

Stroke Action Plan - Europe Implementation Plan: Status update as of April 2025

1. Background

Following the Action Plan for Stroke published in *European Stroke Journal* (ESJ) in 2018, an implementation Steering Committee was appointed by the European Stroke Organisation (ESO) and including both members from ESO and the Stroke Alliance for Europe (SAFE). The committee first met in August 2019.

The assignment of this committee is defined by the aims and recommendations of the [Action Plan for Stroke in Europe](#), as well as the Terms of Reference as agreed with the Executive Committee of ESO, which initiated this work:

“The implementation includes: 1) Definition of a strategy framework 2) Definition of the Key Performance Indicators (KPI) for monitoring the quality of care and reaching the targets 3) Definition of a dissemination strategy (Terms of reference)”.

The work was halted by the Covid-19 pandemic in spring 2020 but reinitiated based on an online approach in the autumn of 2020 and continued mainly based on online activities till 2022. Since then, the project has been implemented both online and with in-person National Coordinators (NCs) meetings.

The present annual update document aims to provide an overview of the implementation plan with status on progress in the individual steps/areas.

1.1 Definition of a strategy framework

From the beginning, the linking of SAP-E to WHO has been identified as of major importance. For this reason, upon application, ESO succeeded in becoming a Regional non-State actor not in official relations with WHO.

National scientific societies as well as national stroke support organisations are the key players looking at an individual country level, as they have insights on the actual status of care as well as knowledge on lines of decision, and are in direct contact with the key healthcare shareholders i.e. national Ministries of Health, insurance companies, that are important partners in implementing SAP-E.

Furthermore, we have decided to include existing quality improvement initiatives in Europe to ensure synergy.

Figure 1: Overview of strategic network



1.2 Status on strategic framework

World Health Organisation: ESO has succeeded in becoming a regional non-State actor not in official relations with WHO. A joint session (ESO/WHO) was held at ESOC 2023 and again 2024 with speakers from WHO and from ESO/SAP-E. Jill Farrington (Regional Medical Officer, CVD and Diabetes, WHO) is a working group member in the update of the Action Plan for Stroke in Europe manifesto.

World Stroke Organisation: Has endorsed SAP-E in July 2021.

American Heart Association: Based on several meetings between AHA and SAP-E leadership, an MoU between AHA and ESO has been signed. Joint sessions were held at ISC 2024 and ESOC 2024.

European Union: ESO has in collaboration with SAFE contributed to the [EU Healthier together \(NCDs\) Guidance document](#), most importantly by succeeding in including stroke and the SAP-E as priority 5 (referred to on page 101).

European Academy of Neurology: SAP-E was presented at the EAN Conference in 2024.

National Scientific Societies and Stroke Support Organisations: The national scientific societies and stroke support organisations have actively been participating in the project since 2020. Over 120 national coordinators have been appointed and 53 countries in the WHO European region are involved in the programme.

A first mapping of stroke care including existing stroke plans, quality programmes, etc. was completed in 2020. Responsibilities of national societies and their appointed National Coordinators have been defined (please see below in section 4).

In March and April 2020, one-to-one meetings between national coordinators and Hanne Christensen were conducted. Forty-two countries participated. The format was informal 1-hour zoom-meetings covering the status of stroke care in the countries, the signing of the Declaration in their countries, their individual feedback on SAP-E, and the availability of data for the Stroke Service Tracker.

One kick-off meeting and three roll-out meetings were held from September 2020 to March 2021 for National Coordinators and were well attended. These were followed up by workshops on advocacy for the Declaration (5 October 2021), the National Stroke Plan template (30 November 2021) and the Stroke Service Tracker (18 January 2022). All recordings of the webinars are available on the [SAP-E website](#). On the pre-conference day of ESOC 2022, a face-to-face symposium was held. This symposium focused on sharing experiences in implementing SAP-E and five countries (Serbia, Bulgaria, Germany, Greece, and Estonia) that had specifically excelled received prizes.

Further online symposia focusing on each of the 7 domains and one on the launch of the first online output from the Stroke Service Tracker were held from mid-2022 to June 2024.

