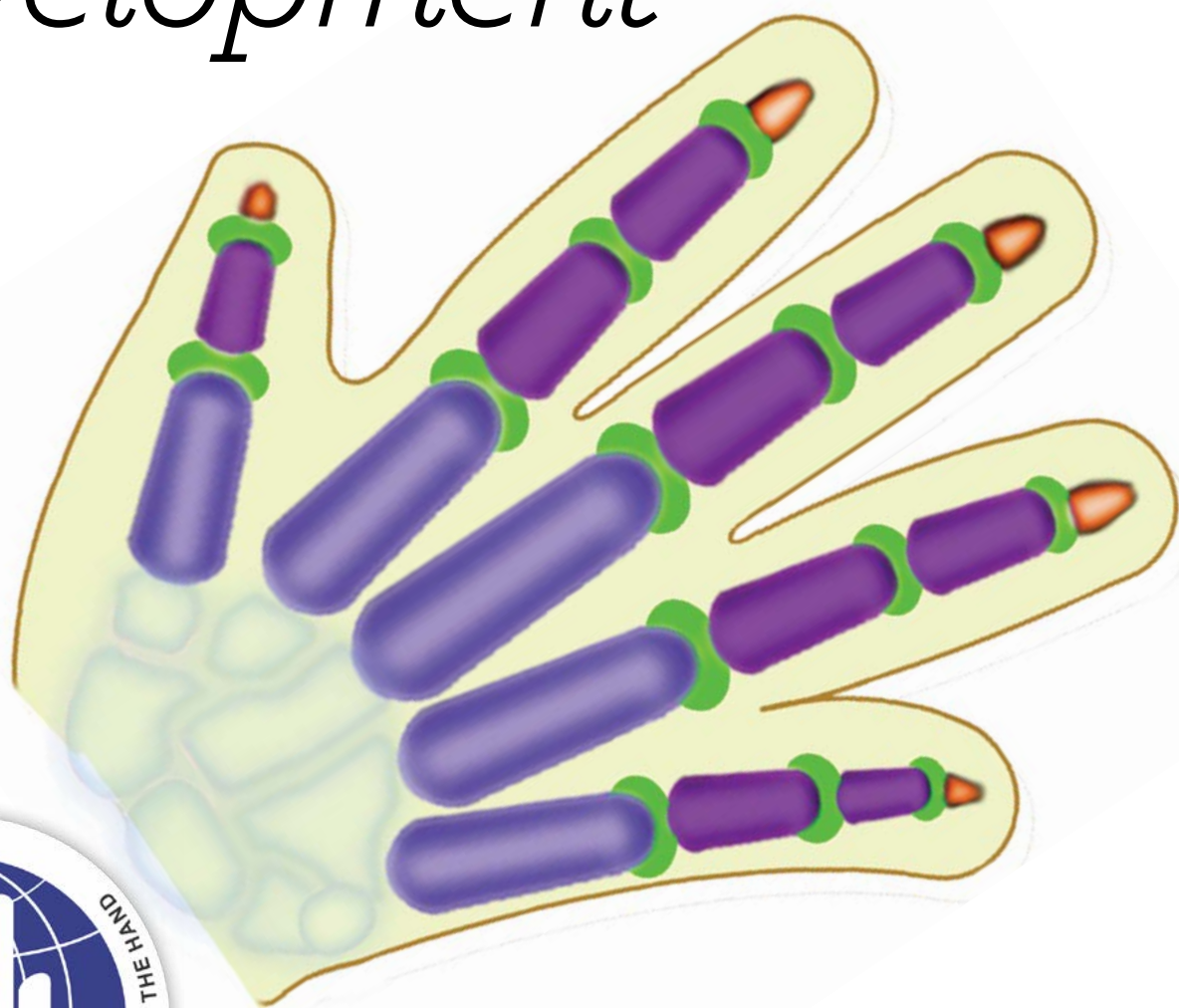


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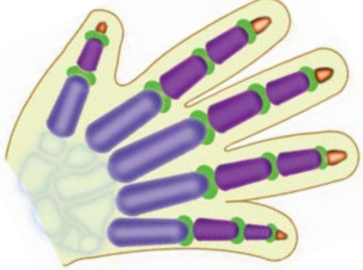
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HAND THERAPY
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FOR TAKING THERAPY TO
HARDER-TO-REACH COMMUNITIES

Limb Development



EDUCATIONAL SPONSORSHIP
BUJUMBURA, BURUNDI WALANT COURSE



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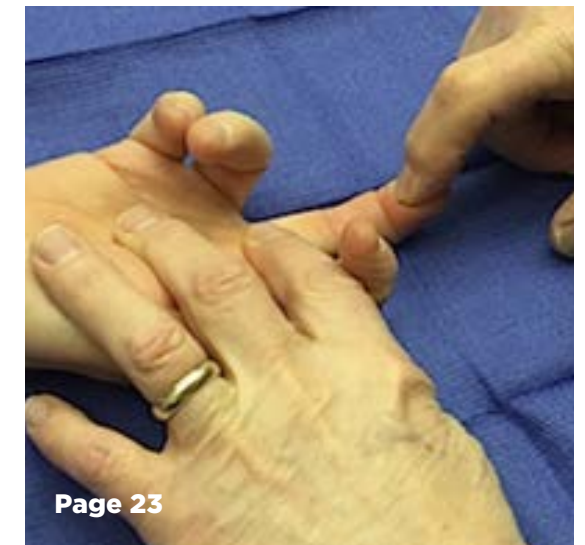
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GUEST EDITORIAL

AI in Hand Surgery

This month we acknowledge with permission a re-print from the 17 April 2026 "Weekly Member Update" editorial "100 Words" by American Society for Surgery of the Hand President Bobby Chhabra on AI in Hand Surgery.

It is concise but carries a powerful reminder of our role to think independently in our clinical judgements as doctors in an ever-increasing technical dominating medical environment.

“ Our recent webinar on AI in Hand Surgery served as a profound reminder of technology’s evolving power and risk and the enduring necessity of what makes our work uniquely human. While AI offers remarkable analytical capabilities, Hand Surgery remains a deeply personal field that demands nuanced judgment, empathy, and a foundation of trust. AI can process data and assist in technical precision, yet it cannot replicate the essential compassion, effective communication, and moral responsibility that define our profession.

By thoughtfully embracing these new technologies, we can enhance our practice while remaining steadfast in appreciating the irreplaceable human element at the heart of patient care ”



BOBBY CHHABRA

American Society for Surgery of the Hand President



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Change of Guard

Dear Colleagues,

Any professional organisation relies on its administrative staff for performance. One might assume that an organisation representing 68 Member Societies and 66 member nations would have a large administrative staff. That presumption is understandable given the demands of the IFSSH. Delegates represent countries with differing GDPs, cultural values, and work under varying circumstances and constraints. All of them need individual attention. What IFSSH had was not a large administrative staff, but a 'one-person army': Belinda Smith. She took over the reins of the organisation in 2008 and contributed to the growth of the IFSSH with outstanding dedication and professionalism.

Belinda has been our anchor, the first voice many Delegates heard when they started. She subtly nudged and helped many nations and Societies to complete the application process. Her welcoming letters were always nice to read and informative. Over the years, she built up so much institutional memory that any President or Secretary-General can rely on her for appropriate decisions. I am a Rotarian. The second question in the Four-Way Test introduced when joining Rotary is: 'In all things we say and do – Is it fair to all concerned?'. Belinda appeared to use this principle when dealing with difficult situations. Her loyalty to IFSSH was unquestionable.



Working Together - London IFSSH Congress, 2022

“Belinda has been our anchor - a one-person army whose dedication helped shape the IFSSH for 18 remarkable years.”

Belinda, you will be missed more than words can say. Thank you for taking care of the IFSSH for 18 years. No longer will you be expected to start the ExCo meeting at 10 pm Sydney time on a Sunday, ending in the early morning with a busy Monday to follow. You truly deserve the relaxing next chapter. Now you must take care of yourself. Thank you, Belinda.

As Belinda moves on, we are very happy to welcome Ms. Pamm Schroeder who will take over from her. Pamm has just retired as the Deputy EVP of the American Society for Surgery of the Hand. Her rich experience of running a great big organisation like the ASSH will surely help us in this transition. As we move on to the next phase, let us all join and welcome Pamm. I am sure Pamm will enjoy working with all of us.



S. RAJA SABAPATHY
President: IFSSH



Ms Belinda Smith



Ms Pamm Schroeder

Secretary-General Report



Dear Colleagues,

First, I am pleased to share with you an update for the 2nd IFSSH Midterm Course (<https://ifsshvenice2027.com>), from 4-8 April 2027, which is less than 8 months away. The registration and hotel reservation are open. I have just reserved a hotel for 5 nights for about 900 euros, which is very reasonable in Venice, Italy, in mid-spring. The registration fee is also reasonable for the rich content of the 4-day Course as detailed on the website. I urge all of you to consider and go and enjoy a wonderful meeting in Venice.

The Course contents are extremely rich owing to careful planning by our Italian colleagues headed by Dr Andrea Atzei. The speakers are world-class from different continents. Topics are up-to-date, and the format is diverse, ranging from lectures to hands-on workshops, case discussions, 'meeting the masters', and interactive discussions with experts. In the Course, sufficient discussion time is reserved. I urge you to come and have an in-depth discussion with leading experts on various topics.

Second, I would like to inform you that at the Delegate Council meeting in Basel on 5 June 2026, we accepted the Costa Rican Association of Hand Surgeons, the Paraguayan Society of Hand Surgery and the Ukrainian Hand Surgery Society into our Federation. Delegates from the three societies gave exciting speeches right after the unanimous voting of acceptance by the Delegates of the Member Societies. We are thrilled that the IFSSH family is expanding!

Educational efforts of the Federation are expanded through joint support of a course in South Africa in November, and also some grants are being approved to a few more countries. After the courses reports of these activities will be published in the Ezine.

Besides meetings and discussions with colleagues and delegates in Basel during the FESSH Congress in early June, I had a wonderful opportunity to listen to and discuss the needs of Member Societies. During a 10-day group trip (11 to 22 June) at two conferences and at four hospitals in central China. I learnt a great deal about the educational needs in the regions from these delegates and what they wish IFSSH to do. This will help shape our future goals and efforts in different regions.



JIN BO TANG

Secretary-General: IFSSH

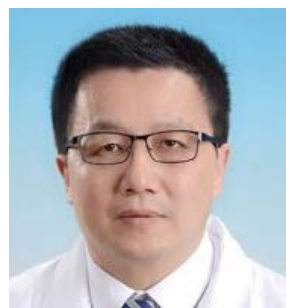
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Why I donated to the IFSSH Patron fund



A special salute to Professor De Shi, 98 years old

Yan Pei Gong, MD
Department of Hand Surgery
Affiliated Hospital of Nantong
University
Nantong, Jiangsu, China

I wish to honour my teacher, Professor De Shi, through this donation. Professor Shi is a pioneer of hand surgery in our country. He is currently 98 years old. In his career of 50 years as an orthopedic and hand surgeon, he is the founding member of the Hand Surgery Society in this country and served as one of the three editors in two influential hand surgery books in China: *Operative Hand Surgery* (in Chinese) and *Modern Hand Surgery* (in Chinese). Professor Shi authored more than 100 original papers and editorials in Chinese and wrote over 30 book chapters for books other than the books he edited. He was among the a few who launched the Chinese Journal of Hand Surgery in 1985, and this Journal has served as a main platform of information exchange for Chinese hand surgery colleagues over past 4 decades. In his professional life, he developed or refined soft tissue reconstruction for large defects in hands and extremities, and also treatment of traumatic loss of the limbs. He educated and trained a generation of orthopedic and hand surgeons and was often invited to give lectures to congresses and courses in 1980s and 1990s.

His work and teachings have a lasting impact to hand surgery in China and beyond. He is now among few who became a surgeon in the 1950s, then an orthopedic hand surgeon, who is still alive today in China. He taught hand surgery tirelessly in his active years for decades.

Aged over 90 years old, he still often went to the hospital, occasionally seeing patients. This donation from me is to celebrate his teachings to generations of hand surgeons. I am sure worldwide he is among a few hand surgeons who reached close to 100 years old. His dedication to hand surgery spans 7 decades.

When I met Professor De Shi two months ago in March 2026, I asked him about what message he wished me to convey. In great spirit and clear mind, he had these words: "Young doctors need mentoring. I wish you to teach as many young hand surgeons as possible." He then added: "Young surgeons need guidance in their academic work". He is an inspiration to worldwide colleagues of hand surgery. We were fortunate to have been taught by Professor De Shi. This is a special moment to celebrate him through this donation. Attached are 4 figures of Professor De Shi including work pictures from decades ago, and a photo taken when he turned 96 years.



The "OMT Classification of Congenital Hand and Upper Limb Anomalies" by Oberg, Manske and Tonkin, was adopted by the IFSSH in 2014 as the official international classification system.

Development of a limb

Genetics, Mechanics, and Cellular Intelligence

Positioning the limb fields

As the early embryo takes shape, thirteen Hox transcription factor types, called paralogs, segment the embryo along the craniocaudal axis and organise its basic body plan including the locations of the upper and lower limbs (Alexander et al., 2009; Mark et al., 1997) (Figure 1A). Within the presumptive upper limb field, *Tbx5* is induced (Minguillon et al., 2012), while *Tbx4* and *Pitx1* are induced within the lower limb field (Duboc and Logan, 2011a). These factors initiate limb bud outgrowth and provide limb identity information (Duboc and Logan, 2011b) (Figure 1B). Disruption or duplication of Hox organization can lead to displacement or limb duplication (i.e., supernumerary limbs) (Figure 1C), whereas misexpression of limb identity genes can alter the character of the upper limb.

For example, in Liebenberg syndrome, misexpression of *Pitx1* in the forelimb can transfer hindlimb information and induce fusion of the pisiform and triquetrum of the wrist into a calcaneus-like structure (Figure 1D) (Abdel-Ghani et al., 2013).

Early limb development: Genetics and organising/ signaling centers

As the limb protrudes from the side of the embryo during its 4th embryonic week, it forms a semicircular limb bud. Development of the limb can be described along three axes of asymmetry: the proximodistal axis from shoulder to digit tip; the anteroposterior, or radioulnar, axis defining the variation from thumb to little finger; and the dorsoventral, or dorsovolar, axis, a binary choice defining either the extensor or flexor aspects of the limb (Figure 2) (Oberg et al., 2010).

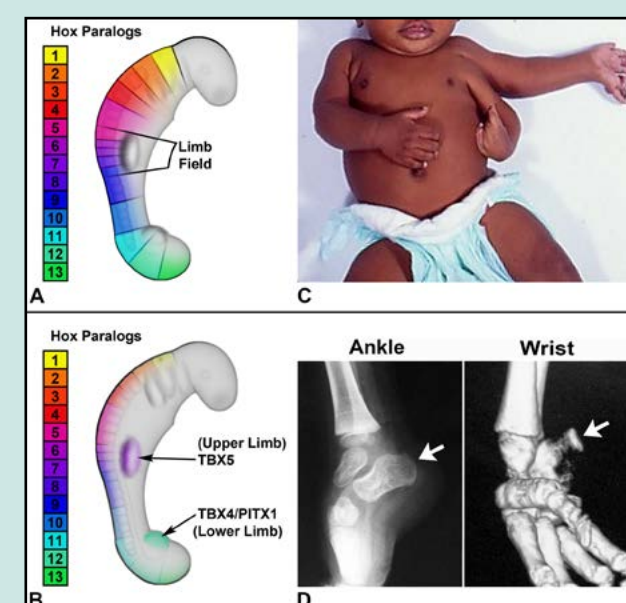


Fig. 1: Limb Position and Identity

A) Hox transcription factor types (paralogs) organize the body plan along the craniocaudal axis and B) define limb positioning. C) Duplication of limb positioning information (photo courtesy of Ulrich Mennen). D) Liebenberg syndrome with ectopic lower limb identity information (*PITX1*) expressed in the upper limb transforming the pisiform and triquetrum into a calcaneus-like structure (white arrows) (photo courtesy of Hisham Abdel-Ghani).

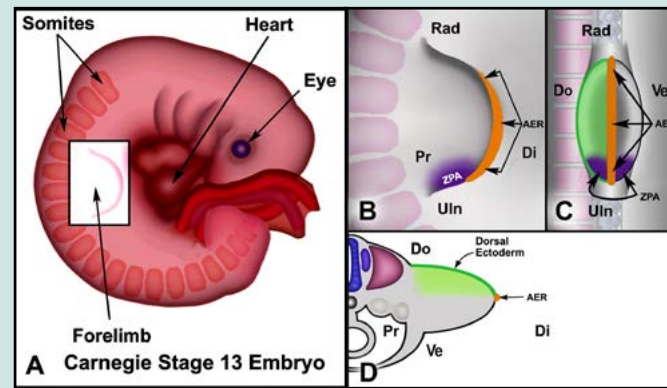


Fig. 2: Organising Centers of the Three Axes of Limb Asymmetry

A) Illustration of a human embryo around day 30 post-fertilisation. B) Dorsal view of the upper limb (boxed region in A) showing the apical ectodermal ridge (AER) in orange, the organising center for the proximal (Pr) – distal (Di) axis; and the zone of polarising activity (ZPA) in purple, the organising center for the anterior-posterior or radial (Rad) – ulnar (Uln) axis. C) An edge on view of the limb highlights the dorsal ectoderm (dark green), the organising center of the dorsal (Do) – ventral (Ve) axis, which transforms the underlying dorsal mesoderm (light green). D) A cross-sectional view of the limb with the dorsal ectoderm and AER illustrated.

Each of these axes is controlled by an organising center and signaling molecules that trigger a molecular pathway controlling the asymmetrical patterning of the limb along the specific axis. The apical ectodermal ridge (AER), a rope-like thickening of ectoderm at the tip of the limb bud, controls the proximodistal axis. The AER secretes several Fgfs, particularly Fgf8, into the underlying mesoderm to promote outgrowth, segmentation, and patterning of the arm, forearm, and hand (Figure 3) (Lewandoski et al., 2000). In animal models, removal of the AER stops limb outgrowth and results in truncation defects or transverse deficiencies (Summerbell, 1974).

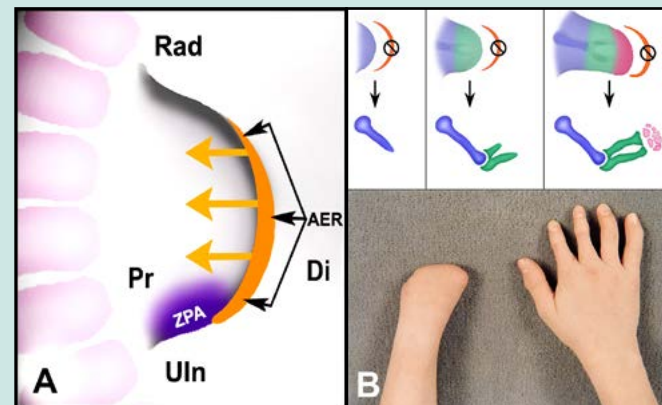
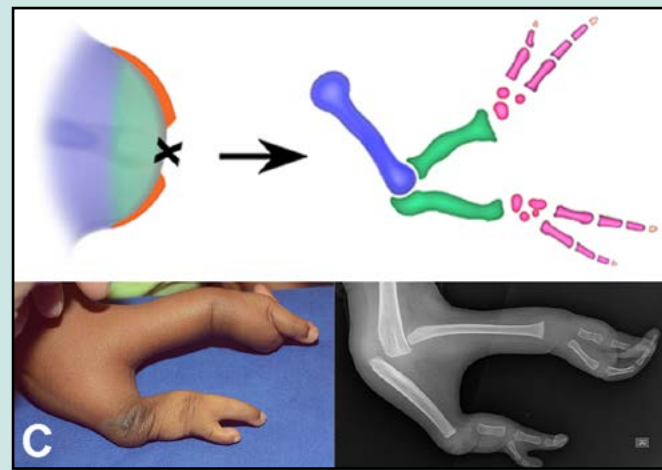


Fig. 3: Role of the AER in Proximal-Distal Outgrowth and Patterning

A) The AER secretes Fgfs into the underlying mesoderm. B) Removal or loss of AER function truncates the limb (transverse deficiencies) according to the time of AER disruption (Manske and Oberg, 2009). C) Focal central disruption of AER function can cause longitudinal clefting (photo courtesy of Wiebke Hülsemann). Wiebke Hülsemann).



The extent of the truncation correlates with the timing of AER removal or loss of AER function (Manske and Oberg, 2009). Focal AER dysfunction can lead to radial or ulnar longitudinal deficiency: if central, it can cause longitudinal clefting of the forearm and hand (Paakkonen et al., 2018).

The anterior-posterior (radial-ulnar) axis is controlled by a small cluster of mesodermal cells in the distal posterior aspect of the limb bud adjacent to the AER

called the zone of polarising activity (ZPA) (Figure 4) (Summerbell, 1981). The ZPA secretes Sonic hedgehog (Shh) which induces posterior expansion of the distal limb (forearm and hand) and patterns the ulna and ulnar digits (Riddle et al., 1993). Shh conveys its influence on cells through the Gli3 transcription factor. In the presence of Shh, the full length Gli3 activates (Gli3A) downstream targets. In the absence of Shh, Gli3 is processed into a truncated repressor form, Gli3r, that inhibits Shh targets. This processing of Gli3 (see below under cellular intelligence) establishes a counter gradient of Gli3r:Gli3A that sharpens the threshold of Shh influence. Loss or reduction in Shh is associated with ulnar longitudinal deficiency, while ectopic overexpression of Shh in the anterior distal aspect promotes expansion of the radial aspect of the limb bud and can cause mirror duplication ranging from thumb/radial polydactyly to ulnar dimelia (Hill et al., 2003; Yang et al., 1997).

En1 in the ventral ectoderm confines Wnt7a expression to the dorsal ectoderm at the AER, the distal dorsal-

ventral boundary of the limb (Cygan et al., 1997). Wnt7a induces the distal expression of Lmx1b in the dorsal half of the limb mesoderm (Figure 5).

Robust dorsal expression of Lmx1b is responsible for dorsalising the associated bone, ligaments, tendons, muscle, and skin of the limb, transforming the dorsal compartment into an extensor compartment (Castilla-Ibeas et al., 2024). Loss of Wnt7a function, and thus distal Lmx1b expression, causes Al-Awadi-Raas-Rothschild syndrome with ventral-ventral limbs and palm-palm hands (Kantaputra et al., 2017), while overexpression of Wnt7a or Lmx1b causes distal dorsal dimelia characterized by a stiff finger lacking flexion creases, non-glabrous skin, and a circumferential nail (Habenicht et al., 2019).

Regulation of Limb Development: Cellular Intelligence

The previous sections described the major genetic and mechanical contributions to early limb and handplate development.

