3rd Fragility Fracture Network Asia Pacific Regional Congress
21st Thai Osteoporosis Foundation Annual Conference

# FFNAP 2026

3rd - 5th September 2026 | Nikko Bangkok Hotel, Thailand

# Abstract Book

# Welcome Message
## from the President of TOPF

***Prof. Aasis Unnanuntana, MD, MSc***
*President of Thai Osteoporosis Foundation (TOPF)*
*Organizing Co-Chair of the FFNAP & TOPF Meeting 2026*

Distinguished delegates,

It is a great pleasure to welcome you to the Combined Fragility Fracture Asia Pacific and Thai Osteoporosis Foundation Meeting 2026, held here in Bangkok. This joint meeting brings together colleagues from across the Asia-Pacific region who share a common commitment to improving the care and long-term outcomes of individuals living with osteoporosis and fragility fractures.

The burden of osteoporosis continues to rise throughout the Asia-Pacific, and the growing number of older adults at risk of fractures presents increasing challenges for clinicians and health systems alike. Addressing these challenges requires collaboration that extends beyond individual institutions and national borders. This meeting provides an important opportunity to bring together shared expertise, experience, and purpose.

This year, we are honored to host 16 international speakers, together with many distinguished regional and local experts. Their contributions will enrich the program by offering global perspectives, practical insights, and innovations in acute fracture management, orthogeriatric care, rehabilitation, and secondary fracture prevention. We hope the sessions will stimulate meaningful discussion, promote knowledge exchange, and foster collaborations that continue well beyond the conference.

I would like to encourage all participants—clinicians, scientists, nurses, rehabilitation professionals, allied health colleagues, and policy partners—to engage actively in the sessions and discussions. Your participation is essential to strengthening our regional community and advancing fragility fracture care across the Asia-Pacific.

On behalf of the Thai Osteoporosis Foundation, and in my role as Co-Organizing Chair, I warmly welcome you to this meeting. I hope you find the program meaningful, the discussions inspiring, and your time in Bangkok both enjoyable and memorable.

# Welcome Message
## from the President of FFN-Thailand

***Assoc. Prof. Ong-art Phruetthiphat, MD***
*President of Thailand Fragility Fracture Network*
*Organizing Chair of the FFNAP & TOPF Meeting 2026*

Dear Friends and Colleagues,

On behalf of the Organizing Committee, it is a distinct honor to invite you to the Fragility Fracture Network Asia Pacific (FFNAP) 2026 Meeting, held in conjunction with the 21st Thai Osteoporosis Foundation (TOPF) Annual Meeting. This prestigious joint congress will take place from 3–5 September 2026 in the vibrant city of Bangkok, Thailand.

This meeting serves as a premier multidisciplinary forum, convening clinicians, researchers, and allied healthcare professionals from across the Asia-Pacific region and the international community. Our objective is to address the evolving landscape of fragility fracture management and the multifaceted challenges inherent in osteoporosis care.

The scientific program has been meticulously curated to foster the exchange of evidence-based knowledge and innovative strategies. The agenda features a comprehensive array of plenary lectures, independent symposia, and "Meet-the-Expert" interactive sessions, all led by distinguished international faculty at the forefront of the field. By facilitating high-level academic discourse, we aim to advance clinical standards and improve patient outcomes throughout the region.

We encourage you to visit the official congress website to review the preliminary schedule, keynote speaker profiles, and logistical arrangements. This platform will provide all the necessary resources to ensure a productive and seamless experience. Beyond the scientific sessions, we hope you will take this opportunity to engage with peers and cultivate enduring professional collaborations.

We thank you for your commitment to advancing bone health and look forward to welcoming you to Bangkok for an intellectually stimulating and inspiring congress.

# Organizing Committee

## Advisory Board

Thawee Songpatanasilp
MD, MSc, PhD

Unnop Jaisamrarn
MD, MHS

Vilai Kupniratsaikul
MD, MSc

Natthinee Charatcharoenwitthaya
MD

## Organizing Chair

Ong-art Phruetthiphat
MD

## Organizing Co-Chair

Aasis Unnanuntana
MD, MSc

## Secretary

Teerapat Tutaworn
MD

Chawanan Patamamongkonchai
MD

Ekasame Vanitcharoenkul
MD, MSc

## Assistant Secretary

Wararat Boonnasa
RN

## Scientific Chair

Noratep Kulachote
MD

## Scientific Co-Chair (International)

Hui Min Khor
MBBS (UM), MRCP (UK)

## Scientific Committee (Local)

Wasuwat Kitisomprayoonkul
MD

Sukanya Chaikittisilpa
MD, MSc

Lalita Wattanachanya
MD

Atthakorn Jarusriwanna
MD

Weerasak Singhatanadgige
MD

Teerapat Tutaworn
MD

Atiporn Therdyothin
MD

Wararat Boonnasa
RN

## Treasurer

Hataikarn Nimitphong
MD

## Congress Facilitation

Thiti Kerd-arunsooksree
MD

Panukorn Pinijprapa
MD

## Sponsor and Commercial Exhibition

Thanut Valleenukul
MD

Sumapa Chaiamnuay
MD

Tanawat Amphansap
MD

## Social Events and Hospitality

Atthakorn Jarusriwanna
MD

## Scientific Exhibition

Pojchong Chotiyarnwong
MD

Teerapat Tutaworn
MD

# International Speakers

Chun Sing Chui
(China)

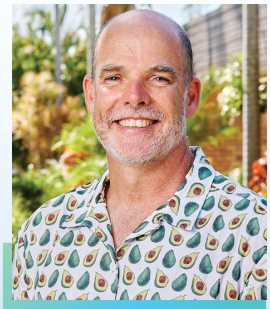
Derrick Chan
(Taiwan)

Elizabeth Chong
(Malaysia)

Hui Min Khor
(Malaysia)

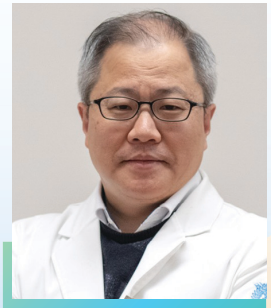
Irewin Tabu
(Philippines)

Ivan Chua
(Singapore)



Jack Bell
(Australia)

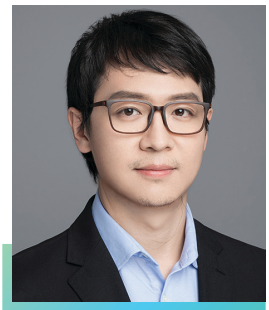
Jacqueline Close
(Australia)



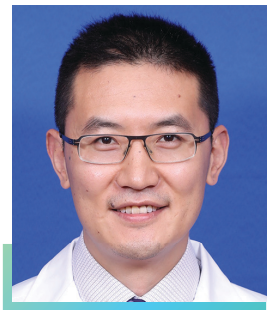
Jae-Young Lim
(South Korea)

# International Speakers

Joon Kiong Lee
(Malaysia)



Maoyi Tian
(China)



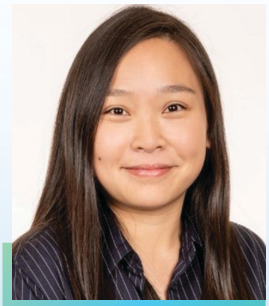
Minghui Yang
(China)

Robyn Speerin
(Australia)

Ronald Wong
(Hong Kong)

Stephen Lord
(Australia)

Takeshi Sawaguchi
(Japan)



Venisa Kwok
(Australia)

# Local Speakers

Aasis Unnanuntana

Atiporn Therdyothin

Atthakorn Jarusriwanna

Chantas Mahaisavariya

Chawanan Patamamongkonchai

Chayanon Kessaraphong

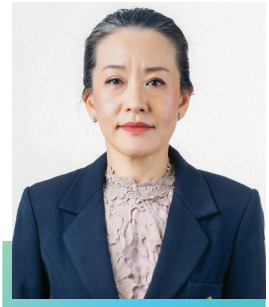
Chotetawan Tanavalee

Ekasame Vanitcharoenkul

Hataikarn Nimitphong

# Local Speakers

Jirapa Champaiboon



Keskanya Subbalekha

Khanathip Jitpakdee

Lalita Wattanachanya

Nattapon Tawinprai

Natthinee Charatcharoenwitthaya

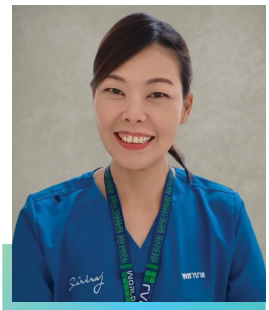
Noratep Kulachote

Ong-Art Phruetthiphat

Parinya Samakkarnthai

# Local Speakers

Peerasit Sinlapavilawan



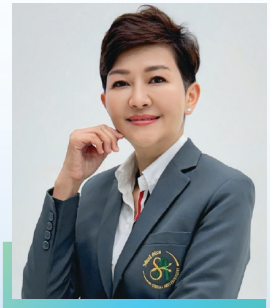
Pitiporn Siritipakorn

Pojchong Chotiyarnwong

Prasert Assantachai

Rathapoom Suwanaratana

Sumapa Chaiamnuay



Suwimon Tangwiwat

Tanawat Amphansap

Tanchanok Chattaris

# Local Speakers

Teerapat Tutaworn

Thawee Songpatanasilp

Tulyapruek Tawonsawatruk

Unnop Jaisamrarn

Varalak Srinonprasert

Wararat Boonnasa

Wasuwat Kitisomprayoonkul

Weerasak Singhatanadgige

Werasak Sutipornpalangkul

# Scientific Program

## 3 September 2026

| Time | Room A (Fuji 2) |
|---|---|
| 08.30-08.55 | Opening Ceremony and OG Certification Awards |
| 09.00-09.30 | Keynote Lecture 1 |
| | *Moderator: Aasis Unnanuntana*<br>*Co-Moderator: Tanawat Amphansap* |
| 09.00-09.15 | Keynote 1: Fragility Fractures as a Public Health Priority: Advancing Policy and National Action Plans in the Asia Pacific |
| | *Speaker: Takeshi Sawaguchi* |
| 09.15-09.30 | Keynote 2: Hip Fracture Audit Across the Asia-Pacific |
| | *Speaker: Jacqueline Close* |
| 09.30-10.00 | Coffee Break and Poster Exhibition (30 min) |
| 10.00-11.10 | Symposium 1: Regional Health Policy Program |
| | *Moderator: Ronald Wong*<br>*Co-Moderator: Teerapat Tutaworn* |
| 10.00-10.15 | Factors Influencing the Implementation of Best Clinical Practices for Hip Fracture Management in Resource-Constrained Hospitals in China and Co-design of Quality Improvement Interventions |
| | *Speaker: Minghui Yang* |
| 10.15-10.30 | Effectiveness and Cost-Effectiveness of a Primary Health Care System Integrated Fall Prevention Program for Rural Older People in China |
| | *Speaker: Maoyi Tian* |
| 10.30-10.45 | Advancing National Health Policy through the Expansion of Fracture Liaison Services in Thailand |
| | *Speaker: Tanawat Amphansap* |
| 10.30-10.45 | Early Detection Osteoporosis and Sarcopenia in Taiwan |
| | *Speaker: Derrick Chan* |
| 11.00-11.10 | Q&A |
| 11.10-12.10 | Sponsor Symposium (Amgen) |
| 12.10-13.00 | Lunch |
| 13.00-14.30 | Symposium 2: From Muscle to Mobility: Current Concepts in Sarcopenia and Fall Prevention |
| | *Moderator: Derrick Chan*<br>*Co-Moderator: Jae-Young Lim* |
| 13.00-13.15 | Sarcopenia and Fragility Fractures: How Can We Provide Optimal Recovery? |
| | *Speaker: Ronald Wong* |
| 13.15-13.30 | Updates from the AWGS Consensus 2025 |
| | *Speaker: Prasert Assantachai* |
| 13.30-13.45 | Fall Risk Assessment and Prevention Strategies: What Works, What Does Not, and What We Need to Rethink |
| | *Speaker: Venisa Kwok* |
| 13.45-14.00 | Holistic Secondary Prevention: Integrating Sarcopenia Assessment and Fall Prevention into Comprehensive Fracture Liaison Services |
| | *Speaker: Ekasame Vanitcharoenkul* |
| 14.00-14.15 | Panel Discussion: Breaking the Cycle: Sarcopenia, Falls, and Integrated Prevention for Fragility Fracture Care |
| | *Panelist: Ronald Wong, Prasert Assantachai, Venisa Kwok, Ekasame Vanitcharoenkul, Wararat Boonnasa* |
| 14.30-15.00 | Coffee Break and Poster Exhibition (30 min) |
| 15.00-16.30 | Symposium 3: Current Update in Fracture Related Osteoporosis |
| | *Moderators: Takeshi Sawaguchi*<br>*Co-Moderator: Ronald Wong* |
| 15.00-15.15 | Common Pitfalls in Hip Fracture Surgery |
| | *Speaker: Irewin Tabu* |
| 15.15-15.30 | Fragility Fractures of the Pelvis: Robotic-Assisted Surgery |
| | *Speaker: Chun Sing Chui* |
| 15.30-15.45 | How to Prevent Fixation Failure in Atypical Femoral Fractures |
| | *Speaker: Ivan Chua* |
| 15.45-16.30 | Case Based Discussion: Treatment of the Complicated Geriatric Fractures |
| | *Moderator: Noratep Kulachote*<br>*Co-Moderator: Chawanan Patamamongkonchai* |
| | Case 1 Comminuted Subtrochanteric Fractures in Elderly Patient |
| | *Speaker: Chantas Mahaisavariya* |
| | Case 2 Subtrochanteric Fracture in Patient with Primary Hyperparathyroidism |
| | *Speaker: Atthakorn Jarusriwanna* |
| | *Panelist: Takeshi Sawagushi, Chun Sing Chui, Irewin Tabu, Ivan Chua, Ong-art Phruetthiphat* |