In March 2023, the first on-site SAP-E NC meeting was held in Riga; this has been followed up by an NC meeting in Lisbon in 2024 and in Sofia in 2025, the latest with 77 participants. The meetings focus on burning issues (as based on inputs from regional spokespeople and based on SST data) and sharing experiences (successes and challenges), the programme from 2025 is [available online](#). Participant's evaluations were highly positive.

Ministries of Health: A roll-out plan to engage with Ministries of Health (MoH) in all European countries has been prepared, a model based on the National Societies with support from SAP-E (please see below section 5 for details). So far, fourteen countries (Ukraine, Lithuania, Spain, Kosovo, Portugal, Bulgaria, Catalonia, Slovakia, Romania, Estonia, North Macedonia, Croatia, Czechia and Malta) have signed the SAP-E Declaration.

European quality initiatives: Specifically, ESO-East, RESQ and Angels Initiatives are relevant. Several people in the implementation committee have leading positions in these programmes ensuring synergies. The SAP-E Chair is included in the Steering Committee of Angels Initiative.

2. Key performance indicators (KPI)

The second task for the SAP-E implementation committee according to Terms of Reference was the “*Definition of the Key Performance Indicators (KPI) for monitoring the quality of care and reaching the targets*”.

2.1 KPIs

Twelve KPIs were identified and finalised after consultations with national coordinators during the [roll-out meetings](#). To increase accountability, easy interpretation, and including and outcome measure (outcome, presently only option) the number will be increased to 13 and subcategories included resulting from the 2025 update of SAP-E.

2.2 Data definitions

Data definitions are included in the description of the SAP-E Stroke Service Tracker (Section 3.2).

2.3 Benchmarking

Benchmarking is performed by using the SAP-E Stroke Service Tracker (Section 3.2)

3. Overview of SAP-E activities

3.1 Main activities

The second task for the SAP-E implementation committee according to Terms of Reference was the “Definition of the Key Performance Indicators (KPI) for *monitoring the quality of care and reaching the targets*”. To accomplish “the monitoring and the reaching of the targets”, several activities have been planned and organised.

The main activities of SAP-E are the SAP-E Stroke Service Tracker (section 3.2) and communication (section 3.6).

In 2023, we initiated the preparation of mid-term update of the Stroke Action Plan for Europe with the aim to include new knowledge and to more precisely reflect and respond to the challenges for stroke care in Europe in the years 2025 to 2030. The work was planned and led by the leadership of SAP-E. The review and writing process followed the process used previously. Eight working groups (Primary prevention, Organisation of Stroke Care, Acute Management, Evaluation of Outcomes and Quality, Secondary Prevention, Rehabilitation, Life After Stroke, and Translational Research) were established ensuring representativeness, patient representatives were included in all groups.

An interim review oversight committee (IRC), including patient representatives, was established to ensure transparency in the work. The groups reviewed the existing action plan with a focus on the need for updating based on new knowledge, present state, and accountability of the targets. The SAP-E KPIs were integrated into the listed targets and developed, if relevant. The present status was supported by SST data, if available.

The domain texts were written and reviewed by editors and IRC. The document was publicly discussed during a recorded live-streamed meeting on August 27th, 2024. All sections were systematically discussed, and working groups afterwards reviewed the sections accordingly. The final version was subsequently reviewed by the IRC, all working groups and ESO Executive Committee. We anticipate publishing this document around the time of ESOC 2025.

