ICHOM
International Consortium for
Health Outcomes Measurement

BDMS Case Study

Enhancing Stroke Care Quality and Outcomes Through ICHOM Sets Implementation in Bangkok Hospital Pattaya

There is a Wide Value Crisis in World's Healthcare

Spending keeps going up, while outcomes and clinical practice continue to vary significantly

In the developed world in last 25 years healthcare costs have gone up by 1/3[1] reaching 12% GDP…

…However, life expectancy gain has no clear link to cost once the minimum threshold is reached, with 8x cost difference for same level [2]

Probable cause - healthcare systems don't learn what works, resulting in huge variation in outcomes (x3) and practice (x10)
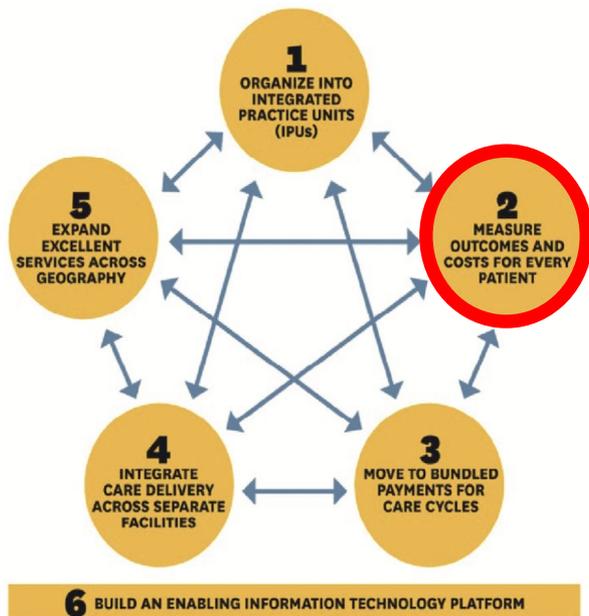
True extent of inequity in healthcare for specific conditions is impossible to ascertain
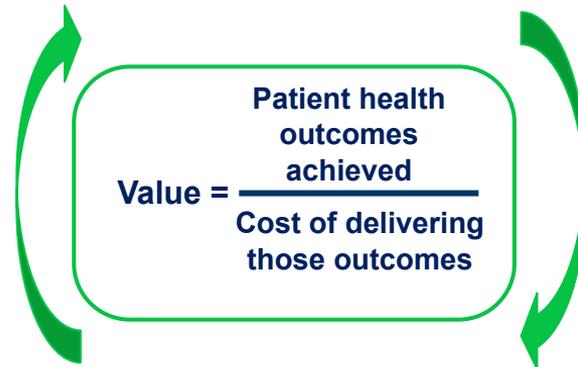
Outcomes are the Powerful Lever to Unlock a Value-based Healthcare System

ICHOM

1 ORGANIZE INTO INTEGRATED PRACTICE UNITS (IPUs)

2 MEASURE OUTCOMES AND COSTS FOR EVERY PATIENT

3 MOVE TO BUNDLED PAYMENTS FOR CARE CYCLES

4 INTEGRATE CARE DELIVERY ACROSS SEPARATE FACILITIES

5 EXPAND EXCELLENT SERVICES ACROSS GEOGRAPHY

6 BUILD AN ENABLING INFORMATION TECHNOLOGY PLATFORM

Source: "The Strategy That Will Fix Health Care" (Porter and Lee 2013)

$$Value = \frac{Patient\ health\ outcomes\ achieved}{Cost\ of\ delivering\ those\ outcomes}$$

What is often measured vs what matters to patients

Health system

Process of care some clinical outcomes

- Survival
- Test and procedures
- Medicine prescribed

Patients

"Getting back to a normal joyful life"

- Caring for myself independently
- Being pain free
- Going back to work

To align health systems with patient's values we need to regularly gather patient feedback on what outcomes are most important to their quality of life; include metrics in healthcare evaluations that reflect patient-centered outcome.

Executive Summary

Organization: Bangkok Dusit Medical Services

Challenge: Clinician-Centric Focus; Lack of Long-Term Tracking; Data Fragmentation; Operational Variability

Intervention: Standardized Care Pathways with the ICHOM Stroke Set

- Established the Stroke Nurse Coordinator role to lead outcome measurement and ensure continuity of care post-discharge

- Implemented a structured, nurse-led follow-up and data-driven quality improvement protocols

Impact: Transitioned to a patient-centered model

- Faster access to life-saving treatment

- PROMs matter and patient quality of life improved

- Safe care and sustained survival

- Cost and efficiency gains

Each ICHOM Measure Set are Created Using 5 Key Components

Component	Description	Stroke Example
Case-mix variables	Factors that will affect outcomes, but which cannot be controlled as part of management of the condition (to build patient profile and risk-adjustment models)	Demographic (age, sex, ethnicity); Baseline health (pre-morbid functional status, comorbidities); Stroke type and severity; Lifestyle (smoking and alcohol use).
Outcomes	Represent the true success in managing the specified medical condition	Survival and disease control (mortality, recurrence of stroke); Acute complications (from treatment); Patient-reported health status (physical, mental/social).
Data sources	Comprises administrative, clinician-reported and/or patient-reported data	Administrative; Clinical/Provider records; Patient-reported.
Validated measurement tools	Validated instruments that are used to measure the outcomes and case-mix variables (for patient reported outcome measures – PROMs)	Simplified modified Rankin Scale questionnaire (smRSq); PROMIS-10; EQ-5D.
Time points	Specified time points for data collection	Baseline (case-mix variables, stroke severity, pre-stroke functional status); 7 days (acute complications, survival, initial functional status); 90 Days (mood, social participation, quality of life); Annual (survival, recurrence, overall health status).

ICHOM Overview

Organization & Stroke Set Implementation

What Changed: Outcomes and Impact
- Process Measures
- Patient-Reported Outcome Measures
- Clinical-Reported Outcome Measures

Cost and Efficiency Gains

What We Learned Along the Way
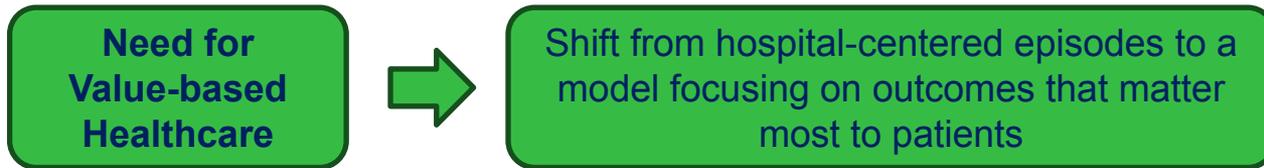
Where We're Going Next?