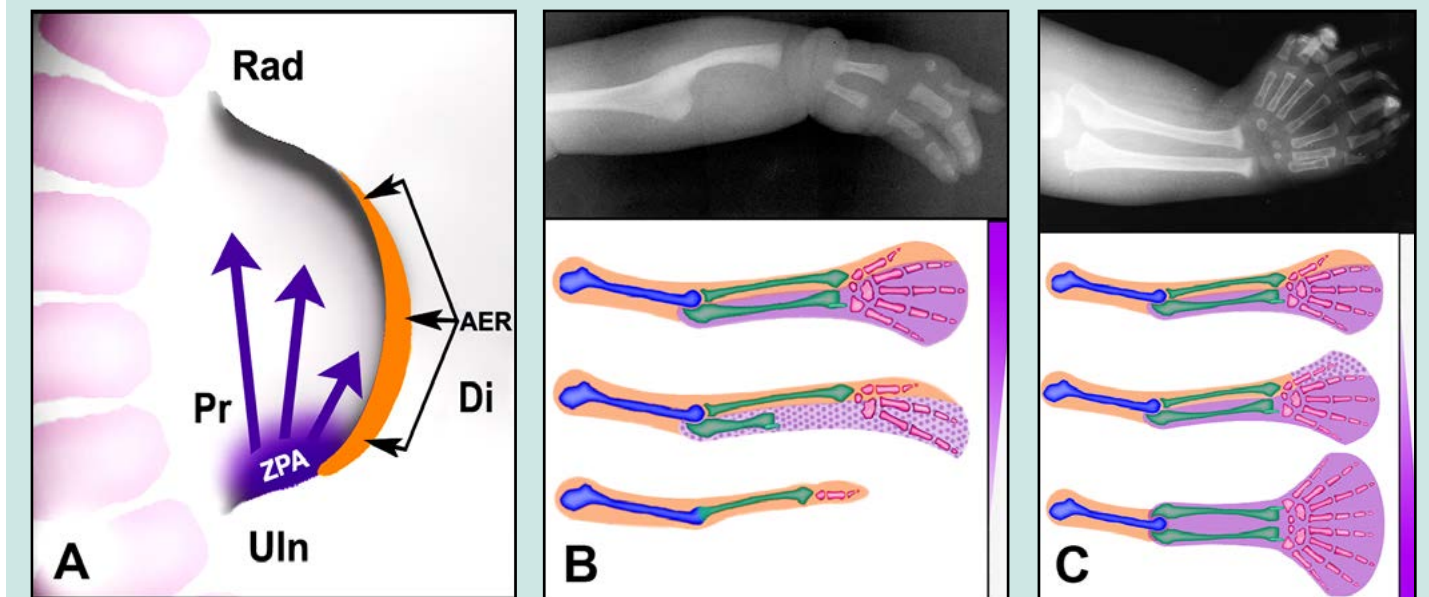


Fig. 4: Role of the ZPA in Anterior-Posterior (Radial-Ulnar) Outgrowth and Patterning

A) Shh is expressed from the ZPA. B) Reduced or loss of ZPA function causes ulnar longitudinal deficiencies, while C) overexpression of Shh in the anterior margin causes mirror duplications from radial (thumb) polydactyly to ulnar dimelia.

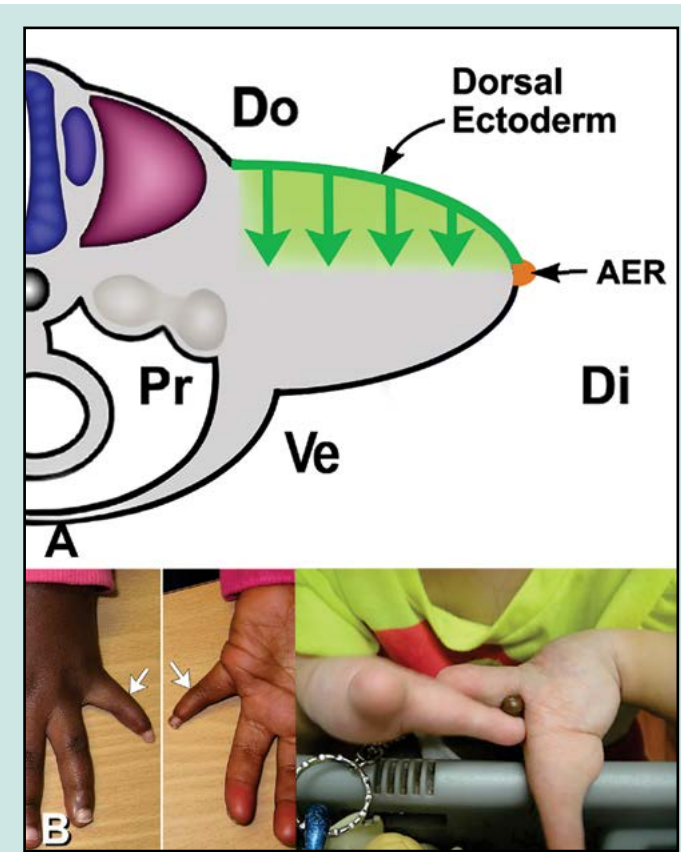


Fig. 5: Role of the Dorsal Ectoderm in Dorsal-Ventral (Dorsal-Volar) Patterning
A) The dorsal ectoderm secretes Wnt7a into the underlying mesoderm upregulating Lmx1b to dorsalize the limb.
B) A lack of Wnt7a or Lmx1b causes palmar dimelia (top photo – courtesy of Marybeth Ezaki), while overexpression of Wnt7a or Lmx1b causes dorsal dimelia (white arrows) (photo courtesy of Terry Light).

But how do individual limb cells know their role in the process? How do they determine what genes to use and when to use them? How do they coordinate their efforts with those of the rest of the limb? This ability relies on cellular intelligence.

Cellular intelligence during development can be defined as the ability of individual cells to work collectively to develop complex structures and perform complex tasks. This cellular intelligence is based on an individual cell's ability to interpret its internal DNA

instructions, its history, its location, and its current environment to develop a reasoned or educated response. Cellular intelligence includes features that mimic cognitive function such as learning, reasoning, exploration, creativity and experimentation. In this brief review we will focus on two aspects of cellular intelligence: interpretation of DNA instructions and a mechanism to fine tune the cell's response to external signals.

The interpretation of DNA instructions is similar to cooking. DNA instructions for a specific body part, such as the limb, is analogous to a specific recipe. The cell's "cookbook", however, is not housed in a single location; rather, the recipe is distributed across the genome as ingredient-specific instructions. Thus, the ingredients or developmental genes required to make a body part have body part recipes or instructions encoded near them.

Developmental genes, similar to ingredients, add a specific type of property or flavor to the recipe of a body part. And just like flour, salt, or cumin that are used in multiple recipes, developmental genes can be involved in multiple body part recipes. For example, it is well-known that Shh is an important "ingredient" in limb development; but Shh is also important for developing the neural tube, the GI tract, lungs, and hair follicles or feather buds (Figure 8A) (Ingham, 2022).

When gene disruption or genetic variation causes a lack of function of the gene product, like being out of cumin, no recipes that require that ingredient can be made. A syndrome reflects the collection of seemingly unrelated body recipes using the product of that gene, what is clinically called pleiotropy. Within the DNA around the associated gene, the encoded ingredient-specific instructions for an organ recipe, also known as regulatory modules, tell the gene when, how much, and for how long the gene should expressed.

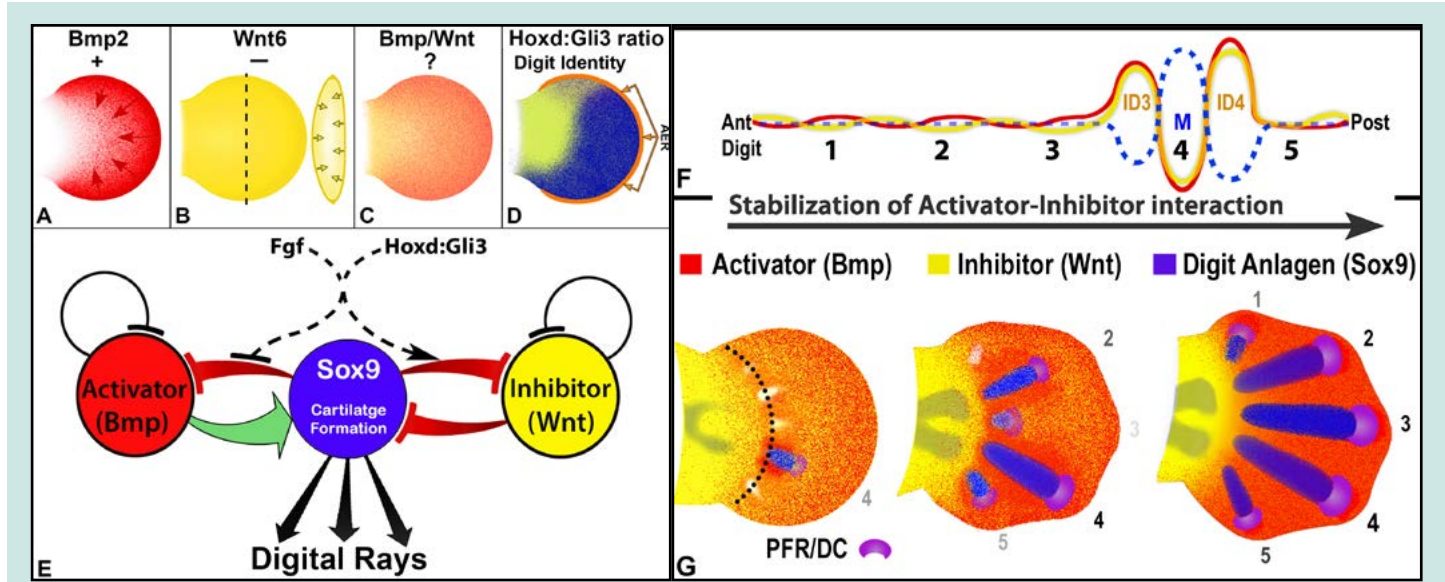


Fig. 6: Metacarpals and Digital Ray Formation
Formation of metacarpals within the handplate is influenced by several competing factors. A) Bmps secreted from the periphery of the paddle promote cartilage and bone formation (+), while B) Wnt proteins from the paddle's ectoderm inhibit cartilage and bone formation (-). C) Limb cells must determine how to interpret these mixed signals (?) along with information on digit identity (D). E) The cells use a Turing-like activator-inhibitor interaction between Bmp and Wnt with Sox9 as the output that inhibits both Bmp and Wnt as indicated. F) With time, the cells will stabilize their response to Bmp and Wnt into periodic clusters or waves of cells along the anterior-posterior axis (dotted line in the left panel in "G") that respond to both Wnt and Bmp (peaks) and cells that don't respond to either (valleys). The stabilized response develops first in interdigits 3 (ID3) and 4 (ID4) (peaks of Bmp and Wnt response) and the intervening response deficient region (valley of response) that will form the first metacarpal (M) for digital ray 4. G) Forming interdigital regions are shown as orange and gaps where metacarpals will form are white. Vertebrate metacarpals (blue) form along the dotted black line, then extend towards the AER in a specific pattern: first digit 4, then 2, 5, 3, and finally 1 (thumb).

So how does a regulatory module work? Again, using Shh as an example, the regulatory module or Shh-specific instructions for the limb recipe is called the ZPA regulatory sequence (ZRS) since Shh expression from the ZPA is required to develop a limb (Lettice et al., 2003). The ZRS is found nearly 1 million bp upstream of the Shh gene within an intron of the Lmbr1 gene, a portion of the gene that does not code for protein (Figure 8B). The instructions for other body part recipes mentioned above are also found near the Shh gene in non-coding DNA.

Within the nucleus, the DNA is folded into a unique pattern generating regulatory neighborhoods called topologically associated domains (TADs) where regulatory modules for various body part recipes are embedded (Matharu and Ahituv, 2015). The unique DNA folding approximates regulatory regions to the target promoters, preparing them for subsequent regulation of gene transcription.

The sequence of the regulatory region is where the organ-specific instructions reside.

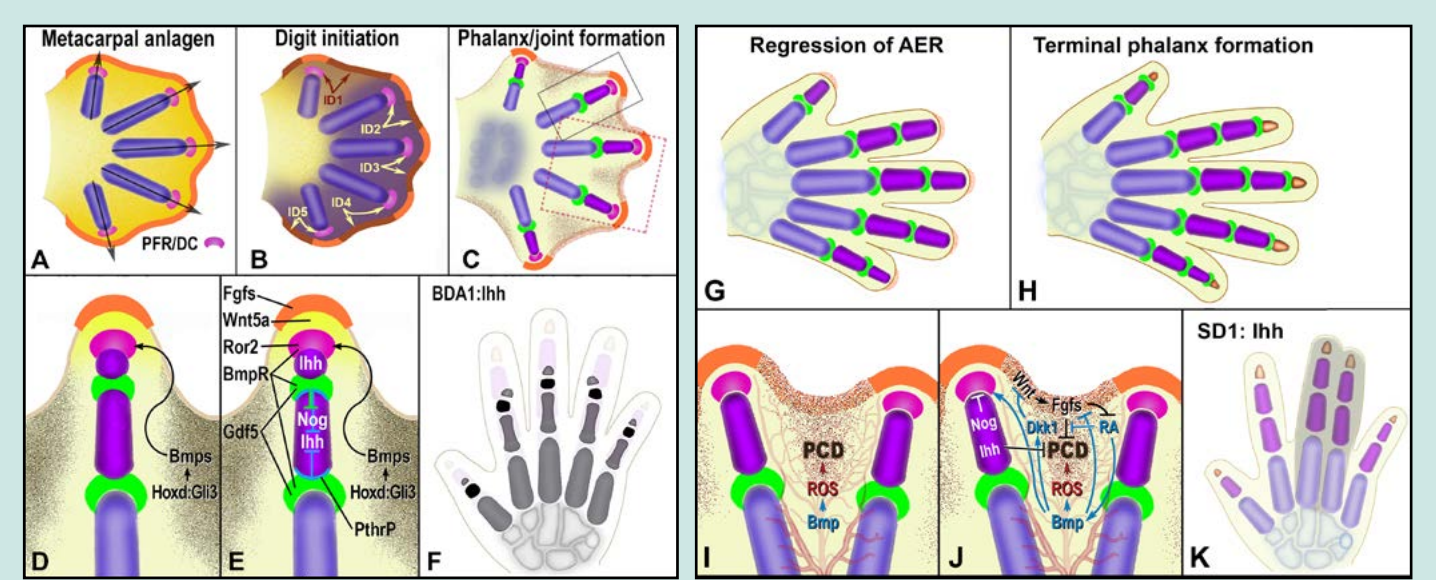


Fig. 7: Digit Formation and Separation

A) Metacarpal extension towards the AER (arrows) compresses the intervening tissue, forming the phalanx forming region/digital crescents (PFR/DCs). B) Bmp signals from the posteriorly adjacent interdigital tissue (ID1-5) inform the associated PFR/DC on joint and phalanx information for the digit and signals regression of the overlying AER. C) First, a joint forms at the distal tip of each metacarpal, and then the proximal phalanx forms. The cycle repeats for the interphalangeal joint and middle phalanx. D) A closeup view of phalanx/joint formation (solid boxed region from “C”) highlighting the role of the Hoxd:Gli3 ratio in generating Bmp levels that reflect the digit identity programming acquired from Shh. E) There are a number of factors involved in digit formation, and disruption of one of these factors can generate specific patterns of brachydactyly. F) As an example, disruption of Ihh function causes brachydactyly type (BDA1). G) Regression of the AER (orange stippling) over the digit tip is associated with induction of the ungual phalanx (H). I) Digit separation is a combination digit extension and interdigit programmed cell death (PCD) (zoomed in view of dashed region in “C”). Interdigit Bmps stimulate reactive oxygen species (ROS) generation in the richly vascularized interdigit tissue and collectively promote PCD. J) There is a complex network of interactions that regulate PCD, and when it goes awry, syndactyly occurs. K) For example, overexpression of Ihh within the adjacent digit can inhibit PCD causing syndactyly.

The ZRS contains binding site sequences for a cluster of transcription factors present only in the limb that will interact with the ZRS to permit function. Moreover, the ZRS is active in the distal posterior mesoderm, i.e., the ZPA. So DNA binding sites for posterior specific factors (such as Hand2) and binding sites that sense factors from the posterior AER are required for activation (Ball et al., 2025). The ZRS also contains inhibitory sequences to ensure that cells outside of the ZPA do not express Shh.

Thus, the ZRS senses the cell’s precise location within the body, and if all of the appropriate ZPA-related transcription factors are present, it will activate the promoter to express Shh (Figure 8C). If the correct factors are not present, as in the anterior (radial) aspect of the limb bud, the promoter remains silent, and Shh is not expressed. This asymmetric expression of Shh will then add its unique contribution to the limb recipe, growing and shaping the posterior, or ulnar, aspect of the forearm and hand.

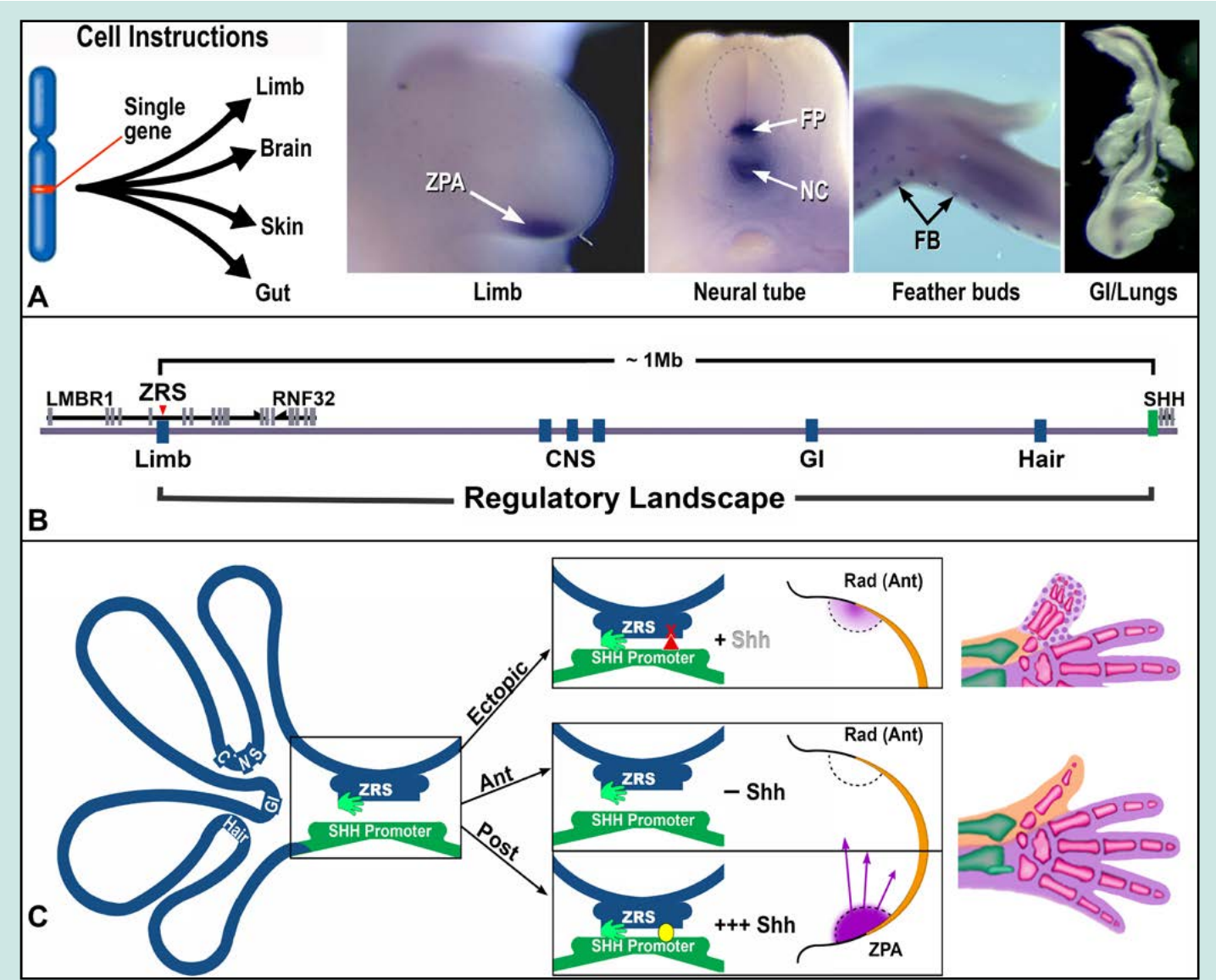


Fig. 8: Shh-Specific Instructions for the Limb Recipe Encoded within Regulatory DNA

A single gene can be involved in the development of multiple organ systems. A) Using Shh as an example and chicken as the model, multiple organs systems [OK1.1]are demonstrated. B) The regulatory landscape of the Shh gene, with representative regulatory DNA shown for each system illustrated in “A”. The Shh-specific instructions for the limb recipe are found in the ZPA regulatory sequence (ZRS) nearly 1 Mb upstream of the Shh gene. C) DNA folding within the nucleus brings regulatory DNA near the Shh promoter. Limb-specific factors (green hand) provide ZRS competency. In both the posterior (ulnar) and anterior (radial) aspects, the ZRS is poised and ready to interact (dashed semi-circles). The ZRS then senses its relative location through the interaction with posterior and ZPA-specific factors (yellow circle) to induce robust Shh expression. In the anterior aspect, not all of these factors are present, the ZRS is silent, and Shh expression is not induced. Point variations within the ZRS (red “X”) can alter the instructions and allow another transcription factor (red triangle) to ectopically activate Shh expression, causing radial polydactyly.

However, point variations in the ZRS can alter the recipe and add an ectopic activation sequence or disrupt an inhibitory sequence, allowing the ZRS to activate the promoter in an alternate location (anterior) which can lead to limb disorders such as preaxial polydactyly (Kvon et al., 2020; Potuijt et al., 2019).

In addition, every cell has a specialised process called the primary cilium that senses the environment and determines whether incoming signals need to be modified (Singla and Reiter, 2006), similar to the head Chef checking to ensure the recipe is perfect. In the case of Shh and its signaling cascade, Shh binds to a cell's surface via the Patched receptor; Patched is connected to another membrane bound protein called Smoothened. The intracellular signal transduction is conveyed through the Gli3 transcription factor (Figure 9A). When the receptor is not bound to Shh, Gli3 is processed by internal machinery of the cilia into a truncated inhibitory form called repressor (Gli3r) that inhibits the expression of Shh targets (Tiecke et al., 2007).

With Shh binding, Patched releases Smoothened which interferes with the primary cilia's ability to process Gli3. Inhibition of Gli3 processing permits the full-length Gli3 activator form to accumulate and carry out Shh signaling. The disruption of ciliary function (called a ciliopathy) frequently causes polydactyly due to dysregulation of Shh signal transduction. Cilia also have the capacity to sense the local environment and modify the signal transduction and gradient of Gli3 activator to repressor. Moreover, primary cilia are also involved in fine tuning other developmental signaling pathways and aid in cell-cell communication (Corbeil et al., 2025).

In summary, this review covered the genetics of limb development and identified some key developmental genes. It also discussed some mechanical influences on limb development: the paddle-shaped handplate, the Turing interaction, and how metacarpals initiate digital ray progression.

The final section focused on cellular intelligence and the ability of the cells to build a limb from a genetic recipe and then locally monitor the external signals it receives through primary cilia. The past 50 years of collaboration among developmental biology, clinical dysmorphologists, and human genetics have been incredibly productive. But with so much more to learn, the journey must continue.

Acknowledgements

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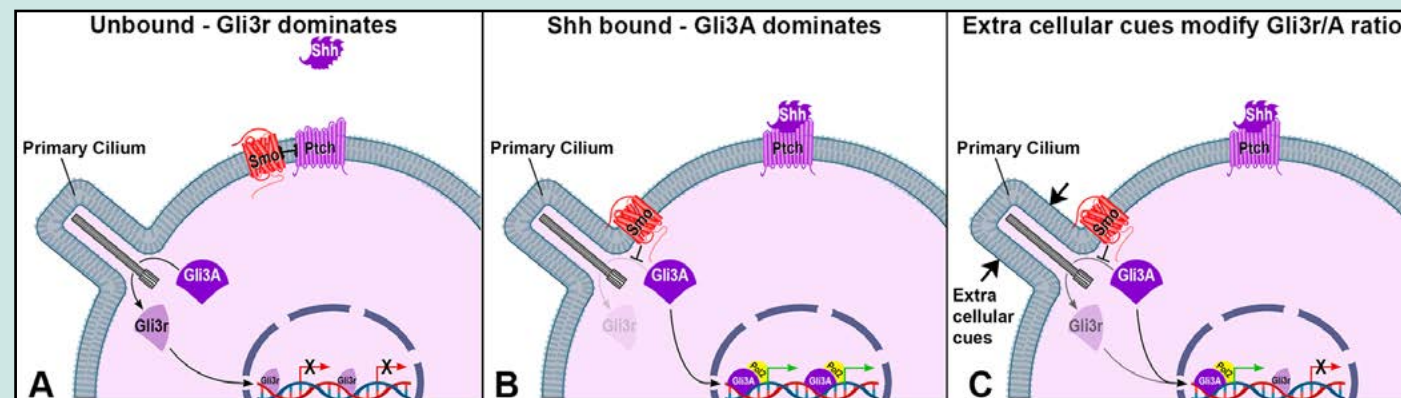


Fig. 9: Primary Cilia: The Cell's Antenna and Modulator of Signal Transduction

The cell's primary cilium can regulate signal transduction of a variety of ligand-mediated signals. For this figure, only Shh signaling is illustrated. A) In the absence of Shh binding to its receptor Patched (Ptch), its signal transduction factor Gli3 is processed into a truncated repressor form (Gli3r) that inhibits Shh targets. B) With Shh binding to Ptch, the associated membrane bound protein Smoothened (Smo) shifts to the primary cilium to inhibit Gli3 processing, allowing more full length Gli3 activator form (Gli3A) to accumulate and promote transcription of downstream Shh targets. C) Cilia can sense their environment. Extracellular cues (large black arrows pointing to the cilia) alter its processing and modulate signal transduction.