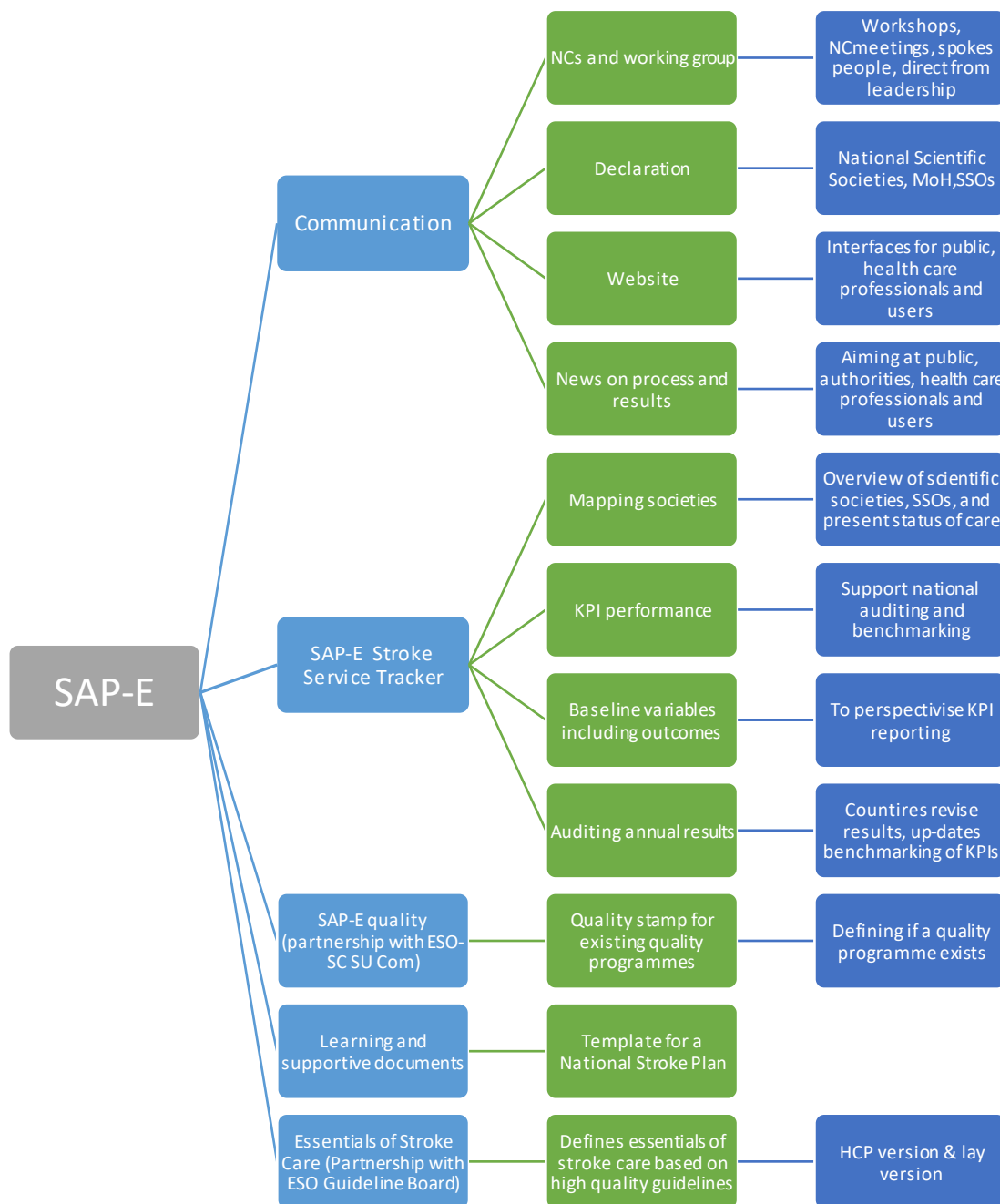
- Other activities were planned to support these activities:

Collaboration with the ESO Stroke Unit Committee (section 3.3), which presides the existing ESO stroke unit certification model, on coordination of this with SAP-E as well as a potential model of a certification of individual countries’ existing quality models is sought; SAP-E COO Melinda Roaldsen is appointed as observer in the Stroke Unit Committee. This work is still ongoing.

An educational platform (section 3.4) consisting of links to existing e-based learning material gathered for easy overview and access through the SAP-E homepage was planned, however, this has been dropped as several other learning platforms have emerged making this task obsolete.

Furthermore, **the Essentials of Stroke Care** (section 3.5) was prepared in collaboration with the Guideline Board and lists listing primordial evidence-based steps during pre-hospital, hospital stroke care, and the life after stroke phase. A lay version was published in 2023 and NCs are welcomed to translate into local languages; a disclaimer and the name of the translator must be included, so far six languages are available on SAP-E website. An updated version will be planned in 2025.

