

Indonesia – NHS England Stroke Care Workforce Collaboration Overview 2023 – 2025

Title:	Indonesia – NHS England Stroke Care Workforce Collaboration Overview 2023 - 2025		Status: FINAL
Version:	1		Issue date: 10/11/2025
Approved by:	RA, JR		Date:
Document History:	Review Date	Author(s)	Reviewed by
Version 1	10/11/2025	CK, DM	DM, GC, DL, KM, RBM, RA, RA, JR
Version 1.1 – updated to note UCLAN development of FACTS	06/01/2026	CK, DM	CLW

Table of Contents

Introduction.....	4
Background	4
Indonesian Context.....	5
Overview of Collaboration	6
The Power of Partnership.....	7
Aims and Objectives	7
Programme Design and Scope	7
NHS England Team	8
Summary of Activities.....	9
Collaboration Achievements	10
Successes.....	10
Collaboration with UK specialists and between Indonesian stakeholders	10
Education and training of the workforce	11
Enhancing stroke care protocols and guidelines	13
Feedback	15
Indonesian Benefits.....	17
NHS Benefits.....	18
Limitations	19
Recommendations.....	19
Collaboration	20
Strategic Governance and Direction	21
Financial Flows and Budget	22
Policy Implementation and Process Improvement	22
Workforce Development, Education, and Training	23
Data and Technology	24
Recommendations Summary	25
Conclusion.....	25
Appendices.....	26
Table 1: Collaborations that have contributed the Indonesia-NHS England Stroke Care Workforce Collaboration.....	26

Table 2: Recommendations Summary Table	28
Table 3: Recommendations Evolution.....	33
Year 1 Overview.....	35
Technical Visit July 2023	35
Table 4: List of Stakeholders met during the July 2023 technical visit	36
Table 5: Star Workshop Outputs Grouped in Thematic Areas	39
Knowledge Exchange Webinars 2023	40
Study Tour 2024	43
Technical working groups on Stroke Curricula 2023 - 2024.....	44
Table 6: Indonesian Acute Stroke Nursing Curriculum compared to Stroke Specific Education Framework	45
High Level Recommendations Report 2023 - 2024	46
Year 2 Overview.....	49
Technical Visit July 2024	49
Table 7: List of Stakeholders met during the July 2024 technical visit	51
Communities of Practice 2024 - 2025.....	52
Table 8: Nurses Community of Practice Sessions	53
Table 9: Therapists Community of Practice Sessions.....	53
Table 10: Doctors Community of Practice Sessions	54
Action Learning Sets 2024 - 2025.....	55
E-learning	56
Technical Visit April/May 2025.....	57
Table 11: Presenters at the Indonesia – NHS England Stroke Care Workforce Collaboration, Mandarin Oriental, Jakarta, 29 th April 2025.....	66
Table 12: Indonesian organisations involved in collaboration	66
Table 13: Collaboration Reach- Breadth of Stakeholder Engagement.....	68
Table 14: UK organisations involved in collaboration.....	69
References.....	70

Note: This report has been written and reviewed by the project team to summarise the *Indonesia – NHS England Stroke Care Workforce Collaboration*. Throughout the report, NHS England means the authors of the report and the specialists engaged in the collaboration. The report does not necessarily represent the views of the wider organisation.

Introduction

NHS England was appointed and funded by the British Embassy Jakarta to co-develop the *Indonesia – NHS England Stroke Care Workforce Collaboration* for a two-year period starting in April 2023. The programme came under the British Embassy Jakarta's [Memorandum of Understanding](#) (MOU) with the Indonesian Ministry of Health on Health Cooperation, signed in June 2020. It is related to two areas of cooperation on 1) Disease Prevention and Control; and 2) Human Resources for Health Development. The Ministry of Health and British Embassy Jakarta then exchanged a letter with agreed Joint Action Plan for Stroke Care Workforce Collaboration in 2023. This collaboration aimed to foster improvements to stroke care in Indonesia by supporting developments in the stroke care workforce and health service system design through a variety of activities designed to exchange knowledge, support implementation and provide strategic advice. The collaboration sought to strengthen bilateral healthcare ties between Indonesia and the UK.

This report provides an overview of the *Indonesia – NHS England Stroke Care Workforce Collaboration* with a particular emphasis on successes and benefits of the collaboration. It concludes with recommendations that have emerged from the collaboration that Indonesia should consider taking forward independently to build upon progress made during the collaboration.

Background

2024 marked the 75th anniversary of diplomatic relationships between Indonesia and the UK. Indonesia and the UK have a special, broad and deep friendship which is vibrant and expanding, founded in shared values and history. The [UK-Indonesia Partnership Roadmap 2022 to 2024](#), (Foreign, Commonwealth & Development Office, 2022) sets out the UK and Indonesia's strategic partnership, which aims to deliver mutual benefits for both countries and peoples, and contributes to the maintenance of peace, freedom, and prosperity in the Indo-Pacific. In health, this partnership includes a focus on cooperation in health human resources development, through education and capacity building and technical assistance. Further, the MOU on Health Cooperation between the health ministries in Indonesia and the United Kingdom promotes cooperation in a variety of areas including Human Resources for Health Development.

Over the last three years, NHS England's Global Health Unit has contributed to this partnership by establishing a strong working relationship with the Indonesian Ministry of Health (MoH). This relationship has been augmented with support from the British Embassy Jakarta and for post graduate medical education the Tony Blair Institute for Global Change.

Four discrete areas of collaboration have taken place:

- Hospital based post graduate medical education and training consultancy and study tours in 2023 (funded by the Ministry of Health, Indonesia and the UK's Foreign Commonwealth Development Office (FCDO)) supported Indonesia's introduction of hospital-based postgraduate specialist medical education and training programmes.
- The Indonesia-NHS England Workforce Collaboration (funded by FCDO) conducted a series of three workshops between the Ministry of Health, Indonesia, their partners and NHS England in 2024 and delivered a structured 5-day training programme in Jakarta to enhance Indonesia's workforce planning capacity in May 2025
- The Indonesia-NHS England Stroke Care Workforce Collaboration (funded by FCDO) which completed a two-year programme in June 2025 and is the subject of this report.
- Over a period of 8 months in 2023-2024, the Digital Transformation, Regulation, Implementation & Capacity Building programme involved knowledge sharing on digital health regulation, integration of digital health into primary health care and capacity building around digital health and AI. This involved participation in an in-country digital health regulation sandbox event, digital stakeholder objective meetings, and four knowledge exchange webinars.

The first three partnerships have been facilitated by the Technical Collaboration and Consultancy team within the NHS England's Global Health Unit, who enlist subject matter specialists from across the NHS to share their insights and experience with Indonesian colleagues. To date, this approach has allowed Indonesia to access expertise from over 120 specialists across the three areas of collaboration. The final partnership was facilitated by the NHS Consortium for Global Health, joint hosted by NHS England.

These areas of work have all supported UK-Indonesia partnerships and the MOU on Health Cooperation.

Indonesian Context

Indonesia consists of 38 provinces. It is the largest island country in the world stretching over 5,000km from east to west. Indonesia is one of the world's great

economic successes. It is presently the 16th largest economy in the world, with expectations of considerable growth to come.

In 2014, Indonesia launched a mandatory health insurance program. Called Jaminan Kesehatan Nasional (JKN), it was designed to bring basic medical treatment and facilities to all citizens. It is delivered through the *Badan Penyelenggara Jaminan Sosial Kesehatan* (BPJS Kesehatan; Social Security Agency on Health). JKN has significantly increased Indonesia's universal health coverage, with some estimates showing it now reaches 79% of the population (Wiasa, I.N.D., 2022) with BPJS's own estimate suggesting it covers 270 million out of 282 million population (96%) as of 2025.

The Indonesian Ministry of Health commenced a [Health System Transformation programme](#) in 2021 with the aim of creating a healthy, independent, productive, and equitable society. There are five planned outcomes: Improving Maternal and Child Health; Accelerating Community Nutrition Improvement, Improving Disease Control, Cultivating the Healthy Living Community Movement (GERMAS) and Strengthening the Health System. These outcomes will be achieved through six pillars of transformation: Primary Services; Secondary Services / Referral Services; Health Resilience; Health Financing; Human Resources for Health and Health Technology Systems.

However, there are reported issues with the Indonesian health system including supply and distribution of the healthcare workforce, and funding and insurance payments not necessarily following optimum patient pathways. There are considerable public health issues including a strong tobacco lobby (around 65.5% of adult males smoke, (WHO, 2024)) and a lack of awareness of the signs and symptoms of stroke and the need for urgent intervention. Additionally, several studies have shown that there is a correlation between increased levels of air pollutants and higher rates of stroke admissions (Alimohammadi et al., 2016; Liao et al., 2025). In 2024, Indonesia's average PM2.5 was 7.1 times the World Health Organization annual PM2.5 guideline value (IQAir, 2025).

Stroke care is one of the Indonesian government's priority clinical areas for development. The condition continues to be a major killer and cause of disability in the country. It is the leading cause of death over age 5 (accounting for about 15% of deaths (WHO, 2024)).

Overview of Collaboration

Collaboration lies at the heart of meaningful and sustainable change in healthcare. This section sets out NHS England's approach to international partnerships and notes the aims, objectives, programme design, scope and programme team for the *Indonesia–NHS England Stroke Care Workforce Collaboration*. It concludes with a summary of activities during the collaboration.

The Power of Partnership

Collaboration and partnership are real drivers of change. This is true at multiple levels across governments, people, pathways and place. The development of stroke care in England over the last 25 years is a good example of how networks spanning organisational and professional boundaries can break down functional silos leading to improvements. Stroke mortality in England has halved in the past two decades following the implementation of evidence-based interventions as simple as organised stroke unit care to improve stroke care pathways, including Integrated Stroke Delivery Networks as set out in the [National Stroke Service Model](#), (NHS England, 2021).

All of NHS England's global work is underwritten by the belief that international collaboration and partnership can drive change. Health systems around the world are faced with similar challenges, and solutions often transcend national boundaries.

NHS England's partnership model is a proven approach for the NHS to engage with global partners on targeted bi-directional learning and capacity strengthening. This leads to the development of mutually beneficial models and approaches for partnership both during formal periods of collaboration and afterwards. Of equal importance is collaboration between partners within partner countries as this creates the conditions for real change, embeds sustainability and results in ongoing benefits after the end of the formal collaboration.

Aims and Objectives

The *Indonesia – NHS England Stroke Care Workforce Collaboration* focused on the improvement of stroke care in Indonesia through the strengthening Human Resources for Health (HRH).

NHS England's Global Health Unit, through collaboration between UK and Indonesia stroke care specialists, aimed to strengthen approaches to stroke care delivery and management, including the training and education of the workforce as well as enhancing stroke care protocols and guidelines through a co-created programme using knowledge exchange, implementation support and strategic advice.

In the longer term (2030 onwards), the collaboration aimed to reduce mortality and morbidity resulting from Stroke in Indonesia.

Programme Design and Scope

The programme design was iterative and co-created with Indonesian stakeholders and the British Embassy colleagues in Jakarta. Following the July 2023 technical visit and subsequent discussions with Indonesian stakeholders, first year activities were agreed. Based on feedback from the January 2024 study tour and NHS England recommendations to Indonesia, a second year was designed with an emphasis on providing Indonesian stakeholders with the skills and behaviours to foster further

change and improvement beyond the lifetime of the collaboration. This approach was confirmed during the July 2024 technical visit.

The scope of the programme was national level and Indonesia-wide, but individual level engagements were mainly with those in the Jakarta area. In the second year of the collaboration, the remit was expanded to Palembang in South Sumatra, with the dual intention that Indonesia could

- in the short term, strengthen the stroke network between Jakarta and a city outside the island of Java to increase central understanding of geographic challenges in healthcare across Indonesia
- in future years expand the learnings and lessons from the programme across the country.

A list of Indonesian collaborators can be found in [Table 12](#) in the appendices.

NHS England Team

Over the duration of the stroke collaboration, over 70 representatives of the stroke care community from across the NHS and into higher education have supported the programme. See [Table 14](#) in appendices.

In addition, the collaboration brought together a core team of clinicians who worked closely with the NHS England's Global Health Unit to develop and deliver the programme.

Dr Jon Cooper was appointed the clinical lead for the programme as part of the early discovery phase of the programme. Dr Cooper has worked for NHS England as Postgraduate Dean for Yorkshire and Humber (with responsibility for around 6000 resident doctors and dentists) since 2020, and Consultant Stroke Physician at Leeds Teaching Hospitals NHS Trust where he previously led the stroke service. He has held several other training roles from Royal College of Physicians College Tutor to Training Programme Director for Stroke Medicine. He previously chaired the Stroke Medicine sub-specialty Advisory Committee.

In the second year, in order to support Indonesia's interest in multidisciplinary working and enhance the ability to connect with a greater selection of Indonesian stakeholders, the following individuals were invited to support the programme alongside Dr Cooper

- **Doctors and Policy Lead:** Prof. Deb Lowe, National Lead for Stroke Medicine, Getting it Right First Time, Medical Director at the Stroke Association, Former National Clinical Director for Stroke, NHS England and Consultant Stroke Physician, Wirral University Teaching Hospitals NHS Trust

- **Nursing Lead:** Dr. Gillian Cumberbatch, Stroke Nurse Consultant, St George's Healthcare NHS Foundation Trust
- **Therapists Lead:** Louise Clark, Consultant Occupational Therapist in Stroke and Neurological Rehabilitation, Dorset County Hospital NHS Foundation Trust, Associate Director for the SSNAP (National Stroke Audit)

In addition, NHS England procured the Westcott Group to deliver an Action Learning Sets (ALS) programme between October 2024 and April 2025, with particular emphasis on leadership development.

Summary of Activities

The first year (2023-2024) of the collaboration focused on knowledge exchange, strategic advice and implementation support. Following an exploratory technical visit to Jakarta in July 2023, activities ranged from 3 in-depth online webinars (focused on stroke service development, stroke workforce planning and stroke prevention across Indonesia and England) and Q&A sessions between stroke care specialists in Indonesia and England to a 3-day in-person study tour for Indonesian Ministry of Health and Rumah Sakit Pusat Otak Nasional (RS PON, the National Brain Centre, (hereafter referred to as RS PON)) delegates including visits to stroke services in London and Kent. Two virtual technical working groups with a focus on stroke primary care and acute nursing curricula development for different staff groups were established. Finally, the NHS England team produced a management report with recommendations on how Indonesia could improve stroke outcomes with a focus on workforce, training, and education. A summary of year 1 activities can be found [here](#).

To build on the success of the first year and incorporating the identified recommendations particularly around collaboration into the second year (2024-2025), the team focused on strategic advice and implementation support with particular emphasis on areas around leadership development, service design, workforce, training and education. The NHS England team highlighted the importance of rehabilitation, prevention and multi-disciplinary team working. The collaboration evolved from knowledge sharing to empowering Indonesian stakeholders to lead change within their local contexts. Collaborative networks were built through Communities of Practice (CoP), Action Learning Sets (ALS), and targeted training sessions. These initiatives emphasised capacity building and

fostering innovation to address stroke care challenges more effectively. In order to expand the geographic scope of the second year, the stroke care community from Palembang and surrounding areas in South Sumatra were invited to join the collaboration. Following NHS England's visit in July 2024, a number of participants from Palembang were welcomed to the communities of practice, action learning set groups and the closing conference.