# 3 September 2026

| Time | Room B (Fuji 1) |
|---|---|
| 13.00-14.30 | Symposium 4: Advancements in Geriatric Care Innovation: Towards a Better Future<br>*Moderator: Hui Min Khor*<br>*Co-Moderator: Pojchong Chotiyarnwong* |
| 13.00-13.15 | Stem Cells in Osteoporosis Treatment<br>*Speaker: Tulyapruek Tawonsawatruk* |
| 13.15-13.30 | Algorithmic Prediction of Treatment Outcomes for Osteoporotic Hip Fractures<br>*Speaker: Ong-Art Phruetthiphat* |
| 13.30-13.45 | AI Classification Assisting in the Diagnosis of Periprosthetic Knee Fractures<br>*Speaker: Nattapon Tawinprai* |
| 13.45-14.00 | Assisted Liaison Service Application Improves Osteoporosis Medication Adherence: The ALiS Project<br>*Speaker: Chantas Mahaisavariya* |
| 14.00-14.15 | BHO in Arthroplasty Patients: Current Trends<br>*Speaker: Joon Kiong Lee* |
| 14.15-14.30 | Q&A |
| 14.30-15.00 | Coffee Break and Poster Exhibition (30 min) |
| 15.00-16.30 | Symposium 5: Osteopotic Vertebral Compression Fracture (OVCF)<br>*Moderator: Minghui Yang*<br>*Co-Moderator: Weerasak Singhatanadgige, Peerasit Sinlapavilawan* |
| 15.00-15.15 | How Can We Differentiate OVCF from a Pathological Fracture?<br>*Speaker: Werasak Sutipornpalangkul* |
| 15.15-15.30 | Treatment Strategy of OVCF (Options and Decision Making)<br>*Speaker: Khanathip Jitpakdee* |
| 15.30-15.45 | Rehabilitation Secrets in the OVCF Patients<br>*Speaker: Venisa Kwok* |
| 15.45-16.00 | BHO in Spine Surgery: SST Guidance<br>*Speaker: Weerasak Singhatanadgige* |
| 16.00-16.30 | Case Based Symposium: Multidisciplinary Approach for OVCF<br>*Presentor: Chayanon Kessaraphong*<br>*Panelist: Weerasak Singhatanadgige, Werasak Sutipornpalangkul, Venisa Kwok, Khanathip Jitpakdee* |

# 4 September 2026

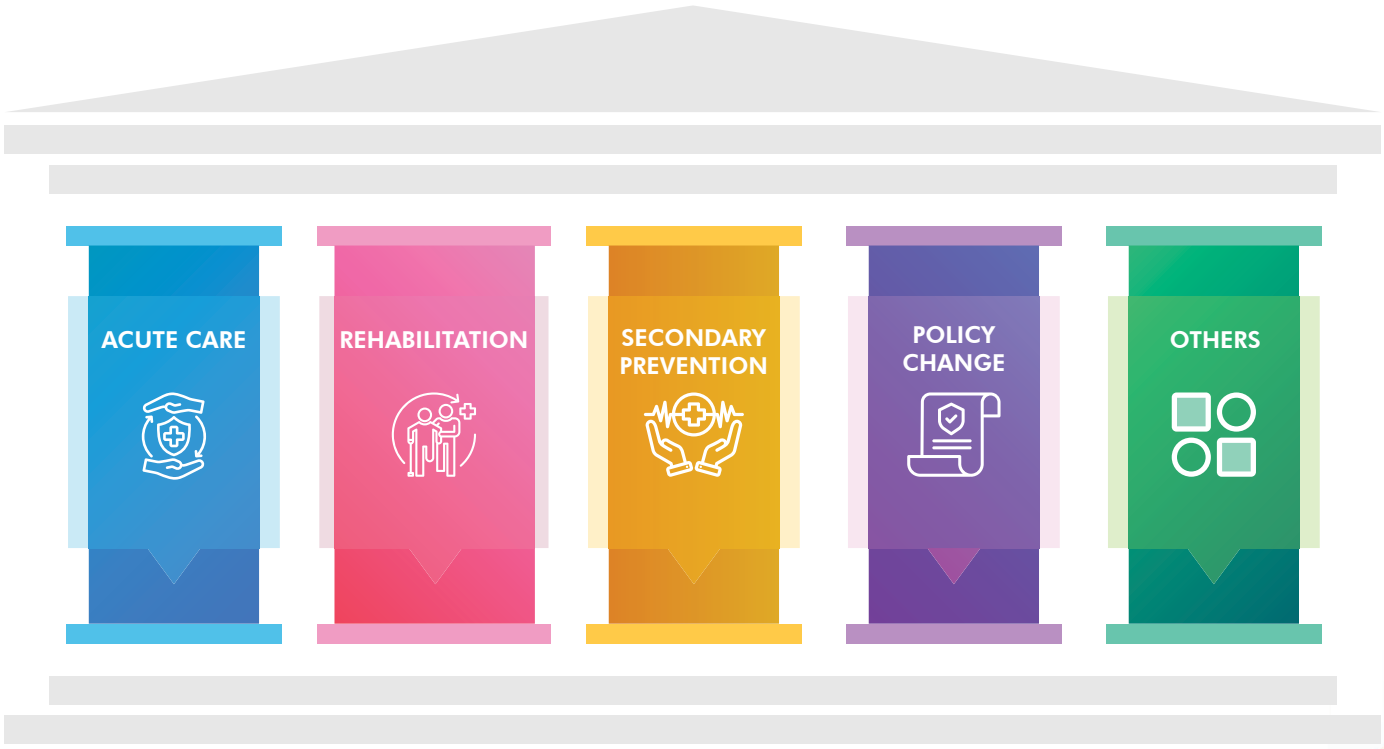
| Time | Room A (Fuji) | Room B (UME) |
|---|---|---|
| 08.30-09.00 | Keynote Lecture 2<br>*Moderator: Thawee Songpatanasilp*<br>*Co-Moderator: Ong-Art Phruetthiphat* | |
| 08.30-08.45 | Keynote 3: Nutrition and Hydration in Fragility Hip Fractures: Dietitian Concerns (SIMPLER Concept)<br>*Speaker: Tanchanok Chattaris* | |
| 08.45-09.00 | Keynote 4: Better Health Outcomes After Fragility Fractures: Leadership in Action<br>*Speaker: Robyn Speerin* | |
| 09.00-09.15 | Symposium 6: Multidisciplinary Approach to Geriatric Fractures<br>*Moderator: Jacqueline Close*<br>*Co-Moderator: Thawee Songpatanasilp* | Free Paper 1 (70 min)<br>*Moderator: Elizabeth Chong*<br>*Co-Moderator: Pojchong Chotiyarnwong* |
| 09.15-09.30 | Geriatric Management in Hip Fracture<br>*Speaker: Varalak Srinonprasert* | |
| 09.15-09.30 | Hip Fracture Surgery in Older Patients with Anticoagulant or Antiplatelet Drugs<br>*Speaker: Suwimon Tangwiwat* | |
| 09.30-09.45 | New Technologies in Falls Prevention for Older Persons<br>*Speaker: Stephen Lord* | |
| 09.45-10.00 | Preventing and Managing Delirium in Older Patients with Acute Fractures<br>*Speaker: Pitiporn Siritipakorn* | |
| 10.00-10.10 | Q&A | |
| 10.10-10.35 | Coffee Break (25 min) | |
| 10.35-11.45 | Symposium 7: Optimal Bone Recovery: The Role of Nutrients and Clinical Protocols<br>*Moderator: Venisa Kwok*<br>*Co-Moderator: Wararat Boonnasa* | |
| 10.35-10.50 | Calcium for Bone Health: Supplements, Diet, and Making the Right Choice<br>*Speaker: Rathapoom Suwanaratana* | Free Paper 2 (70 min)<br>*Moderator: Irewin Tabu*<br>*Co-Moderator: Thawee Songpatanasilp* |
| 10.50-11.05 | How to Handle with Calcium and Vitamin D Supplementation in CKD Patients<br>*Speaker: Teerapat Tutaworn* | |
| 11.05-11.20 | ERAS Protocol for Fragility Fractures<br>*Speaker: Atthakorn Jarusriwanna* | |
| 11.20-11.35 | From Sarcopenia to Skeletal Fragility: The Role of Protein in Osteoporosis Care<br>*Speaker: Atiporn Therdyothin* | |
| 11.35-11.45 | Q&A | |
| 11.45-12.15 | Sponsor Symposium (Sandoz) | |
| 12.15-13.00 | Lunch | |
| 13.00-13.30 | Sponsor Symposium (Zuellig Pharma) | |
| 13.35-14.05 | Keynote Lecture 3<br>*Moderator: Jae-Young Lim*<br>*Co-Moderator: Ekasame Vanitcharoenkul* | |
| 13.35-13.50 | Keynote 5: Bone Health Optimization as Secondary Fracture Prevention: A Surgical-Medical Interface Model<br>*Speaker: Thawee Songpatanasilp* | |
| 13.50-14.05 | Keynote 6: Orthogeriatric Certification<br>*Speaker: Elizabeth Chong* | |
| 14.05-14.30 | **Coffee Break (25 min)** | |
| 14.30-15.50 | Joint Session FFN and TOPF<br>*Moderator: Joon-Kiong Lee*<br>*Co-Moderator: Aasis Unnanuntana* | |
| 14.30-14.45 | Fragility Fracture Management in the Extreme Age Patient<br>*Speaker: Hui Min Khor* | |
| 14.45-15.00 | Updates in Hyperparathyroidism and Osteoporotic Fractures<br>*Speaker: Natthinee Charatcharoenwitthaya* | |
| 15.00-15.50 | Cases Base Discussion<br>Case 1: Extreme Age Patient (25 min)<br>*Speaker: Hui Min Khor*<br>Case 2: Hyperparathyroidism (25 min)<br>*Speaker: Parinya Samakkarnthai*<br>*Panelist: Joon-Kiong Lee, Aasis Unnanuntana, Natthinee Charatcharoenwitthaya, Elizabeth Chong* | |

# 5 SEPTEMBER 2026: TOPF DAY (TH)

| Time | Room A (Fuji) |
|---|---|
| 08.30-08.50 | TOPF Honorary Lecture<br>*Speaker: Unnop Jaisamrarn* |
| 08.50-09.20 | Highlight from International Meeting About Osteoporosis<br>*Speaker: Chotetawan Tanavalee* |
| 09.20-09.30 | Development of New TOPF Guideline<br>*Speaker: Natthinee Charatcharoenwitthaya* |
| 09.30-10.00 | Postmenopausal Osteoporosis and Osteoporosis in Men (1)<br>*Speaker: Lalita Wattanachanya* |
| 10.00-10.20 | Coffee Break (20 min) |
| 10.20-10.50 | Postmenopausal Osteoporosis and Osteoporosis in Men (2)<br>*Speaker: Lalita Wattanachanya* |
| 10.50-11.20 | Glucocorticoid-Induced Osteoporosis (GIO)<br>*Speaker: Sumapa Chaiamnuay* |
| 11.20-11.50 | Cancer Treatment-Induced Bone Loss (CTBL)<br>*Speaker: Hataikarn Nimitphong* |
| 11.50-12.00 | Short Break (10 min) |
| 12.00-13.00 | Lunch |
| 13.00-14.00 | Sponsor Symposium (Abbott) |
| 14.00-15.00 | Non-pharmacological Recommendations: Sarcopenia and Fall Prevention in Osteoporosis<br>*Speakers: Wasuwat Kitisomprayoonkul, Jirapa Champaiboon* |
| 15.00-15.30 | Osteonecrosis of the Jaw<br>*Speaker: Keskanya Subbalekha* |
| 15.30-16.00 | Biosimilar Denosumab in Thailand: What Clinicians Need to Know<br>*Speaker: Sumapa Chaiamnuay* |
| 16.00-16.15 | Wrap Up and Closing TOPF 2026<br>*Speaker: Aasis Unnanuntana* |

# Abstract Catagories:
## The Four Pillars of FFN and Other Topics

Abstracts are categorized across four key pillars
and one additional category
reflecting the breadth of fragility fracture care.