Figure 2: Overview of activities



3.2 SAP-E Stroke Service Tracker

This platform was established using the REDCap system allowing for Country Leads (please see section 4) to enter data based on a unique access and with logging. Data definitions and Terms for the tracker has been approved by the SAP-E SC and Terms was approved by the EC. The SST was coded in RedCap and two dry runs (Estonia and Greece) was conducted after the approval from SAP-E SC of the included variables. The platform is hosted by an academic institution (Capital Region of Denmark), SAP-E SC has data ownership under the supervision of ESO EC and it is possible to move the platform to another institution if decided. The platform has been designed to aim at feasibility, e.g. time use and easy transfer of data from other platforms. Only aggregated summary data are included, the only GDPR issue is the list of national coordinators, and data approval of the filing of this has been achieved. Each national lead will only be allowed access to enter data on their country, after confirming/saving, changes can only be made after application documenting the reason.

Data entry started in December 2021 (2020 data) and preliminary data was presented at the NC meeting on the ESOC pre-conference day, this data will be shared on the website together a short report on status. From 2022, data-upload is planned from November to end January (preceding year) and data is presented in May.

A baseline variable dataset is defined in the Data definitions as well as variables on KPIs. Source of data must be provided when uploading and documentation provided, e.g. a link to a National Stroke Plan to document its existence. National coordinators were instructed in the use of the platform at a workshop, written instructions as well as video-instruction have been developed. Furthermore, they have the option of direct assistance form the team if encountering problems, contact to team by e-mail.

KPI performance of individual countries with the uploaded comments are presented publicly at the SAP-E website. An updated graphic presentation system with colored maps using the symbolics of traffic lights was implemented in 2024. The current KPI visualisation has been colour coded to present quality of data as well as achievements.

Please access <https://actionplan.eso-stroke.org> to see data from 2020 to 2022; as to 2023 data, we expect high data completeness. As of April 2025, only 5 countries (of 53) have not responded to the survey.

Data from 2023 will be presented in May 2025 at ESOC, a publication (ESJ) is under preparation. A SST Scientific Publications Committee has been established in November 2024. Data is shared based on merits of the protocol as decided by the voting majority of committee. The first proposal was approved: a collaboration with EAN on the project: gaps in the access to endovascular thrombectomy.

3.3 SAP-E Quality

Local quality work to improve overall quality is crucial in meeting the targets of SAP-E. ESO Stroke Unit Committee provides a model of stroke unit certification. However, many countries have their own, in some cases, benchmarking-based quality models and are less likely to see the advantages of adhering to two different models of quality work. As our aim is to advance quality work to improve stroke care in general and not to advance one specific model, we are exploring the options with the ESO Stroke unit committee for them to help in setting up a model to certify existing

models/certifications so that countries/regions having a valid model could have a general certification for their quality system. A short shared strategic document co-authored with the Stroke Unit Committee is under development to ensure work consistency among ESO activities/committee. The stroke unit definition and requirements were discussed during the workshops in NCs meeting in Sofia 2025. We plan to transform the outcomes of workshops to a consensus statement.

3.4 SAP-E Educational Platform

The plan for a SAP-E platform has been abandoned based on several emerging excellent other ESO platforms rendering this plan obsolete.

3.5 Essentials of Stroke Care

This document is a simple tool to ensure easy access to evidence-based information on stroke care and to define common basics of stroke care to anchor the Key Performance Indicators. The document covers the chain of care in the pre-hospital setting, the hospital setting, rehabilitation setting, medical follow up, and life after stroke. The document is based on existing evidence-based guidelines with a preference for ESO guidelines, these guidelines are cited to ensure further access to more detailed information. It was developed by a sub-committee appointed by the Guideline Board (Thorsten Steiner, Guillaume Turc, Katharina Sunnerhagen, Jesse Dawson & Hanne Christensen). The Essentials of Stroke Care are framed for health care professionals and for people planning stroke care or advocating for stroke care in two different versions and posted on the SAP-E website; the listing of actions has been approved for endorsement by the EC. The version for health care professionals was posted on the website in July 2021, a lay version was published in 2023; a pathway for translation has been established. There are currently versions in six languages.