The collaboration ended in April/May 2025 with a technical visit including a 2-day conference, training and a series of stakeholder engagements. This created a significant opportunity to celebrate achievements, strengthen relationships, and align efforts towards long-term transformative changes in stroke care delivery in both countries. A summary of year 2 activities can be found [here](#).

Collaboration Achievements

This section sets out the collaboration successes, feedback and benefits to both Indonesian and NHS partners.

Successes

The *Indonesia – NHS England Stroke Care Workforce Collaboration* achieved its original short-term aims ([set out here](#)). Whilst acknowledging there is more to be achieved, the collaboration has resulted in several key successes and created a platform through which Indonesian partners can continue to work together to improve Indonesian health outcomes.

This section sets out successes grouped as follows:

- Collaboration with UK specialists and between Indonesian stakeholders to strengthen approaches to stroke care delivery and management
- The training and education of the workforce
- Enhancing stroke care protocols and guidelines

Further information about the activities that led to these successes is provided in the appendices and links to the relevant sections are provided below.

Collaboration with UK specialists and between Indonesian stakeholders

The collaboration has successfully fostered relationships between NHS specialists and Indonesian stakeholders through its activities in particular the [study tour](#), technical visits in [2023](#), [2024](#) and [2025](#), [communities of practice](#), [action learning sets](#) and [closing conference](#).

In addition, at least 16 collaborations between Indonesian stakeholders have been created because of the engagement and relationships built throughout the project. This includes the Indonesian Neuroscience Nurses Association (INNA) working with the Nursing Collegium to develop training for cadre (largely volunteer non-healthcare workers) around stroke care prevention and rehabilitation as well as look at developing assessment processes for continuing professional development in nurses. During the Community of Practice for therapists, a primary care setting in Jakarta, Puskesmas Johar Baru began collaborating with the Association of Physiotherapists around rehabilitation delivery. A number of international collaborations have begun in addition, including RS PON beginning conversations with the Angels Initiative, offered via the World Stroke Association. A full list can be seen in [Table 1](#).

These collaborations have the potential to drive change and improvement at a variety of levels of health care in Indonesia. Following the presentations from the Community of Practice and Action Learning Set groups at the conference in Jakarta in April 2025, both the Ministry of Health and RS PON offered some of the speakers the opportunity to pilot their initiatives more widely across Indonesia as this will result in benefits for a larger number of Indonesians. It should be noted that the connections created between colleagues in Jakarta and Palembang provide a starting point for addressing geographical challenges and deepening the Ministry of Health and RS PON's understanding of differences between the capital and wider Indonesia.

Finally, in NHS England's closing session in May 2025, Indonesian colleagues from the Ministry of Health, RS PON and the Associations of Physiotherapy, Speech and Language Therapy and Occupational Therapy committed to working closely together initially on the stroke care clinical guidelines. There was enthusiasm expressed for the *Indonesia – NHS England Stroke Care Workforce Collaboration* as senior stakeholders reported benefiting from the programme's knowledge exchange. It was also reported that Indonesian colleagues have actively challenged professional, organisational and structural barriers, adding weight to the success of the collaboration, with more gains to hopefully take place in the coming years.

Education and training of the workforce

The Indonesia – NHS England Stroke Care Workforce Collaboration has contributed to strengthened approaches to stroke care delivery and management through the education and training of the workforce a variety of means including

- Expansion of breadth of curricula
- Depth of competency development, ensuring alignment with evidence base
- New models of training, e.g. acute nurses training puskesmas (primary care settings)-based nurses
- Training delivered directly by/through the collaboration

Further information about the linked activities can be found in the appendices for [Technical Working Groups on Stroke Curricula](#); [Communities of Practice](#) and Technical Visits in [2024](#) and [2025](#).

Expansion of breadth of curricula

At various stages of the collaboration, NHS England facilitated introductions with colleagues from the University of Central Lancashire who demonstrated the [Stroke Specific Education Framework](#), (UK Forum for Stroke, 2010) to Indonesian colleagues. The Stroke Specific Education Framework, based on the 20 quality markers of the UK National Stroke Strategy, (Department of Health, 2007), aims to provide a structured and standardised approach to education and training for those working within, and affected by, stroke. Indonesian use of the SSEF has revealed that for nursing only 40% of the SSEF is covered by existing training and curricula. However, during the collaboration, additional training has been created in certain areas. To date, this includes primary care considering the psychological aspects of stroke and training around transient ischaemic attack (TIA) which can be a precursor to stroke. Other areas of training are under consideration. Discussions are ongoing with the Ministry of Health and RS PON regarding potential curriculum updates to incorporate further elements of the SSEF.

Additionally, work is under way to provide training to cadres who are health care volunteers who play a key role in primary care at village and hamlet level. A variety of pilots have begun including around rehabilitation in puskesmas Johar Baru.

Depth of competency development, ensuring alignment with evidence base

As a result of the collaboration, the Indonesian Neuroscience Nursing Curriculum will be reviewed and developed to ensure it is based on the latest evidence. Certain areas will have their competences strengthened particularly around dysphagia management, incontinence care, skin care, and fall prevention.

New models of training, e.g. acute nurses to puskesmas

The nursing community of practice trialled a new model of training. Noting that participants came from both acute and primary care settings, it was decided some sessions would be devoted to the acute nurses so that later on they would provide training to the primary care based nurses. This was a successful model, both in giving acute nurses the opportunity to develop skills around providing training for colleagues and in terms of learning for primary care based nurses. This approach will also foster collaboration across the patient pathway and join different teams with an emphasis on improving stroke patient outcomes.

The ongoing development of more accessible training, e.g, webinars and some train-the-trainer modules should also be noted.

Training delivered directly by/through the collaboration

Finally, it should be noted that the collaboration itself successfully delivered training to Indonesian colleagues.

The Action Learning Sets and Communities of Practice exposed Indonesian participants to new ways of self-directed learning that promotes professional and leadership development. Between July 2024 and February 2025, around 22 health care professionals regularly attended Community of Practice and/or Action Learning Set sessions, with at least another 102 health care professionals attending at least one session. In response to the post-event feedback survey, one participant wrote:

Everything provided by NHS has been very beneficial, and I will make sure to pass on all the knowledge shared to others, especially fellow health workers, by building a strong and effective stroke prevention team.

Rehabilitation training was provided in Palembang (2024) and Jakarta (2024 and 2025) on three occasions with over 130 participants who learned about a variety of topics including the principles of rehabilitation, economic case for rehabilitation, rehabilitation in nursing, continence, repetitive task recovery, dysphagia and swallow screening. In response to the post-event feedback survey, participants said:

Best training ever

I've got so [much] information that can improve my knowledge from this training.

Enhancing stroke care protocols and guidelines

The Indonesia – NHS England Stroke Care Workforce Collaboration has contributed to enhancing stroke care protocols and guidelines through a variety of means including

- Ongoing development of the 2025 Stroke Care Clinical Guidelines
- Ongoing development of the Stroke Registry
- The development of pilots and initiatives from Community of Practice and Action Learning Set groups presented at the conference in April 2025.

Further information about the linked activities can be found in the appendices for [study tour](#), [communities of practice](#), [action learning sets](#) and technical visits in [2024](#) and [2025](#).

Ongoing development of the 2025 Stroke Care Clinical Guidelines

The ongoing development of the 2025 Stroke Care Clinical Guidelines for Indonesia are a success for the collaboration for the reasons set out below.

- These guidelines will replace the 2019 version which were focused on acute stroke care delivered by doctors.
- These guidelines are influenced by the [National Stroke Service Model](#), (NHS England, 2021) and the 2023 [National Clinical Guideline for Stroke for the UK and Ireland](#), (Intercollegiate Stroke Working Party, 2023).
- For the first time, and following discussions throughout the collaboration, the guidelines will be multi-professional and cover the full stroke pathway from prevention through acute to rehabilitation.
- The role of the Ministry of Health to coordinate and bring together relevant parties to develop the guidelines must be emphasised, as well as their role to ensure that the guidelines are evidence-based and follow international best practice adapted for the local context as required.
- Conversations with BPJS, the Indonesian health insurance agency, have uncovered how important the clinical guidelines are in ensuring the flow of money supports healthcare activity. Updated guidelines that better reflect what improved stroke care looks like will be invaluable in improving stroke care outcomes and ultimately reducing mortality and morbidity resulting from stroke. The updated guidelines will facilitate the conditions for better funding for rehabilitation, which will be a crucial part of improving stroke care outcomes.

Ongoing development of the Stroke Registry

The ongoing development of the Stroke Registry for Indonesia is a success for the collaboration. The development of the Stroke Registry will play a key part in assisting Indonesia make informed decisions about stroke care pathways, outcomes, and the relevant workforce. Progress to date includes:

- During year 1 of the collaboration, Indonesian stakeholders discussed the UK Stroke Registry (Sentinel Stroke National Audit Programme, [SSNAP](#)) with Prof Deb Lowe; and there was a demonstration of SSNAP by its Clinical Director Prof Martin James, during the January 2024 study visit to London.
- Since then, there has been rapid activity at RS PON working with MoH to develop an Indonesian Stroke Registry. The initial dataset and metrics were reviewed by Louise Clark and Deb Lowe during our visit in July 2024.
- As of May 2025, the Stroke Registry has been rolled out to three hospitals (RS PON, Jakarta and two others in Bali and Yogyakarta), with further revisions

and continuous improvement anticipated. The visiting team also supported conversations to understand other data sets that exist and offer advice as to where the focus should be, based on the team's experience of data registries.

- The Stroke Registry sits alongside a smaller mandatory dataset of stroke indicators included in Satusehat (OneHealth, Indonesia's new electronic medical records)

The development of pilots and initiatives

The two-day conference in April 2025, with presentations from multiple participants who may not always get the exposure to senior leaders or the opportunity to influence them, was a success. It created a platform for the stroke care community to come together to share best practice and foster new and ongoing networks between stroke care professionals. In at least two instances, the Ministry of Health and RS PON said they would work with the presenters to look at piloting their initiatives further. The two pilots are as follows:

- Doctor, Puskesmas Johar Baru, Jakarta who is working in conjunction with the Association of Physiotherapists around rehabilitation and ongoing training and skills provision for primary care staff including cadres. There was strong interest in this model from RS PON with plans to work closely with Puskesmas Johar Baru to spread this model across Jakarta in the first instance.
- Doctor, Puskesmas Pakjo, Palembang described her Prevention pilot which involves three strands: Whatsapp Group for education; Training Class Testimonials and Face to Face education by doctors. There was strong interest in this model from the Ministry of Health from the Primary Care Directorate to work with this doctor to roll out their prevention pilot beyond Palembang to the whole of Indonesia.

Feedback

The section above demonstrates tangible successes of the collaboration. This section presents feedback from participants (collected via surveys) throughout the collaboration which demonstrates that at both a micro- and macro-level, the collaboration has been a welcome addition to efforts to develop Indonesian stroke care.

Conference and workshop delegates across all three technical visits have responded positively to our central message around collaboration. Feedback from surveys included:

Every voice is important. Leadership is a key. Multidisciplinary teamwork is a must

[Biggest takeaway -] Improving interprofessional communication to realise sustainable stroke care in Indonesia

I will meet my director to tell him all the information and ask them together to build a program for stroke rehab (my dream).

[Let's] form a quality and integrated work team from the health centre to the referral hospital

Between professionals, MoH and local government, for us to have one vision

Get connected and make changes,

Learning about any obstacles that we found in every sectors from primary to tertiary healthcare and how we can solve it

That every multidisciplinary is equally and important

There has also been a clear demand for more such opportunities from Indonesian stakeholders

Thank you so much for the experiences, I've learnt a lot and hopefully we will meet again in the future & have further sharing experiences like this

Sharing and discussion is very effective

I am waiting for another invitation sooner, hopefully

(I most enjoyed) meeting and greeting the people from the CoP in person

Please schedule others continuing programs

I've really enjoyed this collaboration. I hope this collaboration will be continued in the future

Hopefully this conference (April 2025) does not end here, there will be events like this in the future

At the closing session of the collaboration in May 2025, representatives from the Ministry of Health, RS PON and the professional associations emphasised the benefits of the collaboration

Our Director says a really big thank you so much for having NHS England in Indonesia. We really appreciated your support in the implementation of stroke care in Indonesia - Directorate General of Primary Health and Community, Ministry of Health

Thank you for your technical assistance, the insights that you provide to us. We were fragmented before but now we know better the programmes we have and can invite a lot of parties, we can be an integrated system - Directorate of Prevention and Control of Non-Communicable Diseases, Ministry of Health

The experience and knowledge we gained during this visit are invaluable and will undoubtedly contribute significantly to our ongoing efforts in healthcare. We look forward to future collaborations and the opportunity to apply what we have learned to our practice in Indonesia. Medical and Nursing Directorate, RS PON

Thank you so much for the opportunity given to us we have a lot of lessons learnt, hopefully the communities of practice will be continued and facilitated by the Ministry of Health and the group will be comprehensive, involving primary care as well. I hope that this group (from the summary meeting) can have regular meetings going forward, particularly around the National Guidelines for stroke. There is a need for multi-disciplinary care and increased competencies in all disciplines. HIPENI (Himpunan Perawat Neurosains Indonesia)

Indonesian Benefits

As set out above, there have been multiple benefits to Indonesia from the Indonesia – NHS England Stroke Care Collaboration through collaboration with UK specialists and between Indonesian stakeholders to strengthen the training and education of the workforce and enhance stroke care protocols and guidelines. This includes new collaborations, enhanced training and education through curricula review, design and broadening of scope, new ways of training, new individuals providing training, opportunities for pilots, knowledge exchange and sharing best practice, data collection and analysis, professional development and the ongoing development of the 2025 Stroke Care Clinical Guidelines. Together these interventions will enable improvements in stroke care outcomes in Indonesia through evidence-based multiprofessional clinical guidelines, aligned to insurance and payments across the whole stroke care pathway.

The second year of the collaboration was designed to give Indonesian stakeholders the opportunity to take forward ideas, pilots, new information, new ways of working independently with the intention that the benefits of the collaboration could be sustained beyond its funded lifetime. Following NHS England's visit to Jakarta in April/May 2025, it is likely that this will become a reality. The closing meeting with Indonesian stakeholders brought together colleagues from the Ministry of Health (Directorates of Non-Communicable Diseases, Clinical Services and Primary Care), RS PON and the Associations of Speech and Language Therapy, Physiotherapy and Occupational Therapy, who all thanked NHS specialists and pledged to carry forward work started during the collaboration, with particular emphasis on making sure different groups worked together to reduce duplication and that multiprofessional and multidisciplinary care is driven forwards.

