

# The Concept and Current State of Neurosurgery in Southeast Europe

Lukas Rasulić MD<sup>1,2</sup> |

<sup>1</sup>Faculty of Medicine, University of Belgrade, Belgrade, Serbia

<sup>2</sup>Clinic for Neurosurgery, Clinical Center of Serbia, Belgrade, Serbia

## Correspondence

Faculty of Medicine, University of Belgrade, Belgrade, Serbia

Email: [lukas.rasulic@gmail.com](mailto:lukas.rasulic@gmail.com)

## 1 | INTRODUCTION

The term "Southeast Europe" was introduced by Austrian researcher Johann Georg von Hahn in the 19th century as a broader term than the traditional "Balkans," designating the region settled by several different nations, mostly alike, but also richly diverse. The most appropriate definition describes the inhabitants as the people geographically, demographically, and culture related to Southeastern Europe (1).

Contemporary neurosurgery in the Southeast Europe region has recently witnessed remarkable progress, guided by the "Think globally, act locally" concept as an essential driving force. This slogan has long been in use in environmental contexts and has been gaining increased significance in various disciplines over the past decades. In international education, this slogan was first introduced in 1950 and popularized by Stuart Grauer in 1989 (2). Neurosurgeons in Southeast Europe genuinely implement the concept of thinking globally and acting locally, working together to expand the horizons to the benefit of our patients and our well-being and recognition in the modern world. This mini review aims to highlight the development and progress of the Southeast Europe neurosurgical society (SeENS) as a regional neurosurgical society dedicated to neurosurgical education, research, capacity building, and exchanging experiences within the Southeast region of Europe.

## 2 | SOUTHEAST EUROPE NEUROSURGICAL SOCIETY

SeENS was established in 2012 to cope with global and local challenges (Figure 1), with a sense purpose – to improve neurosurgical care, training, and research in Southeast Europe by promoting expertise exchange and cooperation among region neurosurgeons (1). SeENS is a professional, nonprofit organization founded to improve neurosurgical care, training, and research in southeast Europe by developing and enhancing cooperation and experience exchange amongst neurosurgeons in the region. SeENS is committed to providing an environment for the development and promotion of the highest quality of neurosurgical care to benefit the public welfare of southeast Europe, a scientific and professional association based on individual membership of delegate neurosurgeons in practice and training, dedicated to providing a forum for collegial relationships and mutual progress from southeast European region countries (in alphabetical order) Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Greece, Hungary, Moldova, Montenegro, North Macedonia, Romania, Serbia, Slovenia, and Turkey. SeENS is not the association of neurosurgical societies.

Leaning upon the strong foundations of tradition and experience and following recent professional accomplishments, trends, and innovations, members of the SeENS strive for neurosurgery and neuroscience without frontiers. They aim to build bridges of knowledge and understanding across disciplines and institutions, individuals, and generations. All efforts have led to rich academic, scientific, educational, professional, and social networking, which will only intensify and develop further (3).

Members of the SeENS have developed a genuine sense of details and sharing knowledge through the SeENS network. According to the criteria based on the worldwide best interest evidence grounded in neurosurgical and neuroscientific academic and professional practice, all activities aim to accomplish further development in line with the primary goal – better neurosurgery of tomorrow, according to the criteria based on the worldwide best interest evidence grounded in neurosurgical and neuroscientific academic and professional practice (4).



**FIGURE 1.** Logo of the Southeast Europe Neurosurgical Society (SeENS).

### **3 | WORLD-CLASS NEUROSURGERY BROUGHT TO YOUR DOOR**

Since the 1st SeENS Congress held in Belgrade in 2013, the dedicated efforts of the founding group of people have led to increased visibility and presence of neurosurgeons from Southeast Europe in the international neurosurgical community and the international neurosurgical community in our region. SeENS members promote updated neurosurgical knowledge, exchange of experience, and genuine hospitality to improve local education through scientific meetings, hands-on courses, online education, and congresses. This was also recognized by the European Association of Neurosurgical Societies (EANS); SeENS is an affiliated member since 2013. The World Federation of Neurosurgical Societies (WFNS), SeENS is a full member since 2015, which has given enormous support to our efforts.