We plan to produce an update, work to begin later in 2025.

3.6 Communication

A communication plan has been established between ESO and SAFE. A SAP-E website has been developed by Greensplash and the ESO Head office under supervision of the SC to provide tools (sections 3.2-3.5) and information for health care professionals, users and public. The website was launched officially on 4 May 2021 and relaunched in May 2023 after update. News on the process will be sent to engage people within the system, to increase visibility for the public and to reach decision makers.

Presently the website is being updated to ensure a higher degree of user-friendliness and that than the technical set up allows for using a link to the website (eg to the Essentials of stroke care) as a reference.

Furthermore, the continued plan to engage National Scientific Societies, Ministries of Health and Stroke Support Organisations is described in section 5 and specific communication activities in section 7. Our communication of successes and new initiatives is coordinated between ESO and SAFE – using a combination of email, newsletters, and social media to inform people of the SAP-E progress.

3.7 National Stroke Plan Template

A National Stroke Plan remains the basis of developing organised stroke care and is therefore

included as SAP-E KPI 1. A template has been developed and is available as a tool for the NCs to assist them in their work to set up a national framework. The template is available on the website.

3.8 Stakeholder analysis template

A template for stakeholder analysis has been developed and is available on the website.

4. Roles and responsibilities of National Scientific Societies and Stroke Support Organisations: how to induce change on a country level

4.1 Motivation for this role

The national societies know their countries and how their systems work. It would further not be possible for a European Steering Committee to work directly in the countries for multiple obvious reasons. SAP-E must provide them with useful tools and support: the real change will happen locally.

4.2 National Coordinators

A functioning network of National Coordinators (NCs) was established and is continuously working. Most countries have two NCs, one of which is optimally nominated by the National Stroke Scientific Society and the other by the National Stroke Support Organisation. Their responsibilities are **1)** to be the point of communication to SAP-E, **2)** to be the point of communication with the national Ministry of Health, **3)** to chair the auditing and benchmarking committee, **4)** to ensure SSO involvement in the process, **5)** to provide summary data for the Stroke Service Tracker, and **6)** to overall work for change including implementation of National stroke plans.

To ensure general support and engagement from countries, the tasks documents describing the tasks of the NC, e.g. the work of a monitoring and benchmarking committee, and how to perform a stakeholder analysis have been circulated to the NCs. Furthermore, practical steps will be planned, aiming at a minimal workload. NCs have been involved in the finalisation of the Declaration and KPIs and had the option to comment on all major tools before finalisation. NCs ensure the translation of relevant documents into their languages. NCs have received continued supporting e-mails from the head office on the tasks to perform, as well as reminders when needed. A continuously updated list of NCs is available on the SAP-E website.

4.3 Regional spokespersons

The new roles as regional spokespersons (East, West, North, South) were established to support NCs and optimize communication in 2023. Spokespersons were elected by NCs:

- Ales Tomek (Czech Republic): **East** (Armenia, Azerbaijan, Belarus, Czech Republic, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Moldova, Poland, Romania, Russia, Slovakia, Ukraine):
- Hrvoje Budincevic (Croatia): **South** (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Greece, Israel, Italy, Kosovo, Malta, Montenegro, North Macedonia, Serbia, Slovenia, Turkey)
- Gustavo Santo (Portugal): **West** (Austria, Belgium, Catalonia, France, Germany, Luxembourg, Portugal, Spain, Switzerland)

- Aleksandras Vilionskis (Lithuania): **North** (Denmark, England, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, the Netherlands, Northern Ireland, Norway, Republic of Ireland, Scotland, Sweden, Wales)

They have initiated their work right after elections and are included in the SC of SAP-E. Their role is also important during NCs meetings and online meetings (chairing workshops, collecting regional feedback).