These benefits should increase over time, eventually resulting in a reduction in mortality and morbidity from Stroke in Indonesia.

NHS Benefits

The Indonesia – NHS England Stroke Care Workforce Collaboration has created benefit for the NHS. These benefits can be grouped as follows:

- The importance of collaboration
- Delivery speed
- Practice Innovation
- Quality Improvement
- Professional Development and Cultural Understanding

The passion, commitment, and expertise demonstrated by Indonesian clinical, managerial, professional association, and Ministry of Health teams have been inspiring. The emphasis on breaking down silos and promoting collaboration across systems has enabled the project team reflect how essential this is to NHS delivery as it enables greater integration of care delivery.

Our NHS specialists noted how local Indonesian health teams are able to introduce changes and adapt new practices rapidly, often with limited resources. This agility stands in contrast to the NHS, where bureaucracy and complex systems can sometimes delay innovation. However, it should be noted that this probably leads to local change in specific wards or primary care settings that has little chance of being adopted more widely across Indonesia without a concerted effort to address geographical inequalities and hierarchical dynamics and to spread innovation and good practice (see our [recommendations](#) on continuing communities of practice and holding conferences below).

There have been instances of practice that could be adopted into the NHS. For instance, a visit to a primary care centre in Palembang in July 2024 revealed valuable insights into clinicians' engagement with local populations and the use of diverse media for health promotion.

This partnership has highlighted the value of encouraging NHS staff to pursue their own professional development, driven by a genuine passion for improvement. By fostering a culture where, for example, senior nurses are actively engaged in quality improvement initiatives and supporting them through targeted training and mentorship, the NHS can enhance patient outcomes and staff satisfaction.

Finally, the collaboration has underscored the importance of cultural understanding and humility and leadership skills development for all team members. These experiences have encouraged NHS leaders to reflect on their own practices and consider new approaches to engagement and health education. It has further

developed knowledge and skills in cross-cultural education to NHS leaders such as ways of supporting religious observances, small group teaching in a primarily didactic teaching arena and engaging with differing cultural approaches to inter-professional working.

Limitations

This report has potential limitations.

There are significant sociocultural differences between Indonesia and the United Kingdom, and the health systems including the training of the workforce are very different.

The three technical visits and the return study tour to England were all limited by time and geography. Two of the three technical visits were based in Jakarta and during the third, there was only opportunity to spend two days in Palembang in South Sumatra. NHS England recognises that there is variation of health care provision between capital cities and elsewhere, and between rural, remote, coastal areas compared to urban ones.

Although senior decision makers were targeted to be involved in the programme and did participate at certain points, the majority of participants were more junior (typically frontline health care staff) and not key decision makers. This will have limited the impact of the programme.

Some elements of the programme (Communities of Practice, Action Learning Sets) experienced challenges on account of the largely virtual nature of delivery, particularly around connectivity, time zone differences and difficulties in creating safe collaborative spaces. Indonesian and UK cultural differences around styles of learning and creating psychological safety also contributed to these issues.

NHS England was unable to facilitate the translation and contextualisation of an e-learning module due to a variety of governance issues.

These limitations should be considered when reading the recommendations below.

Recommendations

This section sets out recommendations that have emerged during the formal period of collaboration and are based on discussions between UK and Indonesian specialists as well as feedback from Indonesian specialists. The recommendations set out below are around collaboration, strategic governance and direction, financial flows and budget, policy implementation and process improvement, workforce development, training and education and data, technology use and analysis. These areas have shifted slightly from those recommendations set out in our original report

in January 2024 ([executive summary here](#)) and the evolution of recommendations can be seen in the section [Recommendations Evolution](#).

In all areas, activity has already begun. As the formal period of collaboration ends, NHS England has summarised the recommendations that have arisen throughout the programme for Indonesia's consideration. Please see [Recommendation Summary Table](#) for suggested timeframes, action owners and key stakeholders. As a next step, Indonesia should review these recommendations and adjust as necessary based on Indonesian priorities.

Collaboration

Collaboration remains the most crucial factor for success and collaboration needs to be taking place across and between all levels of the stroke pathway, regions, professions and agencies throughout Indonesia.

Next steps for Indonesia's consideration include:

- Foster multidisciplinary collaboration for the development of the stroke care clinical guidelines and then consider formalising ongoing joint working groups involving the Ministry of Health, relevant hospitals and puskesmas, collegium and professional associations (including but not necessarily limited to Neuroscience Nursing Collegium, Association of Physiotherapists, Association of Speech and Language Therapists, Association of Occupational Therapists, Indonesian Doctors Association and National Nurses Association) and BPJS who can meet regularly to monitor progress and decide next steps.
- Maintain and develop Communities of Practice networks, expanding them nationally. We suggest Indonesia review the current model and adapt to Indonesian context. An option could be to link stroke leaders from across Indonesia to set up their own leadership focussed Community of Practice and then each stroke leader establish new groups (appointing local leads for each) in their local area which might be by profession or by special interest groups around specific areas of stroke care – e.g. dysphagia, caregiver training, leadership – to promote learning as well as widening professional networks.
- Establish regular multidisciplinary conferences to share best practice and build networks. This could involve Community of Practice groups meeting on a yearly basis to share best practice, pilots and ideas for future collaboration. Participation from Ministry of Health and RS PON would be important for accreditation, to ensure senior leadership and good practice can be adopted more widely.
- Develop relationships with global stroke charities (e.g., WSO, Stroke Foundation) to apply global learning. Contact can be made via each of their websites or NHS England could facilitate introductions.

Strategic Governance and Direction

The highest levels of collaboration need to be underpinned by strategic governance and direction. As [WHO](#) note, intersectoral collaboration is essential in developing and strengthening the health and care workforce to deliver on the ambitions of universal health coverage, health security and the Sustainable Development Goals ([WHO, 2023](#)).

Next steps for Indonesia's consideration include:

- Develop a cohesive national stroke service model with clear governance.
 - Agree on a defined stroke service model using networks for all levels of healthcare. This model should be based on a clear analysis of patient and service needs and take account of best contemporary and future clinical practice.
 - Consider appropriate delegation of authority between national and local levels of government.
 - Optimise the referral system(s) between different parts of the stroke care pathway.
 - Consider all aspects of prevention from health promotion through primary and secondary prevention, developing preventative measures amongst all healthcare workers and suitable non-healthcare workers (e.g. cadres) and at a population level.
 - Place an early emphasis on the recognition of stroke symptoms as being a medical emergency.
 - Review stroke care services across facilities to enable best possible ability to prevent and detect stroke and provide follow up rehabilitation services
- Set key standards/KPIs for stroke units that are evidence based and link to the new 2025 clinical guidelines.
- Appoint clinical leads at relevant levels (puskesmas, hospitals, regions) across the whole stroke pathway for specific areas, e.g. acute care, rehabilitation.
- Consider the potential to study hospital usage and supply and demand of patients as it may be possible to deliver more healthcare and achieve better patient outcomes through more efficient use of the existing health service facilities. This should lead on to a review of the provision and distribution of facilities and equipment across the stroke pathway, e.g. CT scanners.

Financial Flows and Budget

The development of an effective health care system is dependent on appropriate financing and the alignment of budgets. WHO estimate that globally, 20–40% of all health spending is wasted, with health workforce inefficiencies and weaknesses in governance and oversight responsible for a significant proportion of that ([WHO, 2016](#)).

Next steps for Indonesia's consideration include:

- Ministry of Health and RS PON to continue working with BPJS to align clinical guidelines with funded care. This might involve
 - Using clinical scenario mapping to test guideline and payment alignment.
 - Reviewing insurance coverage to ensure adequate rehabilitation funding. A strong economic case for rehabilitation has been made internationally and this could be adapted for the Indonesian context.
- Review salary structures to improve recruitment and retention, especially in rural areas.

Policy Implementation and Process Improvement

Over the length of the collaboration, NHS England heard from multiple stakeholders that there appears to be a gap between official policy and what happens in hospitals and primary care settings. Guidelines and regulations do not always appear to be harmonised or even acted upon. Further variations appear linked to unclear governance between national level bodies (Ministry of Health) and regional level funding (local government).

Next steps for Indonesia's consideration include:

- Address the implementation gap between policy and practice in hospitals and primary care.
 - This will need to be an ongoing area of focus, and we would recommend that a joint working group be formed to look at this area and consider how closer working relationships and smoother referrals could be developed.
 - The joint working group might also consider how to simplify referral pathways and improve communication systems, which will also help address the gap.
 - Communities of Practice spanning this divide may also help.
- Learn from pilots and examples within the Indonesian health context.

- We have heard over the last couple of years about various pilots and attempts to address some of these issues and we would recommend the Ministry of Health and wider health care community consider what can be learned from examples and pilots within the Indonesian health context. Following the success of our conference in April 2025, we recommend Indonesia set up regular multidisciplinary conferences to share best practice and foster new and ongoing networks between Stroke Care professionals.

Workforce Development, Education, and Training

A whole system workforce approach helps support better health outcomes both within and without stroke care. High quality health care education and training helps support better health outcomes through a number of measures. In particular, it sets standards for learners that enables them to develop competence within their scope of practice to serve patient needs. At a system level, this approach helps support both patient and population needs.

Next steps for Indonesia's consideration include:

- Create a national workforce plan which
 - Assesses what type of workforce and skills are needed to deliver this service model.
 - Considers what current skills are available and compare these to those that are needed to provide the future services.
 - Review graduate pipeline and workforce allocation models.
 - Produces a gap analysis.
 - Outlines a range of workforce interventions (both immediate and over a longer term) to close the gap between current and future workforce and skills.
- The national workforce plan should
 - Consider different geographical and demographic requirements, an awareness of the potential for evolving technologies and treatments in stroke care and factor in sustainability, resilience, and an allowance for a degree of uncertainty.
 - Ensure intercollegiate/interprofessional collaboration between Ministry of Health and professional associations on workforce planning.
- Include multidisciplinary staffing levels in new clinical guidelines for stroke to drive adoption of skills mix and multidisciplinary teams.

- Continue and expand training efforts, including train-the-trainer, blended learning models, e-learning materials to suit different levels and cadre of staff.
- Clarify and improve funding availability for training across the whole Indonesian health care system.
- Increase training on prevention and rehabilitation for all stroke care team members.
- Develop leadership training and practice that promotes staff:
 - **Autonomy** - ensure staff have appropriate authority, empowerment and influence
 - **Belonging** - Enable team-working and create a culture where staff feel value, supported and respected
 - **Contribution** - empower staff to deliver valued outcomes at all levels

Data and Technology

Collecting and analysing data is crucial for improving stroke care outcomes and creating an evidence-base for driving progress. The quality improvement seen in the UK has been largely driven by enabling benchmarking within the national stroke audit to understand the quality of care being delivered by teams. By collecting and analysing data on key metrics, Indonesia can continuously evaluate and refine its stroke care model.

Next steps for Indonesia's consideration include:

- Mandate basic data collection aligned with 2025 clinical guidelines.
- Collect rehabilitation data to build an evidence-based Indonesian model.
- Continue to develop the Stroke Registry using continuous improvement and taking learning from pilot sites as it expands across Indonesia.
- Explore technological and social media tools for patient awareness and caregiver training.
- Study hospital usage and patient demand to optimize resource allocation and improve outcomes.

Recommendations Summary

The final meeting in May 2025 closed by consolidating the recommendations outlined above by emphasising the ongoing importance for Indonesia of

1. **Collaboration** across all levels of the stroke pathway, regions, professions and agencies
2. **Evidence-based multiprofessional clinical guidelines** aligned to insurance and payments
3. **Data** – urgent mandatory data collection to standardise and improve quality of stroke care delivery
4. **Rehabilitation focus** across entire system, at all levels including puskesmas and cadres
5. **Workforce** – development of, supply and distribution of a multiprofessional workforce

Conclusion

The *Indonesia–NHS England Stroke Care Workforce Collaboration* demonstrates the transformative power of partnership in global health. Over two years, this initiative has contributed to tangible improvements in stroke care workforce development, education, and service design in Indonesia. The collaboration has had success in building relationships between and among Indonesian and NHS specialists, strengthening approaches to stroke care delivery and management, supporting the training and education of the workforce and enhancing stroke care protocols and guidelines.

Looking ahead, Indonesia is well-positioned to build on the work begun and inspired by the collaboration. With continued commitment and the momentum generated, there is every reason to be optimistic that Indonesia will see significant reductions in stroke mortality and disability, mirroring the successes achieved in the UK.

Appendices

Table 1: Collaborations that have contributed the Indonesia-NHS England Stroke Care Workforce Collaboration

No.	Emerged from	Type	Status	Between Party A	Party B	Party C	Details
1	Nursing Community of Practice	Cross organisational	Current	Indonesian National Nurses Association (INNA)	Nursing Collegium		1. Collaborate with DINKES and Puskesmas to educate Cadres about stroke care 2. Empowering the civil society for stroke awareness (Darma Wanita, Darma Pertiwi, Ibu Bayangkari, kelompok ibu Arisan RT/RW, kelompok ibu pengajian, kelompok senam Kesehatan) 3. in assessment of post-training nursing competencies
2	Nursing Community of Practice	Cross organisational	Planned	Indonesian National Nurses Association (INNA)	Unspecified Allied Health Associations		To enhance stroke services in Indonesia through collaborative working
3	Doctors Community of Practice and ALS	Cross organisational	Current	Puskesmas Pakjo Palembang	FAST 119 Team, Primary Health Team, Hospital Emergency Team.		As part of FAST Prevention pilot run by Puskesmas Pakjo
4	Doctors Community of	Cross organisational	Current	Puskesmas Pakjo Palembang	High Risk Stroke Patient & Their Close Family.		As part of FAST Prevention pilot run by Puskesmas Pakjo

	Practice and ALS						
5	Doctors Community of Practice and ALS	Cross organisational	Current	Puskesmas Pakjo Palembang	Head of Primary Health Care, Head of Public Health Office, Hospital.		As part of FAST Prevention pilot run by Puskesmas Pakjo
6	Therapy Community of Practice	Cross organisational	Current	Puskesmas Johar Baru Jakarta	IFI (Indonesian Association of Physiotherapists)		1. Rehabilitation overview 2. Health cadre training
7	General Collaboration	Cross organisational	Current	RS PON	Angel Initiative, World Stroke Organisation		The Angels Initiative is a healthcare intervention dedicated to improving stroke patients' chances of survival and a disability-free life.
8	General Collaboration	Cross organisational	Current	RS PON	Ministry of Health		Closer working across directorates to start to consider end to end stroke care and reducing gap between primary and secondary care
9	Therapy Community of Practice	Cross organisational	Current	IFI (Indonesian Association of Physiotherapists)	Speech and Language therapy group	Occupational Therapy Association	To enhance stroke services in Indonesia through collaborative working
10	Conference	Cross organisational	Planned	Puskesmas Pakjo Palembang	Ministry of Health	Puskesmas nationwide	Develop roll out and support for this pilot around prevention across Indonesia
11	Conference	Cross organisational	Planned	Puskesmas Johar Baru Jakarta	RS PON / HIPENI	Puskesmas across Jakarta in first instance	Develop roll out and support for this pilot around rehabilitation across Jakarta in first instance
12	Technical visit 2025	Cross organisational	Current / Planned	MoH	RS PON	BPJS	

13	Technical visit 2025	Cross organisational / multi-disciplinary	Current / Planned	Moh	RS PON	Wider stakeholders	Revision and update of Stroke Care Guidelines to be multi-disciplinary, and cover end to end pathway. Ongoing workshops to ensure multiple stakeholders' views heard.
14	Technical visit 2024	Cross organisational / multi-disciplinary	Current	Jakarta health systems	South Sumatra health systems		To enhance stroke services in Indonesia through collaborative working and network building
15	Nursing Community of Practice	Multi-disciplinary	Current	Multi-disciplinary teams at RS PON			Regular stroke team meetings
16	Nursing Community of Practice	Cross organisational	Current	Acute nurses	Puskesmas based nurses		Training led by acute nurses for puskesmas based nurses

Table 2: Recommendations Summary Table

This table should be read in conjunction with the [Recommendations](#) section above.

