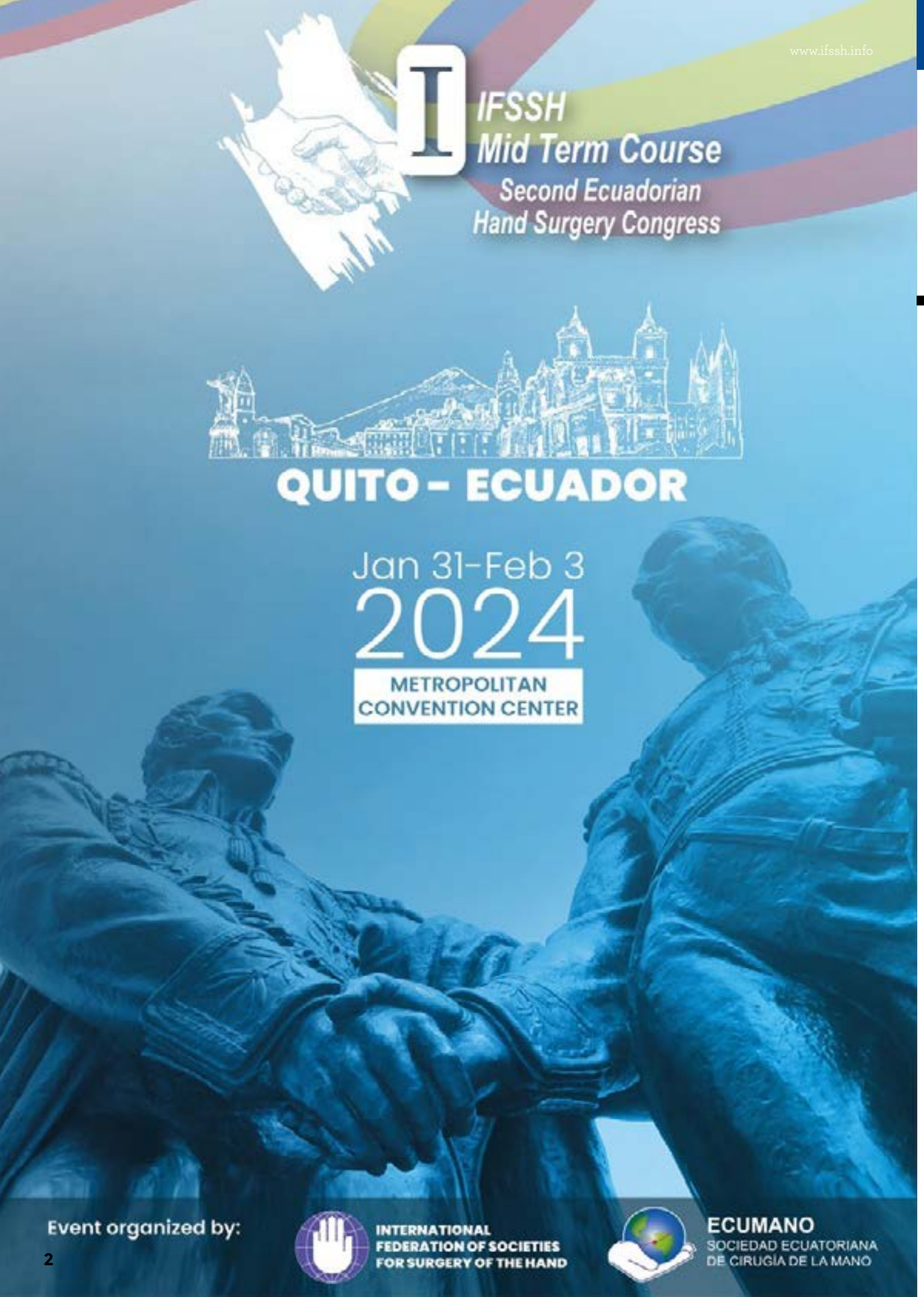
HAND THERAPY
HAND THERAPY AND EHLERS-DANLOS SYNDROME

IFSSH SPONSORSHIPS

"THE CROSSED HANDS OF KOTOSH" SYMBOL OF PERUVIAN HAND SOCIETY



contents

AI and Hand Surgery

Many of us still remember the advent of the internet and the scramble to register a unique email address. This has become common, essential and inevitable.

Currently a new daunting innovation challenges our personal and professional existence.

Artificial Intelligence (AI) has emerged and is evolving at an alarming pace. It has already invaded our research efforts, our academic presentations and literature. We are faced with a myriad of new challenges and dilemmas. For example, texts created by ChatGPT are almost indistinguishable from authentic papers, which add ethical and moral complexity to these challenges. On the other hand, AI has profound potential to augment our diagnostic ability, tailor personalised treatment plans and enhance best rehabilitation options.

However the final responsibility in decision-making still rests with us as clinicians. We must never forget that we are doctors in the first and last instance. We should never follow impersonal machines which will always lack empathy, compassion, warmth, the human touch and love.

We re-publish, with kind acknowledgement, three articles which explore some aspects of AI and medicine, and give some guidelines when doing research and preparing a scientific article for publication.

Take care, and be alert!
Ulrich

ULRICH MENNEN
Editor

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President's Message

I recently had the pleasure of participating in the Asian-Pacific Federation of Societies for Surgery of the Hand Congress in Singapore, during the opening ceremony of which IFSSH Pioneer Professor Fu-Chan Wei honored me with the first copy of "Crafting a Legacy: The Incredible Lives of Asian-Pacific Hand Surgery Pioneers". This book consists of a compilation of brief biographies of the forty-eight IFSSH Asian-Pacific Pioneers of Hand Surgery and is a treasure trove of insights not only into the accomplishments and contributions of these extraordinary physicians, but also into who they were and are as people. "Crafting a Legacy" was conceived by IFSSH President-elect Professor Raja Sabapathy along with Professor Sandeep Sebastin of the National University Hospital of Singapore and edited by Professors Sabapathy and Sebastin and Dr. Dawn Chia Senior Consultant at the Sengkang General Hospital in Singapore. The introduction to the book includes the excellent "Short History of the Asian-Pacific Federation of Societies for Surgery of the Hand" authored by Professor Sebastin and Dr. Michael Boland.

As stated in the preface, the editors "did not want the book to be merely a compilation of the pioneers' achievements." They endeavored to have the biographies written by people who were close to the Pioneers and encouraged the biography authors "to include stories and anecdotes of when they were working with the Pioneer." The editors hoped "these storied and anecdotes would bring to life the Pioneers' vision and ethics along with their life lessons." In my opinion the editors achieved their goal! Indeed, as I read the biographies of these extraordinary men, I felt a great debt of gratitude to the editors and biographers for providing me the opportunity to share in the lives of these prodigious men.

Furthermore, I felt very fortunate to benefit from the Pioneers' wisdom regarding how to live the best life as a hand surgeon. While this book celebrates the Asian-Pacific Pioneers, it has a place in every hand surgeon's library as these forty-eight Pioneers have impacted the practice of hand surgery in every corner of the globe.

Congratulations to the editors and biographers for preserving and sharing this important hand surgery history.

Best wishes,

DANIEL J. NAGLE
President: IFSSH

PS: If you wish to procure a copy of "Crafting a Legacy: The Incredible Lives of Asian Pacific Hand Surgery Pioneers" please go to the following link: admin@apfssh.net. The book is being offered at a discounted price of Sing $80.

Message from the Secretary-General

The International Federation of Societies for Surgery of the Hand (IFSSH) now offers the Mid-Term Course in Hand Surgery, utilizing its resources and reputation to provide additional education for hand surgeons worldwide. This initiative aims to involve more hand surgery societies and regions, going beyond our Triennial Congress.

We are pleased to witness the remarkable progress made by the Ecuadorian Hand Society (ECUMANO) under the leadership of their IFSSH delegate Dr. Fidel Cayón and President Dr. Gabriel Alegría. The inaugural IFSSH Mid-Term Course will be held from 31 January to 3 February 2024 in Quito, Ecuador. You can find more information on ECUMANO's website: https://en.ecumano.org. The registration fees are affordable, and with generous support from industry partners, we anticipate a substantial turnout while maintaining financial viability.

The course boasts an impressive line-up of international speakers and offers over 100 hours of programme time. This will be a highly successful meeting; we encourage you to reserve the dates and make plans to attend.

Our Global Partnership initiative is making strides, as we witness the collaboration between the British Society for Surgery of the Hand and the American Society for Surgery of the Hand. We eagerly expect more fellowships at the 2025 IFSSH Washington Meeting and the 2028 IFSSH Singapore meeting. If you or your society have any relevant contacts or materials, please email me, your society delegate, or your regional Member-at-Large. See https://www.ifssh.info/global_outreach_contacts.php#

In Toronto in October 2025, the new IFSSH sub-committee comprising Greg Bain, Paco del Pinal, and Jorge Clifton will present a Revenue Plan to our IFSSH Delegates. This plan aims to increase significantly our revenue, enabling IFSSH to expand its educational mission and develop a more stable and sustainable financial foundation, serving the world of hand surgery for years to come.

Please also note the following information:

2023 IFSSH Delegates' Council Meeting

The 2023 IFSSH Delegates' Council Meeting will be held in Toronto in October (in conjunction with the annual congress of the American Society for Surgery of the Hand) as follows:

10:30am-12:30pm, Thursday 5th October
Room 603, Metro Toronto Convention Centre South Building
222 Bremner Blvd, Toronto ON M5V 2T6, Canada.

All IFSSH Delegates have been provided with this notification. An agenda and further information will be forwarded to each IFSSH delegate nearer to the meeting.

Details of the ASSH congress, including a preliminary programme and registration information, can be found on the ASSH website - https://www.assh.org/annualmeeting/s/

We look forward to seeing a representative of each of the 62 IFSSH member societies at the 2023 IFSSH Delegates' Council Meeting in Toronto.

Opportunities to host an IFSSH Mid-Term Course or Triennial Congress

We are looking forward to the 1st Mid-Term Course in Hand Surgery in Ecuador (2024), the 16th IFSSH Triennial Congress in Washington, D.C. (2025) and the 17th IFSSH Triennial Congress in Singapore (2028).

The IFSSH Mid-Term Course and Triennial Congress are based on a regional rotation system. This schedule was introduced in 2010 and is designed to make sure that events are geographically shared to all parts of the world.

The rotation has been refined and updated over the past 13 years to align with the current bylaws.

The previous IFSSH Triennial Congress host societies and future regional allocation are available on the website: https://www.ifssh.info/congress-rotation-schedule.php. Societies from the South American region will be invited to bid to host the 2031 Triennial Congress. Bids are submitted six years in advance; therefore this host society will be chosen at the 2025 Washington, D.C. meeting.

The 2nd IFSSH Mid-Term Course in Hand Surgery is to be held in 2026-27, between the Washington, D.C. (2025) and Singapore (2028) Triennial Congresses. As these are in North/Central America and Asia-Pacific regions respectively, the hosting rights for the 2nd Mid-Term Course will be offered to societies from Europe or South America: https://www.ifssh.info/pdf/Mid-Term-Course-Rotation-Schedule.pdf. The 2nd Mid-Term Course host society will also be selected at the 2025 Washington D.C. meeting.

The host guidelines can be accessed via:
IFSSH Triennial Congress - https://www.ifssh.info/guidelines.php
IFSSH Mid-Term Course - https://www.ifssh.info/guidelines-to-host-anIFSSH-mid-term-course.php

If your society is interested in hosting an IFSSH Triennial Congress or Mid-Term Course, please confirm your society is in an eligible region (https://www.ifssh.info/regional_allocation.php),consider the guidelines and contact the IFSSH Secretariat if you require more information.

Future Meetings

A detailed list of national and regional hand surgery meetings is available on the IFSSH website. The triennial IFSSH Congresses are as follows:

1st IFSSH Mid-Term Course in Hand Surgery
Quito, Ecuador
31st January - 3rd February, 2024

XVIth IFSSH – XIIIth IFSHT Congress
Washington D.C., USA
23rd - 28th March, 2025

XVIIth IFSSH – IVth IFSHT Congress Singapore
23rd – 27th October, 2028 (TBC)

Lastly, IFSSH is always eager to welcome new members, and we anticipate announcing the addition of at least one new member at the upcoming Delegates meeting.

With warm regards,

David

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Re-published Article

INSIGHTS AND TRENDS REVIEW: ARTIFICIAL INTELLIGENCE IN HAND SURGERY - JHS (E)

Review Article

JHS(E)

Journal of Hand Surgery
(European Volume)
2023, Vol. 48(5) 396–403

DOI: 10.1177/17531934231152592
journals.sagepub.com/home/jhs
SAGE

Insights and trends review: artificial intelligence in hand surgery

Robert Miller[1,2], Simon Farnebo[3] and Maxim D. Horwitz[1]

Abstract

Artificial intelligence (AI) in hand surgery is an emerging and evolving field that will likely play a large role in the future care of our patients. However, there remain several challenges to makes this technology meaningful, acceptable and usable at scale. In this review article, we discuss basic concepts in AI, including challenges and key considerations, provide an update on how AI is being used in hand and wrist surgery and propose potential future applications. The aims are to equip clinicians and researchers with the basic knowledge needed to understand and explore the incorporation of AI in hand surgery within their own practice and recommends further reading to develop knowledge in this emerging field.

Keywords

Artificial intelligence, hand surgery, machine learning, deep learning

Date received: 15th December 2022; revised: 3rd January 2023; accepted: 7th January 2023

Introduction

> Almost every type of clinician, ranging from specialty doctor to paramedic, will be using AI technology, and in particular deep learning, in the future. (Topol, 2019)

Whether we are aware of it or not, artificial intelligence (AI) has become part of our daily lives. Often described as the fourth industrial revolution, it is used to shape the social media content delivered to each of us, for risk assessment by our finance and banking platforms and permits interaction with our environment using recognition technologies. One of the most significant advances is its use to develop autonomous self-driving cars. Sports teams now routinely use AI to predict injury, analyse players performance and inform managers on what players need replacing.

In healthcare, the potential of AI to improve decision making and patient management has been enhanced by the availability of large datasets, electronic health records and digitalization of imaging. A few established avenues that are being explored include robotics, radiology applications, skin cancer detection, neurology, genetics, histopathology, ophthalmology, electronic health records and for predicative analysis within healthcare systems (Topol, 2019). Its increasing uptake within a healthcare setting is reflected by the steady rise in regulatory approved AI technologies (Benjamens et al., 2020).

Understanding what is actually meant by AI is challenging; this is a new, expanding and complex field that clinicians are not readily familiar with. Herein we discuss AI within hand surgery, the salient terms, current and potential applications and address key issues faced regarding its use, evaluation, scope and future directions. It is hoped that this review article will act as a reference guide for those wishing to explore AI either academically or clinically in hand surgery and for those wishing to interpret and appraise AI publications within hand surgery.

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What is AI?

AI is a broad term with several available definitions (KCL; Leslie, 2019; Minsky, 1961; NHS England, 2022). In summary, it describes the process of replicating the rationality of intelligent human thought, actions or tasks with a machine or digital technology. This is not the same as automation, which is commonly used in modern technology; automation describes a machine that is programmed to conduct specific tasks without the need for human involvement (e.g. automated confirmation emails). In automation, the machine does not analyse, adapt or learn from data, whereas AI can. Within AI, there are different levels of complexity, from simple AI, to machine learning (ML) and deep learning (Figure 1). As AI becomes more complex, the human input required reduces and the ability of the machine to 'learn' from new data increases. AI offers significant advantages when working with large data, combining different data types, data requiring complex repetitive tasks, imaging data, data with complex relationships or data that is hard for humans to visualize. It is not, however, the solution to all clinical questions.

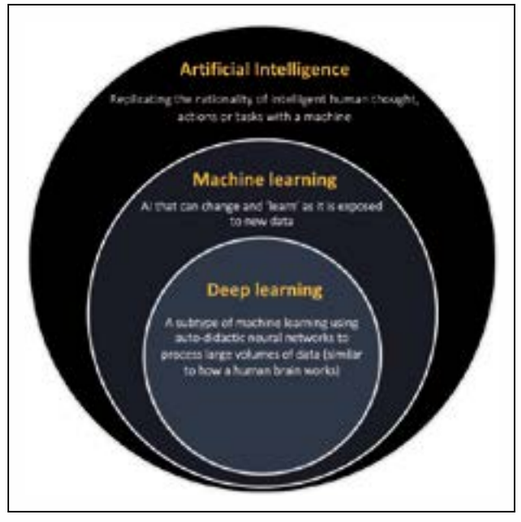

Figure 1. A diagrammatic illustration of the relationship between artificial intelligence, machine learning and deep learning. (KCL (King's College London). Innovation Scholars Program: Demystifying AI. https://innovationscholars.er.kcl.ac.uk (accessed 27 September 2022).)

Requirements of AI within a healthcare setting

> If we do not think about transparency, accountability, liability, explicability, fairness, justice and bias, it is possible that increasing the use of data-driven technologies, including AI, within the health and care system could cause unintended harm. (NHS England – NHSx, 2019)

While AI is an exciting frontier, there are specific considerations for its use in healthcare. In particular, healthcare AI models need to be transparent, namely the inner workings should be understood, at least in theory by clinicians who will use them. Without this, it will be difficult for clinicians without expertise to interpret and appraise AI models. Furthermore, without transparency there is the risk of inadequate scrutiny of methodology and adoption of scientific good practice, which may dilute meaningful output (Faes et al., 2020) and cause clinical harm. In order for AI to have a meaningful impact in healthcare, there must be both clinician and patient 'buy-in'. To achieve this, both must be able to understand how an AI-facilitated decision was made, particularly if there is disagreement between machine and clinician decision (Faes et al., 2020).