4.3 National Ministries of Health (MoH)

The National MoHs will be involved by contact from the National Scientific Society and Stroke Support organisation with support from SAP-E including relevant informative documents on the process. A cover letter to the Declaration for the MoHs has been produced with assistance from communications experts. Their responsibilities include **1)** promoting/providing a national stroke plan, **2)** promote/support the provision of summary data for the Stroke Service Tracker, **3)** support the auditing and benchmarking committee, **4)** ensure collaboration of all sectors involved in stroke care, and **5)** Initiate/provide support for establishment of quality programmes, if non-existing.

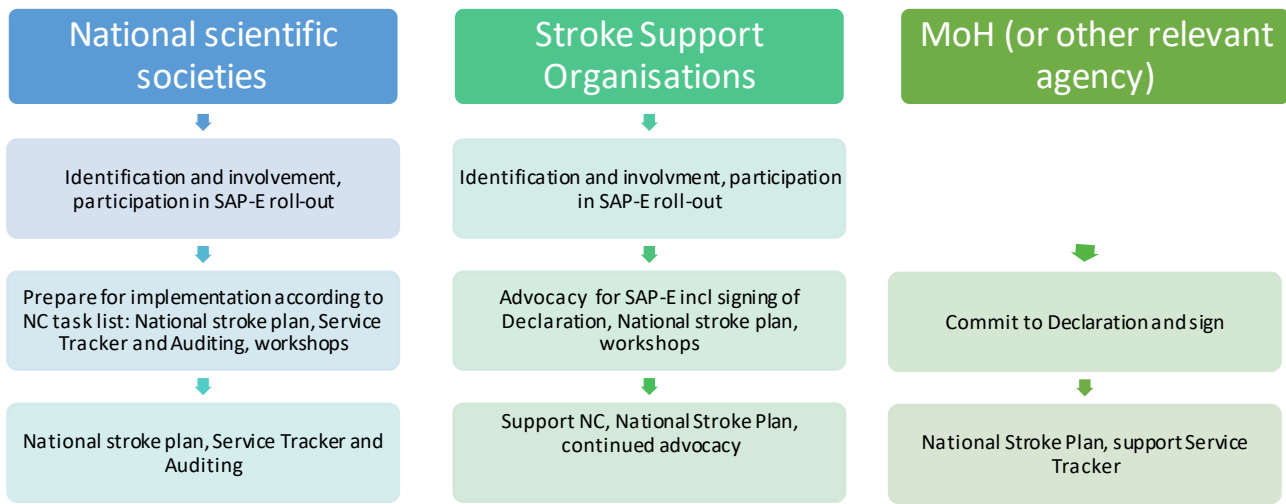
4.4 Support

SAP-E throughout the implementation process supports the process by providing tools as well as by meetings planned to include informative sessions and regional work group sessions with focus on the elements of the plan.

4.5 Declaration

To ensure dedication, motivation and establish a profitable and lasting alliance among key-players and stakeholders, a Declaration has been created, launched on 17 May, 2021, and is in the process of being signed by the national MoHs. Progress in signing is documented on website. We hope that the direct referral to SAP-E in the priorities of the recently published EU Healthier Together (NCDs) Guidance document will further support this process. SAFE will coordinate a meeting with key ESO contacts to develop a plan as well as a meeting with the National Coordinators to inform them of the opportunities.

5. Process of involvement of the national societies and stroke support organisations



5.1 Involvement process

An organised process of involvement is necessary. Further, a clear definition on what a society is has been made for this purpose. There are three types of societies:

1. National Stroke Organisations
2. Neurological Societies
3. Stroke Support Organisations (SSO)

The following criteria will be used in national stroke organisations/neurological societies to confirm their activity and impact on a national level.

- Do they provide national stroke Guidelines?
- Are they the point of reference for MoH?
- Do they have collaboration with patient society?
- Have they organized a national stroke conference?
- Do they collaborate with international stroke societies?
- Do they already have an existing national stroke plan?
- Board members have their main medical practice in the country.
- ESO association for scientific societies is preferred, but not mandatory.