So far, the SeENS Congresses were organized in Belgrade, Serbia (2013), Sarajevo, Bosnia and Herzegovina (2015), Cluj-Napoca, Romania (2017), and Thessaloniki, Greece (2019), all with exceptional attendance from both the local and the international participants, and extraordinary faculty members. The upcoming congresses will take place in Opatija, Croatia in 2021, and Pécs, Hungary in 2023.

Moreover, since its inception in 2012, SeENS was present in all events organized across the region, emphasizing collaboration with the Serbian Neurosurgical Society (SNSS) to bring the most notable international experts for the WFNS International Meeting Belgrade, Serbia (2019). For the subspecialty event, the 2nd WFNS Theoretical & Practical International Course in Peripheral Nerve & Brachial Plexus Surgery held in Belgrade, Serbia, in 2017, during the 3rd SNSS Annual Meeting dedicated entirely to peripheral nerve surgery.

The SeENS also organizes a "SeENS Silk Road," a four-year educational course, and EANS Training Courses in Belgrade, Serbia in 2018., and Sarajevo, Bosnia, and Herzegovina 2019 in conjunction with national societies. Additionally, in keeping with a global tendency towards virtual meetings and online education during the CoVID-19 pandemic, the formation of the Webinar platform in collaboration with local and national societies became a priority in 2020. Anniversary EANS Congress organized by the SNSS in close cooperation with SeENS was planned in Belgrade, Serbia, for 2020, but it was delayed due to the CoVID-19 pandemic and is now planned for October 2022.

Over the past eight years, SeENS organized a series of events either alone or in partnership with national and international neurosurgical associations, contributing significantly to the education and capacity building of neurosurgeons in Southeast Europe (Table 1).

TABLE 1. List of the scientific events organized and co-organized by SeENS

Year	Meeting	City, Country
2013	<b>1<sup>st</sup>SeENS Congress, October 31<sup>st</sup> - November 2<sup>nd</sup>, 2013 *</b>	<b>Belgrade, Serbia</b>
2014	The pitfalls of minimally invasive spine surgery, May 23 <sup>rd</sup> , 2014	Zagreb, Croatia
	3 <sup>rd</sup> Congress in the Danube-Carpathian Region "Controversies in Neurosurgery," May 29 <sup>th</sup> -31 <sup>st</sup> , 2014	Varna, Bulgaria
	WFNS Course, July 16 <sup>th</sup> -20 <sup>th</sup> , 2014	Cluj-Napoca, Romania
	The Days of Neuroscience, October 3 <sup>rd</sup> , 2014	Skopje, North Macedonia
	<b>1<sup>st</sup>SeENS Endoscopic Pituitary Surgery Workshop, November 14<sup>th</sup>, 2014,</b>	<b>Zagreb, Croatia</b>
2015	20 <sup>th</sup> Congress of the EuroacademiaMultidisciplinariaNeurotraumatologica (EMN), May 28 <sup>th</sup> -30 <sup>th</sup> , 2015	Zagreb, Croatia
	SEEFORT - South East Europe Forum on Orthopaedics and Traumatology, April 22 <sup>nd</sup> -25 <sup>th</sup> , 2015	Dubrovnik, Croatia
	New frontiers in epilepsy, functional and peripheral nerve surgery, June 19 <sup>th</sup> , 2015	Podgorica, Montenegro
	WFNS Course, May 14 <sup>th</sup> -17 <sup>th</sup> , 2015	Dubrovnik, Croatia
	Tumors of the vertebral column, April 17 <sup>th</sup> , 2015.	Zagreb, Croatia
	<b>2<sup>nd</sup>SeENS Congress, October 22<sup>nd</sup>-25<sup>th</sup>, 2015</b>	<b>Sarajevo, Bosnia, and Herzegovina</b>
	<b>Facing the challenges of Neurosurgery in the 21<sup>st</sup> century in the Southeast Europe region, October 31<sup>st</sup>, 2015</b>	<b>Belgrade, Serbia</b>
	<b>SeENS International Neurosurgery Course: "Walking the silk road" - Neurooncology, July 13<sup>th</sup>-16<sup>th</sup>, 2016</b>	<b>Istanbul, Turkey</b>
2016	WFNS Education Course & Conference "Sport & Neurotrauma", February 26 <sup>th</sup> -27 <sup>th</sup> , 2016,	Sochi, Russia
	2 <sup>nd</sup> Annual Meeting of Serbian Neurosurgical Society "Controversies in Neurotraumatology," October 20 <sup>th</sup> -22 <sup>nd</sup> , 2016	Novi Sad, Serbia
	Microsurgical Hands-on Workshop, March 7 <sup>th</sup> -12 <sup>th</sup> , 2016	Athens, Greece
	Cranio-cerebral Injury Course, June 17 <sup>th</sup> -18 <sup>th</sup> , 2016,	Zagreb, Croatia
	Minimal Invasive Degenerative Lumbar Spine Disease Surgery Course, September 22 <sup>nd</sup> -23 <sup>rd</sup> , 2016	Zagreb, Croatia