Model transparency

Model transparency facilitates explainability (Information Commissioner's Office & the Turing Institute, 2022), which describes the ability to explain how or why an AI model produced an outcome. This is needed for clinicians to both make an informed decision and explain how the decision was made to patients. The 'black box' concept, where inputs, processes and workings are not visible to the user and other interested parties describes an AI model that is not easily understood and interpreted by a human (Kelly et al., 2019), should be avoided. In turn, this makes it harder to detect or explain issues with bias and confounding (Faes et al., 2020). It is generally accepted that a 'black box' model cannot be used within healthcare and developers/researches should either have explainability as part of the model development, or employ post-hoc interpretability methods to justify use in the clinical setting (KCL; Leslie, 2019). The use of visualization systems, for example, can be helpful; these provide images of the key predictive features/decision process steps for clinicians (Faes

et al., 2020). A commonly used example to illustrate the importance of the above is in a model for melanoma diagnosis. Within this, an AI model used surgical skin markings present in training images to diagnose melanomas, rather than specifics about the lesion itself (Winkler et al., 2019).

In the United Kingdom and Europe, patients should be informed where a decision has been made by an AI model (NHS England, 2022) and there is legislation that mandates a 'right to explanation' for AI-generated decisions that have the potential to significantly impact a user or patient (Information Commissioner's Office, 2022; Kelly et al., 2019). Although automated AI decision-making systems in healthcare are not yet reality, decision-support systems (where a system supports a human decision-making) are on the brink, and will likely be the future. In order to achieve this, clinicians must be able to understand the output of an AI model. Clinical AI model developers therefore have a responsibility for projects to be accountable, answerability and auditability (Leslie, 2019).

Types of AI

AI utilizes machines that are capable of solving complex problems using algorithms and data inputted by humans. ML is a subtype of AI that can change and improve as it is exposed to new data. ML encompasses a category of techniques, rather than describing a single technique. It involves the use of mathematical procedures or algorithms to predict the relationship between variables, aiming to allow computers to act with less human intervention. In many cases the ML processes are very similar to that of traditional statistical analysis; the latter aims to understand a relationship between variables, whereas ML aims to predict the outcome of a combination of variables and can learn patterns as it is exposed to more data, therefore imitating how humans learn (International Business Machines Corporation, 2020). Examples of ML applications include natural language processing (NLP), computer/machine vision, anomaly detection, time-series analysis and robotic process automation (Central Digital and Data Office & Office for Artificial Intelligence, 2019a; NHS England – NHSx, 2019; Sidey-Gibbons and Sidey-Gibbons, 2019).

The most common types of ML are: supervised, unsupervised and reinforcement learning (Central Digital and Data Office & Office for Artificial Intelligence, 2019a; LeCun et al., 2015).

In supervised learning, data is generally separated into a training set (data used to train the model) and test set (data used to test the model, which the model has not seen before). Training data first needs to be labelled (by a human) so the machine can train using known correct answers/outcomes. For example, a clinician labels metacarpal fractures on plain hand radiographs, which are then used to train an AI model to identify metacarpal fractures. After training, the model will be tested on unlabelled radiographs to see how good it is at identifying metacarpal fractures. Training can then continue, or if good enough the model could be used in a clinical setting. After the training, there should then be external validation, where the model is tested on a new dataset (for example radiographs from a different hospital) (intelligence). Models can be trained on single or multiple categories (known as classes). For example, it could be trained to identify metacarpal fractures only (one class), or in combination with joint dislocations (a second class).

In unsupervised learning, the data is not labelled. Instead it is passed into a model, which tries to establish/identify patterns within the data. For example, detecting patterns in groups of patients with implant failure or postoperative infections.

In reinforcement learning the behaviour of the model is adjusted depending on positive/negative feedback, namely the model outcome is labelled correct or incorrect (similar to how surgery developed whereby a clinician tried something based on good principles and then analysed if the patient had a good or bad outcome). This could, for example, be used to predict which management strategy or interventions result in the longest pain free period in patients with first carpometacarpal joint arthritis or scapholunate advance collapse.

There are many different techniques/algorithms that are used for these different kinds of learning but in-depth discussion of these techniques is out with the scope of this article.

Deep learning is a subtype of ML, which describes how computers are programmed to 'think' using neural networks. In simple terms, neural networks can be thought of as artificial neurons. They receive data input, 'interpret' it and produce an outcome, which is passed to another neuron. There may be a group of 'neurons' working on the same objective (to detect the edges on an image, for example) which sit within one layer. There will be a second layer of neurons providing a different function (to detect shapes, for example), and so on, forming multiple layers. This allows the coupled extraction and analysis of data. The neural network will then produce an outcome that is understandable by a human (Figure 2).

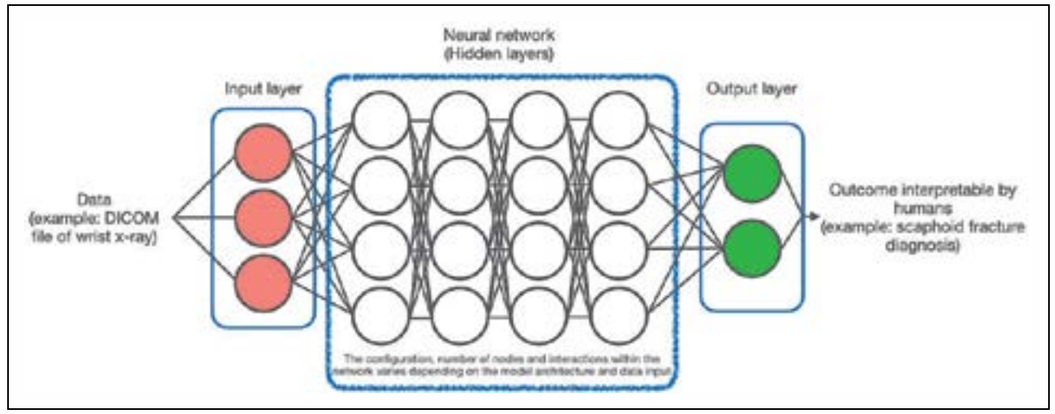

Figure 2. A diagrammatic illustration of a deep neural network. (Topol E. High-performance medicine: the convergence of human and artificial intelligence. Nat Med. 2019, 25: 44–56.)

A neural network is self-taught (autodidactic) and the number of layers used and the interaction within the layers is determined by the data/model, rather than a human (LeCun et al., 2015; Topol, 2019; Yu et al., 2018). There are many different types and designs of neural networks, and the field is constantly evolving.

The above descriptions can be confusing. In simple terms, these processes involve converting data (radiographs, electronic health record text, medical images, etc.) into code (so it is understandable to a machine), which is then manipulated and interrogated by a machine through human-orchestrated processes. While a human designs the overall architecture, the order, quantity and interactions of tasks within the model is not necessarily pre-determined and may be determined by the machine as it 'learns' from the data to produce a desired outcome. The output is eventually converted into something that is understandable to a human, for example, an image or text (Figure 2).

Clinical implementation within hand and wrist surgery

Radiology

Radiology has received much attention within clinical AI (Topol, 2019) and is the most advanced area of AI within orthopaedics (Langerhuizen et al., 2019). There is obvious appeal for the use of AI within hand and wrist surgery; for example, improving detection of scaphoid fractures (Yoon and Chung, 2021), which continue to elude clinicians, or for flagging hand and wrist fractures in general within emergency departments (Reichert et al., 2021). Such interventions could reduce the burden of emergency reporting in cases of binary decisions (fracture present or not present), reducing missed fractures and streamlining referral to orthopaedic clinics or automating further radiological investigations. AI in hand/wrist radiology has focused on using neural networks for scaphoid fracture detection (Hendrix et al., 2021; Li et al., 2022; Yoon and Chung, 2021; Yoon et al., 2021) and to a lesser extent, hand fractures (Ureten et al., 2022) with promising results. While they are not out-performing humans (Kuo et al., 2022; Olczak et al., 2017; Yoon et al., 2021), these studies are setting a benchmark for future research. However, the proposed algorithms have not been externally validated, and have not been shown to reliably flag up other associated pathologies, for example, arthritis or bone tumours. At present, therefore, AI does not appear to be in a position to be widely integrated into a clinical workflow. In the near future, it is most likely that these algorithms will assist clinicians, rather than replace them.

Clinical decision making and outcome assessment

Patient-reported outcome measures (PROMs) are increasingly collected to measure healthcare quality and value before and after elective hand surgery. With increasing numbers of national registries for hand surgical procedures (Vakalopoulos et al., 2021), big data can be collected that enables usage of ML algorithms for prediction of injury (scaphoid fracture for example, Bulstra and Machine Learning Consortium, 2022), or of recovery trajectory and expected functional improvement after surgery

based on demographic factors, such as age, level of education, symptomatology, medication, psychosocial profiles and current co-morbidities. As the ML process does not pre-define which variables will be analysed or how, such algorithms can select, weigh and describe non-linear associations and complex interactions between covariates in an unbiased manner. With this in mind, the results of the ML process should be explainable, for example via visualization tools that present a projected outcome to the patient and surgeon. The idea is that a realistic and valid estimation of the individual patients projected improvement can contribute to a positive effect on patient–caregiver communication, thus facilitating patient education and identifying those with unrealistic expectations and add to an improved shared decision-making process. It may also be able to streamline the process of collecting PROMS, thereby reducing the burden on patients (Harrison et al., 2022). This is an important area of development, as previous studies have shown that patients' expectations and knowledge before surgery significantly influence postoperative satisfaction (Krist et al., 2017; Waljee et al., 2014). Ultimately, ML algorithms can be used for risk stratification where patients at risk of not achieving a minimal important change improvement in PROMs can be identified before surgery, and either be suggested an alternative non-operative treatment, or be allocated upgraded postoperative monitoring and more frequent support through face-to-face training sessions.

Recently, two studies from the Hand and Wrist study group in the Netherlands published user-friendly graphical applications (Appendix S1) based on ML algorithms, for prediction of postoperative function. In these, ML approaches were used on 2119 patients with carpal tunnel syndrome (CTS) (Hoogendam et al., 2022), and on 2653 patients with thumb carpometacarpal osteoarthritis (Loos et al., 2022) to calculate the probability of functional improvement 6 months after CTS surgery and 12 months after first carpometacarpal joint surgery, based on a preoperative PROMs. The published ML algorithms are freely available to use; however, it is important to emphasize that online applications like these often lack external validation. As highlighted previously, external validation is necessary for the ML algorithm to be generalized to other patient cohorts. Cultural and socioeconomic differences, as well as different preoperative conservative treatment protocols, may largely influence patient-reported covariates. These ML algorithms also exclusively rely on PROMs, which are characterized by intra-patient fluctuations and inter-patient heterogeneity (Bydon et al., 2022). The addition of objective components to the algorithms would likely combat this.

Ethics and bias

> AI ethics is a set of values, principles and techniques that imply widely accepted standards of right and wrong to guide moral conduct in the development and use of AI technologies – Alan Turing Institute. (Leslie, 2019)

With any advances in medicine or technology there are associated risks (Leslie, 2019). This should be considered by those wanting to develop clinical AI models and the first to consider is the risk of bias and fairness. This can be illustrated by a model developed on datasets of predominantly white skin, which then, by the nature of the training dataset, rather than prejudice, performed worse on darker skin (Kelly et al., 2019). If not realized, this could have significant implications on a population level. Bias and discrimination should be considered during model development with an awareness that machines are ultimately reliant on the data they are given. There should be an equality impact assessment (NHS England, 2019b), as highlighted by the Mayo Clinic AI factory where there is an automated assessment of model bias across population subgroups (Mayo Clinic Platform, 2021; Zhang et al., 2022) and the concept of 'Fairness through awareness' (Dwork et al., 2012) whereby knowledge of protected attributes is used to explicitly mitigate (unconscious) bias (Leslie, 2019).

Second, is the issue of decision responsibility. Patients have a legal right to know if automated decision making was used in their care and that a human must explain the decision made when machine assisted. The Alan Turing Institute have produced a comprehensive guide for ethics and safety in AI, which is essential reading for those who are considering AI tools in their practice, highlighting actionable principles to direct development of clinical AI using the FAST Track principles of Fairness, Accountability, Sustainability and Transparency (Leslie, 2019). Exactly how the legal responsibility regarding AI-supported decision will be split between clinicians, developers and managers is unclear. For example, how the proportion of responsibility and punitive actions should be distributed if there is an adverse event following the use of a clinical AI model (Hodge, 2021). While this is unnerving to consider, it highlights that all those developing such tools should work collaboratively for the greater good of patients and the population.

The future of AI in heathcare and hand surgery

> Artificial intelligence has captured the imagination of clinicians and researchers, funders, and commercial investors; but without widespread translation to clinical impact, we risk disillusionment and a collapse in willingness to invest resources. (Zhang et al., 2022)

Prognostic indicators for common conditions

Using multiple AI tools to automatically characterize specific elements of scans in commoner conditions on a large scale (which would otherwise be very timing consuming and require specific expertise if performed by clinicians) may allow increased prognostic indicators to be derived from existing scans. For example, the grading of osteopenia, assessing radiocarpal or midcarpal arthritis, intercarpal alignment (scapholunate and scaphocapitate angles), highlighting joint incongruencies or dissociations such as the shape of hamate head, and examining the type of lunate in Kienbock's disease. The proof of concept for this has already been demonstrated with computer-aided analysis of normal computer tomography wrist scans (Suojarvi et al., 2021).

Increasing the context of healthcare for AI

NLP is the process of teaching a machine to process and analyse natural language/words, their meaning and context. This is particularly powerful in electronic heath records where the machine can read and interpret electronic free text at scale, in real time. While not specific to hand surgery, this could empower clinicians to write what and how they want, with the onus on the machine to learn to understand it, rather than the clinician having to document in specific structured electronic formats. Furthermore, it can be used for real time or large-scale audit and assessment of clinical workflows (Shek et al., 2021). ML in radiology will be most powerful if linked with other forms of AI, such as NLP to incorporate clinical data or follow-up documentation to help predict outcomes and aid decision making for example (Kraljevic et al., 2021, NHS England, 2019b).

In combination with other emerging fields like three-dimensional technologies

Another area of new technology and recent advancements in computer-assisted decision making is in the increasing use of individualized three-dimensional (3-D) printed patient-specific operation guides (Kabelitz et al., 2022) and patient-specific 3-D printed plates (Dobbe et al., 2021). Detailed preoperative imaging with bony alignment planning can be used to build custom designed jigs or implants which are then sterilized and used intra-operatively to guide osteotomies, drill holes or plate fixation. This can however be labour intensive and therefore the next step in this development may include ML algorithms for automated image interpretation and implant planning. This could potentially revolutionize both reconstructive surgery as well as fracture management in the upper extremity.

Designing screening algorithms and pathways

Finally, Schreiber et al. (2017) have demonstrated the potential of using metacarpal cortical bone thickness as a surrogate measure for osteopenia. If this could be automated using ML it may have significant screening implications and could automatically recommend treatment (if linked with individual patient data via NLP) or trigger referral for bone density investigation/treatment for example. It could also be used to predict healing potential after injury. This demonstrates how, with the use of AI, upper limb surgery may have a more wide-reaching impact on patient's health.

Combining different types of AI

Ultimately, combining different AI techniques will likely be most powerful. For example, incorporating radiological findings with information from clinical notes, demographics and examination findings may allow AI to decipher non-linear relationship between variables and provide outcome predictions or suggest optimal treatment options for individuals. Such algorithms may be able to feedback the likelihood of improved PROMs, predict chances of restoring a high level of biomechanical function and predict longevity of arthroplasty. However, if must be remembered that the AI will only be as good as the data made available to it. To achieve this, there must be appropriate infrastructure in place (Mayo Clinic Platform, 2021; Zhang et al., 2022) with a well-designed AI supply chain (Zhang et al., 2022), which includes many aspects outside of the main model-building phase (which currently holds most of the attention). This is well reported by Zhang et al. (2022) and is needed to ensure both clinical impact and return on investment.

Conclusion

AI in hand surgery poses an exciting frontier. It is however in its infancy and as yet, the machines cannot be considered to better than humans. The true potential of AI in hand surgery will likely come from combining different types of AI, targeting specific aspects and challenges within hand surgery (diagnosis, PROMS, surgical planning, individualized care and management recommendations). For advances in clinical AI within hand surgery to be meaningful they should be developed using a collaborate approach with data scientists, ML engineers, computer scientists and clinical experts. We should be striving to develop systems that can integrate within clinical workflows (which requires appropriate infrastructure), be accountable ethically, externally validated and include post-deployment monitoring. Making a model generalizable on a local level and to the wider population/the real world is challenging but ultimately more meaningful (Kelly et al., 2019; Zhang et al., 2022). To achieve this, the model needs to be shown to be robust beyond the cohort (dataset) it was developed in, and it must be externally validated. This may be using a different population, different setting or even using scans from different machines. Currently there is a significant deficit in externally validated models, preventing wide-spread use (Topol, 2019). Furthermore, model evaluation should be a continuous process, known as model maintenance. It should continue on the same or new populations over time (prospective data collection) to ensure continued performance as a population evolves (the population may also evolve based on outcomes from the AI model).

With the AI revolution, the hand surgical community may be at risk of having an influx for AI models that will have little clinical impact (Zhang et al., 2022). This may be because they are not understood or accepted (as highlighted above) or because they are not generalizable, have little real-world impact on clinical outcomes (Keane and Topol, 2018; Topol, 2019) or they cannot be practically integrated into clinical workflows and therefore become redundant. It is hoped that this article has provided a framework for understanding the various issues involved in AI implementation that will allow us to cautiously adopt its use for the better care of our patients.

Acknowledgements The authors thank Professor James Teo for reviewing the manuscript (London Medical Imaging & AI Centre, King's College Hospital NHS Foundation Trust, London, UK).

Declaration of conflicting interests The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding statement The authors received no financial support for the research, authorship, and/or publication of this article.

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Supplemental material Supplemental material for this article is available online.

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ACKNOWLEDGEMENT:
This interesting article is re-published with thanks to the Authors, Publishers and the Editor of the Journal of Hand Surgery (E)

Re-published Article

ARTIFICIAL INTELLIGENCE APPLICATIONS AND SCHOLARLY PUBLICATION IN ORTHOPAEDIC SURGERY* BONE AND JOINT JOURNAL VOL 105-B ISSUE 6

■ Editorial

Artificial intelligence applications and scholarly publication in orthopaedic surgery*

S. S. Leopold,
F. S. Haddad,
L. J. Sandell,
M. Swiontkowski

Anyone with access to the internet now has free access to artificial intelligence (AI) applications that can quickly develop text-based responses to specific questions. Large language model applications such as ChatGPT have made it possible to construct research manuscripts, abstracts, and letters to the editor that are extremely difficult to differentiate from human-derived work (see Supplementary Material).

