CAPAGE

Promoting academic and professional excellence in health care to meet the challenges of aging in Sri Lanka

Report on the Validated University Laboratories with Methodological Guidelines

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University of Ruhuna, Sri Lanka

CAPAGE
Capacity for Active Ageing

Co-funded by the European Union

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1. Introduction

"Promoting academic and professional excellence in health care to meet the challenges of aging in Sri Lanka"; CAPAGE project funded by the European Union is aimed at:

1. Enriching the curricula at the 6 Universities with new courses on healthy ageing and geriatrics (HA&G) and disseminate them to other Sri Lankan (SL) health care (HC) education institutions
2. Improving the university capacity for providing modern practical training using novel technologies
3. Promoting internationalization, research, and digital skills in academic staff and students
4. Enhancing competencies of professional physiotherapists and nurses in health promotion of elderly
5. Raising awareness on HA among senior citizens
6. Developing educational and research Aging Network

With the intention of achieving Objectives 2, 3, and 6, Work Package 3 (WP3) was designed to strengthen the institutional capacity of Sri Lankan Higher Education Institutions (HEIs) by equipping them with the knowledge, skills, and resources necessary for the comprehensive evaluation of physical and cognitive functions in older adults. This evaluation encompasses areas such as body composition, postural control, gait analysis, muscular strength, fine motor skills, coordination, and cognitive performance.

The University of Colombo (UoC) led this work package, drawing on its prior experience in establishing a physiotherapy center for elderly care within its Faculty of Medicine. UoC coordinated the procurement processes and logistics for equipment acquisition, in addition to organizing the international conference associated with the project.

To achieve the objectives of WP3, the following key actions were undertaken:

- Six state-of-the-art functional assessment laboratories were established across each of the Sri Lankan partner universities.

- These laboratories were equipped with modern technologies that meet international standards, thereby enabling high-quality, hands-on training for both students and healthcare professionals.

2. Equipment purchased by each Partner University

Each Sri Lankan partner university procured suitable modern equipment to establish their respective Geriatric Assessment Laboratories**,** following detailed consultations and collaborative discussions with the European CAPAGE consortium members. These discussions ensured that the selection of equipment was aligned with international standards and tailored to meet the specific needs of comprehensive geriatric assessments. The procured tools and technologies support a wide range of evaluations, including body composition analysis, balance and gait assessment, muscle strength testing, and cognitive function screening. This collaborative approach not only enhanced the technical capacity of each institution but also promoted knowledge exchange and sustainable academic partnerships between Sri Lankan and European universities.

Annexure 01 provides the list of equipment purchased by each Sri Lankan partner university.

3. Establishment of Geriatric Assessment Laboratories

The six Sri Lankan HEIs successfully established Geriatric Assessment Laboratories at their respective universities in alignment with the objectives outlined in the CAPAGE project grant proposal. These laboratories are now equipped with advanced tools and technologies to support the comprehensive assessment of physical and cognitive functions in older adults. Each Sri Lankan HEI partner independently managed the ordering, logistics, and installation of equipment within designated laboratory spaces, ensuring they met both institutional requirements and international standards. This decentralized approach encouraged institutional ownership and strengthened local capacity in procurement and infrastructure development for geriatric care education.

Figure 1: Geriatric Assessment Laboratory Name Boards at University of Colombo, General Sir John Kotelawala Defence University, University of Jaffna, University of Ruhuna, Eastern University of Sri Lanka and University of Peradeniya

4. Development of Methodological Guidelines for Geriatric Assessment Laboratories

All SL HEIs developed comprehensive Laboratory Manuals that outline standard operating procedures, recommended assessment tools, and validated outcome measures for conducting geriatric assessments within their laboratories. These manuals serve as methodological guidelines for academic staff, students, and healthcare professionals, ensuring consistency, accuracy, and reliability in the evaluation of physical and cognitive functions in older adults. Furthermore, the manuals contribute to quality assurance and facilitate the integration of evidence-based practices into teaching and clinical training. The 6 manuals can be found in Annexure 2.

Figure2: Laboratory Assessment Manuals prepared by University of Colombo, General Sir John Kotelawala Defence University, University of Jaffna, University of Ruhuna, Eastern University of Sri Lanka and University of Peradeniya

5. Validation of Geriatric Assessment Laboratories

The university laboratories were validated by the EU CAPAGE members in collaboration with the respective academic staff from the participating SL universities involved in the laboratory setup. The validation process was conducted at each SL HEI between 20 and 26 February 2025, following a standardized procedure. A separate validation protocol was developed for each university laboratory.

These validation protocols provided a comprehensive description of the laboratory settings and procedures related to functional geriatric assessments and teaching activities. The

validation process ensured the accuracy, reliability, and consistency of the functional assessment facilities and methodologies used in the laboratories. Its primary objectives were to standardize procedures, validate assessment tools, and establish benchmark criteria to enhance the quality and comparability of the data collected.