Why Was Change Needed?

Clinician-Centric Focus: Outcome assessments were primarily conducted by medical teams to monitor acute treatment response, with limited input from the patient's own perspective

Lack of Long-Term Tracking : There were no standardized mechanisms to systematically track functional recovery, quality of life or patient experience after the immediate acute phase

Data Fragmentation: The absence of a unified framework for PROMs led to inconsistent data collection and a limited ability to benchmark performance across the network

Operational Variability: Workforce limitations and the lack of defined roles for follow-up coordination resulted in inconsistent post-discharge monitoring across different hospitals

Need for Value-based Healthcare → Shift from hospital-centered episodes to a model focusing on outcomes that matter most to patients

ICHOM

Bangkok Hospital Pattaya
Implementing the ICHOM Stroke Set

Location: Thailand, Chonburi Province

Type of organization: Private Hospital with 300 beds (the only private tertiary hospital in Thailand's eastern region)

Number of stroke patients admitted in 2025: 375 patients

Number of patients enrolled in the ICHOM program: 85 patients

Stroke set adoption: 2022

Accreditation: ICHOM Level 2 Certified (Dec 2025)

Clinical Services:
- Acute stroke management and emergency care
- Stroke rehabilitation and recovery programs
- Stroke prevention education and lifestyle coaching
- Neurovascular imaging and diagnostics
- Remote monitoring and management

ICHOM Fragmented to Standardized Stroke Care Pathway

Before
Fragmented & Episodic Care

→

Clinician-Centric Focus
Lack of Long-Term Tracking
Data Fragmentation
Operational Variability

After
Standardized & Value-Based Pathway

→

Patient Journey
- Patient-centered model that emphasizes outcomes that matter most to patients across the full care continuum

Stroke Nurse Coordinator
- Role created to operationalize outcome measurement, ensure continuity beyond discharge, and inform clinical decisions with patient data

ICHOM Stroke Set
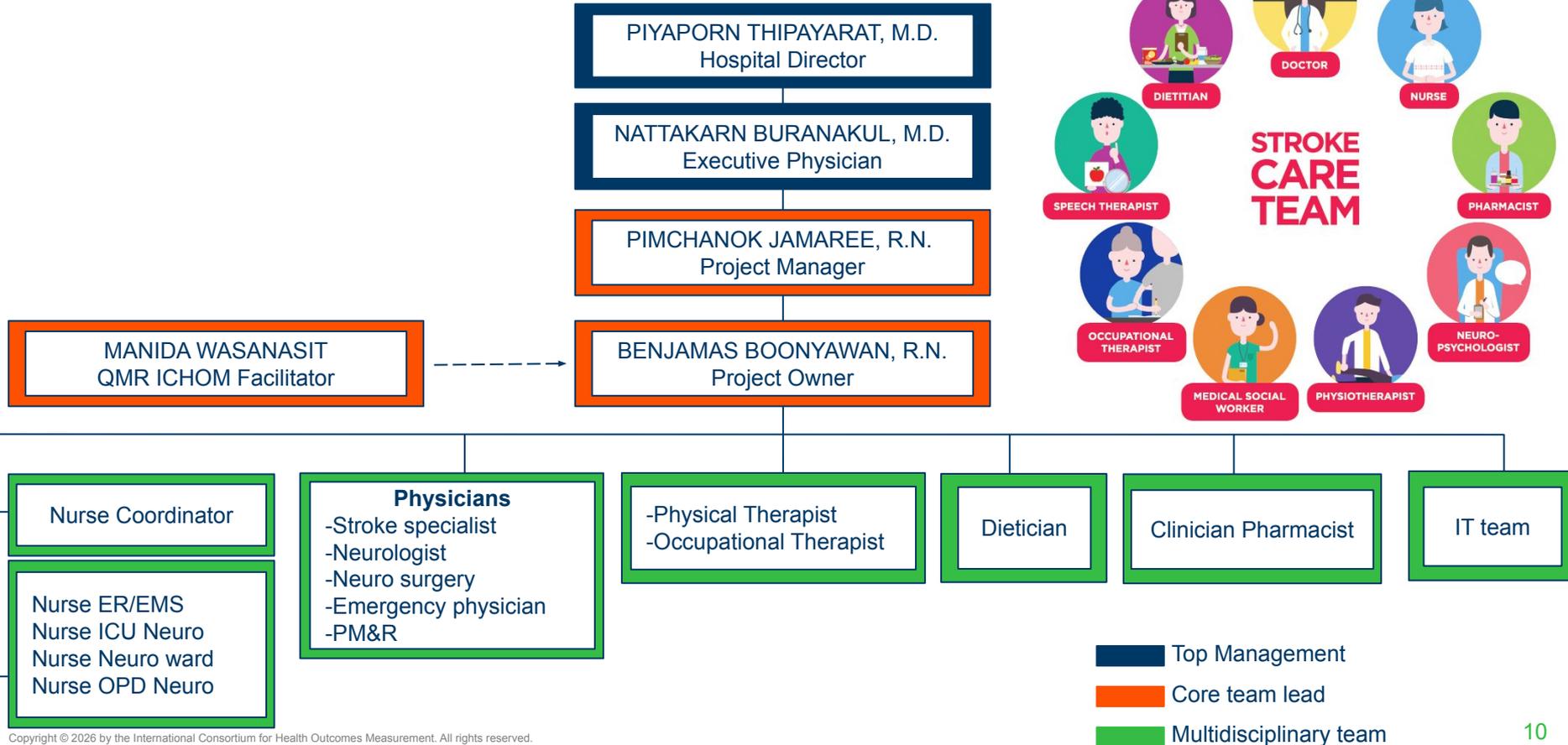- Process, Clinical and Patient-reported Outcome Measures

Unified Time-Critical Protocol
- Standardized "Fast Track" milestones, such as Door to Needle time < 60 mins applied across all network

Continuous Improvement Cycle
- Standardized data collection enables a "value-based improvement cycle" (monitoring, evaluating, feedback, and refining) to reduce care variation

ICHOM Stroke Set Implementation Team

PIYAPORN THIPAYARAT, M.D.
Hospital Director

NATTAKARN BURANAKUL, M.D.
Executive Physician

PIMCHANOK JAMAREE, R.N.
Project Manager

MANIDA WASANASIT
QMR ICHOM Facilitator

BENJAMAS BOONYAWAN, R.N.
Project Owner

STROKE CARE TEAM

DIETITIAN — DOCTOR — NURSE — SPEECH THERAPIST — PHARMACIST — OCCUPATIONAL THERAPIST — NEURO-PSYCHOLOGIST — MEDICAL SOCIAL WORKER — PHYSIOTHERAPIST