This rapid improvement in AI capabilities may offer some benefits to journals, publishers, readers, and, ultimately, patients. For example, large language models such as ChatGPT might – with suitable human oversight – be able to create plain-language summaries of complex research quickly and at scale, which might make the scientific record more accessible to the public.[1] AI-based tools also may facilitate the creation of consistent, clear visual presentations of complex data. And, of course, an exciting feature of transformative technologies is the potential for benefits that we cannot imagine at the outset.

However, misuse of these tools can undermine the integrity of the scholarly record; indeed, there are examples of this happening already. Researchers and authors need to be aware that AI-detection software development is in the refinement stage. When available, these tools will be used by our journals in the same way that plagiarism software is currently deployed. Some have suggested that large language models should be considered authors; in fact, ChatGPT has been listed as a co-author in published research,[2] and even is a registered author in the ORCiD and SCOPUS databases. This practice is inappropriate. Under the authorship guidelines of the International Committee of Medical Journal Editors, which all of our journals follow, an author must meet a number of important standards, including being willing to be accountable for all aspects of the work, to ensure that questions related to the accuracy or integrity of the work will be suitably investigated and resolved, to be able to identify which co-authors are responsible for specific parts of the work, and to have confidence in the integrity of the contributions of their co-authors.[3] A large language model has no means to comply with such standards, and, for that reason – as well as, we believe, simple common sense – AI-based tools cannot be authors on scientific papers.

Other important concerns have been raised about the use of AI-driven tools in scientific reporting, including the possibilities that they may produce material that is inaccurate or out of date,[4] they may conjure up "sources" that do not exist,[5] and – this from the team that built ChatGPT – they may generate "plausible-sounding but incorrect or nonsensical answers," which the coders have said is "challenging" to fix because "during RL [reinforcement learning] training, there's currently no source of truth".[6] We believe that our readers, and the patients for whom they are responsible, deserve better.

For these reasons and others, our editorial boards have agreed on the following standards concerning AI applications that create text, tables, figures, images, computer code, and/or video:

- AI applications cannot be listed as authors.
- Whether and how AI applications were used in the research or the reporting of its findings must be described in detail in the Methods section and should be mentioned again in the Acknowledgements section.

Our editorial boards will closely follow the scientific developments in this area and will adjust editorial policy as frequently as required.

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doi:10.1302/0301-620X.105B.BJJ-2023-0272 $2.00

Bone Joint J
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*The authors of this editorial are the Editors-in-Chief of *Clinical Orthopaedics and Related Research*, *The Bone & Joint Journal*, *the Journal of Orthopaedic Research*, and *The Journal of Bone and Joint Surgery*, respectively, and this editorial is being published concurrently in all four of those journals. The articles are identical except for minor stylistic and spelling differences in keeping with each journal's style. Citation from any of the four journals can be used when citing this article.

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iCMJE Coi statement:
All ICMJE Disclosure of Potential Conflicts of Interest forms for *Clinical Orthopaedics and Related Research* Editors are on file with the publication and can be viewed on request; the Editors' disclosure statements also appear each month in print on the masthead of *Clinical Orthopaedics and Related Research*. The ICMJE Disclosure form for the Editor of *The Bone & Joint Journal* is available with the BJJ online version of this article. The ICMJE Disclosure form for the Editor of the *Journal of Orthopaedic Research* is available from the Orthopaedic Research Society. The ICMJE Disclosure form for the Editor of *The Journal of Bone and Joint Surgery* is provided with the JBJS online version of this article.

acknowledgements:
Joseph Bernstein, MD, a member of the Editorial Board of *Clinical Orthopaedics and Related Research*, provided the prompts for (and responses from) ChatGPT in the Supplementary Material.

ACKNOWLEDGEMENT:
This Open Access Editorial from 'The Bone & Joint Journal' Volume 105-B, Issue 6 is re-printed with thanks to the Editor, Authors and the Publishers

Re-published Article

RESPONSE TO CONCERNS ABOUT THE INCREASING INFLUENCE OF ARTIFICIAL INTELLIGENCE IN PUBLISHING

Editorial

JHS(E)

Response to concerns about the increasing influence of artificial intelligence in publishing

Journal of Hand Surgery
(European Volume)
0(0) 1–2

DOI: 10.1177/17531934231183224
journals.sagepub.com/home/jhs
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Over the last 25 years, technological advancement has resulted in very significant changes in the delivery of patient care. As we move from the paper to the digital age, we rely on computers that excel at undertaking tasks that we humans find difficult, including complex calculations, advanced imaging and data processing. Paradoxically, human interactions involving conversation, discussion and creativity, which we find so easy and natural, are the very tasks that we have found so hard to program into computers. More recently, the exponential development of artificial intelligence seems to be bridging that gap.

ChatGPT (Open AI, California, USA) was launched in November 2022. The letters 'GPT' stand for generative pre-trained transformer, also known as a large language model (LLM). This type of software is based on an artificial neural network that is exposed to vast amounts of data from webpages, databases and other sources. The software applies a weighting to each piece of information based on its significance and uses this to generate a human-like response to an inputted question. The computer does not 'understand' the input or response, but simply strings words together in a way it has learned is appropriate from its training material.

The rising popularity of ChatGPT comes as no surprise; in the past, we relied on search engines like Google™ for information we then had to piece together to derive meaning. Now, we have a platform where we can engage in a conversation and receive information presented to us in a way that is useful, grammatically flawless and appears to originate from another human in its language, tone and congeniality.

Since the launch of ChatGPT, other LLMs have been developed (datadriveninvestor.com). As more and more users access these platforms, the technology has expanded exponentially and largely in an unregulated manner. Consequently, concerns about the safety of AI have been raised and calls made by its founders for a reflective pause to consider the impact this technology could have on the human race and on our planet (futureoflife.org).

How does ChatGPT impact scientific publishing? Seth et al. (2023) explored the role of AI in the management of scaphoid fractures; ChatGPT was asked about the ideal management of scaphoid fractures in a few scenarios and to list key references. The responses were inconsistent; worryingly, ChatGPT referenced statements with references that do not exist, i.e. the language model simply 'made up' the references using correct citation methods but with fictional authors, articles and volume/issue/page numbers. This raises issues regarding the accuracy of the information presented by ChatGPT and whether it can be trusted.

Notwithstanding these concerns, AI and LLMs may have a lot to offer researchers. First, they can help refine a research question and, indeed, can help generate new ones based on the current literature. An LLM does this by 'learning' from the comments of researchers on where further research is required. It cannot, however, be creative, think laterally or have an original idea – the very things on which novel and practice changing research are based. Second, LLMs can produce text quickly and eloquently, generating text that could potentially be used to contribute to a scientific paper. ChatGPT itself, however, recommends that all such generated text is proofread for accuracy by a human expert on the subject. Furthermore, the learning curve for writing and publishing, skills so critical to any hand surgeon who wishes to develop a research mindset, may be truncated by the use of AI platforms for scientific writing.

Esplugas (2023) presents a more positive review of incorporating AI into our research and publishing with a summary of the AI tools available to us as researchers and authors. The author makes an astute point: we do not need to compete with AI, but rather we compete with others who are using AI to improve their academic output. The reaction to the use of LLMs by major medical pulications has largely been cautionary. According to the International Committee of Medical Journal Editors (ICMJE), the criteria guidelines for an author are as follows: (1) made a substantial contribution to the concept or design of the work, or acquisition, analysis or interpretation of data; (2) drafted the article or revised it critically for important intellectual

content; (3) approved the version to be published; and (4) each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content. At present, LLMs cannot fulfil these criteria for authorship, largely because a LLM cannot be accountable for the integrity of the work.

As technology improves, LLMs are likely to become more accurate and refined and, consequently, more difficult to differentiate from a human. In academic medicine, there is no doubt this is an extraordinary tool that can potentially help clinicians research and summarise topics. *The Journal of Hand Surgery (European Volume)* encourages innovation and technology to raise standards in knowledge and education but understanding how LLMs 'learn' and function is essential for hand surgeons if we are going to incorporate this technology and use it effectively as a tool for research and discovery. We must be clear that it cannot be relied upon as yet for accuracy and consistency. Finally, we encourage authors, especially those who are relatively new, not to short circuit their learning curves for writing and preparing a manuscript. There is no substitute for the painstaking process involved in crafting a sentence, constantly weighing its meaning and impact and deciding whether a reference, or what reference can be used to support it. Such a process is necessary to develop a critical, analytical mind that will one day challenge dogmas and solve problems of increasing complexity in hand surgery.

At present, in line with other scientific journals (Leopold et al., 2023), we have proposed the following recommendations on the use of AI in submissions to our journal:

(1) No LLM can be listed as an author.
(2) The use of AI applications in a submission to the *Journal* should be highlighted in the letter of submission to the Editor.
(3) The use of AI applications at any stage in the design, data collection and reporting of a scientific study should be clearly stated in the methods section of the paper.
(4) The inclusion of AI-generated references that are then found to be false would constitute an ethical concern. In any case, authors are always encouraged to diligently check all references are valid and cited correctly.

We feel that these guidelines are in keeping with our peer journals, and essential to safeguard the authenticity and accountability of hand surgery publishing and research.

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ACKNOWLEDGEMENT: The IFSSH Ezine re-publishes this Editorial with thanks to the Editors and the Publishers of the JHS(European)

Alessandro Caroli
(1933-2021)

Alessandro Caroli was born in 1933 in Taranto, Italy. In 1961 he graduated in Medicine and Surgery from the University of Modena, and then continued his training in Orthopaedic Surgery, Vascular Surgery and Hand Surgery. He then also qualified in Plastic Surgery at the University of Parma, Italy. Back in Modena he became Assistant to Professor Augusto Bonola, Chief of the Department of Orthopaedic Surgery. He excelled as a traumatology surgeon and hand surgeon, and was appointed Clinical Professor of Orthopaedics and Traumatology at the University of Modena in 1972 until 1997. In 1985 Prof. Caroli founded the Department of Hand Surgery at the Modena University and was appointed its first Director until 1997. After his retirement from the University in 1997, he became the Director of the Hand Surgery Unit at the Hesperia Hospital in Modena and operated for another 20 years.

Caroli was President of the Italian Society for Surgery of the Hand from 1986-1988. He was instrumental and a Founder Member of the Federation of European Societies for Surgery of the Hand (FESSH), and National Delegate on the FESSH Council (1990-1992). Prof. Caroli was the President of the first FESSH Congress in Taranto, Italy in 1989.

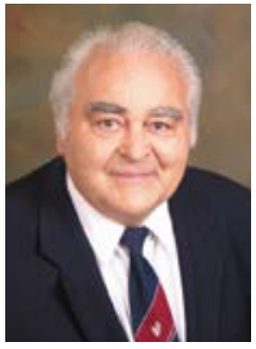
Prof. Caroli authored more than 200 scientific papers in Italian and English. He wrote a beautiful hand surgery monograph in Italian.

Alessandro was known as an outstanding surgeon and coupled with his training in a number of surgical specialities, it enabled him to perform the most complex and difficult trauma and congenital hand deformity procedures. His endearing personality made him popular with his students and colleagues. In the operating theatre he was the true gentleman to the staff and his assistants, as well as to his patients and their families.

Alessandro passed away on 31 October 2021. He was survived by his wife Giuliana.

On 31 October 2010 in Seoul, Korea, at the 11th Congress of the International Federation of Societies for Surgery of the Hand, Alessandro Caroli was honoured as “Pioneer of Hand Surgery”

Virchel E. Wood
(1934-2020)



Virchel E. Wood was born on 13 February 1934 in Leominster, Massachusetts, United States of America. He qualified as medical doctor at the Loma Linda University, California, USA in 1960. His further training began as an orthopaedic resident at the University of Massachusetts in Worchester, Massachusetts. Following this residency, he started with a hand fellowship under Robert Carroll at Columbia University (Harlem Hospital) in New York in 1966. Wood then served his country (1967-1969) at Fort Leonard Wood, Missouri, USA, during the Viet Nam War, and for a period he served as Chief of the Orthopaedic Service.

He then resumed his training with a second fellowship at the University of Iowa under Adrian Flatt (1969). He continued his interest in congenital hand surgery spending additional time learning pollicisation techniques and syndactyly repairs from Dieter Buck-Gramcko in Hamburg, Germany and later he studied brachial-plexus treatments with Alain Gilbert in Paris. After his training he set up a private practice in Walla Walla, Washington, but before long was recruited by his Alma Mater, Loma Linda University in 1971 to serve as Chief of Hand Service and the Hand Fellowship Director for 36 years until 2007. He trained 76 hand fellows and 190 orthopaedic residents and influenced numerous medical students. The Orthopaedic Department renamed the Hand Fellowship “The Virchel E. Wood Hand Fellowship” in his honour.

After his retirement, Wood’s distinguished career was further recognized with the appointment as an Emeritus Professor.

Wood published 121 peer-reviewed articles, 14 book chapters and over 50 secular and non-secular writings. He was honoured with 26 academic and other awards and has been recognised as the “most frequent cited author in the congenital hand literature in the past 50 years” by the American Society for Surgery of the Hand in 1995.

Virchel had many interests. He was curator of one of the world’s largest collection of gemstones (Minerals and Gemstone Division, La Sierra University, Riverside, California, USA). He was a published poet and a founding member of the ‘Heralds of Hope’ singing choir. Woodie’s (as he was affectionately known) gentle warmth was consistent with his Native American heritage as part of the Wampanoag tribe from Massachusetts, the tribe that first extended warmth to the Pilgrims landing at Plymouth Rock. Although he was soft-spoken, he commanded an authority which captured the attention of students and peers alike.

Virchel’s wife, Esther, regularly accompanied him on many of his international professorships. They have five children.

At the Eleventh Congress of the International Federation of Societies for Surgery of the Hand on 31 October 2010 in Seoul, Korea, Virchel Wood was honoured as “Pioneer of Hand Surgery”

Hand Therapy and Ehlers-Danlos Syndrome

HAND THERAPISTS' IMPORTANT, UNDER-RECOGNIZED ROLE IN HELPING PERSONS WITH EHLERS DANLOS SYNDROME.

(from the Keynote Address at the European Federation of Societies of Hand Therapy Congress in Rimini Italy, May 12, 2023)

The objective of article is to provide insights into various manifestations of Ehlers Danlos Syndrome (EDS), the impact on daily functioning and how collaboration between client and therapist helps to achieve pain control, joint stabilization and participation in activities that are valued by the client. I will share some orthotic interventions and adaptive devices developed in collaboration with persons who have with EDS.

An individual with symptoms of EDS may become a client of a hand therapist due to joint hypermobility/instability in the upper extremity, which is how I first became involved with helping persons with EDS. Two such individuals, Nicole and Ariel, have figured predominantly in my education of how EDS can severely impact an individual's quality of life and overall health.

EDS is a complex, inherited condition that affects the connective tissues in the body. Connective tissue (made up of cells, fibrous material and collagen) is ubiquitous and responsible for supporting the skin, blood vessels, bones, joints and organs. Thus, faulty connective tissue has widespread implications and symptoms tend to increase and get worse as the individual ages.

There are 13 subtypes of EDS and all subtypes have poor collagen production and various forms of hypermobility. Genetic markers have been identified for 12 of the 13 subtypes; the genetic marker for 13th type [hypermobile EDS or HEDS] has yet to be identified.

Definitive diagnosis of EDS requires genetic testing to determine the subtype, as well as consideration of the symptoms and co-occurring conditions.

Joint instability is not restricted to the upper extremity but extends to the spine and lower extremities. Thus an "EDSer" (Nicole and Ariel's term) may be covered from neck to toe with braces and splints and also use ambulatory aids.

To grasp the extent of the joint hypermobility, the Beighton Scoring System is a useful place to start.

From: https://www.ehlers-danlos.com/assessing-joint-hypermobility/

A positive Beighton hypermobility score is any outcome greater than or equal to 5/9 points in adults, 6/9 points in children (before puberty), and 4/9 points in adults over age 50. Nicole and Ariel both scored 9/9. The escape artist Houdini is suspected to have had EDS.

The individual with EDS is really the expert on their body and is likely well informed about their condition and may have a widespread network of fellow "EDSers" or "Bendies" that they share information with. Be open to being an equal partner in the process. Its better when the clinician works collaboratively WITH the person with EDS.

Unfortunately, Nicole and Ariel reported that experiences with clinicians have sometimes been negative. They assert that it is not helpful when clinicians think they know more about how the body of a person with EDS works, than that person does. Furthermore, the basic education of the clinician might not be sufficient to address the treatment or care that the EDS client needs. Some clinicians can get scared off.

Nicole stated, "EDS life is consistently full of inconsistent chaos". "Patient-led care is the most amazing thing". She suggested asking your client "how do you want to do this?" Be collaborative.

Ariel found herself avoiding physiotherapists after her physio asserted that "pain is important to build muscles". One size does not fit all and it take a lot of creativity to help an EDSer. It's important to recognize that the clinician and EDSer need to be partners.

In addition to the Beighton score, there is the Brighton Criteria for Diagnosis which is especially useful if there has not been genetic testing.