These protocols encompassed the following validation criteria and information:

1. Laboratory facilities including: a) the laboratory space and its accessibility, order and maintenance, safety, and acknowledgement to the EU funding. b) availability of devices according to the equipment list, availability and quality of the corresponding lab manuals, safety issues and appropriate equipment labeling. c) appointed staff (academic, technical, administrative). d) data protection and storage
2. Lab organization and purpose in which the laboratory users, laboratory access visibility and usability were described.
3. Developed activities/procedures with description of the assessment-, prevention- and therapeutic procedures.
4. Interviews with different stakeholders/users involved in the lab's development/use, for example deans of the faculty, laboratory staff, other users.

As a result of this procedure, all six university laboratories were successfully validated. The full range of purchased equipment was installed, with the exception of a few components at the University of Jaffna and the Eastern University of Sri Lanka, where delays occurred due to logistical issues. The laboratory spaces and facilities meet the required quality standards for training, research, and for assessment of older adults. Demonstrations and control measurements were conducted as part of the validation process. Laboratory manuals and user instructions of high quality were developed in support of the effective utilization of the laboratory facilities.

Plans for the optimal use of the laboratories have been developed, alongside strategies aimed at increasing their visibility and integration into academic activities. Overall, the university laboratories were positively evaluated by interviewed users, including students, academic staff, and researchers. Respondents emphasized the laboratories' strong potential to enhance the quality of teaching, training, and research in the field of geriatric assessment and care.

Figure 3: Laboratory Validation Sessions conducted at Sri Lankan Universities

6. Staff Training for Geriatric Assessment Laboratories

Each Sri Lankan HEI conducted practical training sessions involving students and healthcare professionals, thereby ensuring the sustainability and real-world applicability of the established infrastructure. These sessions provided hands-on experience with advanced geriatric assessment tools, fostering competence and confidence among future healthcare providers. Furthermore, interprofessional collaboration during training promoted a multidisciplinary approach to elderly care, aligning with global best practices in geriatric health management.

Figure 4: Staff Training Session Conducted at University of Colombo

Annexure 01

Purchased Equipment from Sri Lankan Partner Universities

University of Peradeniya

1. Pablo System (Including the table) - Tyromotion - for upper and lower limb assessment and training
2. Tymo (Including the table) - Tyromotion - for balance assessment
3. Omron HBF 375 Karada Scan Complete Digital Body Composition Monitor
4. BOSU ball- 65 cm

University of Colombo

1. Tymo (Including the table) - Tyromotion - for balance assessment
2. Pablo System (Including the table) - Tyromotion - for upper and lower limb assessment and training
3. Visbody S30- 3D Body scanner with bioelectric impedance technology
4. Aerobic Stepper
5. Agility ladder
6. BOSU ball
7. Jump Box – PVC
8. Slam Ball / Dead Ball
9. Trampoline
10. Twister Disk
11. Balance Board
12. Ankle/Wrist strap Weight
13. Gym Ball
14. Medicine Ball
15. Dumbbell – Vinyl
16. 10 pair Dumbbell rack
17. Yoga mat
18. Foam Rollers
19. Yoga Block
20. Adjustable hand grip strengthener
21. Gym carpet
22. Power bands
23. Resistance tubes
24. Resistance bands
25. Recumbent bike

Kotelawala Defence University (KDU)

1. Mobile Gait Analysis system (04 camera analysis system)

University of Ruhuna

1. Action Research arm Test Tool kit
2. Pat Pressure Injury staging model
3. TERi geriatric skills trainer

Eastern University of Sri Lanka

1. Pat Pressure Injury Staging Model
2. The Geriatric Sensory Impairment Kit
3. Patient Monitor
4. Sphygmomanometer
5. 3D Body Scanner
6. Segmental Body Composition Monitor Scale
7. Patient Care Simulator (Susie)
8. Patient Care Simulator (Simon)
9. GPRIX Digital Hand Dynamometer
10. Mobilization Board
11. Wheelchair (Chromium plated)
12. Hospital bed with mattress- 3 function bed
13. GERT Age simulation suit

University of Jaffna

1. Tymo (Including the table) - Tyromotion
2. Geriatric Patient Care mannequin
3. 3D Body Scanner-Bioelectric impedance technology- MEICET:
4. Digital Body Composition Monitor
5. Sphygmomanometer
6. Digital hand dynamometer
7. Portable audiometer
8. Pressure injury staging tool
9. Patient monitor (GERT Age simulation suit, Mobilization Board, Examination bed, Function patient Bed)

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Annexure 02

Laboratory Manuals of the Sri Lankan Partner Universities