# Poster Presentation Program

## 3 September 2026

### Poster 1: 9.30 – 10.30 hrs | UME Room

| Abstract No. | Details |
|---|---|
| FFNAP2026-002 | Impact of In-Hospital Osteoporosis Treatment on Post-Discharge Medication Continuity in Osteoporotic Fracture Patients: Implications for Care Continuity<br>*Yonghan Cha* |
| FFNAP2026-011 | AI-Powered Prediction of Bone Mineral Density and T-Scores from Standard Radiographs to Advance Bone Health Evaluation<br>*Elvis Chun-Sing Chui* |
| FFNAP2026-024 | Effect of Denosumab on Implant-Related Complications and Femoral Neck Shortening After Internal Fixation with Cannulated Screws in Elderly Patients with Stable Femoral Neck Fractures<br>*Hairui Liang* |
| FFNAP2026-051 | A Comparative Study of the Prevalence of Abnormal Low Muscle Mass Between Thai Older Adults who Consume a Plant-Based Diet and Meat-Inclusive Diet<br>*Nachapong Sithiwichankit* |
| FFNAP2026-062 | Machine Learning for Osteoporosis Risk Prediction in Thailand's Aging Population<br>*Ong-art Phruetthiphat* |

### Poster 2: 14.30 – 15.00 hrs. | UME Room

| Abstract No. | Details |
|---|---|
| FFNAP2026-008 | Cognitive Frailty and Short-Term Prognosis Following Hip Fracture Surgery<br>*Xiaoqin Liang* |
| FFNAP2026-044 | Comparative Study on the Effect of Short-Term Functional Independence Recovery of Elderly Patients with Hip Fracture After Surgery Under Different Home Rehabilitation Modes<br>*Yang Bihan* |
| FFNAP2026-064 | Influence of Lumbar Spinal Stenosis on Functional Recovery After Hip Fracture Surgery<br>*Krissada Mokmongkolkul* |
| FFNAP2026-065 | Comparison Between Radiofrequency Echographic Multi-Spectrometry (REMS) with Dual-Energy X-ray Absorptiometry (DEXA) for Diagnosing Osteoporosis Among Adult Malaysians in a University Hospital<br>*Veshalini Velloo* |

# Free Paper Program

## 4 September 2026

### Free Paper 1: 9.00 – 10.10 hrs. | UME Room

| Time | Abstract No. | Details |
|---|---|---|
| 09.00-09.07 | FFNAP2026-034 | Bringing Them Home, Keeping Them Well: Strengthening Geriatric Care to Reduce Hospital Readmissions<br>*Jerome Clark Cid* |
| 09.08-09.15 | FFNAP2026-010 | Management of Femoral Neck Fracture in Elderly Patients-Early Surgery<br>*Buland Thapa* |
| 09.16-09.23 | FFNAP2026-032 | Long-Term Functional Recovery After Internal Fixation for Geriatric Hip Fractures Is Not Homogeneous: More Attention Should Be Paid to Intertrochanteric Fractures<br>*Hairui Liang* |
| 09.24-09.31 | FFNAP2026-037 | Analysis of the Influencing Factors of Satisfaction with Rehabilitation Decision-Making Among Family Caregivers of Elderly Patients with Hip Fractures<br>*Yanzhen Hu* |
| 09.32-09.39 | FFNAP2026-027 | Efficacy of a Home Based Postoperative Hip Muscle Workout Music Video Program for Elder Patient with Femoral Neck Fracture After Bipolar Hemiarthroplasty<br>*Chawarat Sripon* |
| 09.40-09.47 | FFNAP2026-059 | Factors Influencing Post-Surgery Care for Older Osteoporotic Fracture Patients in Primary Healthcare Facilities in China: A Mixed-Methods Study<br>*Yang Liu* |
| 09.48-09.55 | FFNAP2026-031 | FLS & Secondary Fracture Prevention in Indonesia<br>*Zairin Noor* |

### Free Paper 2: 10.35 – 11.45 hrs. | UME Room

| Time | Abstract No. | Details |
|---|---|---|
| 10.35-10.42 | FFNAP2026-046 | AI-Assisted Detection of Osteoporotic Vertebral Compression Fractures on Chest and Abdominal Radiographs<br>*Supanat Kampapan* |
| 10.43-10.50 | FFNAP2026-056 | Comparative Performance of the Nottingham Hip Fracture Score and Lee's Revised Cardiac Risk Index for Predicting 30-day and One-Year Mortality After Hip Fracture Surgery<br>*Abirami Gouri Pagan* |
| 10.51-10.58 | FFNAP2026-054 | A Standard Versus Without Hip Precaution Protocol on Functional Recovery of Fragility Hip Fracturepatients After Hemiarthroplasty via Piriformis-Sparing Posterior Approach: A Randomized Controlled Trial Study<br>*Napatr Leksrisakul* |
| 10.59-11.06 | FFNAP2026-005 | Digital Health Management Platform for Improving Care Compliance in Elderly Patients with Hip Fractures: An Effectiveness Analysis<br>*Yun Yang Jia* |
| 11.07-11.14 | FFNAP2026-070 | Fracture Liaison Service and Osteosarcopenia: Proposal of Interdepartmental Collaboration in Response to Overlapping Target Patients<br>*Toru Honda* |
| 11.15-11.22 | FFNAP2026-063 | Predictors for Poor Outcome After Hip Replacement for Elderly Femoral Neck Fracture<br>*Vitsarut Dangpaiboon* |
| 11.23-11.30 | FFNAP2026-016 | Opportunistic Screening for Osteoporotic Vertebral Compression Fractures Usingdeep Learning on Standard Dual-Energy X-Ray Absorptiometry Report Images: A Comparative Diagnostic Accuracy Study<br>*Rathapoom Suwanaratana* |

# Abstract

## FFNAP2026-001

### Comorbidity Trajectories Before and After Hip Fracture in Elderly Patients: A Korean Nationwide Database Cohort Study

*Yonghan Cha, Seung Hoon Kim, Eunjeong Choi, Seoyeong Choi, Suk-Yong Jang*

**Introduction:** Hip fractures in older adults often signal frailty and are associated with poor outcomes, including mortality and disability. Although a high burden of comorbidities is common, little is known about how these conditions evolve before and after the fracture event. Understanding comorbidity trajectories can inform preventive and rehabilitative strategies.

**Methods:** We analyzed data from the Korean National Health Insurance Service-Senior (NHIS-Senior) cohort between 2005 and 2016. A total of 8,319 patients aged ≥65 years with surgically treated hip fractures were matched 1:2 with 16,638 controls by age, sex, and year. Comorbidity data were extracted from claims using ICD-10 codes. We evaluated changes in comorbidity prevalence over a 7-year window (3 years pre- and post-fracture). Difference-in-differences (DID) analysis using generalized estimating equations was performed to compare temporal trends between groups.

**Results:** At the time of fracture, the most prevalent comorbidities were hypertension, osteoarthritis, vertebral disease, osteoporosis, and diabetes. Comorbidity burden increased more steeply in hip fracture patients compared to controls, especially after the fracture event. Notable post-fracture increases were observed in osteoporosis (DID ratio: 1.19), dementia (1.17), congestive heart failure (1.09), Parkinson's disease (1.11), and COPD (1.04). In contrast, diabetes (0.96), asthma (0.96), and vertebral disease (0.97) showed relative decreases.

**Conclusion:** Hip fracture signals not only existing multimorbidity but also accelerates its progression, particularly for neurodegenerative and cardiovascular diseases. Integrated care strategies should proactively address chronic disease burden before and after hip fracture

# Abstract

## FFNAP2026-002

### Impact of In-Hospital Osteoporosis Treatment on Post-Discharge Medication Continuity in Osteoporotic Fracture Patients: Implications for Care Continuity

*Yonghan Cha, Seung Hoon Kim, Eunjeong Choi, Seoyeong Choi, Suk-Yong Jang*

**Introduction:** Despite the well-established benefits of osteoporosis medication in reducing the risk of secondary fractures and mortality, post-fracture treatment rates remain suboptimal. The hospitalization period represents a critical opportunity to initiate therapy, yet the impact of in-hospital osteoporosis treatment on long-term adherence has not been fully evaluated in the Korean population.

**Methods:** This retrospective cohort study used data from the National Health Insurance Service sample cohort in South Korea. Patients aged ≥50 years who were hospitalized for osteoporotic fractures, including surgically and conservatively managed cases, between 2007 and 2019 were included. The primary exposure was receipt of osteoporosis medication during hospitalization, and the primary outcome was medication continuation within one year post-discharge. Log-binomial regression models were used to estimate adjusted risk ratios (aRRs) for post-discharge medication continuation, adjusted for demographic, socioeconomic, and clinical variables. Subgroup analyses were conducted by age, sex, fracture site, income level, and residential region.

**Results:** Of 19,021 patients with osteoporotic fractures, 25.9% received osteoporosis treatment during hospitalization. The 1-year post-discharge medication rate was 75.8% in the treatment group, compared to 25.4% in the non-treatment group. The aRR for post-discharge medication continuation was 2.23 (95% CI, 2.14–2.32). Similar effects were observed for both oral (aRR=2.26) and injectable (aRR=2.13) medications. Subgroup analysis revealed stronger associations in males (aRR=5.01), younger patients (50–70 years, aRR=2.93), and those with minor fractures (aRR=3.22). Although the overall continuation rate was lower in older adults and patients with major fractures, in-hospital treatment was still positively associated with improved adherence.

**Conclusion:** In-hospital initiation of osteoporosis medication was associated with improved post-discharge treatment continuity in patients with osteoporotic fractures. Incorporating structured osteoporosis management into inpatient orthopedic care pathways may help enhance long-term adherence and support secondary fracture prevention.

# Abstract

## FFNAP2026-010

### Management of Femoral Neck Fracture in Elderly Patients-Early Surgery

*Buland Thapa, Ujhon Shakya, Nirajan Subedi, Niraj Man Shrestha*

**Introduction:** Femoral neck fractures in the elderly are a significant cause of morbidity & mortality , requiring prompt management by multidisciplinary team to ensure optimal recovery . This study evaluates the outcome of surgical intervention as well as conservative medical management in osteoporotic elderly patients with femoral neck fractures.

**Methods:** A total of 84 elderly patients with femoral neck fractures were managed at our hospital from 2021 to 2025 . Upon arrival at the emergency department , patients were promptly evaluated by a multidisciplinary team comprising of physicians, anesthesiologist & orthopedic surgeons .Implementation of fast-track protocol and osteoporosis guidelines was effective . Patient's were evaluated for deep vein thrombosis (DVT) , pulmonary embolism (PE) , cardiovascular with pulmonary complications and evaluation of anemia , dementia with delirium . All patients underwent hemi-arthroplasty within 48 hours of admission. Pre-peri-postoperative care was standardized to minimize complications & optimize recovery.

**Results:** 4 patients tolerated surgery well with no peri -postoperative mortality . Postoperative outcomes were favorable with early mobilization achieved in most cases , except for 1 post-operative infection and 1 deep vein thrombosis . Functional recovery was satisfactory for 84 cases regaining independence in activities of daily living within the expected rehabilitation period.

**Conclusion:** Early multidisciplinary assessment , pain management & timely arthroplasty within 48 hours of hospital admission result in excellent functional outcomes with minimal complications in osteoporotic elderly patients with femoral neck fractures . This approach enhances recovery , reduce hospital stay & improves overall prognosis , reinforcing the importance of pain management , tackling comorbidities efficiently, osteoporotic pharmacotherapy & prompt surgical interventions in this population with early rehabilitative measures.

# Abstract

## FFNAP2026-013

### Osteoporosis Management and Fall-Related Complications in Middle-Aged and Older Adults: A Retrospective Study from the UMMC Falls Clinic

*Nor Izzati Saedon, Jia Qi Lok, Khor Hui Min*

**Introduction:** Osteoporosis, defined by a bone mineral density (BMD) of less than −2.5 SD, significantly increases fracture risk, especially among older adults. Falls in individuals with osteoporosis often result in severe complications, including fractures, reduced mobility, and diminished quality of life. This study explores fall-related complications and evaluates osteoporosis management at the University Malaya Medical Centre (UMMC) Falls Clinic.

**Methods:** A retrospective cross-sectional study involving 563 patients was conducted from January 2020 to December 2022. Demographic data, fall characteristics, comorbidities, and treatment patterns were analyzed. Statistical analyses included chi-square tests and t-tests.

**Results:** Of the 563 patients, 25.9% were diagnosed with osteoporosis, with 74.7% being female. Indoor falls were more common in the osteoporotic group (66%) compared to the non-osteoporotic group (46.6%). Fractures occurred in 63.4% of osteoporotic patients compared to 12% in the non-osteoporotic group. Calcium and vitamin D were commonly prescribed, but bisphosphonate usage remained low.

**Conclusion:** Osteoporotic patients at a falls clinic are predominantly female and experience markedly higher fracture rates. Enhancing evidence-based pharmacotherapy uptake, systematic physiotherapy referral, and provider/patient education are needed. This study is limited by its retrospective design and single-center setting, which may limit the generalizability of the findings. Additionally, the patient population attending the Falls Clinic may represent a more motivated group, which could introduce selection bias.

# Abstract

## FFNAP2026-014

### Acetabular Fragility Fracture: A Case Report

*Basyar Mohamad Nazri, Mohd Zuhail bin Abd Rahim, Azwan Zhafri Bin Bashir Ridha, Kamarul Arifin Bin Abdul Razak*

**Introduction:** The incidence of fragility fractures of the acetabulum (FFA) is steadily rising, reflecting the increasing prevalence of osteoporosis and an aging population. These fractures typically result from low-energy trauma, most commonly a fall onto the greater trochanter, and often involve the anterior column of the acetabulum. They remain challenging to diagnose and manage.

**Methods:** We report the case of a 76 year old chinese lady who sustained an acetabular fracture following a low-energy fall. The patient presented with left hip pain and inability to ambulate without prior significant trauma. CT scan was done and showed left anterior column posterior hemi transverse fracture (APCHT).

**Results:** The patient underwent pelvic plating along with supracetabular and posterior column screw fixation. At the 2-month follow-up, the patient was able to ambulate with a walking frame, demonstrating a level of mobility comparable to their pre-fall status.