As a next step, Indonesia should review these recommendations and adjust as necessary based on Indonesian priorities.

	2024/25 recommendations	Key Stakeholders (Lead in bold)	Time Frame
1	Collaboration		
A	Foster multidisciplinary collaboration for the development of the stroke care clinical guidelines	Ministry of Health BPJS	Short-term set up
B			

	and then consider formalising ongoing joint working groups involving collegium and professional associations, Ministry of Health, and BPJS.	Collegium and professional associations Relevant hospitals and puskesmas	Medium - long-term delivery
C	Maintain and develop Community of Practice (CoP) networks, expanding them nationally. Indonesia is encouraged to review and adapt current CoP model. Opportunities include: stroke leaders from across Indonesia to set up their own national leadership focussed CoP, then those leaders setting up regional CoPs that could be designed based on profession or areas of interest.	Ministry of Health Stroke care leaders RS PON Collegium and professional associations Relevant hospitals and puskesmas	Short-term review and establishment development Long-term delivery to support continuous improvement.
D	Establish regular multidisciplinary conferences to share best practice and build networks. This could involve Community of Practice groups meeting on a yearly basis to share best practice, pilots and ideas for future collaboration. Participation from Ministry of Health and RS PON would be important for accreditation, to ensure senior leadership and good practice can be adopted more widely.	Ministry of Health Stroke care leaders RS PON	Short-term; annually as a minimum to keep up momentum
E	Develop relationships with global stroke charities (e.g., WSO, Stroke Foundation) to apply global learning.	Ministry of Health RS PON	Short-term Ongoing
2	Strategic Governance and Direction		
A	Develop a cohesive national stroke service model with clear governance, which should: <ul style="list-style-type: none"> Be based on a clear analysis of patient and service needs and take account of best contemporary and future clinical practice. 	Ministry of Health RS PON	Short-term; include in new guidelines

	<ul style="list-style-type: none"> Consider appropriate delegation of authority between national and local levels of government. Optimise the referral system(s) between different parts of the stroke care pathway. Consider all aspects of prevention from health promotion through primary and secondary prevention, developing preventative measures amongst all healthcare workers and suitable non-healthcare workers (e.g. cadres) and at a population level. 	Collegium and professional associations	
B	Set key standards/KPIs for stroke units that are evidence based and link to the new 2025 clinical guidelines.	Ministry of Health RS PON	Short-term; include in new guidelines
C	Appoint clinical leads at relevant levels (puskesmas, hospitals, regions) across the whole stroke pathway for specific areas, e.g. acute care, rehabilitation.	Ministry of Health RS PON Collegium and professional associations Relevant hospitals and puskesmas	Medium-term
D	Consider the potential to study hospital usage and supply and demand of patients as it may be possible to deliver more healthcare and achieve better patient outcomes through more efficient use of the existing health service facilities. This should lead on to a review of the provision and distribution of facilities and equipment across the stroke pathway, e.g. CT scanners.	Ministry of Health BPJS	Medium-term
3	Financial Flows and Budget		
A	Ministry of Health and RS PON to continue working with BPJS to align clinical guidelines with funded care. This might involve: <ul style="list-style-type: none"> Using clinical scenario mapping to test guideline and payment alignment. 	Ministry of Health RS PON BPJS	Short-term; include in new guidelines

	<ul style="list-style-type: none"> Reviewing insurance coverage to ensure adequate rehabilitation funding. A strong economic case for rehabilitation has been made internationally and this could be adapted for the Indonesian context. 		
B	Review salary structures to improve recruitment and retention, especially in rural areas.	Ministry of Health Relevant hospitals and puskesmas	Medium-term
4	Policy Implementation and Process Improvement		
A	Address the implementation gap between policy and practice in hospitals and primary care.	Ministry of Health RS PON	Medium-term
B	Learn from pilots and examples within the Indonesian health context.	Ministry of Health RS PON	Ongoing
5	Workforce Development, Education, and Training		
A	Create a national workforce plan which includes: conducting a comprehensive workforce analysis to identify required skills, assess current capabilities, review training pipelines, and implement targeted interventions to ensure a workforce fit for the future. The plan should consider different geographical and demographic requirements, evolving technologies and treatments in stroke care.	Ministry of Health	Medium-term
B	Collaborate between Ministry of Health and professional associations on workforce planning.	Ministry of Health Collegium and professional associations	Medium-term
C	Include multidisciplinary staffing levels in clinical guidelines.	Ministry of Health RS PON	Short-term; include in new guidelines

		Collegium and professional associations	
D	Continue and expand training efforts, including train-the-trainer and blended learning models.	Ministry of Health RS PON Collegium and professional associations	Ongoing
E	Clarify and improve funding availability for training across the whole Indonesian health care system.	Ministry of Health	Medium-term
F	Increase training on prevention and rehabilitation for all stroke care team members.	Ministry of Health RS PON	Ongoing
G	Develop leadership training and practice that promotes staff: <ul style="list-style-type: none"> • Autonomy - ensure staff have appropriate authority, empowerment and influence • Belonging - Enable team-working and create a culture where staff feel value, supported and respected • Contribution - empower staff to deliver valued outcomes at all levels 	Ministry of Health RS PON Collegium and professional associations Relevant hospitals and puskesmas	Ongoing
6	Data and Technology		
A	Mandate basic data collection aligned with 2025 clinical guidelines.	Ministry of Health RS PON	Short-term; include in new guidelines
B	Collect rehabilitation data to build an evidence-based Indonesian model.	Ministry of Health RS PON	Medium-term

		Collegium and professional associations	
C	Continue to develop the Stroke Registry using continuous improvement and taking learning from pilot sites as it expands across Indonesia.	Ministry of Health RS PON	Ongoing
D	Explore technological and social media tools for patient awareness and caregiver training.	Ministry of Health RS PON Collegium and professional associations Relevant hospitals and puskesmas	Medium-term
E	Study hospital usage and patient demand to optimize resource allocation and improve outcomes.	Ministry of Health RS PON	Medium-term

Table 3: Recommendations Evolution

Over the course of the collaboration, the focus and emphasis of the recommendations evolved. Table 3 shows how the initial recommendations align with those set out in this report.

2023/24 Recommendations	2024/25 Recommendations	
Workforce Enablers	Overarching Recommendations	Specific Areas
a. a collaborative approach across the whole health care system		Collaboration

b. the optimisation of the collection, analysis, and use of data	Strategic Governance and Direction	Data and Technology
c. the optimisation of financial flows and budgets		Financial Flows and Budget
Recommendations 2, 3, 4. Workforce, Training and Education	Policy Implementation and Process Improvement	Workforce Development, Education, and Training
1. Developing stroke care workforce planning		
2. Aligning with international best practice in health care education and training for Stroke		
3. A whole system workforce approach for Stroke		

Year 1 Overview

Technical Visit July 2023

A delegation from NHS England, listed below, visited Jakarta between Monday 3rd July and Friday 7th July 2023.

- **Clinical Lead:** Dr. Jon Cooper, Postgraduate Dean, Yorkshire and Humber, and Consultant Stroke Physician, Leeds Teaching Hospitals NHS Trust
- **Star Lead:** Orlando Hampton, Associate Head of Workforce Transformation
- **Project Lead:** Clare Kerswill, Senior Policy Manager, Technical Collaboration and Consultancy team
- **AHP Lead and Project Manager:** Claire McIvor, Partnership Manager, Technical Collaboration and Consultancy team

The technical visit built on initial meetings with both key Indonesian and UK stakeholders coupled with desk-based research on the Indonesian healthcare system in relation to stroke care in summer 2022 and again from April 2023 onwards. This resulted in a situational analysis, which can be made available on request to England.TCC@nhs.net.

The aim of the visit was to clarify the initial project scope and start developing the focus area(s) for the first year of the project. The approach aimed to allow Indonesian stakeholders the opportunity to consider in relation to stroke care:

- Where they are now
- Where they would like to be; and
- Potential workforce, education and training actions that will allow them to move towards where they want to be.

This involved meetings with key stakeholders coupled with a workforce transformation workshop. The outcome of the technical visit was the basis for the year 1 programme, expanded on below.

Initial meetings and site visits

The NHS England delegation visited a series of Ministry of Health departments, a local health department as well as two hospitals and a primary care centre over three days. See [Table 4](#) for a list of stakeholders. These meetings provided us with the opportunity to start developing strong relationships with different stakeholders.

From these meetings, the delegation learned a lot about the Indonesian health transformation programme; particularly the primary care, secondary care/referral and human resource for health pillars. We learnt how these pillars are influencing the development of stroke care, for example through health promotion campaigns around awareness of stroke symptoms. At hospital visits, we learned how the hospitals work and how the policies are implemented, for example, RS PON's role in the Indonesian Stroke Service Development Network.

Table 4: List of Stakeholders met during the July 2023 technical visit

Ministry of Health Departments	Health Policy Agency
	Health Promotion and Community Empowerment
	Non-Communicable Diseases Prevention and Control
	Planning of Health Workforce
	Primary Health Care
	Public Health
	Quality Improvement
	Referral Services
Local Health Department	DKI Jakarta Health Office
Health care settings	RS PON, top level referral hospital
	RSUD Budhi Asih – a district general hospital
	Puskesmas Johar Baru – a primary care centre/community hospital

Star Workshop

40 delegates attended the workshop coming from a wide range of different stakeholder groups covering different professions and organisations. Prompts were developed for the five key enablers of workforce transformation and there were guided tabletop discussions about each area.

Supply

- What are the challenges facing the supply of the healthcare workforce in Stroke care in Indonesia?
- What are the opportunities to develop and ensure the supply (entry levels and role recruitment) of a high-quality stroke care workforce?

Upskilling

- How have we identified the current and required (future) skills, knowledge and competencies for all roles and professions in all settings? (Learning Needs Assessment) and how can we improve it and create a national picture?
- What opportunities in upskilling are there across all professions in the stroke care workforce?

Roles

- What are the current roles (job families) involved in stroke care in each setting?
- What are the opportunities for expanding the roles in each job family? And how?

New ways of working

- What new relationships between key employers and organisations will help deliver this plan?
- What digital, data and technology new ways of working will help support and deliver this plan?

Leadership

- How will we support the stroke care workforce with the leadership skills they need to deliver this plan?
- What do we want our leaders to say and do to support this plan?

Results

A total of 284 individual lines of feedback (of which 278 came from the workshop and 6 came from additional ideas raised during the course of the visit) were thematically analysed.

In the first phase of analysis, feedback was mapped against the following criteria

- Star workshop areas (Supply, Upskilling, Roles, New ways of working and leadership)

- Stroke pathway areas (General, Prevention, Primary Care, Urgent Care, Acute Care, Rehabilitation and Long-Term Conditions)

We also categorised the feedback (n.284) into broad thematic areas, as set out below:

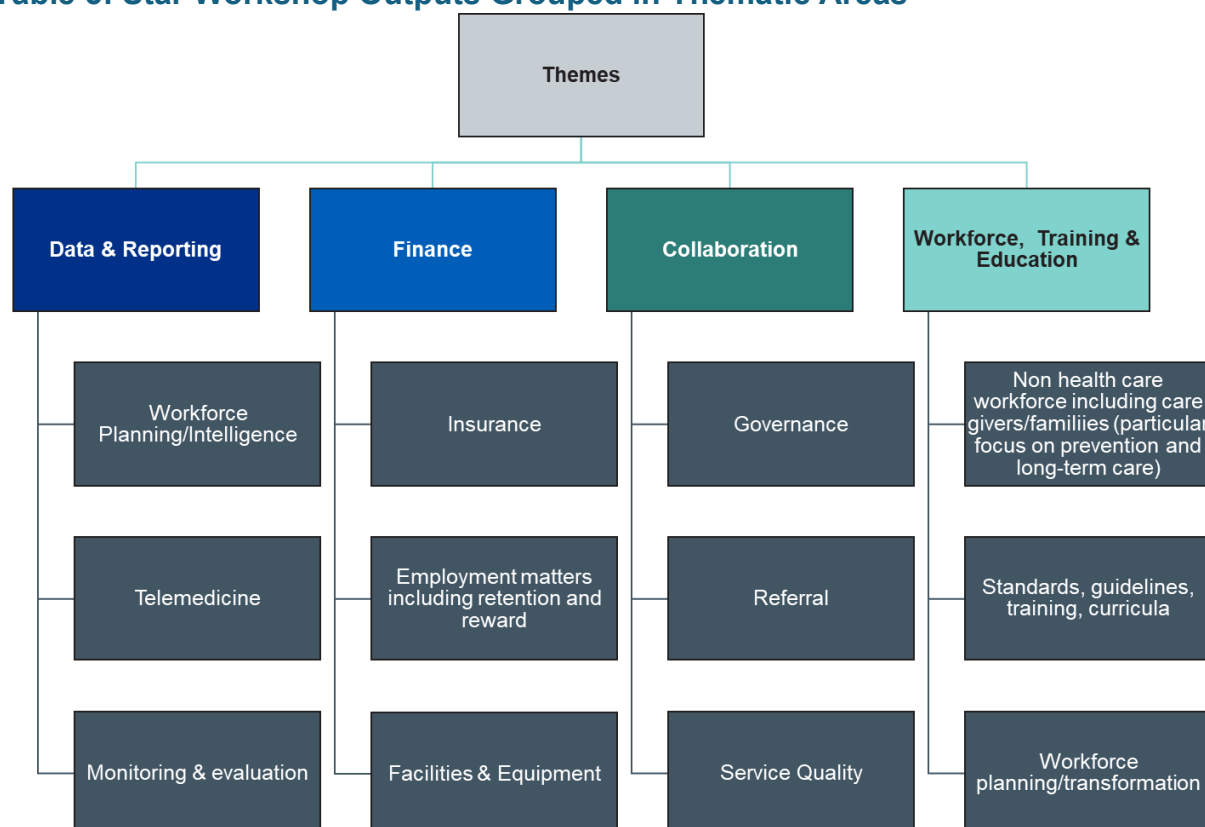
- Context
- Collaboration
- Data/reporting
- Facilities & Equipment
- Finance
- Governance
- Insurance
- Non health care workforce including care givers/families (particular focus on prevention and long-term care),
- Referral
- Service Quality
- Telemedicine
- Standards, guidelines, training, curriculum
- Employment Matters including retention & reward
- Workforce planning/intelligence
- Workforce planning/transformation

As illustrated in Table 5, these themes were then grouped into:

- Data and Reporting
- Finance
- Collaboration
- Workforce, Training and Education

Following the visit, these themes were developed into recommendations for Indonesia, with the NHS England activities focused on the Workforce, Training and Education theme, see [High Level Recommendations Report](#) below for more information.