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Santos Palazzi Coll

1937-2025



Santos Palazzi Coll was born in February 1937 in Rome, Italy, during the Spanish Civil War. He completed his medical education at the School of Medicine of the University of Barcelona, Spain in 1961. Under the influence of his father

A.S. Pallazzi, who was Chairman of Orthopaedics at the Hospital Sagrado Corazón in Barcelona, he did his Orthopaedic training. In 1967 together with his father and brother Carlos (also an Orthopaedic Surgeon) they visited Prof. Hanno Millesi's Department of Plastic and Reconstructive Surgery at the University Clinic in Viena, Austria, to learn more about microvascular and neurosurgical techniques. Santos visited Dr. C. Scharizer in Mannheim, Germany in 1970 to acquaint himself with hand surgery in sport injuries. The next year he visited Dr. J.W. Smith at the Hospital for Special Surgery in New York, USA. to improve his microsurgical skills. His love for brachial plexus surgery came from his contact with Prof. Algimantas Narakas from Lausanne in Switzerland.

After his father retired, Palazzi was appointed Chairman of Orthopaedics from 1985 to 1993. He then practiced at the Centro Médico Teknon in Barcelona. He was President of the Spanish Society of Hand Surgery (SECMA) from 1985 to 1987, the Spanish Association of Microsurgery(EM) from 1983 to 1985, and of the GAM (Groupe Avancement Microchirurgie) from 1984 to 1986.

He presided over the 'A. Narakas Club' Symposium on Brachial Pexus Surgery in Barcelona in March 1999 and was President of the 7th Congress of the European Federation of Societies for Microsurgery in May 2004 in Sitges, Barcelona. His leadership contributed significantly to SECMA's growth and development.

He published multiple books, articles, and monographs amongst others on peripheral nerve pathology and surgery, and fibrin glue as a sealant to prevent nerve adhesions. His students will remember Santos Palazzi as an outstanding teacher and operator.

Santos passed away in June 2025 at the age of 88 years.

At the 11th International Congress of the IFSSH in Seoul, Korea in 2010 Santos Palazzi Coll was honoured as "Pioneer of Hand Surgery"

“Advanced microsurgical techniques and inspired generations of surgeons”

Antonio De Santolo Ricciardelli

1939



Antonio De Santolo Ricciardelli was born on 5 September 1939 in Italy and moved to Venezuela as a child. He completed his medical training at the Universidad de los Andes, Mérida, Venezuela in

1964 and his orthopaedic and traumatology training from 1967 to 1969 at the University Hospital of Caracas Luis Razetti Medical School. He did Hand Fellowships with Richard Smith at the Hospital for Joint Disease in New York and with John Boswick at Cook County Hospital and Medical School in Chicago, USA (1970-1971). While in New York he did anatomical dissections with Emanuel Kaplan at the Columbia University College of Physicians and Surgeons.

Ricciardelli started the first Hand Clinic in Venezuela in 1972 at the University Hospital of Caracas which was attached to the Orthopaedic Department. He later became Clinical Professor of Orthopaedics and subsequently the Chief of Orthopaedic Surgery Cathedra-Service University Hospital of Caracas Luis Razetti Medical School. The Clinic became a fully fledged Hand Unit in 1989 offering a Residency Programme for Surgery of the Hand and Upper Limb Reconstruction. In 1997 the Unit was upgraded to a "Service", and a 3-year Specialisation Programme was formally initiated in 2005 which is recognised by the Central University of Venezuela. He was Head of the Service until his retirement in 2002.

Antonio Ricciardelli was a founding member of the Venezuelan Society for Surgery of the Hand and Upper Limb Reconstruction in 1974. He was member of numerous national and international Societies, Associations and Medical Institutions, including President of the Venezuelan Society for Surgery of the Hand from 1983 to 2004.

Prof. Ricciardelli was invited as visiting professor multiple times, and published three books, three chapters and 55 journal articles.

Antonio De Santolo Ricciardelli was honoured as 'Pioneer of Hand Surgery' by the IFSSH at its 11th International Congress in Seoul, Korea in 2010.

“Founding the nation's first Hand Clinic in 1972”



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VOLUME 10, NUMBER 3

ASSESSING TENDON INJURY: CLINICAL EVALUATION AND DIAGNOSIS

Hand Surgery Resource from the IFSSH continues to provide educational content focused on the evaluation and management of hand injuries. This newsletter highlights key principles in assessing flexor tendon injuries of the hand.

Assessing Tendon Injury

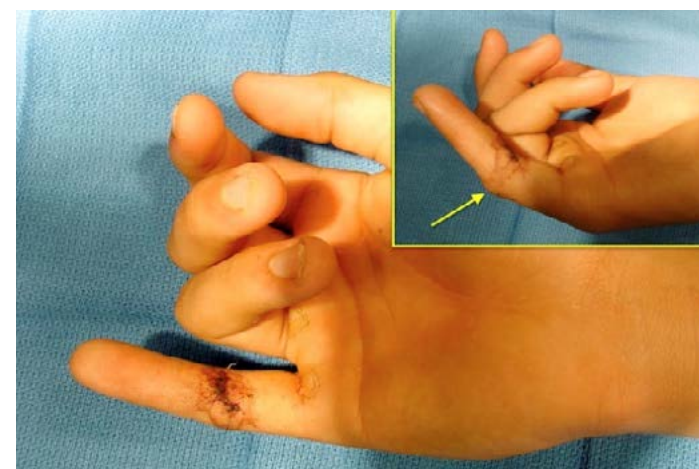
Tendon injuries are frequently encountered in hand trauma and may be overlooked, particularly in the setting of small or seemingly superficial palmar lacerations. Evaluation begins with understanding the mechanism of injury. Sharp lacerations are more likely to result in complete tendon division, whereas blunt trauma may lead to generalized digital swelling, decreased active motion, but rarely completely rupture a flexor tendon.

Clinical examination is essential for diagnosing flexor tendon lacerations. Each digit should be assessed independently for active flexion. Complete or partial loss of active motion should prompt suspicion of tendon injury. Early recognition is critical to restoring function and guiding appropriate surgical management.

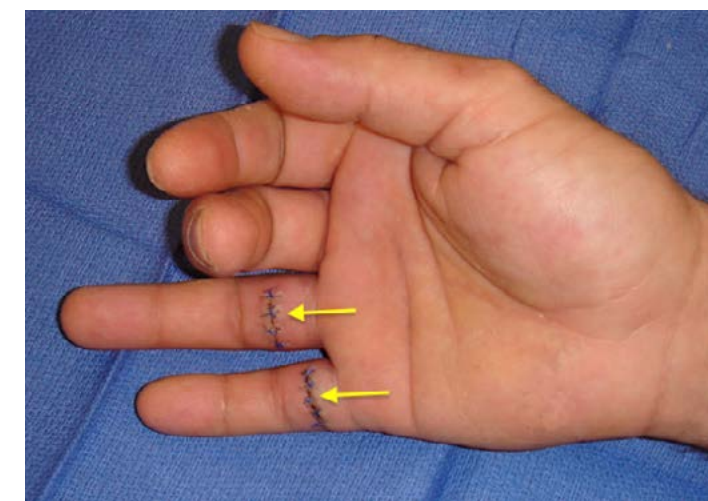
Key Points of Flexor Exam

A detailed examination is recommended:

- The examiner should start with a gentle and calm approach to a bleeding and potentially scared patient.
- Observe the normal resting flexion cascade of the injured fingers versus the fingers on the uninjured side.



Note the normal resting cascade of the index, middle, and ring fingers and the loss of the flexor cascade in the little finger where the FDS and FDP are likely cut.



Note the loss of the cascade when the FDP and FDS tendons of the ring and little are all cut.

- Next observe the wound. In severe wounds exposed bone and cut tendon ends may make the flexor tendon status and need for urgent surgery obvious.
- When the flexor tendon status is not obvious, assess active flexion and extension at each joint of the involved digits.
- Isolate individual joints to evaluate tendon function.
- Clinical Tip:
 - Independent intact active DIP flexion indicates an intact flexor digitorum profundus tendon.
 - Independent PIP flexion with uninjured digits held in full extension indicates intact flexor digitorum sublimis tendon.



Right middle FDP tested by isolating active DIP flexion against resistance.



Isolating right middle FDS function by keeping index, ring, and little in extension.

- Always compare normal hand with the contralateral hand.
- Particularly in chronic lacerations and in children be aware the adjacent digit may "finger trap" the finger with cut flexors and give the appearance of intact active flexion.

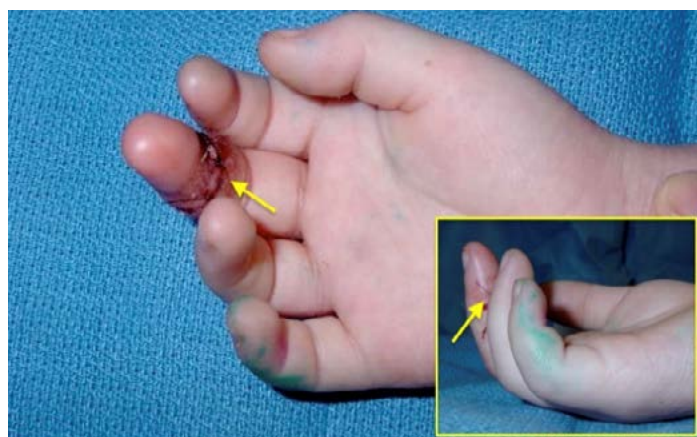


Note the healed laceration (1) and in the insert note the ring finger makes the little finger to appear to flex.

- Partial tendon injuries may present with subtle findings and should be considered in all cases. Partial flexor lacerations may be suggested by excessive tenderness with resisted active flexion or by weak or limited active flexion. Suspected partial laceration may require a surgical exploration to determine the status of the flexor tendon.
- Flexor tendon lacerations may also involve adjacent neurovascular structures. Note the proximity of the neurovascular bundle to the flexors in the [Anatomy at Risk](#) palmar sections 1-5.

Case Example: Loss of DIP Flexion Right Middle Finger

A 24 y.o. left handed patient presents with a laceration over the volar aspect of the finger and inability to flex the right middle finger distal interphalangeal joint. This finding is consistent with injury to the flexor digitorum profundus tendon.



Note the laceration in DIP flexion crease (arrow) and the lack of normal cascade posture (insert) of the right middle finger. Assessment should also include evaluation of digital nerve function and capillary refill. Timely surgical management is recommended.

Using Anatomy At Risk for Tendon Injury Assessment

The [Anatomy at Risk website](#) and app provide a structured anatomic approach to evaluating hand injuries by identifying anatomical structures at risk based on injury location on the dorsum or palmar surface of the hand. Users can select the location of injury to access:

- Videos describing the anatomy
- Videos describing the exam of each section's structures
- A list of at-risk structures.
- Relevant anatomy and examination content.
- Supporting images and diagrams.

The website and app supports rapid clinical assessment and decision-making.

Explore More on Hand Surgery Resource

Visit the [Hand Surgery Resource website](#) or access content through the Hand Surgery Resource and Anatomy at Risk apps, available on the Apple Store and Google Play.



DOUBLE CRUSH SYNDROME Recognizing Multifocal Nerve Compression

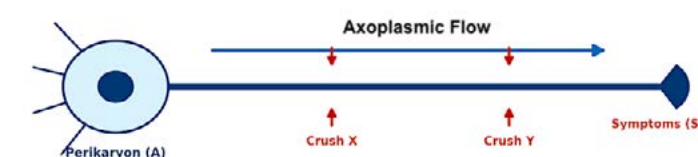
Hand Surgery Resource from the IFSSH continues to provide educational content on the management of upper extremity nerve disorders. This newsletter reviews the diagnosis and care of double crush syndrome.

Introduction

Double crush syndrome (DCS) was first described in 1973 by Upton and McComas, who proposed that an asymptomatic compression at one site along a peripheral nerve raises its vulnerability to injury at a second, distal site. Controversy persists regarding its cause, criteria, and naming, since the process is not limited to two sites.

Pathophysiology

The leading theory holds that serial compression disrupts anterograde and retrograde axoplasmic transport, depriving the axon of nutrients. With two level mechanical compression the nerve can undergo morphologic and functional decline. Predisposing factors include congenital narrowing of an osseous tunnel, retinacular thickening, diabetes, hypothyroidism, hereditary neuropathy, vitamin deficiency, and chronic alcohol use.



Serial compression at sites X and Y impairs axoplasmic transport along the axon, producing symptoms in the distal nerve.

Incidence and Related Conditions

Because no standard diagnostic criteria exist, true incidence is unknown. The most studied association is carpal tunnel syndrome (CTS) with cervical radiculopathy (CR); reported co-occurrence ranges widely, from under 10% to over 70%. Related conditions include thoracic outlet syndrome, cubital tunnel syndrome, Guyon canal compression, diabetes, and edema.

Differential Diagnosis. Isolated CTS, cervical radiculopathy, thoracic outlet syndrome, cubital tunnel syndrome, and Guyon canal entrapment.

Symptoms. Numbness, painful paresthesias, nighttime paresthesias, impaired pinch and grip, and frequent dropping of objects.

Typical History. A middle-aged woman with a mildly elevated A1C and chronic cervical arthritis presents with six months of severe bilateral paresthesias, numbness, and night symptoms.

Examination

Assessment should address each suspected level. Useful tests include motor and sensory exam by root and nerve, the Phalen and Durkan tests, median and ulnar Tinel signs, grip and pinch strength, and motor testing of the thenar and intrinsic muscles, noting any atrophy.

Workup Options. Electrodiagnostic studies (EMG/NCV) and cervical MRI without contrast help localize compression, though electrodiagnostic correlation with DCS is often inconsistent.

Conservative Treatment

Most suspected cases are managed conservatively, with multimodal therapy aimed at each lesion. Options include activity changes, NSAIDs, splinting or bracing, a soft collar, physical therapy, and corticosteroid injections or oral steroids for radiculopathy.

Operative Treatment

Surgery targets the specific symptomatic level for example carpal tunnel release for CTS.

Complications. Beyond the usual surgical risks, the main pitfall is incomplete relief when a second, unaddressed site of compression remains.

Outcomes

Surgical outcomes are generally poorer than for single-site compression. In one series, 33% of patients with CTS and CR called carpal tunnel release a failure, versus 7% with CTS alone. A poor response to a carpal tunnel injection may predict a poor surgical result.

Key Educational Points

The term double crush is imprecise: more than two sites may be involved and non-mechanical factors such as diabetes can contribute as well. When treating an isolated entrapment, clinicians should recognize that coexisting disease such as diabetes and cervical arthritis may limit the result and appropriate pre-treatment patient education regarding outcome expectations is critical.

Explore More on Hand Surgery Resource

For diagnostic guides, exam videos, imaging, and a reference list on double crush syndrome, visit the Hand Surgery Resource website at www.handsurgeryresource.net or access the content through the free Hand Surgery Resource app, available on the Apple App Store and Google Play.

Visit the [Hand Surgery Resource](http://HandSurgeryResource) website or access content through the Hand Surgery Resource and Anatomy at Risk apps, available on the Apple Store and Google Play.



MACRODACTYLY: EVALUATION AND MANAGEMENT OF DIGITAL GIGANTISM

Hand Surgery Resource from the IFSSH continues to provide educational content focused on the evaluation and management of congenital hand differences. This newsletter highlights key principles in the assessment and treatment of macrodactyly.

Introduction

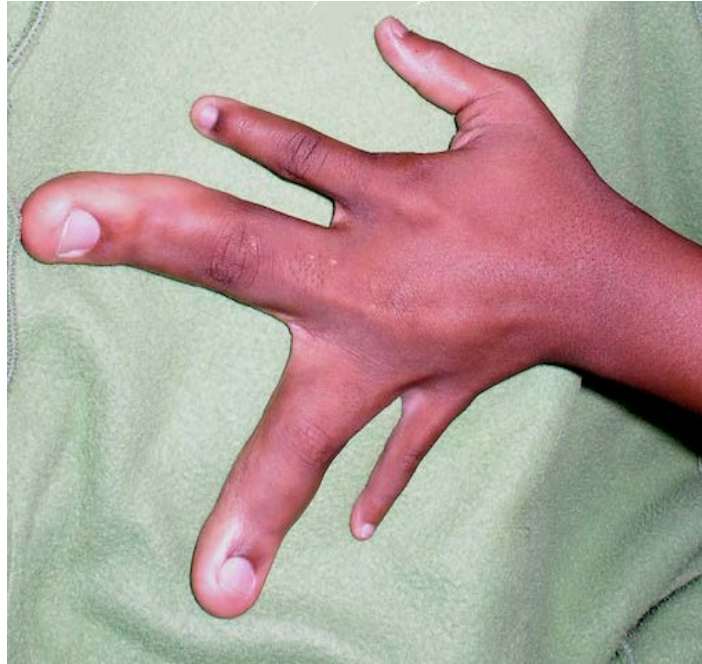
Macrodactyly, or digital gigantism, is a rare, nonhereditary congenital deformity marked by hyperplasia of one or more digits. In true cases, every structure of the affected digit is enlarged. Moderate to severe disease often causes pain, reduced ROM, and impaired hand function.

Pathophysiology

Proposed mechanisms include a neurogenic disorder (part of neurofibromatosis), loss of growth-limiting factors in development, tumorous overgrowth of one tissue (hemangioma, lymphangioma, enchondroma), and lipomatous degeneration. True macrodactyly (hamartomatous enlargement of all mesenchymal elements) is split into static (proportional growth from birth) and progressive (disproportional growth) types.

Related Anatomy

One or more adjacent digits may be involved. The index finger is most often affected, then the middle, thumb, ring, and little fingers. Adjoining metacarpals are typically spared.



Incidence and Related Conditions

Macrodactyly is about 0.9% of upper-extremity congenital anomalies and is more common in males (7:5). Associated conditions include Proteus, Bannayan-Riley-Ruvalcaba, Maffucci, and Klippel-Trenaunay-Weber syndromes, neurofibromatosis, lipofibromatous hamartoma of the median nerve, syndactyly, polydactyly, and clinodactyly.

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Differential Diagnosis

Proteus syndrome, arteriovenous malformation, congenital lymphangioma, and macrodystrophia lipomatosa progressiva.

Symptoms

Enlarged digit(s), limited ROM, occasional pain, and reduced two-point discrimination. There is also significant potential for social and psychological problems.

Typical History

A typical case is a 16-year-old boy whose left middle and ring fingers grew faster than other digits, eventually dwarfing them. Progressive enlargement led to pain and trouble writing, driving, and opening doors, prompting surgery.

Examination

Diagnosis is mostly clinical. Palpate for thick, fatty tissue; inspect for instability and limited ROM.

Workup Options

Plain x-rays show osseous overgrowth and joint status. MRI or angiography helps when a vascular malformation or nerve hamartoma is suspected. Prenatal ultrasound can detect it in utero.

Conservative Treatment

In mild cases without major enlargement or loss of function, observation alone is appropriate.

Operative Treatment

Severe or progressive disease often needs surgery. Age, type of overgrowth, digits involved, and patient and surgeon preference guide choices. Options

include soft-tissue debulking, epiphysiodesis (most common), ostectomy, closing-wedge osteotomy, neurolysis, arthrodesis, and ray amputation for nonfunctional digits. Microvascular toe transfer may follow thumb amputation. Static must be distinguished from progressive disease early, as progressive cases need earlier surgery and more procedures.

Complications

Scarring, chronic pain, edema, reduced sensation, flexion contracture, hook nail, ungual deformity, IP joint stiffness, motion loss and recurrent enlargement of digits.

Outcomes

A truly normal finger is rarely achieved; counseling should emphasize that achieving an acceptable result not a perfect result most be the goal. Functional outcomes usually exceed aesthetic ones.

Key Educational Points

Congenital macrodactyly is the preferred term. It is one of the most difficult congenital hand anomalies to treat. Most children need more than one procedure, mainly for the progressive type. Recent research links somatic PIK3CA mutations to the PIK3CA-related overgrowth spectrum (PROS), and gene-targeted therapy is in development.

Explore More on Hand Surgery Resource

Visit the [Hand Surgery Resource website](#) and Hand Surgery Resource App (Apple Store and Google Play) for additional diagnostic guides, exam videos, and related anatomy.

VISIT HAND SURGERY RESOURCE

Art Exhibit #28



Chacma baboon (*Papio ursinus*)

Society and Federation Reports

HAND SURGERY ASSOCIATES OF HO CHI MINH CITY (VIETNAM)

The Present and Future of Ho Chi Minh City Hand Surgery Associates: A Community Poised for Global Impact

On 30 May 2026, the 20th Annual Scientific Conference of the Hand Surgery Associates of Ho Chi Minh City was held at Pham Ngoc Thach University of Medicine in Ho Chi Minh City, Vietnam. The event marked a significant milestone for one of the country's most influential hand surgery organisations and offered a compelling glimpse into the remarkable evolution of Vietnamese hand surgery (Figure 1).



Fig. 1: The entrance of the Conference Venue.

We were honored to attend at the invitation of Dr. Le Gia Anh Thy, Chairman of the conference and Head of the Upper Limb Department at the Hospital of Traumatology and Orthopaedics (HTO) in Ho Chi Minh City (Figure 2).



Fig. 2: Opening remarks by Dr. Le Gia Anh Thy, Chairman of the Conference, and Head of the Upper Limb Department at the Hospital of Traumatology and Orthopaedics (HTO) in Ho Chi Minh City.

A Plenary Session Showcasing Regional Excellence

The Conference opened with an inspiring keynote lecture, "What's New in Hand Surgery," delivered by Dr. Le Nghi Thanh Nhan from Hue. His presentation highlighted Vietnam's vision for the future of hand surgery, emphasising the integration of telemedicine, artificial intelligence, and digital healthcare solutions to expand access to specialised care across the country.

This was followed by Dr. Takehiko Takagi's lecture from Japan, "Strategies and Global Perspectives on Thumb Hypoplasia," which explored contemporary treatment strategies for thumb hypoplasia and provided an overview of current practices and challenges across Asia and the wider international hand surgery community (Figure 3).

The audience was then treated to presentations from two of Singapore's most respected hand surgeons.

Dr. Sandeep Sebastin presented "Heterotopic Replantation in a Mangled Hand," sharing a series of extraordinarily complex reconstructive cases that he had personally managed in recent years. His thoughtful discussion of surgical decision-making in devastating hand injuries resonated strongly with the audience, particularly in Ho Chi Minh City, where industrial and traffic-related hand trauma remains a daily reality.

Next, Dr. Alphonsus Chong delivered "Naming the Difference: Why Classification Matters in Congenital Hand Surgery." Approaching congenital hand reconstruction from a perspective, he demonstrated the critical role of classification systems in surgical planning and showcased elegant reconstructive techniques, including pollicisation, that captivated attendees.

