



Research Article

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Operationalising Institutional Guidelines into Performance Indicators: A Methodological Framework for Comprehensive Older Adult Care in Primary Health Care

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Introduction

Population ageing has emerged as one of the most significant demographic and public health challenges of the twenty-first century [1,2]. The increasing proportion of elderly population places substantial demands on health systems, requiring the implementation of comprehensive care models capable of addressing the complex biological, psychological, functional and social needs associated with ageing [3-7]. Within the framework of Primary Health Care (PHC), integrated gerontological services have been recognised as a strategic approach to promoting healthy ageing, preserving functional capacity, preventing disability and supporting person-centred care throughout later life [8-10]. In Mexico, the Institute for Security and Social Services for State Workers (ISSSTE) established Gerontological Modules as specialised PHC units designed to deliver comprehensive gerontological assessment, multidisciplinary interventions, health promotion, disease prevention, functional monitoring and continuity of care for older adults [11-15]. These modules constitute an operational strategy of the Healthy Ageing Programme and are intended to strengthen the capacity of PHC services to respond to the epidemiological and demographic transition affecting the Mexican population [11-15]. The operation of Gerontological Modules is governed by institutional regulatory frameworks, particularly the Operational Guide for the Supervision, Accreditation and Reaccreditation of Gerontological Modules (Guide 52) and the Guide for the Development of Annual Work Plans (Guide 53) [16,17]. These documents define organisational structures, multidisciplinary staffing requirements, service delivery processes, referral pathways, community outreach activities, quality assurance mechanisms, supervision procedures, training activities and operational targets intended to standardise the implementation of gerontological services throughout the institution [16,17].

Despite the comprehensive operational guidance provided by these documents, an important methodological gap remains. While the guides establish functions, activities, performance expectations, supervisory criteria and operational objectives, they do not provide a structured methodology for translating these normative elements into measurable performance indicators suitable for local management, monitoring and evaluation. Consequently, healthcare managers and operational teams face difficulties in objectively assessing programme implementation, measuring performance over time, identifying opportunities for improvement and demonstrating accountability through standardised metrics. The development of performance indicators is a fundamental component of quality management, health systems strengthening and results-based administration [18,19]. Indicators enable the transformation of normative requirements and operational activities into measurable constructs that support planning, monitoring, evaluation and continuous quality improvement [20-22]. Furthermore, indicator-based management facilitates evidence-informed decision-making, enhances organisational learning and contributes to the optimisation of healthcare

processes and outcomes within PHC settings [23-24]. However, to date, no formal methodological framework has been described for operationalising the normative content of Guides 52 and 53 into a coherent indicator system capable of evaluating the performance of Gerontological Modules at the local level. This limitation represents a significant challenge for the implementation of strategic planning processes and for the assessment of compliance with institutional objectives related to healthy ageing and integrated care for older adults.

To address this gap, a methodological process of normative operationalisation was undertaken during the development of the 2026 Annual Work Plan (AWP) of a Gerontological Module. The process aimed to transform operational rules, supervisory standards, institutional requirements and programme objectives into measurable indicators capable of assessing structural capacity, management performance, service delivery processes and care outcomes. This methodology resulted in the development of a comprehensive monitoring framework comprising 17 performance indicators aligned with institutional priorities and quality improvement principles. Therefore, the aim of this study was to describe the methodological framework used to operationalise institutional regulations into measurable performance indicators for a Gerontological Module and to present the resulting indicator system developed to support monitoring, evaluation and quality management within Primary Health Care services for older adults.

Material and Methods

Study Design

A methodological and operational health services, and quality management research study was conducted to develop a performance measurement framework for the Gerontological Module operating during the afternoon shift at the Northern Division Family Medicine Clinic, ISSSTE. A normative operationalisation methodology was employed to translate institutional regulations into measurable performance indicators capable of evaluating the structure, management, healthcare processes and outcomes of the afternoon-shift Gerontological Module. The methodological design was grounded in established principles of PHC management, programme evaluation, healthcare quality assessment and results-based management. The final stage consisted of the development of a structured indicator matrix.

Study Setting

The study was conducted in the afternoon-shift Gerontological Module of the Northern Division Family Medicine Clinic, a primary healthcare facility belonging to the ISSSTE in Mexico City, Mexico. The clinic provides comprehensive outpatient care to a large beneficiary population and serves as a referral centre for preventive, chronic disease management and healthy ageing programmes within its catchment area. The Gerontological Module operates within the institutional framework of the Healthy Ageing Programme (ENVESAL for its acronyms in Spanish Programa de

Envejecimiento Saludable), which seeks to preserve functional capacity, promote healthy ageing and support the social and family integration of older adults through multidisciplinary and person-centred care. The module is staffed by a transdisciplinary team and provides comprehensive gerontological assessment, risk screening, functional evaluation, health promotion, disease prevention, follow-up and referral activities for older adults. The indicator operationalisation process was specifically developed for the afternoon-shift Gerontological Module as part of the construction of its 2026 AWP. The purpose is to establish a locally applicable performance measurement framework capable of monitoring compliance with institutional operational requirements, supporting managerial decision-making and facilitating continuous quality improvement activities within the module. The selection of this setting was based on the absence of a standardised methodology within existing institutional regulations for translating operational requirements into measurable performance indicators at the local level.

According to institutional healthcare utilisation records previously reported by our research group, the División del Norte Family Medicine Clinic generated 73,974 outpatient consultations during 2022, attending to 17,918 patients [25]. Based on the age-sex distribution of the served population, approximately 7,386 individuals are aged 60 years old or older, representing 41.2% of all registered patients. This substantial proportion of older adults highlights the epidemiological and operational relevance of geriatric care within primary healthcare services and underscores the need for structured management, monitoring and quality improvement mechanisms. In this context, Gerontological Modules constitute a strategic service model for addressing the healthcare needs of an ageing population through comprehensive, multidisciplinary and function-centred care.

Documentary Sources

The indicator development framework was constructed through a normative analysis of two institutional documents governing the organisation, operation and quality assessment of gerontological modules within the healthy ageing programme of our institute (ENVESAL-ISSSTE) [16,17]. The principal documentary source was the operational guide for gerontological modules (guide 52), which establishes the operational model of care, organisational structure, multidisciplinary team composition, clinical and community-based activities, referral processes, functional assessment procedures, educational interventions and healthcare responsibilities to be implemented within gerontological modules [16]. This guide was considered the primary normative source because it defines the operational components that constitute the daily functioning of the programme and therefore provides the substantive basis from which measurable performance indicators can be derived. A secondary documentary source was the operational guide for the supervision, accreditation and reaccreditation of gerontological modules (guide 53) [17]. This document describes the institutional framework of the ENVESAL-ISSSTE programme, the strategic role

of gerontological modules within the primary health care model and the quality assurance processes associated with supervision, accreditation, reaccreditation and continuous improvement [17]. Furthermore, it establishes supervisory criteria, evaluation standards and operational requirements intended to maintain service quality and programme performance [17]. Together, these documents constituted the sole normative sources used in the operational development of the annual work plan and the performance indicator framework [16,17].

Conceptual Basis of the Methodological Framework

The methodological premise underlying this study is that the operational requirements contained in the institutional guidelines represent observable organisational structures, healthcare processes and expected outputs that can be translated into measurable performance indicators. However, although Guides 52 and 53 establish operational standards, responsibilities, supervision criteria and quality requirements for Gerontological Modules, neither document provides a structured methodology for transforming these normative provisions into suitable indicators for local performance monitoring and management [16,17]. This premise is supported by established theoretical frameworks in health services research, healthcare quality management and programme evaluation. Donabedian's structure-process-outcome model proposes that healthcare quality can be assessed through the measurement of organisational resources, care processes and resulting outcomes [26,27]. Under this framework, operational requirements related to staffing, service organisation, referral systems, documentation procedures, multidisciplinary coordination and patient follow-up constitute measurable dimensions of healthcare performance. Similarly, implementation fidelity theory recognises that programme effectiveness depends not only on programme design but also on the extent to which operational activities are implemented as intended. Consequently, compliance with institutional regulations may serve as an indirect measure of programme implementation fidelity and operational performance [28]. The study is also informed by performance measurement and results-based management approaches, which emphasise the systematic translation of organisational objectives, operational requirements and expected activities into measurable indicators that support planning, monitoring, accountability and continuous quality improvement. These approaches assume that institutional standards can be operationalised into measurable variables capable of monitoring the degree to which programme objectives are achieved in routine practice.

Accordingly, the sixteen operational rules governing the Gerontological Module established in Guide 52 constituted the primary conceptual and normative foundation for indicator development [16]. These rules define the essential components of the care model, including multidisciplinary team composition, coordination with community-based health strategies, consultation standards, leadership responsibilities, health promotion activities, functional support supervision, interprofessional collaboration,

information management, referral pathways, workforce training and gerontological follow-up [16]. Because these operational rules specify expected organisational behaviours and healthcare processes, they were considered suitable units of analysis for the construction of performance indicators. From this perspective, the regulatory provisions contained within the institutional guidelines were conceptualised not merely as administrative instructions but as measurable constructs that could be operationalised into indicators capable of assessing implementation fidelity, service delivery, organisational performance and quality improvement. Consequently, the development of the 2026 AWP required the creation of a methodological framework capable of systematically translating institutional regulations into measurable variables. The objective was not to create new programme activities, but rather to operationalise existing normative requirements into indicators that would support local planning, performance monitoring, supervision and continuous quality improvement within comprehensive older adult care services in primary health care.

Indicator Development Strategy and Indicators Classification

The indicator construction was performed through a normative operationalisation process consisting of the identification of operational rules contained in Guide 52 and their subsequent transformation into measurable performance indicators.