**Conclusion:** This case underscores the importance of appropriate surgical fixation in acetabular fragility fractures, which are often undertreated due to the presence of multiple comorbidities and concerns regarding surgical risk. Early and effective stabilization can facilitate functional recovery and restore pre-injury mobility, even in elderly patients with poor bone quality. Prompt identification and individualized management are essential to prevent complications such as prolonged immobility and loss of independence. Furthermore, this report emphasizes the role of multidisciplinary care, including orthopedic, geriatric, and rehabilitation input, in optimizing outcomes for elderly patients with fragility fractures. Awareness of this fracture pattern should be increased among clinicians to ensure timely intervention and improve patient prognosis.

# Abstract

## FFNAP2026-016

### Opportunistic Screening for Osteoporotic Vertebral Compression Fractures Using Deep Learning on Standard Dual-Energy X-Ray Absorptiometry Report Images: A Comparative Diagnostic Accuracy Study

*Rathapoom Suwanaratana, Nuttawut Chanalithichai, Attaporn Lawanprasert*

**Introduction:** Osteoporotic vertebral compression fractures are frequently underdiagnosed despite their association with subsequent fragility fractures. While lateral spine imaging is the recommended standard, anteroposterior scout images routinely embedded in dual-energy x-ray absorptiometry reports are widely available but typically overlooked. This study aimed to develop a deep learning model to opportunistically detect moderate-to-severe fractures from these low-resolution anteroposterior images and compare its diagnostic accuracy against human clinicians with varying expertise.

**Methods:** A YOLO-based object detection model was trained using over 2,500 annotated vertebral regions derived from 211 patients. Following internal validation, diagnostic performance was evaluated on an independent temporal validation cohort of 60 patients. The model's accuracy was compared against three general practitioners, three orthopedic residents, and three board-certified orthopedic surgeons. Additionally, a retrospective clinical audit was conducted to determine the baseline rate of undocumented fractures in routine practice.

**Results:** In the temporal validation cohort, the artificial intelligence model achieved a patient-level sensitivity of 93.3% and a specificity of 83.3%. The model's sensitivity was significantly superior to the pooled average of orthopedic surgeons (68.9%, $p<0.001$) and residents (81.1%, $p=0.002$). Furthermore, its specificity significantly exceeded that of general practitioners (57.8%, $p<0.001$). The retrospective clinical audit revealed that 18.0% of confirmed fractures were undocumented during routine specialist care.

**Conclusion:** Deep learning effectively transforms routine, low-resolution anteroposterior densitometry scout images into a highly sensitive opportunistic screening tool. By outperforming human readers and addressing the high real-world rate of missed diagnoses, this automated, resource-neutral approach can systematically identify overlooked fractures without additional radiation or costs, thereby facilitating timely secondary fracture prevention.

# Abstract

## FFNAP2026-017

### Operationalizing Osteoporosis Guidelines via Deterministic Logic: A Rule-Based Decision Support System That Neutralizes the Expertise Gap

*Rathapoom Suwanaratana, Tanawat Amphansap, Attaporn Lawanprasert, Chanya Wuthikraikun, Nuttawut Chanalithichai*

**Introduction:** The complexity of osteoporosis risk stratification often leads to substantial knowledge-to-practice gaps and diagnostic variability. This study evaluates the efficacy of a deterministic rule-based clinical decision support system in operationalizing the 2021 Thai Osteoporosis Foundation guidelines to standardize clinical decision-making across different levels of professional seniority.

**Methods:** A within-subject randomized experimental study was conducted with 65 physicians, comprising 22 junior physicians and 43 senior physicians. Participants evaluated 20 real-world clinical vignettes, randomized to assess cases under manual and system-supported conditions. Primary outcomes included decision accuracy compared to an expert consensus gold standard, decision time, and system usability measured by the System Usability Scale.

**Results:** The digital system significantly improved overall risk classification accuracy from 70.3% to 84.8% and treatment selection accuracy from 78.5% to 85.4%. Crucially, the intervention demonstrated a robust "equalizing effect" : junior physicians achieved a 22.3% accuracy gain, effectively eliminating the baseline expertise gap and matching the performance of senior physicians. In high-risk cases, under-treatment errors decreased from 17.3% to 12.8%. Decision efficiency was maintained with no statistically significant increase in processing time. The system achieved a "good" usability score of 69.1, indicating high potential for workflow integration.

**Conclusion:** Implementing a transparent, rule-based logic engine successfully mitigates cognitive biases and neutralizes experience-based performance variability. Operationalizing clinical guidelines through digital analytics is a scalable and highly acceptable strategy to bridge the expertise gap, ensuring guideline-concordant management and robust secondary fracture prevention across the healthcare system.

# Abstract

## FFNAP2026-018

### The Similarities and Differences Between Atypical Femoral Fractures (AFFs) and Atypical Periprosthetic Femoral Fractures (APFFs): A Scoping Review

*Chawanan Patamamongkonchai, Teerapat Tutaworn, Thawee Songpatanasilp, Ong-art Phruetthiphat*

**Introduction:** Atypical Femoral Fractures (AFFs) and Atypical Periprosthetic Femoral Fractures (APFFs) are rare but significant orthopedic challenges, primarily linked to the long-term use of anti-resorptive agents like bisphosphonates.
Shared Etiology and Pathophysiology: The core pathology for both is substantially suppressed bone turnover due to prolonged BP exposure. This suppression causes microdamage to accumulate without repair, leading to bone hyper-mineralization and brittleness.

**Methods:** Clinically, they share hallmark features, including Prodromal thigh, groin pain lasting weeks to months. And radiologically, A transverse or short oblique fracture line originating at the lateral cortex with minimal comminution, Focal lateral cortical thickening. Leading to the poor outcomes, including delayed healing and high nonunion rates, due to the suppressed healing capacity.

**Results:** Key Distinctions and Management lies in the context and surgical complexity: for context: AFFs occur in the intact femoral diaphysis and are defined by the ASBMR criteria; APFFs occur around a pre-existing femoral implant, which excluded by the ASBMR criteria. And for surgical Management: AFFs are primarily treated with Intramedullary Nailing. APFFs present a greater technical challenge, often requiring complex options like Open Reduction with Internal Fixation using plates with augmentation, or revision hip arthroplasty.

**Conclusion:** For both, the anabolic agent Teriparatide is a recommended adjunct to stimulate bone formation and overcome the suppressed bone turnover, thereby accelerating healing. The evidence suggests APFFs are a biologically distinct entity, and a reconsideration of the ASBMR criteria to include PFFs with atypical features is necessary.

# Abstract

## FFNAP2026-020

### Operational Definitions of Dynapenia Shape Circulating MicroRNA Regulatory Signatures in Older Adults

*Ding-Cheng Chan, Kun-Pei Lin, Chia-Lang Hsu, Chung-Sheng Lee, Chiung-Jung Wen, Wei-Jia Huang*

**Introduction:** Age-related decline in muscle strength (dynapenia) is a major contributor to functional impairment in older adults, yet its molecular regulatory architecture remains incompletely understood. Operational definitions of muscle weakness vary across consensus frameworks and may influence biological patterns detected in molecular studies. This study examined whether alternative phenotypic definitions of muscle weakness identify distinct circulating microRNA (miRNA) signatures associated with age-related strength decline.

**Methods:** Circulating miRNA profiles were analyzed using next-generation sequencing in community-dwelling older adults classified according to two operational frameworks of muscle weakness. Differential expression analysis, principal component analysis, and LASSO-based modeling were used to compare regulatory patterns between definitions.

**Results:** Global fold-change patterns were highly concordant across frameworks ($r = 0.82$), suggesting a shared regulatory landscape. However, statistically significant miRNAs showed only partial overlap, indicating phenotypic refinement alters prominence of regulatory signals rather than defining discrete biological states. miRNAs were consistently dysregulated across frameworks, including miR-22-3p, miR-451a, and miR-496. Notably, miR-634 and miR-451b emerged as robust regulatory nodes linked to AKT/mTOR and AMPK signaling pathways for mitochondrial function and apoptotic regulation.

**Conclusion:** These findings suggest phenotypic refinement enhances detection of regulatory signals within aging-associated molecular landscape, and circulating miRNAs may reflect apoptotic–metabolic network remodeling preceding overt muscle atrophy.

# Abstract

## FFNAP2026-021

### Applying a Causal Framework to Examine the Impact of Walking Independence on Functional Recovery in Patients with Hip Fracture: A Pilot Cohort Study of 62 Patients

*Takeshi Matsuda, Naoto Saito, Hiroaki Tamura, Masayuki Kawashima, Masami Nakahara, Morten Tange Kristensen*

**Introduction:** Patients with hip fracture (HF) exhibit substantial heterogeneity in functional status and Background characteristics, making conventional between-group comparisons susceptible to individual variation. We therefore explored the feasibility of applying fixed-effects regression analysis to examine the association between walking independence and changes in Functional Independence Measure motor scores (FIM-m) in elderly patients with HF.

**Methods:** This retrospective observational study included patients with HF admitted to an orthopaedic hospital in Oita, Japan. The event was defined as the week in which independent walking was achieved (week 0). The outcome was the FIM-m (13–91 points). Data from four weeks before and after the event were analysed using fixed-effects regression analysis. For patients who did not experience the event, the week of discharge was designated as week 0, and the preceding four weeks were analysed. Additionally, an exploratory subgroup analysis was conducted by categorising patients into an early event group and a late event group.

**Results:** A total of 62 patients were included (mean±SD age 84.9±8.7 years; 59 females). No significant pre-event trend was observed. FIM-m increased significantly at week 1 ($\beta=2.8$, $p<0.01$) and week 2 ($\beta=2.1$, $p<0.01$)for patients with independent walking at week 0, while other weeks were not statistically significant. The within $R^2$ was 0.05.

In subgroup analysis, the early group (n=12) showed greater variability in FIM-m prior to the event, whereas the late group (n=22) demonstrated a relatively stable increase following the event. Sensitivity analysis excluding locomotion item (walk/wheelchair) from the FIM-m yielded broadly consistent results.

**Conclusion:** Independent walking ability was associated with small improvements in FIM-m in patients with HF, particularly during the first 1–2 weeks after the event. These findings suggest that fixed-effects regression analysis may provide a useful framework for examining functional recovery trajectories in heterogeneous rehabilitation populations.

# Abstract

## FFNAP2026-025

### A Cost-Utility Analysis of Fracture Liaison Service in Osteoporotic Hip Fracture Patients at Tertiary Care Hospital in Thailand

*Tanawat Amphansap, Atiporn Therdyothin, Arus Nalamliang, Chonlathan Boontan*

**Introduction:** Osteoporotic hip fracture causes high morbidity and mortality, contributing to a significant socioeconomic burden. Fracture Liaison Services (FLS) offer multidisciplinary care and secondary fracture prevention, aiming to improve patients' quality of life. This research aimed to assess the cost-utility analysis of FLS for osteoporotic hip fracture patients after one year of treatment.

**Methods:** A prospective cohort study was conducted between September 2022 and April 2024. Patients with fragility hip fractures were recruited. We collected one-year direct medical, direct non-medical, and indirect costs. Health utility was assessed using EQ-5D-5L, and the cost per quality-adjusted life year (QALY) was estimated at 12 months.

**Results:** The cohort consisted of 71 patients (78.13 years; 73.2% female). The median total direct cost was $6,096.99 (95%CI 5,506.03-6,566.53) and the total cost was $7,503.16 (95%CI 7,123.85-8,309.49). At 12-month follow-up, median QALY was 0.872 (95%CI 0.872-0.957). The cost per QALY was $8,604.50, which was much lower than figures from developed countries. Incremental cost-effectiveness ratio (ICER) of FLS was well within local willingness-to-pay (WTP) threshold.

**Conclusion:** Hip fracture has a high impact on patients' QOL and on society. In 2022, Thai National GDP was $7,650.88 and Bangkok GPP was $16,954.04. The total cost of osteoporotic hip fracture from present study was > 50% of Bangkok GPP and 112% of the Thai National GDP. From a previous Thai study in 2004, the median total cost was $3,157.00 per patient per year. And another study in 2008, cost per QALY was $6,620.52. Compared with previous studies with traditional care, FLS confers higher total cost. However, the number was much lower than other studies from developed countries

Conclusions: The FLS in Thailand is still considered cost-effective, offering patients not only comprehensive secondary fracture prevention, but also improved quality of life at a reasonable cost.

# Abstract

## FFNAP2026-027

### Efficacy of Home Base Postoperative Hip Muscle Workout Music Video Program for Elderly Patient with Femoral Neck Fracture After Bipolar Hemiarthroplasty

*Chawarat Sripon, Atiporn Therdyothin, Tanawat Amphansap, Noppavut Sirirak, Nacharin Phiphopthatsanee*

**Introduction:** Physical therapy after a femoral neck fracture is essential but is limited by poor compliance, and incorrect exercise. To improve, we've developed a home-based hip muscle workout program using music therapy and videos. We hypothesize this program will improve functional outcome.

**Methods:** A randomized controlled trial from 2023 to 2024 on elderly patients with cementless bipolar hemiarthroplasty after femoral neck fracture. Thirty patients were equally allocated into the intervention group and the control group. Both received pre-discharge physical therapy instructions from an orthopedic trainee. Functional outcomes were assessed using Harris hip score (HHS) from 2 to 12 weeks. Hip strength was measured by handheld dynamometer. Anxiety and pain were assessed using visual analog scale. Compliance was assessed by record table.