The plenary session concluded with Dr. Chua Wei Song from Malaysia, whose lecture, "Wrist Surface Anatomy and Structures to Avoid," provided valuable anatomical insights directly applicable to everyday clinical practice.



Fig. 3: Engaging discussion during the Q&A Session.

Together, these presentations reflected not only the scientific depth of the meeting but also the increasingly international nature of hand surgery collaboration throughout the Asia-Pacific region (Figure 4).

Eight Scientific Sessions and Forty-Five Presentations

Following the plenary program, the conference continued in two parallel halls featuring a diverse scientific agenda.

A total of eight sessions were held, covering:

- WALANT surgery
- Thumb carpometacarpal arthropathy
- TFCC injuries
- Scaphoid fractures and nonunion
- Congenital hand differences
- Hand fractures
- Tendon injuries
- Microsurgical reconstruction

Across these sessions, 45 free papers were presented and discussed with remarkable enthusiasm. The quality of discussion reflected both the growing academic maturity of Vietnamese hand surgery and the commitment of its surgeons to advancing patient care.



Fig. 4: Receiving a Certificate of Appreciation following the Plenary Lecture.

One presentation was particularly noteworthy.

Dr. Nguyen Duong Phi from City Children’s Hospital presented “Toward the Establishment of a Multicenter Congenital Hand Differences Registry in Ho Chi Minh City.”

His vision is to create a multicenter registry for congenital hand differences, enabling institutions to share data and collaborate on research involving these rare conditions. Such registries have become standard in North America and Europe yet remain relatively uncommon in many parts of Asia.

As interest in collaborative registries grows throughout the Asia-Pacific region, his efforts represent an important step toward increasing the international visibility and scientific contribution of Asian congenital hand surgery.

The Growth of Hand Surgery in Vietnam

Over the past several decades, hand surgery in Vietnam has undergone remarkable development, particularly in Ho Chi Minh City, Hanoi, and Hue.

In Ho Chi Minh City, rapid economic growth, industrialisation, and urban expansion have inevitably led to an increased incidence of occupational injuries

and traffic-related trauma. This clinical demand has served as a major catalyst for the advancement of hand surgery.

Against this backdrop, the Hand Surgery Associates of Ho Chi Minh City was established in 2000. The organization was founded under the leadership of Dr. Tran Thanh My, and since 2006 it has been guided by Associate Professor Nguyen Van Thai of Pham Ngoc Thach University of Medicine.

Although Vietnam does not yet have a unified national hand surgery society, this conference demonstrated a strong collective desire to bring together all aspects of hand surgery—including trauma, congenital conditions, microsurgery, reconstruction, and degenerative disorders—under a common professional platform.

Importantly, the development of Vietnamese hand surgery extends beyond major urban centers. Leading hospitals are actively conducting outreach programs, surgical missions, and educational initiatives in remote regions to improve access to specialised care for patients with traumatic injuries and congenital anomalies. The future integration of telemedicine promises to further strengthen these efforts and reduce disparities in healthcare access.

Looking Toward the Future

Vietnamese hand surgery stands at an exciting crossroads.

Significant progress has been achieved, yet important challenges remain, including the need for:

- More specialised training programs
 - Expanded infrastructure and equipment
 - A unified national Hand Surgery Society
- Encouragingly, many institutions are already investing heavily in the next generation of surgeons through residency and fellowship programs, research opportunities, international observerships, and structured mentorship initiatives.

International engagement is also increasing rapidly. Vietnamese surgeons are becoming increasingly visible at global meetings, including those organised by the International Federation of Societies for Surgery of the Hand, fostering valuable collaborations and raising the profile of Vietnamese hand surgery on the world stage.

What was perhaps most striking throughout this conference was the sense that Vietnamese hand surgery is no longer simply a developing specialty—it is a vibrant, ambitious, and forward-looking community determined to shape its own future. If ongoing efforts in education, research, infrastructure development, and national organisation continue to progress, Vietnam has every opportunity to emerge as one of South-East Asia’s leading centers of excellence in hand surgery.

As the Hand Surgery Associates of Ho Chi Minh City celebrated its twentieth anniversary, the atmosphere throughout the meeting reflected not only pride in past achievements but also confidence in an even brighter future. The energy, vision, and dedication displayed by its members left little doubt that the next chapter of Vietnamese hand surgery will be one worth watching closely (Figure 5).

Reference

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Upper Limb Department, HCMC Hospital of Traumatology and Orthopaedics, Ho Chi Minh City, Vietnam



Fig. 5: Group photo of the participants at the 20th Annual Scientific Conference of the Hand Surgery Associates of Ho Chi Minh City.

REGIONAL REPORT FROM EUROPE AND AFRICA

Europe and Africa: Connecting, Educating, and Growing Together

Since our election as Members-at-Large representing Europe and Africa, it has been a pleasure to witness the remarkable level of activity across our regions. From established international meetings to grass-roots educational initiatives, the past year has been characterised by collaboration, inclusivity, and a shared commitment to improving hand surgery worldwide.

One of the most rewarding aspects of our role is seeing how Societies work together across borders – not only within Europe, but increasingly also between Europe, Africa and beyond.

International Courses and IFSSH-related Educational Activities

A major highlight was the **Hong Kong Foundation Course**, co-organised by the **British Society for Surgery of the Hand (BSSH)** and the **Hong Kong Society for Surgery of the Hand**, under the umbrella of IFSSH educational collaboration. The Course was a resounding success, bringing together participants from different regions and training backgrounds. The high scientific level, combined with a strong focus on fundamentals and practical relevance, made this a model example of how joint initiatives can broaden access to high-quality education.

Looking ahead – and already eagerly anticipated – is the **IFSSH Mid-Term Course in Venice (4-8 April 2027)**, hosted by the **Italian Society for Surgery of the Hand (SICM)**.



APFSSH-FESSH
FA Academy
FOUNDATION COURSE
4-6 March 2026 - Hong Kong



Preparations are well underway, and expectations are high following the strong vision presented during the Washington Meeting. This course promises to be both scientifically outstanding and uniquely positioned at the crossroads of European hand surgery traditions.

Major conferences: a year of strong participation

The FESSH Congress in Basel deserves special mention as an important moment of convergence for the European and global hand surgery communities within the IFSSH framework. The meeting was highly successful, combining outstanding scientific content with excellent attendance and superb organisation by the Swiss Society of Hand Surgery.

Centred around the theme “**Restoration of Balance**,” the scientific program resonated well with IFSSH’s core values, highlighting the balance between innovation and fundamentals, advanced technology and sound clinical judgement and sub specialisation within comprehensive patient-centred care. Beyond its European scientific relevance, the Congress also provided an ideal setting for the **IFSSH Executive Committee, Council and General Assembly meetings**, strengthening interaction between IFSSH leadership and Member Societies. Together, these elements illustrated how regional meetings such as FESSH actively support and reinforce IFSSH’s global mission in education, collaboration, and governance, with Basel offering an excellent stage for this shared international vision.

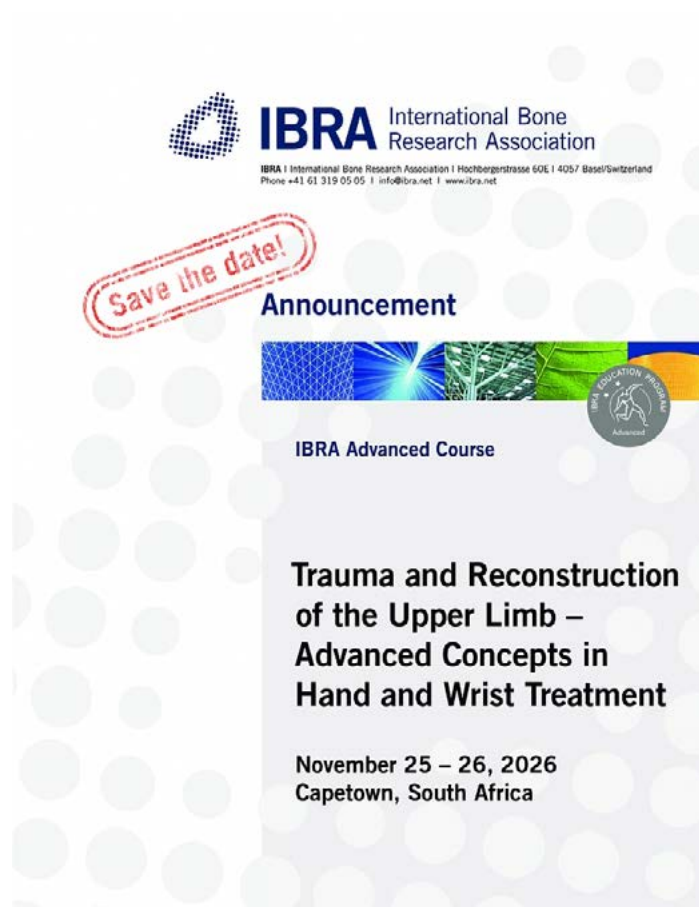


In **Central and Eastern Europe**, educational momentum continues to grow steadily. We are pleased to highlight the **XVIII International Poznań Course in Hand Surgery**, organised by the **Polish Society for Surgery of the Hand** under the leadership of **Prof. Dr. Piotr Czarnecki** and **Prof. Dr. Leszek Romanowski**, together with an international faculty. The Course attracted broad participation and provided a valuable platform for high-quality education, discussion, and exchange at a regional level. Initiatives such as this clearly demonstrate the strength, diversity, and continuing development of hand surgery education across Europe, in close alignment with IFSSH’s educational mission.



Africa: Education, Outreach, and Sustainable Growth

In Africa, educational and outreach efforts continue to expand, often through close international collaboration. A key upcoming event is the IBRA Course in Cape Town, South Africa (19-20 November 2026). This course represents an important opportunity to support fracture and trauma education in the region, foster local expertise, and strengthen connections between African surgeons and the global hand surgery community.



In addition, Jonathan Hobby's recent visit to Ghana, focused on **WACS educational activities**, exemplifies the impact of direct engagement on the ground. Teaching, mentorship, and dialogue with local surgeons highlighted both the challenges and the enormous potential present in the region.

These visits are invaluable – not only for skills transfer, but also for building long-term, sustainable professional relationships.



Strengthening our network

What unites all these activities – from Hong Kong to Venice, from Basel to Cape Town and Ghana – is a shared belief in collaboration, education, and mutual support. Europe and Africa encompass an extraordinary diversity of healthcare systems, training structures, and clinical realities. This diversity is not a weakness, but a strength. **IFSSH provides a unique platform to bring these perspectives together.**

We strongly encourage all national Hand Surgery Member Societies within our regions to share their activities, courses, meetings and outreach efforts with us. Even small initiatives can inspire others and contribute meaningfully to the global hand surgery community.

We look forward to continuing these connections over the coming years and to supporting Societies – established and emerging – in making the most of IFSSH opportunities.

With collegial regards,

Ilse Degreef

Jonathan Hobby

IFSSH Members-at-Large representing Europe and Africa



CHILEAN SOCIETY OF HAND AND MICROSURGERY

It has been almost a year since our last update. During this period, many things have happened in the world, in our country, and within our hand and microsurgery Society. Despite everything, the global hand surgery community remains a space of respect, friendship, welcome, and professional growth, with the well-being of our people and, most importantly, our patients, always in the foreground. Being part of the IFSSH and having these spaces for training and camaraderie is continually appreciated.

Our 2025 Chilean Congress was held in the beautiful city of Puerto Varas, in southern Chile, on the shores of Lake Llanquihue and at the foot of Osorno Volcano. It was a three-day learning event featuring international guests Bauback Safa, Amy Moore, and Antonio Carlos da Costa. The Congress marked an incredible year under the leadership of our past president Pamela Vergara, who handed over the presidency to our current president Mauricio Prado and to the 2026 leadership: Esteban Urrutia, Vice President, and Paula Pino, Secretary.

The 2026 Chilean Congress will take place in the vibrant resort of Viña del Mar–Valparaíso. The organising committee has prepared three days of learning, plus a pre-congress course on upper-extremity trauma, with renowned international guests such as Alex Shin, Scott Kozin, Andrea Atzei, Andrew Watts, and Sergi Barrera, along with active participation from numerous national speakers.

Chile and its members have actively participated in international congresses, amongst others, the Argentine (AACM), Brazilian, Costa Rican, Peruvian congresses, SECMA, and FESSH in Basel, reaffirming the Chilean Society of Hand and Microsurgery as a prominent actor on the global stage of our specialty.



Dr. Esteban Urrutia (Vice-president), Dra. Paula Pino (Secretary), Dr. Mauricio Prado (President).



Part of the Chilean delegation at FESSH, Basel.



Part of the Chilean Delegation at SECMA.

Also, with great pride, we announce that Chile will lead the administration of the Latin American Federation of Hand Surgery (FLACM) for the 2028–2029 period, with Juan Manuel Breyer as President-Elect and Pamela Vergara as Secretary-Elect. This period will culminate with the bianual FLACM Congress in Santiago de Chile.

Breaking news!! Our member and past president, Dr. René Jorquera, has been named President-Elect of IWAS for the 2027 term. A great honour for our Society and a recognition of René’s tremendous work.

During the last IFSSH Committee meeting, we were informed of Belinda Smith’s departure from her role as Executive Administrator of the IFSSH. We would like to take a moment to acknowledge and thank her for her outstanding work. She has always been very close to our delegation, and we regard her as an honorary Chilean. Thank you, Belinda, for your work, your friendship, and your big heart. You will always be warmly welcomed in Chile.

Our Society has grown and matured progressively, thanks to the efforts of its members and the support of our Latin American friends and the broader global community. It is an honour for us to belong to the IFSSH and to contribute from the southernmost corner of the planet. We look forward to welcoming more friends to our country.

Sincerely,

Chilean Society of Hand and Microsurgery
Dr. Mauricio Prado, President
Dr. Esteban Urrutia, Vice President
Dra. Paula Pino, Secretary
Dr. Sebastian von Unger, IFSSH Delegate

Santiago, 24 June 2026

ASSOCIATION OF CHINESE-SPEAKING HAND SURGEONS UNITED (ACU)

Over the past year, ACU has carried out a series of academic activities to boost the development of hand surgery and education across China.

We continued our long-standing Journal Club hosted by Dr. Shu Guo Xing and Dr. Chao Chen. (Figure 1) The Journal Club is held every two to three months via online conferencing, consistently attracting hundreds of participants each time.

Post-publication peer discussion, comment and review on articles in

THE JOURNAL OF HAND SURGERY

直播时间：2026年3月28日 20:00-21:30

Journal Club

会议主持 邢树国、陈超

技术支持 科创云学汇

讨论嘉宾 江苏南通大学附属医院 手外科 邢树国
山东省立医院 手足与显微重建外科 陈超
河北医科大学第三医院 手外科 王立
湖北理工学院附属医院黄石爱康医院 骨科(手外科) 盛伟
浙江台州恩泽医疗集团恩泽医院 手足外科 王成
北京积水潭医院 手外科 李斌
河南郑州仁济医院 创伤显微外科 吴召森

直播入口

会议日程

时间	课题名称	讲者
20:00-20:10	Should we always perform scaphoid nonunion surgery in patients with minor preoperative symptoms?	南通大学附属医院 高以峰
20:10-20:30	主持人: 邢树国 讨论: 陈超、王立、盛伟、王成、李斌、吴召森	
20:30-20:40	Peri-articular fractures of the hand	济南市第二人民医院 曹忠南
20:40-21:00	主持人: 陈超 讨论: 邢树国、王立、盛伟、王成、李斌、吴召森	
21:00-21:10	Management of isolated volar lunate facet fractures of the distal radius	湖北理工学院附属医院黄石爱康医院 刘安
21:10-21:30	主持人: 邢树国 讨论: 陈超、王立、盛伟、王成、李斌、吴召森	

Fig. 1: The poster of Journal Club held on 28 March 2026.

This regular online academic sharing has built a stable communication platform for hand surgery practitioners nationwide.

This year, we launched a brand-new monthly Book Club starting in January 2026, initiated by Dr. Jing Chen, based on the newly published textbook “Current Practice in Hand Surgery”. In each Book Club session, we invite 4 to 5 senior surgeons as panelists for discussions. The Book Club was attended by hundreds of surgeons across China. The editor-in-chief of this book, Professor Jin Bo Tang participated in the first 3 sessions offering in-depth insights and details of the chapters under discussion. (Figure 2-3) The Book Club aims to bring the updated concepts and methods to many hand surgeons in China.



Fig. 2: The poster of Book Club held on 12 March 2026; Dr. Jing Chen delivered two chapter covering the scaphoid fracture.



Fig. 3: The poster of Book Club held on 12 April 2026; Dr. Shu Guo Xing delivered the chapter of peripheral nerve entrapment.

In June 2026, ACU held a series of academic activities. On 13 -14 June, the Central China Hand Surgeons’ Conference was held with international faculty Dr. David Warwick, the team of Dr. Koji Moriya from Japan, Dr. Faduah Emmanuel Salazar Letona from Guatemala, as well as the team led by Dr. Jui Tien Shih from Taiwan. Prior to the Conference, the team of visitors visited Nantong after arriving at airports in Shanghai. The visit in Nantong included the hospital of 4000 beds (two campuses), Hand Surgery Department, and senior Professor De Shi (age 98 years) and the hospital museums. (Figure 4-7) This conference was attended by about 150 hand surgeons registered on-site. At the meeting, all invited experts shared their clinical experience, attendees benefited a lot from the lectures, course, workshops and related discussion (Figure 8-11). After the meeting, the host arranged a tour to the Yellow Mountain. All had a wonderful time and spoke highly of the peerless, picturesque scenery.



Fig. 4: The team of visitors visiting the hospital museums.



Fig. 5: The team of visitors in conversation with the senior Professor De Shi.



Fig. 6: The team of visitors visiting the research center of clinical medicine of the hospital.



Fig. 7: The team of visitors tasted Chinese tea and enjoyed traditional Chinese music in our hospital museum.



Fig. 8: Dr. David Warwick spoke on Mallet and Boutonniere injuries at the symposium of the Central China Hand Surgeons’ Conference.



Fig. 9: Group photo of the hand surgeons from Taiwan taken in front of the presentation screen.



Fig. 10: Dr. Koji Moriya from Japan spoke on extensor tendon injuries in the symposium at the Central China Hand Surgeons’ Conference.



Fig. 11: Dr. Faduah Emmanuel Salazar Letona from Guatemala spoke on extensor tendon injuries in the symposium at the Central China Hand Surgeons’ Conference.

Following the Hefei session, we accompanied these guests to Xuchang, Henan Province, for an academic exchange at Xuchang Renhe Orthopedic Hospital on 16 June. Over a dozen patients were prepared by the local hosts for onsite case discussion and consultations. The hand surgeons from the different countries or regions as described above conducted detailed consultations, reviewed medical images and performed physical examinations. According to their own clinical experience, they suggested treatment plans (Figure 12) In the afternoon, Drs. Warwick, Moriya and Shih delivered excellent lectures on scaphoid fractures, tendon repairs, and wrist arthroscopy respectively. They also held lively discussions with the hospital's medical staff, through which everyone gained abundant professional insights.



Fig. 12: A patient presenting with nonunion after osteotomy for ulnar impaction syndrome is seeking consultation on subsequent treatment strategies. The experts are reviewing medical images and performing physical examinations.

Finally, the team of visiting surgeons arrived in Zhengzhou to attend the 12th Annual Jixia Hand Surgery Forum and the 6th ACU Meeting on 19-21 June 2026. About 300 hand surgeons registered on-site, and 1392 people online on the first day of the Meeting (Figure 13-15).

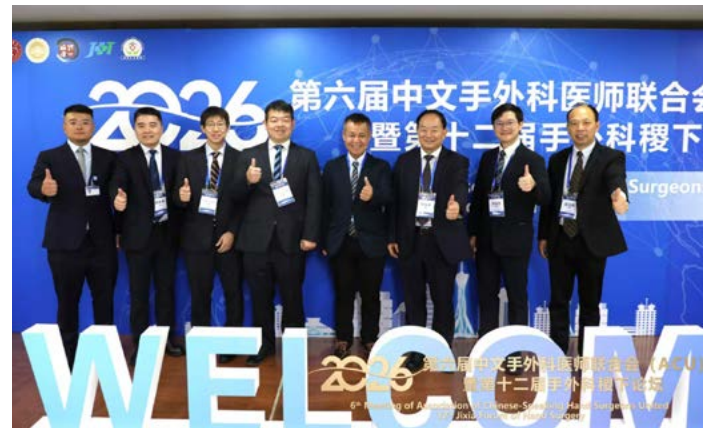


Fig. 13: Discussion among two senior colleagues as classmates during the tea break.



Fig. 14: At the ACU Conference and Jixia Forum, participants raised questions and opinions.



Fig. 15: Group photo of surgeons from Japan together with several local host surgeons.

In the evening of 20 June, we held an ACU Workshop covering two core practical modules: flexor tendon repair, demonstrating some 6-strands core suture methods, especially the M-Tang method, and live tutorials on end-to-side vascular anastomosis plus lymphatic-venous anastomosis. After observing the live demonstrations, trainees practiced these suture methods on chicken wings and tendon suture simulators (Figure 16).

One 21 June, the Jixia Forum was held with hand surgeons from in 5 institutes (Beijing Jishuitan Hospital, Affiliated Hospital of Nantong University, Shandong Provincial Hospital, Tianjin Hospital and Renji Hospital). Hot discussion and debates followed each of the sessions. The main topics included nerve reconstruction, tendon repair, treatment of scaphoid fractures and complex microsurgical reconstruction. The Meeting also included two video presentations: ACU in IFSSH, and IFSSH in ACU, highlighting activities of IFSSH in our Association and contribution of ACU colleagues to IFSSH.



Fig. 16: Trainees observing a surgical demonstration of venous end-to-side anastomosis in the chicken wings model.

Over the past 12 years, The ACU meeting and Jixia Hand Surgery Forum has attracted the attention of thousands of colleagues every year, promoting academic exchanges and the development of hand surgery in China. The recorded videos of the meeting can also be watched repeatedly on the website later.

We want to provide learning or communication opportunities for young hand surgeons to help them grow.

The ACU successfully applied for hosting the 3rd IFSSH Harold Kleinert Visiting Professorship. Following extensive coordination and communication, Prof. Joseph Dias (UK) was selected as the Visiting Professor. He will visit six institutions across China in November this year to deliver educational sessions and conduct a full range of academic and clinical activities. His visit to China will be 3 weeks. It is expected that this program will help keep Chinese hand surgeons' clinical knowledge upfront and broaden their scientific base and knowledge of hand surgery.

A number of hand surgeons including Drs Jin Bo Tang, Zeng Tao Wang, Bo Liu and Xiaofeng Shen were invited as faculty of the upcoming 2nd Mid-Term Course of IFSSH in Venice, Italy in 2027.

ARGENTINE ASSOCIATION FOR HAND SURGERY (AACM)

Under the leadership of the 2026 Executive Committee, headed by President Dr. Guillermo Maujo and Secretary Dr. Ignacio Rellán, the Argentine Association for Hand Surgery (AACM) continues its unwavering commitment to institutional excellence, continuing medical education, and international diplomacy. Building on the successes of previous years, the AACM has organised an extensive scientific calendar designed to enhance the surgical skills of colleagues nationwide and strengthen our bonds with the global hand surgery community.

Continuing Medical Education: Hands-On and Cadaveric Courses

The AACM has maintained its tradition of offering high-level practical courses focused on fundamental and advanced surgical resources:

- First Semester (Practical Courses): Practical courses using animal models were conducted for Z-plasties and local flaps (March), flexor tendon repair (April), and peripheral nerve repair (May).
- April and June Activities: An advanced cadaveric workshop focusing on the treatment of flexor tendon injuries was held at the University of Buenos Aires in April. June highlighted specialized cadaveric courses on tendon transfers in peripheral nerve paralysis (directed by Dr. Adriana Pemoff) and lower extremity flaps (directed by Dr. Jorge Boretto, featuring guest Dr. Antonio da Costa).
- Upcoming Activities: The practical skills program will continue with an Advanced Course in Experimental Microsurgery in August, followed by a Simulation Workshop covering basic techniques and wrist arthroscopy in September.