Each operational rule was analysed according to four sequential analytical stages:

- a. Identification of the normative requirement.
- b. Definition of the measurable operational component.
- c. Selection of the most appropriate performance dimension.
- d. Construction of an indicator with an operational definition, numerator, denominator, data source, measurement frequency and performance target.

Therefore, the following elements were defined for every indicator:

- a. Indicator title.
- b. Strategic objective.
- c. Operational definition.
- d. Measurement frequency.
- e. Unit of measurement.
- f. Data source.
- g. Calculation formula.
- h. Baseline value.
- i. Annual target.
- j. Intermediate targets.

- k. Responsible reporting unit.
- l. Expected trend.

All indicators were expressed as percentages to facilitate the interpretation, comparison and monitoring over time. The indicators were subsequently classified according to their measurement domain as structure, management, process or outcome indicators. The construction process prioritised indicators that were feasible, valid, reliable, sensitive to change, operationally relevant and compatible with existing institutional information systems. Guide 53 was subsequently used to ensure consistency between the proposed indicators and the institutional requirements for planning, supervision, accreditation, monitoring and continuous quality improvement [17].

Identification and Extraction of Operational Variables

The development of the indicator framework followed a structured variable extraction process based on the sixteen Operational Rules described in the Guide 52. The unit of analysis was not the operational rule itself, but the measurable operational components embedded within each rule. Initially, each operational rule was subjected to a detailed content analysis to identify its constituent operational elements. This process involved systematically decomposing every rule into its underlying organisational responsibilities, healthcare activities, operational requirements, clinical procedures, quality-related actions, monitoring responsibilities, documentation requirements and expected service outputs. Each of these components was considered a candidate operational variable for a subsequent indicator development. After the extraction, the variables were organised into thematic domains representing the principal components of the Gerontological Module model of care. These domains included multidisciplinary workforce organisation, multidisciplinary coordination, consultation management, comprehensive gerontological assessment, health promotion and disease prevention, communication with older adults, functional support services, supervision activities, social work coordination, information management, referral and counter-referral processes, professional training, caregiver education and continuity-of-care strategies.

Therefore, the extracted variables subsequently underwent a normative operationalisation process to determine whether they could be objectively measured using routine programme records, administrative reports or institutional information systems. Only variables fulfilling the criteria of measurability, operational relevance, feasibility and reproducibility were retained for the indicator development. The methodological workflow comprised eight sequential analytical stages (Figure 1). First, the two institutional normative documents (Guide 52 and Guide 53) were established as the regulatory foundation for the framework. Second, the sixteen Operational Rules governing Gerontological Modules were identified as the primary units of analysis. Third,

each operational rule underwent systematic content analysis to decompose its organisational, clinical and operational components. Fourth, measurable operational variables were identified and extracted from these components. Fifth, the extracted variables were grouped into thematic domains representing the principal dimensions of the Gerontological Module model of care. Sixth, the identified variables were operationalised by defining their measurable attributes, including operational definitions, data sources, measurement frequency, baselines and performance targets. Seventh, these operationalised variables were translated

into and classified as seventeen performance indicators according to their measurement domain (structure, management, process and outcome). Finally, the resulting indicators were integrated into a comprehensive performance measurement framework to support the development of the 2026 AWP for the Afternoon-shift Gerontological Module and to facilitate routine performance monitoring, programme evaluation and continuous quality improvement in comprehensive older adult care within primary health care (Figure 1).

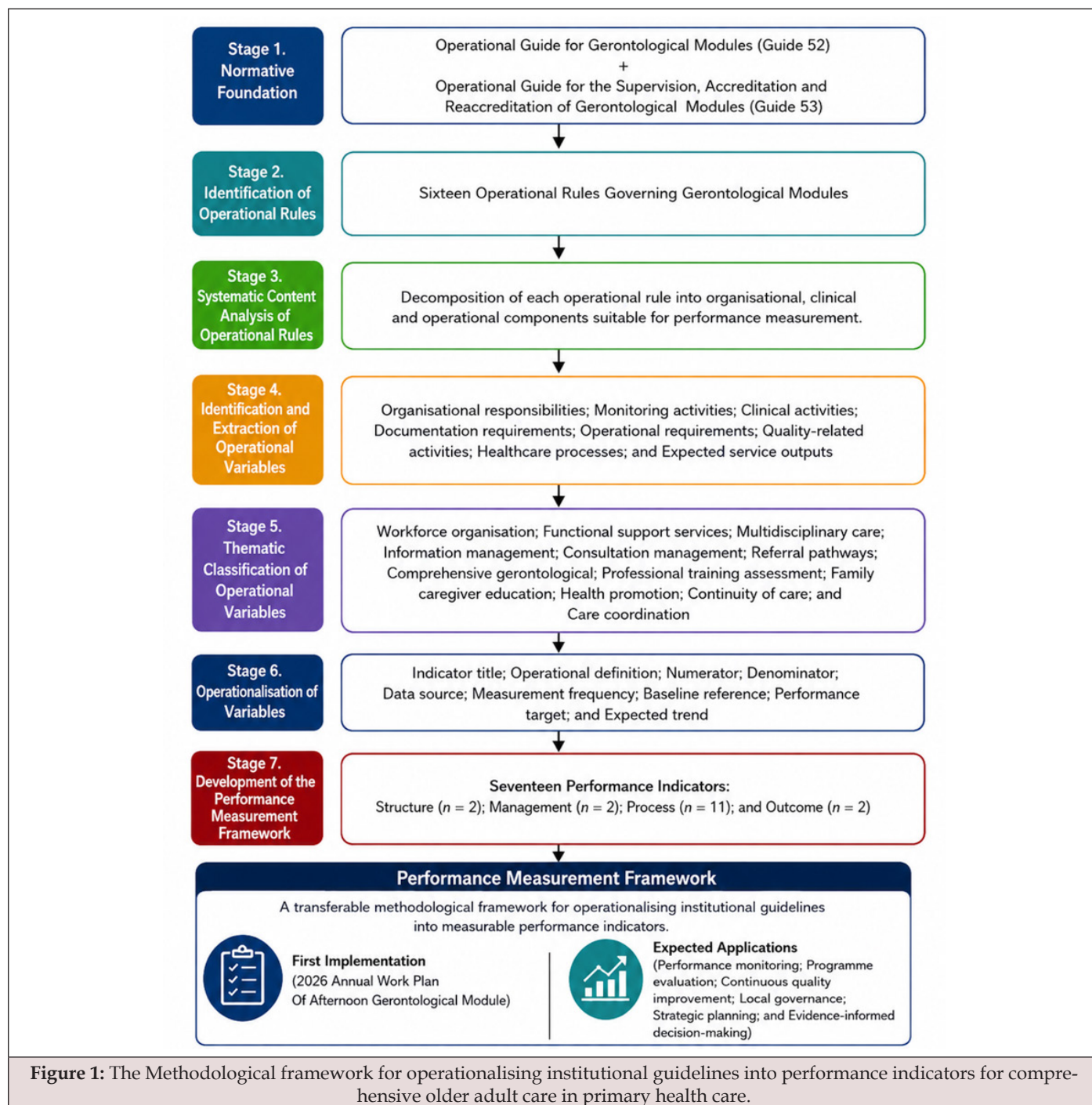


Figure 1: The Methodological framework for operationalising institutional guidelines into performance indicators for comprehensive older adult care in primary health care.

Source: Developed by the authors. The framework illustrates the sequential methodological process developed to transform institutional regulations governing Gerontological Modules into measurable performance indicators. The resulting performance measurement framework was implemented through the 2026 Annual Work Plan of the afternoon-shift Gerontological Module and designed to support programme monitoring, supervision and continuous quality improvement in comprehensive older adult care within primary health care.

Results and Discussion

Extraction of Operational Variables from the Institutional Operational Rules

The development of the performance measurement framework began with a systematic content analysis of the sixteen Operational Rules contained in the Operational Guide for Gerontological Modules. Rather than treating each Operational Rule as a single analytical

unit, every normative statement describing a specific organisational responsibility, healthcare activity, operational requirement, monitoring procedure, reporting obligation, quality requirement or expected professional behaviour was analysed independently. Each statement was subsequently decomposed into its individual operational components to identify measurable variables capable of representing routine programme implementation. Consequently, a single Operational Rule could generate one or more operational variables whenever it contained multiple independent activities or responsibilities. This statement-level operationalisation ensured that every measurable component of the institutional regulations was preserved during indicator development and avoided the loss of operational information embedded within complex regulatory provisions. The extracted variables were subsequently grouped according to their conceptual similarity and organisational function, forming the analytical basis for the development of the performance measurement framework (Table 1).

Table 1: Methodological operationalisation of the sixteen Operational Rules into the performance measurement framework.

Operational Rule (Guide 52)	Principal Operational Statements	Performance Measurement Domain	Principal Performance Indicator Developed	Additional Contribution to Other Indicators
Rule 1. Organisation of the Gerontological Module	Multidisciplinary team composition; gerontological competencies; Functional Support Area; transdisciplinary coordination	Structure	Indicator 1. Percentage of multidisciplinary team integration within the Gerontological Module.	Contributes to Indicators 6 and 10.
Rule 2. ECOS for Wellbeing	Multidisciplinary intra- and extramural ECOS activities	Process	Indicator 2. Percentage of compliance with multidisciplinary intramural and extramural "ECOS para el Bienestar" activities.	Contributes to Indicator 11.
Rule 3. Consultation time	Standard consultation time and productivity requirements	Process	Indicator 3. Percentage of compliance with scheduled gerontological consultations.	—
Rule 4. Clinical leadership	Leadership of the module; research; accreditation responsibilities	Process	Indicator 4. Percentage of compliance with scientific publications.	Contributes to Indicators 6, 10 and 14.
Rule 5. Comprehensive gerontological care	Comprehensive gerontological assessment and functional evaluation	Process	Indicator 5. Percentage of older people receiving comprehensive gerontological assessment.	Contributes to Indicators 7, 8, 13 and 17.
Rule 6. Professional competencies	Knowledge and competencies in gerontological care	Structure	Indicator 6. Percentage of Gerontological Module staff with specific training.	Reinforces Indicator 1.
Rule 7. Therapeutic communication	Effective communication and patient-centred care	Outcome	Indicator 7. Percentage of users satisfied with the care provided.	Reinforces Indicator 5.
Rule 8. Coordination with institutional services	Multidisciplinary coordination and internal referrals	Process	Indicator 8. Percentage of internal referrals attended within the established timeframe.	Contributes to Indicator 13.
Rule 9. Health promotion and disease prevention	Health promotion and preventive interventions	Process	Indicator 9. Percentage of coverage of health promotion and disease prevention activities for older people.	Contributes to Indicator 16.
Rule 10. Functional Support Area	Monthly supervision and feedback	Process	Indicator 10. Percentage of monthly supervisions and feedback sessions conducted in the Functional Support Area.	Reinforces Indicator 1.
Rule 11. Coordination with Social Work	Social support; ECOS integration; community actions	Process	Indicator 11. Percentage of actions coordinated with Social Work for the comprehensive care of older people.	Contributes to Indicators 2, 9 and 16.