Table 5: Star Workshop Outputs Grouped in Thematic Areas



The Star approach is well established in the NHS and Indonesia was the fourth international setting it has been used in.

Feedback from the delegates was broadly positive. 26 of 40 delegates completed the feedback survey (65% response rate) and 23 of those delegates rated the workshop as good or excellent for helping them to work through the complexity of the workforce challenge (60% excellent (n.14); 39% good (n.9)). The participants valued the opportunity for group discussion and meeting with other Indonesian stakeholders. Comments included

great experience

it [was] only start, we need next step

The NHS England team felt that it was successful in terms of generating local insight, new ideas, sharing best practice, identifying gaps and building new relationships

Training & Education-themed Workshops

In addition, the NHS England team delivered two additional workshops:

- **E-learning Workshop:** Led by Claire McIvor, this was an opportunity for Indonesian stakeholders to learn more about Stroke focused e-learning used in the England. The workshop focused on [Fundamentals of Acute Care and](#)

Treatment in Stroke (FACTS), which is an online education resource developed by the University of Central Lancashire and designed to provide an overview of the elements of stroke care across the entire treatment pathway, and had been used by over 16,000 users in England between 2021 – 2023. FACTS aims to provide a structured and standardised approach to education and training for those working within and affected by stroke. Teaching is based on the Stroke Specific Education Framework (SSEF).

- **Stroke Curricula Workshop:** Led by Jon Cooper, this session was on Stroke training and medical pathways in England and the educational theory underpinning it. UK post graduate medical training is a service delivery model, using “apprenticeship” and the curriculum covers hyperacute care; acute stroke care; rehabilitation of stroke and secondary prevention as well as the context in which care and clinical activity is delivered. The process of creating a curriculum focused on Entrustable Professional Activities was highlighted for its ability to allow a focus on task orientated and learner centered achievement rather than abstract competences.

These workshops were attended by representatives from the Ministry of Health, RS PON and relevant collegium.

The workshops were well received but our impression was that some of the stakeholders may not have been the ideal target audience and that what was presented to them was not wholly relevant to them within their roles.

Feedback meeting

On the fourth day of the visit, we met with all key stakeholders to feedback on what we had learned and our planned next steps.

Post-visit analysis and follow-up meetings helped refine the scope of the project and allowed agreement on Year 1 activities.

Knowledge Exchange Webinars 2023

Three webinars covering stroke policy, workforce planning and prevention were arranged providing perspectives on both Indonesian and English health care systems.

Over the series of webinars, the audience size totalled of 279 with the majority of participants (89%) coming from Indonesia.

There was an overall satisfaction rate of 97% (Agree 46%, Strongly Agree 51%).

A further 97% (Agree 46%, Strongly Agree 51%) agreed with the following statement: Knowledge and information gained from participation at this event will be useful/applicable to my work.

Audience comments included:

The event was very insightful and gave me various points of view about healthcare workforce planning

Great to hear from the team in Indonesia on their progress in this area

Interesting topics with collaborative and expert speakers

Seminar 1

The first webinar was held on 20th November 2023. This webinar provided an overview of stroke service development in Indonesia and England, bringing together specialists in the field to discuss the key elements that contribute to stroke care programmes in Indonesia and England and highlighting the significant burden of stroke in both countries.

It shared learning from Indonesia's Stroke Prevention and Control Policy which includes health promotion, rehabilitation, early detection and capacity and competency building in primary care to improve treatment. The webinar also shared learning on Indonesia's Stroke Service Development in Secondary Care which has improved capability and capacity through methods such as hospital stratification, equipment provision, enhanced training and development of a mentoring network. It explained how both these programmes align with Indonesia's health system transformation plan.

The webinar also included learning from England's experience in reducing stroke mortality and improving care through integrated networks, digital tools, and national guidelines. It emphasised the importance of data, audit, and AI decision support in driving improvements, alongside long-term workforce planning and leadership development to meet future healthcare demands.

The speakers were:

- Dr. Eva Susanti, S.Kp., M.Kes, Director for Non-Communicable Diseases, Ministry of Health
- Dr Ita Muharram Sari, SpN, Head of Neurovascular Division, RS PON
- Dr Deborah Lowe, National Clinical Director for Stroke, NHS England

Recordings of this webinar are available in Indonesian and English and can be accessed through the following links: [English](#) and [Indonesian](#)

Seminar 2

The second webinar of the series was held on 10th January 2024 and focused on Stroke Workforce Planning in Indonesia and England. Presentations explored Indonesia's approach to workforce planning in both primary and secondary care, with insights around regulation, current targets and demand-driven planning. It detailed plans to establish a national stroke registry to inform policy-making and to improve monitoring and evaluations of hospitals. It also provided details on how Indonesia was working to build workforce capacity and capability through training programmes, revised competency frameworks and mentorship schemes. NHS England shared a working example of how their data tools can be used to form a statistical model to allocate training places for stroke care health professionals. Utilising data sets on demographics, clinical activity and stroke prevalence to forecast demand and guide policy.

Speakers include:

- Mr Laode Musafin, SKM., M.Kes. Director for Planning of Health Workforce, Ministry of Health
- Dr Ita Muharram Sari, SpN, Head of Neurovascular Division, RS PON
- Tom Petrov-Clayton: Deputy Head of Workforce Planning for the Medical and Dental Workforces, NHS England.

Recordings of this webinar are available in Indonesian and English and can be accessed through the following links: [English](#) and [Indonesian](#)

Seminar 3

The third webinar of the series was held on 20th February 2024 and focused on stroke prevention in Indonesia and England, highlighting shared challenges and innovations. Indonesia emphasised its transformation of primary healthcare through increased screening for priority diseases (the Ministry of Health aims to screen 90% of the population for major non-communicable diseases and improve control rates for hypertension and diabetes). It also discussed standardising and expanding community-based services (like Puskesmas and Posyandu) and using digital monitoring systems to address stroke and other non-communicable diseases. NHS England shared their experience in tackling modifiable risk factors such as smoking, obesity, and high blood pressure through primary care settings with the help of national programmes, financial incentives for prevention, public awareness campaigns, and data-driven initiatives like the Sentinel Stroke National Audit Programme (SSNAP). Both countries underscored the importance of early detection, integrated care, community engagement, and reducing health inequalities to improve stroke outcomes and overall public health.

Speakers included:

- Dr Then Suyanti, MM. Director for Public Health Management, Indonesian Ministry of Health.
- Dr Eva Susanti, S.Kp., M. Kes., Director for Non-Communicable Disease Prevention and Control
- Matthew Fagg: Director of Prevention and Long – Term Conditions, NHS England.

Recordings of this webinar are available in Indonesian and English and can be accessed through the below links: [English](#) and [Indonesian](#)

Study Tour 2024

Eleven delegates from the Indonesian Ministry of Health, RS PON and Collegium of Neurology attended a 3-day study tour in London and Kent between 23-25th January 2024.

The tour gave the delegates an overview of the full stroke care pathway in England from prevention to urgent and acute care through to rehabilitation and long-term conditions. There was also a focus on workforce planning strategies, education frameworks and the data collection methods which underpin English Stroke services.

Twenty influential speakers from the English stroke care world presented to the Indonesian delegation. This included the current and future NHS England National Clinical Directors for Stroke, the CEO of the Stroke Association, the lead for the Sentinel Stroke National Audit Programme, the lead for the Stroke Specific Education Framework (from University of Central Lancashire).

Delegates visited University College London Hospitals NHS Foundation Trust and East Kent Hospitals University NHS Foundation Trust, including the proposed site for the first commissioned standalone Mechanical Thrombectomy service in England.

The medical director of RS PON provided this feedback:

The experience and knowledge we gained during this visit are invaluable and will undoubtedly contribute significantly to our ongoing efforts in healthcare.

We look forward to future collaborations and the opportunity to apply what we have learned to our practice in Indonesia.

The study tour gave the NHS England project team the opportunity to meet with stakeholders they had met in Jakarta in July 2023 and to begin discussions about how to develop Year 2 of the programme.

The study visit afforded the NHS stroke care community the opportunity to showcase the genuine success of the development of networked stroke services in England have had over the last twenty years. This includes stroke mortality in England halving in the past two decades. The Medical Director of East Kent Hospitals noted their pleasure that East Kent was

recognised as a leader in stroke care [...and] hope[d] that the overview will bring a huge benefit to the Indonesian delegation and their own patients.”

Technical working groups on Stroke Curricula 2023 - 2024

During the first year, NHS specialists supported Indonesia with the review and finalisation of two curricula focused on stroke care, set out in more detail below. The curricula were:

- a stroke curriculum developed for doctors and nurses working in primary care and
- a stroke curriculum developed for nurses working in acute stroke care

It should be noted that the word curriculum in Indonesia and English is used differently; and the view of our NHS specialists was that the curricula reviewed were closer to training courses than curricula, if understood from the English standpoint.

Primary care group

The primary care technical working group consisted of six specialists from NHS England and the University of Central Lancashire (UCLAN):

- Dr Maslah Amin, GP and Associate Clinical Director NHS England
- Michelle Horn, Nurse and Assistant Head of Nursing and Midwifery, NHS England
- Dr Jack Haywood, Global Associate – Public Health Clinical Advisor, NHS England
- Professor Dame Caroline Watkins, Nurse and Professor of Stroke & Older People's Care, UCLAN,
- Dr Stephanie Jones, Reader in Health Services Research, UCLAN
- Colette Miller, Research Fellow, Stroke Research Team, UCLAN

The group met with Indonesian stakeholders on three occasions between November 2023 – February 2024. Their focus was on reviewing the stroke curricula developed for doctors and nurses working in primary care in Indonesia, which was introduced in practice from January 2024.

Nursing technical group

The nursing technical working group consisted of seven specialists from NHS England, St George's University Hospitals NHS Foundation Trust and the University of Central Lancashire (UCLAN):

- Amanda Robson, Senior Nurse, Workforce, Training and Education Directorate, NHS England
- Danielle Fullwood, Senior Nurse - Professional Development, NHS England
- Libby Potter, Head of Portfolio, Workforce, Training and Education Directorate, NHS England
- Professor Dame Caroline Watkins, Nurse and Professor of Stroke & Older People's Care, UCLAN
- Prof Catherine Elizabeth Lightbody, Professor of Stroke Care and Improvement, UCLAN
- Colette Miller, Research Fellow, Stroke Research Team, UCLAN
- Dr Gillian Cumberbatch, Stroke Nurse Consultant, St George's University Hospitals NHS Foundation Trust

The group met with Indonesian stakeholders on three occasions between February and June 2024.

In particular, the group suggested Indonesia might look at how much of their curricula covered when compared to the Stroke Specific Education Framework, as set out in [Table 6](#). At this point in time, most of the current curricula was focussed on hyper-acute stroke care with development required on TIA, rehabilitation and long-term care. The currently available nurse training does not support leadership, education and research and addressing these areas could support nurse leadership development to support stroke improvements in Indonesia. We note that many developments and outputs during year 2 of the collaboration address these points ([see below](#)).

Table 6: Indonesian Acute Stroke Nursing Curriculum compared to Stroke Specific Education Framework

Stroke Specific Education Framework (SSEF)	Codes	SSEF elements	INA-curriculum coverage	estimated coverage per centation
Awareness Raising	E1	13	9	69%
Managing Risk	E2	12	7	58%
Information	E3	12	8	67%
User Involvement	E4	12	8	67%
Assessment (TIA)	E5	33	29	88%
Treatment (TIA)	E6	22	0	0%
Urgent Response	E7	18	16	89%
Assessment (Stroke)	E8	17	15	88%
Treatment (Stroke)	E9	30	27	90%
Specialist Rehabilitation	E10	44	33	75%
End of life care	E11	14	0	0%
Seamless transfer of care	E12	12	7	58%
Long term care	E13	16	0	0%
Review	E14	17	0	0%
Participation in Community	E15	11	0	0%
Return to work	E16	27	0	0%
Professional and Behavioural Values	E17	32	0	0%
Leadership, management and governance	E18	24	0	0%
Education, training, and personal development	E19	18	0	0%
Research, innovation, and quality improvement	E20	25	0	0%

High Level Recommendations Report 2023 - 2024

The high-level recommendations report was shared with Indonesian stakeholders in January 2024, and summarised key recommendations for that point in the collaboration.

Here we have provided an edited version of the Executive Summary. Full copies of the report in English or Indonesian are available on request to England.TCC@nhs.net.

Working with partners in Indonesia, NHS England's Global Health Unit have established a collaboration which focuses on the improvement of stroke care through the strengthening Human Resources for Health (HRH).

The report provides high level strategic advice to Indonesia on:

- Workforce enablers including cross sectoral collaboration, data, and finance. These themes emerged during the technical visit to Jakarta in July 2023 and intersect with important themes in the English stroke care context. These enablers have been included in this report for completeness and for consideration over the longer term. We don't anticipate that the workforce enablers will be within the immediate scope of the Indonesia – NHS England Stroke Care Workforce Collaboration.

- Workforce, training, and education measures. The Indonesia – NHS England Stroke Care Workforce Collaboration will focus on how Indonesia can use workforce development to improve stroke outcomes in Indonesia, resulting in a reduction in death and disability. Every effort has been made to align these with the Indonesian Ministry of Health’s Health System Transformation programme (2021-2024). A detailed workplan has been co-developed for immediate initial activities between the two partners ([Appendix 1](#)).

Stroke care is one of Indonesia’s priority clinical areas for development. The condition continues to be a major killer and cause of disability in the country. It is the leading cause of death over age 5 (accounting for about 15% of deaths). In comparison, in England, stroke is the fourth leading cause of death and the largest cause of adult neurological disability. However, stroke mortality has halved in the past two decades due to combination of implementation of evidence-based interventions and as a result of an ongoing focus on stroke care pathway development in England. A combination of stroke-specific and more generic workforce, training and education activity across staff groups and disciplines has also contributed to improved outcomes.