Brighton Requirements for Diagnosis of EDS:
Any ONE of the following:

- Two major criteria
- One major plus two minor criteria
- Four minor criteria
- Two minor criteria and unequivocally affected first-degree relative in family history

Major Criteria

- Beighton score of at least 4
- Arthralgia for longer than 3 months in 4 or more joints

Minor Criteria

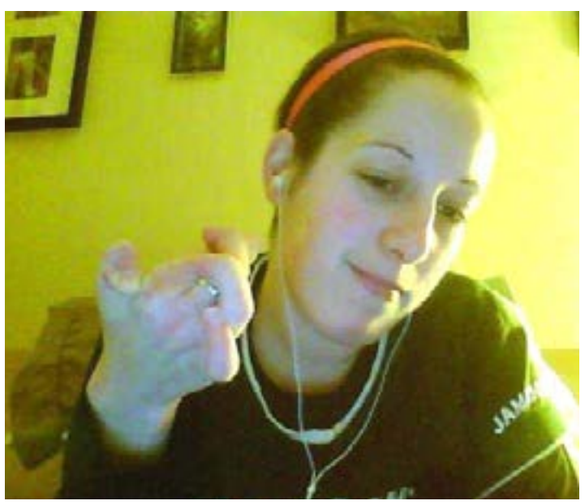
- Beighton score of 1, 2, or 3
- Arthralgia (3-month duration) in one to three joints or back pain (3 month duration) or spondylosis or spondylolisthesis
- Dislocation or subluxation in more than one joint, or in one joint on more than one occasion
- Three or more soft tissue lesions (e.g., epicondylitis, tenosynovitis, bursitis)
- Marfanoid habitus (tall, slim, arm span great than height (ratio >1.03 ratio), upper segment less than lower segment (,0.89 ratio), arachnodactyly
- Skin striae, hyperextensibility, thin skin, or abnormal scarring
- Ocular signs: drooping eyelids, myopia, antimongoloid slant
- Varicose veins, hernia, or uterine or rectal prolapse
- Mitral valve prolapse

The Brighton Criteria illustrate that EDS is so much more complex than just joint hypermobility and there is a constellation of other symptoms and co-occurring conditions that create challenges for individuals with this syndrome and deteriorating symptoms as the individual ages. Should you suspect you have a client with EDS (even if not yet diagnosed), it is helpful to expand your knowledge of the strange biology of the condition and wide-spread symptoms that extend beyond the joints.

Here is a link to an excellent resource: https://www.ohsu.edu/sites/default/files/2019-09/CPD%20MSK19-Thu-3-Friedman.pdf

Nicole and Ariel have a spectrum of strange, interconnected symptoms. Their conditions are seriously life-altering and Nicole's health is often precarious. Nicole also has a disorder of the autonomic nervous system called Dysautonomia (often seen with EDS), affecting many organ systems. To be specific, she has the subtype called Postural Orthostatic Tachycardia Syndrome (POTS).

Nicole initially came to me because her occupational therapist thought she would benefit from custom-made silver-ring orthoses for her hypermobile fingers. (Figure 1)



After she tried various samples that I had, she was content with the more economical Oval-8 orthoses that were customized to hold her proximal interphalangeal joints (PIP) in a few degrees of flexion. (Figure 2)

In contrast, Ariel was not satisfied with Oval-8 orthoses and wanted custom-made silver-ring orthoses to control the hyperextension in her PIP and DIP joints.

After trying some sample silver-ring orthoses, Ariel decided to purchase two separate custom-made orthoses – one for the PIP joint and one for the DIP joint. (Figs 3 and 4) Generally, she finds that the PIP joint orthosis is sufficient to limit hyperextension at both the PIP and DIP, however, she wears both orthoses when she is doing a lot of keyboarding.

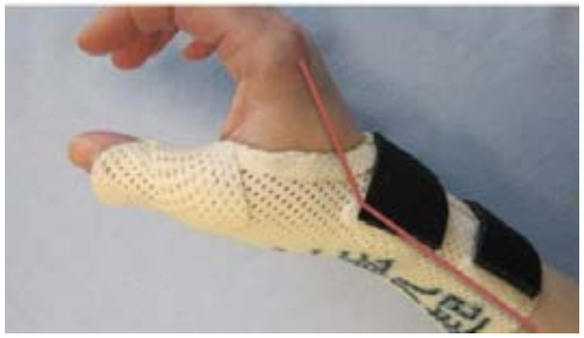
Demonstrating how just the PIP extension-blocking Silver Ring Orthosis (worn on the index finger) controls both the PIP and DIP joints (in contrast to the unstabilized long finger).

Next, Nicole wanted stabilization of her wrist and thumb, while still allowing wrist motion. "Just putting my hand in my pocket causes my wrist to sublux." In Figure 5, Nicole demonstrates how, with a combination of wrist flexion and passive thumb abduction, her thumb touches her forearm (one of the test motions in the Beighton score).

I cautioned her to avoid stressing her thumb with this demonstration.

Nicole stipulated that she wanted a wrist orthosis that 1) did not extend the full 2/3 up the forearm (as I would normally do for wrist-stabilization) and 2) permitted some active wrist flexion and extension. We worked collaboratively to design and fabricate a circumferencial forearm-based wrist-thumb stabilizing orthosis, molded from 1.6 mm (1/12 in.) Orfilight with hook-receptive neoprene straps. (Figure 6) Full thumb interphalangeal (IP) flexion was permitted but there was an IP extension-blocking hood over the distal phalanx. The distal edges in the hand were more proximal than I would normally incorporate in a wrist orthosis, to permit some active wrist flexion and extension, as requested by Nicole. The circumferential forearm-base provided sufficient surface area to compensate for the shorter forearm lever arm.

Permits some acttive Wrist Flexion



Nicole was “pleasantly surprised” that the orthosis was comfortable, did its job and made life easier and safer.

Nicole, inscribed her orthosis with a Japanese expression meaning “fall down seven times get up eight”. (Figure 7) Years after writing this inscription, she acknowledges that as a non-Japanese person, this might be construed as cultural misappropriation. However, the expression demonstrates her determination. She used the orthosis for 3.5 years until the plastic cracked.

To manage her gastroparesis and cyclic vomiting (symptoms associated with her dysautonomia), Nicole had a soft, plastic jejunostomy tube (J-tube) surgically inserted into her small intestine that emerged through the skin of her abdomen. This tube was hooked up to a pump that dispensed hydration fluid. Nicole used a large syringe to inject enteral nutrition into the tube, ten times daily.

So, the next challenge was to provide joint stabilization so that she could more easily manipulate the syringe. We were confronted with a decision – either make an activity-specific orthosis or modify the syringe. We chose the latter. Thus, we made a two-part adaption – an enlarged head for the plunger, molded from thermoplastic pellets, and an enlarged finger grip on the body of the syringe tube, molded from sheet thermoplastic. (Figure 8 and Video 1) The next consideration was that any modification needed to be removable and transferable to other disposable syringes for feeding. When molding the two components, hand cream was applied to the plastic of the syringe to prevent the heated thermoplastic from sticking. The adaptation worked very well. Again, you see evidence of her self-motivation in the phrase that she wrote on the plunger head. “When life smacks you in the face, smack it back.”

Here is another syringe adaptation, based on our design, made by an occupational therapist for a friend of Nicole in the USA. (Figure 9)

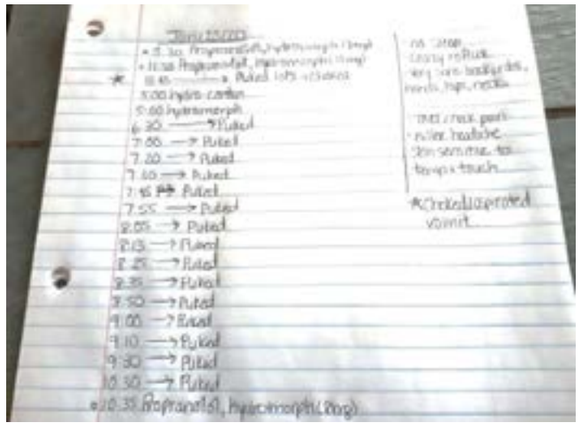
After Nicole’s forearm-based wrist-thumb orthosis broke, she chose to focus on stabilization of the thumb only. Ariel had similar needs. Since fragile skin is an important consideration for both, and we decided that lining the circumferential hand-based thumb-stabilizing orthoses with 1.6 mm (1/16 in.) thick neoprene was desirable.

For Ariel, I made two hand orthoses and I utilized a simple loop fastener that was easy to replace when it wore out. Note the thumb IP extension-blocking hood over the distal phalanx. (Figure 10)

For Nicole, due to her extreme thumb instability, I incorporated more thermoplastic in the design and created a pull-back strap with a hole through one end. (Figure 11 and Video 2) Note the beige neoprene lining seen in the video.

1.6mm thick thermoplastic lined with 1.6mm thick Neoprene

Perhaps the most unusual request from Nicole was to make her, what she called, "Barfy Splints". In case you are unfamiliar with the term "barf" it means to vomit. Another term is "puke". There are often occasions when Nicole has been stuck in cyclic vomiting. Note the frequency of vomiting on one particularly bad day. (Figure 12)



Nicole specifically wanted an orthosis that supported her wrist and digit metacarpophalangeal joints in slight flexion. (Figure 13) Note again the hole in the straps to minimize stress to her fingers when fastening and unfastening the straps.

2019- 2mm thick Orfilight Orthosis Supports MCPs of thumb and fingers. Note: wide wrist strap and holes in straps to facilitate fastening to minimize thumb stress - finger to thumb opposition is possible.

On many occasions she has found that the orthosis provides good support to her wrist when she is hospitalized (which unfortunately is often) and has an IV in her hand. (Figure 14)

Ariel has not found any prefabricated orthoses that help her unstable shoulders. She instead uses KT Tape (Kinesiotape) which helps with proprioception. (Figure 15) She needs someone else to apply the tape. While the tape is very helpful, she needs to alternate different brands to reduce the "tape rash" reaction causes by the adhesive. She also uses an allergy relief nasal spray and takes anti-histamines to help with hives.

Unstable Shoulders - KT Tape (Kinesiotape) - helps with proprioception need someone to do taping - irritates skin with prolonged use.
Pillows - Prefab Shoulder Stabilizing Orthosis - didn't work

Individuals with EDS often spend years searching for answers that account for their symptoms. No two people with EDS are identical. They have different symptoms, different subtypes, and different experiences. Hopefully one day all medical professionals will readily consider that someone might have EDS, thus reducing the time to diagnosis and improving pathways to care.

Since orthoses are a key component of intervention, for long-term/permanent use, it is important to consider that these devices are often visible and the aesthetics really matter. However, helping a client with EDS may well extend beyond providing orthoses for unstable joints.

On the part of the hand therapist, one needs to be creative, open-minded to the unusual requests of a person with EDS, and above all, collaborative throughout the assessment and intervention process to optimize outcomes. Partnership is key. I was challenged to think outside the box. I tried to be accommodating and flexible. I listened, learned and allowed my clients to lead as much as possible. They are in fact the experts about their bodies.

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With contributions from Nicole and Ariel, EDS Experts

IFSHT August 2023

International Federation of Societies for Hand Therapy

www.ifsht.org

IFSHT NEWSLETTER – REACH VOLUME 3, NO. 2

Issue 2 of volume 3 of the IFSHT newsletter is currently in production and will hopefully be available in August 2023.

Please check out the following link to access it: https://ifsht.org/publications/?publications_category=29

The publication aims to collate Research, Education, Achievement and Clinicians in Hand and upper limb therapy around the world.

In the next edition of REACH we will look to the future; consider how knowledge expands and how hand therapist can move with the tide with our continued new section on how to write and publish research and horizon scanning for ongoing research which may affect our practice in the near future. It seems pertinent then that this issue features clinical pearls on the use of 3D printing, a technology that has now become mainstream in recent years.

This issue's Spotlight On! Section will feature the British Association of Hand Therapists, we also continue our new "Volunteer" section and ongoing profiles of recipients of the prestigious IFSHT Lifetime Achievement Awards.

We call on hand and upper limb therapy clinicians and researchers to submit any contributions for consideration to: informationofficer@ifsht.org

UPCOMING EVENTS

It's now over a year now since the last Joint Triennial Congress in London. Now fast approaching is the next Joint Triennial Congress in Washington in 2025.

The website for this event is launched so please follow for updates! https://www.ifssh2025.org/s/

On 6th to 7th October 2023, the British Association of Hand Therapists will hold their annual conference in Bournemouth. Event details at: https://www.eventbrite.co.uk/e/baht-conference-bournemouth-2023-tickets-576111564197

Pearls of Wisdom

Editorial

"Established" Rules or Teachings Are Less Proven than We Realize

Professor Grey Giddins wrote most of the preface of this book. I only added a few more lines in its final paragraph. I am very touched by what Professor Grey Giddins wrote, especially the lines that I quote below. I believe this deserves careful attention from all our colleagues.

'We believe the "established" facts taught to us by our trainers, but also readily take on new treatments where we think they will improve the outcomes for our patients. Sometimes these "established" facts or new treatments are less proven than we realize.' — Grey Giddins

I expand on these important lines with a few examples below; these exemplify how our readers may need to examine their practices from time to time and assess the teachings on which their practices are based. Many therapists and hand surgeons use "10 runs of active flexion exercises in each exercise session" and instruct patients to perform hourly motion exercise after flexor tendon repair. This exercise regimen and frequencies are deeply rooted in therapists' minds and in protocols of many therapy units. Where did the "10 runs" come from? Are the "10 runs" supported by evidence? I recall the "10 runs" stemmed from a paper in 1989, one of the earliest reports of active flexion motion after zone 2 flexor tendon repair, where "two passive and four active movements was repeated every four hours during the day."[1] Was there any evidence in the report of 1989 to support why the authors used 6 runs at that time? No, it was just what the authors did for their patients. The authors could have used 20 or 30 runs at that time instead. I do not know why they used only 6 runs per session. I presume the authors considered early active flexion was a new idea, so fewer runs were safer; 6 was rounded to 10 later.

The 10 runs and hourly motion have dominated the early active motion protocols for the next 30 years in many units; they have been written up widely especially in major textbooks. The importance of increasing the number of runs beyond 10 runs to many more runs (>30 or 40) in each session were later recognized in order to make therapy efficient.[2–4] I found it took surgeons from different institutes considerable effort to make their local therapists or surgeons update the protocol to 30 or 40 runs, instead of 10 runs, because they had been brought up with the teachings of 10 runs, which seems only based on a random decision decades ago. For many people, change is difficult after being taught, especially by respected trainers or recognized authorities on a subject. The hypothetic *better treatments* are often no better than guesses.

There are many other examples. The reported indications for the operative correction of angulation at second to fifth metacarpal necks vary from 20 to 50 . Is the recommendation of 40 of angulation for the fourth metacarpal neck supported by any evidence? No, it is a suggestion or a guess. For any metacarpal neck fracture, if hand function is good, the angulation is not a major consideration for offering surgery. Palmar inclination (dorsal angulation) of the metacarpal neck often does not interfere with hand function, as there is a natural palmar inclination from the metacarpal base to the fingertip that favors hand grip. Another example is internal fixation of scaphoid; compression of the two fractured parts is commonly recommended. However, especially with bone grafting, fixing the scaphoid fracture *without compression* may be equally good, or perhaps improve the healing rate, because little or no compression may favor local nutrition and perfusion. The current teachings of compression in fixating scaphoid fracture may be partly or entirely wrong.

Recently, a colleague talked about his mentor on his fellowship 15 years ago and commented that his mentor did many things differently from traditional teachings usually with improved outcomes. He considered the better outcomes were from this mentor's technical expertise and surgical judgment as well as unique insights into the disorders he treats beyond what is written in the textbooks. Often the chapter authors of textbooks are less experienced or learned than this very senior surgeon. The textbooks almost imply that if a very senior (expert) hand surgeon does many standard procedures, his or her outcomes would be no better than those obtained by a hand surgeon just finishing fellowship. Yet years or

Hand Clin 38 (2022) xiii–xiv
https://doi.org/10.1016/j.hcl.2022.04.006
0749-0712/22/ 2022 Published by Elsevier Inc.

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decades of practice should lead to another level of expertise, and more personalized approaches are developed. Clearly, master surgeons are more or less unique in their clinical or surgical methods.

Our colleagues should really keep an open mind and realize that many "firm" practices are often those earlier colleagues *chose to do*. The textbook authors describe what they have read or were taught and add their own new suggestions. They may fail to clearly label them with "… is a suggestion without strong support of good evidence" or "the current major practice is ….. , but these are only recommendations and not fully proven." Often what is written in textbooks is a presentation of personal methods *without any stipulation of degree of certainty*.

I urge colleagues to find more examples and challenge them! This does not mean we have no respect for the current rules or methods, or no respect for the textbooks, which carry important messages based on the collective work of many authorities, but the contents cannot be entirely proven and may not be correct. Keeping an open mind and seeking to understand where the recommended treatments come from would further improve clinical practice beyond what one learns from books. With a similar approach, you can contribute to validate these current methods or modify them through your studies.

Though the textbook authors do not commonly stipulate given "rules," whether they are suggestions based on limited factual information, thoughts, or proven facts, these books are often the basis for forming examination questions for a range of qualifications. The designed answers are often changed or radicalized with soft recommendations transformed into seemingly undisputable rules in the form of answers. For the colleagues who are open to learning, they may understand the limitations of examination questions, and some would use these as a starting point to change the practices and challenging the dogma. Unfortunately, many others consider these answers as "rules" and stick to them rigidly; others may stick firmly to what they learn early in their training even when they are more senior. These answers in qualification examination only serve as rough guidelines to those who have little experience to judge or design their independent treatment strategies. The qualification examination only ensures no major mistakes will be committed by the young practitioners, but these are often distanced from the best clinical treatments, especially the carefully designed personalized treatment plan and decision making of an experienced practitioner based on more updated frontier knowledge and own experience.

I suggest a statement be added at the beginning of qualification examinations, such as: *The correct answers are based on mainstream recommendations in the country or continent where the test is taken. Some correct answers may lack strong support with evidence or are not proven adequately.* This statement would reflect the nature of test questions and answers and act as a reminder to examiners and examinees to test the answers as rigorously as possible in their own practices. I see many young colleagues do not realize the limitations and nature of these tests. If there was a chance to offer advice as a gift to graduating trainees, this would be it.

In the real world, the level of certainty in clinical recommendation is often insufficiently understood, and dogma dominates the practice of even experienced colleagues. There is a lack of awareness of the weak evidential support of many current practices. However, it is through challenging and changing these seemingly "correct rules" that our profession will advance. The later generation of hand surgeons will readily understand the errors in our current methods and wonder why these were not understood or revised by the previous generation of hand surgeons that is, our generation, similar to how we now think about the practices and people who worked 20 or 30 years ahead of us in this specialty.