Rule 12. SIEMP information system	Timely recording and productivity reporting	Process	Indicator 12. Percentage of timely and accurate activity records in the SIEMP system.	Supports monitoring of all process indicators.
Rule 13. Referral pathways	Referral to secondary and tertiary healthcare services	Management	Indicator 13. Percentage of internal and external referrals managed in a timely manner for the comprehensive care of older people.	Reinforces Indicator 8.
Rule 14. Professional education	Training healthcare professionals in healthy ageing and gerontological care	Process	Indicator 14. Percentage of healthcare personnel oriented or trained in healthy ageing and gerontological care.	Contributes to Indicator 6.
	Dissemination and application of institutional referral criteria	Management	Indicator 15. Percentage of internal referrals meeting referral criteria for the Gerontological Module.	Contributes to Indicators 8 and 13.
Rule 15. Caregiver education	Education of family caregivers and informal carers	Process	Indicator 16. Percentage of caregivers and family members trained in the care of older people.	Contributes to Indicator 9.
Rule 16. Telephone follow-up	Gerontological telephone follow-up and continuity of care	Outcome	Indicator 17. Percentage of older people with gerontological telephone follow-up completed.	Contributes to Indicators 5, 8 and 13.

Source: Authors' own elaboration based on the Operational Guide for Gerontological Modules (Guide 52).

A total of 17 performance indicators were developed through the operationalisation framework described in the Methods section. Each indicator represents the measurable translation of one or more operational requirements contained in the institutional guidelines and was designed to evaluate a specific component of the comprehensive older adult care model. The indicators encompass the principal organisational dimensions of programme implementation, including workforce organisation,

multidisciplinary care delivery, health promotion, care coordination, functional support services, information management, continuing education and continuity of care. According to their principal measurement domain, the indicator set comprised two structure indicator; two management indicators, eleven process indicators and two outcome indicators, thereby providing comprehensive coverage of the operational requirements established in the institutional framework (Table 2).

Table 2: Operational characteristics of the developed performance indicators.

Indicator	Strategic Objective	Operational Definition	Performance Domain
I1	Strengthen multidisciplinary workforce integration.	Measures compliance with integration of the multidisciplinary team according to institutional requirements.	Structure
I2	Strengthen multidisciplinary ECOS for Wellness activities.	Measures implementation of planned multidisciplinary intramural and extramural ECOS activities.	Process
I3	Ensure compliance with scheduled gerontological consultation activity.	Measures compliance with scheduled gerontological consultations.	Process
I4	Promote research and scientific dissemination.	Measures compliance with planned scientific publications.	Process
I5	Ensure comprehensive gerontological assessment.	Measures completion of comprehensive gerontological assessment among eligible older people.	Process
I6	Strengthen workforce competencies.	Measures specific gerontological training among Gerontological Module staff.	Structure
I7	Improve user satisfaction with gerontological care.	Measures users' satisfaction with care provided by the Gerontological Module.	Outcome
I8	Strengthen timely access following internal referral.	Measures the proportion of internal referrals attended within the established timeframe.	Process
I9	Strengthen health promotion and disease prevention.	Measures coverage of health promotion and disease prevention activities for older people.	Process
I10	Monitor Functional Support services.	Measures completion of scheduled supervision and feedback activities in the Functional Support Area.	Process
I11	Strengthen coordination with Social Work.	Measures implementation of coordinated actions with Social Work for comprehensive older adult care.	Process

I12	Strengthen institutional information management.	Measures timely and accurate recording of Gerontological Module activities in SIEMP.	Process
I13	Strengthen management of internal and external referrals.	Measures timely management of internal and external referrals required for comprehensive older adult care.	Management
I14	Strengthen healthcare personnel competencies in healthy ageing and gerontological care.	Measures participation of healthcare personnel in orientation or training activities.	Process
I15	Improve adherence to Gerontological Module referral criteria.	Measures the proportion of internal referrals that meet established referral criteria.	Management
I16	Strengthen caregiver and family education.	Measures participation of caregivers and family members in training related to older adult care.	Process
I17	Strengthen continuity of care.	Measures completion of gerontological telephone follow-up among older people scheduled for follow-up.	Outcome

Source: Authors' own elaboration based on the Operational Guide for Gerontological Modules (Guide 52). All indicators were developed at the local level, expressed as percentages, measured periodically using routine institutional information systems, and were expected to demonstrate an increasing trend over time.

Following the operational definition of each indicator, standardised measurement specifications were established to ensure consistency during routine monitoring. to every indicator

it was assigned a calculation formula, a measurement frequency, a data collection period, a reporting schedule and a responsible organisational unit. All indicators were expressed as percentages to facilitate interpretation, longitudinal monitoring and comparison across reporting periods. An Indicator construction prioritised compatibility with existing institutional information systems, allowing implementation without the creation of additional data collection procedures (Table 3).

Table 4: Monitoring and performance targets of the developed performance indicators.

Indicator	Calculation Formula	Measurement Frequency	Data Collection Period	Data Availability	Responsible Reporting Unit
I1	Multidisciplinary team profiles integrated / Total multidisciplinary team profiles required $\times 100$	Four-monthly	Jan-Apr; May-Aug; Sep-Dec	Apr; Aug; Dec	Directorate-GM
I2	Multidisciplinary ECOS activities completed / Multidisciplinary ECOS activities scheduled $\times 100$	Annual	Annual	Annual	GM
I3	Gerontological consultations delivered / Gerontological consultations scheduled $\times 100$	Monthly	Monthly	Monthly	GM
I4	Scientific publications completed / Scientific publications scheduled $\times 100$	Annual	Annual	Annual	GM
I5	Eligible patients completing comprehensive gerontological assessment / Total eligible patients requiring comprehensive gerontological assessment $\times 100$	Monthly	Monthly	Monthly	GM
I6	Gerontological Module staff with required specific training / Total staff assigned to the Gerontological Module $\times 100$	Four-monthly	Jan-Apr; May-Aug; Sep-Dec	Apr; Aug; Dec	Directorate-GM
I7	Satisfied users / Total users surveyed $\times 100$	Four-monthly	Jan-Apr; May-Aug; Sep-Dec	Apr; Aug; Dec	GM
I8	Internal referrals attended within the established timeframe / Internal referrals with documented referral-to-attendance time $\times 100$	Monthly	Monthly	Monthly	GM
I9	People participating in health promotion and disease prevention activities / Programmed target population $\times 100$	Four-monthly	Jan-Apr; May-Aug; Sep-Dec	Apr; Aug; Dec	GM
I10	Supervision and feedback activities completed / Supervision activities scheduled $\times 100$	Monthly	Monthly	Monthly	GM
I11	Coordinated actions undertaken with Social Work / Coordinated actions programmed $\times 100$	Monthly	Monthly	Monthly	GM
I12	Activities accurately and timely recorded in SIEMP / Total activities performed by the Gerontological Module $\times 100$	Four-monthly	Jan-Apr; May-Aug; Sep-Dec	Apr; Aug; Dec	GM

I13	Internal and external referrals managed in a timely manner / Total internal and external referrals required $\times 100$	Monthly	Monthly	Monthly	GM
I14	Healthcare personnel oriented or trained / Healthcare personnel scheduled for training $\times 100$	Four-monthly	Jan-Apr; May-Aug; Sep-Dec	Apr; Aug; Dec	GM
I15	Internal referrals meeting referral criteria / Total internal referrals received $\times 100$	Annual	Annual	Annual	GM
I16	Caregivers and family members trained / Caregivers and family members scheduled for training $\times 100$	Monthly	Monthly	Monthly	GM
I17	Older people with telephone follow-up completed / Older people scheduled for telephone follow-up $\times 100$	Monthly	Monthly	Monthly	GM

Source: Authors' own elaboration based on the Operational Guide for Gerontological Modules (Guide 52). All indicators were developed at the local level, expressed as percentages, measured periodically using routine institutional information systems, and were expected to demonstrate an increasing trend over time.

Baseline values and performance targets were established for all developed indicators using institutional planning criteria and local operational capacity. A Target setting incorporated baseline performance, an expected implementation progress and continuous quality improvement objectives for the 2026 AWP. Intermediate milestones were also defined to facilitate periodic monitoring and timely corrective actions throughout the implementation period. Collectively, these targets provide a structured performance measurement framework for evaluating implementation fidelity and organisational performance within the Gerontological Module (Table 4).

Source: Authors' own elaboration based on the Operational Guide for Gerontological Modules (Guide 52). No historical baseline existed for any of the seventeen indicators because all were newly developed through the methodological operationalisation framework. Therefore, baseline values represent the initial reference values established during the planning stage of the 2026 Annual Work Plan and should not be interpreted as historical performance estimates.