Nurse Coordinator

Nurse ER/EMS
Nurse ICU Neuro
Nurse Neuro ward
Nurse OPD Neuro

Physicians
-Stroke specialist
-Neurologist
-Neuro surgery
-Emergency physician
-PM&R

-Physical Therapist
-Occupational Therapist

Dietician

Clinician Pharmacist

IT team

Legend:
- Top Management
- Core team lead
- Multidisciplinary team

10

Milestones in Stroke Care following the 2022 ICHOM Set Implementation

2022

1

Comply COE Stroke Criteria for 10 years

Effective referral for Mechanical Thrombectomy (to reduce time for improved service delivery)

2022

2

Primary stroke prevention (to increase timely arrival at the hospital)

ICHOM Set Implementation

2023

3

Staff training in Stroke Pathway workflow

2024

4

Development of a standardized Post Stroke Care Program

2024

5

Development of educational simulation tools for stroke care (to enable family members to practice caregiving skills)

2024

6

Establishment of a communication channel between patients and the care team via the Line Official Account

2025

7

Development of a standardized Stroke Follow-up Protocol

ICHOM Changes in Data Collection

Paper

Application

ICHOM STROKE
BANGKOK HOSPITAL PATTAYA

Overview
Patient
Follow Up
Search

REPORTS & ANALYSIS

Report Summary
Report Status
Demographic Factors
Stroke Type and Severity
Stroke Risk Factor
Treatment and Care Related
Patient Report Outcome
PROMIS Global-10
EQ-5D
smRSq

DATA EXPORT

Export Excel
Export Excel for SPSS

Dashboard   Patient

BENJAMAS BO [Admin]

Overview

From date   To date   Search

| 300 | 1112 | 0 | 80 |
| Total Patients | Total Chart Complete | Follow Up Charts | Track Time Exceeded |

ICHOM Questionnaires in the ICHOM Application

At Baseline

Baseline Date
2022-08-15

Demographic Factors

The patient's gender identity
เพศสภาพของผู้ป่วย
Boy/Man [ผู้ชาย]

The biological race of the person
เชื้อชาติ
Belgium

Where were you living prior to your stroke or transient ischaemic attack (TIA)?
ผู้ป่วยอาศัยอยู่ที่ไหนก่อนเกิดโรคหลอดเลือดสมองหรือภาวะขาดเลือดชั่วคราว
At home with community support [ที่บ้านโดยมีการสนับสนุนจากชุมชน]

Did you live alone prior to your stroke or transient ischaemic attack (TIA)?
ผู้ป่วยอาศัยอยู่คนเดียวก่อนเกิดโรคหลอดเลือดสมองหรือขาดเลือดชั่วคราว (TIA) หรือไม่?

At 7 day or D/C date

7 Days or Discharge
2022-08-16

Treatment / Care Related

Date of discharge from acute care hospital
2022-08-16

Did the acute inpatient care include dedicated stroke rehabilitation?
○ No   ● Yes   ○ Unknown

Did the post-acute care include dedicated stroke rehabilitation?
○ No   ● Yes   ○ Unknown

What type of place was the patient discharged to?
Home or community dwelling (not home hospi

At 90 days

90D Date
2023-09-21

Demographic Factors

Where are you living now?
At home with community support

Do you live alone now?
No, I shared my household with spouse/partner or other person (

Treatment Variables

Indicate if the person has deceased, regardless of cause
ผู้ป่วยเสียชีวิตหรือไม่
● No [ไม่ใช่]   ○ Yes [ใช่]   ○ Unknown [ไม่ทราบ]   The date of death of the person

At 1 year

1 Year Date
2024-06-30

Treatment Variables

Indicate if the person has deceased, regardless of cause
ผู้ป่วยเสียชีวิตหรือไม่
● No [ไม่ใช่]   ○ Yes [ใช่]   ○ Unknown [ไม่ทราบ]   The date of death of the person

ICHOM Delivery Value Chain of Stroke Care

UP STREAM → **DOWN STREAM**

Treatment

Prevention & Screening (Early Detection)	Medical Management (Early treatment)	Pre - Stroke Management		Acute care/Post treatment	Rehabilitation/ Recovery	Surveillance
▪ **ASCVD screening in Neuro center ▪ Public & Community awareness ▪ Primary stroke prevention protocol	▪ Criteria consultation ▪ Advise primary care on accurate annual check up ▪ Investigation & Treatment protocol ▪ ASCVD Risk information ▪ Create a personalized lifestyle modification plan	▪ Self report / Risk monitoring ▪ Online channel consult monitoring ▪ Call alert mobile stroke	*rtPA Mechanical Thrombectomy rtPA + Mechanical Thrombectomy Medication Therapy Surgery	▪ Ensure standard of care & treatment ▪ Identify stroke risk factor, bundle with cardiologist & primary doctor ▪ Integrated multidisciplinary post-treatment team to optimize hospital stay ▪ Early mobilization management	▪ Multidisciplinary care delivery ▪ Post stroke care protocol ▪ Stroke clinic program ▪ Telemedicine for follow-up ▪ Assessment for cognitive function, physical function and emotional status	▪ Individual lifestyle modification ▪ 1 year surveillance protocol ▪ 5 years surveillance protocol ▪ Stroke personal outcome report application

14

*rtPA = Recombinant Tissue Plasminogen Activator
**ASCVD = Atherosclerotic Cardiovascular Disease

Pre-Hospital Stroke Management
Stroke Awareness and Public Education Campaign

ICHOM

Community Stroke Education

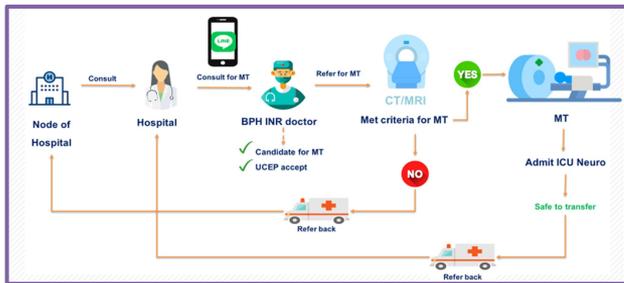
Public Education: Online/Offline

Free Ambulance Service

Pre-hospital Stroke Management
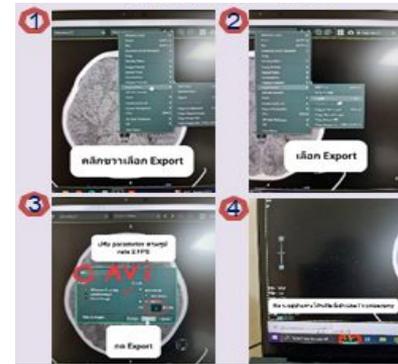## Effective Network & Referral System (Mechanical Thrombectomy)