5.2 Mapping

Based on these definitions, a mapping of scientific societies has been completed as described in section 1. A survey has been conducted describing the baseline status on stroke care in the

countries based on information from scientific societies and a follow up has been completed. Furthermore, existing European quality registries have been mapped.

5.3 Confirmed involvement

One kick-off meeting and three roll-out meetings have been organised as online events from September to March with a strong participation from both SSOs and scientific societies. 42 countries have participated in the online one-to-ones with Hanne Christensen.

5.4 Involvement of the national MoH

The Declaration was officially launched on 11 May 2021 (Stroke Day) and circulated to the NCs to be sent by the NCs to the MoH. So far fourteen nations have signed the Declaration. At this stage we are very much depending on the NCs supported by local SSOs to ensure the active involvement of the MoHs. After commitment from MoHs to SAP-E they are expected to support the work of SAP-E and the NCs, promote and endorse a national stroke plan as well as its implementation.

5.5 Planned meetings

We are presently planning a workshop on advocacy specifically for life after stroke and a series of workshops covering the seven domains individually with focus on sharing experiences on improvement in the individual domains was held from 2022 to 2024.

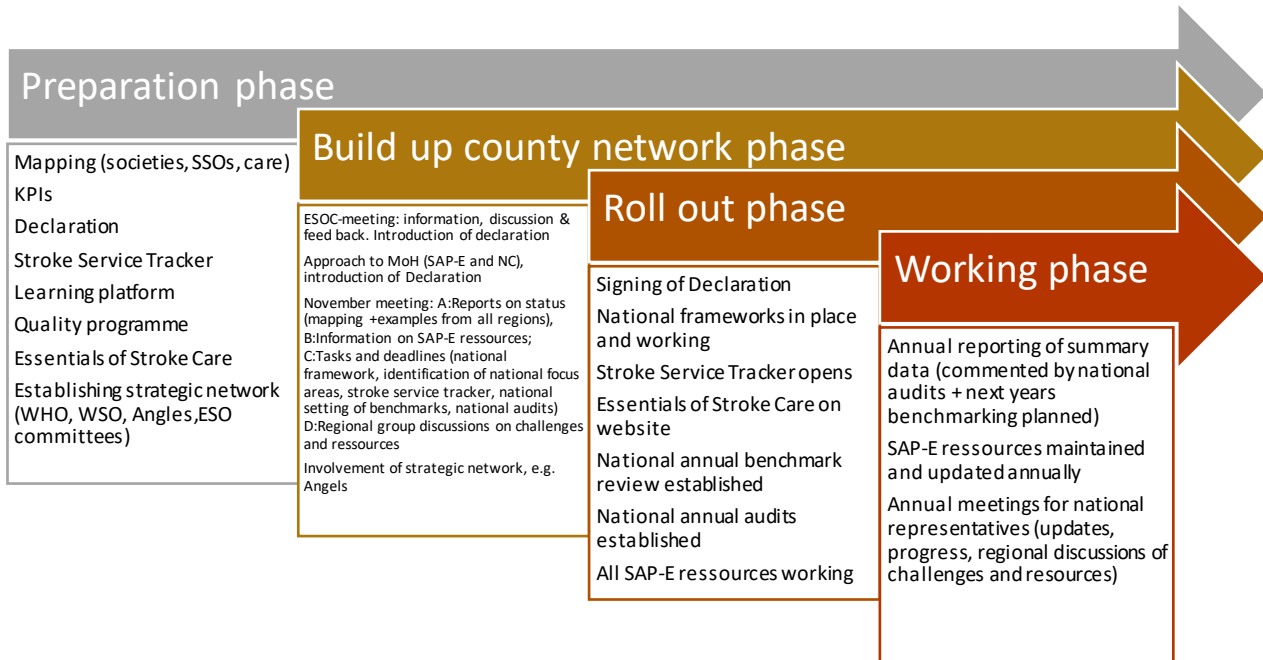
5.6 Status and planned progress

Overall, the implementation plan has progressed in accordance with the timelines stated in the last annual report. This means that the planned strategic network has been established as well as our planned tools including the Stroke Service Tracker. However, the signing process of the Declaration is far from finalised and the work to reach the targets of SAP-E has just begun. Most countries lack a national stroke plan and several of the domains are underdeveloped in most countries. High quality national data are lacking in a significant number of countries as documented by the SST severely hampering improvements of access to care. As the project is moving forward needs and challenges are developing and to ensure agility the strategic organization of SAP-E must also develop accordingly. Consequently, the SAP-E leadership is developing some changes in the strategic organisation.