Initial Performance of the Indicators During Implementation

The initial implementation period provided the first opportunity to assess the performance of the developed indicators under routine operating conditions. The performance was evaluated according to the predefined targets and measurement schedule established for each indicator, considering the temporal characteristics of the operational processes being monitored. The measurement schedule and performance targets were designed to reflect the progressive nature of programme implementation. Accordingly, indicators were classified as periodic or cumulative, depending on whether the performance was assessed independently at each measurement point or progressively accumulated towards the annual target. Measurement frequency was determined by the expected time required for each operational process to be implemented and meaningfully assessed, rather than solely by the availability of monthly data. Thus, activities that could be routinely quantified and evaluated were monitored monthly, whereas processes requiring additional time for implementation, coordination, consolidation or observable change were assessed at four-monthly, semi-annual or annual intervals. Scheduled targets were therefore distributed throughout the year according to the expected progression of each indicator. For cumulative indicators, intermediate targets represented progressive achievement towards the annual target, whereas periodic indicators were assessed against the target established for each corresponding measurement point. The measurement characteristics and scheduled performance targets of the 17 indicators are presented in (Table 5).

Source: Authors' own elaboration

Table 5: Measurement Characteristics and Scheduled Performance Targets of the 17 Indicators for 2026.

Indicator	Target Pattern	Measurement Frequency	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Target
I1	Periodic	Four-monthly	—	—	—	—	—	—	—	—	—	100	100
I2	Periodic	Annual	—	—	—	—	—	—	—	—	—	100	100
I3	Periodic	Monthly	80	80	80	80	80	80	80	80	80	80	80
I4	Cumulative	Annual	—	—	—	50	50	50	50	50	50	100	100
I5	Periodic	Monthly	100	100	100	100	100	100	100	100	100	100	100
I6	Periodic	Semi-annual	—	—	—	—	—	—	—	—	—	100	100
I7	Periodic	Four-monthly	—	—	—	—	—	100	—	—	—	100	100
I8	Periodic	Four-monthly	—	—	—	—	—	100	—	—	—	100	100
I9	Periodic	Four-monthly	—	—	—	—	—	100	—	—	—	100	100

I10	Cumulative	Monthly	10	20	30	40	50	60	70	80	90	100	100
I11	Cumulative	Four-monthly	—	—	—	—	—	50	50	50	50	100	100
I12	Periodic	Monthly	100	100	100	100	100	100	100	100	100	100	100
I13	Periodic	Monthly	100	100	100	100	100	100	100	100	100	100	100
I14	Cumulative	Semi-annual	—	—	—	—	—	—	—	50	50	100	100
I15	Cumulative	Monthly	—	15	30	40	50	60	70	80	90	100	100
I16	Cumulative	Semi-annual	—	—	—	50	50	50	50	50	100	100	100
I17	Cumulative	Monthly	—	—	—	50	60	70	80	90	100	100	100

a) Indicator 1. Percentage of multidisciplinary team integration within the Gerontological Module

The basic staffing structure of the Gerontological Module comprises three professional profiles: a physician, a nurse, and functional support personnel. During the evaluation period, two of the three required profiles are available (physician and nurse), whereas functional support personnel are not available. Indicator 1 (I1) was calculated as follows: $I1 = (\text{number of multidisciplinary team profiles filled in accordance with institutional requirements} / \text{total number of multidisciplinary team profiles required}) \times 100$. Accordingly, $I1 = (2 / 3) \times 100 = 66.7\%$. This staffing configuration remained unchanged from March to June 2026; therefore, the indicator remained at 66.7% throughout the evaluation period.

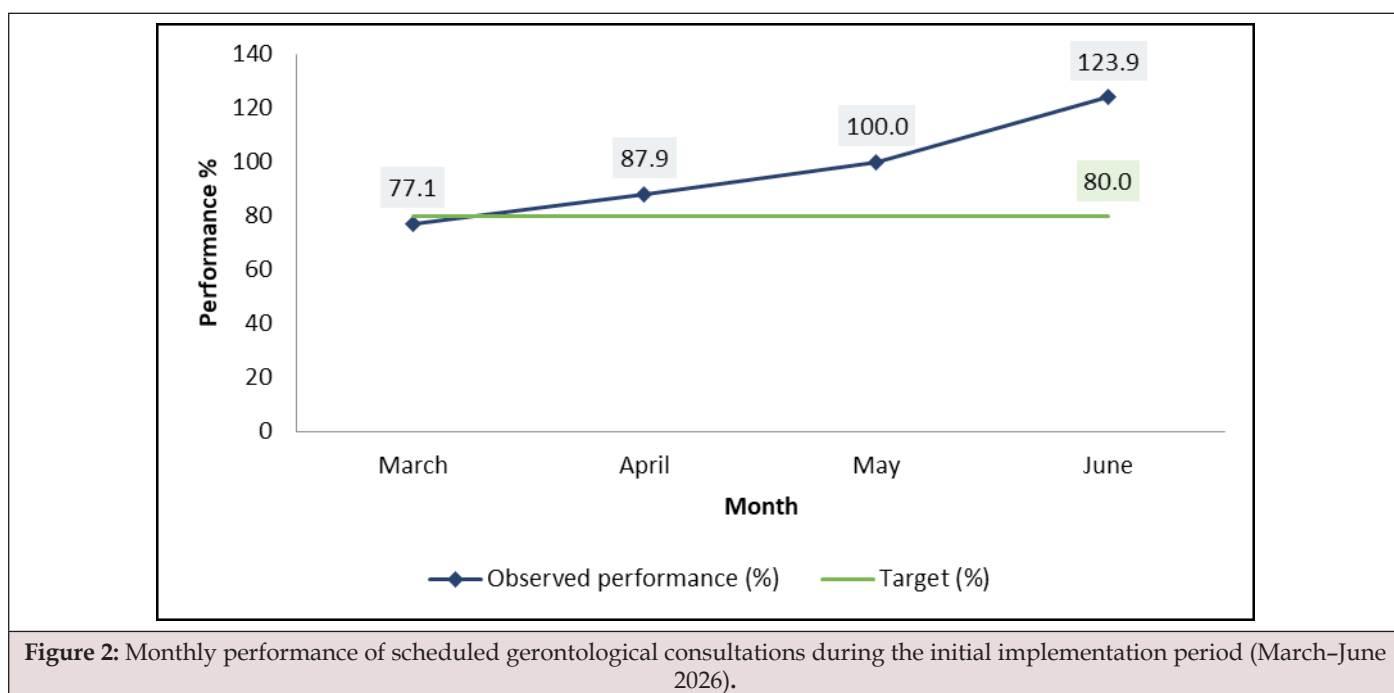
b) Indicator 2. Percentage of Compliance with Multidisciplinary Intramural and Extramural ECOS Para El Bienestar Activities

Indicator 2 measures the achievement of planned multidisciplinary intramural and extramural activities within the ECOS para el Bienestar strategy. The 2026 performance target

was established at 100%, corresponding to one multidisciplinary activity scheduled for December. As the scheduled implementation date falls outside the March–June reporting period, no achievement was expected during this initial assessment period and the indicator was therefore classified as in progress. The indicator is calculated as follows: $I2 = (\text{number of multidisciplinary intramural and extramural ECOS activities completed} / \text{total number of multidisciplinary intramural and extramural ECOS activities scheduled}) \times 100$. Accordingly, completion of the scheduled activity will represent 100% compliance with the annual performance target.

c) Indicator 3. Percentage of compliance with scheduled gerontological consultations

Indicator 3 measures compliance with the scheduled gerontological consultations delivered by the Gerontological Module. The performance target was established at $\geq 80\%$ for each monthly measurement period. During the March–June reporting period, performance increased progressively from 77.1% in March to 123.9% in June (Figure 2).



Source: Authors' own elaboration

The indicator was calculated as follows: $I3 = (\text{number of gerontological consultations delivered} / \text{total number of gerontological consultations scheduled}) \times 100$.

d) Indicator 4. Percentage of Compliance with Scientific Publications

Indicator 4 measures compliance with the annual target for scientific publications. The 2026 target was established at two publications. During the initial implementation period, one case report was published in June 2026, representing 50% of the annual target: Frailty Driven by Clinical, Social, and Environmental Barriers in an Oxygen-Dependent Older Woman: A Case Report [29]. The indicator was calculated as follows: $I4 = (\text{number of scientific publications completed} / \text{total number of scientific publications scheduled}) \times 100$. Accordingly, $I4 = (1 / 2) \times 100 = 50\%$. As a cumulative indicator, the remaining 50% is scheduled for completion by December 2026.

e) Indicator 5. Percentage of Older People Receiving Comprehensive Gerontological Assessment

Indicator 5 measures the proportion of eligible patients requiring comprehensive gerontological assessment who completed all required assessment components. Patient-level eligibility criteria were applied at each monthly assessment point. Patients younger than 60 years old who had been temporarily attended as part of outpatient service support were excluded from the corresponding monthly and cumulative denominators. Following this adjustment, the cumulative number of eligible patients was 91 by the end of March, 127 by April, 172 by May and 216 by June. One 59-year-old patient who met the programme eligibility criteria was retained in the analysis.