	Neurooncology Course, November 17 <sup>th</sup> -18 <sup>th</sup> , 2016	Zagreb, Croatia
	Croatian Spine Society Symposium, May 13 <sup>th</sup> , 2016,	Zagreb, Croatia
	8 <sup>th</sup> BHAAAS Neurosurgical/Spine Symposium, May 28 <sup>th</sup> , 2016	Neum, Bosnia, and Herzegovina
	Cerebrovascular Neurosurgery Symposium, March 17 <sup>th</sup> -18 <sup>th</sup> , 2016	Zagreb, Croatia
	The International Symposium celebrated 30 years of the Department of Neurosurgery in Sestremilordnice University Hospital Center, November 18 <sup>th</sup> , 2016.	Zagreb, Croatia
	9 <sup>th</sup> BHAAAS Neurosurgical Symposium, May 27 <sup>th</sup> , 2017	Teslić, Bosnia, and Herzegovina
2017	Intracranial Glioma Workshop, April 6 <sup>th</sup> -8 <sup>th</sup> , 2017	Larissa, Greece
	5 <sup>th</sup> Spine Symposium, June 9 <sup>th</sup> , 2017	Zagreb, Croatia
	<b>SeENS International Neurosurgery Course "Walking the silk road" August 16-20th, 2017</b>	<b>Istanbul, Turkey</b>
	<b>3rd SeENS Congress: "Neurosurgery – Quo Vadis?" September 14<sup>th</sup>-16<sup>th</sup>, 2017</b>	<b>Cluj-Napoca, Romania</b>
	6th MASSIN Congress, October 26 <sup>th</sup> -29 <sup>th</sup> , 2017	Budva, Montenegro
	2 <sup>nd</sup> Regional Course for Diagnostic and Treatment of Spontaneous Intracranial Bleeding, October 5 <sup>th</sup> , 2017	Zagreb, Croatia
	Athens Microsurgical Course, November 6 <sup>th</sup> -11 <sup>th</sup> , 2017	Athens, Greece
	WFNS Educational Course June 1 <sup>st</sup> -4 <sup>th</sup> , 2017	Ohrid, Macedonia
	2 <sup>nd</sup> Theoretical, Practical & Hands-on International Course in Peripheral Nerve & Brachial Plexus Surgery, October 31 <sup>st</sup> -November 3 <sup>rd</sup> , 2017	Belgrade, Serbia
	1 <sup>st</sup> Spinal Navigation Workshop, November 10 <sup>th</sup> , 2017	Zagreb, Croatia
2018	<b>SeENSInternational Neurosurgical Course "Walking the silk road": Giants of Neurosurgery, September 25<sup>th</sup>-27<sup>th</sup> 2018</b>	<b>Sarajevo, Bosnia, and Herzegovina</b>
	<b>SeENS International Neurosurgical Course "Walking the silk road": Giants of Neurosurgery, September 28<sup>th</sup>, 2018</b>	<b>Zagreb, Croatia</b>
	6 <sup>th</sup> Symposium of Croatian Society for Spinal Surgery, June 6 <sup>th</sup> , 2018	Zagreb, Croatia
	Second Congress of the Mediterranean Association of Neurological Surgeons (MANS), June 19 <sup>th</sup> -20 <sup>th</sup> , 2018	Naples, Italy
	10 <sup>th</sup> BHAAAS Neurosurgery and Spine Surgery Symposium June 23 <sup>rd</sup> , 2018	Jahorina, Bosnia, and Herzegovina
	Spine surgery in XXI Century - Current concept, controversies, perspectives, October 4 <sup>th</sup> -7 <sup>th</sup> , 2018	Niš, Serbia