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ACKNOWLEDGEMENT: This Editorial is re-published with permission and thanks to the Author, "Hand Clinics" (38 (2022) xiii–xiv), and the publisher Elsevier Inc.

MEDICAL RECORD KEEPING,

Electronic Health Records and Cultivating the Art

Introduction

There is something beautiful about hand surgery which lies in the variation of the delicate layers of macroscopical and microscopical anatomy. In order to appreciate this beautiful art- work it is important to understand the complex anatomy and biomechanics of the hand. For the surgeon to get comfortable and perform an effortless flow of movements like a concert violinist achieving a wonderful result, it is imperative to be familiar with these intricate structures. Different from the concert violinist, however, the surgeon needs to record the journey in some form or shape.

What we know about hand surgery today is a result of medical record keeping by many generations of scientist. Most of our knowledge comes from an era where there was no internet or email communication. Medical record keeping was an artful observational skill that could only be done by pen or typewriter (after its invention in 1874). So was the communication between surgeons: letters and reports were posted. Collaborative research projects were very labour-intensive and time consuming.

During the last 40 odd years the paper files, which were the standard in clinical practices and hospitals, are slowly being replaced by some form of digital medical records, commonly known as electronic health records (EHR)[1,2].

Little did the developer of blockchain, Satoshi Nakamoto in 2008, know that the application of blockchain, targeted for creating a cryptocurrency with an aim to secure it from human intervention, with a secure ledger for each transaction, would become the most appropriate application for EHR, thereby securing each health record entry infinitely. Across the world, legislation to ensure the protection of personal information has put another layer of complexity on the practice of medical professionals.

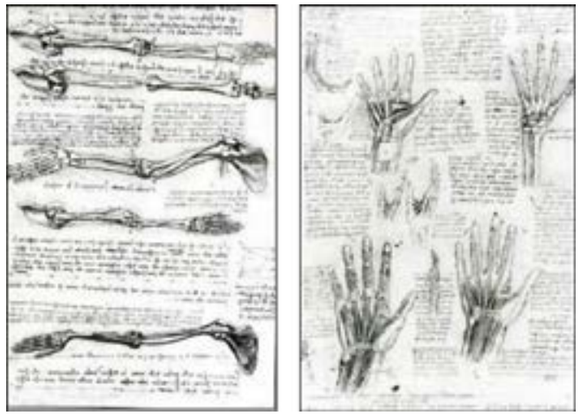
For the generations of medical professionals who stored records in paper files, it means a bigger lock on the door, and for the digital generations, it means encryption, virtual private networks, and the highest level of security together with storage in the cloud. For most of us, clinical health record-keeping is just another painful task whether you are in the private or the public sectors. Much of it has become part of practicing defensive medicine just to keep one on the safe side of the law. Like most things in life, clinical records should be sensical and purposeful in order to achieve the ultimate result of improving the patient outcome. In order to achieve this there should be attention to detail and accurate recording in a truthful way. In this lies an art: Those who embrace the task seriously, will find the art follows unexpectedly.

Historical

There have been a several events that have shaped our practice of medical record keeping. In 1895 Wilhelm Röntgen discovered what we know today as x-rays. Since the early 1900's, this modality has become one of the most important special investigations that form part of our daily practices. This has guided us in clinical management and assisted with the evaluation of outcomes and the monitoring of the bony healing processes. Previously, hard copies of these filled many hospital and practice shelves. The digital storing of radiology images made a dramatic di erence in most of our practices. Having access to patient images on a mobile device was unthinkable twenty years ago, when carrying around packs of x-rays as part of the preparation for a surgical list, was the norm.

We can only record what we know, especially when it comes to the understanding and knowledge of the complex hand surgical anatomy:

There are a few artists, anatomists, and hand surgeons who have equipped us with the gift of anatomical texts. Leonardo Da Vinci (1452-1519) was arguably the most talented engineer, anatomist, and artist, especially his drawings of the hand outlining the proportional size and constants. His drawings of the bony and soft tissue anatomy of the upper limb in the early 1500's have become the first accurate anatomical texts known to man.

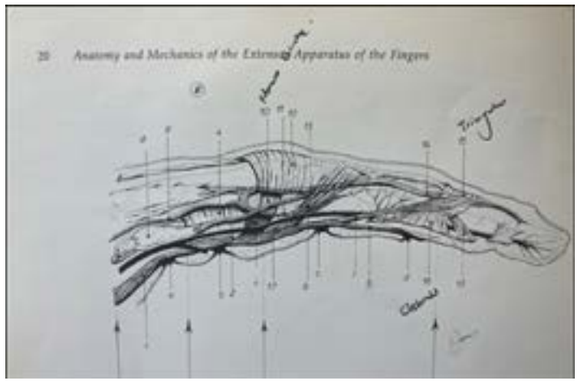


Leonardo's drawings

Then there are the few geniuses in the hand surgery family who have conducted extraordinary cadaver studies with excellent drawings and texts that depict and illustrate the anatomy of the hand for those who aim to gain a deeper knowledge of the anatomy. Frank Netter and Henry Gray have created anatomical atlases that have become the basis of all medical students' training. The detailed anatomy and pathology textbooks and atlases of Eduardo Zancolli have probably formed the foundation of modern-day hand surgery.

Knowing the anatomy better allows us to record findings more accurately, understand the pathology and recognise variations more e ectively. This is why the title of a "hand surgeon" should be earned based on the commitment to understanding the detailed anatomy, pathophysiology, and pathology.

Recording these details opens up true science filled with relevant data as opposed to merely completing a template for a carpal tunnel release.



Eduardo Zancolli drawing of extensor expansion of the finger

During my fellowship under Professor Michael Tonkin in Sydney, I participated in a study on the stability of the CMC joint in pollicisations. I retrospectively reviewed the operative notes of Prof. Tonkin which he dictated immediately after surgery. The amount of detail, with recording of variations, the morphology, the decision-making, and a record of the communications with parents was educational. It was almost as if he had predicted who would have a good or bad outcome and encapsulated the theatre event like a poet. Reviewing the outcomes of these patients, many years later, was a fulfilment of the prophecy recorded by this surgeon.

Purpose of Medical Records

1. The first important consideration of clinical health records is that it serves as a tool for decision-making based on a trend of the recorded events. In the typical public environment, where multiple doctors see a patient, important findings and changes are didactical and necessary in the decision making of management. The most quintessential didactical medical document is the Partogram in Obstetrics which is evidence-based actions based on the hourly progress of the labour process. If a specific line is crossed, action needs to be taken. For many of us who see long-term patients, especially those we treat conservatively, a change in trends guides us to change our treatment plan. In the acute trauma settings, documentation of positive as well as negative findings is essential to guide us in our treatment plan. It is therefore very important for example, to have the radial nerve function documented pre-operatively with a humerus fracture. A nerve fallout post-operatively warrants immediate intervention.
2. The second purpose of medical record keeping is simply for us to remember the important medical and personal information of a patient as it is not humanly possible to remember all the information given. The note on the inflammatory bowel disease history, recorded in the first visitation, might only become relevant later when inflammatory arthritis is considered. Other more irrelevant, yet important information like the number of cats at home, self-admitted high pain thresholds, self-harming scars, or even planned skiing holidays might be very useful in surgical considerations (or post- operatively when there are issues with settling an account!)
3. With any surgical discipline, the informed consent document is a legal contract between the treating surgeon and the patient, parent or guardian in the case of minors. This document is usually set up by a medico-legal expert attorney. It remains the most important medical record that will protect the patient and the surgeon. There must be a recorded process where patients are taken through the alternatives, risks, and even rare post-operative complications or outcomes. This process may become tedious, especially with “routine” surgeries like carpal tunnel releases, so consider having adjunct support in communicating surgery information to patients. Recording in the clinical health records that informed consent was given to and was obtained from the patient (or family), and that patient-specific risks or expectations were discussed, remains the strongest defence in a court of law. I cannot over-recommend this point. Most countries have changed the right to consent to surgical procedures from age 12 years and on. It is therefore advisable to implement age-specific consent documentation. It is also advisable to send a copy of the informed consent to the patient pre-operatively. Unfortunately there is an increase in medical malpractice claims across the world. In order to minimise such malpractice accusations, keeping abreast with available best- practice information by reading peer reviewed articles and attend recognised meetings is strongly recommended. However, as we are all aware, things can go wrong, like for example, the “simple” carpal tunnel release at the end of the list, may end up in an unexpected iatrogenic median nerve injury. The longer one practises, the more aware one becomes of this possibility. The best way of dealing with such possibilities, especially for those early in their careers, is to construct each clinical note as if it were a medico- legal report that an attorney could use in court to defend you. This means you must record important positive and negative findings, record the patient’s words, record your thought patterns as well as important findings from special investigations. Should things however do go wrong, it is best to deal with the issue as soon as possible. Again, record accurately every action and word, and speak to patient/family and never try to hide “the dead body”. A colleague may see this patient some time later. Your clinical records and the medical and nursing notes will be the only evidence to counter-claim what the patient has to say. In summary then, your clinical health records are there to protect you. Be clever and be disciplined.
4. Clinical health records remains the most important source of information for clinical research, whether it is retrospective or prospective. Accurate and honest clinical health record keeping is needed to provide quality information that in sufficient numbers creates the guidelines for best treatment plans and outcomes for patients. This has to become a lifestyle and needs to be standardised in some way to create better research.
5. Finally, in the private fraternity or any public/ private enterprise where surgeons bill for procedures, the clinical condition comprises of diagnostic codes (ICD 10 in most countries)4, surgical codes and management codes which would ultimately become the invoice. It is imperative that each code on the invoice is substantiated in the clinical records, especially when multiple tendons, joints, bones, arteries or nerves are involved. The anatomical structures and surgical procedures should be documented accurately.

> “Often the process of transitioning from paper to an EHR seems so daunting that it can appear to be unachievable. The process is complex...”

Electronic Health Records (EHR)

“Often the process of transitioning from paper to an EHR seems so daunting that it can appear to be unachievable. The process is complex.

However, when the paper-to-digital transition is compartmentalised into manageable tasks, the process is achievable".
Hartley; Journal of Contemporary Management 2010:323

Electronic health records encompass any form of records that are typed and stored on a computer or a mobile device. There is a strong universal drive in all healthcare systems to digitalise all processes. The financial claims of any practice needs to be digital. Submissions to funders globally are all done digitally through di erent submission channels: either via direct integration or through the switching of claims through third parties.

This begs the obvious question as to why EHRs are still not digital as most of the other processes are. Adoption and change of existing ways remain the biggest challenge1,2. Changing a paper practice from twenty years, into a complete digital practice for a specialist that may have fifteen years left, may seem an unnecessary daunting task.

The purpose of digital processes is to structure, simplify and optimise the clinical practice. It may be assumed that many of the older generation surgeons are very comfortable using their mobile smartphones for just about everything, except for their practice management. The burden of change remains the biggest barrier to conversion. The result is a cumbersome mixed and segregated record and administrative system. The EHRs are therefore detached from the billing system. Even those with neat systems of their own may not be fully compliant with the legislation that protects patient information.

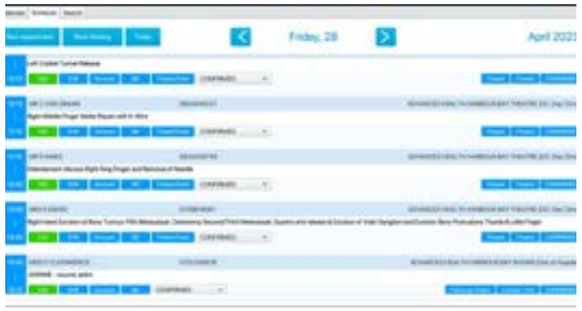
In order to set up a record system, there are essentially three processes that need to be integrated digitally. Different roles are assigned to the doctor and support staff:

1. Firstly, there should be a calendar booking system that becomes the central point of everything we do, whether it is consulting or operating, with the provision of capturing different hospitals and clinics.
2. The second aspect is that the calendar should lead to a clinical event which prompts the electronic health records including the necessary adjuncts of diagnostic coding, allergies, BMI, etc., and even media reports and photos as well as an option for further document creation.
3. Finally, the hardest part is the financial or billing function which should start with the coding used by the surgeon which will create the invoice that gets submitted.

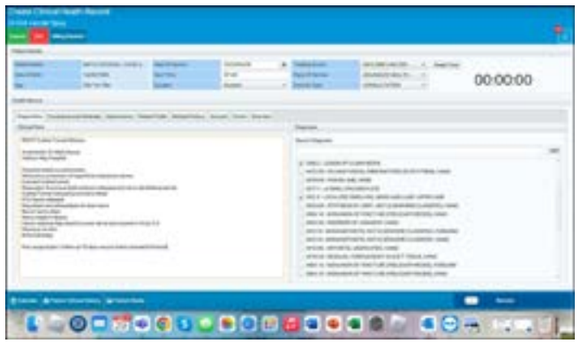
Presently there are many practice management products on the market. However, most are not yet fully integrated, let alone allowing the use of the smart mobile phone which is able to incorporate the above-mentioned functions including retrieval of the EHR and uploading photos and videos. To me access to patient records on a mobile device is probably the greatest game changer in modern medicine.

I am currently in the process of developing a simplified digital integrated software program called "Astrocyte" which uses repeated algorithms as it's blueprint DNA. The idea is to simplify medical practice in order to maximise clinical time. It is structured around the central daily calendar and creates a structure for each day. This then prompts the clinical event or action, ward round, consultation, or surgery.

All three events require a clinical note and diagnostic and treatment codes which would then prompt the billing document which is pre-populated with data re. fee structures, funding providers, contact detail, etc. Dictating notes not only saves time for the surgeon, but tends to be more detailed than hand written notes.



Astrocyte diary vs a pencil diary



Astrocyte notes vs paper notes

Segregation and Collaboration

The biggest challenge in the digitalisation of clinical health records, especially in the public sector, is that data is segregated between hospitals, doctors, and even between departments. In most private settings, the doctors' clinical records remain in a silo and there is no communication between platforms or between specialists or hospital clinical data2.

Consider the anaesthetist who has to do a printout of intra-operative data, take a photo of an ECG, whilst their own documentation, consents, and records are segregated. There are very few cases where there is a structured communication or data-sharing channel between the surgeon and the anaesthetist. In a tiered public system, with clinics, secondary and tertiary hospitals, there are very few countries that have achieved a seamless integration or successful data sharing. Globally these software integrations are now regulated by international standardisations with format control and HL-7 (Health Level 7) regulations and protocols for application with FHIR (Fast Healthcare Interoperability Resources) integrations.

This problem has existed for many years. In 2012 an article from Ilias Maglogliannis4 called for the need of Open-Source Software in modern electronic healthcare systems. Sadly, ten years later, very little has changed in spite of the HL-7 FHIR protocols.
Of note is that ICD-9 has been updated painfully to ICD-10, but most countries have developed di erent procedural coding from CPT (Current Procedural Terminology)[1,5]

The Art of Clinical Record Keeping

Professor Ulrich Mennen, has been inspirational over the years in his unique and artistic record keeping, even in an era where digital cameras were not available. At one of the conferences, he presented some of his career special photographs with an array of clinical notes that supported many of his detailed observations. The wealth of that collection from his years of running a paper practice must be an art piece in itself.

I remember asking Prof Mennen a question about hypertrophic scarring in patients with Dupuytren's Contracture at the beginning of my career. His answer was that he always asks the patient to show him their scars on the rest of their bodies and then documented in bold that they had a conversation about scarring, and he would take them back to that conversation IF needed. Patients more often than not tend to forget what has been discussed. The necessary task becomes a habit, which becomes science, which becomes an art.

For those doctors who are talented at drawing, clinical notes can be supplemented with drawings creating an unique, authentic, and artful medical record. However, even if one does not have a talent at drawing, any sketching is often more telling than "a thousand words"

Mr. Donald Sammut (a plastic surgeon from London, Bath and Pulvertaft Unit) trained himself in the art of drawing and supplemented his medical records with drawings that were significant. For me, drawing the hand and the pathology is the most aspirational form of medical record keeping.

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The art of photography, with the purpose of patient education, injury, pathology recording as well as for teaching purposes, is one of the great advances in our current modern practices. Having the discipline to accurately store images and records is worthwhile, and in turn, collects a beautiful display of the art of hand surgery.

iPhone photo taken demonstrating a large ganglion arising from the Scapholunate ligament.

The Conclusion

On Recording:

Our growth in understanding and skill is a result of respective surgery and reporting. We can do things better with better attention to detail, anatomical reporting, and more artful reporting, especially of our thought processes and decision-making.

This can be supplemented with x-rays, photos, or sketches. When I reflect on the important influences in my life, like Professor Tonkin poetically constructing a theatre note or Mr. Donald Sammut sketching the pathology of a hand, it makes me realise that some achieve a higher level of understanding and that there is an art in science.

Record details immediately after a consultation or surgery: Details drift and information between patients becomes confluent. Dictation saves lots of time: culture the habit early on and encapsulate details as best as possible.

Think of each case as building a medico-legal case, with all the necessary information that would protect you in a court of law.

On Digital:

Digital is here to stay. It is inevitable. The change might be much easier than we think. However, like most things in life, digitalising medical records will need not only more thinking but will require discipline, just as with paper recording.

Use integrated practice management systems instead of segregated applications for electronic health records, billing, and scheduling.

However, if you run a segregated recording practice, digitalise your practice one step at a time. The problem will become simpler and easier, and you will wish that you have done it earlier!

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Member Society

ISRAEL SOCIETY FOR SURGERY OF THE HAND

The joint Israeli-American Societies for Surgery of the Hand Meeting was held in Tel Aviv, Israel, 3-5 May 2023.

The meeting was organized by Jennifer Wolf and Shai Luria. Originally planned by Martin Boyer (ASSH president 2019-2020) and delayed by the Covid pandemic, the meeting included more than 40 guests from the US, Canada, and UK. The sessions included discussion of wrist and elbow pathology, microsurgery, pediatrics wrist and elbow pathology, microsurgery and more.