**Results:** Both groups showed an increase in HHS at 2, 6, and 12 weeks postoperatively. The intervention group demonstrated significantly higher HHS compared with the control group at all time points, with mean scores of 49.40±6.10, 65.20±6.09, and 82.30±5.85 versus 39.73±7.80, 53.53±5.84, and 67.67±6.33, respectively ($p<0.05$). Hip muscle strength in abduction, adduction, and flexion at 12 weeks was significantly greater in the intervention group than in the control group ($p<0.05$), whereas hip extension strength, although improved in both groups, did not show a statistically significant between-group difference. Postoperative anxiety scores were significantly lower in the intervention group at 6 weeks (2.87±0.91 vs 3.47±0.64, $p=0.023$) and 12 weeks (1.47±0.51 vs 2.27±0.96, $p=0.004$). Postoperative pain scores were also significantly lower in the intervention group at 12 weeks (1.20±0.41 vs 1.93±0.88, $p=0.004$). Patient compliance with the rehabilitation program was significantly higher in the intervention group at 6 and 12 weeks.

**Conclusion:** This research shows a home-based hip muscle workout program with music videos significantly.

**Keywords:** Femoral neck fracture, Rehabilitation, Home based rehabilitation program, Harris hip score, Hip muscle strength

# Abstract

## FFNAP2026-028

### Development of an Interview-Based ADL Protocol to Reduce Fall Risk in Individuals with Parkinson's Disease

*Se Young Lee, Mi Hyun Kim, Hye Mi Kim, Young Eun Kang*

**Introduction:** Parkinson's disease is a progressive neurological disorder characterized by motor and non-motor impairments that negatively affect functional performance. Postural instability, gait disturbance, and balance deficits contribute to a high risk of falls, with many individuals experiencing recurrent falls that lead to reduced quality of life and increased risk of injury. However, fall-related assessments and interventions that reflect real-life contexts remain limited. This study aimed to develop an activities of daily living (ADL) protocol based on interview-driven activity analysis to identify fall-related activities in everyday contexts.

**Methods:** A semi-structured interview was conducted to explore daily routines, roles, environmental contexts, and activity-related difficulties. Based on the Occupational Therapy Practice Framework (OTPF-4), "meal preparation" was identified as the target activity.
A detailed activity analysis was performed to identify fall-related risk factors, including personal factors, performance skills, and environmental demands.
An individualized intervention protocol incorporating principles of LSVT BIG was developed. The intervention was delivered in real-life contexts using a task-oriented approach. We would like to support participants in carrying over into daily life by conducting review, feedback, and caregiver training through a half- hour visit once a week for 6 weeks.

**Results:** The protocol enabled structured identification of fall-related risks embedded in daily activities. By integrating evaluation and intervention, it supported individualized, context-specific intervention planning. The inclusion of caregiver involvement facilitated ongoing monitoring and application in everyday settings.

**Conclusion:** This protocol provides a practical framework for identifying fall-related ADL and delivering individualized interventions in real-life contexts. It may support continuity of care from clinical settings to home environments. Further studies are needed to evaluate its effectiveness and support standardization.

# Abstract

## FFNAP2026-032

### Long-Term Functional Recovery After Internal Fixation for Geriatric Hip Fractures Is Heterogeneous: Differences Are Primarily Driven by Patient Frailty Rather Than Fracture Type

*Hairui Liang, Minghui Yang,Bo li,Gang Liu*

**Introduction:** Intertrochanteric fractures (ITFs) and stable femoral neck fractures (FNFs) are two of the most common types of osteoporotic hip fractures in older adults, and both are commonly treated with internal fixation. However, whether fracture type independently affects long-term postoperative functional recovery remains controversial.

**Methods:** This prospective cohort study included older patients who underwent internal fixation for hip fractures. Baseline data, including demographic characteristics and clinical indicators, were collected. Health-related quality of life was assessed using the EuroQol-5 Dimensions (EQ-5D) at 30 days, 120 days, 1 year, and 3 years after surgery.
Linear mixed models were used to analyze longitudinal changes in functional recovery, with stepwise adjustment for potential confounders, including age, sex, body mass index, hemoglobin, and albumin. Cox proportional hazards regression models were also used to identify independent factors associated with adverse outcomes.

**Results:** Baseline comparisons showed that patients with ITFs were older and had significantly lower body mass index, hemoglobin, and albumin levels than those with FNFs, suggesting a higher frailty burden in the ITF group.
In the unadjusted analysis, patients with ITFs had significantly lower EQ-5D scores than those with FNFs ($p < 0.001$). After adjustment for age, sex, and body mass index, the difference remained statistically significant ($p = 0.001$). However, after further adjustment for hemoglobin and albumin, the between-group difference was no longer statistically significant ($p = 0.426$).
The interaction between time and fracture group was not statistically significant in any model (all $p > 0.3$), indicating similar functional recovery trajectories between the two groups.
Cox regression analysis showed that fracture type was not significantly associated with adverse outcomes (HR = 0.925, $p = 0.829$). Increased age (HR = 1.061, $p < 0.001$), lower albumin level (HR = 0.871, $p < 0.001$), and lower body mass index (HR = 0.937, $p = 0.039$) were significant factors associated with adverse outcomes.

**Conclusion:** Long-term functional recovery after internal fixation for geriatric hip fractures is heterogeneous. Although patients with ITFs showed worse outcomes in the unadjusted analysis, this difference was largely explained by baseline frailty status rather than by the independent effect of fracture type itself.
Fracture type may therefore serve more as a surrogate marker of patient frailty than as an independent determinant of prognosis. Clinical management should place greater emphasis on optimizing patients' overall health status rather than focusing solely on fracture classification.

# Abstract

## FFNAP2026-034

### Bringing Them Home, Keeping Them Well: Strengthening Geriatric Care to Reduce Hospital Readmissions

*Jerome Clarck Cid, Jerwin Jonhted G. Asuncion, Catalino Pe Benito III, John Christopher Onilla, Kristal Jade Rosario, Avigale Cabanos, Diana Lazo*

**Introduction:** Hospital readmissions among older adults are frequently associated with unrecognized geriatric syndromes, fragmented care, and inconsistent implementation of Comprehensive Geriatric Assessment (CGA). This study aimed to reduce hospital readmissions by improving geriatric screening, assessment, and referral processes in a tertiary hospital.

**Methods:** A Continuous Quality Improvement (CQI) study was conducted from January to December 2025. Baseline data were obtained in January, followed by monthly monitoring. Data sources included patient charts, hospital records, Short Geriatric Screening (SGS) tools, Comprehensive Geriatric Assessment (CGA) forms, and referral logs. Root causes of low CGA compliance were identified using cause-and-effect and Pareto analyses. Interventions included standardizing referral protocols, conducting semestral CGA training, reinforcing CGA policies, and improving multidisciplinary coordination. Outcomes measured included SGS utilization, CGA completion, referral rates, and readmission rates.

**Results:** At baseline, SGS was performed in 208/260 (80%) admitted patients and 49/3,340 (1%) outpatients. CGA completion among eligible patients was 7/41 (17%) for inpatients and 2/5 (40%) for outpatients. The readmission rate was 65/260 (25%). After implementation, SGS increased to 238/251 (95%) for inpatients and 2,521/3,407 (74%) for outpatients. CGA completion improved to 32/33 (97%) for inpatients and 15/18 (83%) for outpatients. The readmission rate decreased to 43/251 (17%).

**Conclusion:** Implementation of CQI interventions improved SGS and CGA utilization, strengthened referral processes, and enhanced multidisciplinary care coordination. These improvements were associated with a reduction in hospital readmissions among older adults, demonstrating the effectiveness of structured geriatric care interventions in improving patient outcomes.

**Keywords:** Geriatric care; hospital readmission; Comprehensive Geriatric Assessment; Continuous Quality Improvement; care coordination

# Abstract

## FFNAP2026-037

### Analysis of the Influencing Factors of Satisfaction with Rehabilitation Decision-Making Among Family Caregiver of the Elder Patients with Hip Fractures

*Yanzhen Hu, Tong mingxiao, Li Jiayue, Zhao Dan, Jia Yunyang, Wang Lifang, Lu Xuemei*

**Introduction:** To investigate the current status of rehabilitation decision-making satisfaction among family members of elderly patients with hip fractures and analyze its influencing factors.

**Methods:** Using convenience sampling, 267 family members of elderly patients with hip fractures admitted to the orthopedic trauma department of a tertiary hospital in Beijing from December 2024 to August 2025 were selected as the research subjects. General information questionnaires, decision-making satisfaction scales, decision-making readiness scales, and decision-making dilemma scales were used for the investigation. Univariate analysis, Pearson correlation analysis, and multiple linear regression analysis were conducted to explore the influencing factors of decision-making satisfaction among family members of elderly patients with hip fractures.

**Results:** Univariate analysis showed that the age, educational level, marital status, monthly family income, and occupation of family members of elderly patients with hip fractures had statistically significant differences in their decision-making satisfaction ($P<0.05$). Multiple linear regression analysis indicated that decision-making readiness ($\beta=0.226$) and decision-making dilemma ($\beta= -0.491$) were the main influencing factors of decision-making satisfaction among family members of elderly patients with hip fractures ($P<0.001$).

**Conclusion:** he decision-making satisfaction of family members of elderly patients with hip fractures is significantly influenced by their decision-making readiness and decision-making dilemma. Medical staff should attach importance to providing decision support to family members, offering comprehensive rehabilitation information and decision-making assistance measures for elderly patients with hip fractures to help them make decisions, thereby alleviating their decision-making dilemmas, enhancing their decision-making readiness, and improving their decision-making satisfaction

# Abstract

## FFNAP2026-039

### Time-Series Analysis of the Impact of Balance Ability on Depression in Hip Fracture Patients and the Mediating Effect of Quality of Life

*Jiyoung Kang, Lim Jae-Young, Suhyeon Choi, Ju-Hee Hwang*

**Introduction:** Patients who undergo hip fracture surgery often experience difficulty walking and a reduced quality of life and depression. This study aimed to investigate how balance ability (BBS) influences depressive symptoms and does quality of life (QoL) affect as mediation over time after surgery, and how these relationships change post-operatively.

**Methods:** Data were collected from patients who had hip fracture surgery, with surveys conducted at pre-operation, post-operation, 3 months, 6 months, and 12 months after surgery. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via Smart PLS to examine the relationships between balance ability, depressive symptoms, and quality of life across different time points.

**Results:** Before surgery, Balance ability did not significantly influence depressive symptoms. However, post-surgery, balance ability began to have a significant effect on depressive symptoms, and the strength of this relationship increased over time. Similarly, balance ability consistently impacted QoL after surgery, with stronger effects as time passed. The mediation effect of QoL between balance ability and depression was significant only before surgery, while post-surgery, QoL did not mediate the relationship between balance ability and depressive symptoms.

**Conclusion:** This study shows that after hip fracture surgery, balance ability directly influences both depressive symptoms and quality of life, with these effects growing stronger over time. Notably, while QoL did not mediate the relationship between balance ability and depression post-surgery, balance ability itself remained a critical factor in improving both depressive symptoms and QoL. The findings emphasize the importance of rehabilitation programs focusing on balance ability post-surgery to improve both mental and physical health outcomes for patients. Continued education and rehabilitation therapy targeting walking skills are essential for promoting recovery and well-being after hip fracture surgery.

# Abstract

## FFNAP2026-041

### Toxic Effects of Coal Dust Particulates on Bone Remodeling Dynamics and Osteoporosis of Ovariectomized Rats

*Bambang Setiawan, Izaak Zoelkarnain Akbar, Husna Dharma Putera, Hikmawan W Sulistomo, Zairin Noor, Nurdiana Nurdiana, Agustina Tri Endharti*

**Introduction:** Indonesia is a major exporter of bricks to meet global energy needs. Coal mining produces coal dust, which is released into the environment. To our knowledge, the role of coal dust as a risk factor for osteoporosis has not been identified. This study aimed to know whether coal dust particulate matter 5 (PM5) exposure changes bone turnover markers and microarchitecture in an ovariectomized rat model.

**Methods:** This experimental study involved five groups (a total of 35 female rats, each group contained 5 rats). The groups included healthy rats that underwent sham surgery (healthy control group); rats that underwent ovariectomy (OVX group); rats that underwent ovariectomy and then exposed to coal dust PM5 for 1 month (OVX + CD1 group); rats that underwent ovariectomy and then were exposed to coal dust PM5 for 2 months (OVX + CD2 group); and rats that underwent ovariectomy and then exposed to coal dust PM5 for 3 months (OVX + CD3 group). The samples used were serum and tibia. We measured the levels of osteocalcin, deoxypyridinoline, osteoprotegerin, OPG, and sRANKL using enzyme-linked immunosorbent assay. Tibia microarchitecture was analyzed by scanning electron microscope.

**Results:** Coal dust PM5 triggers microarchitectural changes to osteoporosis involving changes in osteocalcin, deoxypyridinoline, and the OPG/sRANKL ratio.

**Conclusion:** It was concluded that exposure to coal dust PM5 triggered changes in bone turnover marker dynamics and porosis microarchitecture in a postmenopausal osteoporosis. This study can provide a basis for osteoporosis prevention study for menopausal women living in mining environments or areas exposed to coal dust.