The recommendations report and subsequent activity draws on the NHS experience in stroke care and workforce training and education activity more broadly, considering both successes and challenges. It aims to provide Indonesia with expert input on how it can use workforce development to improve stroke outcomes in Indonesia, which will result in a reduction in death and disability. Over time, the collaboration will continue to develop and the understanding between specialists in each of the systems will deepen. NHS England will engage with Indonesian stakeholders through knowledge exchange, strategic advice, and implementation support between April 2023 and March 2025.

Data to inform the recommendations in this report were collected during a technical visit to Jakarta in July 2023, desk-top research, and conversations with subject matter specialists in both Indonesia and England.

Feedback gathered during the visit was thematically analysed. This resulted in 17 themes, categorised into:

- Context
- Data and Reporting
- Finance
- Collaboration
- Workforce, Training and Education

These broad thematic areas were then reviewed and considered by the project team, along with the English experience of workforce development to improve stroke outcomes, to develop recommendations for Indonesia.

Recommendations

The recommendations are divided into two parts:

- Workforce Enablers; and
- Workforce, Training and Education.

Following the WHO Global strategy on human resources for health: Workforce 2030 (World Health Organization, 2016) both elements require a clear strategic direction and strong governance arrangements.

1. Workforce Enablers

The workforce enablers create the conditions required to support workforce, training, and education, allowing the sustainable development of current and future healthcare workforce. Workforce enablers include governance structure(s), system leadership, data, technology, financial and legal requirements.

We recommend Indonesia develops a clear strategic direction and reviews its governance arrangements in order to improve stroke care outcomes. We suggest a focus on the whole stroke care pathway development with particular reference to:

- a) a collaborative approach across the whole health care system
- b) the optimisation of the collection, analysis, and use of data
- c) the optimisation of financial flows and budgets

Further information on each of these enablers is set out in the Recommendation 1 section.

These enablers have been included in this report for completeness. We don't anticipate that the workforce enablers will be within the scope of the Indonesia – NHS England Stroke Care Workforce Collaboration.

Recommendations 2, 3, 4. Workforce, Training and Education

The workforce, training and education recommendations set out the specific measures required to ensure the sustainable development of current and future Stroke healthcare workforce.

We recommend Indonesia ensures it has effective governance arrangements and a clear strategic direction in order to improve stroke care outcomes with particular reference to workforce, training, and education. We suggest a focus on the whole stroke care pathway with particular reference to:

- 2) Developing stroke care workforce planning

- 3) Aligning with international best practice in health care education and training for Stroke
- 4) A whole system workforce approach for Stroke

Further information on each of these recommendations is set out in the section on Recommendation 2, 3 and 4.

Next Steps

The report concludes with consideration of potential next steps. A key requirement will be feedback and reflection from Indonesian stakeholders. Depending on Indonesian ambitions, it may be appropriate during the second year of the collaboration to convene a small working group or to hold a series of workshops to further develop and progress the recommendations set out in this report. NHS England could provide support and ad-hoc expert technical advice to Indonesia to develop a vision for stroke care services and the development of a stroke care-focussed workforce strategy. This could be underpinned by the creation of a detailed implementation plan, owned by agreed stakeholders in Indonesia.

Year 2 Overview

Technical Visit July 2024

A delegation from NHS England, listed below, visited Jakarta and Palembang between Monday 15th July and Friday 19th July 2024.

- **Clinical Lead:** Dr. Jon Cooper, Postgraduate Dean, Yorkshire and Humber, and Consultant Stroke Physician, Leeds Teaching Hospitals NHS Trust
- **Doctors and Policy Lead:** Prof. Deb Lowe, National Lead for Stroke Medicine, Getting it Right First Time, Former National Clinical Director for Stroke, NHS England and Consultant Stroke Physician, Wirral University Teaching Hospitals NHS Trust
- **Nursing Lead:** Dr Gillian Cumberbatch, Stroke Nurse Consultant and St George's Healthcare NHS Foundation Trust
- **Therapists Lead:** Louise Clark, Consultant Therapist in Stroke and Neurological Rehabilitation, Dorset County Hospital NHS Foundation Trust
- **Project Lead:** Clare Kerswill, Senior Policy Manager, Technical Collaboration and Consultancy team

The overarching aim of the visit was to ensure agreement and alignment between stakeholders on the running of the year 2 programme.

The specific objectives were:

1. Workshop to contribute to vision for Indonesia Stroke Care Road Map
2. Relationship development and building
 - a. Ministry of Health, RS PON and the Jakarta Stroke Network including Jakarta Provincial Government
 - b. Pilot site in South Sumatra covering RS Husein, South Sumatra Government and Primary Care
3. Training for selected staff with a focus on rehabilitation, open to therapists and nurses and other health professionals
4. In person meetings and introductory sessions for participants in the Communities of Practice and the Action Learning Sets.
5. Highlight the importance of collaboration, rehabilitation and multi-disciplinary working with a view to enabling the sustainability of the actions taken during the period of formal collaboration.

Initial meetings and site visits

The NHS England delegation visited a series of Ministry of Health departments, a local health department as well as three hospitals and a primary care centre over four days. See [Table 7](#) for a list of stakeholders.

Introductory meetings for the Community of Practice and Action Learning Set participants took place. Each session attracted between 24-45 attendees, who demonstrated a clear commitment and passion to see improvement in stroke services. See [Community of Practice](#) and [Action Learning Sets](#) below for further information about these workstreams.

Rehabilitation Training

There were also two sessions to provide rehabilitation training for health care staff involved in providing therapy or rehabilitation to patients after Stroke. The training highlighted the critical role of rehabilitation in stroke recovery, emphasising that while hyperacute care saves lives, rehabilitation helps patients regain meaningful independence. It covered the stages of recovery, from early biological healing to long-term neuroplasticity, and underscored the cost-effectiveness and quality-of-life benefits of comprehensive rehabilitation. The training provided information on the structure of rehabilitation services in England, including early supported discharge, integrated community services, and long-term support. Staffing guidelines, therapy intensity, and the importance of patient education, equipment, and community access were also covered.

100% of the attendees either strongly agreed or agreed that they were satisfied with the training session, with feedback including

Best training ever

I've got so [much] information that can improve my knowledge from this training.

Rehabilitation Vision Workshop

The second day of the visit was the delivery of a vision setting workshop for the Indonesia Stroke service model, focusing on rehabilitation. 97% of delegates found the workshop “extremely or very relevant and useful” and feedback indicates that they appreciated the opportunity to collaborate. During the closing session, delegates were asked to write down one hope (*Harapan*) for the future of Stroke Services in Indonesia, with one noting their desire for more collaboration “between professionals, MoH and local government, for us to have one vision”, which neatly sums up the intentions of the Indonesia-NHS England Stroke Care Collaboration.

The Vision Setting Workshop convened 53 delegates from diverse areas of stroke care in Indonesia to collaboratively address rehabilitation within integrated stroke services, with 43 providing feedback (81% response rate). Participants were grouped by profession and organization to encourage cross-disciplinary networking and discussion, which was widely appreciated. The workshop focused on three main areas: mapping current rehabilitation services, conducting a gap analysis, and vision setting with actionable priorities.

Delegates highlighted that while rehabilitation standards exist under the Ministry of Health, implementation is inconsistent, especially after hospital discharge, where care often falls to untrained family members. National health insurance (BPJS) provides limited funding, typically covering only five days of inpatient care and minimal outpatient support, leading to inequities in access. Standardised guidance and training exist but are not widely applied, and workforce shortages, especially in primary care, further hinder service delivery.

Key gaps identified include poor integration between primary and secondary care, slow referral systems, workforce shortages, underutilization of caregivers, and insufficient preventive efforts. Proposed actions focused on improving policy harmonisation, workforce development, process standardisation, inter-professional collaboration, and learning from pilot projects. The workshop concluded with participants expressing hope for better policy, comprehensive rehabilitation, and unified efforts to enhance stroke care across Indonesia, underscoring strong commitment and optimism for future improvements.

Table 7: List of Stakeholders met during the July 2024 technical visit

Ministry of Health	Directorate of Non-Communicable Diseases
	Directorate of Referral Health Services
	Directorate of Primary Health Services
	Directorate of Public Health Management

	Directorate of Health Workforce Quality Improvement
Hospitals	RS PON, Level A, Jakarta
	RS Mohammed Hosein, Level A, Palembang
	RSUD Siti Fatimah, Level B, Palembang
Primary Care	Puskesmas Sukarami, Palembang

Closing meeting and recommendations

The delegation closed the week's technical visit with a meeting with key stakeholders from Jakarta and Palembang. We highlighted the importance of collaboration, rehabilitation and multi-disciplinary working with a view to enabling the sustainability of the actions taken during the period of formal collaboration.

Recommendations were made around clear strategic direction, policy process and implementation, data and workforce, education and training. For the purposes of this report, we direct readers to the [Recommendations](#) section to see the updated May 2025 recommendation.

Communities of Practice 2024 - 2025

The aim of the Indonesia – NHS England Communities of Practice was to produce self-sustaining communities in which all members learn from each other through regular discussion and collaboration. Each group was led by an NHS England subject matter expert (Deb Lowe for doctors, Gillian Cumberbatch for nursing and Louise Clarke for therapists). Following successful in person meetings in Indonesia in July (124 participants across the different communities of practice in both Jakarta and Palembang), the groups met virtually between August 2024 – February 2025. Seven community of practice participants went on to present at the showcase conference in April 2025, and one of these participants was offered the opportunity to collaborate with the Ministry of Health to roll out her prevention pilot beyond her primary care setting in Palembang, South Sumatra.

Originally it was intended that there would be a fourth group of policy makers but based on feedback from the in-person meetings in Jakarta and Palembang that the policy makers wanted to be alongside clinicians, this group was disbanded and interested policy makers joined the most relevant of the three other Communities of Practice.

The nursing CoP model was adjusted so that all participants benefited from the sessions. The core group was hospital-based nurses in specialist stroke centres. A peripheral group of puskesmas based nurses were invited to a training session in December 2024 which covered early stroke detection of stroke and transfer to stroke

unit; dysphagia and swallow screening in stroke continence; catheter use in stroke and communication and language.

Between August 2024 and February 2025, there were 16 community of practice sessions lasting 23.5 hours in total (Doctors – 6 hours, Nurses – 12 hours and Therapists – 5.5 hours). 74 people participated in at least one of these sessions (16 doctors, 32 nurses and 26 therapists). 22 participants were awarded Top Contributor certificates at the conference in April 2025 for attendance rates of over 60% as well as active participation.

Table 8: Nurses Community of Practice Sessions

Session	Date	Topic of Discussion
Introductory session Jakarta	15 July 2024	Overview of the Collaboration so far and an Introduction to Communities of Practice
Introductory session Palembang	18 July 2024	Overview of the Collaboration so far and an Introduction to Communities of Practice
Session 1	30 August 2024	Urinary catheter use in stroke care; SOPs; bladder scanners; audit opportunities
Session 2	11 October 2024	Dysphagia and swallow screening; SOPs; training models; aspiration pneumonia prevention
Session 3	8 November 2024	Stroke unit challenges; nurse training; catheter use; shoulder pain; Puskesmas agenda
Session 4	13 December 2024	Swallowing, dysphagia, continence, aphasia, secondary prevention; Puskesmas support
Session 5	24 January 2025	Feedback on Puskesmas teaching; falls management; risk assessment practices
Session 6	14 February 2025	Pressure sore management; KPIs; insurance coverage; family education

Table 9: Therapists Community of Practice Sessions

Session	Date	Topic of Discussion
Introductory session Jakarta	15 July 2024	Overview of the Collaboration so far and an Introduction to Communities of Practice
Introductory session Palembang	18 July 2024	Overview of the Collaboration so far and an Introduction to Communities of Practice
Session 1	4 September 2024	Introductory session; networking and experience sharing
Session 2	14 October 2024	Carer training approaches; resource sharing

Session 3	13 November 2024	Feedback from Physiotherapy Society; education resource review
Session 4 (Cancelled)	9 December 2024	Cancelled due to last minute availability of our NHS Facilitator
Session 5	8 January 2025	Carer education; referral pathways; rehab guidelines and standards
Session 6	17 February 2025	Planning rehab training; inviting OT, SLT, PT associations; training topic identification

Table 10: Doctors Community of Practice Sessions

Session	Date	Topic of Discussion
Introductory session Jakarta	15 July 2024	Overview of the Collaboration so far and an Introduction to Communities of Practice
Introductory session Palembang	18 July 2024	Overview of the Collaboration so far and an Introduction to Communities of Practice
Session 1	10 September 2024	Referral pathways; insurance; stroke networks; education; prevention
Session 2	23 October 2024	Referral pathways; stroke unit development; training needs; insurance model review
Session 3	13 November 2024	Continued discussion on referral pathways and stroke unit development
Session 4	11 December 2024	Ongoing discussion; concerns about information sharing
Session 5 (Cancelled)	24 January 2025	Cancelled due to translator availability
Session 6 (Cancelled)	14 February 2025	Cancelled due to no attendees

A view from a participant on the benefits of participating in the Nurse Community of Practice:

Advanced assessment protocols, Cultural competence enhancement, Community rehabilitation approaches, Thrombolysis management expertise, Early mobilisation techniques, and Effective Strategies/interventions on some cases (how to prevent pressure sores, etc) ... I am going to miss[...] the meeting, I've learned so much, thank you Gill'

There were some challenges with the delivery of the communities of practice on account of the time zone differences, language barriers, sensitivities around sharing

information online and sometimes poor internet connectivity. However, it was apparent at the conference in April 2025 (see [below](#)) that real change and connections had been started via these groups. As noted in our recommendations above, we would suggest Indonesia continue to support this groups' continuation with Indonesian leadership (which would remove some of our UK-based challenges).

Action Learning Sets 2024 - 2025

NHS England has successfully used Action Learning Set methodology with around 27 countries between 2022 – present via its Working for Health 2030 programme in conjunction with the World Health Organization and the University of Salford. We have plenty of evidence that this approach has resulted in real change within different health systems.

Action learning is often used to address 'wicked' problems in and across organisations. Particularly those with deep systemic complexity such as health care, where no-one can agree on the exact nature of the problem, nor the exact nature of the answer.

We felt this methodology might be beneficial to our Indonesian colleagues, so we procured the Westcott Group to deliver an Action Learning Sets (ALS) programme between October 2024 and April 2025, with particular emphasis on leadership development. There were 22 participants attending at least once with a core group of 6 attending most sessions. Three participants went on to present at the showcase conference in April 2025.

The Action Learning Sets aimed to empower stroke professionals (both clinical and policy) by enhancing leadership skills, fostering system-wide learning and innovation, and strengthening local strategies across the continuum of stroke care.

The programme's methodology integrated expert input from UK stroke leaders, structured leadership development, and collaborative problem-solving through ALS. Participants engaged in five sessions, choosing to focus on one of the following areas of the stroke care pathway: prevention, acute care, and rehabilitation. They learned to set strategic goals, map and influence stakeholders, and use storytelling to advocate for change. Real-world challenges were addressed in small groups, leading to actionable outputs tailored to the Indonesian context.