A special round table discussion was devoted to nerve injuries.

The keynote speaker was Ofer Merin, CEO of the Shaare Zedek Medical Center and head of the Israeli Army field hospital, discussing the humanitarian deployment of the hospital around the world, including a recent trip to earthquake-stricken Turkey.

The conference included a tour of Tel Aviv's very first neighborhood and a chance to exchange thoughts and questions outside the lecture halls, fostering collaboration, opportunities to create new personal connections, and further strengthening the ties between the two societies.

Israeli and American surgeons participating in the nerve injury round table

Martin Boyer at the joint meeting

150 surgeons and therapists participated in the joint Israeli-American Societies for Surgery of the Hand Meeting

From left to right – Shai Luria, Jennifer Wolf and Uri Farkash

Faculty dinner at the old Tel Aviv train station

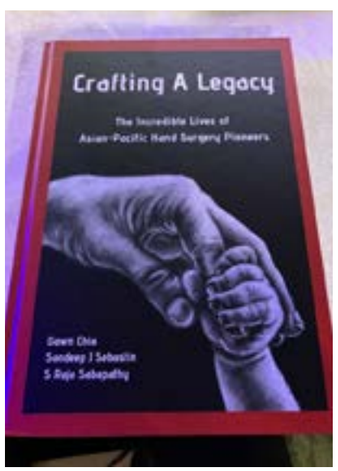
Admiring the Bauhaus architecture of Tel Aviv

JAPANESE SOCIETY FOR SURGERY OF THE HAND (JSSH)

In June 2023, over 40 JSSH members including JSSH President, Dr. Norimasa Iwasaki, APFSSH President Elect, Dr. Fuminori Kanaya, and APFSSH National Delegate of JSSH, Dr. Toshiyasu Nakamura, participated in the 13th APFSSH, 9th APFSHT, and 8th APWA Congress held in Singapore.

Photo of JSSH members in front of the conference signboard.

As a memorial event of this meeting, autobiographies of IFSSH Pioneers of Hand Surgery, including seventeen Japanese pioneers selected by the APFSSH, were put together as a commemorative book, "Crafting a Legacy," and a ceremony to celebrate the publication was held at the Congress.



"Crafting A Legacy" - A book collating autobiographies of the pioneers.

Dr. Kazuteru Doi on the stage as Pioneer of Hand Surgery.

Dr. Norimasa Iwasaki on stage as a speaker.

Dr. Yukio Abe on the stage as a speaker.

Dr. Fuminori Kanaya while chairing the Tajima Lecture.

Dr. Toshiyasu Nakamura on stage as a speaker.

Dr. Hitoshi Hirata on stage as a speaker.

During the ceremony, the achievements of the APFSSH pioneers were introduced to all participants. Unfortunately, only one JSSH member, Dr. Kazuteru Doi, renowned for his work of BPI reconstruction, attended the event.

Many JSSH members were selected for the scientific lecture sessions. At APWA, Dr. Yukio Abe gave a lecture on the PART method for distal radius fractures which he developed himself, and Dr. Toshiyasu Nakamura lectured on TFCC injuries and also chaired the session. At the APFSSH, Dr. Norimasa Iwasaki gave a lecture on the latest findings on Kienbock's disease.

Dr. Fuminori Kanaya chaired the Tajima Lecture session. The lecture was named after Dr. Tajima Tatsuya, one of the most famous Japanese hand surgeon, who had contributed to the development of the APFSSH for many years. Former JSSH President Dr. Hitoshi Hirata also gave a lecture about the relationship between brain mapping and hand function.

Group photo taken at the JSSH members' reception.

Flower Garden

After a harmonica performance by Dr. PC Ho of HKSSH.

Photo with TSSH members who participated in the 66th JSSH annual congress during their travelling fellowship.

After the first day of the meeting, a reception was held by JSSH in which 31 JSSH members including both young and legendary surgeons participated. In the evening of the third day, the congress dinner was held at the Flower Garden, where many JSSH members attended and enjoyed the company of other hand surgeons from the Asian-Pacific region.

In 2029, JSSH will be the host Society of APFSSH. We are planning various scientific and instruction lectures together with a few cultural events to satisfy the intellectual and cultural curiosity of our guests. We look forward to seeing many of you in 2029 in Japan.

DR. SATOSHI ICHIHARA
Vice IFSSH delegate of JSSH
Associate Professor of Juntendo University

PERUVIAN ASSOCIATION OF HAND SURGERY AND MICROSURGERY (APCMM)

APCMM
ASOCIACIÓN PERUANA DE CIRUGÍA DE MANO Y MICROCIRUGÍA

The South American Society of Hand Surgery and Microsurgery was founded on 9 December 1965 in Lima, Peru. Ever since, many surgeons interested in this subspecialty have taken care of thousands of patients in our country and overseas.

Founding of the South American Society of Hand Surgery on 9 December 1965 in Lima, Peru. The Founding Members were: Teodoro Henry Ayala (Colombia), Eugenio Elizalde (Peru), Carlos A. N. Firpo (Argentina), Enrique Jenkin (Chile), Edgard Kamel (Venezuela) and Eduardo Zancolli (Argentina)

Among the foremost surgeons involved in the growth and expansion of hand surgery in our country were doctors Juan José Rodríguez Lazo, Beatriz Barletti Tejada, Joel Garay Espinoza, Franklin Seminario, José Ladines Ropjas, Alberto Figueroa Gutarra, Alfredo Torres, Elsa Castro. Along with other surgeons they taught and applied their knowledge in their respective institutions. These health professionals motivated new generations of surgeons.

Dr. Franklin Seminario.

Dr. Joel Garay.

Dr. José Ladines.

Top Row: Dr. Alfredo Torres, Dra. Blanca Castillo, Dr. Alberto Figueros
Bottom Row: Dra. Elsa Castro, Dr. Juan José Rodríguez, Dra. Beatriz Barletti

A worldwide interest in hand surgery led to a steady increase in the numbers of specialists, also in Peru. In our country a few attempts were made to establish an organization dedicated to this area.

After significant effort the Peruvian Association of Hand Surgery and Microsurgery was established on 13 November 2014. This was made possible thanks to the dedication and leadership of Dr. Alberto Figueroa and Dr. Mirko Tello.

At the present time, our association has 32 active members, and 29 honorary members. Three elected Boards of Directors have served so far. Each one had distinct views for our young Association, but all shared the common goal of guiding new generations of hand surgeons.

Newly Associated Young Surgeons

SCIENTIFIC HISTORY:

1965 – The South American Society of Hand Surgery is founded on 9 December in Lima, Peru
1978 – First upper limb replantation. Hospital Nacional Guillermo Almenara Irigoyen. Dr. Juan José Rodríguez Lazo
1982 – First hand replantation. Hospital Nacional Guillermo Almenara Irigoyen. Plastic Surgery Service. Dr. Franklin Seminario and Dr. Manuel Paredes
1986 – First finger replantation. Hospital Nacional Guillermo Almenara Irigoyen. Hand Surgery Service
1985 – In the Hospital Nacional Guillermo Almenara Irigoyen the Hand Surgery and Microsurgery Service is established
2005 – The Hand Surgery sub specialization program (fellowship) is created by the Universidad Nacional Mayor de San Marcos, the Hospital Nacional Guillermo Almenara,

ACADEMIC EVENTS:

2015 – 15 March.
1st International Course and Workshop of Hand Surgery and Upper Limb Microsurgery. Professors: Dr Pablo De Carli, Dr. Mario Rodríguez Sanmartino (Argentina), Dr. Fernando Andrade (Chile).

2015 – 12 September.
1st. International Session "Brachial Plexus Update". Professor: Dr. Jorge Clifton (Mexico)

2017 – 25 May.
2nd International Course of Hand Surgery and Microsurgery. Professors: Dr Pedro Delgado (Spain) and Dr. Jeffrey Yao (USA)

2022 – 10 October.
National Congress of Hand Surgery. With 17 international professors from Argentina, Spain, Colombia, Brazil, Ecuador, Venezuela, Costa Rica and Guatemala

Dr. Bruno Piegtrapiana and Dr. Mirko Tello

INSTITUTIONAL HISTORY

Founded on 9 December 2014.
Admitted to the IFSSH on 4 July 2021.
1st Board of Directors: Dr. Alberto Figueroa (President), Dra. Blanca Castillo, Dr. Jorge Danz, Dra. Adriana Rengifo, Dr. Rolando Quispe.
2nd Board of Directors: Dr. Mirko Tello (President), Dr. Bruno Pietrapiana, Dra. Mariana Pendavis, Dra. Lilian Loayza, Dr. Cesar Reinaga.

3rd Board of Directors Dr. Bruno Pietrapiana (President), Dra. Blanca Castillo, Dr. Álvaro Mena, Dr. Julio Echevarría, Dra. Mariana Pendavis

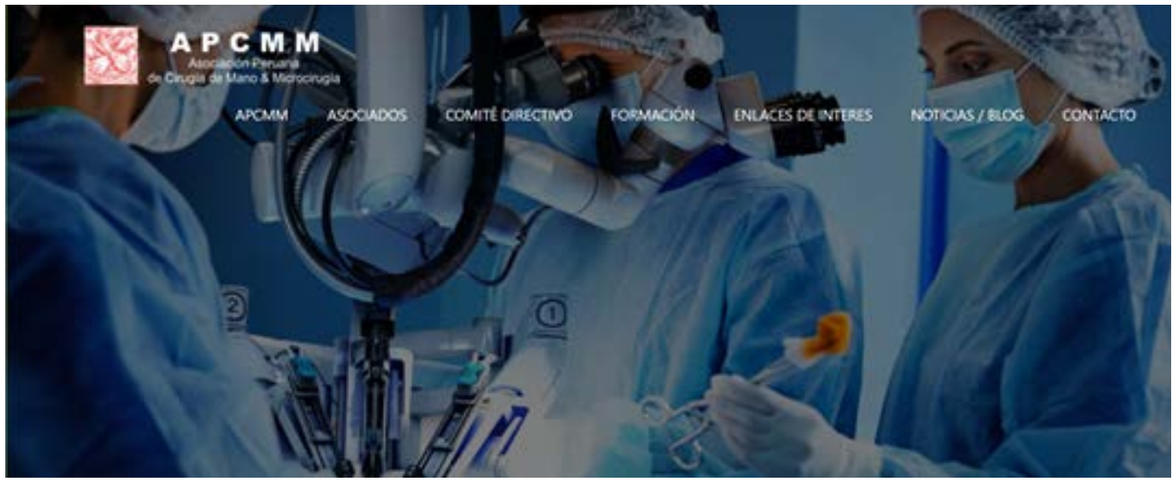
OUR SYMBOL: THE CROSSED HANDS OF KOTOSH

Kotosh is an archeological site located in Huanuco, in Central Peru. The temple of the Crossed Hands is a building in the compound. It dates back to 1800 BC. Kotosh was an important link and landmark in Peruvian civilizations.

Our symbol expresses our raison d'etre and carries part of our history. We are humble heirs of the struggles of our teachers and their labors for our patient's wellbeing and health.

The crossed hands of Kotosh portray clearly the central object of our specialty. Our symbol is easily recognizable and yet so simple. It carries historical significance and reminds us of our forebearers. It pays homage to great teachers and friends who earned our loyalty and admiration. We feel obliged to follow in their footsteps and to search for new solutions for our patients.

Web Page: Apcmm.org

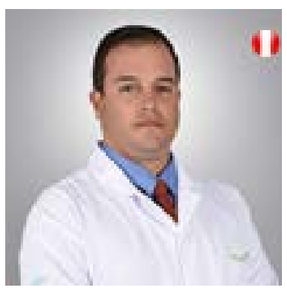


Current Peruvian board of directors

Dr Bruno Pietrapiana

Dra. Blanca Castillo G.

Dr. Julio Echevarria



Dr. Alvaro Mena R

Dra. Mariana Pendaivis

AUSTRALIAN HAND SURGERY SOCIETY

Leadership

Since its inception as the Australian Hand Club in 1972, the Australian Hand Surgery Society has had many leaders of international stature. In this report, we celebrate the career of one of these surgeons.

Professor Michael Tonkin, a Past-President and Pioneer of the IFSSH, has been recognised by the broader Australian community with the award of membership of the Order of Australia recently. Member of the Order of Australia is an honour that recognises service to a particular community.

Professor Tonkin was recognised for his service to medicine as a hand surgeon and for his contributions to numerous professional associations in the field of hand surgery.

Professor Tonkin has recently retired from clinical practice. In addition to his impact on the lives of his patients, he has left a significant legacy both in Australia and on the international stage.

In Australia, Professor Tonkin was the recipient of the first full chair of hand surgery in the country. He created a hand surgery fellowship programme at the Royal North Shore Hospital in Sydney and was responsible for the training of over 90 international and 70 Australian surgeons.

He also codified the national hand surgery training programme through the development of the Post-Fellowship Education and Training programme in hand surgery, administered by the Australian Hand Surgery Society and recognised by the Royal Australasian College of Surgeons as its formal hand surgery qualification. Professor Tonkin also served as the President of the Australian Hand Surgery Society.

Internationally, Professor Tonkin promoted hand surgery through his leadership of both the Asian-Pacific Federation of Societies for Surgery of the Hand and the IFSSH, and his editorship of the Asian-Pacific and European Hand Surgery Journals.

He has been a leader most notably in the fields of peripheral nerve surgery, the treatment of upper limb cerebral palsy and congenital hand surgery, and has published widely and been an invited guest lecturer at many international meetings. He is perhaps most widely known now as one of the creators of the 'Oberg-Manske-Tonkin Classification' for congenital hand differences. He was made an IFSSH Pioneer of Hand Surgery in London in 2022.

DAVID MCCOMBE
President, Australian Hand Surgery Society

RICHARD LAWSON
Department of Hand Surgery and Peripheral Nerve Surgery, Royal North Shore Hospital

THE BRAZILIAN SOCIETY OF HAND SURGERY (SBCM)

The Brazilian Amazon region has an approximate size of 5,217,423 square kilometers, constituting 61% of the Brazilian territory and being formed by 9 of the 27 states of the Federation. Around 38 million people live there, distributed in 775 municipalities, which is about 13% of the Brazilian total population. Its social reality is characterized by a low-income, low-education population living in poor conditions of basic sanitation, and being fully dependent on a deficient public health system, which is further complicated by the geographical characteristics of the Amazon rainforest.

The sum of these factors results in the lowest Municipal Human Development Index (HDI-M) in the whole country, the highest social vulnerability index, and some of the worst infrastructure and public service supply indexes. A survey carried out by SBCM found that only 27 (less than 3%) specialists in Hand Surgery reside and work in the entire Amazon region, a proportion of 1:1,407,407 inhabitants. The vast majority of surgeons concentrate their activities in the capitals, leaving the inland cities unattended.

SBCM, aware of the precariousness of specialized care services for hand and upper limb diseases and injuries in the Amazon region, decided to support strategic actions to bring about transformations to this disturbing reality. The project for medical residency in Hand Surgery, a public-private initiative, prepared by the University of the State of Pará jointly with the Hospital Mater Dei/Porto Dias, was approved and its activities started in 2015 in the city of Belém, State of Pará, the second largest state in the Amazon. The first specialists completed their programs in 2017 and, to date, six young hand surgeons have been certified, who have been working hard to improve the quality of hand surgery in the Amazon region. However, despite the implementation of this program, much still has to be done to take specialised surgical care to the most distant locations in this complex region.

The situation became even more critical with the emergence of the pandemic, which redirected health system priorities towards the fight against Covid, leading to the suspension of elective surgical procedures for a long period of time. SBCM, concerned about the worsening situation and the growing demand for specialized care, decided to carry out a humanitarian mission to surgically correct hands and upper limbs congenital deformities. A commission was constituted with SBCM members from several Brazilian states and with the help of a guest from the Mexican Society of Hand Surgery, who joined the local hand surgeons. Personal funds were augmented by some private companies to cover the costs of travel, accommodation, and food for the surgical team.

SBCM donated several sets of precision surgical instruments to Hospital da Santa Casa de Misericórdia do Pará, where the surgeries were performed. The Government of the State of Pará provided us with all the infrastructure and hospital facilities for this mission. The patients were evaluated by the SBCM team with the help of local surgeons, anesthesiologists, pediatricians, cardiologists, nurses, hand surgeons, orthopedics and anesthesia resident physicians,

as well as the support by the administrative staff. Fifty-five surgical procedures were performed in two days in November 2021.

We consider the results of the mission to be very positive due to a high degree of satisfaction by the local community, patients and their families, as well as by all the health professionals involved. The success of the mission sensitised the authorities of the State Department of Public Health of the State of Pará, who developed a public service for the surgical care and rehabilitation of congenital hand deformities, which started its activities in August 2022 and is currently in full activity, with outpatient care, surgery and rehabilitation at the Integrated Center for Inclusion and Rehabilitation (CIIR) and Hospital Abelardo Santos.

This mission was very emotional and left an unanimous feeling of joy among the participants as a gesture of love and compassion dedicated to mitigating the social, psychological, and functional effects of the disabilities on the patients and, above all, transforming their future lives.

Furthermore, the mission allowed the surgeons to exchange their experiences and get to know alternative approaches and ideas for each congenital deficiency. It provided an atmosphere of friendship and closeness among the members of the SBCM and generated an intense learning moment for the residents.

Still determined to bring forth an effective transformation in the future of patients with hand trauma and diseases of the inhabitants of this deficient area of the country, SBCM decided to hold, for the first time in the Amazon region, the 45th Brazilian Congress of Surgery of the Hand, in the city of Belém, state of Pará, in 2025.

We invite the members of the International Federation to participate and contribute to SBCM's projects to improve the quality of life of the Amazonians' hands, as well as to spread our specialty in one of the most remote and exotic regions of our planet and, why not, take the opportunity to visit the wonders of our Amazonia.