52nd Annual Updating Course



On 19 June, the AACM successfully hosted the 52nd Updating Course on Hand and Upper Extremity Surgery at the Alvear Icon in Puerto Madero, Buenos Aires. 'From Instability to Stiffness: The State of the Art Today' was the central theme of this year. The event welcomed 399 professionals and featured a comprehensive scientific program featuring prominent speakers from our Association, including Dr. Eduardo R. Zancolli, as well as invited speakers Dr. Francisco Melibosky and Dr. René Jorquera from Chile.

Expanding Global Perspectives: Webinars and Expert Interviews

In order to promote international dialogue, the series of webinars that began during Dr. Jorge Boretto's presidency continued, with prominent global figures participating this year. Dr. Jin Bo Tang from China presented his personal approach and updates on Zone 2 flexor tendon repair in April, followed by Dr. Jaime Bertelli from Brazil, who discussed nerve transfers in upper extremity trauma in May. During June, Dr. Jesse Jupiter from the USA shared his extensive personal experience, procedures, and lessons learned in elbow trauma.



The programming will continue into the second half of the year, including an August collaboration with the International Microsurgery Club, a September session featuring Dr. Raja Sabapathy from India presenting on skin coverage in severe upper limb injuries, and an October webinar with Dr. Pedro Delgado from Spain providing an update on wrist arthroscopy.

Additionally, prioritising the wisdom of our senior leaders, the AACM hosted an "Interviews with Experts" series. This provided a platform for profound institutional dialogue with esteemed figures such as Dr. Eduardo R. Zancolli and Dr. Miguel Capomassi.

Regional Scientific Conferences

Continuing the mission to integrate doctors and rehabilitators from the entire country, the AACM, in conjunction with the Argentine Chapter of Hand Therapy (CATM), organised Regional Scientific





Conferences in multiple provinces, including Mendoza in March, Córdoba in May, Santiago del Estero in July, and El Calafate in November.

The 50th Argentine Congress of Hand Surgery

The pinnacle of our 2026 academic calendar will be the 50th Argentine Congress of Hand Surgery, held concurrently with the 27th Congress of the Argentine Chapter of Hand Therapy.

Prior to the main event, on 6 October, a specialised Pre-Congress Cadaveric Course focusing on ultrasound-guided surgery will be directed by Dr. Marco Guidi.

The Organising Committee is honored to be led by Congress President Dr. Jorge Boretto, Congress Secretary Dr. Sebastián Valbuena, and Honorary President Dr. Pablo De Carli. We will welcome highly distinguished foreign guests and speakers from the USA, Italy, Switzerland, France, India, Brazil, and Colombia.

Celebrating the 50th Argentine Congress of Hand Surgery is not just a chronological milestone; it is a living testament to one of the most prestigious surgical schools in the world. This journey, which today brings us to the threshold of our “golden anniversary,” began with the vision of pioneers who understood that the hand required a unique dedication, both technical and human.



Reaching the 50th Congress means honoring the past to shape the future. In October 2026, Buenos Aires will welcome us once again to celebrate this half-century of science, friendship, and commitment to the patient. This congress is not merely an academic update; it is a tribute to every surgeon and therapist who, since 1975, has contributed their knowledge to ensure that Argentine hand surgery remains a source of national pride and a global benchmark.

This year, the congress will be held jointly with the American Association for Hand Surgery (AAHS). We will have the honour of welcoming a dozen of its members, and the presence of distinguished international guests from Europe, Asia, and the rest of the Americas will join us to establish this event as a truly global gathering.

We look forward to seeing you on 7-9 October 2026 at the Alvear Icon Hotel to celebrate 50 years of shared history!

www.congresoaaacm.com.ar

BOLIVIAN ASSOCIATION FOR SURGERY OF THE HAND (ABOCIMA)



The Bolivian Association for Surgery of the Hand (ABOCIMA), was founded in 2010. In 2012 the President of ABOCIMA, Dr Juan Carlos Suarez Lopez presented the application-for-membership documents to the IFSSH.



Dr. Juan Carlos Suárez López	PRESIDENTE
Dr. Alfonso Soria Galvarro Bort	VICEPRESIDENTE
Dr. Julio Cesar Irigoyen Suárez	SECRETARIO GENERAL
Dr. Kenyi Nitabara Koga	SECRETARIO DE HACIENDA
Dr. Jorge Arredondo Saucedo	SECRETARIO DE ACTA
Dr. García	VOCAL
Dr. Eduardo Omar Lizarazu Jaldin	VOCAL
Dr. Juan Carlos Mendieta Rojas	VOCAL



Before the establishment of the ABOCIMA the Bolivian Hand Surgeons participated in many different hand surgery events including international courses, South American Congresses and IFSSH Congresses.

In 1997 they organised the first international Hand and Upper Limb Surgery Course in Santa Cruz.

In 2012 ABOCIMA organised the first ‘Zancolli Course’ to honour the great Pioneer of hand surgery from South America Dr Eduardo A Zancolli, and to promote the development of Hand Surgery in Bolivia.



During the Covid pandemic ABOCIMA did not stop their scientific activities. They organised many webinars to keep the Bolivian Hand Surgeons informed during that difficult time.



After the first Bolivian Hand Surgery Congress which was held in La Paz during July 2024, ABOCIMA is now organising the second Bolivian Hand Surgery Congress in Santa Cruz de la Sierra from 28 -29 October 2026.



ECUADORIAN SOCIETY FOR SURGERY OF THE HAND (ECUMANO)



Growth, Education, and Social Commitment in Ecuador

The Ecuadorian Society for Surgery of the Hand (ECUMANO) was founded with the primary mission of serving as the unifying organisation for all hand surgeons in Ecuador, promoting academic excellence, scientific advancement, international collaboration, and social responsibility for the benefit of both patients and the specialty.

ECUMANO is the official orthopaedic subspecialty society formally recognised by the Ecuadorian Ministry of Public Health and remains the country's only professional society exclusively dedicated to Hand Surgery. We are an active member of both the Latin American Federation of Hand Surgery (FLACM) and the International Federation of Societies for Surgery of the Hand (IFSSH), strengthening our integration within the global hand surgery community.

Despite being a relatively young organization, ECUMANO has successfully developed significant academic and humanitarian initiatives. One of its most important achievements has been the **First Social Hand Surgery Mission**, organised in collaboration with the Metrofraternidad Foundation and the International Hand Surgery Group (GICAM). Through this initiative, more than 30 patients received reconstructive hand surgery free of charge, substantially improving their quality of life.

From 5–7 February 2026, ECUMANO successfully hosted the **3rd National Congress of Hand Surgery**, focused on the management of traumatic hand injuries. The Society extends its sincere appreciation to the distinguished Latin American faculty members who generously shared their expertise and contributed to the scientific success of the meeting.

During the Congress, ECUMANO also held the election of its new Executive Board, with **Dra. Sara Sánchez** assuming the presidency of the Society. ECUMANO expresses its sincere gratitude to **Dr. Gabriel Alegría**, Past President, whose outstanding leadership significantly strengthened the organisation, expanded its academic activities, and increased the membership throughout Ecuador.



Continuing medical education remains one of ECUMANO's highest priorities. In its commitment to keeping Ecuadorian hand surgeons current with the latest international advances, the Society will organise two major educational events during 2026:

- **Second Theoretical and Practical Course** on the Management of Severe Hand Injuries, scheduled for 7-8 August 2026.
- **Cadaveric Course in Hand and Wrist Arthroscopic Surgery**, to be held on 2–3 October 2026, featuring renowned Latin American faculty and designed to provide advanced regional training.

ECUMANO firmly believes in comprehensive education across all areas of Hand Surgery and proudly provides academic endorsement for educational programs organised by the **Ecuadorian Society of Hand Therapy (ECUTEMA)**.



Hand Prosthesis Campaign - 2026

Social Commitment

Social responsibility continues to be one of ECUMANO's core values. During the first half of 2026, the Society coordinated a nationwide campaign to support patients living with upper-limb amputations by facilitating the delivery of hand prostheses to more than **50 beneficiaries**, helping to improve their functionality, independence, and overall quality of life.

In addition, one of ECUMANO's major objectives for the current year is to support the surgical treatment of patients with **congenital hand malformations**, providing access to specialised procedures that promote improved functional outcomes and social integration.

Through these initiatives, ECUMANO reaffirms its commitment to education, scientific research, international collaboration, and community service, further establishing itself as a leading institution in the advancement of Hand Surgery in Ecuador and as an active, committed member of the **IFSSH family**.

Sincerely

Dra. Sara Sánchez
ECUMANO President



COSTA RICAN ASSOCIATION OF HAND SURGERY (ACCM)



On 15 November 2023, the Costa Rican Association of Hand Surgery (ACCM) was born. This was not a chance event, but the result of accumulated work by a group of professionals united by a common goal:

continuing medical education, the desire to improve their skills and knowledge for the benefit of patients and a commitment to future generations of surgeons who wish to dedicate themselves to this exciting yet demanding field.



The day the founding documents of the Costa Rican Association of Hand Surgery were signed on 15 November 2023.

When it comes to Hand Surgery in Costa Rica, some of the first steps in this field were taken by Orthopaedic and Traumatology Surgeons. Among them, Dr. Longino Soto Boucart, trained in Edinburgh, Scotland, under Dr. Lamb, and Dr. Rodolfo Arroyo, trained in Paris, France, with Dr. Tubiana, deserve mention – a trend that continues to this day. Among Plastic and Reconstructive Surgeons, Dr. Gustavo Chavarría stands out, trained in Mexico and is still working at the National Rehabilitation Centre (CENARE). Dr. Christian Castro Artavia completed his fellowship in Spain and Mexico as well as rotations in important hand surgery centres in the United States.

Dr. Castro Artavia generated a change in the perception and acceptance of Hand Surgery in our country. He dedicated himself to teaching postgraduate courses in Orthopaedics and Traumatology at the University of Costa Rica and organised different academic activities, courses and congresses related to the pathology of the upper limb. He was the first Orthopaedic doctor who specialised in Hand Surgery.

The past 15–20 years mark the most active chapter of Hand Surgery in our country – a field as exciting as it is demanding – one that has finally culminated in our country's inclusion in the largest grouping of Hand Surgery Societies.



Group photo of representatives from the various Societies during the FESSH Congress in Basel, Switzerland. Costa Rica was admitted as a new Member of the IFSSH on 5 June 2026.

This history is marked by the following milestones: the launch of a biennial hand surgery course in 2011, featuring world-class experts such as Jesse Jupiter, Lee Osterman, Jorge Orbay, Diego Fernández, Alberto Lluch, and Manuel Llusá, among others. This course would eventually evolve in 2025, into our first National Congress of Hand Surgery, with the invaluable support of the Latin American Federation of Hand Surgery Associations (FLACM), represented by its president, Dr. Sergio Daroda, and his collaborators. Their main objective has always been to spread awareness of, promote, and provide management tools for hand pathology to residents and Orthopaedic Surgeons, as well as to keep ourselves up to date.

In parallel, the subspecialty in Hand Surgery was officially recognised by Costa Rica's College of Physicians and Surgeons in 2013. Following this path, we were admitted to the Latin American Federation itself at its 2019 Congress in Santiago, Chile. And finally, on 5 June 2026, during the FESSH Congress in Basel, Switzerland, the Costa Rican Association of Hand Surgery (ACCM) was recognised as a member of the International Federation of Societies for Surgery of the Hand.

It is also worth noting that, during this developmental period, we have actively taken part in academic activities not only within our region but beyond it as well – examples include the IFSSH Mid-Term Congress held in Ecuador and, more recently, the American Congress in Washington, D.C. USA.

Looking back on this journey, we recognise how much we have accomplished as a young Society, but also the challenges still ahead: building a structure that would allow us to train our own Hand Surgeons in line with our Country's circumstances and needs, and laying the groundwork for research and publish our results.

AUSTRALIAN HAND SURGERY SOCIETY (AHSS)

The Australian Hand Surgery Society (AHSS) was delighted to host a successful and engaging Annual Scientific Meeting in Melbourne in March 2026, celebrating both the future of hand surgery and the remarkable contributions of those who have shaped our specialty.

Annual Scientific Meeting – Melbourne, March 2026

A highlight of the meeting was the Bernie O'Brien Oration, delivered by Associate Professor Amber Leis. Amber shared her personal journey in hand surgery, reflecting on the challenges she encountered throughout her career and the resilience required to overcome them. Her presentation emphasised the importance of family, professional relationships, perseverance and maintaining clear goals, while reminding delegates of the many reasons we chose a career in hand surgery.

Our international guest speaker, Margaret Fok, delivered outstanding presentations on wrist arthroscopy and carpal instability, which were enthusiastically received.

The meeting also provided an opportunity to acknowledge the recent passing of esteemed AHSS Foundation Members Tony Reiger, Bill Cummings and Phil Griffin. Their lasting contributions to Australian hand surgery and the Society were recognised with gratitude and respect.



The meeting concluded with the formal handover of the AHSS Presidency from Mark Ross to Greg Bain, with Greg Couzens assuming the role of President-elect.



Australian Contributions to IFSSH and APFSSH

As I commenced my Presidency, I reflected on the outstanding contribution Australian hand surgeons have made to the international hand surgery community.

IFSSH Pioneers

- 1986 – Benjamin Rank, Sidney Sunderland
- 1995 – Bernard O'Brien
- 2007 – Bruce Conolly, John Hueston
- 2016 – Tim Herbert, Wayne Morrison, David Vickers
- 2019 – Michael Tonkin
- 2025 – Graham Gumley

IFSSH Presidents

- Bernard O'Brien (1979–1983)
- Michael Tonkin (2013–2016)

APFSSH Presidents

- Wayne Morrison (1997–1999)
- Michael Tonkin (2002–2005)
- Anthony Berger (2023–2025)

Swanson Lecturer

- Wayne Morrison (2013)



IFSSH Patrons of Hand Surgery Program

During my term as IFSSH Member-at-Large (Asia), I was pleased to contribute to the establishment of the IFSSH Patrons of Hand Surgery Program. This initiative helps secure the long-term financial future of the IFSSH while supporting its mission of global education in hand surgery.

The AHSS is proud to be the first national hand surgery society to become a donor to this important program.

Recognition of International Service

Belinda Smith recently concluded more than two decades of outstanding service as Chief Administrator of the IFSSH. Beginning her work with Michael Tonkin in Sydney, Belinda became an integral part of the Federation, providing invaluable corporate knowledge, continuity and leadership. Her contribution has been instrumental in helping the IFSSH become a more professional and financially sustainable organisation, and she will be greatly missed.



Many other AHSS members have also provided distinguished international service, including:

- Jeff Ecker – President, Asia Pacific Wrist Association (APWA) (2023–2026); former AHSS President.
- Mark Ross – Education Officer, International Wrist Arthroscopy Society (IWAS); Australian Delegate to the IFSSH; AHSS President (2024–2026).
- Roland Hicks – Convenor of the 2007 IFSSH Congress in Sydney and former Australian IFSSH Delegate.
- Jennifer Green – Founder and President of the International Orthopaedic Diversity Alliance (IODA) (2022–2024); recognised internationally for her leadership in diversity, equity and inclusion in orthopaedic surgery.
- Greg Couzens and Steven Tham – Associate Editors of the Journal of Hand Surgery (American Volume).

International Outreach

The AHSS has supported hand surgery outreach throughout Asia and the Pacific for more than 30 years. Members have led multidisciplinary teams and individual missions, many supported financially by the Society. A comprehensive report is available on the AHSS and IFSSH websites.

Graham Gumley has been a leader in international outreach and was recognised as an IFSSH Pioneer for his exceptional contribution to outreach. He also received IFSSH sponsorship for his Cambodia program. He is one of many AHSS members who have generously contributed to outreach across our region.

The importance of these missions is best summarised by Professor Vuthy Chhoeurn, President of the Society of Cambodian Orthopaedics and Trauma: "These works offered not only healing and great hope to these desperate patients, but also unique practical experiences to our local surgeons and trainees. Moreover, the team's lectures at the medical school fulfilled our lacking knowledge."

On behalf of the Society of Cambodian Orthopaedics and Trauma (SOCOT), our surgeons, patients and their families, I extend my deep gratitude to the Australian surgical team and the Australian Hand Surgery Society for your support and commitment to improving orthopaedic care in Cambodia."



Professor Vuthy Chhoeurn

President, Society of Cambodian Orthopaedics and Trauma (SOCOT)
National Pediatric Hospital, Phnom Penh, Cambodia

Looking Ahead

We look forward to welcoming colleagues to Adelaide for the 2027 AHSS Annual Scientific Meeting from **28 April to 2 May 2027**. The meeting will feature distinguished international guest speakers **Dr Amit Gupta** (USA) and **Liu Bo** (China) and promises an outstanding academic and social program.



Greg Bain

President
Australian Hand Surgery Society 2026–2028

HAND THERAPY-ON-THE-MOVE: *a mobile hand therapy station for taking therapy to harder-to- reach communities*

Authors: Kirsty van Stormbroek, Amy Button, Anna Folly, Melissa Westig, Carla Jones, Derryn Palmer, Lauren Holman, Zerilda de Kock, Juané Visser, Jessica Joubert.

Introduction

Basic hand therapy is crucial in low and middle-income countries (LMICs). Hand injuries are common in LMICs and are commonly caused by work-related accidents, interpersonal violence, home accidents and falls, road accidents, and burns^{1,2}. Young males (average age between 24 and 35 years) carry the highest proportion of hand injuries¹⁻³. These individuals typically have low-income levels, work as semi- or unskilled labourers, and are breadwinners in families. Hand injuries can threaten job security, livelihood and role fulfilment, making adequate hand therapy essential.

Hand therapy services in rural and underserved regions is typically borne by novice generalist occupational therapists working in the public health sector⁴. Although practice settings vary, these therapists typically work with limited support and supervision, and few resources⁴. The authors of this paper spent the first year of practice after graduating in rural or underserved contexts in rural (n=6) and peri-urban settings (n=4) in South Africa. Despite providing services across areas of occupational therapy practice, a substantial proportion of their caseload was hand therapy. Common practice challenges included high caseloads, complex hand injuries, inadequate physical resources such as lack of space; lack of access to water and electricity, and the need to provide hand therapy services at multiple (often remote) clinics or in patients' homes. The photographs below illustrate some of these practice features (Figure 1).

In response to these challenges, a growing appreciation for the necessity of basic hand therapy services in these settings, and the call for equitable hand therapy for everyone, this project set out to design a portable hand therapy station for practice in rural and underserved areas. The prototype was designed, produced, and then piloted by two occupational therapists and their feedback was incorporated into the refined design.



Fig. 1a: Therapists travelling on a dirt road to a remote clinic in South Africa.



Fig. 1b: Navigating a narrow doorway with a paediatric wheelchair on a home visit.



Fig. 1c: A primary healthcare clinic at which therapy services are delivered.



Fig. 1d: A client who sustained a stab wound – a common injury in South Africa, which will often be sutured without repair of damaged structures.



Fig. 1e: A typical rural homestead where home visits may be undertaken



Fig. 1f: The extent of hand therapy equipment typically available

Hand Therapy-on the move: the portable hand therapy station

The portable hand therapy station consisted of a three-drawer plastic storage unit carried in a fabric, plastic-lined backpack. The backpack straps were padded with foam, and a long zip opened the backpack to allow full access to the drawers and splinting pan on top of the drawer unit. The hand therapy station could be moved on wheels or carried as a backpack. A large pocket on the side of the station accommodated thermoplastic sheets and a lightweight folding plastic table (see Figure 2).



Fig. 2a: The portable hand therapy station showing the padded backpack straps.
Fig. 2b: The station zipped open to allow access to the splinting pan (on top) & drawers.
Fig. 2c: A rural therapist from Eastern Cape Province carrying the kit on her back over rough terrain.
Fig. 2d: A rural therapist from KwaZulu Natal Province pulling the kit on wheels to a clinic.
Fig. 2e: Contents of the kit including basic splinting materials and dexterity tasks.



Fig. 3: The process followed in designing and fabricating the portable hand therapy station that can be used by therapists to customize a portable hand therapy station for their practice context.

A list of specifications for the portable hand therapy station design and contents was compiled from a review of local evidence and the groups’ personal practice experiences (Step 1 & 2). The contents of the station were determined from this list and cost-effective contents acquired (Step 3) which included appropriate assessment tools and equipment, contextually relevant hand therapy activities to facilitate the use of occupation-based therapy, basic splinting materials, customizable home programmes and patient education resources. A full list of the contents is provided in Table 1.

While a number of materials and designs for the drawer system were considered, the plastic drawer unit selected was lightweight, provided sufficient strength and adequately organised the therapy contents (Step 4). A pattern was created to fabricate the backpack (Step 5). The pattern and steps for sewing are outlined in Figure 4. The total cost of the station was 4400 ZAR (approximately 265 US Dollars). A video orientation to the first iteration of the station and its original contents can be viewed here: <https://canva.link/b6dl68he5golyuk>.