# Abstract

## FFNAP2026-044

### Comparative Study on the Effect of Short-Term Functional Independence Recovery of Elderly Patients with Hip Fracture After Surgery Under Different Home Rehabilitation Modes

*Bihan Yang, Zhao Dan, Jia Yunyang, Huo Yan, Hu Yanzhen, Qi Meng, Xia Jinghua, Liang Xiaoqin, Liang Taoyuan, Zhang Chunling, Lu Xuemei*

**Introduction:** Hip fracture in older adults often results in reduced postoperative functional independence. This study aimed to compare short-term functional independence recovery between two home-based rehabilitation modes after hip fracture surgery.

**Methods:** A comparative study was conducted in a control group and an intervention group. Functional independence was assessed at pre-fracture, post-fracture baseline, and 3 months after surgery. As the data were non-normally distributed, outcomes were expressed as median and interquartile range and compared using nonparametric tests. The primary outcome was the change in functional independence score from post-fracture baseline to 3 months. Subgroup analyses were performed by age(65-70, 71-80, 81-90, >90), surgical type(replacement, intramedullary nailing, hollow nailing), and baseline functional independence grade(high, medium, low).

**Results:** At pre-fracture baseline, functional independence scores were 118.00 (112.00, 121.00) in the control group (n=99) and 126.00 (120.50, 126.00) in the intervention group (n=105), with a significant difference between groups (P<0.001). At post-fracture baseline, the scores were 76 (73, 78) and 77 (75, 81), respectively, also showing a significant difference (P=0.012). At 3 months, scores were 110.00 (99.75, 117.00) in the control group (n=94) and 109.50 (101.00, 118.00) in the intervention group (n=76), with no significant difference (P=0.577). The change from post-fracture baseline to 3 months was 34.0 (22.5, 39.0) and 32.00 (19.75, 41.00), respectively, with no significant difference (P=0.862). Mortality was 0% in the control group and 1.9% in the intervention group. At 3 months postoperatively, the between-group difference in cognitive function was statistically significant (P < 0.01).

**Conclusion:** There is no significant between-group difference was observed in 3-month functional independence improvement. However, the intervention group showed better cognitive function, suggesting that the intervention may have potential benefits for cognitive recovery.Whether the intervention has a delayed effect on motor function, remain to be further clarified after completion of the 12-month follow-up.

# Abstract

## FFNAP2026-045

### Delayed Surgery in Geriatric Hip Fractures: Impact on Complications and Length of Stay in a Single Centre Study

*Sarvesswara Muniandy, Kamarul Arifin, Mohd Farid, Firdaus*

**Introduction:** Hip fractures in the elderly are associated with high morbidity and mortality. International guidelines recommend surgery within 48 hours
Delays remain common due to, medical optimization, resources limitations and service availability. This study evaluates outcomes in delayed surgery patients

**Obejective:** To evaluate postoperative complications, mortality and length of stay (LOS) in geriatric hip fracture patients undergoing delayed surgery (≥48h)

**Methods:** We conducted a retrospective observational study of patients aged ≥65 years admitted with hip fractures between [Nov 2025- March 2026]. Sample size: n = 31 All patients: Surgery ≥48 hours from admission. Outcomes: Complications, Mortality and Length of stay

**Results:** Complication rate: 29% (9/31), Mortality: 12.9% (4/31), Mean LOS: 26.5 days
Complication Breakdown: Pneumonia – 12.9%, Delirium – 6.5% ,PE / DVT / SSI / UGIB/ MI– 3.2% each

**Discussion:**
High complication rates likely reflect: Delayed mobilization and frailty burden
Pneumonia predominance suggests: Immobilization + respiratory compromise
Prolonged LOS (26.5 days): Indicates significant system burden Findings align with literature supporting.

**Conclusion:** Delayed surgery is associated with: Significant morbidity, notable mortality, prolonged hospitalization. Early surgical intervention should be prioritized. Need for system-level improvements

**References:** 1. National Institute for Health and Care Excellence. Hip fracture: management (Clinical Guideline CG124). London: NICE; 2017 (updated).
2. AAOS. Management of Hip Fractures in Older Adults: Evidence-Based Clinical Practice Guideline. Rosemont, IL; 2014

# Abstract

## FFNAP2026-047

### 3D-CT Evaluation of Femoral Trochanteric Fractures and Relationship to AO/OTA Classification on Plain X-Ray in Elderly Patients

*Etsuo Shoda, Yoshinori Yasuhara, Takeharu Sasaki, Tomoki Yamada, Takayoshi Matsushita, Kenta Kawabata, Haruka Nakamura. Yasuaki Akai*

**Introduction:** Femoral trochanteric fracture is usually classified with plain X-ray. However, complications are seen even in stable fracture. This may be the difficulty of exact diagnosis of fracture pattern in plain X-ray. We investigated the relationship between 3D-CT classification and AO/OTA classification.

**Methods:** We evaluated 207 femoral trochanteric fractures. In 3D-CT, fractures were classified as 2, 3 or 4 parts using combinations of the head, greater trochanter(GT), lesser trochanter(LT), and shaft. G(S) means small fragment of GT. G(B) is big fragment of GT not include LT, G-L is large GT fragment including LT fragment. G-L separate is separate type of G-L and G-L long beak is long beak bellow L T. G(W) is whole fragment of GT, L is fracture of LT. 2 part and 3part G(S) were considered stable types in our 3D-CT classification.

**Results:** In 3D-CT 2part: 50, 3part G(S): 18, G(B): 35, G-L: 20, G-L separate: 40, G-L long beak:20, G(W): 14, L: 83, 4 part: 7 cases. 68 fractures were classified as stable and 139 fractures were unstable in 3D-CT.
In AO/OTA classification, 97 cases were stable and 110 cases were unstable. Forty-two cases (20.3%) classified as stable by the AO/OTA classification were classified as unstable by 3D-CT. Cases classified as stable in the AO/OTA classification predominantly showed 3 Part G(B), G-L, and G-L(separation) on 3D-CT.

**Conclusion:** This result shows that 3D-CT shows the fracture line very clearly, making it easy to classify the fracture pattern.

# Abstract

## FFNAP2026-051

### A Comparative Study of the Prevalence of Abnormal Low Muscle Mass Between Thai Older Adults who Consume a Plant-Based Diet and Meat-Inclusive Diet

*Nachapong Sithiwichankit, Pojchong Chotiyarnwong, Aasis Unnanuntana, Surin Thanapipatsiri, Pannin Thanapipatsiri, Ekasame Vanitcharoenkul*

**Introduction:** This study compares prevalence of low muscle mass, sarcopenia, muscle strength and physical performance between Thai elderly following plant-based versus meat-inclusive diet.

**Methods:** This cross-sectional study, conducted from October 2025 to February 2026, compares low muscle mass between Thai elderly individuals following plant-based versus meat-inclusive diet. Participants, age > 60 years, maintained same dietary pattern for at least 2 years. We recruited plant-based subjects from dhamma retreats and meat-inclusive subjects from the prior study1. Data collection involved appendicular skeletal muscle mass (ASM) measurement, muscle strength and physical performance assessments. Low muscle mass and sarcopenia were diagnosed under criteria from Asian Working Group for Sarcopenia (AWGS) 2025.
Participants from both groups were matched using propensity score matching based on age, sex, body mass index (BMI), smoking and alcohol consumption histories, and physical activity level to reduce confounding bias.

**Results:** A total of 187 plant-based and 281 meat-inclusive participants were included after propensity score matching based on age, sex, BMI, smoking and alcohol consumption histories and physical activity level. The prevalence of low ASM according to AWGS 2025 did not differ between groups (plant-based: 20.3% vs meat-inclusive: 22.1%; p=0.638). Subgroup analysis showed a higher prevalence of low ASM in meat-inclusive group among males (plant-based: 25.6% vs meat-inclusive: 44.0%; p=0.046).
Plant-based participants performed better in handgrip strength and physical performance tests. The prevalence of sarcopenia did not differ significantly between the two groups.

**Conclusion:** From this study, the prevalence of low muscle mass between groups according to AWGS 2025 did not differ. Also, the prevalence of sarcopenia was similar. However, plant-based group performed better in muscle strength and physical performance assessments.

# Abstract

## FFNAP2026-052

### The Fall That Told a Deadly Secret

*Schee Li Kwa, Elizabeth Chong Gar Mit*

**Introduction:** Pathological fractures may be the first manifestation of an underlying malignancy but are often misattributed to osteoporosis in older adults, particularly when presenting symptoms are subtle.

**Methods:** A 61-year-old postmenopausal woman, previously independent, presented with right lower limb pain following a low-impact fall. She reported a preceding 6-month history of crampy right leg pain, alongside right-sided neck pain and headache. Initial clerking did not raise any other specific concerns. However, examination revealed word-finding difficulty and bilateral matted cervical lymphadenopathy; the remainder of the systemic examination was unremarkable. Baseline haematological and metabolic investigations were within normal limits. Initial imaging demonstrated a displaced, comminuted oblique diaphyseal fracture of the proximal femur, raising suspicion of an underlying pathological process.

Further collateral history from her son revealed rapid cognitive decline over 6 months, including repetitive speech and psychomotor slowing. Otherwise, patient denied constitutional symptoms and reported a 10 kg weight gain over two years.

Given the atypical cognitive decline, MRI brain was performed, revealing multifocal calvarial lesions with dural involvement and metastases in the left temporoparietal region, petrous apex, parotid region, and multiple necrotic cervical lymph nodes. Further imaging identified a right middle lobe mass with extensive pulmonary, mediastinal, supraclavicular, and cervical nodal metastases, as well as widespread skeletal involvement, including the pathological femoral fracture, L2–L3 compression fractures, and mixed lytic–sclerotic spinal lesions. Bronchoscopy confirmed lung adenocarcinoma, while femoral biopsy demonstrated metastatic adenocarcinoma with signet-ring cell features.

The patient underwent surgical stabilisation of the femur following zoledronic acid administration and subsequently received whole-brain radiotherapy.

**Conclusion:** This case highlights an atypical presentation of metastatic lung adenocarcinoma with pathological fracture and neurological decline in the absence of respiratory symptoms. Early recognition of red flags such as persistent bone pain, neurological changes, and cervical lymphadenopathy is critical to prompt timely investigation and diagnosis.

# Abstract

## FFNAP2026-053

### Fall Risk Prevention Practices of Nurses in a Geriatric Medical Center: A Descriptive Study

*Trisha Buñag, Princes Jonica Chaalan, Jerome Clark Cid, Carmela Collao, Edleen Dionisio, Karlh John Mapa, Amicy Grace Torres*

**Introduction:** Falls are a leading cause of preventable injury, disability, and mortality among older adults worldwide, posing a significant burden on healthcare systems. Despite the presence of institutional policies, inconsistencies in the implementation of fall prevention strategies remain a concern. This study aimed to assess the extent of fall risk prevention practices of nurses and describe their socio-demographic profile in a geriatric medical center.

**Methods:** A descriptive quantitative design was employed involving 45 nurses assigned to eight clinical areas providing care to patients aged 60 years and above in a geriatric medical center in Camarines Sur, Philippines. Data were collected using a validated self-administered questionnaire and analyzed using frequency, percentage, and weighted mean.

**Results:** Most respondents were female, held a bachelor's degree, had more than five years of clinical experience, and had no postgraduate training. Overall, nurses demonstrated a high level of fall risk prevention practices (mean = 4.41), interpreted as "very often." The most consistently implemented practices included hazard reporting systems (mean = 4.60), environmental risk assessment (mean = 4.56), and ensuring equipment safety such as locking bed and wheelchair brakes (mean = 4.58). High levels of compliance were observed across all clinical areas.

**Conclusion:** The findings indicate strong adherence to fall prevention practices, reflecting a positive patient safety culture in geriatric care. However, gaps in postgraduate training highlight the need for continuous professional development and standardized institutional protocols. Strengthening education, policy implementation, and evidence-based interventions is essential to further enhance fall prevention and improve health outcomes among older adults.

# Abstract

## FFNAP2026-054

### A Standard Versus Without Hip Precaution Protocol on Functional Recovery of Fragility Hip Fracture Patients After Hemiarthroplasty via Piriformis-Sparing Posterior Approach: A Randomized Controlled Trial Study

*Napatr Leksrisakul, Pojchong Chotiyarnwong, Aasis Unnanuntana, Ekasame Vanitcharoenkul, Nath Adulkasem, Pannatorn Patiparnprechawut*

**Introduction:** Hemiarthroplasty is a standard treatment for displaced femoral neck fractures in older adults. Although the posterior approach is commonly used, concerns regarding prosthetic dislocation have led to routine postoperative hip precautions. These restrictions may delay mobilization and limit functional recovery. This study evaluated the effect of omitting hip precautions on patient-reported quality of life and clinical outcomes following hemiarthroplasty via a piriformis-sparing posterior approach.

**Methods:** In this prospective randomized controlled trial, patients aged sixty years and older with displaced femoral neck fragility fractures underwent hemiarthroplasty using a piriformis-sparing posterior approach. Participants were randomized to either a standard precaution protocol with restricted hip flexion, adduction, and internal rotation or a no precaution protocol with unrestricted mobilization. The primary outcome was the EuroQol visual analogue scale (EQ-VAS) at six weeks. Secondary outcomes included functional recovery, numerical pain rating scale, patient satisfaction, Ability for Basic Movement Scale II (ABMS II) score, and prosthetic dislocation rate.