1. Create Workflow referral for Mechanical Thrombectomy

2. Mechanical Thrombectomy Performance Meeting every 6 months

Set collaborative time-based performance indicators for patient transfer

- Reduce the average time from consultation to dispatching
- Rate of Consult-dispatching within 60 min

3. Set up Protocol for Video Imaging
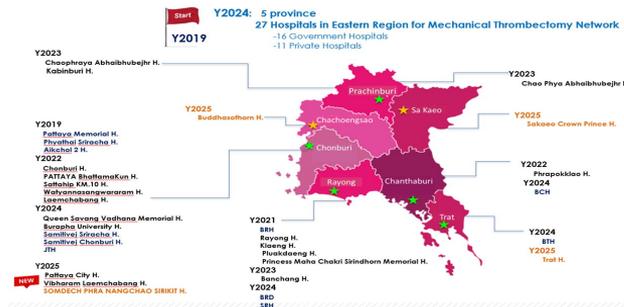
ICHOM Effective Discharge Planning Program

1. Apply the DMETHOD and IDEAL Frameworks to Discharge Planning
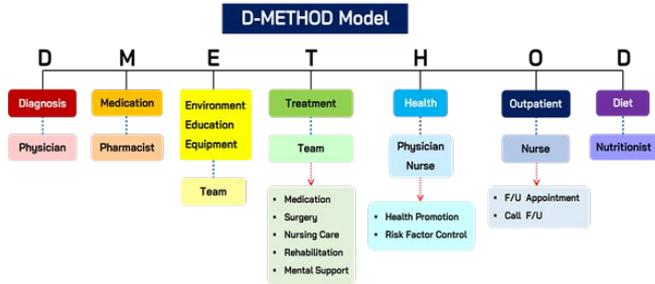
2. Organize Multidisciplinary Discharge Planning activities

3. Develop a Standardized Post-Stroke Care Program

4. Set up a Post-Stroke Rehabilitation Program

5. Develop Educational Simulation Tools

Staff Training and Education Program
PROMs Data Collection

Emergency Room
Implement for:
- Complete Clinical data collecting as criteria
- Baseline data

Intensive Care Unit Neuro
Implement for:
- Stroke patient inclusion criteria and Algorithm timeline (Baseline, Discharge or 7 days)
- Training of PROMs Questionnaire
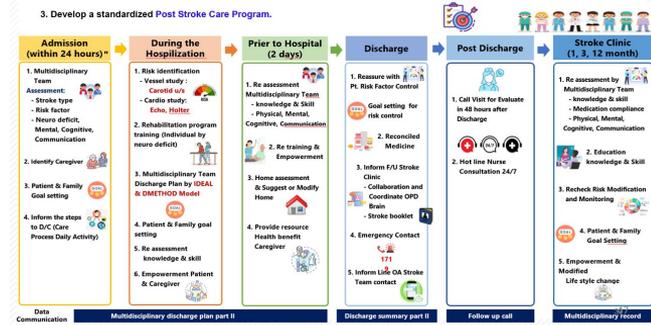- Discharge process for Appointment related to algorithm

Ward 9 E
Implement for:
- Stroke patient inclusion criteria and Algorithm timeline (Baseline, Discharge or 7 days)
- Training of PROMs Questionnaire
- Discharge process for Appointment related to algorithm

Outpatient Department Neuro
Implement for:
- Stroke patient inclusion criteria and Algorithm timeline (90 days, annually for 5 years)
- Training of PROMs Questionnaire

ICHOM Overview

Organization & Stroke Set Implementation

What Changed: Outcomes and Impact
   - Process Measures
   - Patient-Reported Outcome Measures
   - Clinical-Reported Outcome Measures

Cost and Efficiency Gains

What We Learned Along the Way

Where We're Going Next?

Improvement in Rate of Patient Arrival to Hospital Within 4.5hrs

ICHOM

Pre ICHOM Stroke Set Implementation | Post ICHOM Stroke Set Implementation

Faster Access to Life Saving Treatment

Year	Rate
2019	
2020	
2021	38%
2022	45%
2023	55%
2024	55%
2025	52%
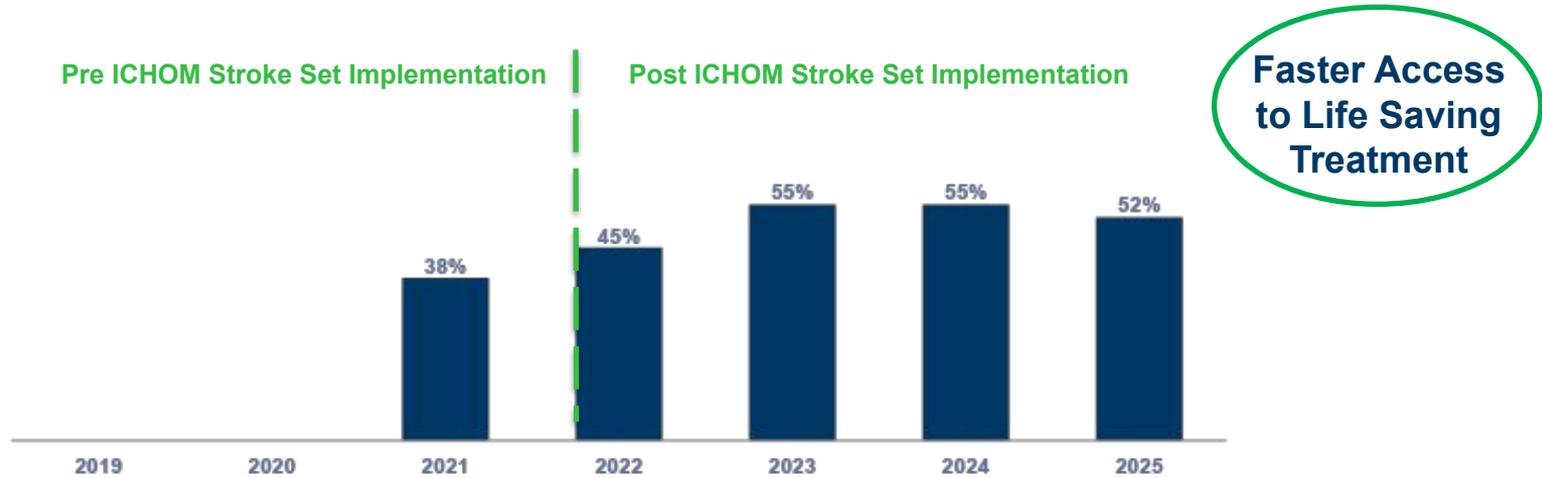
Key Takeaways