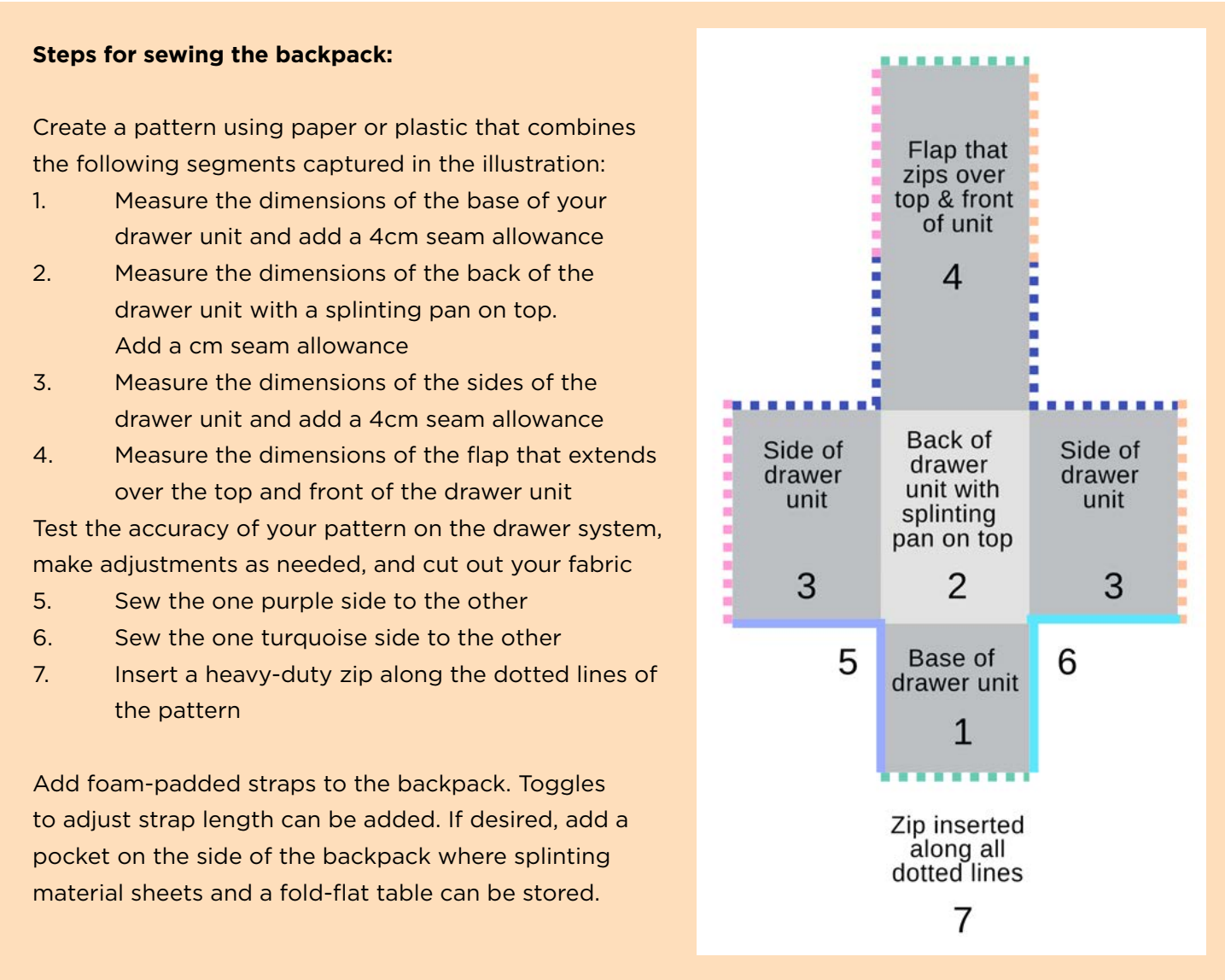


Figure 4: Steps for making a pattern and sewing the portable hand therapy backpack

Contents
Evaluation⁵, patient-rated⁶ and client-centred⁷ assessment tools that measure both body function and structure as well as activity and participation⁸: goniometer, tape measure, laminated assessment forms (e.g. DASH in South African languages) with permanent marker for repeated use.
Foldable table.
Splinting⁴ resources: splinting pan with electric extension cable, small heat gun, scissors, velcro, bandage, towel, paper clips, elastics, leather slings, fishline/dental floss, thermoplastic sheets and rolls, padding, plaster of paris, acetone, cottonwool, soft splinting material/fabric.
Water bottle: included for visits to clinics or homes with no running water and for use as weights for strengthening.
Preparatory activity resources: cohesive bandaging, microwavable heatpack/hotwater bottle, sponges, resistant therapy bands, desensitization texture sticks, basic prehension (e.g. key and lock) and dexterity activities (e.g.nuts and bolts), home-made therapy clay, home made resistant ball, pegs of various sizes, spray bottle, grip strengtheners, weight-well stick and rope,
Assitive devices: universal cuff, built-up grip.
Leisure activities: dominoes, cards
Occupation-based therapy resources^{9,10} (relevant to patient roles and activity profiles¹¹ and suited to diverse caseload⁴): screws, nails, screwdrivers, hammer, plyers, small wooden blocks, hand spade, bowl for dishwashing, cutlery & plastic crockery, pot (for cooking activities and to heat water over fire for splinting when no electricity), nail clippers, body lotion, combs, soap, socks, shirt, sewing kit, housecleaning tools.
Lamintated sheet with basic hand therapy vocabulary in South African languages to address communication barriers ^{10,12}
Illustrated, printed home programs in client- home languages
client adherence⁷
Illustrated, printed home programs in client- home languages (printing facilities rarely available and electronic sharing of home programs not feasible with many clients)
Treatment guidelines / principle-focussed protocols for common conditions to support therapists' clinical reasoning

Table 1: Contents of the revised Hand Therapy-on-the-move station

Conclusion

The Hand-Therapy-on-the-Move station is a simple portable hand therapy station that aims to support occupational therapists in South Africa and other LMICs in providing crucial hand therapy services to patients who rely on their hands for their livelihood. The practice innovation addresses some of the challenges therapists in these countries face in implementing occupation-based hand therapy⁵. The prototype can be easily replicated and customized by therapists using available materials and adapting the contents to suit the needs of different client groups. While particularly useful in low-resource settings, the station can be used by any therapist who requires portable hand therapy resources to support efficient care in home, clinic or hospital settings.

Producing multiple units or using cheaper materials (e.g. an appropriate paper-based technology (APT) drawer system) can reduce the cost of the kit. Using renewable materials and up-cycling hand therapy supplies will contribute to environmental sustainability.

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IFSHT NEWSLETTER - REACH

Issue 1 of volume 6 of the IFSHT newsletter is available on the IFSHT website. This issue is a special issues on the triennial congress which took place in Washington DC in March 25

<https://ifsht.org/publications/>

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

We call on hand and upper limb therapy clinicians and researchers to submit any contributions for consideration to:

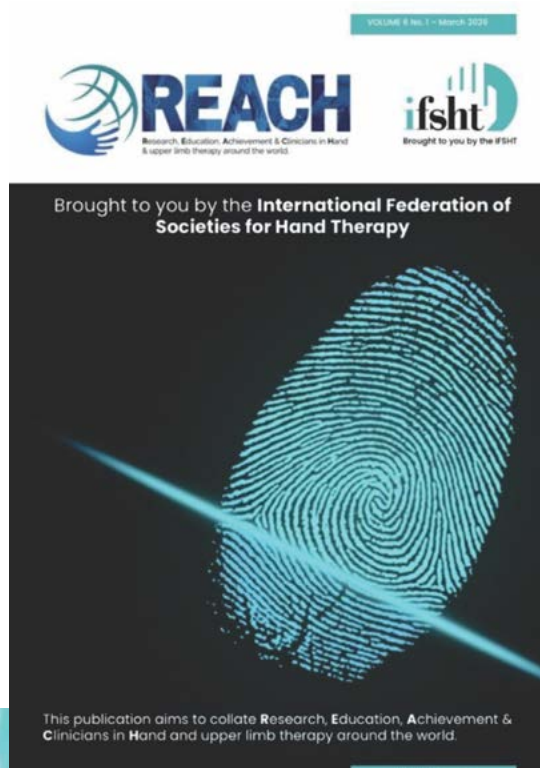
Informationofficer@ifsht.org

UPCOMING EVENTS

The Joint APFSSH-APFSHT Congress will be held in May 2027 in Seoul, South Korea. Online submission for Abstracts is now open! For more details visit the website <https://www.apfssh2027.com/>

The next joint IFSSH and IFSHT Triennial Congress will be in Singapore in 2028. The website is live for more information.

Further details can be found at: <https://www.sshs.sg/ifssh2028>



Kenya Hand and Microsurgery Conference 2026:

BUILDING THE FUTURE OF HAND SURGERY IN EAST AFRICA

A landmark event in the development of hand surgery in East Africa will take place in Nairobi, Kenya, from 20-22 November 2026 with the inaugural Kenya Hand and Microsurgery Conference.

The meeting is being organised with the support of the **International Federation of Societies for Surgery of the Hand (IFSSH)**. The conference is chaired by **Dr Peter Nthumba** and **Dr Lax Bhandari**, with **Dr. Dorsi Jowi** serving as Conference Secretary, along with support from members of the **Kenya Society of Plastic, Reconstructive and Aesthetic Surgeons** and the **Kenya Orthopaedic Association**.

The Conference aims to advance hand and microsurgery education in Kenya, foster collaboration among surgeons, and to establish the **Kenyan Society for Surgery of the Hand (KESSH)**. It will bring together plastic surgeons, orthopaedic surgeons, trainees, therapists, and allied healthcare professionals from across Kenya and neighbouring countries for scientific sessions, practical workshops, and strategic discussions on the future of hand surgery in the region.

The program will feature a keynote lecture by Dr Raja Sabapathy, President of the IFSSH, **Cadaveric Flap Course**,

Tendon Repair Workshop, resident paper competition and social events providing participants with valuable hands-on training and opportunities to learn from regional and international faculty.

A major focus of the meeting will be the development of a structured **hand surgery fellowship program** in collaboration with key institutions across Kenya, with the long-term vision of strengthening local capacity, improving access to specialised hand care, and working toward recognition of hand surgery as a dedicated speciality in the country.

We warmly invite members of the international hand surgery community to participate and support this exciting and historic event. More details regarding registration and the scientific program will be available soon. Please contact **Dr Peter Nthumba** at nthumba@gmail.com or **Dr Lax Bhandari** at laxnew@gmail.com for further information.

We look forward to welcoming you to Nairobi as we take an important step toward building the future of hand surgery in Kenya and East Africa.

Lax Bhandari and Peter Nthumba





BSSH THE BRITISH SOCIETY FOR SURGERY OF THE HAND

SCIENTIFIC MEETING 2026

4-6 NOVEMBER 2026 - EDINBURGH

with Guest Society:
AAHS American Association for Hand Surgery

South African Society for Surgery of the Hand (SASSH)

Annual Congress

Status: Confirmed
Topic: 55th Annual Congress
Where: Cape Town
When: 28 August, 2026 - 30 August, 2026

Celebrating **60** years

International Federation of Societies for Surgery of the Hand

1966-2026

IFSSH Patron



IFSSH

MID-TERM COURSE 2027

Venice, Italy 4-8 APRIL

17TH IFSSH-IFSHT

SINGAPORE 2028

TOWARDS SUSTAINABLE HAND SURGERY AND THERAPY

23-27 OCTOBER

Colombia Society for Surgery of the Hand (ASOCIMANO)



2026
AGO
19-22

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81ST ANNUAL MEETING OF THE AMERICAN SOCIETY FOR SURGERY OF THE HAND

STRENGTH Through UNITY

SEPTEMBER 17-19, 2026 • BOSTON, MA

ASSH American Society for Surgery of the Hand

Bujumbura, Burundi WALANT Course

WALANT - PRE-CONFERENCE WORKSHOP
25th COSECSA GRADUATION, AGM AND SCIENTIFIC CONFERENCE
28 - 29 November 2025
Bujumbura, Burundi



Organisers: Operating Theatre Practitioners Association of Kenya (OTPAK)

Supported by: International Federation of Societies for Surgery of the Hand (IFSSH)

Trainers:

- Dr. Donald Lalonde – Professor of Surgery, Past President – AAHS and CSSH (Canada)
- Dr. Carlos de Pina – Orthopedic Surgeon, Unidade do Punho e Mao, CUF Tejo/Leiria (Portugal)
- Prof. Pankaj Jani – Professor of Surgery - University of Nairobi; Past President – COSECSA and Chairman – OTPAK
- Dr James Kariuki – Final year G.S. resident, Karen Hospital, Nairobi
- Dr Jay Yajnik – Final year Ortho. resident, PCEA Kikuyu Hospital
- Dr. Alliance Niyukuri – Consultant paediatric surgeon Kibuye
- Dr. Nilkanth Jani – 1st year G.S resident, Kiambu Level 5 Hospital

1. Introduction

A two-day **Wide-Awake Local Anesthesia No Tourniquet (WALANT)** pre- conference workshop was held in Bujumbura, Burundi, on **28–29 November 2025** as part of the **25th COSECSA Graduation, AGM and Scientific Conference**.

The workshop brought together 31 trainees, 20 from nine African countries and 11 local trainees from across Burundi. In view of limited funding available, the organisers invited and supported all those trainees from nearby countries from which travel by road and public means was possible. A two day intensive WALANT focused training, which comprised didactic lectures, formal and informal discussions, practical sessions, and live surgical demonstrations was organised. The program aimed to strengthen surgical capacity in the COSECSA region and challenge dogma to alter the culture of surgery through promotion and adoption of WALANT as an innovative, cost-effective, and safe alternative to traditional surgery practice.

2. Venues

- **Day One:** Kings Conference Center, Bujumbura
- **Day Two:** Prince Regent Charles Hospital, Bujumbura

3. Participants

The workshop attracted a diverse cohort of local and international surgical residents, emphasising regional collaboration. Before the course, potential attendee candidates were vetted on their letter of reasons for attending, financial means, travel distance, and work done to get local sponsorship for their attendance. A selection and financial support committee headed by Professor Pankaj Jani did the vetting and decided on the level of financial support for the various attendees depending on their financial capabilities. Participants agreed to provide data of their WALANT cases to Professor Jani and Dr Nilkanth Jani after their return home.

A Whatsapp group of final selected attendees was created along with their respective financial support possibilities. On 20 November 2025, all attendees received a pack of papers, links to videos and power point presentations containing all the course information via Whatsapp so they could read and prepare for the 2-day course (**see appendix 1**). Prof Jani and Dr Lalonde answered many questions about WALANT on Whatsapp before getting to Bujumbura.

International participants from 9 countries

- Kenya: 5
- Uganda: 3
- Tanzania: 3
- Zanzibar: 1
- Democratic Republic of Congo: 2
- Ethiopia: 3
- Somalia: 1
- Gambia: 1
- Cameroon 1

Local participants

Burundi – 11

Trainers

- Portugal – 1
- Canada – 1
- Kenya – 4
- Burundi - 1

4. Workshop Objectives

- Provide comprehensive knowledge of WALANT principles.
- Train participants in preparation and safe infiltration of WALANT solutions.
- Demonstrate WALANT applications in general surgery, orthopedics, plastic and neurosurgery.
- Build regional capacity focusing on performing hand and soft-tissue procedures without general anesthesia or tourniquets.
- Promote collaboration and networking across COSECSA member countries.

5. Day One Program – 28 November 2025

Venue: Kings Conference Center, Bujumbura

TIME	EVENT	MODERATOR
8.00AM - 8.30AM	REGISTRATION	Medical students, Bujumbura
8.30AM - 8.40AM	OPENING WELCOME ADDRESS	Dr. Didier Kamatari Vice Dean (Fact of Medicine) Uni of Burundi Medical Board Member
8.40AM - 8.55AM	WALANT IN BURUNDI	Dr. Alliance Niyukuri
8.55AM - 9.15AM	INTRODUCTION OF ALL PRESENT AND WALANT PROGRESS OF WALANT IN AFRICA TO DATE	Prof P. Jani
9.15AM - 9:45AM	WALANT basics, usefulness and evidence-based sterility	Dr. D. Lalonde
9:45AM - 10.15AM	WALANT for management of acute and neglected wrist and forearm fractures and dislocations	Dr. Carlos de Pina
10.15AM - 10.45AM	BREAK	
10.45AM - 11.00AM	WALANT at Karen Hospital and progress so far	Dr. James Kariuki
11.00AM - 11.15AM	WALANT – Bridging gap between surgical demand and anesthetic resources	Dr. Jay Yajnik
11.15AM - 1:00PM	INTRODUCTION TO PRACTICALS: PREPARING THE WALANT SOLUTION 50, 100, 250 ml; AND where AND how to inject DISCUSS the COMMON Surgeries in GENERAL; ORTHO, NEURO and PLASTIC SURGERY PRACTICED UNDER WALANT IN THE REGION	Dr. J. Kariuki Dr. D. Lalonde Dr. Carlos De Pina Prof. P. Jani Dr. N. Jani
1:00PM - 2:00PM	LUNCH	
2:00PM - 3:00PM	PRACTICALS SESSION – How to inject INTO YOUR PARTNER	Dr. J. Kariuki
3.00PM - 3:15PM	VOTE OF THANKS AND DAY 2 PLANS	Dr. N. Jani
3.15PM - 5.00PM	OPEN FORUM DISCUSSIONS	ALL

6. Speaker Summaries

Dr. Didier Kamatari – Opening Welcome Address

Dr. Kamatari (Vice Dean Faculty of Medicine, University of Burundi, Medical Board Member) welcomed participants and emphasised the importance of continuous learning and regional collaboration. He highlighted Burundi’s commitment to improving surgical access and the potential for WALANT to support this national goal.



Dr. Alliance Niyukuri – Journey of WALANT in Burundi
Dr. Niyukuri detailed the evolution of WALANT within Burundi, discussing early experiences, challenges, and growing adoption across local hospitals. His talk emphasised its impact on surgical accessibility.

Prof. Pankaj Jani – Introduction of participants & WALANT progress across Africa
Prof. Jani facilitated introductions and outlined WALANT advancements across partner countries, emphasising the importance of shared learning and harmonised practice. He also shared data to show how WALANT is improving access to surgery and helping to alleviate poverty in many countries in Africa.



Dr. James Kariuki – WALANT at Karen Hospital
Dr. J. Kariuki, a fifth-year resident shared institutional experience from Karen Hospital, presenting clinical outcomes, workflow benefits, and patient satisfaction indicators after having performed the highest number of WALANT surgeries in the region, since his training in 2021.



Dr. Donald Lalonde – WALANT Basics, Almost Painless Tumescant Local Anesthesia, and Evidence-Based Sterility
Dr. Lalonde provided foundational WALANT instruction, covering pharmacology, sterility evidence, and global best practices, setting a strong scientific foundation for the workshop.

Dr. Carlos de Pina – WALANT in Wrist & Forearm Trauma
Dr. de Pina presented case-based insights into using WALANT for complex wrist and forearm injuries, demonstrating the technique’s wider surgical potential.



Dr. Jay Yajnik – Surgical Needs vs Anesthetic Resources

Dr. Jay Yajnik joining online (due to flight cancellation and delays), addressed the shortages of main operating rooms and anaesthesia providers and demonstrated how WALANT offers a sustainable solution to increasing surgical capacity and challenging the existing culture of surgery.



Practical Skills Faculty – Dr. Lalonde, Dr. De Pina, Dr. Nilkanth Jani

The multidisciplinary team conducted hands-on sessions covering solution preparation, injection techniques, and common surgical applications, ensuring participants achieved practical competency.



Dr Lalonde demonstrating WALANT injection technique.



Dr Lalonde demonstrates a SIMPLE almost painless digital block on Dr Yigeremew Kebede (Plastic Surgery, Ethiopia) who then injects Dr Lalonde in turn. Willing participants then performed digital blocks on each other in pairs as part of the practical component of this course.



Discussions following the injection demonstration.

Dr. Nilkanth Jani – Closing of Day One

Dr. N. Jani summarised the day, extended thanks, and provided guidance for the live surgical sessions planned for day two.

7. Assessment Component

Pre-Test – Day One

Participants completed a pre-test to assess baseline WALANT knowledge at the beginning of the first day and then again at the end of the second day repeated the test as a post-test (see appendix 2).

**8. Day Two – Live Surgical Demonstrations
29 November 2025**

Venue: Prince Regent Charles Hospital, Bujumbura
Start Time: 8:30 am

Day Two focused on **hands-on, theatre-based learning**, with participants observing and participating in real WALANT solution preparation, injections, and surgical procedures across multiple specialties. Four patients were injected with WALANT solution and underwent surgery under the guidance of local and international faculty.

Procedures Performed

1. General Surgery

Cases - Bilateral varicocele and Inguinal hernia

Surgeons: Dr. Sony Nahayo (Burundi), Dr. Nilkanth Jani (Kenya), Dr. Rashid Baiya (Tanzania), Dr. Andrew Omboga (Kenya)



2. Orthopedic Surgery

Left Distal radio-ulnar fracture fixation

Surgeons: Dr. Carlos de Pina (Portugal – International Faculty), Dr. Zihindula Cuma Moise (Burundi)



Dr Carlos (Portugal) and Dr Cuma (Burundi) operating on the distal forearm fracture under WALANT



They reduced and plated radius/ulna forearm 4 week-old fractures that were consolidating in a 12 year old boy. They chiseled out the callus, reduced both bones and plated them. All with WALANT, zero sedation, and minimally painful tumescent local anesthesia. See the Xray on the window. The boy smiled and gave a thumbs up through the case.

3. Plastic & Reconstructive Surgery

Skin grafting for a chronic wound

Surgeons – Dr. Sadock (Burundi), Dr. Abdullahi Adan (Somalia), Dr. Tensafun Ali (Ethiopia)



Dr Lalonde injecting the WALANT solution at the skin sites



Learning Activities for Residents
Residents rotated through the operating theatres and participated in the full WALANT surgical workflow, including:

- WALANT Solution Preparation**
- Step-by-step demonstration of mixing and buffering
 - Safe dosing and volume calculation
 - Use of standardised 50 ml, 100 ml, and 250 ml solutions

- Injection Technique**
- How to infiltrate tissues effectively
 - Tips for minimising patient discomfort
 - Identifying correct tissue planes

- Operative Techniques**
- Principles of performing surgery under WALANT
 - Intraoperative communication with awake patients
 - Field sterility, ergonomics, and surgical tips for each specialty

Residents were given the opportunity to **scrub in, assist the operating surgeons, and observe decision-making in real time**, enhancing their practical understanding of WALANT’s versatility.

The active involvement of both **local Burundian surgeons and the international trainers – Prof. Pankaj Jani, Dr. Carlos de Pina and Dr. Don Lalonde** enriched the teaching experience and highlighted collaborative regional capacity building.

- 9. Key Outcomes**
- Improved knowledge and confidence in WALANT principles and techniques.
 - Strengthened regional collaboration between African countries.
 - Demonstrated feasibility of WALANT for hand and soft-tissue procedures.
 - Encouraged adoption of WALANT in participants’ home institutions.
 - Donation of WALANT instruments and consumables

As part of the workshop’s objective to strengthen regional capacity for WALANT practice, the organisers donated **WALANT minor procedure room basic surgical instrument sets and essential consumables, including sodium bicarbonate** to selected institutions and surgeons. These donations aim to support ongoing implementation of WALANT techniques in Burundi and the wider COSECSA region.

Post-Test – Day Two
A post-test evaluated knowledge gained from lectures, practicals, and live surgeries.

Donations Summary: recipient of instruments

- Bujumbura Prince Regent Charles Hospital
- Mercy Surgeons
- Dr. Alliance Niyukuri
- Dr. Sadock
- Dr. Sony Nahayo
- Dr. Zihindula Cuma Moise
- Dr. Paulet

These donations were presented during the workshop to acknowledge the efforts of hospitals and surgeons who have shown commitment to implementing and expanding WALANT services in their institutions. The provision of both **instrument sets** and **sodium bicarbonate** (where not available), a crucial buffering agent in WALANT anesthesia, is expected to significantly enhance the capacity of these teams to continue offering safe, effective, and patient-centered surgical care.

- 10. Closing ceremony and recommendations**
- Include WALANT training surgical residency curricula
 - Ensure consistent supply of essential consumables.
 - Organise follow-up regional workshops and mentorship programs.
 - Develop local guidelines for standardised WALANT practice
 - Distribute more instrument sets

11. Post-course Whatsapp discussion group
Participants went home. Many started using WALANT in their home countries immediately on return, sharing their experiences, videos, photos, along with questions and answers by Dr Lalonde and Prof Jani via Whatsapp group discussion. This is ongoing as in the 2 examples of WALANT cases performed at home after the course shown in the images below.



Operated a patient with a thumb amputation following machine cut injury. Under wrist block + WALANT
Osteoplastic reconstruction: filleted spare part of the amputated segment + tubed groin flap 9:06 AM

12. Overall Conclusionc

The **WALANT Workshop**, part of the pre-conference COSECSA workshops, organized by **OTPAK and Mercy Surgeons** and supported by **IFSSH**, COSECSA and Ministry of Health (Burundi) successfully delivered high-quality instruction, hands-on practical experience, and live surgical demonstrations. The workshop enhanced participant knowledge, strengthened regional collaboration, and promoted sustainable, patient-centered surgical care using WALANT across Africa.

We feel confident that this IFSSH investment will have a very positive impact to increase hand surgery education, access, and affordability in many countries in Africa.

A small component of the IFSSH \$10,000 grant was leftover at the end of the workshop. The request from the team was that we purchase more inexpensive WALANT basic instrument sets to start minor procedure room surgery in more hospitals with the balance, which was agreed by the IFSSH.

15. Appendices

Appendix 1 Educational materials sent to attendees before the course

Appendix 2 Multiple choice questions, answers, discussions, and references used in course evaluations

Appendix 3 What is COSECSA? Details on how the College of Surgeons of East, Central and Southern Africa trains and certifies African surgeons by Africans for Africans. Ninety-eight percent of the more than 1,200 surgeons have stayed in Africa after certification with excellent training and rigorous examinations.

