NETWORK OF ACCREDITED SKILLS CENTRES IN EUROPE

Dear Colleagues and NASCE Enthusiasts,

The 8th Annual NASCE Scientific Meeting took place in Geneva on October 23–24 at the SWISS Foundation for Innovation and Training in Surgery (SFITS), a non-profit foundation located on the Geneva University Hospitals (HUG) campus in Switzerland.

Summary of Day 1

The first day of the conference opened with a warm welcome from Prof. Hoffmeyer and Prof. Aksoy. Following the introductions of all participants, an overview of the two-day agenda was presented.

Collaborative Workshops

The day kicked off with a series of collaborative workshops. The concept was inspired by the informal and productive nature of conversations that happen during coffee breaks; the idea being that people share more openly in relaxed settings. The room was organized into four tables, each hosting 5 to 6 participants.

Workshop Goals

The main objective of the first session was to explore emerging technologies in the field. The format encouraged participants to rotate between tables and engage in evolving discussions. Each table followed the same structured approach:

1. **Introductions** – Each group took five minutes for participants to briefly introduce themselves.
2. **Question 1:**
   "What technologies or techniques currently in use can be considered truly 'new' or 'innovative'?"
   This question set the stage for initial brainstorming and sharing of perspectives.

After some time, participants moved to new tables to continue the discussion with a new group. One person from each group stayed behind to act as a reporter, summarizing the discussion for the next group.

3. **Question 2:**
   "What are the main problems and challenges we face in our training mission?"

Participants continued rotating and building on each other's ideas. Finally, the third round focused on forward-looking perspectives:

4. **Question 3:**
   "What directions or areas should we explore further for the future?"

At the end of the workshop, all ideas were shared with the full group in a collective debriefing session.

Tracks to Be Investigated – Insights from the Workshop

- **Adoption of New Technologies:**
  - Integrate VR/XR (Virtual and Extended Reality) into training programs.
  - Use machine learning to assist in CPR performance analysis and adapt training to real-life scenarios.
  - Employ additional assessment technologies, including:
    - Behavioral data
    - Stress analysis
    - Artificial Intelligence for personalized feedback
- **Competency-Based Collaboration:**
  - Identify and share complementary competencies among colleagues.
  - Foster cooperation and knowledge exchange between institutions and professionals.
- **Human and Faculty Development:**
  - Invest in human capital and continuous professional development.
  - Promote faculty development through recognized programs; potentially making it mandatory.
  - Encourage interprofessional training to enhance soft skills and address human factors in healthcare.
- **Training Structure and Validation:**
  - Make certain training mandatory with micro-credentials for progression.
  - Ensure internal and external validation of training effectiveness.
  - Align with and match European standards for courses and certification.
- **Funding:**
  - Secure dedicated funding to support technological integration, faculty training, and accessibility of resources.

The Multi-Modal Temporal Bone Dissection Beginner Course at SFITS presented By Prof. med. Pascal Senn

- ## Why Temporal Bone Training Matters

- Temporal bone dissection is essential, especially for emergency surgical skills.
- Surgeons need early and autonomous exposure to this complex anatomy during training.

- ## Evolution of Training Approach

- **Traditional model:**
    1. Observation
    2. Supervised surgery on real patients
- **Improved model:**
    1. Introduced early anatomical training
    2. Added cadaver dissection before patient work to improve safety

- ## Current Challenges with Cadaver Training

- High costs and limited availability of cadavers
- Ethical concerns, such as organ trading
- Access issues in certain countries
- SFITS only accepts donated bodies to ensure ethical compliance

Modern Approach to Beginner Training

- **Pre-course preparation:**
    - 3 hours of e-learning at home before the course
- **On-site course (Day 1 & 2):**
    - Blended format including:
        - E-learning
        - Virtual dissection/simulation
        - 3D printed models
        - Wet cadaver dissection
- All types of dissections (virtual, 3D-printed, cadaveric) are graded using the Welling scale for consistent assessment.
- 3D printed bones are being developed as a cost-effective alternative:
    - While not anatomically perfect, they provide key conceptual understanding
    - Help democratize access to practical training

Additional Points – Temporal Bone Course at SFITS

Observations & Questions from Participants

- **Are some structures damaged during dissection?**

Some anatomical structures may not be perfectly preserved or fully developed in the models. However, even partially visible structures are valuable for conceptual understanding, especially for beginners.

- **E-learning is partially focused on construction techniques**

The course includes content on how the anatomical models are constructed, helping participants understand the limitations and strengths of each model (virtual, 3D-printed, cadaveric).

- **Level of the course**

This is a beginner-level course. Intermediate or advanced courses are not yet available but may be developed in the future.

- **Educational philosophy**

The course is only one step in a larger educational pathway. The aim is to support and monitor students through each phase of training, not just at the beginner level.