The continued work of SAP-E must focus on the need for organising and monitoring care at a national/regional level, as well as using the key performance indicators and the Essentials of stroke care to raise the bar of stroke care.

SAP-E is by definition a policy project, and we have the possibility of giving general guidance as well as the use of our tools whereas direct work at an institutional level lies with others. Existing quality improvement initiatives including ESO-EAST, ResQ and Angels Initiative have already proven their ability to make significant changes especially at the institutional level and in less developed health care systems. Consequently, a closer alignment of our activities is needed to benefit from the potential synergy.

6. SAP-E implementation of SAP-E programme



6.1 Current Phase

The programme has entered the Working phase though signing of Declaration is still ongoing. Focus now is on supporting NCs, through workshops focusing on sharing experiences (all workshops include time in defined groups as well as a final plenary discussion to enhance peer learning), increase communication aiming at decision makers, broadening out the communication to include all stroke physicians and other health care professionals, and supporting the individual countries in providing National Stroke Plans. The focus is on national stroke plans – funded and implemented.

7. Communications activities

7.1 ESOC Activities

In 2023 and again in 2024, an in-person meeting for NCs was held during ESOC; data from the SST was presented and regional spokespersons presented a status update of their regions. The SAP-E booth at ESOC 2024 was visited by NCs to discuss issues in their countries. SAP-E SC members attended the booth according to a rotating schedule. The major success and starting point for discussions at the booth at ESOC 2024 was a presentation on a loop of country stroke care data based on SST highlighting the status of fulfillment of the main KPIs.

SAP-E was also presented at ESOC 2024, and a session proposal was submitted for ESOC 2025.

7.2 Social Media

The hashtag #SAP-E has been established.

7.3 Communication during the past year

A wide-reaching communication campaign was implemented for the 2024 European Stroke Awareness Day on social media channels, as well as dissemination of a joint statement from ESO and SAFE. Regular communication with National Coordinators and the SAP-E community is ensured via dedicated mailings and social media posts.

7.4 Communication Plan

The Head Office has made a communication plan with collaboration with SAFE. The focus is to ensure that communication will be relevant and timely for the different stakeholders involved: health care professionals working with stroke, decision-makers, patients and carers, as well as the public. The website is being updated, especially to increase user-friendliness and to allow for citing features on the website – eg the Essentials of stroke care – by a link. Social media, especially Twitter is also used. Furthermore, press releases are sent when there is significant news, also to NCs asking them to contact national media. A communication task force meets on a biweekly basis.

7.4.2 Training

SAFE organised advocacy training for NCs to support their work and provided them with press releases and material for social media to support their national activity in promoting SAP-E and marking SAP-E milestones. Further advocacy training is planned on the seven domains in relation to the workshops.

7.5 SAP-E website

The website is structured to offer easy access to the SAP-E tool and updated on activities. It further aims to provide all needed information for the NCs. A major update was implemented in 2024 on the SST website to ensure the data was accurately presented. The content is regularly updated with the current development of the project – i.e. contact list of acting NCs and supporting national stroke organisations and national SSOs, news and meeting reports. SST data presentation, and especially the section “stroke in numbers”, was extended.

7.6 Press

A press release will be made based on a short resume of this document as an update on SAP-E in the last 12 months to be released after presentation of report to EC, also to be shared with ESO followers on Twitter.

7.7 Publications

- Stroke Action Plan for Europe 2018-2030: mid-term review and update – submission to European Stroke Journal planned mid 2025
- SST status on stroke in Europe 2023 to be submitted to European Stroke Journal in May 2025.
- Update of Essentials to be submitted late 2025