Appendix 1

learning materials

(papers, videos, power points, video lectures) sent to attendees via Whatsapp 20 Nov 2025, 8 days before the course. Several PDFs of papers were also sent

A "must read paper and see videos" is how to not hurt patients when injecting large volume Tumescant local anesthesia.
[How to Minimize the Pain of Local Anesthetic Injection for WALANT: Plastic and Reconstructive Surgery –](#)



[Global Open \(lww.com\)](#)

How to inject WALANT properly

<https://www.mediafire.com/file/cur3k2vud2ygvrc/video+68.1+Almost+painless+tumescant+local+anesthesia+.mp4/file>

Oct 2025 lecture 59 minutes on WALANT overview
59 minute talk

<https://www.mediafire.com/file/jihq3ingm3sotuu/Revised+final+Lalonde+59+minutes+Useful+Details+UAE+H+and+Society+2025+Oct+28.mp4/file>

Evidence based sterility 2019

<https://journals.lww.com/prsgo/pages/articleviewer.aspx?year=2019&issue=11000&article=00024&type=Fulltext>

WALANT rooms in 80 hospitals east Africa 2025

https://journals.lww.com/prsgo/fulltext/2025/03000/walant_decreases_costs_of_surgery_to_increase.64.aspx

How we created WALANT rooms in Ghana 2025

https://journals.lww.com/prsgo/fulltext/2025/03000/how_to_start_walant_procedure_room_surgery_like.72.aspx

Link to Egypt May 2025 how to get good results with
[flexor tendon repair 20 minute talk](#)

<https://www.mediafire.com/file/yjw632wdby44e5i/Egypt+flexor+tendon+20+min+2025+final+talk.mp4/file>

Amir Ahmad fracture plating Bony WALANT and advanced WALANT

<https://www.mediafire.com/file/t0g8v7l53ca4rum/video+2+advanced+WALANT.mp4/file>

Power point presentation with videos evidence based sterility taking procedures out of the main operating room <https://www.mediafire.com/file/lgsjui0m06cm1g9/Rwanda+evidence+based+sterility+and+Canadian+model.pptx/file>

video lecture 8 minutes to British Society for Surgery of the Hand fall 2022 on moving surgery to minor procedure rooms

https://www.mediafire.com/file/7memlprnj4yodj6/8minutes_BSSH_talk_revised_Nov_1_2022.mp4/file

Managing wounds and infection with WALANT surgery power point slides Rwanda lecture Feb 2023

<https://www.mediafire.com/file/rnqifz67xs5pqay/Rwanda+wounds+and+infection+management+2023+.pptx/file>

How to get better results in flexor tendon surgery power point slides Rwanda lecture Feb 2023

<https://www.mediafire.com/file/g8g34epz9452bfl/Rwanda+flexor+tendon+repair+recon++Lalonde+60.pptx/file>

How to get better results in finger fracture management power point slides Rwanda lecture Feb 2023

<https://www.mediafire.com/file/0yj6eoyon2nktw3/Rwanda+better+results+finger+fractures+Lalonde+20.pptx/file>

Link to WALANT book 2nd edition (2021) Wide Awake Hand Surgery and Therapy Tips with over 500 videos including 8 hours of teach it yourself video instruction on ultrasound of the hand

[Orthopaedic Surgery | Wide Awake Hand Surgery and Therapy Tips \(thieme.com\)](#) Also available on Amazon.

How to get better results in nerve decompression surgery power point slides Rwanda lecture Feb 2023
<https://www.mediafire.com/file/ir0g4xnd4ahsin9/Rwanda+Better+results+nerve+decompression+40+Lalonde.pptx/file>

Appendix 2

pre- and post-course tests

Multiple Choice Questions, Answers, Discussion and References for WALANT Tumescant local anesthesia surgery for the IFSSH Burundi WALANT COSECSA Pre-course 28-29 November 2025 in Bujumbura, Burundi

1. Which of the following is the best needle for the initial injection of Almost Painless Tumescant Local anesthesia for WALANT surgery

- A. 30 gauge 1 inch needle
- B. 30 gauge ½ inch needle
- C. 25 gauge 1.25 inch needle
- D. 25 gauge 5/8 inch needle

Correct answer: B. 30 gauge ½ inch needle

Discussion:

The smaller the needle, the less it hurts. A 30-gauge needle has an outside diameter of 0.312 mm. A 25-gauge needle has an outside diameter of 0.515 and will hurt more than the 30-gauge needle.



Figure 68.2 half inch 30-gauge needle on a 3ml luer lock syringe is ideal for the first injection

In order to decrease the pain of local anesthesia injection, you want to inject in the fat just under the dermis without moving the needle at all until you have injected the first 2-3 ml. A longer one inch needle is more likely to drift deeper and more superficial than a shorter half inch needle. After the needle is in and you have started injecting, keep your eye on the distance from the syringe hub to the skin so you do not drift deeper and get your sharp needle tip in deeper unnumbed fat. The half inch needle is less likely to drift deeper after the injection process is started.

Many surgeons say that they cannot get smaller 30 gauge needles in their hospital. That is because they are usually asking the wrong person. The best thing to do is for the surgeon to go speak to the person who actually places the orders needles for the hospital. A polite conversation which involves the clerk understanding that smaller needles hurt small children much less than bigger needles. “Could I please see the computer order screen that shows the needle choices?” 30 gauge needles can be purchased from any hospital anywhere in the world if people are willing to try to get it done.

References

1. Lalonde DH. How to Inject Local Anesthetic So That it Does Not Hurt: Lalonde DH, ed. Wide Awake Hand Surgery. New York: Thieme publishers; 2021:43-55. <https://doi.org/10.1055/b0000000319>.
2. Joukhadar N, Lalonde D. How to Minimize the Pain of Local Anesthetic Injection for Wide Awake Surgery. Plast Reconstr Surg Glob Open. 2021 Aug 4;9(8):e3730. doi: 10.1097/GOX.0000000000003730. PMID: 34367856; PMCID: PMC8337068.

2. A 40 year old man accidentally injects his thumb with 1ml of 1:1,000 epinephrine and comes to the emergency room 1 hour later with a white thumb. Which of the following is the most appropriate reason to treat him with phentolamine injection into the thumb?

- A. the thumb is likely to die because of epinephrine vasoconstriction
- B. so the patient does not have to worry about the white thumb
- C. to prevent litigation from the untreated patient
- D. to prevent ischemic reperfusion pain and axonotmesis

Correct Answer D. to prevent ischemic reperfusion pain and axonotmesis

Discussion:

Ischemic reperfusion pain and axonotmesis are real and have been documented after accidental high dose epinephrine injection. The ischemic time of 12 or more hours from the high dose epinephrine can cause axonotmesis. Full recovery can be anticipated ⁽²⁾. It can be prevented by injecting 1-2mg of phentolamine where the epinephrine was injected ⁽¹⁾. However, the thumb will not die if you do not have phentolamine. Many countries do not. There are over 300 such cases of accidental injection in the literature with no finger deaths in spite of no phentolamine injection..

References

1. Nodwell T, Lalonde DH. How long does it take phentolamine to reverse adrenaline-induced vasoconstriction in the finger and hand? A prospective randomized blinded study: The Dalhousie project experimental phase. Can J Plast Surg 2003;11(4) 187.
2. Fitzcharles-Bowe C, Denkler KA, Lalonde DH. Finger injection with high-dose (1:1000) epinephrine: Does it cause finger necrosis and should it be treated? HAND 2007;2(1):5

3. You are about to start a new WALANT minor procedure room in your hospital. You and your staff are trying to plan the best place and position to inject your patients with local anesthesia. Which of the following is the most efficient and safest position in which to inject your patients with local anesthesia?

- A. Sitting up in chairs in the waiting room.

- B. Sitting up in reclining chairs that flatten to 45 degrees
- C. On the operating table inside your procedure room
- D. On a Trendelenberg able stretcher in a room outside the procedure room.

Correct Answer: D. On a Trendelenberg able stretcher in a room outside the procedure room.

Discussion:

One of the common problems with the injection of local anesthesia is the vasovagal attack or fainting episode. These are caused by a lack of blood going to the brain¹ Nature’s way of solving this problem is to get the head down with a faint. The best way to avoid this problem is to inject patients with a head down position, which rules out answers 1 and 2 which involve injections at 45 and 90 degrees. Patients can still faint even lying down fully supine at 0 degrees. With impending faints in patients lying down, the best solution is to bring the head down further by placing the head down minus 10-20 degrees further in a Trendelenberg position. This means that injection stretchers should be Trendelenberg position capable.

The operating table inside your procedure room is an effective place to inject patients because it is Trendelenberg position capable. However, this is not the most efficient place to inject your patients for two reasons² 1) If your patient should faint there, you need to leave them there to recover. This will slow the surgical flow. 2) It is better for surgical flow to inject patients outside the procedure room to allow at least 30 minutes for local anesthesia to work properly before they have their surgery. A single procedure room is more efficiently used only for surgery, whereas patients can be injected elsewhere.

References

1. Greene BHC, Lalonde DH, Seal SKF. Incidence of the "Adrenaline Rush" and Vasovagal Response with Local Anesthetic Injection. Plast Reconstr Surg Glob Open. 2021 Jun 24;9(6):e3659.

2. Lalonde DH. How to Schedule 15 or More Hand Surgery Cases Per Day with One Nurse in Lalonde DH, ed. Wide Awake Hand Surgery. New York: Thieme publishers; 2021:125-127. <https://doi.org/10.1055/b0000000319>.

4. A 31 year old man goes to the emergency department the morning after an open reduction of a finger fracture with bupivacaine WALANT local anesthesia. He complains that his finger started hurting in the night, but that the fingertip is still completely numb. Which of the following is the most likely accurate explanation for his numbness?

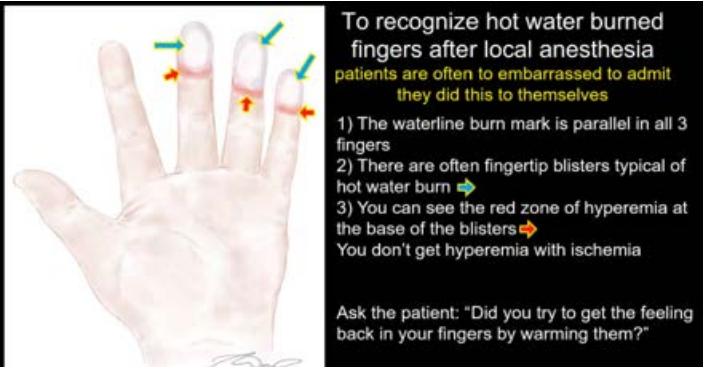
- A. his pain is just perceived pain, not real pain
- B. numbness to pain comes back at 15 hours, to touch at 30 hours with bupivacaine
- C. both digital nerves were avulsed at the time of surgery
- D. the finger is not really numb, he just thinks it is

Correct answer B. numbness to pain comes back at 15 hours, to touch at 30 hours with bupivacaine

Discussion:

There is level 1 evidence in humans that numbness to touch lasts twice as long (30 hours) as numbness to pain (15 hours) with digital blocks ⁽¹⁾. This is why patients go to the emergency department the day after finger surgery with a bupivacaine block and say: “My finger is still numb but it hurts!” Many emergency department doctors are not aware of this problem with bupivacaine. This prolonged numbness to touch can also lead to patients burning themselves with hot water “Trying to get their feeling back”⁽²⁾

Video 68.2 How to recognize and avoid self induced hot water burns after local anesthesia injection reproduced with permission from (2) [Plastic and Reconstructive Surgery](https://www.mediafire.com/file/u9nztaju90ae6mj/video+68.2+how+to+recognize+and+avoid+self+induced+hand+burns+after+local+anesthesia.mp4/file) – Global Open with thumbnail taken at taken at 6 seconds Available at <https://www.mediafire.com/file/u9nztaju90ae6mj/video+68.2+how+to+recognize+and+avoid+self+induced+hand+burns+after+local+anesthesia.mp4/file>



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1. [Calder K, Chung B, O'Brien C, Lalonde DH. Bupivacaine digital blocks: how long is the pain relief and temperature elevation?. Plast Reconstr Surg. 2013;131\(5\):1098-1104. doi:10.1097/PRS.0b013e3182865dbb](#)

2. Rohde RS, Wong A, Lalonde DH. Self-induced Hot Water Finger Burn Trying to Get Feeling Back after Ropivacaine Block. *Plast Reconstr Surg Glob Open.* 2024 Apr 5;12(4):e5704. doi: 10.1097/GOX.0000000000005704. PMID: 38596572; PMCID: PMC11000765.

5). How much lidocaine can you safely give slowly intravenously to manage pain 70 kg patient with acute severe pain in the emergency department?

- A. 25mg
- B. 50mg
- C. 75 mg
- D. 100 mg

Right answer D. 100 mg

Discussion

Emergentologists inject lidocaine in 100 mg slow intravenous boluses to treat various pain conditions⁽¹⁾. Anesthesiologists inject 1 mg/kg of lidocaine intravenously for pain control in postoperative patients⁽²⁾. This is why you do not need to worry about small intravenous doses of local anesthesia during WALANT injection, and why we do not draw back when we insert antegrade after needle reinsertion in an area that is already tumesced. The tumescent fluid is compressing the veins that are there and making intravascular

injection of large doses of local anesthesia almost impossible, particularly if the injector is always watching the tissues for inflation and palpating the tissues to feel the extravascular inflation.

References

1. [Tanen DA, Shimada M, Danish DC, Dos Santos F, Makela M, Riffenburgh RH. Intravenous lidocaine for the emergency department treatment of acute radicular low back pain, a randomized controlled trial. J Emerg Med. 2014;47\(1\):119-124. doi:10.1016/j.jemermed.2012.12.014](#)

2. [Barreveld A, Witte J, Chahal H, Durieux ME, Strichartz G. Preventive analgesia by local anesthetics: the reduction of postoperative pain by peripheral nerve blocks and intravenous drugs. Anesth Analg. 2013;116\(5\):1141-1161. doi:10.1213/ANE.0b013e318277a270](#)

6) Which of the following is the time closest to the half life of epinephrine inside blood vessels?

- A. 15 seconds
- B. 1.7 minutes
- C. 3.4 minutes
- D. 7.0 minutes

Correct Answer B. 1.7 minutes

Discussion

Catecho-o-methyl transferase and monoamine oxidase rapidly break down epinephrine in plasma⁽¹⁾ so that its half-life inside blood vessels is only 1.7 minutes⁽²⁾. However, extravascular epinephrine degradation is slower. The molecules must first get into blood vessels either by diffusion or through the lymphatics. You can frequently see white lymphatic vasoconstriction tracks in the forearm when you inject epinephrine into the hand.

Many patients will feel an epinephrine "rush," "jitter," "shakiness," "nervousness" or a feeling "like you have had too much coffee" for up to 20 to 30 minutes after an injection of local anesthetic⁽³⁾.

• Forewarned is forearmed. We warn all of our patients

that they may get this rushy feeling after we inject them. We tell them that this is not an allergy; it is a normal reaction to the epinephrine we have injected with the lidocaine, and the sensation will go away in 20 to 30 minutes.

References

1. Kopin IJ. Monoamine oxidase and catecholamine metabolism. *J Neural Transm* 41:57, 1994.

2. Rosen SG, Linares OA, Sanfield J, Zech LA, Lizzio VP, Halter JB. Epinephrine kinetics in humans: radiotracer methodology. *J Clin Endocrinol Metab* 69:753, 1989.

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7. Which of the following is the most objective way to assess amount of pain experienced by the patient during the injection of the local anesthesia for WALANT surgery?

- A. A Likert number scale from 0-10 (0 is no pain, 10 is the most you can imagine)
- B. A Likert facial expression emoji scale from 0-10
- C. Patient counts the number of pain events after the sting of the first needle is gone
- D. Careful measurement of vital signs

Right Answer C. Patient counts the number of pain events after the sting of the first needle is gone

Discussion

Surgeons who inject local anesthesia for carpal tunnel surgery can ask patients to tell them each time they feel a pain event after the sting of the first needle insertion is numbed.

A recent study¹ measured the number of local anesthetic injection pain events in feedback from patients to the injecting surgeon to decrease the

pain of his injections. A single surgeon asked 250 consecutive carpal tunnel surgery patients to tell him each time they felt a pain event during his local anesthetic injection process for WALANT carpal tunnel surgery. The pain events were counted and provided an objective pain number to score the surgeon's injection skill over the 35 months of the study. The surgeon's injection pain score improved dramatically over the time of the study. In his last 50 patients, he scored a hole-in-one 37 times, where none of his first 50 patients gave him such a high score. A hole-in-one happens when the only pain the patient feels is the small sting of the first 27 gauge needle insertion. Counting the number of pain events provides a score for each injection process. This score from immediate patient feedback can help the surgeons decrease the pain of their injections².

Vital signs are objective but not as specific as patients counting the number of pain events. The problem with Likert scale pain qualitative measurement scales is that these is that pain is a totally subjective and personal experience. Given the same pain, John might give his pain a number 5 but Henry might call it a 2. Henry might describe his pain as a 2 on Sunday and give the same pain the number 4 on Monday, depending on he feels.

References

1. [Greene C, Droppelmann G, Fodor D, Lalonde DH. Surgeons Can Decrease the Pain of WALANT Local Anesthesia Injection if They Ask for Patient Feedback. Plast Surg \(Oakv\). 2025 Mar 29;22925503251327930. doi: 10.1177/22925503251327930. Epub ahead of print. PMID: 40170885; PMCID: PMC11955982.](#)

2. [Brutus JP, Ahmad AA, Apard T, Tchiloemba B, Chang MC, Lalonde DH. Patients Tracking Pain Episodes Show Wide-awake Local Anesthesia Without Tourniquet Can Be Nearly Painless. Plast Reconstr Surg Glob Open. 2025 Mar 21;13\(3\):e6568. doi: 10.1097/GOX.0000000000006568. PMID: 40125471; PMCID: PMC11927650.](#)

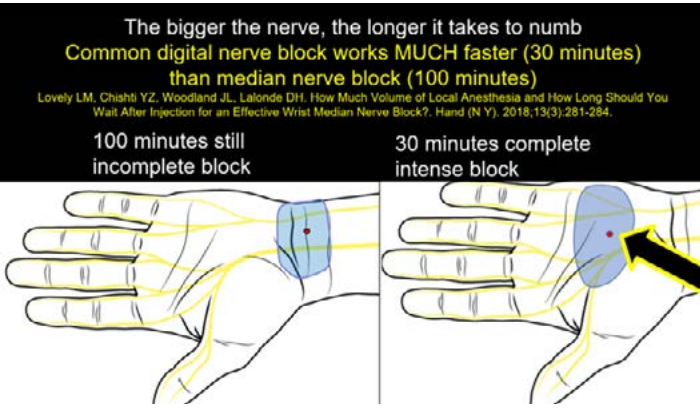
8) How long can it take (minutes) for maximal finger tip numbness after non ultrasound guided median nerve block anesthesia at the wrist?

- A. up to 100 minutes
- B. up to 60 minutes
- C. up to 30 minutes
- D. up to 10 minutes

Right Answer: A. up to 100 minutes

Discussion:

Volunteer doctors used needles to determine numbness at fingertips after volunteering for median nerve blocks. It took up to 100 minutes for maximal finger tip numbness. That is because the median nerve is a big nerve. The bigger the nerve, the longer it takes for effective anesthesia because it takes longer for the lidocaine to penetrate to the center of bigger nerves. That is why tumescent local anesthesia is so effective. It numbs all the small nerves as well as the big nerves. Smaller nerves numb much faster than bigger nerves. If you wait 30 minutes for the epinephrine to work, you will also have complete numbness with lidocaine in any site that is tumesced. That is why common digital nerve tumescent blocks past the transverse carpal ligament are so much better than median nerve blocks at the wrist.



Reference

Lovely LM, Chishti YZ, Woodland JL, Lalonde DH. How Much Volume of Local Anesthesia and How Long Should You Wait After Injection for an Effective Wrist Median Nerve Block?. Hand (N Y). 2018;13(3):281-284. doi:10.1177/1558944717709072

9) A 60 year old diabetic obese smoker with COPD lacerates his FDP tendons in 3 fingers with sharp glass.

Which of the following methods of anesthesia is the safest approach in this patient?

- A. General anesthesia
- B. Sedation and proximal nerve block
- C. Bier block (intravenous distal to tourniquet)
- D. Hand/finger tumescent lidocaine with epinephrine

Correct answer D. Hand/finger tumescent lidocaine with epinephrine

Discussion:

Hand/finger tumescent lidocaine with epinephrine, or WALANT (Wide Awake Local Anesthesia No Tourniquet), has the same excellent safety profile as a sedation-free dental procedure because there is no sedation with a pure local anesthesia approach¹. The scenario describes a patient with severe medical comorbidities that should have anesthesiologists concerned about general anesthesia. The possibility of endotracheal intubation is not without risk in patients with severe COPD. This would not be as safe as pure local anesthesia in this patient.

Both B and C choices of sedation with tourniquet have the risk of proximal block failure and the requirement to convert to general anesthesia.

Epinephrine vasoconstriction has replaced the tourniquet in WALANT surgery. In 20th century medicine, there was a widespread belief that epinephrine should never be injected into fingers as this would certainly cause finger necrosis. It is now well known that this is not true². Epinephrine can be avoided in severe finger avascularity, and epinephrine vasoconstriction can be reversed with phentolamine³.

References

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10. Which of the following statements best describes the true incidence of anaphylaxis to lidocaine in the world literature?

- A. extremely rare if it actually does exist
- B. common enough that all patients who say they are allergic should not get lidocaine
- C. positive skin testing of lidocaine allergy clearly means anaphylaxis is likely
- D. 0.005 % of the world's population

Right Answer A. extremely rare if it actually does exist

Discussion

A PubMed search for lidocaine anaphylaxis reveals 10 case reports in the past 10 years. Two of the 10 cases had incomplete details and the remaining cases had other confounding variables, which made it hard to attribute the anaphylaxis solely to the lidocaine⁽¹⁾. These reports are rare when you consider the billions of lidocaine doses administered in dental offices in the world in six and a half decades. If 0.05 % of the world's population had anaphylaxis to lidocaine, there would be thousands of cases in the literature, not dozens. If life threatening anaphylaxis to lidocaine actually does exist, it is likely to be extremely rare ⁽²⁾.

Skin testing for lidocaine allergy is far from reliable

as a predictor of anaphylaxis (3). Lidocaine is so commonly used (many billions of doses since 1950), that if the incidence was 0.005 % of the world's population, there would be thousands of case reports in the literature every year.

References

- Janes L, Sepehripour S, Lalonde D. Clinically Important Pharmacologic Considerations for Wide-Awake Local Anesthesia No Tourniquet Hand Surgery. Plast Reconstr Surg. 2024 Aug 1;154(2):391e-402e. doi: 10.1097/PRS.00000000000010706. Epub 2023 May 23. PMID: 37220403.
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11. You are about to start a new WALANT minor procedure room in your hospital. Your administrators are questioning the need for routine EKG monitoring of all patients during the WALANT procedures. Which of the following is the most appropriate evidence based recommendation for routine EKG monitoring during WALANT surgery?

- A. All WALANT hand surgery patients should get EKG monitoring during surgery
- B. Routine EKG monitoring is not required for WALANT hand surgery
- C. WALANT surgery should be performed in the main operating room for ease of monitoring
- D. Each patient should be evaluated by an anesthesiologist to determine monitoring need

Correct Answer: B. Routine EKG monitoring is not required for WALANT hand surgery

Discussion:

Routine EKG monitoring of patients having minor procedures under pure local anesthesia is not in other areas of the hospital. For example, monitoring is not routinely performed for all the pure local anesthesia emergency department procedures such as laceration

suturing and minor abscess drainage. Routine monitoring is also not required for skin cancer excision with Moh's surgery¹ or for dental procedures in dental offices^{2,3,4}. WALANT surgery has been shown to be no different^{5,6}

Most hand surgery patients will not need routine monitoring. If hand surgery patients are sick enough to need monitoring, they can be operated on in the main operating theater of the hospital with the assistance of anesthesiology surveillance.

It is unnecessary and unreasonable for each patient to be evaluated by an anesthesiologist to determine monitoring need, or that WALANT surgery should be performed in the main operating room for ease of monitoring. There is ample evidence that WALANT hand surgery in minor procedure rooms is safe and much less expensive⁷.

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12. You are half way through injecting 10ml of 1% lidocaine with 1:100,000 epinephrine for a carpal tunnel release in a 35 year old healthy woman. She is sitting up for the injection. She begins to yawn, and her mid face looks pale. She says she does not feel very well and says: "I think I am going to be sick". Which of the following is the first best step in your management of this situation?