Key outputs included the development of a mobile rehabilitation training app, initiation of community rehab sessions, and drafting policy proposals, all underpinned by the integration of personal stories and data to influence decision-makers.

Participants highlighted the value of combining international expertise with local innovation and the importance of cultural adaptation for effective learning. While challenges included limited participant recruitment and the need for broader systemic

integration, the programme laid a strong foundation for continued advocacy, peer collaboration, and potential national scale-up to advance stroke care and health equity in Indonesia.

On concluding the Action Learning Set programme, participants committed to the following pledges:

Future plans to continue the digital rehabilitation program for cadres and caregivers and families at Johar Baru Puskesmas as an innovation and prototype program to be used nationally.

We hope to eventually establish a regulation or a Governor's Decree specifically for stroke management, involving all relevant stakeholders. This would serve as a legal framework for our colleagues in primary healthcare centres and hospitals.

We will provide documentation or infographics of the community rehabilitation activities as a follow-up to the goals we have included in the team's rehabilitation agreement.

I would like to improve collaboration with other teams such as therapists and dieticians.

Coordination with the health department to develop a referral flow for stroke patients back to the health centre.

Coordination with the East Jakarta Health Office to provide education for health cadres on stroke care at home.

E-learning

Fundamentals of Acute Care and Treatment in Stroke [FACTS](#), (e-Learning for Healthcare, 2022) is an online education resource developed by the University of Central Lancashire designed to provide an overview of the elements of stroke care across the entire Stroke treatment pathway. It is used extensively in the NHS across a range of clinical and non-clinical staff.

The view of our specialists was that a contextualised and translated version of FACTS would provide an important resource of baseline information for many health care staff across Indonesia, which could be integrated into further relevant training. The Indonesian Ministry of Health have recently launched an e-learning platform and were willing to host the Indonesian version of FACTS.

However, despite interest and engagement from Indonesian colleagues, it was not possible to put appropriate governance arrangements in place in the available time with particular challenges around licensing intellectual property and this aspect of the collaboration was stopped.

Technical Visit April/May 2025

A delegation from NHS England, listed below, visited Jakarta between Monday 28th April and Friday 2nd May 2025.

- **Clinical Lead:** Dr. Jon Cooper, Postgraduate Dean, Yorkshire and Humber, NHS England and Consultant Stroke Physician, Leeds Teaching Hospitals NHS Trust
- **Doctors and Policy Lead:** Prof. Deb Lowe, National Lead for Stroke Medicine, Getting it Right First Time, Former National Clinical Director for Stroke, NHS England and Consultant Stroke Physician, Wirral University Teaching Hospitals NHS Trust
- **Nursing Lead:** Gillian Cumberbatch, Stroke Nurse Consultant, NHS England and St George's Healthcare NHS Foundation Trust
- **Therapists Lead:** Louise Clark, Consultant Therapist in Stroke and Neurological Rehabilitation, Dorset County Hospital NHS Foundation Trust
- **Project Lead:** Clare Kerswill, Senior Policy Manager, Technical Collaboration and Consultancy team, NHS England
- **Project Manager:** Danielle Mason, Partnerships Manager, Technical Collaboration and Consultancy team, NHS England

The primary aim of the visit was to celebrate collaborative efforts between NHS England and Indonesian stakeholders and to highlight avenues for Indonesia to take forward to achieve sustainable progress in stroke care workforce transformation, networks and innovation

Objectives/Deliverables:

1. **Showcase progress made through the collaboration:** Indonesian and NHS England stakeholders to present the two-year outcomes to Indonesian health stakeholders, highlighting achievements and ongoing initiatives.
2. **Strengthen networks:** Foster stronger relationships between Indonesian stakeholders, supporting continued engagement beyond the collaboration. Facilitate connections between Indonesian stakeholders to support influencing and implementing transformation.
3. **Present key takeaways from the project and recommend pilot innovations and scale effective practices:** Identify pilot initiatives in stroke care for Indonesia to carry on. Share good practice and consider implementation.

4. **Stakeholder engagement:** Coordinate meetings with wider stakeholders in stroke care including national health insurers (BPJS), the Ministry of Health, the RS PON, Dinas Kesehatan (DINKES)—the local health authorities at the regional level in Indonesia, and hospitals to consider economic and policy support for stroke care.
5. **Knowledge exchange:** Capture lessons for mutual learning, feeding back into NHS practices.

During the visit, a variety of activities took place as set out below.

Overview meetings with key stakeholders at the Ministry of Health and RS PON:

The technical visit began with an initial meeting at the Ministry of Health including teams from the Directorates of Non-Communicable Diseases, Clinical Services and Primary Care. Since our last visit, Indonesia has inaugurated a new president and there have been subsequent changes to both directorates and personnel within the Ministry of Health. We gave an update on the collaboration to date as well as our plans for the week. From the Ministry of Health, we learnt of progress in relation to:

- Primary care e-learning rolled out
- Increasing focus on supporting psychological impacts of stroke, now included in training
- New stroke clinical guidelines in development

We then visited RS PON. Again, we gave an update on the collaboration to date as well as our plans for the week. From RS PON, we learnt about developments in relation to the Stroke Registry, more about the stroke care guidelines, including the fact that there is a link between insurance funding and what's included in the clinical guidelines (see more on this below under Informal lunch with BPJS, national health insurance agency). We also heard that changes to the insurance model had resulted in an increase in mechanical thrombectomy and clipping and coiling.

Informal lunch with BPJS, national health insurance agency:

Throughout the collaboration, our recommendation has been for Indonesia to review how the funding for the stroke care pathway works to better support evidenced based practice. We have heard from numerous sources of difficulties around insurance payments made to hospitals and primary care centres. We were therefore keen to meet with representatives from Badan Penyelenggara Jaminan Sosial Kesehatan (BPJS Kesehatan; Social Security Agency on Health) alongside our contacts from the Ministry of Health and hospitals.

It was a pleasure to meet with Dr. Ali Ghufon Mukti, Executive Director from BPJS alongside representatives from the Ministry of Health and RS PON.

The informal discussion emphasised once again that the Ministry of Health-issued 2025 clinical guidelines must be multiprofessional, evidence-based and cover the stroke care pathway from prevention right the way through to rehabilitation in order to resolve the issues relating to insurance payments for Stroke. This is because BPJS policy will follow the clinical guidelines.

The discussion also covered the following points:

- BPJS don't currently fund home-based care but would consider it if proved more cost effective
- Evidence of cost-effectiveness can be from international settings, but needs to be supported by evidence from the Indonesian setting
- Stroke age in Indonesia is younger than the UK so rehabilitation could be even more effective to provide the economic advantages that come with getting back into work and quality of life.
- Indonesia currently have a time-based model for rehabilitation but consideration should be given to a needs-based model
- Influence of tobacco industry is a barrier to prevention

Showcase conference, Day 1

On Tuesday 29th April, around 70 delegates attended a showcase conference at the Mandarin Oriental in Jakarta.

There were updates from the Ministry of Health and RS PON on the development of stroke care services in Indonesia as well as an overview of the Indonesia – NHS England Stroke Care Workforce Collaboration presented by the NHS England delegation, including reflections on what they had learned from Indonesia that they could apply in their own practice in the NHS (see [here](#) for more details).

Eight participants from the Communities of Practice and/or Action Learning Sets gave presentations about their learning during the collaboration and actions they had taken in their own local contexts. They were:

- Dr. Enny Mulyatsih, Nurses CoP, Himpunan Perawat Neurosains Indonesia (HIPENI) Jakarta
- Dewi Suci, Therapists CoP, RS PON, Jakarta
- Dr Verawaty Erni, Puskesmas Pakjo, Palembang
- Isnawan Risqi Rakhman, Nurses CoP, RS PON, Jakarta
- Putri Magdalena, Therapists CoP, RS PON Jakarta
- Ramlawati, Nurses CoP, RSUD Tarakan, Jakarta
- Citra Ayuswasti, Therapists CoP, Puskesmas Johar Baru, Jakarta
- Ratna Anggraini, Nurses CoP, RSUD Cengkareng, Jakarta

See [Picture 11](#). All the presentations were very well received on the day, with one attendee noting:

I'm really glad to hear presentations from (CoP and ALS) participants from every specialty. They make me see more deeply about how a community of practice can be created by working together with other healthcare provider and stakeholders, outside of the hospitals

The eight participants covered a range of topics from

- information about their learning about specific working practices during the collaboration
 - Nurse, RSUD Tarakan, Jakarta on urinary tract infections, pressure sores and swallowing disorders;
 - Speech therapist, RS PON Jakarta on speech therapy techniques;
- learning around cultural competence and effective strategies/interventions such as how to prevent pressure sores
 - Nurse, RSUD Cengkareng, Jakarta. Also noted desire for the collaboration to be able to expand to additional hospitals and specialist areas, for greater digital collaboration including telenursing consultations and virtual training, and the opportunity to explore research around cross-cultural stroke care.
- initiatives they had devised or expanded during the collaboration:
 - Nurse, Himpunan Perawat Neurosains Indonesia (HIPENI) and RS PON, Jakarta. This nurse has had a lead role in the nursing community of practice and has used her role within HIPENI and RS PON to spread good practice, including ensuring multi-disciplinary stroke meetings take place regularly, emphasising evidence-based protocols for stroke patients across many areas including early mobilisation, cognitive function and post stroke seizures. Additional change is likely as the Indonesian Neuroscience Nursing Curriculum will be reviewed and development based on learning from this collaboration. Noted developing collaborations between the Nursing Collegium and the Indonesian National Nursing Association around expanding Basic Neurology Life Support (BNLS) training for nurses to all regions in Indonesia, assessments for continuing professional development as well as plans to educate cadres about stroke care via DINKES and puskesmas and to use civil society including a variety of initiatives aimed at mothers and children to better recognise stroke,
 - Nurse, RS PON, Jakarta. This nurse has also played a central role in the nursing community of practice and the earlier technical working group on Stroke curricula for nurses. He noted that there remain gaps in training for Indonesian nurses in Stroke (under 40% when

benchmarked against the Stroke Specific Education Framework) particularly around end-of-life care, seamless transfer of care, long-term care, participation in the community, return to work, and professional/behavioural values. During the Community of Practice sessions, he noted the following competences can be strengthened: dysphagia management, incontinence care, skin care, and fall prevention. He is advocating for training and education for stroke nurses to be part of national programs and for Stroke nurse competencies to be included in comprehensive, integrated, and multidisciplinary clinical guidelines in order to improve patient outcomes.

- Physiotherapist, RS PON, Jakarta - presented on stroke rehabilitation phases and noted the community stroke group she has established during the collaboration.
- pilots they had developed or expanded during the collaboration
 - Doctor, Puskesmas Johar Baru, Jakarta – noted that stroke patients tend not to continue rehabilitation once they've left hospital, that there are a general lack of physiotherapists at primary care level and most health workers lack training in rehabilitation. Started some new initiatives in conjunction with the Association of Physiotherapists around rehabilitation and ongoing training and skills provision for primary care staff including cadres.
 - Doctor, Puskesmas Pakjo, Palembang. Described her actions inspired by both the Community of Practice and the Action Learning Sets as *Mini Project Prevention: Using FAST at Puskesmas Pakjo*. This involves three strands: Whatsapp Group for education; Training Class Testimonials and Face to Face education by doctors. Targeted audiences are the FAST 119 Team; Primary Health Team; Hospital Emergency Team; High Risk Stroke Patients and their close family plus the heads of Primary Health Care and the Public Health Office at the local hospitals in Palembang. Also noted that she had learnt the following techniques via the community of practice and action learning sets: identifying system strengths and weaknesses; understanding different stakeholders' perspectives including their commitment and obstacles to engagement; looking for root causes; building positive networks to support her project, coordination and evaluation across network and the power of sharing impactful stories to inspire participation.

Following the presentations, there was strong interest from the Ministry of Health from the Primary Health Care Management Directorate to work with Puskesmas Pakjo to roll out their prevention pilot beyond Palembang to the whole of Indonesia. There was also strong interest from RS PON in Puskesmas Johar Baru's

presentation around rehabilitation in primary care including cadres and working together with the Association of Physiotherapists so they could develop this model to share across other primary care settings initially in Jakarta.

These outputs demonstrate the value of the conference both through giving multiple participants who may not always get the exposure to senior leaders or the opportunity to influence them an opportunity to do so and for the senior leaders to take the opportunity to find areas of best practice that they can foster through sponsoring pilots or updating policy.

Showcase conference, Day 2

On Wednesday 30th April, around 40 delegates attended a conference at the Mandarin Oriental in Jakarta focusing on rehabilitation including the role of therapy associations in supporting the development of stroke care services in Indonesia.

This was a key opportunity for the associations to showcase their work, develop links and common understanding on certain areas and to start to build relationships with stakeholders such as RS PON and the Ministry of Health. During the question-and-answer session, the three associations agreed joint working and further collaboration, potentially including identifying core competences across the professions, would be good next steps.

All three associations provided an overview of the activities, as summarised below:

Association of Physiotherapy (IFI):

- Emphasised that recovery happens at home, with family caregivers and community health workers (CHWs) playing crucial roles.
- Caregiver Training: IFI collaborates with hospitals (including RSCM - RSUPN Dr. Cipto Mangunkusumo) and Puskesmas (including Sanden Health Center, Bantul, DIY (Yogyakarta); Tabalong Health Center, South Kalimantan; Traji Health Center, Temanggung, Central Java; Sinjai Health Center, South Sulawesi; and Johar Baru Health Center, Central Jakarta) to train caregivers.
- Digital Innovation via *Project Inclusion*: The Inclusion App delivers home exercise content, empower CHWs and caregivers. Since 2022, it has reached over 19,000 people.

Association of Occupational Therapy

- Emphasised the importance of caregiver education and recognition of caregiver needs Barriers experienced by Occupational Therapists include time limitations, caregiver motivation, scheduling conflicts, and institutional constraints
- Need for Collaboration: among healthcare team members to effectively support caregivers. Good practice includes including caregivers in

discussions and educational sessions, and interdisciplinary teamwork is crucial for a smooth transition home.

Association of Speech and Language Therapy (SLT)

- Emphasised the bilingual context that SLTs work in and the need for SLTs that speak local languages
- There are challenges in quantity and distribution of speech therapy across Indonesia with most located in Java
- Outlined the common complications of stroke that SLTs can treat

Rehabilitation Training

The remainder of the day was dedicated to rehabilitation training with some general sessions led by Louise Clark and Gill Cumberbatch, topics covered included:

- Principles of Rehabilitation
- Intensity of Rehabilitation
- Rehabilitation Methods and Delivery
- Interdisciplinary working and Community Care Models
- Standards and Monitoring
- Proposals for national standards

This was followed by sessions dedicated to evidence-based therapy approaches and treatment methods, particularly motor recovery and repetitive task practice (primarily targeted at Occupational Therapists and Physiotherapists) and dysphagia management (primarily targeted at nurses and Speech and Language Therapists).

Conference feedback

The two-day conference was well received with 100% of respondents rating all the sessions as either good or excellent.