Since the implementation of the ICHOM Stroke Set, the metric has seen a significant and consistent increase, rising from 38% in 2021 to 60% in 2025

There was a notable "jump" immediately following implementation, with the most significant growth occurring between 2022 and 2023, where performance climbed by 10%

The transition from "NA" in 2019–2020 to consistent reporting suggests that the ICHOM framework not only improved outcomes but also successfully established a standardized tracking system that didn't exist previously

20

The target established by BDMS for the rate of Patient Arrival to Hospital Within 4.5hrs is ≥ 50%

Improvement in Rate of Door to Needle Time Within 60 Minutes

ICHOM

Pre ICHOM Stroke Set Implementation

Post ICHOM Stroke Set Implementation

Faster Access to Life Saving Treatment

ACHC	2019	2020	2021	2022	2023	2024	2025
55%	75%	50%	58%	76%	82%	85%	64%
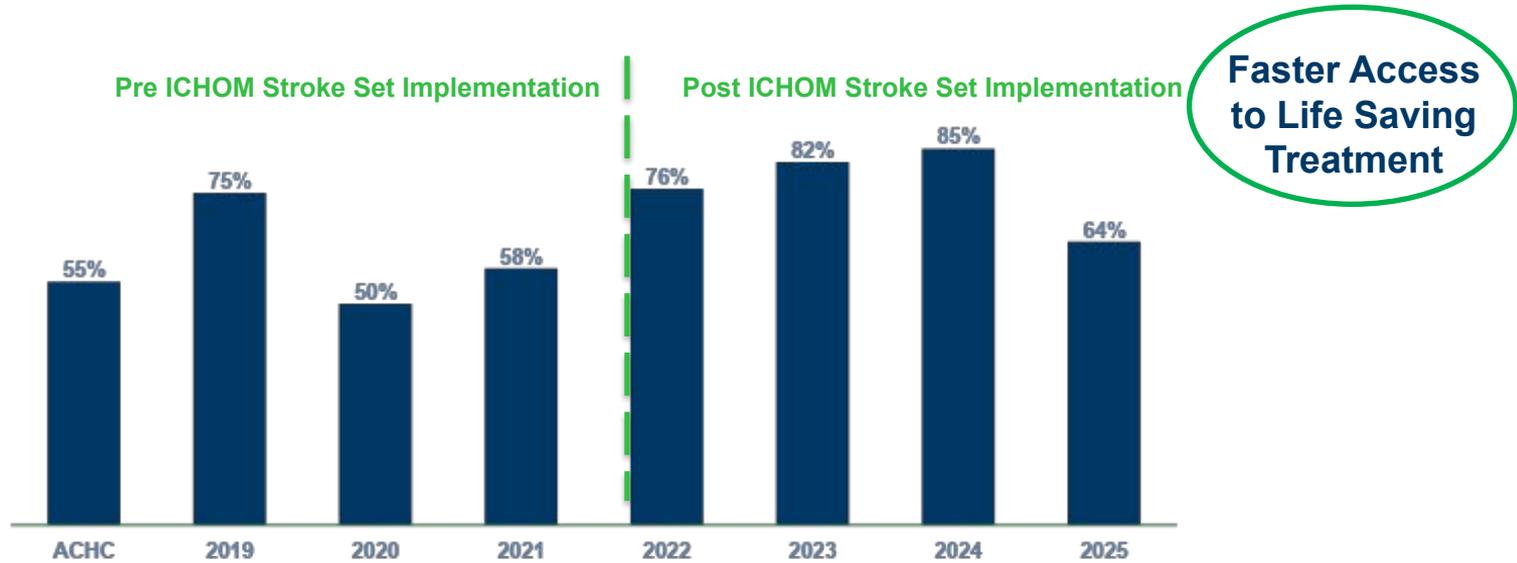
Key Takeaways

Upward trend immediately following the implementation in 2022, peaking in 2024 (85%)

However, the partial data for 2025 shows a significant dip to 64%, largely due to clinical complexities and process delays. Key factors included patient instability requiring urgent resuscitation, diagnostic uncertainty regarding symptom onset, and administrative delays involving family decisions. Additionally, laboratory errors required repeat testing (issue currently being addressed through nursing staff retraining).

The target established by BDMS for the rate of door to needle time within 60 minutes is ≥ 60%

ACHC: Accreditation Commission for Health Care

ICHOM Improvement in Rate of Door to Puncture Within 120 Minutes

Pre ICHOM Stroke Set Implementation | **Post ICHOM Stroke Set Implementation**

Faster Access to Life Saving Treatment

Bar chart values:
- 2019: 40%
- 2020: 63%
- 2021: 28%
- 2022: 61%
- 2023: 95%
- 2024: 90%
- 2025: 89%

Key Takeaways

There was a significant jump from 2021 (28% - COVID-19) to 2022 (61%) after the implementation of the ICHOM Stroke Set

The highest performance peaked in 2023 at 95%. Subsequent declines were from external factors like family decision-making and emergency resuscitations, plus internal factors such as nursing competency gaps in Interventional Neuroradiologist (INR) consultations. Consequently, the team is now targeting these gaps by re-implementing specific INR consultation criteria to improve future performance

While there has been a slight downward trend from the 2023 peak, the 2025 year-to-date figure (89%) remains substantially higher than any year in the pre-Implementation phase

The target established by BDMS for the rate of door to puncture within 120 minutes is ≥ 80%