**Results:** Analysis included 59 patients with femoral neck fractures, of whom 30 and 29 were allocated to the standard precaution and no precaution protocols, respectively. Baseline characteristics were comparable between groups. At six weeks after surgery, there was no significant difference in EQ-VAS between groups ($p=0.993$). Secondary outcomes, including functional recovery, pain, patient satisfaction, Ability for Basic Movement Scale II scores, and prosthetic dislocation rates, were also comparable between groups.

**Conclusion:** Elimination of postoperative hip precautions did not compromise patient-reported quality of life or increase dislocation risk. Unrestricted mobilization was safe and did not hinder early functional recovery following hemiarthroplasty via a piriformis-sparing posterior approach. These findings suggest that routine hip precautions may be unnecessary when this approach is used and could be reserved for selected cases.

# Abstract

## FFNAP2026-055

### Association Between Appendicular Skeletal Muscle Mass and Bone Mineral Density in Postmenopausal Thai Women: Implications for Osteoporosis Screening

*Marisa Hemanont, Kanaungnit Kingpetch, Nalina Orprayoon, Jirapa Champaiboon, Lalita Wattanachanya, Sukanya Chaikittisilpa*

**Introduction:** Osteoporosis and sarcopenia frequently coexist in postmenopausal women and share overlapping pathophysiological mechanisms. However, population-specific data on the relationship between appendicular skeletal muscle mass (ASMI) and bone mineral density (BMD), as well as clinically applicable muscle mass cut-off values for predicting osteoporosis in Asian populations, remain limited. This study aimed to evaluate the association between ASMI and BMD and to identify an optimal muscle mass cut-off for osteoporosis screening in postmenopausal Thai women.

**Methods:** This cross-sectional study included 730 postmenopausal Thai women aged 50–70 years evaluated between June 2024 and March 2025. BMD at the lumbar spine, total hip, and femoral neck was measured using dual-energy X-ray absorptiometry (DXA), and muscle mass was expressed as ASMI derived from bioelectrical impedance analysis (BIA). Associations between ASMI and BMD were examined using correlation and multivariable regression analyses. Receiver operating characteristic analysis was performed to determine the optimal ASMI cut-off for predicting osteoporosis.

**Results:** ASMI was positively correlated with BMD at the lumbar spine ($r = 0.35$), total hip ($r = 0.44$), and femoral neck ($r = 0.37$) (all $p < 0.001$). Women with low muscle mass had significantly lower BMD across all skeletal sites. An ASMI cut-off of 6.0 kg/m$^2$ predicted osteoporosis with a sensitivity of 69.1% (95% CI 65.2%–72.8%), specificity of 60.9% (95% CI 52.2%–69.1%), and an area under the curve of 0.65 (95% CI 0.61–0.70). In multivariable analysis, body mass index and trabecular bone score were independently associated with osteoporosis, whereas age, body mass index, and handgrip strength independently predicted low muscle mass.

**Conclusion:** Appendicular skeletal muscle mass is significantly associated with bone mineral density in postmenopausal Thai women. An ASMI cut-off of 6.0 kg/m$^2$ may complement BMD-based screening to identify women at increased risk of osteoporosis, particularly in primary care and resource-limited settings.

# Abstract

## FFNAP2026-056

### Comparative Performance of the Nottingham Hip Fracture Score and Lee's Revised Cardiac Risk Index for Predicting 30-day and One-Year Mortality After Hip Fracture Surgery

*Khor Hui Min, Terence Ong, Tan Maw Pin, Nor'Izzati Saedon, C Sankara Kumar, Yohan Khirusman Adnan, Imran Zainal Abidin, Rafidah Atan*

**Introduction:** Hip fractures represent a significant and growing concern among older adults worldwide due to population aging and their association with substantial morbidity and mortality. Although various risk prediction tools exist, there is no clear consensus on the most appropriate model for use among older patients with hip fractures in the Asia-Pacific region. This study aims to evaluate and compare the predictive value of the Nottingham Hip Fracture Score (NHFS) and Lee's Revised Cardiac Risk Index (RCRI) for predicting 30-day and 1-year mortality following hip fracture surgery in older adults.

**Methods:** This retrospective cohort study included all older adults aged ≥ 65 years with acute hip fractures who were admitted to a tertiary teaching hospital between 2022 and 2023. Data collected included baseline demographics, comorbidities, surgical details, and variables required to calculate the NHFS and RCRI. Mortality data were obtained from the National Registration Department. The predictive performance of both tools was evaluated using logistic regression, and discriminative ability was assessed using the area under the receiver operating characteristic curve (AUC).

**Results:** A total of 305 patients with a mean age of 79.5 years (SD 6.75) were analyzed. The 30-day and 1-year mortality rates were 3.9% and 20.3%, respectively. The NHFS demonstrated limited predictive value for 30-day mortality (AUC=0.62, 95% CI: 0.44-0.81) and 1-year mortality (AUC=0.65, 95% CI: 0.57-0.72). The RCRI showed poor predictive value for 30-day mortality (AUC=0.43, 95% CI: 0.28-0.58), but modest discrimination for 1-year mortality (AUC=0.66, 95% CI: 0.58-0.74).

**Conclusion:** In our setting, both the NHFS and RCRI demonstrated limited predictive accuracy in mortality following hip fracture surgery. The NHFS showed marginal applicability for short-term mortality prediction, while RCRI demonstrated moderate discrimination for longer-term outcomes. These findings highlight the need to develop a region-specific risk model to guide perioperative care planning for older Asian patients.

# Abstract

## FFNAP2026-061

### Predictors for Good Outcome After Hip Replacement for Elderly Femoral Neck Fracture

*Ong-art phruetthiphat, Rathapoom Suwanaratana, Prayut Siriamornthep, Chawanan Patamamongkonchai, Sunsern Tatiyaworakulwong, Pattarawan Woratanarat*

**Introduction:** Elderly patients with femoral neck fractures face high morbidity and mortality. While hemiarthroplasty is a standard treatment, predicting recovery remains complex. This study aims to identify predictors of functional success and develop a comprehensive scoring system for these patients.

**Methods:** This retrospective study analyzed 427 elderly patients (mean age 80.6 years) who underwent bipolar hemiarthroplasty (BHA) between 2015 and 2021. Functional outcomes were measured using the Harris Hip Score (HHS) at a two-year follow-up. Multivariate logistic regression was used to identify predictors and develop the Integrated Scoring System in Elderly Patients with Isolated Femoral Neck Fracture (ISSIFN).

**Results:** Predictors for favorable outcomes included age <80 years, Charlson Comorbidity Index ≤5, GFR ≥45 mL/min, hip BMD >-2.5, pre-fracture independent ambulation, normal cognitive function, vitamin D ≥20 ng/mL, and surgery/rehabilitation initiated within three days. The ISSIFN score (range 0–21) demonstrated strong discriminatory power with an AUC of 0.804. A cut-off score at or more than 12 yielded 70% sensitivity and 75% specificity for predicting good functional outcomes.

**Discussion:** The study emphasizes that recovery depends on an interplay of surgical timing and medical optimization. Factors like vitamin D levels and renal function are critical but often overlooked. Early intervention and rehabilitation remain vital to mitigate risks associated with immobilization.

**Conclusion:** The ISSIFN is a novel, effective tool for stratifying risk and predicting recovery in geriatric hip fracture patients. By integrating medical and surgical parameters, it allows clinicians to identify modifiable risk factors and implement targeted interventions to improve long-term functional outcomes.

# Abstract

## FFNAP2026-062

### Machine Learning for Osteoporosis Risk Prediction in Thailand's Aging Population

*Ong-art Phruetthiphat, Panukorn Pinijprapa, Kanyanut Homsapaya*

**Introduction:** Osteoporosis is a critical public health issue in Thailand, affecting approximately 25% of the elderly population. With hip fracture incidence rising and 80–90% of at-risk individuals remaining undiagnosed, there is an urgent need for improved prevention strategies.Purpose: In collaboration with orthopedic and radiology specialists, this study developed and validated a machine learning model to predict osteoporosis risk. A secondary aim was to quantify the importance of the Trabecular Bone Score (TBS) alongside Bone Mineral Density (BMD) and Body Mass Index (BMI) to enhance early detection.

**Methods:** Clinical data from 5,000 individuals were analyzed, including demographics, BMI, ICD-9 codes, TBS, and BMD. The modeling pipeline, implemented in Python, utilized Sequential Forward Floating Selection (SFFS) and SMOTE to balance the dataset. Model interpretability was ensured using SHAP (SHapley Additive exPlanations) values to quantify feature contributions.

**Results:** Analysis confirmed that bone density and microarchitecture decline with age, showing a strong positive correlation ($r = 0.79$) between TBS and BMD. Among the algorithms tested, XGBoost was the top performer, achieving an AUC of 0.98. SHAP analysis identified TBS as a primary predictor alongside BMD and BMI. Additionally, the model highlighted a significant association between dyslipidemia and increased osteoporosis risk.

**Conclusion:** The integration of clinical expertise and machine learning produced a high-performing model (AUC = 0.98) for osteoporosis prediction. The findings underscore that incorporating TBS significantly enhances predictive accuracy over BMD alone. This tool provides a proactive approach to identifying high-risk individuals, potentially reducing the national burden of osteoporotic fractures in Thailand.

# Abstract

## FFNAP2026-063

### Predictors for Poor Outcome After Hip Replacement for Elderly Femoral Neck Fracture

*Ong-art Phruetthiphat, Chawanan Patamamongkonchai, Teerapat Tutaworn, Yanin Plumarom*

**Introduction:** Hip fractures in the elderly are associated with high mortality and healthcare costs. While bipolar hemiarthroplasty (BHA) is standard, long-term functional outcomes vary. This study aims to identify predictors of poor outcomes and develop the Integrated Scoring System in Elderly Patients with Isolated Femoral Neck Fractures (ISSIFN) for clinical risk stratification

**Methods:** This retrospective study analyzed 399 elderly patients (mean age 80.14) who underwent BHA between 2015 and 2021. Functional outcomes were assessed via the Harris Hip Score (HHS) at a two-year follow-up. Poor outcomes were defined as HHS <80 or mortality. Predictive factors were identified using multivariable logistic regression to construct the ISSIFN.

**Results:** Predictors for poor functional outcomes included: Cognitive Impairment (6 points), Time to Operation >3 days (4 points), Time to Rehabilitation >3 days (3 points), Pre-fracture Dependency (2 points), and BMD < -2.5 (2 points). The ISSIFN demonstrated excellent discriminatory power (AUC = 0.9331). Using a cut-off score of 8.5, the model predicted poor outcomes with 89% sensitivity and 85% specificity.

**Discussion:** Cognitive status and care timelines were the strongest predictors of recovery. The extreme risk associated with cognitive impairment (aOR: 421.25) and surgical delays (aOR: 45.60) suggests that biological health must be matched by efficient clinical pathways. Early identification of high-risk patients via ISSIFN allows for intensified orthogeriatric care.

**Conclusion:** The ISSIFN is a highly sensitive tool for predicting functional recovery post-BHA. Prioritizing cognitive assessment and minimizing surgical and rehabilitative delays are essential strategies to improve the quality of life in the geriatric hip fracture population.

# Abstract

## FFNAP2026-064

### Influence of Lumbar Spinal Stenosis on Functional Recovery After Hip Fracture Surgery

*Ong-art Phruetthiphat, Peem Sarasombath, Chaisiri Chaichankul, Pawin Gajaseni*

**Introduction:** Fragility hip fractures in the elderly lead to significant mortality and functional decline. While the impact of vertebral fractures is well-documented, the influence of coexisting Lumbar Spinal Stenosis (LSS) on hip fracture recovery is poorly understood. This study evaluated whether concomitant LSS adversely affects functional outcomes after hip fracture surgery.

**Methods:** We retrospectively analyzed 270 patients undergoing hip fracture surgery, divided into Non-LSS (n=184) and LSS (n=86) groups. Outcomes were assessed using the Harris Hip Score (HHS), Timed Up and Go (TUG), and Oswestry Disability Index (ODI) at intervals up to 12 months. Subgroup analyses within the LSS group examined stenosis level (single vs. multi-level) and severity (Lee grades 1–3).

**Results:** The LSS group demonstrated significantly lower HHS at 3 and 6 months ($p < 0.005$) and higher ODI at 6 months ($p = 0.0001$) compared to the Non-LSS group. TUG times at 6 months were also significantly slower in LSS patients ($p = 0.002$). However, these functional differences attenuated by 12 months, showing no significant disparity in HHS or TUG. Within the LSS group, multi-level stenosis and higher Lee grades were associated with poorer HHS at 6 months, indicating a dose-response relationship between stenosis severity and recovery speed.

**Conclusion:** Coexisting LSS significantly delays functional recovery in the early-to-mid-term (3–6 months) following hip fracture surgery, though outcomes equalize by one year. Patients with multi-level involvement or high-grade stenosis are at the greatest risk for delayed mobilization. Early recognition of LSS is essential for implementing tailored rehabilitation strategies to optimize the recovery trajectory in this vulnerable population.

# Abstract

## FFNAP2026-066

### Diagnostic Approaches and Non-Operative Treatment for Osteoporosis in Indonesia: A Systematic Review

*Zairin Noor*

**Introduction:** Osteoporosis is an increasingly concern in Indonesia. Early diagnosis and appropriate treatment are essential to reduce fracture risk and disability, yet variations in clinical practice, persist across the country. This systematic review aims to evaluate current diagnostic approaches and treatment for osteoporosis in Indonesia.