95% of respondents agreed or strongly agree that the content and topics covered during the conference were useful and relevant to them, with one participant noting:

All sessions were excellent and memorable, providing new inspiration.

For many participants (19% on Day 1, and 21% on Day 2) collaboration was their biggest takeaway with a variety of comments underscoring the importance of collaboration including

Interdisciplinary collaboration is possible through the therapist associations and hopefully we can take this into guidelines protocols

Every voice is important. Leadership is a key. Multidisciplinary teamwork is a must

Improving interprofessional communication to realise sustainable stroke care in Indonesia

There was also a clear desire to have more events such as this conference with comments including

Thank you so much for the experiences, I've learnt a lot and hopefully we will meet again in the future & have further sharing experiences like this

Sharing and discussion is very effective

Meeting and greeting the people from the CoP in person

Please schedule other continuing programs

There were also comments that showed participants are starting to understand that there is more to stroke care than the hyperacute phase:

The CoP session with Gill, it really opened my mind on how we in Indonesia must support stroke care transformation not only focusing in hyperacute but also to support rehabilitation after the acute phase

New knowledge from the sharing sessions with colleagues in health facilities

Wrap up meeting

To conclude the technical visit and the formal end of the collaboration, we brought together colleagues from the Ministry of Health, RS PON and the Associations of Physiotherapy, Speech and Language Therapy and Occupational Therapy.

We noted the progress that Indonesia is making in relation to developing stroke care services and emphasised that we are certain that this progress can be maintained and accelerated beyond the end of our formal collaboration as long as the following key areas are kept live

1. **Collaboration** across all levels of the stroke pathway, regions, professions and agencies
2. **Evidence-based multiprofessional clinical guidelines** aligned to insurance and payments
3. **Data** – urgent mandatory data collection to standardise and improve quality of stroke care delivery
4. **Rehabilitation focus** across entire system, at all levels including puskesmas and cadres

5. **Workforce** – development of, supply and distribution of a multiprofessional workforce

We again noted how inspiring we have found the passion, commitment, and expertise demonstrated by Indonesian clinical, managerial, professional association, and Ministry of Health teams.

The feedback from our Indonesian counterparts was very positive, with all parties agreeing to work closely together initially on the stroke care clinical guidelines. There was a good deal of enthusiasm expressed for the Indonesia – NHS England Stroke Care Workforce Collaboration with it being evident that these senior stakeholders have really benefited from being exposed to NHS ideas and specialists. A lot of learning has taken place; and the value of eroding professional, organisational and structural barriers so collaboration can take place is starting to become apparent. We left with a sense that the collaboration had been a success, and that Indonesia will see results and improvements in stroke care for years to come.

Feedback included:

Our Director says a really big thank you so much for having NHS England in Indonesia. We really appreciated your support in the implementation of stroke care in Indonesia - Directorate General of Primary Health and Community, Ministry of Health

Thank you for your technical assistance, the insights that you provide to us. We were fragmented before but now we know better the programmes we have and can invite a lot of parties, we can be an integrated system - Directorate of Prevention and Control of Non-Communicable Diseases, Ministry of Health

Thank you so much for the opportunity given to us we have a lot of lessons learnt, hopefully the communities will be continued and facilitated by the Ministry of Health and the group will be comprehensive, involving primary care as well. I hope that this group (from the summary meeting) can have regular meetings going forward, particularly around the National Guidelines for stroke. There is a need for multi-disciplinary care and increased competencies in all disciplines. HIPENI (Himpunan Perawat Neurosains Indonesia)

Table 11: Presenters at the Indonesia – NHS England Stroke Care Workforce Collaboration, Mandarin Oriental, Jakarta, 29th April 2025.

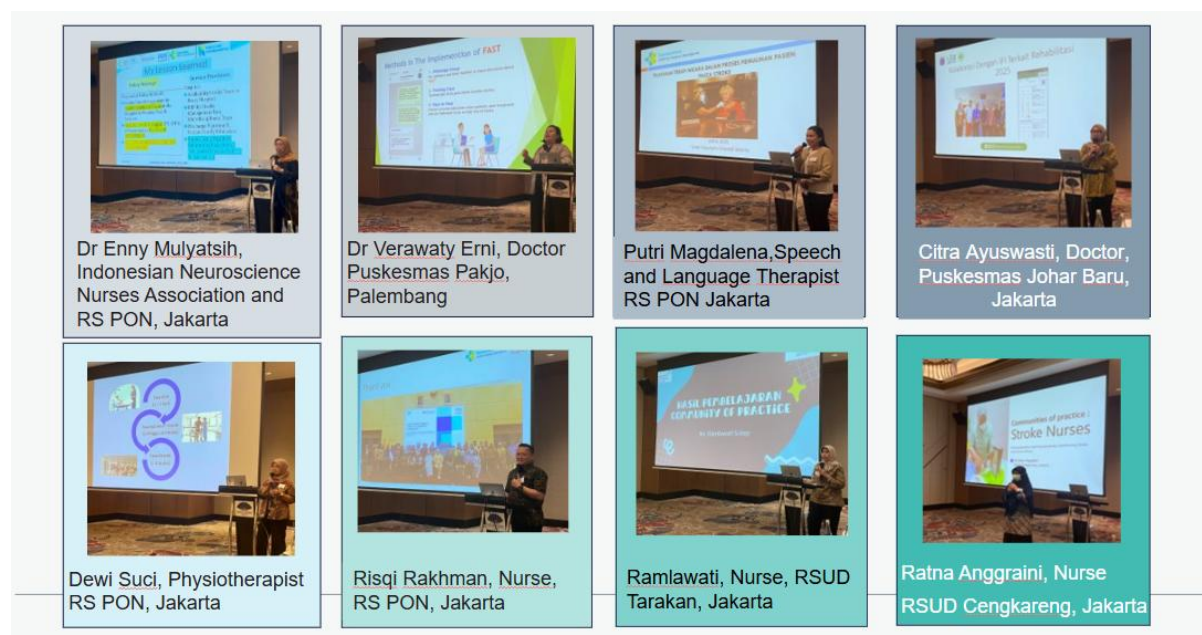


Table 12: Indonesian organisations involved in the collaboration

Organisation	Organisation Type (English Translation)	Location
Kementerian Kesehatan Republik Indonesia	Ministry of Health	National
Kolegium Neurologi Indonesia	Indonesian Neurology Collegium	National
Perhimpunan Dokter Neurologi Indonesia	Indonesian Neurologist Association	National
Himpunan Perawat Neurosains Indonesia	Indonesian Neuroscience Nurses Association	National
Ikatan Fisioterapi Indonesia	Indonesian Physiotherapists Association	National
Ikatan Terapis Wicara Indonesia	Indonesian Speech and Language Therapists Association	National
Ikatan Okupasi Terapi Indonesia	Indonesian Occupational Therapists Association	National
RS Pusat Otak Nasional Prof. Dr. Mahar Mardjono (RS PON)	Hospital, National Brain Centre	Jakarta
Dinas Kesehatan Provinsi DKI Jakarta	Provincial Health Office	Jakarta
Suku Dinkes Jakarta Pusat	Local Department of Health	Jakarta
Suku Dinkes Jakarta Utara	Local Department of Health	Jakarta
Suku Dinkes Jakarta Selatan	Local Department of Health	Jakarta
Suku Dinkes Jakarta Timur	Local Department of Health	Jakarta

Suku Dinkes Jakarta Barat	Local Department of Health	Jakarta
Dinas Kesehatan Provinsi Sumatera Selatan	Health Office of Sumatera Selatan	South Sumatra
Dinas Kesehatan Kota Palembang	Health Office of Palembang	Palembang, South Sumatra
Puskesmas Johar Baru	Primary Health Centre	Jakarta
Puskesmas Penjaringan	Primary Health Centre	Jakarta
Puskesmas Mampang Prapatan	Primary Health Centre	Jakarta
Puskesmas Jatinegara	Primary Health Centre	Jakarta
Puskesmas Grogol Petamburan	Primary Health Centre	Jakarta
Puskesmas Matraman	Primary Health Centre	Jakarta
Puskesmas Merdeka	Primary Health Centre	Palembang, South Sumatra
Puskesmas Sukarami	Primary Health Centre	Palembang, South Sumatra
Puskesmas Kampus	Primary Health Centre	Palembang, South Sumatra
Puskesmas Plaju	Primary Health Centre	Palembang, South Sumatra
Puskesmas Pakjo Palembang	Primary Health Centre	Palembang, South Sumatra
RSUD Cengkareng	Hospital	Jakarta
RSUD Budhi Asih	Hospital	Jakarta
RSUD Koja	Hospital	Jakarta
RSUD Tarakan	Hospital	Jakarta
RSUD Pasar Rebo	Hospital	Jakarta
RSCM - RSUPN Dr. Cipto Mangunkusumo	Hospital	Jakarta
RSUP Persahabatan	Hospital	Jakarta
RSUD Pasar Minggu	Hospital	Jakarta
RS Mohammad Hoesin Palembang	Hospital	Palembang, South Sumatra

RSUD Siti Fatimah Provinsi Sumatera Selatan	Hospital	Palembang, South Sumatra
RSUD Palembang Bari	Hospital	Palembang, South Sumatra
RS Muhammadiyah Palembang	Hospital	Palembang, South Sumatra
RSK Charitas	Hospital	Palembang, South Sumatra
RS Siti Khodijah	Hospital	Palembang, South Sumatra
RS Dr. Rivai Abdullah, Palembang	Hospital	Palembang, South Sumatra
RSUP Fatmawati	Hospital	Palembang, South Sumatra

Table 13: Collaboration Reach- Breadth of Stakeholder Engagement



Table 14: UK organisations involved in collaboration

NHS England
St George's University Hospitals NHS Foundation Trust
University Hospitals Dorset NHS Foundation Trust
Dorset Healthcare University NHS Foundation Trust
The Westcott Group
Stroke Association
University of Central Lancashire (UCLAN)
King's College London (SSNAP)
University College London Queen Square Institute of Neurology
East Kent Hospitals University NHS Foundation Trust

References

Alimohammadi, H., Fakhri, S., Derakhshanfar, H., Hosseini-Zijoud, S.M., Safari, S. and Hatamabadi, H.R., (2016). The effects of air pollution on ischemic stroke admission rate. *Chonnam Medical Journal*, 52(1), pp.53–58.
doi:10.4068/cmj.2016.52.1.53.

Department of Health. (2007). *The National Stroke Strategy*. London: DH. Available at: https://nsnf.org.uk/assets/documents/dh_081059.pdf [Accessed 20 Oct. 2023].

e-Learning for Healthcare. (2022). *Fundamentals of Acute Care and Treatment in Stroke (FACTS)* [online]. NHS England. Available at: <https://www.stroke-education.org.uk> [Accessed 3 Jul. 2025].

Foreign, Commonwealth & Development Office. (2022). *UK-Indonesia Partnership Roadmap 2022 to 2024*. GOV.UK. Available at: <https://www.gov.uk/government/publications/uk-indonesia-partnership-roadmap-2022-to-2024/uk-indonesia-partnership-roadmap-2022-to-2024#research-and-innovation-life-sciences-health-and-education> [Accessed 3 Jul. 2025].

Intercollegiate Stroke Working Party. (2023). *National Clinical Guideline for Stroke for the UK and Ireland*. London: Royal College of Physicians. Available at: <https://www.strokeguideline.org> [Accessed 3 Jul. 2025].

IQAir. (2025). *Air quality in Indonesia*. IQAir. Available at: <https://www.iqair.com/indonesia> [Accessed 29 Jul. 2025].

Kementerian Kesehatan Republik Indonesia. (n.d.). *Transformasi Kesehatan Indonesia*. Available at: <https://kemkes.go.id/eng/layanan/transformasi-kesehatan-indonesia> [Accessed 3 Jul. 2025].

Liao, M., Zhang, S., He, C., Breitner, S., Cyrus, J., Naumann, M., Braadt, L., Traidl-Hoffmann, C., Hammel, G., Peters, A., Ertl, M. and Schneider, A., (2025). Air pollution and stroke: Short-term exposure's varying effects on stroke subtypes. *Ecotoxicology and Environmental Safety*, 298, p.118296. <https://doi.org/10.1016/j.ecoenv.2025.118296>

Ministry of Health, Republic of Indonesia (2020). *Indonesia-Inggris Sepakati Kerja Sama Pengendalian AMR*. Available at: <https://kemkes.go.id/eng/indonesia-inggris-sepakati-kerja-pengendalian-amr> [Accessed 22 Sep. 2025]

NHS Digital (2018). *Mortality from stroke*. Available at: <https://digital.nhs.uk/data-and-information/publications/clinical-indicators/compendium-of-population-health->

indicators/compendium-mortality/current/mortality-from-stroke [Accessed 18 Oct. 2023].

NHS England (2019). NHS Long Term Plan. [online] Available at: <https://www.longtermplan.nhs.uk/> [Accessed 18 Oct. 2023].

NHS England (2021). National Stroke Service Model. [online] Available at: <https://www.england.nhs.uk/wp-content/uploads/2021/05/stroke-service-model-may-2021.pdf> [Accessed 18 Oct. 2023].

SSNAP (2021). SSNAP – Home. [online] www.strokeaudit.org. Available at: <https://www.strokeaudit.org/> [Accessed 18 Oct. 2023].

UK Forum for Stroke (2010). Stroke-Specific Education Framework. [online] Available at: <https://stroke-education.org.uk/wp-content/uploads/DoH-SSEF-Report-and-User-Manual.pdf> [Accessed 18 Oct. 2023].

Wiasa, I.N.D. (2022). Jaminan Kesehatan Nasional yang Berkeadilan Menuju Kesejahteraan Sosial. CV. Feniks Muda Sejahtera. Available at: <https://kms.kemkes.go.id/contents/1716218475876-BukuJaminanKesehatanNasionalNyomanDharmaWiasa.pdf> [Accessed 3 Jul. 2025].

World Health Organization (2016). Global Strategy on Human Resources for Health: Workforce 2030. [online] Available at: <https://iris.who.int/bitstream/handle/10665/250368/9789241511131-eng.pdf?sequence=1> [Accessed 20 Oct. 2023].

World Health Organization (2023). What Can Intersectoral Governance Do to Strengthen the Health and Care Workforce? Structures and Mechanisms to Improve the Education, Employment and Retention of Health and Care Workers. Policy Brief 53. [online] Available at: <https://iris.who.int/bitstream/handle/10665/366651/Policy-brief-53-1997-8073-eng.pdf?sequence=5> [Accessed 19 Dec. 2023].

World Health Organization (2024). Global Adult Tobacco Survey: Indonesia Report 2021. Available at: <https://www.who.int/indonesia/news/detail/22-08-2024-ministry-of-health-and-who-release-global-adult-tobacco-survey-indonesia-report-2021> [Accessed 3 Jul. 2025].

World Health Organization (2024). Global Health Estimates: Leading Causes of Death. Available at: <https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death> [Accessed 3 Jul. 2025].