THE ASSOCIATION OF CHINESE-SPEAKING HAND SURGEONS UNITED

The 9th annual Jixia Hand Surgery Forum was held in Taizhou, Zhejiang on 9 June 2023. This Forum was attended by about 300 on-site attendees and 6400 online attendees. This popular forum has attracted more than 6000 attendees each year since 2000.

The on-site conference room served as an online-stream hub for the presenters and questions/answer sessions. As always, the discussions are a key part of this forum. The major topics for this year were spastic hands, digital reconstructions, nerve entrapment, soft tissue coverage and hand fractures.

Presenstation and discussion

Discussion among two senior colleagues as classmates

Online streaming

These discussions attracted colleagues from around mainland China, Taiwan and overseas Chinese-speaking hand surgeons. Conference registration was free and questions were posted online. The recorded sessions can be viewed after conferences.

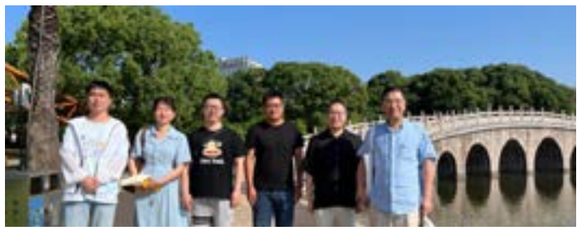
This forum becomes a major event of hand surgery education in China, attracting thousands of participants each time. The topics are different each year, but all major topics are covered in 3-4 year cycles.

Four major hand surgery institutes—Beijing Jishuitan Hospital, Nantong University Hospital, Shandong Provincial Hospital and Tianjin Hospital—are the main institutes to initiate and organize the forums. This year, Enzhe Hospital in Taizhou also joined in as an organiser.

One set rule in these forums, which was introduced 9 years ago, has been that nobody is addressed as "professor" , "mentor" or teacher. Only "classmate" is allowed! This creates a very relaxed atmosphere for any junior colleagues to question even the most reputed professors.

JIN BO TANG

Attended by 6400 online attendess with online posts of questions to speakers



Enjoying moments outside the Forum in Taizhou

THE SPANISH SOCIETY FOR SURGERY OF THE HAND (SECMA)

The 26th National Congress of the Spanish Society for Surgery of the Hand (SECMA) took place in Granada on 19-21 April 2023, becoming a significant milestone for hand surgery in Spain. The Congress brought together 415 surgeons from across the country to share experiences and discuss the latest scientific advancements in hand surgery. This event stands out as one of the largest congresses in the society's history, providing a platform for scientific exchange and social activities that accompanied it. It was a valuable opportunity for training residents and young surgeons who participated in four workshops: ultrasound, microsurgery, arthroscopy, and nerve surgery. Despite the challenging economic times, the pharmaceutical industry showed its support by sponsoring the congress.

New Board of Directors Elected at the Congress
During the congress, the SECMA also witnessed the renewal of its board of directors. The outgoing board was recognized for their dedicated service, with special appreciation extended to the outgoing president.
In his farewell address, the president highlighted the achievements made during his two-year tenure, including the modification of congress regulations, the successful accreditation of the Spanish Diploma in Hand Surgery, the establishment of a wrist prosthesis registry for society members, the enhancement of social media presence, and improved communication. The primary objective of involving all members in the society's activities was also accomplished.

The newly elected SECMA board, led by President Dr. Pedro J. Delgado and Vice President Dr. Roberto Rosales, was officially presented during the 26th National Congress. This renewed board focuses on four key pillars—education, communication, accreditation, and leadership—to foster society's growth and advance the hand surgery field.

The Spanish Society continues to grow, surpassing 500 members and becoming one of Europe's largest Hand Surgery Societies.

The 27th SECMA Congress
The upcoming 27th Congress is scheduled to take place in Sitges, with Dr. Joaquim Casañas serving as its President from 24-26 April 2024.

Selection of the Venue for the 28th SECMA Congress
Additionally, the venue for the 28th SECMA Congress, which will take place in 2025, was announced during the congress. The city of Palma de Mallorca, proposed jointly by Dr. Guillem Salvà and the British Society for Surgery of the Hand (BSSH), represented by Dr. Heras-Palau, who will assume the presidency of the BSSH in 2025, was selected as the host.

This important upcoming event will promote international collaboration, facilitating the exchange of knowledge and experiences among professionals from both societies.

Xth Institutional SECMA course in methodology of clinical research and data analysis in Hand Surgery
SECMA offers a day course in clinical research methodology and data analysis annually. Dr. Francisco Martinez organized the last course in Murcia on 7 July 2023, and Dr. Roberto Sanchez-Rosales was the professor. The course focused on clinical design, evidence level, patient-reported outcome instruments, and data analysis using SPSS and Excel Statistics. This year, 25 students attended and made the most of the subjects taught in the course.

XVth Institutional SECMA Course
32 students from all around Spain will join SECMA's 2-day course at Francisco de Vitoria University on 14-15 December 2023, led by Dr. Francisco Martinez and Dr. Fernando Corella. The course will cover hand and wrist pathology through a practical and theoretical approach, with lectures and cadaver practice sessions (16 spots at the cadaver lab). This course is ideal for aspiring plastic surgeons and orthopedists looking to expand their knowledge in the field

ARGENTINE ASSOCIATION OF HAND SURGERY (AACM – "ASOCIACIÓN ARGENTINA DE CIRUGÍA DE LA MANO")

The Argentine Association of Hand Surgery (AACM) is having a year of intense academic activity and continuing medical education.
The new Executive Committee 2022-2023 led by President, Dr. Diego Garat, General Secretary, Dr. Guillermo Maujo, Financial Secretary, Dr. Gustavo Gómez, and the other members of it, established a workgroup with the purpose of performing several activities of medical education for its associates and members of different Latin American Societies.

Academic activity and continuing medical education.
Three practical courses on animal models were held in March, April and May on fundamental surgical practice resources: Z-plasty and local flaps, Flexor Tendon Repair and Peripheral Nerve Repair. Successful courses were repeated every year since 2021.

Two virtual clinical athenaeums were held in March and May (available on YouTube (https://www.youtube.com/@asociacionargentinadecirug6154) and three Interviews with Experts (available on YouTube too). A Regional Scientific Conference in Catamarca in April with the participation of doctors and rehabilitators from the whole country.

In June, the AACM carried out the 49th Updating Course on Hand and Upper Extremity Surgery. “The Thumb from A to Z” in Rosario, city of Santa Fe Province, with renowned specialists of our field. This course welcomed 230 attendees and is one of the Association's traditional annual events.

The day before this course took place a Simulation Workshop on basic arthroscopy and wrist arthroscopy techniques was held.

Finally, 27-29 September 2023, at the Sheraton Hotel in the Province of Mendoza, the **47th Argentinean Congress of Hand and Upper Limb Reconstructive Surgery and the Cngress of the Hand Therapy Chapter** will be hosted by President Dr. Gerardo Gallucci and Secretary Agustin Donndorff. Special guests will include Dr. Francisco Melibosky, Rene Jorquera, Felipe Saxton, Pelayo Arrieta and more Chilenean collegues and also experts from Colombia and Argentina as always.

Other 2023 Scheduled Events.

In August a **Regional Scientific Conference** in Comodoro Rivadavia, with the participation of doctors and rehabilitators, is planned. Discussion of problem cases to be presented by AACM members and guests. A new edition of the **Advanced Course in Experimental Microsurgery** will be held.

In September the last **Interview with Expert** will be available on YouTube.

See you in Mendoza! https://www.aacm.com.ar/cursos/congreso202

IFSSH Sponsorships

2023 World Symposium on Congenital Malformations of the Hand and Upper Limb

Minneapolis, Minnesota, USA May 17-20, 2023

COLLEGIALITY, LEARNING, AND SCIENTIFIC ADVANCES

The World Symposium on Congenital Malformations of the Hand and Upper Limb was a remarkable meeting. Delayed two years by the COVID pandemic (it has been 5 years since the 2018 Hong Kong meeting), the triannual meeting drew enormous interest and nearly 300 attendees. The Surgeons, Physicians, Residents/ Fellows, Hand Therapists, and Researchers came from 6 continents and 36 countries. The meeting was hosted in Minneapolis, Minnesota given its ease for travel, broad cultural institutions, and nice May weather. The meeting was a culmination of much work over the last 5 years from the organizers, the program chairs, and the American Society for Surgery of the Hand (ASSH). The meeting organizers- Ann E. Van Heest, MD, Michelle A. James, MD, and Charles A. Goldfarb, MD- together with the program chairs- Lindley B. Wall, MD, Deborah C. Bohn, MD, and Mary Claire Manske, MD - created a packed 4- day symposium.

The International Federation of Societies for Surgery of the Hand (IFSSH), American Society for Surgery of the Hand (ASSH), and Pediatric Hand Study Group (PHSG) each funded scholarships to allow 11 surgeons from middle to low-income countries to attend the symposium.

It was amazing to have these special guests to share in the learning experience. These recipients attended all educational sessions and social events, allowing an interchange of ideas with all attendees on scientific updates covering limb development, pathogenesis, and care in 2023.

Welcome given by Ann E. Van Heest, MD, Charles A. Goldfarb, MD, Michelle A. James, MD, Lindley B. Wall, MD and Deborah C. Bohn, MD.

There were 4 busy days of learning opportunities. The first day included 4 precourses. The first, an update on the Basic Science of Limb Formation, was led by Kerby C. Oberg, MD, PhD and included a number of fantastic speakers sharing impactful research including the latest in bench to bedside information. The second precourse was designed for Occupational Therapists and led by Amy Lake, OTR/L, CHT, Katherine Dalton, BOT Hon I, MHSM, AHT (AHTA) and Silvia Minoia, BPT, MHandTherapy. They created an amazing experience with rave reviews from all who attended. Precourse 3, led by Ann E. Van Heest, MD, Deborah C. Bohn, MD, and Lindley B. Wall, MD was hosted at Gillette Children's Hospital with a practical discussion on the management of Cerebral Palsy and included direct patient interactions on the most up to date management in 2023.

And finally, precourse 4 was led by Michelle A. James, MD, Mary Claire Manske, MD, and Charles A. Goldfarb, MD and explored the current state of Patient- Rated Outcome Measures and the status of various congenital registries across the world. The attendees gained new perspectives on how clinical research progress and the increasing role of registries and increasing collaboration.

PRE01: Basic Science Update: Upper Limb Development and Disorders – A Surgeon-Scientist Workshop.

Amy Lake, OTR/L, CHT and the PRE02: Pediatric Hand Therapy: Treating the Whole Child attendees.

PRE02: Pediatric Hand Therapy: Treating the Whole Child faculty.

Attendees of PRE04: Outcomes and Registries for Hand and Upper Limb Differences.

The 8 keynote speakers were the highlight of the meeting. Each speaker shared their experience and/ or research on a variety of issues pertinent to the care of those with birth differences of the upper extremity. Marybeth Ezaki, MD kicked off the main meeting by sharing a history of the field of congenital hand surgery and Kerby C. Oberg, MD, PhD followed with the latest updates on limb formation with a focus on pathogenesis of common anomalies. Building on the impact of basic science progress, Professeur Guillaume Canaud, who traveled from France, shared his remarkable role in the development of the newly FDA approved medication, Alpelisib, for PROS (PIK3CA related overgrowth syndromes). Dr Michelle Griffin - MBChB MSc MRes MRCS PhD shared laboratory insights on the role of mechanics in skin wound repair and fibrosis; this line of research carries optimism for an eventual ability to control the scarring process. Paul J. Orchard, MD provided a deep- dive on metabolic disorders, Sarah Tuberty, OTD, OTR/L gave us new insights into ableism (stereotypes/ practices that discriminate against and devalue people with disabilities) and participated in an ableism panel with Michelle A. James, MD and Lindsey McCracken (an adult with congenital limb difference). Lastly, Terry R.

Light, MD shared a career's worth of experience in the Legacy Lecture.

The podium presentations were organized around the OMT Classification and included submitted research presentations, debates, and panel discussions. The sharing of research progress in every OMT domain with perspective added from the panel discussion was remarkable and all attendees gained new perspectives on patient care.

The learning opportunities were plentiful and were only surpassed by the social engagement. The opportunity to develop international relationships with new friends and reconnect with old ones at a variety of different events including the welcome reception and an evening on the Mississippi on a paddleboat tour was priceless. Every meal and coffee break allowed further discussions on our many practice and societal similarities and differences. We have missed these connections and the 2023 World Congenital Symposium provided a perfect opportunity for re-connection.

Side meetings were frequent including this one to discuss the OMT Classification.
Back row: Lindley B. Wall, MD, Charles A. Goldfarb, MD, David B. McCombe, MBBS, MD, FRACS
Front row: Wiebke Hülsemann and Wee Leon Lam, MB, ChB, MPhil, FRCS, Dip Hand Surgery

We are grateful for all the faculty and attendees who engaged so thoughtfully and created a wonderful meeting. Importantly, after discussion and an official vote, we have renamed the conference the World Congenital Symposium on Upper Limb Differences. We all look forward to the next meeting in 2026 in Coimbatore, India, hosted by S. Raja Sabapathy, MS, MCh, DNB, FRCS.

Charles A. Goldfarb, MD
Ann E. Van Heest, MD
Michelle A. James, MD

2023 WORLD SYMPOSIUM ON CONGENITAL MALFORMATIONS OF THE HAND AND UPPER LIMB

Dr Ashraf Islam, Bangladesh: IFSSH supported registrant

I would like to thank the IFSSH and ASSH executives for the scholarship to attend the 2023 World Symposium. It was a very wonderful experience for me to attend such a high-class meeting in the beautiful city of Minneapolis as well as the Cerebral Palsy pre-course, and to know the legends of congenital hand and their expertise. It is a good memory and inspiring to have met these unique teachers: Jim House, Terry Light, Ann E. Van Heest, Deborah C. Bohn, Michelle James, and others.

Meeting Dr. James House (left) and Drs. Deborah Bohn, Charles Goldfarb and Ann Van Heest (right)

Thanks, Marybeth Ezaki, Mam, for your wonderful lecture on history of surgery of congenital hand anomalies and for editing the 3rd edition of "Care of Congenital Hand Anomalies" book along with Michelle James and others.

With Dr. Marybeth Ezaki

The CP pre-course in Gillete Children's was unique. I learned the role of EMG in evaluating CP patients, that all the wrist flexions are not the same and need different treatment options, and results of Green Transfer are inconsistent. Thanks Ann, Mam, for good cases and excellent discussion.

Thanks, Dr. Kerby C. Oberg, Sir, for fantastic lectures on Classification and Limb development (Regulation of axis-specific signaling molecules) which were elaborative and mind blowing. I met Terry Light who inspired me about congenital hands during his visit to Bangladesh in 2016 - thanks Sir for the legacy lecture.

Discussions with Dr. Terry Light (left) who has inspired my career, and Dr Douglas Hutchinson (right) who provided great insight in the CP pre-course

I came to know that hyaluronic acid skin graft substitute is a good option for syndactyly separation in scar comparison and taking abdominal skin gives good colour cosmesis. Dorsal metacarpal V-Y island advancement flap and graftless technique are also viable option for syndactyly separation. I met Dr. Abdul Ghani Hashim who advised me to use the dorsal rotation advancement flap to take more distally (distal P1) for the first web coverage in syndromic Apert Hand.

Regulation and rotational deformities are common in complex syndactyly (40-60%) which need pre-op counselling. Conservative or no treatment could be the policy in symbrachydactyly cases (in over 60%).

I saw rare cases of symbrachydactyly in the meeting. Thanks, Lindley Wall et al. (university orthopedics) for presenting such a big series of symbrachydactyly. The discussion of the CoULD database (2014-22) of 3500 patients with a high level of unclassified cases was very enjoyable.

Non-vascularized toe phalanx transfer is an acceptable surgical option for short and hypoplastic digits in congenital hand anomalies as taught by Hidehiko Kawabata of Japan. Serolimus was found to be effective in the treatment of isolated limb overgrowth - this was new to me. Malignant transformation in multiple hereditary exostosis is high (5-25%) which should be a concern for us. Guillaume Canaud's presentation on targeted therapy in PIK3CA-related overgrowth syndrome (PROS) was very elaborate and excellent. The use of Alpelisib with PROS was also appealing.

I came to know the association of small finger syndactyly and bilateral border digits involvement (Eugene-Zheng et al.) with Timothy syndrome. Ulnar polydactyly also has syndromic association (CoULD, Boston Children's Hospital). Pediatric trigger fingers are clinically distinct from pediatric trigger thumb and adult trigger thumb.

The modified reverse Sauve Kapandji technique for superior radioulnar synostosis was new to me and was good.

I was excited to learn that the next World Congenital Symposium will be in Coimbatore, India in 2026 - congratulations to Dr. Raja Sabapathy and his team.

I previously did a fellowship at Ganga Hospital with Dr. Sabapathy and also had the good opportunity in Minneapolis to meet with Dr. Katleen Libberecht (Sweden) who was another Ganga fellow.

With Dr. Raja Sabapathy (left) and Dr. Katleen Libberecht (right) - Katleen and I were Ganga fellows under Dr Sabapathy

Thank you again to all for helping to disseminate the knowledge of congenital hand differences all over the globe.

Ashraf Islam
Dhaka, Bangladesh

SEEING CONGENITAL HAND DIFFERENCES THROUGH A GLOBALX LENS

Nathaniel Orillaza Jr., MD - The Philippines

The 2023 World Symposium of Congenital Malformations of the Hand and Upper Limb (WCS 2023) was a much-anticipated global gathering, that brought together leading clinicians, scientists, trainees, and other healthcare professionals with special interest in congenital hand differences.

I had the pleasure and privilege of attending the conference in-person in the beautiful city of Minneapolis, through the support of IFSSH. The program included a diverse range of topics that catered to every level of interest and involvement in congenital upper limb conditions. The conference also highlighted interdisciplinary collaboration, and patient empowerment across different cultural backgrounds.

Pre-Course
Parallel pre-course workshops offered more specific topics and some with hands-on learning, allowing participants to explore evolving issues like patient outcomes and emerging strategies and technologies. I attended the course on Outcomes and Registries for Hand and Upper Limb Differences.
The talks and discussions provided more intimate interactions with world experts, a rare opportunity even in the usual global hand meetings.