- A. measure her blood pressure and heart rate
- B. get her to lie down with her knees and hips flexed
- C. start an intravenous and give her a bolus of fluid
- D. get a cold wet facecloth to put on her forehead

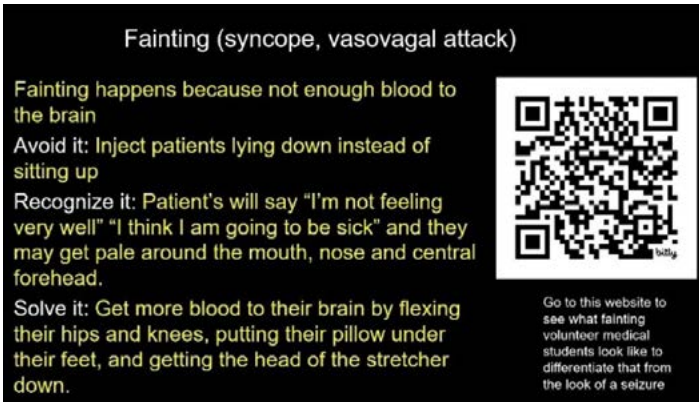
Right Answer B. get her to lie down with her knees and hips flexed

Discussion

This patient is clearly going to faint (have a vasovagal attack) unless something is done quickly to get more blood to her brain. The vasovagal attack is a stress-induced response of the autonomic nervous system which results in decreased blood flow to the brain. Nature's way of increasing blood flow to the brain is to counteract gravity by getting the head down to ground level with a loss of consciousness. The prodrome typically consists of nausea, circumoral or glabellar pallor, light-headedness, and a feeling of being "unwell".

We avoid fainting by injecting patients in the lying rather than in the sitting position, so gravity is on

our side to improve cerebral blood flow before we inject. Patients can still get vasovagal symptoms and faint when they are lying down. As soon as they tell us "I am not feeling well" or "I think I am going to be sick", we observe circumoral or glabellar pallor, or see them yawning, we immediately perform 3 simple maneuvers to get more blood to the brain and make the patients feel better within minutes; 1) flex the hips and the knees so the two liters of blood in the thighs goes to the brain, 2) take the pillow out from under the head and put it under the feet, and 3) tilt the stretcher with the head down and the feet up in the Trendelenberg position. See the videos in this power point presentation to see what fainting looks like https://www.mediafire.com/file/96bjzncxp90ohnz/fainting_vs_seizure.pptx/file



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<https://journals.lww.com/prsgo/pages/articleviewer.aspx?year=2021&issue=06000&article=00046&type=Fulltext>

13. During WALANT reconstruction of a 6 month old FPL rupture, the proximal stump of the FPL is found to have 5mm of active movement with patient contraction. Which of the following reconstructive options is the most appropriate in this situation?

- A. Primary repair
- B. tendon graft with PL
- C. Tendon transfer with FDS4
- D. Tenodesis of the distal FPL stump

Right Answer C. Tendon transfer with FDS4

Discussion If there is good movement of the FPL stump, as in more than 1.5 cm of active movement, tendon grafting can provide good outcomes. In this situation the movement of the FPL tendon was found to be poor and tendon transfer was a better option. Primary repair would not be possible and tenodesis is not very helpful compared with tendon grafting.

Reference

Mineyuki Zukawa, Ryusuke Osada, Hiroto Makino, Tomoatsu Kimura, Wide-Awake Flexor Pollicis Longus Tendon Reconstruction with Evaluation of the Active Voluntary Contraction of the Ruptured Muscle-Tendon Plast Reconstr Surg. 2019 Jan;143(1):176-180

14. Needle reinsertion is required to tumesce large areas in operations like forearm tendon transfer. Which of the following strategies increase the chances of painless needle reinsertion when you need to stick the needle back into the skin to inject more area of tumescent local anesthesia?

- 1. Reinsert 1.5 cm inside the area that is already swollen with tumescent fluid
- 2. Alternate reinsertion of needles from the radial to the ulnar side of the operative site
- 3. Begin tumescent injection proximally and reinsert needles distally
- 4. Stage the injections in time; do something else between proximal and distal injections
- 5. All of the above

Correct Answer 5. All of the above

Discussion and reference paper with videos
All of the answers are good strategies to eliminate needle reinsertion pain. Read the paper at [How to Minimize the Pain of Local Anesthetic Injection for W... : Plastic and Reconstructive Surgery – Global Open \(lww.com\)](#) and look at the videos.

15. One good strategy to get better and better at local anesthesia injection is to have the patient tell you every time they feel pain during the injection process so you can score your injection. 10) How many times do you hurt the patient if you score a “hole in one” in your injection?

- 1) 1 time
- 2) 2 times
- 3) 3 times
- 4) 4 times

Correct Answer 1) 1 time

Discussion

The scores are borrowed from the game of golf. Pain of the first poke is almost inevitable. If you only hurt the patient one time, you score a hole in one. If you hurt the patient 2 times, you score an eagle. If you hurt the patient 3 times, you score a birdie. If you hurt the patient 4 times, you score a bogie. Injectors get better and better if they know their scores.

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16. Which of the following orthopedic surgical procedures is the only one with good compelling evidence that special ventilation to clean the air of operating rooms decreases the post operative infection rate?

- A. Total hip and knee replacement
- B. Carpal tunnel release
- C. Percutaneous K wire insertion for hand fractures
- D. Flexor tendon repair

Correct answer A. Total hip and knee replacement

Discussion

The only orthopedic surgical procedure which has good compelling evidence that special ventilation decreases the risk of post operative infection is the 1982 British prospective trial^{1,2} on total hip and knee replacement surgery that showed deep sepsis after 63 out of 4133 operations in the regular air control group (1.5%) and after 23 out of 3922 operations in the ultraclean-air group (0.6%) (ratio 2-6, 95% confidence limits 1-6-4 2; p <0.001).

There is no such evidence for the other 3 operations. However, there is evidence that the incidence of post operative infection is no higher in minor procedure rooms with normal ventilation and field sterility than main operating room full sterility with special ventilation for K wire insertion for hand fractures³, flexor tendon repair⁴ carpal tunnel surgery⁵.

References

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17. Your hospital administrators are unsure how many nurses are required to staff an operating room in which patients will get sedation free WALANT surgery. Which of the following is the minimum number of nurses recommended by AORN (American Operating Room Nurses) in the minor procedure room to perform those procedures?

- A. One
- B. Two
- C. Three
- D. Four

Correct answer A. One

Discussion

A single nurse is all that is required in the room for pure local anesthesia surgery according to 2020 guidelines by AORN^{1,2}. "Staffing requirements: The recommendations regarding staffing requirements during procedures using local-only anesthesia were moved to the policies and procedures section; they

direct health care organizations to develop their own policies for staffing by determining how many perioperative nurses will be needed to implement the care plan. At least one RN circulator should be dedicated to each patient; he or she should be present for the duration of the surgery. Staffing may be a single RN circulator who also monitors, assesses, and documents the care of the patient in addition to circulating."

References

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18. Your office nurse asks you about why you do not add ropivacaine to lidocaine to perform your WALANT surgery. You tell her that the incidence of local anesthetic systemic toxicity is higher with bupivacaine and ropivacaine, and that the annoying numbness to touch effect lasts twice as long as the numbness to pain with these agents. Which of the following is the most important additional compelling reason not to add ropivacaine to your lidocaine?

- A. Ropivacaine is more expensive
- B. Adding ropivacaine only provides a minimal clinical benefit
- C. Ropivacaine is too hard to get to use in the office
- D. Ropivacaine takes longer to work than lidocaine

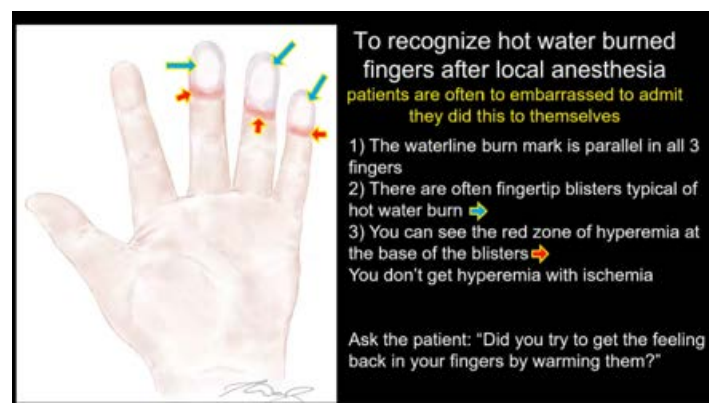
Correct answer: B. Adding ropivacaine only provides a minimal clinical benefit

Discussion

Ropivacaine is 3 times more expensive than lidocaine¹, but this is not the most important reason of those listed. It is true that the onset of effect takes longer with ropivacaine, but this is irrelevant if it is added to

the lidocaine when both are used together. Difficulty in getting the medication is a problem that is not as important as answer B. The most important reason is that there is high level evidence that adding ropivacaine to lidocaine does not provide much clinical benefit to using lidocaine alone,^{2,3}

Patients are also more likely to stick their hands in hot water and burn themselves “trying to get the feeling back” with ropivacaine and bupivacaine than with lidocaine because the annoying numbness to touch effect lasts twice as long as the numbness to pain with these agents (Video 68.2)⁴.



Video 68.2 How to recognize and avoid self induced hot water burns after local anesthesia injection reproduced with permission from⁵ [Plastic and Reconstructive Surgery – Global Open](https://www.mediafire.com/file/u9nzatju90ae6mj/video+68.2+how+to+recognize+and+avoid+self+induced+hand+burns+after+local+anesthesia.mp4/file) with thumbnail taken at taken at 6 seconds Available at <https://www.mediafire.com/file/u9nzatju90ae6mj/video+68.2+how+to+recognize+and+avoid+self+induced+hand+burns+after+local+anesthesia.mp4/file>

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19. A 40 year old woman is injected with 10 ml of 1% lidocaine with 1:100,000 epinephrine for release of her deQuervain's canal. Thirty minutes later, her facial coloration has become bluish. Which of the following is the most important possible cause of this observation?

- A. Impending vasovagal attack
- B. The new LED lights in the room
- C. Marijuana inhalation 60 minutes ago
- D. Drug induced methemoglobinemia

Correct answer: D. Drug induced methemoglobinemia

Discussion

Impending vasovagal attack is a common problem with WALANT injection, but not the most important of the choices given. In addition, vasovagal attacks are usually preceded by circumoral pallor, not cyanosis. Although it does give a bluish hue, LED lighting does not produce a color change in a patient 30 minutes after local anesthesia injection, nor would marijuana inhalation 30 minutes before the injection.

There are a handful of reports of lidocaine induced methemoglobinemia, a condition where hemoglobin's iron is oxidized, preventing it from carrying oxygen. The most common manifestations are cyanosis and

altered mental status. The largest series of cases of this rare local anesthetic– induced problem had lidocaine as the cause in only 12 out of 242 cases, with benzocaine and prilocaine being the common culprits^{1,2,3}.

An oxygen bottle is recommended to be available because of the extremely rare possibility of lidocaine induced methemoglobinemia for which most cases respond well to oxygen mask therapy^{1,2,3}.

For those rare cases that do not respond well to oxygen therapy, methylene blue can be injected. Methylene blue acts as an electron donor to reduce methemoglobin to hemoglobin. In cases of acquired methemoglobinemia, treatment with methylene blue should occur when methemoglobin exceeds 20-30%, or at lower levels, if the patient is symptomatic. The methylene blue dose is 1-2 mg/kg (0.1-0.2 mL/kg of 1% solution) intravenously over 5 minutes.[12] The dose can be repeated in 30-60 minutes if significant symptoms or levels remain above the treatment threshold. ⁴

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20. One of your colleagues is lamenting that he does not do WALANT carpal tunnel surgery because he cannot waste his time waiting 30 minutes for efficient epinephrine vasoconstriction between local anesthesia injection and the surgery start time. Which of the following is the most appropriate solution to his concern?

- A. Short term tourniquet because patients don't mind it for 5 minutes
- B. Avoid WALANT because most patients prefer sedation
- C. Inject local in 3 patients before operating on the first one.
- D. Inject lidocaine without epinephrine for his carpal tunnels

Correct answer: C. Inject local in 3 patients before operating on the first one.

Discussion

Patients will easily understand that local anesthesia takes time to work properly and will not mind waiting 30 minutes if it is explained to them. Several studies have shown that patient satisfaction is equivalent or higher with WALANT than with sedation^{1,2,3}.

Although many surgeons say that “patients tolerate the tourniquet well”, we all know that this is “doctor speak” for “They let me do it even though it hurts”. Any surgeon who has applied a tourniquet on his own upper extremity for 5 minutes knows that it causes discomfort and pain. This has been corroborated by documented patient experience^{4,5}.

Lidocaine without epinephrine is effective from an anesthesia point of view, but lidocaine only skin incisions definitely bleed more. Not only is there no epinephrine vasoconstriction, but lidocaine is a vasodilator because of its inhibition of sympathetic nerve vasoconstrictive resting tone of arterioles. The surgery is still possible, but there is more blood obscuring the field.

The surgeon wastes no time if he injects 3 patients before doing the first one. While he is injecting the second and third patients, the nurse brings the first patient into the room for cleaning and setting up of the sterile field so the surgeon can go directly from the 3rd injection to the first surgery. When this is completed, the surgeon goes to inject the fourth patient while the nurse changes surgical trays and prepares the second patient for surgery.

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21. Microcannulas and needles each have their advantages and disadvantages when delivering local anesthesia over large areas. What is the most significant advantage of using a microcannula for injection compared to a needle?

- A) Arterial intravascular injection is with a cannula is rare
- B) Needles cause less bruising and pain when resurfacing large surface areas
- C) Needles are longer than microcannulas
- D) Blunt tipped cannulas slide more painlessly though fat that sharp needle tips.

Correct answer D. Blunt tipped cannulas slide more painlessly though fat that sharp needle tips.

Discussion

Blunt tipped cannulas can be used to inject large areas quickly and relatively painlessly because the blunt tip slides easily through the fat without piercing nerves.

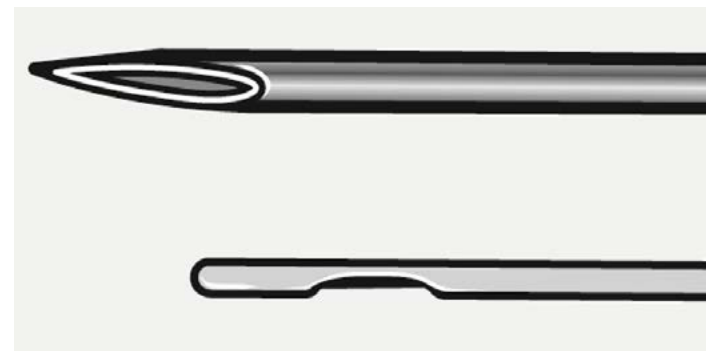
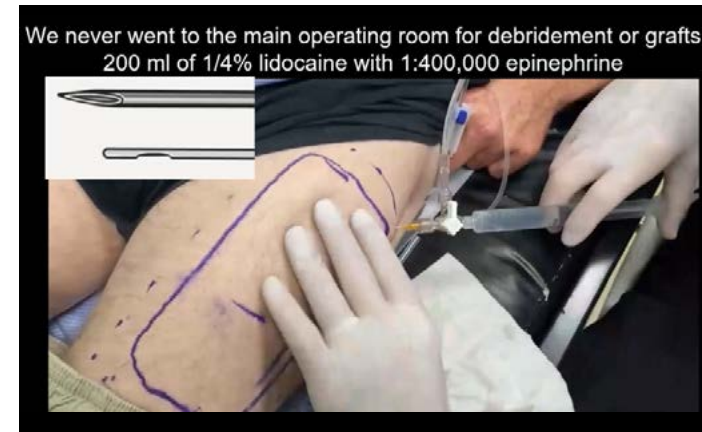


Figure 68.7 Blunt tipped 25 gauge 2.5 inch filler cannulas slide through fat painlessly, unlike sharp needle tips. You can anesthetize large areas more quickly with a blunt tipped cannula. Make a hole in numbed skin with a sharp needle and insert the blunt tip into the needle hole.

Blunt tipped cannulas are ideal for anesthetizing a forearm for triple radial nerve tendon transfer or for numbing a thigh for a skin graft.



Video 68.1 Almost painless tumescent local anesthesia for WALANT hand surgery how to inject with a blunt tipped cannula. See video at 18 minutes 39 seconds (video can be downloaded at <https://www.mediafire.com/file/cur3k2vud2ygvrc/video+68.1+Almost+painless+tumescent+local+anesthesia+.mp4/file>) thumbnail taken at 1,119 seconds

Microcannulas are longer (up to 2 inches), have blunt needle tips and can be used to inject large areas of the forearm, wrist and hand more quickly with little discomfort, trauma, or bruising. Intravascular injection has been reported with fillers with cannula injection. For a video on how not to hurt people with local anesthesia, go to



References

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22. You are planning a day of WALANT hand surgery for your new minor procedure room in the hospital. Which of the following order of booking the same 14 cases would be the most efficient way to get through the list with as little wasted time as possible?

- A. 5 trigger fingers, 7 carpal tunnels, 5th finger Dupuytren, a 2 finger zone 2 flexor tendon repair
- B. a 2 finger zone 2 flexor tendon repair, 5th finger Dupuytren, 5 trigger fingers, 7 carpal tunnels
- C. 7 carpal tunnels, a 2 finger zone 2 flexor tendon repair, 5th finger Dupuytren, 5 trigger fingers
- D. 5th finger Dupuytren, 7 carpal tunnels, 5 trigger fingers, a 2 finger zone 2 flexor tendon repair

Correct Answer: A. 5 trigger fingers, 7 carpal tunnels, 5th finger Dupuytren, a 2 finger zone 2 flexor tendon repair

Discussion

Shorter procedures such as carpal tunnels and trigger fingers are best performed earlier in the day as their length is most predictable. When booking several carpal tunnels in a row, book all the left hand cases together and then all the right hand cases together in two groups in time. This is more efficient than hazardingly mixing lefts and rights. If you do 5 left carpal tunnels and two left trigger fingers in a row, you do not need to change the position of the arm board or hand table for 7 cases⁽¹⁾.

Longer procedures are performed toward the end of the day so fewer people are inconvenienced if surgery goes over predicted time. In this group of 14 cases, the 2 longer cases are the Dupuytren and the flexor tendon repair. Of those two cases, the flexor tendon repair is the more unpredictable in time and therefore would be booked after the more time predictable and shorter Dupuytren⁽²⁾.

The longest cases with unpredictable ending times such as spaghetti wrists repairs are always booked last so if you run over, the case will still get done.

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Appendix 3: What is COSECSA? Details on how the College of Surgeons of East, Central and Southern Africa trains and certifies African surgeons by Africans for Africans

WELCOME TO COSECSA

The College of Surgeons of East, Central and Southern Africa (COSECSA) is a professional body that fosters postgraduate education in surgery and provides surgical training in the East, Central and Southern Africa region.

COSECSA shapes and leads the training, examination, and accreditation of surgeons in the East, Central and Southern Africa (ECSA) region.

COSECSA REACH

The College currently operates in 14 Sub-Saharan African Countries namely:

 Botswana

 Burundi

 Ethiopia

 Kenya

 Malawi

 Mozambique

 Namibia

 Rwanda

 South Sudan

 Sudan

 Tanzania

 Uganda

 Zambia

 Zimbabwe

+ 10 Partner Countries
(Niger, Cameroon, D.R.Congo, Togo, Angola, Madagascar, Somaliland, Eswatini, Lesotho, Gabon)

COSECSA MEMBER COUNTRIES



COSECSA MISSION

The mission of the College of Surgeons is to promote excellence in Surgical Care, Education and Training, and Research.

COSECSA VISION

To be the Reference Surgical Body in the Region of East, Central and Southern Africa and beyond.

TRAINEES & FELLOWS



1048

SPECIALIST SURGEONS SUCCESSFULLY GRADUATED

1388

SURGEONS CURRENTLY IN TRAINING

TRAINERS



954

OVERALL

80

MASTER TRAINERS

ESTABLISHED

COURT OF EXAMINERS

FEMALES



215

GRADUATED FEMALE SURGEONS

24%

FEMALE IN TRAINING

ESTABLISHED WOMEN IN SURGERY AFRICA (WISA)

OPERATION LOGS



92%

RETENTION OF SURGEONS IN COUNTRY OF TRAINING

PUBLICATIONS



70

PUBLISHED ECAJS ISSUES

SKILLS DEVELOPMENT



SHORT COURSES ORGANIZED REGIONALLY

MOBILE LEARNING



"SCHOOL FOR SURGEONS" LEARNING MANAGEMENT SYSTEM

BESPOKE SURGICAL ELECTRONIC LOGBOOK

INSTITUTIONAL REVIEW BOARD



684297

SURGICAL PATIENTS TREATED (As of October 2025)

REGISTERED WITH UNITED STATES DEPARTMENT OF HEALTH & HUMAN SERVICE

ADVOCACY



INTERNATIONALLY RECOGNISED QUALIFICATION

ESSENTIAL SURGERY IN AFRICA, RESULTING IN GREATER LEVELS OF INVESTMENT



152

ACCREDITED HOSPITALS

SCIENTIFIC CONFERENCE



ANNUAL INTERNATIONAL SCIENTIFIC CONFERENCE

26 YEARS IN OPERATION



89

ACADEMIC FOCUS

TRAINING THE NEXT GENERATION OF SURGEONS

COSECSA has developed a decentralized surgical training programme with a common examination, leading to an Internationally recognized surgical qualification at both membership and fellowship levels.

MEMBERSHIP COLLEGE OF SURGEONS (MCS)

Basic Surgery

2 Years

A certificate of competence in surgery at General Medical Officer Grade (2 years training). After two years, trainees should be able to take responsibility for emergency surgical admissions, deal with life-threatening situations resulting from trauma or critical illness and be able to diagnose and plan treatment for a variety of common surgical conditions.

The Membership Examination is designed to assess the basic principles of surgery and a broad knowledge of surgery in general. It is designed to identify surgical trainees who can recognize and deal with the wide variety of problems that may be met by trainees. They should be able to take responsibility for emergency surgical admissions, deal independently with life threatening situations due to trauma or critical illness, and be able to diagnose and plan treatment of a wide variety of surgical complaints.

Membership of the College does not confer specialist status but signifies that the member is ready to pursue higher surgical training in a particular specialty. Higher surgical training in the chosen specialty is examined by the College's Fellowship Examination, which will confer specialist status.

MCS Regulations visit <https://bit.ly/463Lc8N>

FELLOWSHIP COLLEGE OF SURGEONS (FCS)

General Surgery	3 Years
Neurosurgery	4 Years
Orthopaedic Surgery	3 Years
Otorhinolaryngology	3 Years
Paediatric Surgery	3 Years
Plastic Surgery	3 Years
Urology	3 Years

Sub - Specialties

Cardiothoracic Surgery	3 Years
Paediatric - Orthopaedic	2 Years
Upper GI Surgery	2 Years
Breast Surgery	2 Years
Surgical Endoscopy	2 Years

The Fellowship of the College of Surgeons of East, Central, and Southern Africa - FCS (ECSA) is a prestigious qualification. The FCS training programme is aimed at enhancing surgical practice and standards across the region. These programmes provide advanced training for medical professionals, equipping them with the necessary skills and knowledge to excel in various surgical specialties and prepare to practice independently at a consultant or specialist level.

It offers a comprehensive curriculum that spans various disciplines, both general and specialized surgery with benefits of hands-on training in clinical settings as well as theoretical knowledge under the mentorship of experienced surgeons. The program also encourages research to advance surgical techniques and delivery. With an internationally recognized qualification, graduates are held to the highest standards of surgical practice. Additionally, the emphasis on continuous learning fosters professional development and prepares fellows for leadership roles in healthcare.

Graduating with the FCS qualification signifies a commitment to surgical excellence and a dedication to improving patient outcomes in the region.

FCS Regulations visit: <https://bit.ly/45031Z5>