ICHOM Overview

Organization & Stroke Set Implementation
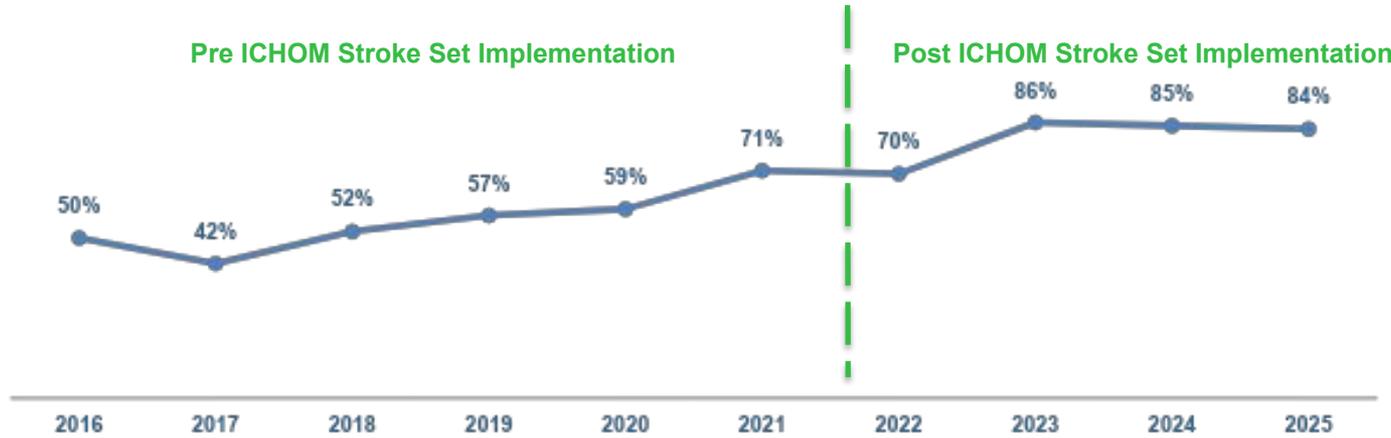
What Changed: Outcomes and Impact
- Process Measures
- **Patient-Reported Outcome Measures**
- Clinical-Reported Outcome Measures

Cost and Efficiency Gains

What We Learned Along the Way

Where We're Going Next?

Improvement in Percentage of Stroke Patients Achieving Functional Independence at 90 Days

ICHOM

There is a performance boost following the introduction of the ICHOM Stroke Set:

- Prior to 2022, the average success rate was approximately 55%
- After the 2022 implementation, the average jumped to approximately 81%, suggesting performance gaps were closed and a new, higher standard of care was established
- Post-implementation period shows much higher stability, suggesting that standardizing outcomes helped reduce clinical variability, ensuring that high-quality results are more predictable and repeatable year-over-year

The percentages relate to patients with a NIH Stroke Scale (NIHSS) ≥ 6 (moderate to severe stroke) that had a Modified Rankin Scale (mRs) result of 0-2 (functional independence)

24

Quality of Life Measured by the EQ-5D tool

Aug 2022-Jul 2023

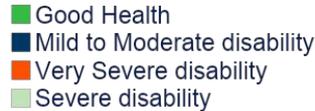90 Day post admission (n=92): Good Health 82%, Mild to Moderate disability 8%, Very Severe disability 10%
Baseline* (n=94): Good Health 51%, Mild to Moderate disability 22%, Very Severe disability 27%

- Good Health
- Mild to Moderate disability
- Very Severe disability
- Severe disability

Aug 2023- Jul 2024

90 Day post admission (n=67): Good Health 91%, Mild to Moderate disability 6%, Very Severe disability 3%
Baseline* (n=71): Good Health 43%, Mild to Moderate disability 30%, Very Severe disability 25%

- Good Health
- Mild to Moderate disability
- Very Severe disability
- Severe disability

Aug 2024-Jul 2025

90 Day post admission (n=83): Good Health 95%, Mild to Moderate disability 2%, Very Severe disability 2%
Baseline* (n=91): Good Health 60%, Mild to Moderate disability 27%, Very Severe disability 13%

- Good Health
- Mild to Moderate disability
- Very Severe disability
- Severe disability

16% Improvement in Quality of Life at 90 days Post-Stroke
(82% in 2022 to 95% in 2025)

ICHOM Stroke Set was introduced in August 2022

*Baseline=Discharge or 7 day post admission

Physical Scores Measured by the PROMIS Global Health tool - Functional Status

Aug 2022- Jul 2023

- T score ≥60 (Good Health)
- T score <60

90 Day post admission (n=92): 47% / 53%

Baseline* (n=94): 7% / 93%

Aug 2023 – Jul 2024

- T score ≥60 (Good Health)
- T score <60

90 Day post admission (n=67): 63% / 37%

Baseline* (n=71): 8% / 92%

Aug 2024-Jul 2025

- T score ≥60 (Good Health)
- T score <60

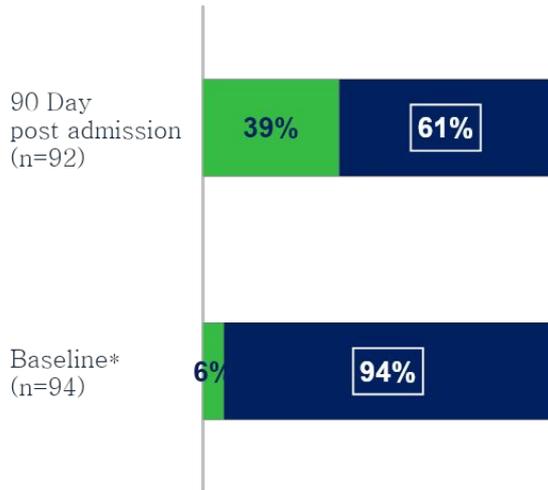90 Day post admission (n=83): 86% / 14%

Baseline* (n=91): 16% / 84%

83% Improvement in Good Physical Health at 90 days Post-Stroke
(47% in 2022 to 86% in 2025)

ICHOM Stroke Set was introduced in August 2022

*Baseline=Discharge or 7 day post admission

Mental Health Scores Measured by the PROMIS Global Health tool - Functional Status

ICHOM

Aug 2022-Jul 2023

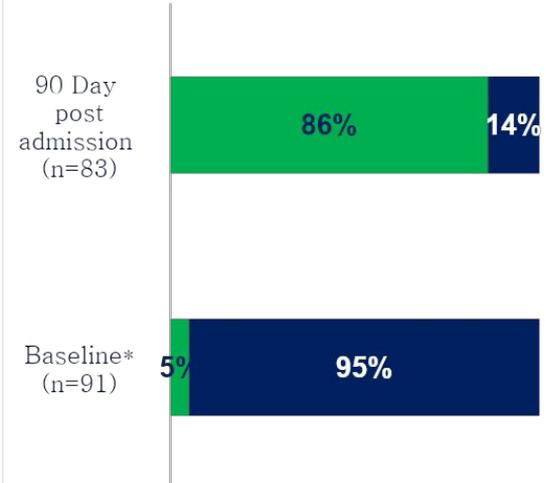- ■ T score ≥60 ◉(Good Health) ■ T score <60