Welcome Reception
This was followed by a reception in the beautiful home of Dr. Ann Van Heest. The bus rides to and from gave me time to meet other international scholars and faculty. Being at a social event with the greats of congenital hand was a truly awesome experience and gave me the opportunity to personally meet and chat with names I only knew from reading and citing their work.

International scholars and delegate with our reception host, Dr. Ann Van Heest, Dr. Komla Sena Amouzou (Togo) Dr. Mohamed Abouarab (Egypt)

Scientific Sessions
The scientific sessions were very well attended. The level of interest was remarkable considering that the topics were highly subspecialized and not always easy to understand. I suppose feeling the passion and enthusiasm of the speakers encouraged the audience to actively engage and enjoy the discussions.

It is fascinating that renowned experts may be in opposite poles of an issue yet very congenially and lightheartedly debate on the not-so-rare controversies in the understanding and management of congenital hands. The experience of different regions around the globe were well represented and it's interesting how amidst the diversity, we seem to have many shared challenges and joys in taking care of patients with congenital upper limb differences.

with Dr. Andrea Jester

Quick selfie with Dr. Charles Goldfarb

Fanboying
The Legacy talk by Dr. Terry Light was truly awe-inspiring. He gave a light and heart-warming narrative of his very productive and fun-filled years working on congenital hands. It was already a happy coincidence that I was sitting beside him and Dr. Marybeth Ezaki, Dr. Light was gracious enough to hand me his notes as a souvenir when I half-seriously asked if a transcript of his talk would be available.

Fanboy souvenirs with Dr. Terry Light's Legacy Talk notes and an autographed copy of The Care of Congenital Hand Anomalies

Delighted to finally meet the "O" in OMT Classification (with Dr. Kerby Oberg)

Networking and Collaborations
One of the most rewarding aspects of WCS 2023 was the recognizing opportunities to network and collaborate with professionals from different corners of the world. Engaging conversations during the short breaks and social events fostered new friendships and possible academic partnerships.

The unplanned hallway meetings connected me to friends in neighboring Asian countries who are similarly interested in joining forces to improve data collection within our countries and together as a region. This was followed by a meeting with a bigger group in the Asian-Pacific Federation (APSSH) meeting the following week.

Scholarship Application and Guidance from ASSH
I must mention that the process for scholarship application was simple and pain-free. There were also regular reminders and guidance up to the last day of the conference. These were very helpful, especially for foreign delegates traveling on our own.

Moving Forward
After networking at the WCS and APFSSH, I am set to join a follow-up virtual meeting with fellow congenital hand enthusiasts in the Asian-Pacific region.

With Dr. Joseph Upton and colleagues from Asia, Dr. Soumen Das De (Singapore) Dr. Takehiko Takagi (Japan)

This was probably largely an effect of neighboring specialists realizing my interest through my presence in the WCS. I have also served at least 5 congenital hand patients that may have benefited from important learnings that I brought home from the meeting.

Summary
Attending the 2023 World Symposium of Congenital Malformations of the Hand and Upper Limb was an extraordinary experience that left an indelible impact on my professional and personal journey as a hand surgeon. Most significantly, I feel less isolated in trying to understand congenital upper limb differences and realized that many across the globe are asking the same questions as I am and that many more are trying to find ways to solve the challenges in making our patients' lives better.

2023 WORLD SYMPOSIUM ON CONGENITAL MALFORMATIONS OF THE HAND AND UPPER LIMB

Dr.Turki Moez, Tunisia - IFSSH supported registrant

The conference in Minneapolis proved to be a great opportunity for me to engage with experts in the field of congenital hand surgery and explore their innovative research and philosophies in this field.

Attending this meeting allowed me to enrich my knowledge in the diagnosis, classification and treatment of congenital hand diffences.

The enlightening presentation by Dr. Marybeth Ezaki "the History of Congenital Hand Surgery" was very captivating, leaving a deeper understanding of this fascinating field. Prof. Terry light's talk "legacy lecture" was also very compelling as he shared his invaluable wisdom in this domain.

However what truly warmed my heart was a particular slide that showcased the Tunisian Flag. It was a happy reminder of the diverse backgrounds of the attendees throughout this event in Minneapolis.

Among all the interesting presentations in this meeting, there were three that really caught my attention:

- Syndactyly symposium, as in simple syndactyly the problem is to choose which flap is suitable for use to reconstruct the web, in complex syndactyly the difficulty is how to obtain 5 separate fingers with the better function.
- Hypoplastic thumb reconstruction with free longitudinal hemimetatarsal graft (Michael Mak) was interesting and the procedure was so appealing that I decided to use this technique in my next hypoplastic thumb.
- Targeted therapy for patients with PIK3CA- related overgrowth spectrum (Prof.Guillaume Canaud), the study was very impressive and the results are very hopeful for these hypertrophy with almost no surgical solution.

These talks combined with the sessions shed light on the crucial aspect that needs to be addressed in the field of congenital hand surgery. They also put a great emphasis on the importance of implementing the right techniques when dealing with complex malformations.

Lastly, I would like to express my gratitude to the organizers of this meeting, in particular to Prof. Ann E. Van Heest and her team, for their hospitality and good organization of the meeting.

P.S. During the meeting, I had the pleasure of meeting Prof. Raja Sabapathy, a renowned Hand Surgeon. I am eagerly looking forward to visiting him and his unit while attending the next meeting of the World congenital symposium in Coimbatore in India in 2026.

Art Exibit #17

Title: “Le Pouce” (The Thumb)
Artist: César Baldaccini
1964. Bronze. 95x140x250cm
Galerie Patrice Trigano, Paris, France

IFSSH Mid Term Course

Second Ecuadorian Hand Surgery Congress

31 JANUARY - 3 FEBRUARY 2024
METROPOLITAN CONVENTION CENTER - QUITO

ECUMANO and Ecuador, are very proud and feel honored to have been designated as the venue for the first IFSSH Mid Term Course - (International Federation of Societies for Surgery of the Hand).

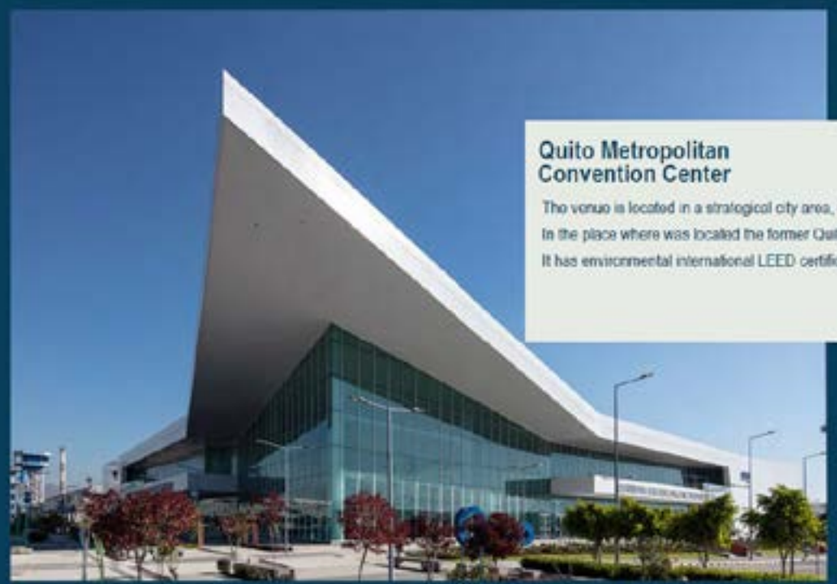
This event has worldwide importance for hand surgery and will be carried out jointly with the II Ecuadorian ECUMANO Congress

It will take place from January 31 to February 3, 2024 in Quito city, the Quito Metropolitan Convention Center has been selected as the venue for this great scientific event.

The course will be developed in a hybrid, face-to-face and virtual modality.

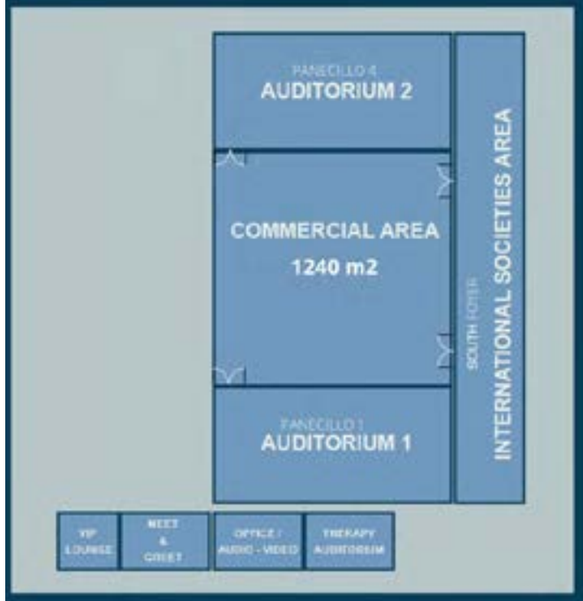
ECUMANO
SOCIEDAD ECUATORIANA DE CIRUGIA DE LA MANO

- We will have representatives from all continents, highly renowned Speakers.
- Will address current issues of hand surgery for specialists in hand surgery, orthopedic surgeons, neurosurgeons, plastic surgeons and postgraduate residents of these specialties at a national and international level.
- The scientific program will include conferences, case discussions, forums, practical workshops and scientific talks organized by industry.



Quito Metropolitan Convention Center

The venue is located in a strategical city area, its near from the Bicentorial Park
In the place where was located the former Quito Airport
It has environmental international LEED certification and universal accesibility.



One of the most modern Latin America Convention centers, it has all the neccesary characteristics to be one of the most important parts to develop great events, national and international conferences, all surrounded by a natural environment.

In the second floor it has a big event room (Panecillo) with 2.500 m2, this room can be divided in 4 different soundproof rooms.

COURSE DISTRIBUTION

- AUDITORIUM 1
- AUDITORIUM 2
- COMMERCIAL AREA
- INTERNATIONAL SOCIETIES AREA - SOUTH FOYER
- THERAPY AUDITORIUM
- ECUMANO OFFICE
- AUDIO / VIDEO
- MEET & GREET
- VIP LOUNGE

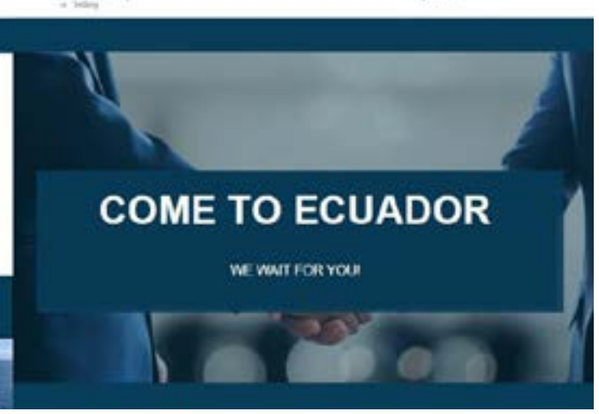
CCMQ
CENTRO DE CONVENCIONES METROPOLITANO DE QUITO

GENERAL INFORMATION

DISCOVER ECUADOR

ECUADOR

The Country of the Four Worlds opens its doors to offer you the most fascinating tourist travel experiences. Our four regions (Galapagos, Coast, Andes and Amazon) awaits for you with unique natural scenery, ancient cultures, otherworldly flavors and a thousand authentic adventures. Be part of the Ecuador experience!



General News

LECTURES AND DISCUSSIONS WITH COLLEAGUES OF THE THAILAND SOCIETY FOR SURGERY OF THE HAND

On 29 June 2023, Professor Jin Bo Tang visited Lerdsin Hospital, Bangkok, Thailand.

He gave lectures on flexor tendon repairs and held discussions with Dr Kanchai Malungpaishorpe, the President of the Thailand Society for Surgery of the Hand and Dr Sopinum Siripoonyothai, the social media correspondent of the IFSSH on the mission of the IFSSH in sponsoring educational activities of hand surgery around the globe.

The lectures on flexor tendon surgery included discussions about current surgical techniques of flexor tendon repairs; he explained the keys to successful primary repair in zone 2, and protocols of postoperative rehabilitation.

Representing the IFSSH, Prof. Jin Bo Tang emphasized the role of the IFSSH in international and regional collaboration by sponsoring professional development, research activities, and scientific paper-writing.

Fig 1. Professor Jin Bo Tang met with colleagues in Bangkok and giving lectures on 29 June 2023.

Fig 2. Prof. Tang (center) met with the President of Thailand Society for Surgery of the Hand. Dr Kanchai Malungpaishorpe (on his right) and social media correspondent . Dr Sopinum Siripoonyothai (on his left) and explained the mission of the IFSSH.

He specifically promoted the upcoming 2024 IFSSH Mid-term Course in Equador and 2025 IFSSH Congress and called upon more young hand surgeons in Thailand to attend these international events.

Fig 3. Discussions with young surgeons about the various financial sponsorships offered by the IFSSH.

Fig 4. Questions and answers after the lectures.

Fig 5 Pof. Tang explaining the importance of every Member Society to participate in the activities of the IFSSH to ensure the success of the IFSSH Mission to promote the optimal management of hand conditions.


67th ANNUAL MEETING OF THE JAPANESE
SOCIETY FOR SURGERY OF THE HAND
APRIL 25-26, 2024, NARA, JAPAN
Functional Anatomy and Innovation in Hand Surgery
Venue
Nara Prefectural Convention Center, JW Marriott Hotel Nara, JAPAN.
President
Shohei OMOKAWA, MD.
https://naraseikei.com/67jssh/


2024
XXVII Congreso Secma
24 - 26 de abril 2024 / Sitges
SOCIEDAD ESPAÑOLA DE CIRUGÍA DE LA MANO
SEDE: Hotel Melia Gran Sitges - Presidente del Congreso: Dr. Joaquim Casañas Sintes
SECRETARÍA TÉCNICA: ATENTA MARKETING

The Latin American Federation of Hand Surgery is pleased to invite you to the XIX Latin American Congress of Hand Surgery (XII Congress of Hand Therapists) in Guadalajara, Mexico.

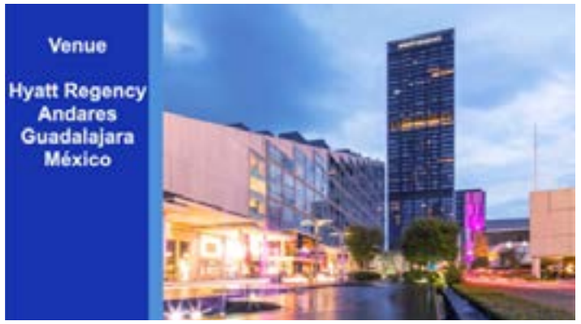
The program will have the presence of the main leaders in hand surgery in Latin America and will address topics of interest such as arthroscopic surgery, peripheral nerve, pediatric hand, reconstruction and innovations in the different areas of the specialty.

There will be instructional lectures, discussion tables and workshops.

The Ibero Latin American Group of Hand Surgery will be participating and a tribute to the former Presidents of FLACM will be held. As for the social program, Guadalajara is the cradle of several of the main symbols that identify our country in the world such as mariachi and tequila; so you cannot miss our meeting in which there will be cultural and sporting events.

We have worked on a program that will bring us together and allow us to share the knowledge in an atmosphere of camaraderie and friendship.

We hope to see you in November in Guadalajara. It will surely be an unforgettable academic, scientific, gastronomic and cultural experience for all attendees.



Congress of Latin American Federation for Hand Surgery
(Federación Latinoamericana de Cirugía de la Mano)

General Information and Sign Up
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RESERVACIONES
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yesenia.delaluz@grupolahe.com

2025 IFSSH/IFSHT CONGRESS UPDATE

Dear IFSSH Friends,

Thank you so much for the honor of hosting the 2025 IFSSH/IFSHT meeting in Washington DC from 23 March to 28 March 2025. We have attended the recent successful meetings in Berlin and London and have taken notes in order to offer everyone the best experience possible.

This meeting is hosted by ALL of American hand Surgery, the overall chairs of this meeting include James Chang from the American Society for Surgery of the Hand, Brian Adams from the American Association for Hand Surgery, and Aviva Wolff from the American Society of Hand Therapists.

Our planning is already well underway. The meeting hotel is the Marriott Marquis, right in the center of Washington DC. The meeting space is actually on the ground floor of this hotel, making the entire scientific meeting in one setting, which will allow participants to have a central location for all activities. This hotel is new and is within walking distance of the major sites of Washington DC: the Smithsonian Museums, the White House, and the Capitol. In addition to the meeting hotel, there is a wide range of lodging in Washington DC to suit every budget.

In terms of the scientific program, our program chairs, Jeff Yao and Jeff Friedrich are already working on the symposia and free paper sessions. The instructional courses will be organized by Warren Hammert, Fraser Leversedge, and David Ruch. Our goal is to have a truly international list of speakers so that we can share knowledge from around the world. There will be some joint sessions with the hand therapists from the IFSHT; this will allow attendees to get a truly comprehensive treatment plan for our patients.

The social venues for this meeting should be spectacular. March is cherry blossom season in Washington DC! The major sites, such as the Washington Monument, Lincoln Memorial, Jefferson Memorial, Supreme Court, US Capitol, and White House, are all within walking distance to each other. The Smithsonian Museums, ranging from the National Galleries of Art to the National Air and Space Museum, are always free for all visitors. Therefore, this would be a great meeting for your entire family! The Gala Dinner will be at the National Portrait Gallery. We will be able to view the official portraits of all the US presidents and then dine in the Rotunda in a wonderful setting. This will surely sell out early!

We anticipate that the abstract open date will be in December 2023, and that the meeting registration will be open starting in early 2024. We are setting this up early because we anticipate that our international guests will then be able to apply for visas as soon as possible. All of American hand surgery is looking forward to welcoming you to Washington DC in March 2025!

With anticipation,
JAMES CHANG, BRIAN ADAMS, AND AVIVA WOLFF


INTERNATIONAL FEDERATION OF SOCIETIES FOR SURGERY OF THE HAND