**Methods:** A systematic search was conducted in PubMed, Scopus, and Google Scholar for studies published between 2016-2025. Eligible studies included reports assessing diagnostic modalities, fracture risk assessment tools, pharmacologic and non-pharmacologic therapies, and treatment outcomes among Indonesian adults. Data extraction and quality appraisal followed PRISMA guidelines.

**Results:** Twenty-nine studies met the inclusion criteria. Dual-energy X-ray absorptiometry (DEXA) was the primary diagnostic method, though access was limited to urban centers. FRAX-Indonesia was used inconsistently, while quantitative ultrasound served as an alternative in resource-limited settings. Most studies reported the use of calcium-vitamin D supplementation and bisphosphonates as first-line therapy. Vitamin D deficiency was common across populations. Adherence to long-term therapy remained low, particularly among elderly women.

**Discussion:** Findings highlight substantial diagnostic gaps and geographic inequality in osteoporosis services in Indonesia. Limited DEXA availability and inconsistent use of fracture-risk tools hinder early detection. Suboptimal adherence to treatment reduces long-term effectiveness. Nutrition and vitamin D deficiency may further contribute to disease burden.

**Conclusion:** Osteoporosis diagnosis and treatment in Indonesia remain constrained by access barriers and poor adherence. Expanding diagnostic infrastructure, standardizing risk assessment, Fracture Liaison Service, and enhancing public and clinician awareness are critical to improving national osteoporosis management.

# Abstract

## FFNAP2026-067

### Frequency and Potential Risk Factors of Fragility Fractures in Patients with Beta-Thalassemia: A Cross-Sectional Study

*Zulfiqar Jogezai, Lena Jafri, Hafsa Majid, Arsala Jameel Farooqui, Aysha Habib Khan*

**Introduction:** The prevalence of fractures amongst Beta-Thalassemia is around 17% and risk factors for fractures in this cohort include age, anaemia, and metabolic and endocrine dysfunction. In this cross-sectional study, we compared clinical and biochemical variables between cases (with fractures) and controls (without fractures) to understand potential risk factors in an understudied population.

**Methods:** In a collaborative study between the Fatimid Foundation and the Aga Khan University, Karachi, 142 patients with Beta-Thalassemia Major were enrolled between January and October 2022. Clinical history was obtained; subsequent serum and urinary biomarker analysis was performed. Analytes included but were not restricted to serum ferritin, intact PTH (iPTH), calcium, phosphate, vitamin D levels, and FGF-23. Descriptive and inferential statistics using SPSS v20 was conducted. Statistical significance is reported for $p<0.05$.

**Results:** Seventeen children had a history of fractures, 9 being females. 47.1% (8/17) of cases had a history of fall compared to 16.8% (21/125) of controls ($p=0.008$). Compared to controls, the cases were older (median: 13 vs 12 yrs), had higher median iPTH (42.5 vs 38.2 pg/ml) and PTH Nomogram (64.1 vs 61.7), lower median cFGF23 (147.0 vs 199.7 RU/ml) and higher mean iFGF23 levels (46.5 vs 38.6 pg/ml), higher median Urine Ca/Cr (1.08 vs 0.96), lower median 1,25(OHD)2 (47.7 vs 58.9 pg/ml), lower median 25OHD (15.5 vs 16.1 ng/ml) and lower corrected calcium (8.7 vs 8.8 mg/dl). None of the aforementioned associations were statistically significant.

**Conclusion:** This study shows that fractures are a common bone complication in Beta-Thalassemia and have a strong association with falls. Further studies with larger sample sizes are required to assess predictors of this population subset to identify those at risk and to take preventive measures.

# Abstract

## FFNAP2026-069

### Does Proximal Femoral Nailing Truly Bypass the Lateral Wall? A Myth vs Reality Study

*Nur Amira Binti Abdullah, Hariharan Kumarasamy, Irwan Bin Ariffin*

**Introduction:** Integrity of the lateral femoral wall is a key determinant of stability in intertrochanteric fractures. Proximal femoral nailing (PFN) is widely used and is often considered to biomechanically bypass the lateral wall; however, its clinical relevance in osteoporotic fractures remains uncertain.

**Methods:** A retrospective descriptive study was conducted at district hospital, Hospital Tanah Merah between March 2025 till March 2026 involving patients with intertrochanteric fractures treated with proximal femoral nail. Patient demographics, fracture characteristics, and measurable lateral wall thickness were recorded. Follow-up radiographs were reviewed for fracture union, alignment, and complications.

**Results:** Nineteen patients were identified; seven defaulted follow-up, limiting full outcome analysis. Lateral wall thickness was measurable in the remaining subset, ranging from 9 mm to 24 mm. In this cohort study, most fractures achieved union, although at least one case of nonunion was observed. This case was noted in a patient with relatively thinner lateral wall measurements (<20 mm). Although the small sample size precluded statistical correlation, a consistent trend was observed linking reduced lateral wall thickness with poorer outcomes.

**Discussion:** Despite the theoretical mechanical advantage of PFN, lateral wall integrity may still influence fracture stability and healing, particularly in osteoporotic bone. A compromised lateral wall may increase the risk of collapse or implant-related complications. Preoperative assessment of lateral wall thickness could therefore aid in anticipating postoperative behaviour and optimizing fixation strategy.

**Conclusion:** Proximal femoral nail may not completely negate the biomechanical role of the lateral femoral wall. This study highlights a potential association between thin lateral walls and suboptimal outcomes. Larger prospective studies with comprehensive follow-up are required to strengthen these findings and guide surgical decision-making.

# Abstract

## FFNAP2026-070

### Fracture Liaison Service and Osteosarcopenia: Proposal of Interdepartmental Collaboration in Response to Overlapping Target Patients

*Toru Honda*

**Introduction:** Fracture Liaison Services (FLS) have recently expanded to include patients with vertebral fractures detected on chest or abdominal CT scans, and dissemination of FLS also requires the approval of attending doctors. Concurrently, some clinical departments have focused on osteosarcopenia which adverse outcomes in patients with lifestyle-related diseases and malignancies. Because CT imaging is used for the identification of vertebral fractures and detection of osteosarcopenia, significant overlaps exist between patients targeted by these two approaches.

**Methods:** The presenter reviewed the current implementation of FLS for patients with CT-detected vertebral fractures and investigated the response for osteosarcopenia across multiple departments. Efficient management for patients eligible for both approaches were considered.

**Results:** In the United Kingdom, FLS revised in 2017 have included patients with vertebral fractures. In October 2025, evidence generating tests of AI-based detection of vertebral fractures from CT sagittal images, certification and FLS linkage of the detected patients by radiologists have begun. In the tests, the reporting rate of vertebral fractures increased from 15-25% to 70-90%, and the number of referrals to FLS, DXA examination rates, and treatment initiation rates also increased significantly. In clinical fields, osteosarcopenia was identified as a significant risk factor for fractures and mortality. In an analysis of 1,608 cancer patients, hazard ratios for overall survival were 2.0 for osteopenia, 2.58 for sarcopenia, and 2.67 for osteosarcopenia. However, current detection criteria for osteosarcopenia do not directly lead to osteoporosis treatment, and disease-specific therapeutic strategies remain limited.

**Conclusion:** There is considerable overlap between patients managed with FLS and those eligible for osteosarcopenia interventions. Collaboration between FLS and each department can contribute to the prevention of secondary fractures and the improvement of life prognosis for patients. However, as more patients are included, level of standard osteoporosis care should be raised and FLS tailored to disease severity.

# Abstract

## FFNAP2026-076

### Mapping Hip Fracture Registry Readiness and Fragility Fracture Care Quality Gap in Southeast Asia

*Chester Tan, Leah Thorpe*

**Introduction:** Hip fracture registries, audit systems, and secondary fracture prevention programmes improve care after fragility fracture, but their public visibility across Southeast Asia is unclear. This study mapped publicly identifiable evidence of registry readiness and fragility fracture care quality to identify regional implementation gaps.

**Methods:** We performed a scoping review and implementation gap map of indexed and grey literature for ten Southeast Asian countries. Searches used PubMed, Embase, CINAHL, Google Scholar, and targeted ministry, society, registry, guideline, osteoporosis, and fracture liaison sources. Records were screened, reconciled with a source extraction matrix, and mapped across fourteen registry-readiness and care-quality domains. Country-domain scores were assigned conservatively from publicly available evidence and interpreted as evidence-mapping signals rather than a validated readiness index.

**Results:** The evidence matrix showed that publicly identifiable readiness signals were uneven across the region. Malaysia, the Philippines, Thailand, and Singapore showed the broadest evidence across multiple domains. Viet Nam and Myanmar showed moderate but domain-specific evidence, while Indonesia and Brunei Darussalam had more limited public evidence. No country-specific evidence meeting current criteria was identified for Cambodia or the Lao People's Democratic Republic. Evidence was strongest for osteoporosis guidance, osteoporosis assessment or treatment, and fracture liaison service activity in selected settings. Public annual benchmarking, functional outcome reporting, delirium assessment, mature audit systems, and national registry infrastructure were sparse.

**Conclusion:** Southeast Asia shows emerging but uneven registry readiness and fragility fracture care quality infrastructure. A regionally adapted minimum dataset, transparent source hierarchy, and staged implementation roadmap may support future hip fracture audit and secondary fracture prevention systems.

# Abstract

## FFNAP2026-079

### Beyond Bone Fragility: Clinical Factors Linked to Postoperative Complications in Older Adults

*Sharalaa Devi Engatramana, Elizabeth Chong Gar Mit*

**Introduction:** Fragility fractures are an increasing global health burden with marked rise in fracture incidence, prevalence, and associated disability driven by population ageing and growth. This study delineates the comparison of clinical profile of older patients admitted with fragility fractures with and without postoperative complications.

**Methods:** This is a retrospective descriptive analysis of 154 patients above 60 years of age who were admitted to a tertiary hospital in Malaysia from January 2024 till December 2025.

**Results:** The study found that 40% of patients were aged over 80 years, with an overall postoperative complication rate of 18.8%. Complications were commonest among Indian patients (39.3%), followed by Malays (30.2%) and Chinese patients (17.6%). Females dominate the cohort at 70% (n:118). Most falls occurred indoors (72.3%) in own homes (92%). Patients experiencing a first-time fall (55.8%, n:86) had a higher complication rate than those with recurrent falls (24.4% vs 29.4%). Most patients were independently mobile before the fall (64%) and were classified as non-frail (Clinical Frailty Score ≤4, 61.7%) despite having multiple comorbidities (72.7%, n:112). Postoperative complications were less frequent in non-frail patients compared to frail patients (22.5% vs. 35.2%). Surgical delay beyond 72 hours yields complication risk of 30.4% compared to without a delay (25.6%). Early mobilization within 24 hours of operation had lesser postoperative risk (19.2% vs 30.1%). Most of them were discharged to individual homes (88.2%).

**Conclusion:** This study shows the oldest-old cohort exhibited lower postoperative complication rates than younger older adults. Early surgery and mobilization were associated with lower postoperative complications in older adults with fragility fractures, while frailty showed no significant association with outcomes. These findings highlight the importance of timely surgery, early mobilization, and comprehensive geriatric assessment in optimizing postoperative outcomes.

# Abstract

## FFNAP2026-080

### Fragility Fracture in An Organ Donor: A Case Report

*Mohd Zuhail Bin Abd Rahim, Basyar, Azwan Zhafri, Kamarul Arifin*

**Introduction:** Due to aging population in our country, the incidence of fragility fracture is increasing in trend. Patient with osteoporosis who is on an anti-resorptive medication to prevent this fracture has been associated with atypical femoral fractures (AFFs). We reported a case of 73 years old lady which has donated her left kidney in 1999 but was not on any renal replacement therapy and taking bisphosphonate since 2018 for her osteoporosis.

**Methods:** Our patient had complaint of bilateral proximal thigh pain two month prior. The patient presented to our centre following a sinister trauma. The patient was turning to her right side with right lower limb in stationary position and heard a crack sound over the thigh, then fall due to loss of balance. The patient complaint of pain and inability to ambulate post trauma.
At our centre, primary survey was cleared. Secondary survey shows tenderness over right thigh with very limited range of motion of the right hip and knee joint. Plain radiograph shows a transvers, non-comminuted proximal femur fracture with a medial cortical spike.
This xray features together with history of bisphosphonate medication and red flag sign prior trauma is the classical presentation of AFFs. The patient underwent intramedullary nailing of the right femur and prophylactic nailing of the left femur.

**Results:** At three-month post-surgery, the patient able to demonstrate ambulatory status using a walking frame.

**Conclusion:** Based on American Society for Bone and Mineral Research (ASBMR) Task Force, this patient fulfilled most of the minor and major criteria. Our patient had the warning sign but did not seek medical treatment. Knowledge and understanding the importance of recognizing and preventing these fractures from happening is a must for all physician and patient taking medication for osteoporosis.

## Hosted by

FFN
Fragility Fracture Network

TOPF
2002
THAI OSTEOPOROSIS FOUNDATION

Thailand FFN
Fragility Fracture Network

## Supported by

TCEB
THAILAND CONVENTION
& EXHIBITION BUREAU

# Sponsored by

AMGEN

Abbott

SANDOZ

ZUELLIG PHARMA
making healthcare more accessible

HALEON

Johnson & Johnson

stryker

BDG
BRITISH DISPENSARY GROUP

SYMGENS

MEGA We care

Roche

ORGANON

DKSH

lotus
PHARMACEUTICAL