90 Day post admission (n=92)
- 39% | 61%

Baseline* (n=94)
- 6% | 94%

Aug 2023-Jul 2024

- ■ T score ≥60 ◉(Good Health)
- ■ T score <60

90 Day post admission (n=67)
- 63% | 37%

Baseline* (n=71)
- 8% | 92%

Aug 2024-Jul 2025

- ■ T score ≥60 ◉(Good Health)
- ■ T score <60

90 Day post admission (n=83)
- 86% | 14%

Baseline* (n=91)
- 5% | 95%

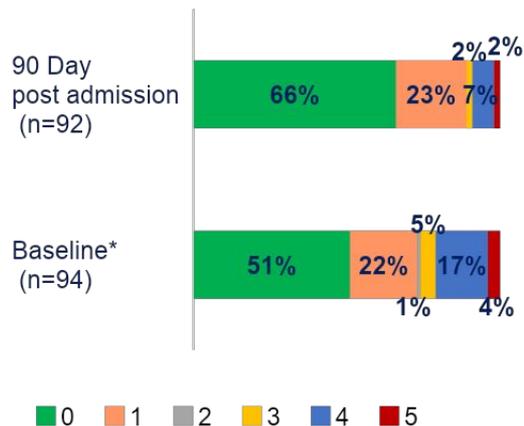**121% Improvement in Good Mental Health at 90 days Post-Stroke**
(39% in 2022 to 86% in 2025)

ICHOM Stroke Set was introduced in August 2022

*Baseline=Discharge or 7 day post admission

Independence Measured by the Simplified Modified Rankin Scale Questionnaire (recommended by the Set)

Aug 2022-Jul 2023

90 Day post admission (n=92)
- 0: 66%
- 1: 23%
- 3: 7%
- 4: 2%
- 5: 2%

Baseline* (n=94)
- 0: 51%
- 1: 22%
- 3: 5%
- 3: 1%
- 4: 17%
- 5: 4%

Legend: ■ 0 ■ 1 ■ 2 ■ 3 ■ 4 ■ 5

Aug 2023-Jul 2024

90 Day post admission (n=67)
- 0: 79%
- 2: 12%
- 4: 4%
- 5: 4%

Baseline* (n=71)
- 0: 49%
- 2: 23%
- 3: 1%
- 4: 7%
- 4: 1%
- 5: 18%

Legend: ■ 0 ■ 1 ■ 2 ■ 3 ■ 4 ■ 5

Aug 2024-Jul 2025

90 Day post admission (n=83)
- 0: 93%
- 2%
- 2%
- 2%

Baseline* (n=91)
- 0: 70%
- 1: 4%
- 2: 3%
- 3: 1%
- 4%
- 5: 17%

Legend: ■ 0 ■ 1 ■ 2 ■ 3 ■ 4 ■ 5
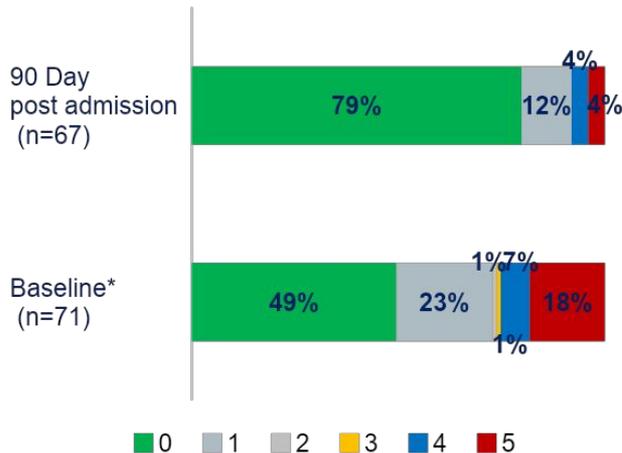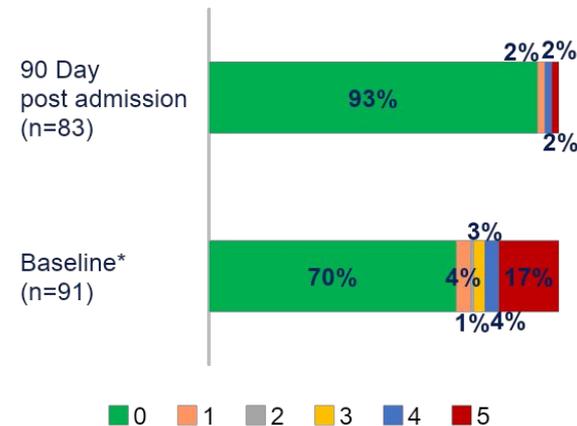
🏃 ■ o = No symptoms at all

🚶 ■ 1 = No significant disability despite symptoms; able to carry out all usual duties and activities

🧍 ■ 2 = Slight disability; unable to carry out all previous activities but able to look after own affairs without assistance

🧑‍🦯 ■ 3 = Moderate disability ; requiring some help, but able to walk without assistance

🧑‍🦼 ■ 4 = Moderately severe disability; unable to walk without assistance and unable to attend to own bodily needs without assistance

🛌 ■ 5 = Severe disability; bedridden, incontinent and requiring constant nursing care and attention

ICHOM Stroke Set was introduced in August 2022

41% Improvement in Independence (SmRS 0-2) at 90 days Post-Stroke (66% in 2022 to 93% in 2025)

*Baseline=Discharge or 7 day post admission

ICHOM Overview

Organization & Stroke Set Implementation

What Changed: Outcomes and Impact
- Process Measures
- Patient-Reported Outcome Measures
- **Clinical-Reported Outcome Measures**

Cost and Efficiency Gains

What We Learned Along the Way

Where We're Going Next?

ICHOM Safe Care and Sustained Survival

Clinical-reported Outcomes

Measures (CROMs)

Results

Acute Complication	**Overall Rate of Hemorrhage Stroke** (Post rt-PA, MT)	**93% reduction in in-hospital symptomatic bleeding** (8% in 2022 to 0.5% in 2025)
Post Stroke Complication	**Stroke Complication** (Aspiration pneumonia, bedsore, DVT, fall)	**0.3% reduction in in-hospital stroke complications** (0.8% in 2022 and 0.5% in 2025)
Survival	**Vital Status** (1 year stroke free)	**99% 1-year survival rate in 2025** (vs 98% in 2022) **99% stroke-free at 1 year in 2025** (vs 98% in 2022)

ICHOM Overview

Organization & Stroke Set Implementation

What Changed: Outcomes and Impact
- Process Measures
- Patient-Reported Outcome Measures
- Clinical-Reported Outcome Measures

Cost and Efficiency Gains

What We Learned Along the Way

Where We're Going Next?