- **Not mandatory but recommended**

Participation in this course is not mandatory for all clinics, but it is highly recommended, especially for centres where practical exposure is limited.

- **Supervision and evaluation**

Students are closely supervised throughout the course, and their progress is actively monitored. There are 26 specific skills/steps they must complete and pass.

How Medical Registries Contribute to Medical Education

Introduction to Registries

- This is a relatively new field in medical education.
- The presentation covered:
    1. Basic definition and structure of registries
    2. Types of registries
    3. Their role in medical education

Types of Registries

- **Population-based registries:**

  Collect data from a defined geographic area or entire population.
- **Clinical registries:**

  Focus on specific diseases, procedures, or patient populations.

Registry Structure

- Registries consist of:
    - Data collection systems
    - Quality control mechanisms
    - Analysis frameworks
    - Feedback systems

Role in Medical Education

- Registries are increasingly used in:
    - Pregraduate and Postgraduate medical education
    - Offering students hands-on experience with real-world data
    - Serving as learning platforms (Learning Hubs) and research infrastructures
- During COVID-19, registries played a major role in knowledge generation and tracking disease evolution.

Geneva Arthroplasty Registry

- Founded by Prof. Hoffmeyer
- Includes information on:
    - Surgical outcomes
    - Physical activity across different age groups
    - Longitudinal data
- Created "Patient Like Me" leaflet to personalize patient data

Advantages of Using Registries in Education

- Real-time access to longitudinal data
- Development of analytical skills
- Exposure to real clinical trends and outcomes
- Engagement in registry-based research
- Patients value receiving personalized outcomes and prognostic information

Disadvantages

- Data privacy and management
- Potential bias in data collection
- Resource-intensive maintenance

Growth and Validation

- Increasing number of registry-based studies (over 7,000 recently published).
- Validation is done in collaboration with national medical authorities to ensure accuracy and compliance.

Visit to SFITS - Innovative technologies in surgical education, simulation, and human-centered design

- Geneva hosts three different services focused on surgical training and simulation.
- SFITS (Swiss Foundation for Innovation and Training in Surgery) is a key hub that provides hands-on workshops, simulation-based learning, and access to cutting-edge tools like VR, AI, and human-robot interaction models.

Workshops Overview

1. Virtual Reality for Surgical Training:

- Demonstrated how VR can be integrated into surgical training environments
- Focus on cognitive training and neuro-feedback in surgical decision-making
- Explored VR as a safe space to practice before operating on real patients

2. Generative AI in Medical Training :

- Small group discussions on how to use Generative AI (GenAI), including ChatGPT
- AI used to create interactive clinical scenarios for student training

Example Use Case:

- A prompt-driven AI simulation with:
  - A doctor-patient consultation scenario
  - Patient profiles like:
    • "Highly anxious"
    • "I don't listen"
    • "I want to know everything"

7-Step Prompt Structure

1. Objective
2. User
3. Role
4. Role 1 – Patient
5. Profile 1 – Highly anxious
6. Profile 2 – Non-compliant
7. Profile 3 – Inquisitive

Conclusions:

- AI is not reliable for factual accuracy – don't use it to replace facts
- Use AI like you're talking to another human being
- GenAI can act as:
  - Assistant
  - Tutor
  - Feedback tool (see video for example)
- Valuable for role-play and communication training

3. Augmedi Presentation

Mission:

"Simplifying the path to academic and professional success."

Tools Introduced:

- TeachAnatomy – Software for teaching anatomy through digital platforms
- TeachApproach – For doctors learning different surgical approaches

Challenges Addressed:

- Limited body donors
- Gaps between knowledge and hands-on experience
- Solutions through progressive and hybrid learning

Educational Goals:

- Personalized learning paths and course recommendations
- Hybrid course frameworks and evaluation systems for both students and faculty

4. Human-Centered Design in Surgical Training:

- How can we align technological innovation with human needs?
- How can human-centered design (HCD) improve surgical training?

Principles of Human-Centered Design:

1. Solutions must be people-centered
2. Develop at the system level
3. Iterate, test, and adapt

HCD Process (Step-by-Step):

1. Frame the problem space
2. Engage key stakeholders
3. Observe the context and real behaviors
4. Empathize and understand users' perspectives
5. Prototype solutions with users and iterate

Reflective Questions:

1. What aspects of HCD could innovate surgical training?
2. What impact could HCD have on training effectiveness and outcomes?
3. Which principles or ideas from this approach would you like to explore further

Conclusion & Reflections

- SFITS provides a cutting-edge platform combining technology, simulation, and educational science
- Workshops explored the intersection of technology (AI, VR, robotics) and human-centered learning
- Participants were encouraged to reflect on how these tools and approaches could be applied to their own institutions or training system.