The comprehensive gerontological assessment is performed as a standard component of care for all eligible patients and is implemented as a progressive process involving multiple domains

and successive consultations. The assessment comprises the institutional gerontological screening, together with assessment of functional status (Barthel Index, Katz Index and Lawton Index); physical performance, mobility and frailty (SPPB, TUG, FRAIL scale and gait speed); sensory function (whisper test and Peek Acuity); pressure injury risk (Braden and Norton scales); cognitive function (semantic verbal fluency, Mini-Cog and MMSE); emotional status (GDS-15 and CESD-7); nutritional status and sarcopenia risk (MNA-SF, MUST and SARC-F); and social and environmental domains (Older Americans Resources and Services [OARS], social resources, family functioning using the Family Adaptability, Partnership, Growth, Affection, and Resolve [Family APGAR], elder abuse, and environmental and mobility barriers). During the March–June implementation period, 1,375 individual screening and assessment instruments were administered and documented in the assessment database, comprising 362 in March, 376 in April, 358 in May and 279 in June. As comprehensive gerontological assessment consists of multiple components that may be completed progressively across successive consultations, the number of individual instruments administered reflects the assessment workload generated during implementation and should be distinguished from completion of the comprehensive assessment as a whole. The indicator performance was therefore determined by completion of all required components of the comprehensive gerontological assessment, rather than by the number of individual instruments administered. No complete comprehensive assessments were recorded by the end of March or April (0.0%). By the end of May, 10 of 172 eligible patients (5.8%) had completed all required assessment components. By the end of June, this increased to 22 of 216 eligible patients (10.2%), demonstrating progressive cumulative completion during the initial implementation period. The indicator was calculated as follows: $I5 = (\text{number of eligible patients completing the required comprehensive gerontological assessment} / \text{total number of eligible patients requiring comprehensive gerontological assessment}) \times 100$. Accordingly, cumulative performance at the end of June was $I5 = (22 / 216) \times 100 = 10.2\%$ (Figure 3).

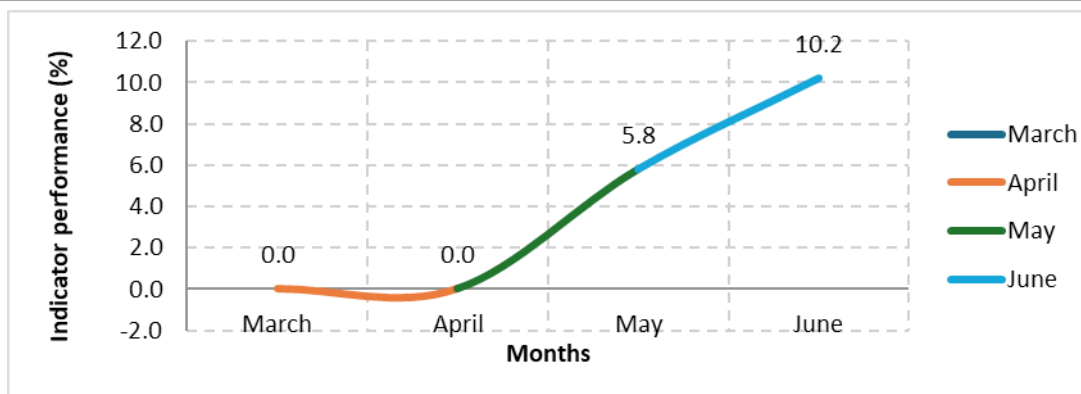


Figure 3: Cumulative performance of comprehensive gerontological assessment during the initial implementation period (March–June 2026).

Source: Authors' own elaboration

f) Indicator 6. Percentage of Gerontological Module Staff with Specific Training

Indicator 6 assesses the proportion of staff assigned to the Gerontological Module who have completed the specific training required for the provision of gerontological care. During the first four months of implementation, both staff members assigned to the Module—the physician and the nurse—had completed the required training, resulting in 100% compliance with the established target. The indicator was calculated as follows: $I6 = (\text{number of Gerontological Module staff members with the required specific training} / \text{total number of staff members assigned to the Gerontological Module}) \times 100$. Accordingly, $I6 = (2 / 2) \times 100 = 100\%$.

g) Indicator 7. Percentage of Users Satisfied with the Care Provided

Indicator 7 assesses user satisfaction with the care provided by the Gerontological Module. During the first four months of implementation, 11 user satisfaction surveys were completed by May 15, 2026. All respondents rated the assessed aspects of care as Excellent, resulting in 100% user satisfaction and achievement of the established target. The survey assessed waiting time according to the scheduled appointment, care provided by Module staff, perceived improvement in the patient's condition, recognition of the physician and nurse, respectful and courteous treatment, communication regarding the patient's condition, medications and treatment, and a telephone follow-up after a missed appointment. The indicator was calculated as follows: $I7 = (\text{number of users}$

reporting satisfaction with the care provided / total number of users surveyed) $\times 100$. Accordingly, $I7 = (11 / 11) \times 100 = 100\%$.

h) Indicator 8. Percentage of Internal Referrals Attended Within the Established Timeframe

Indicator 8 assesses the timely management of internal referrals from outpatient services to the Gerontological Module. During the initial implementation phase, admission to the programme was not restricted to formal internal referrals. As part of the early implementation strategy, some patients were identified and referred from the morning-shift Gerontological Module, with appointments subsequently scheduled at the afternoon-shift Module, whereas other patients accessed the programme directly through in-person requests for care. These alternative routes of entry were not considered formal internal referrals for the calculation of Indicator 8. In accordance with the AWP, the formal implementation of the internal referral process began in the third week of May 2026, followed by permanent reception, registration and follow-up of referrals received by the Gerontological Module. Although the systematic registration was implemented from this point onwards, internal referrals had occurred since the beginning of the Module's activities. Therefore, following implementation of the referral registry, previously received internal referrals were retrospectively identified and incorporated when the referral and subsequent attendance could be documented from the available clinical records. This retrospective reconstruction allowed the initial evaluation to include documented internal referrals occurring before formal implementation of the registry without considering March and April as periods of prospective indicator measurement or non-compliance.

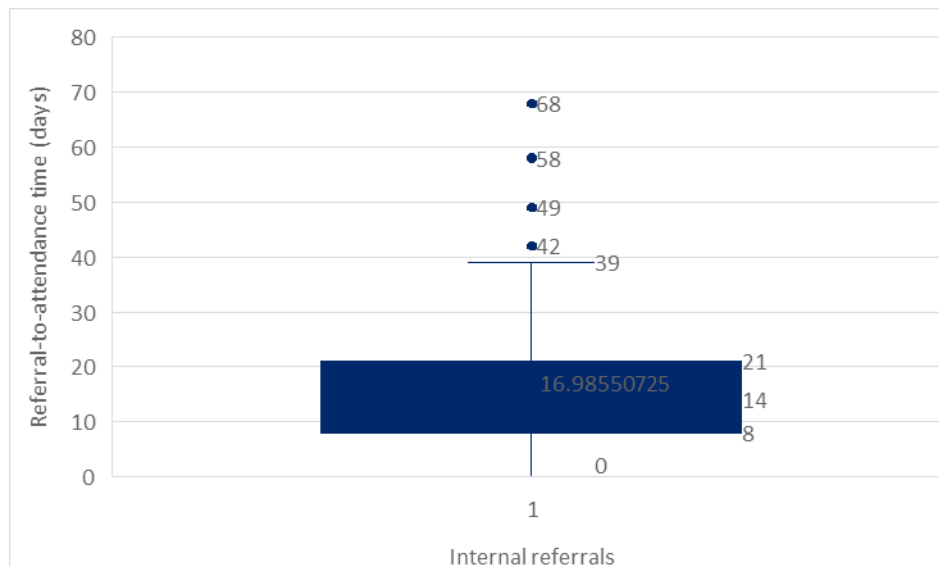


Figure 4: Distribution of referral-to-attendance time for documented internal referrals retrospectively identified from the beginning of Gerontological Module activities through June 29, 2026.

Accordingly, the present analysis represents a cumulative retrospective assessment of documented internal referrals from the beginning of the Module's activities through June 29th, 2026, conducted after implementation of the specific referral registry. A total of 69 internal referrals with documented referral and attendance dates were identified. The available records included the referral date, referring healthcare professional, reason or diagnosis for referral, attendance date, and referral-to-attendance interval, allowing waiting time to be determined for all 69 internal referrals. The underlying records demonstrate referral and attendance dates extending across the initial months of Module activity. The mean referral-to-attendance time was 16.99 days (SD 13.17), with a median of 14 days (IQR 8–21) and an overall range of 0–68 days. Thus, half of the documented internal referrals were attended within 14 days, while the middle 50% of referral-to-attendance times ranged from 8 to 21 days. A 30-day threshold was used as an operational benchmark for this initial analysis rather than as an institutionally mandated standard. This threshold provides a pragmatic measure for distinguishing internal referrals completed within approximately one month from those requiring longer periods of follow-up and enables an initial assessment of referral timeliness while prospective monitoring continues to be consolidated. Using this operational definition, 58 of the 69 internal referrals (84.1%) were attended within 30 days, whereas 11 (15.9%) had referral-to-attendance times exceeding 30 days. Waiting times showed considerable variability, ranging from same-day attendance to 68 days. The distribution of referral-to-attendance times and its variability is shown in (Figure 4).

For this initial evaluation, the indicator was calculated as follows: $I8 = (\text{number of internal referrals attended within 30 days} / \text{total number of internal referrals with documented referral-to-attendance time}) \times 100$. Accordingly, $I8 = (58 / 69) \times 100 = 84.1\%$.

Source: Authors' own elaboration

i) Indicator 9. Percentage of Coverage of Health Promotion and Disease Prevention Activities for Older People

Indicator 9 assesses the coverage of health promotion and disease prevention activities for older people. According to the AWP, these activities may include educational sessions, individual and group counselling, workshops, informational activities, and the distribution of physical or digital educational materials. The indicator is defined in terms of the number of people participating in health promotion and disease prevention activities relative to the programmed target population. The Implementation of Indicator 9 was scheduled to begin in the first week of June 2026, initially through the planning and implementation of health promotion and disease prevention activities for older people, their families and caregivers, as well as, educational sessions, individual and group counselling, workshops, and informational activities, while subsequent stages include the development and updating of educational materials, permanent dissemination activities, monthly documentation, and formal coverage assessments from August to December 2026.