Indirect and Direct Costs Associated with the ICHOM Stroke Set Implementation

Indirect costs	Direct costs
• **Nursing and front desk average 30 min/case: additional required for all the extra direct data collection from front desk to nursing as volume of patients increases** • **Physicians: increased time slots by 15 – 20 minutes/case (existing versus new patients) to allow for data collection and review, including ICHOM data** • **Purchase of a telephone to support follow-up calls and evaluations, requiring approximately 10 minutes per case** • **Cost of indirect staffing for data reporting and analysis of ICHOM standards ongoing and prepare for Stroke team monthly meeting (5 hours/month)**	• **Initial investment of THB 200,000 (USD 5,714) for the electronic ICHOM Stroke Registry, to support required upgrades to IT systems and reporting capabilities** • **Translated CROM and PROM Tools = 9,202 THB (263 US$)** • **ICHOM Certification 37,500 US$/Y (4 sets included: ACS, HF, Stroke, DM)**

Cost Benefits through Reduced Cost per Admission and Length-of-Stay

Following the ICHOM Stroke Set Implementation

Reduction of cost per recurrent stroke admission

Cost per recurrent stroke admission in 2022 was **932 USD** vs **654 USD** in 2025

Reduction of length-of-stay per stroke case resulted in cost reduction

Length-of-Stay in 2022 was **6.8 days** per case vs **5.6 days** per case in 2025

At a cost of 345 USD per day, the cost in 2022 was **2346 USD per case** vs **1932 USD per case** in 2025

ICHOM Overview

Organization & Stroke Set Implementation

What Changed: Outcomes and Impact
- Process Measures
- Patient-Reported Outcome Measures
- Clinical-Reported Outcome Measures

Cost and Efficiency Gains

What We Learned Along the Way

Where We're Going Next?

Organizational / Patient Barriers and Solutions after Implementing the ICHOM Stroke Set

ICHOM

Barriers

The shift from acute inpatient care to 12-month follow-up creates a "capacity strain". Existing nursing workflows often lack the dedicated time and role clarity needed to manage long-term data collection alongside immediate clinical demands

High clinical demand and limited specialized personnel lead to the de-prioritization of data collection, resulting in delayed follow-ups and incomplete datasets.
This ultimately undermines the ability to accurately benchmark clinical outcomes across the network

Post-stroke cognitive impairment and heightened emotional stress, combined with rising concerns regarding telephone security and fraudulent communications, create significant behavioral resistance to follow-up participation (PROM collection).
It is necessary to continue building patient-relationships and have clear pre-discharge guidance

Solutions

Review follow up workflow and team assignments

Mandatory warning system when collecting data

Protocol to inform patient before enroll program (to increase patient participation)

Key Learnings on Indicator-based Governance, Survey Sensitivity and Systemic Efficiency

Sustained VBHC adoption requires shifting leadership focus from "volume-based" management to "indicator-based" clinical accountability

Evidence - By integrating ICHOM quality indicators into the core management process, leadership successfully moved the interdisciplinary team toward a culture of continuous improvement

Improving patient outcomes is primarily achieved by removing administrative and physical bottlenecks between symptom onset and intervention

Evidence - Adjusting the engagement model to account for ethnic and linguistic diversity reduced measurement error and improved response rates for PROMs
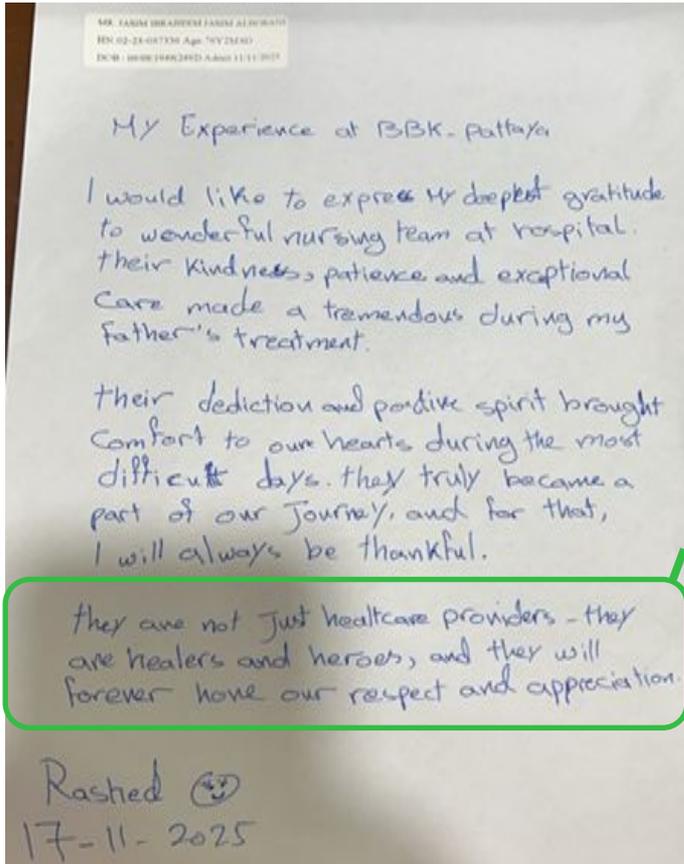
Scalable healthcare requires an IT infrastructure that automates data collection, preventing "administrative bloat" as patient volume grows

Evidence - Utilizing EMR for automated data loops reduced the manual labor costs and material resources

VBHC data is only as accurate as the patient's ability to understand it. "One-size-fits-all" surveys lead to skewed results

Evidence - By streamlining the Stroke Fast Track and expanding Mechanical Thrombectomy access there were shorter door-to-needle intervals, which directly resulted in higher functional recovery scores

My Experience at BBK. Pattaya

I would like to express My deepest gratitude to wonderful nursing team at hospital. their kindness, patience and exceptional care made a tremendous during my father's treatment.

their dedication and positive spirit brought comfort to our hearts during the most difficult days. they truly became a part of our journey, and for that, I will always be thankful.

they are not Just healthcare providers - they are healers and heroes, and they will forever home our respect and appreciation.

Rashed
17-11-2025

"They are not just healthcare providers - they are healers and heroes, and they will forever home our respect and appreciation"

ICHOM Overview

Organization & Stroke Set Implementation

What Changed: Outcomes and Impact
  - Process Measures
  - Patient-Reported Outcome Measures
  - Clinical-Reported Outcome Measures

Cost and Efficiency Gains

What We Learned Along the Way

Where We're Going Next?

Roadmap for Growth through Workflow Optimization, Cross-Disciplinary Expansion, and Accreditation Focus

Select and standardize ICHOM-aligned PROMs within the clinical workflow to capture real-time physical and mental health data for personalized care adjustments

Develop and deploy clinical pathways for other neurological disease groups across the BDMS network

Formalize the application for ICHOM in Parkinson's Disease and Dementia sets by completing the required clinical audits and data benchmarks for 2026

ICHOM
WEBINARS

Find out more about our Set of

Patient-Centered Outcome

Measures for Stroke