	Minimally invasive treatment of degenerative diseases of the spine, October 23 <sup>rd</sup> , 2018	Zagreb, Croatia
	WFNS Educational Course, June 1 <sup>st</sup> -2 <sup>nd</sup> , 2018	Cluj-Napoca, Romania
	2 <sup>nd</sup> Spinal Navigation Workshop November 15 <sup>th</sup> , 2018,	Zagreb, Croatia
	3 <sup>rd</sup> Regional Course for Diagnostic and Treatment of Spontaneous Intracranial Bleeding, November 22 <sup>nd</sup> -23 <sup>rd</sup> , 2018	Zagreb, Croatia
2019	WFNS 2019 International Meeting, March 21 <sup>st</sup> -24 <sup>th</sup> , 2019	Belgrade, Serbia
	11 <sup>th</sup> Days of BHAAS in B&H, June 20 <sup>th</sup> -23 <sup>rd</sup> , 2019,	Sarajevo, Bosnia, and Herzegovina
	<b>4<sup>th</sup>SeENS Congress &amp; 33<sup>rd</sup> Annual Congress of the Hellenic Neurosurgical Society, June 27<sup>th</sup>-30<sup>th</sup>, 2019</b>	<b>Thessaloniki, Greece</b>
	5 <sup>th</sup> Annual Meeting of Serbian Neurosurgical Society "Neurovascular supersessions: Exo? Endo? Hybrid? Quo Vadis?" October 24 <sup>th</sup> -27 <sup>th</sup> , 2019	Kragujevac, Serbia
	<b>SeENS International Neurosurgical Course "Walking the silk road," August 22<sup>nd</sup>-24<sup>th</sup>, 2019</b>	<b>Zagreb, Croatia</b>
	4 <sup>th</sup> Regional Course for Diagnostic and Treatment of Spontaneous Intracranial Bleeding, May 29 <sup>th</sup> -30 <sup>th</sup> , 2019	Zagreb, Croatia
2020	Neuro-oncology aspects in modern neurosurgery in 21st century, January 31 <sup>st</sup> , 2020	Sarajevo, Bosnia, and Herzegovina
	6 <sup>th</sup> Annual Meeting of Serbian Neurosurgical Society SNSS 2020 VIRTUAL – exceptional Meeting of SNSS "Coronavirus Outbreak, COVID-19 & Neurosurgery" November 28-29, 2020	Virtual (Belgrade, Serbia)

\* bold type indicates events organized by SeENS; regular type indicates joint-ventures and conjunct organized events.

The scientific potential of the region was recognized by the renowned and respected neurosurgical journal Neurological Research, which dedicated a special issue to the regional neurosurgeons, entitled: "Neurosurgical community in Southeast Europe: Expanding the horizons" (Volume 42, Issue 12 (2020); Link: <https://www.tandfonline.com/toc/yner20/42/12>). This special issue included 13 articles by authors from almost all countries involved in the society, representing a milestone in the visibility and recognition of SeENS in the international neurosurgical community.

#### 4 | INCLUSION AND INTERACTION

Local neurosurgeons have become more competent and open-minded to the world, making the best learning opportunities for young neurosurgeons through participation in EANS and WFNS educational events and familiarity with professional resources and possibilities. Constant strengthening of cooperation within the neurosurgical community in the region, and of relations with the neurosurgical societies in Europe and Worldwide, has led to the recognition of Southeast Europe as a meeting point of the international neurosurgical community with countless memories and professional interactions through all available communication modalities with an enormous

potential for further development (4). The aim and the main goal of SeENS remain patient's well-being and satisfaction by achieving the best possible outcomes in terms of functional recovery, survival, and quality of life.

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