During the first month of implementation, two complementary components were documented: individual health promotion and preventive counselling delivered during routine gerontological consultations and a structured educational programme on healthy and active ageing. These components were analysed separately because they represented different modes of intervention and involved different target populations. Individual health promotion and preventive counselling was systematically incorporated into routine gerontological consultations and documented in the clinical records. During June, 154 unique eligible patients received care at the Gerontological Module, all of whom received counselling as part of their clinical management. Accordingly, monthly coverage of individual counselling was 154/154 (100%). Consistent with the population-based definition of the indicator, the unit of analysis was the individual patient rather than the number of consultations or counselling encounters. Patients attending more than once during the month for follow-up care were therefore counted only once, preventing subsequent consultations from artificially increasing the estimated coverage. The scheduled appointment system provides an operational framework for the prospective planning and monitoring of individual counselling activities. Patients were accessed the Gerontological Module through different pathways, including internal referrals from outpatient services, scheduled follow-up appointments, direct patient-initiated requests for care, and requests arising through family networks. Regardless of the route of access or the number of consultations received during a given month, each eligible patient receiving documented counselling contributes only once to the monthly coverage measure.

In parallel, the structured educational component was implemented through the Healthy and Active Ageing course, conducted from June 22th to 26th, 2026. The programme comprised five consecutive educational sessions addressing health promotion, disease prevention, functionality, self-care and healthy ageing, and was designed to involve older people as well as families and caregivers. The recruitment and dissemination activities preceding the course included invitations promoted through the Gerontological Module and Social Work Service, together with promotional materials intended to encourage participation. Among the 172 eligible patients constituting the known clinical target population at the end of May, seven participated in the course, corresponding to an educational programme coverage of 4.1% (7/172) within the previously established clinical population. Importantly, the educational activity also extended beyond patients already receiving clinical care at the Module. An additional 18 participants had no previous clinical consultations at the Gerontological Module, comprising seven beneficiaries without previous consultations at the Module and 11 non-beneficiaries (a total of 25 unique participants associated with the educational activity). Thus, 18/25 (72.0%) of participants represented population reached outside the previously established clinical cohort, including relatives of patients and other individuals reached through the programme's recruitment and dissemination activities. This additional reach was reported separately rather

than incorporated into the 4.1% coverage estimate because these participants were not part of the predefined denominator of 172 patients.

Consequently, the two components provide complementary measures of the initial implementation of Indicator 9. The Individual preventive counselling achieved 100% monthly coverage (154/154) among eligible patients attending the Module during June, whereas the structured educational programme reached 4.1% (7/172) of the previously established clinical target population. For individual counselling, the initial monthly measure was calculated as: $I9 = (\text{number of unique eligible patients receiving documented individual health promotion and preventive counselling} / \text{total number of unique eligible patients attended during the month}) \times 100$. Accordingly, $I9 = (154/154) \times 100 = 100\%$. For the structured educational component, coverage within the known clinical target population was calculated as $(7/172) \times 100 = 4.1\%$, while the additional programme reach was reported separately to avoid introducing individuals into the numerator who were not represented in the predefined denominator. At the end of the observation period (June 29, 2026), the implementation and measurement procedures for Indicator 9 are remaining in progress, consistent with the staged implementation established in the AWP and the first formal coverage assessment scheduled for August 2026.

j) Indicator 10. Percentage of Monthly Supervisions and Feedback Sessions Conducted in the Functional Support Area

Indicator 10 assesses monthly supervision of the Functional Support Area, including application of the corresponding evaluation instrument, feedback to assigned personnel, identification and follow-up of improvement opportunities, and maintenance of documentary evidence. It is a process indicator with monthly data collection, calculated as the number of supervision and feedback activities completed relative to those scheduled. According to the AWP, the implementation was scheduled to begin in the first week of March 2026, followed by monthly application of the Functional Support Area evaluation instrument and integration of the corresponding documentary evidence. Formal evaluations of indicator performance were scheduled for August and December 2026. During the March–June implementation period, no personnel were assigned to the Functional Support Area during the afternoon shift, preventing the service from becoming operational and, consequently, precluding the planned supervision and feedback activities. Indicator 10 was therefore classified as not applicable (N/A) rather than as 0% compliance, as the conditions required for its calculation were not present. Despite this operational constraint, the corresponding evaluation form was completed monthly to document the status of the area. In addition, a formal memorandum was submitted to the Clinic Directorate in May 2026, communicating the absence of assigned personnel and its effect on service operation; a subsequent memorandum is scheduled for August 2026. These records constituted the documented information supporting monitoring and management follow-up of

the indicator during the implementation period, consistent with the AWP requirement for monthly integration of documentary evidence. The indicator was defined as $I10 = (\text{number of monthly supervision and feedback activities completed} / \text{number of supervision activities scheduled}) \times 100$. As the Functional Support Area was not operational during the observation period, no percentage was calculated and I10 was reported as N/A.

k) Indicator 11. Percentage of Actions Coordinated with Social Work for the Comprehensive Care of Older People

Indicator 11 assesses the percentage of actions coordinated between the Gerontological Module and Social Work Service to support the comprehensive care of older people with identified biopsychosocial needs. According to the AWP, it is a process indicator with monthly data collection and four-monthly assessment, calculated as the number of coordinated actions undertaken with Social Work relative to the number of coordinated programmed actions. The indicator encompasses activities such as social follow-up, guidance and support, community integration, and assistance to family members or caregivers.

The Implementation was designed as a progressive process. The AWP scheduled initial communication with Social Work Service to define joint activities for the first week of June 2026, development of a joint work programme during the second week, and the establishment of referral and social follow-up mechanisms during the third and fourth weeks. A broader implementation of coordinated intramural and extramural activities was planned from July onwards, with the first formal assessment of indicator performance scheduled for August 2026. Therefore, at the study cut-off date, Indicator 11 was classified as implementation in progress, consistent with the implementation stage established in the AWP. During this initial phase, the first working meeting between the Gerontological Module and Social Work Service was conducted to establish priority areas and mechanisms for interdisciplinary coordination. Two initial pathways were agreed and are currently being implemented. Moreover, older people with suspected abuse or identified social needs during the comprehensive gerontological assessment are internally referred to Social Work for further assessment and management. For patients requiring telephone follow-up, the Gerontological Module makes the initial contact attempt; when a patient cannot be reached, the list of non-responders is subsequently provided to Social Work to support further contact and follow-up. These mechanisms correspond to the referral and social follow-up activities scheduled for the third and fourth weeks of June in the AWP.

In parallel, a preliminary analysis of the social and environmental components of the comprehensive gerontological assessment was initiated to characterise the emerging needs of the population and provide an empirical basis for progressively defining referral criteria, follow-up priorities and coordinated interventions with Social Work. To ensure consistency across instruments, the analysis was restricted to 21 patients with complete data across all five predefined social assessment components: OARS, Social Resources

Inventory, Family APGAR, elder abuse assessment, and assessment of environmental, mobility and social participation barriers. Among these 21 patients, the OARS score had a mean of 18.00 ± 4.79 , with a median of 18 (IQR 16–21; range 7–25). Six patients (28.6%) were classified as having excellent social resources, 12 (57.1%) as having good social resources, and three (14.3%) as having deficient social resources. The Social Resources Inventory had a mean score of 15.62 ± 4.44 and a median of 16 (IQR 14–18; range 6–24). Using the interpretation criterion established in the guidance of the National Institute of Geriatrics (National Institute of Geriatrics [INGER], acronym in Spanish), 13 of 21 patients (61.9%) had scores ≤ 17 , for whom an individual and group intervention plan is recommended, whereas eight (38.1%) had scores > 17 . These preliminary findings indicate that a substantial proportion of the assessed patients meet the instrument-based criterion for additional social intervention and support. Family functioning, assessed using the Family APGAR, showed a mean score of 8.29 ± 2.81 and a median of 10 (IQR 8–10; range 0–10). Sixteen patients (76.2%) were classified as having a functional family, three (14.3%) as having moderate family dysfunction, and two (9.5%) as having severe family dysfunction. The elder abuse assessment had a mean score of 1.95 ± 1.75 , with a median of 1 (IQR 1–2; range 0–7). Scores from this screening instrument were interpreted within the individual clinical and social context and were not considered equivalent to confirmed elder abuse.

The Assessment of Physical Environment and Mobility Barriers showed that all 21 patients (100%) had at least one identified barrier. Barriers related to mobility outside the home, physical activity for recreation, and social participation were identified in all 21 patients (100%). Transportation-related barriers were present in 18 (85.7%), barriers related to assistive devices in 9 (42.9%), and barriers affecting mobility within the home in 8 (38.1%). These findings were derived from the predefined summary domains of the Assessment of Physical Environment and Mobility Barriers, including mobility within the home, mobility outside the home, physical activity for recreation, social participation, transportation, and access to assistive devices, together with the overall assessment of the presence of environmental and mobility barriers. The Initial patient-level interdisciplinary coordination had also begun by the end of June. Three cases required direct involvement of Social Work Service: two patients were internally referred because of suspected abuse related to the residential care settings in which they are currently living, following concerns expressed by the patients themselves; in a third case, Social Work support was required to contact family members to facilitate referral of a patient to the Emergency Department. These cases represent the first operational applications of the interdisciplinary referral pathway. A percentage for Indicator 11 was not calculated at this stage. Although coordination mechanisms and initial patient-level actions are already in place, the prospective instruments for documenting and monitoring coordinated actions are still being developed, informed by analysis of the accumulating social assessment data. Furthermore, the denominator required for the indicator—the

number of coordinated actions programmed—is not yet definitively established. This is consistent with the staged implementation specified in the AWP, which establishes intermediate targets of 0% for January–April, 50% for May–August, and 80% for September–December 2026. The indicator is defined as $I11 = (\text{number of coordinated actions undertaken with Social Work} / \text{number of coordinated actions programmed}) \times 100$. At the June 29th, 2026 cut-off, Indicator 11 is progressing through the initial implementation stages established in the AWP: interdisciplinary coordination is underway, referral and follow-up pathways are established and being implemented, the first coordinated patient-level actions are taking place, and preliminary complete-case analysis of social and environmental needs is being used to inform the development of the monitoring system. The indicator 11 is therefore classified as implementation in progress, with formal quantification deferred until the programmed actions and prospective measurement mechanisms are sufficiently established for the first scheduled performance assessment.

I) Indicator 12. Percentage of Timely and Accurate Activity Records in the SIEMP System

Indicator 12 assesses the percentage of activities conducted by the Gerontological Module that are accurately and timely recorded in the institutional Statistical Information System for Preventive Medicine (Statistical Information System in Preventive Medicine [SIEMP], acronym in Spanish), in accordance with institutional requirements. It is a process indicator with monthly data collection and assessment, intended to strengthen the control, monitoring and evaluation of Module activities. The AWP also requires consistency between reported productivity, clinical records and SIEMP data. The indicator is defined as $I12 = (\text{number of activities accurately and timely recorded in SIEMP} / \text{total number of activities performed by the Gerontological Module}) \times 100$. SIEMP reports constitute the source for the numerator, whereas productivity reports, appointment schedules and clinical records provide the information required to determine the activities performed. The AWP establishes a 90% baseline and a 100% annual target, with intermediate targets of 90% for January–April, 90% for May–August and 100% for September–December 2026. According to the AWP implementation schedule, the SIEMP registration is performed during the first five days of each month. The Systematic registration of clinical, preventive and community activities is defined as a permanent activity, accompanied by a monthly verification of consistency between productivity, clinical records and SIEMP records and feedback on any identified inconsistencies.

During the March–June 2026 observation period, the SIEMP registration continues to be performed as part of the routine institutional process by personnel from the morning shift. Therefore, the activities generated by the Gerontological Module are incorporated into an already operational institutional reporting system rather than through a newly established reporting process specific to the afternoon shift. However, independent verification and measurement of Indicator 12 by the afternoon-shift Gerontological

Module have not yet been incorporated into the present analysis. The afternoon-shift team plans to begin this verification process in September 2026, using August 2026 as the first monthly period evaluated. This will allow direct comparison of the activities documented in the Module's productivity records, appointment schedules and clinical records against their corresponding SIEMP entries, in accordance with the consistency criterion established in the AWP. Consequently, no independent percentage for Indicator 12 is calculated for the March–June observation period. This does not indicate absence or non-compliance with SIEMP reporting, since the institutional registration process remains operational; rather, it reflects that afternoon-shift-specific verification of completeness, accuracy and timeliness has not yet begun. Indicator 12 is therefore reported as an ongoing institutional process, with afternoon-shift-specific measurement pending implementation.

m) Indicator 13. Percentage of Internal and External Referrals Managed in A Timely Manner for the Comprehensive Care of Older People

Indicator 13 assesses the percentage of internal and external referrals managed in a timely manner according to the clinical needs identified during the comprehensive gerontological assessment. Internal referrals involve coordination with other services within the healthcare unit, whereas external referrals involve referral to secondary or tertiary levels of care when specialised diagnostic or therapeutic assessment is required. According to the AWP, the indicator is measured monthly and is calculated as $I13 = (\text{number of internal and external referrals managed in a timely manner} / \text{total number of internal and external referrals required}) \times 100$. The AWP further specifies that the denominator may change throughout the year and that referrals should follow established clinical criteria and be documented in the institutional clinical record. The activities supporting Indicator 13 are established in the AWP as a permanent process. The Coordination for the management of internal referrals with other services within the healthcare unit and dissemination of the corresponding clinical and administrative criteria are continuous activities. The Integration of information generated across services and identification of referral needs, as well as follow-up of internal and external referrals, are undertaken monthly, whereas review of clinical records and institutional documentation to assess timeliness and compliance is scheduled every four months.

During the March–June 2026 observation period, internal and external referrals are generated as part of routine clinical care according to the individual needs identified during comprehensive gerontological assessment. However, the existing databases do not yet provide a structured mechanism for separately identifying and counting each internal or external referral required and linking it to the corresponding referral completed. This distinction is essential because a single patient may require more than one internal or external referral, and the denominator specified in the AWP corresponds to the total number of referrals required rather than to the number of individual patients. Accordingly, the methodology

for prospective measurement of Indicator 13 is currently being developed. The proposed approach is to establish a patient-level referral tracking system in which each identified need for an internal or external referral is recorded as an individual event. The information to be recorded includes the clinical indication, destination service or level of care, date on which the referral need is identified, diagnostic or administrative requirements that must be completed before referral, date on which the referral is issued, and subsequent referral status. This structure will allow multiple referrals for the same patient to be recorded independently and will permit direct calculation of both the numerator and denominator required for Indicator 13.

This distinction is particularly relevant because the identification of a clinical condition that may require specialist assessment does not necessarily imply that an immediate external referral is appropriate. Depending on the clinical condition and applicable referral criteria, the initial management may remain within primary care, or an additional clinical, laboratory, a or diagnostic evaluation may be required before an external referral can be appropriately issued. Consequently, the referral needs undergoing this preparatory process should be distinguishable from clinically required referrals that have not yet been managed. Therefore, a percentage for Indicator 13 is not calculated for the March–June 2026 observation period. This should not be interpreted as an absence of internal or external referrals or as 0% performance. Rather, it reflects the current absence of a prospective measurement structure capable of reliably identifying each required referral and linking it to the corresponding completed referral. The indicator 13 is therefore reported as measurement methodology in development, while internal and external referrals continue to be managed as part of routine clinical care. The prospective system currently being designed will enable subsequent measurement of referral requirements, completed referrals, timeliness, and continuity of care in accordance with the AWP.

n) Indicator 14. Percentage of Healthcare Personnel Oriented or Trained in Healthy Ageing and Gerontological Care

Indicator 14 assesses the percentage of healthcare personnel within the healthcare unit who participate in training activities related to healthy ageing, gerontological care, referral criteria to the Gerontological Module, and prevention of geriatric syndromes. According to the AWP, it is a process indicator assessed semi-annually, with data collection scheduled for June and December. The indicator is calculated as $I14 = (\text{number of healthcare personnel trained} / \text{total number of healthcare personnel scheduled for training}) \times 100$. Training activities may include face-to-face sessions, workshops, courses, academic meetings, or institutional dissemination of referral criteria to the Gerontological Module. The Implementation of Indicator 14 is planned predominantly for the second half of 2026. The AWP schedules preparation of the semi-annual training programme in June, the identification of healthcare personnel training needs during the first week of July, and the institutional dissemination of the programme and invitation of

healthcare personnel during July. Academic sessions, workshops, and other educational activities are scheduled from July to November 2026, with attendance lists and documentary evidence collected during each activity. A formal evaluation of training coverage is scheduled for November 2026, followed by integration of the annual report in December. At the June 29th, 2026 cut-off, formal training activities for healthcare personnel have not yet begun, which is consistent with the staged implementation established in the AWP. During this preparatory phase, the Gerontological Module is initiating coordination with the staff member responsible for medical education within the healthcare unit, communicating the intention to organise academic sessions for healthcare personnel. Accordingly, a percentage for Indicator 14 is not calculated for the March–June 2026 observation period. This does not represent 0% performance or failure to meet the indicator; rather, the programme remains in its preparatory phase at the study cut-off for delivery of educational activities. Indicator 14 is therefore reported as the implementation scheduled for the second half of 2026.

o) Indicator 15. Percentage of Internal Referrals Meeting Referral Criteria for the Gerontological Module

Indicator 15 assesses adherence to the established criteria for internal referral to the Gerontological Module. According to the AWP, the indicator is calculated as $I15 = (\text{number of internal referrals meeting referral criteria} / \text{total number of internal referrals received by the Gerontological Module}) \times 100$. The first formal assessment is scheduled for August 2026, with an intermediate target of 30% for May–August. The Referral appropriateness was evaluated according to Table 2 of Operational Guide 52, which establishes that the referral requires at least two major criteria or three minor criteria. As with Indicator 8, following implementation of the referral registry, previously received internal referrals were retrospectively identified when sufficient documentation was available. Therefore, the analysis included cumulative documented referrals from the beginning of Module activities through June 29th, 2026. A total of 69 internal referrals were evaluated. The classification was based exclusively on the diagnoses and reasons for referral documented by the referring physician; findings subsequently identified during the comprehensive gerontological assessment were not used. A conservative approach was applied, whereby diagnoses were not inferred beyond the information explicitly documented. Of the 69 internal referrals, 14 (20.3%) met the established referral criteria, whereas 55 (79.7%) did not document a sufficient combination of criteria. Accordingly, $I15 = (14 / 69) \times 100 = 20.3\%$. Compliant referrals most frequently documented combinations such as frailty and polypharmacy, frailty and dementia, or gait/fall-related impairment and functional decline. The Failure to meet the referral criteria does not necessarily indicate that gerontological care was clinically unnecessary; rather, it indicates that the information documented in the referral was insufficient to demonstrate compliance with the established standard. The observed 20.3% represents an interim result at the June 29th cut-off and remains below the 30% May–August intermediate target, whose first formal

assessment is scheduled for August 2026.

p) Indicator 16. Percentage of Caregivers and Family Members Trained in The Care of Older People

Indicator 16 assesses participation of caregivers and family members in educational activities related to the care of older people. According to the AWP, the indicator is calculated as $I16 = (\text{number of caregivers and family members trained} / \text{total number of caregivers and family members scheduled for training}) \times 100$, with an annual target of 50%. The AWP establishes a progressive implementation process that includes identification of caregivers' educational needs, development of the educational programme and preparation of educational materials, followed by educational activities for caregivers and family members. A Formal evaluation is scheduled semi-annually. At the June 29th, 2026 cut-off, Indicator 16 is therefore reported as implementation in progress. As part of this process, a structured five-day training course for caregivers, Comprehensive Care of Older People at Home, has been developed and proposed for November 9th–13th, 2026. The programme is directed at primary caregivers, family caregivers and other people involved in the care of older people, with participant recruitment planned through the Gerontological Module and Social Work. The available gerontological screening data are also being used to identify the potential target population for caregiver training. Among the patients with available information, 87 reported having someone who provides care. Accordingly, the currently identified potential target population for the training programme comprises 87 caregivers. This figure is preliminary and will be updated as additional caregivers are identified. Because the caregiver training programme is scheduled for November 2026, the Indicator 16 is not calculated at the present cut-off. The caregivers currently identified represent the preliminary potential target population for training rather than the definitive denominator of the indicator.

q) Indicator 17. Percentage of Older People with Gerontological Telephone Follow-Up Completed

The indicator 17 assesses continuity of care through gerontological telephone follow-up and is calculated monthly as $I17 = (\text{number of older people with telephone follow-up completed} / \text{total number of older people scheduled for telephone follow-up}) \times 100$. The AWP establishes an annual target of 50%, with intermediate targets of 0% for January–April, 25% for May–August, and 50% for September–December 2026. The AWP establishes telephone follow-up as a permanent activity, including the identification and prioritization of candidates, monthly updating of the patient registry, scheduling and systematic performance of telephone follow-up, documentation of calls and incidents, and a monthly review of compliance. Because the indicator is newly created and the intermediate target for January–April is 0%, data recorded during March and April were analysed retrospectively as baseline implementation data rather.

The analysis was restricted to patients aged ≥ 60 years old and was conducted at the patient-month level rather than the

consultation level, consistent with the definition of the indicator in terms of older people. Each patient was therefore counted only once within each month, irrespective of the number of consultations recorded. Patients with Yes or No in the telephone follow-up variable were considered for the indicator, whereas records classified as Not applicable were excluded from the denominator because telephone follow-up was not required for those consultations. When telephone follow-up was indicated but not completed on more than one occasion for the same patient within a month, the patient was counted only once as not having completed follow-up. This situation occurred in two patients in March and one patient in May, each of whom had two consultations with an unsuccessful follow-

up record during the same month. When both an unsuccessful and a subsequently completed follow-up were recorded for the same patient within a month, the patient was classified as having completed telephone follow-up. The Telephone follow-up was completed in 2 of 35 patients (5.7%) in March, 5 of 29 (17.2%) in April, 0 of 31 (0.0%) in May, and 19 of 19 (100.0%) in June. Thus, after the initial retrospective implementation period, the indicator reaches 100% in June, exceeding the 25% intermediate target established for May–August. The monthly progression of telephone follow-up completion is shown in (Figure 5).

Source: Authors' own elaboration

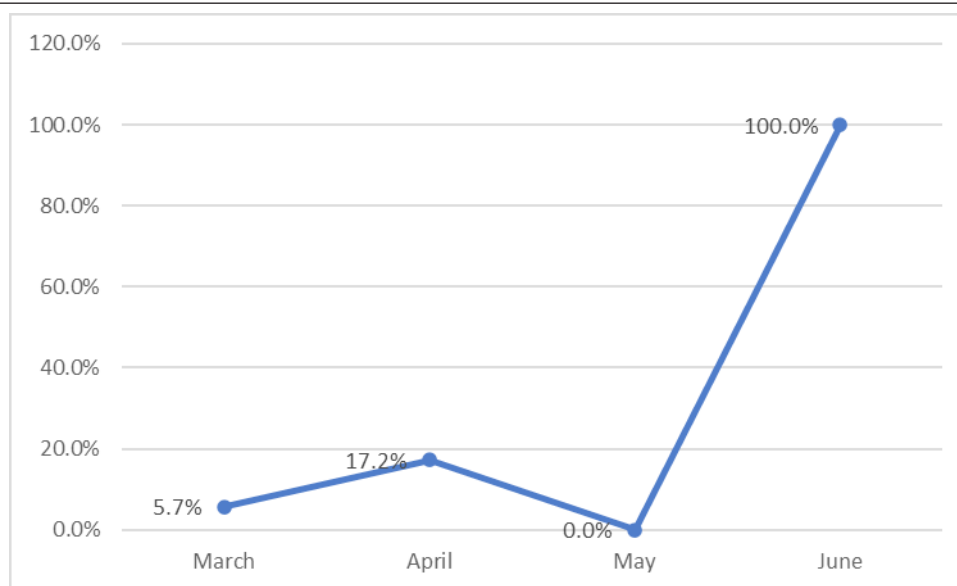


Figure 5: The Monthly percentage of older people with completed gerontological telephone follow-up, March–June 2026.

Discussion

This study describes the development and initial implementation of a performance measurement framework that translates institutional operational requirements for comprehensive gerontological care into measurable indicators applicable to routine PHC. The principal contribution of the framework is methodological: rather than introducing new programme activities, it converts existing regulatory requirements into operational definitions, numerators, denominators, measurement schedules and performance targets that can be monitored over time. The resulting 17 indicators encompass organisational capacity, service delivery, multidisciplinary coordination, comprehensive assessment, referral pathways, health promotion, professional and caregiver education, information management and continuity of care. This approach addresses the gap identified in the institutional guidelines, which specify what Gerontological Modules are expected to perform but do not establish a systematic methodology for quantifying local implementation. The initial implementation experience demonstrates that operationalisation is not equivalent

to simply calculating percentages from existing administrative data [30–32]. Several indicators could be quantified immediately using routinely available information, whereas others required the development of new registries, the clarification of denominators or prospective documentation procedures. This distinction became particularly evident for referral management, the coordination with Social Work Service and caregiver training. Consequently, the framework also functions as a diagnostic tool for the information system itself: when an indicator cannot yet be calculated reliably, the operationalisation process identifies precisely which variables, documentation mechanisms or linkages between records are missing [30–32].

The observed results illustrate different stages of programme implementation. Some components showed high early performance, including a staff-specific training and the user satisfaction, both reaching 100%, while scheduled consultation activity progressively increased and exceeded the monthly target by June. In contrast, the comprehensive gerontological assessment showed a gradual cumulative completion. This finding should be interpreted in the

context of the multidimensional nature of the assessment, which requires numerous functional, cognitive, emotional, nutritional, sensory, social and environmental instruments that may be completed across successive consultations. The comparison reveals two distinct patterns: indicators that could be implemented, rapidly achieved higher levels of performance, whereas the more gradual progression of comprehensive gerontological assessment was consistent with implementation difficulties reported in previous studies [33-35]. The heterogeneous performance observed across indicators is consistent with the broader challenges reported when complex interventions are implemented in primary care. In particular, the gradual completion of comprehensive gerontological assessment in our study is similar to previous evidence showing that implementation of comprehensive geriatric assessment in primary care is operationally demanding. Garrard, et al., [33] identified a substantial heterogeneity in implementation models, the professional involvement and follow-up, with some interventions requiring more than one patient contact. More recent evidence also supports this finding: healthcare professionals have reported time constraints as a major barrier to comprehensive geriatric assessment, with assessments sometimes requiring two consecutive appointments or being divided into two or more sessions [34]. Likewise Lau, et al., [35] found that the time-consuming nature of comprehensive geriatric assessment limits its application in primary care and has prompted the development and implementation of shorter assessment approaches. These findings are therefore similar to our experience with the comprehensive gerontological assessment indicator, for which the cumulative completion reached only 10.2% by June. In contrast, within our programme, the staff-specific training and user satisfaction reached 100%, while the scheduled consultation activity progressively increased and exceeded the monthly target by June. This contrast suggests that components requiring fewer operational steps may reach a high performance earlier, whereas multidimensional activities involving several assessment domains, instruments and potentially successive consultations may require a longer implementation period. Thus, rather than reflecting a uniform implementation effect, our findings suggest that performance trajectories differed according to the operational complexity of each indicator.

The implementation process also identified organisational constraints that cannot be attributed solely to individual provider performance. The absence of personnel assigned to the Functional Support Area prevented the calculation of the corresponding supervision indicator and was therefore classified as not applicable rather than as non-compliance. This distinction is relevant for performance measurement because a low indicator value and the structural impossibility of performing the activity represent fundamentally different situations and require different managerial responses. Referral indicators provided another example of the value of operational measurement. Retrospective reconstruction identified 69 documented internal referrals, of which 58 (84.1%) were attended within the operational 30-day benchmark. However,

only 14 of 69 (20.3%) contained sufficient documented criteria to demonstrate compliance with the institutional referral standard. Previous evidence indicates that the referral timeliness and the referral quality represent distinct but complementary dimensions of performance, as successful completion of the referral pathway does not necessarily ensure the completeness or quality of the clinical information supporting the referral [36,37]. The 84.1% of internal referrals attended within the 30-day benchmark was comparable to the approximately 80% referral completion reported in primary care by other authors [38]. In contrast, only 20.3% of referrals contained sufficient documentation to demonstrate compliance with institutional criteria. This gap is consistent with previous evidence showing that the referral quality depends on the completeness and relevance of clinical information and adherence to referral criteria [36,37], while substantial deficiencies in referral documentation and appropriateness have also been reported [39,40]. Although the documented compliance in our programme was lower than that reported in previous studies [39,40], this should not be interpreted as evidence that the remaining referrals were clinically inappropriate, but rather that their documentation was insufficient to demonstrate compliance. These contrasting results show how complementary indicators can distinguish timely referral management from the quality of its documentation. Moreover, the failure to document sufficient criteria should not be interpreted as evidence that gerontological care was clinically unnecessary, but rather as an opportunity to improve referral documentation and dissemination of institutional criteria.

The framework further allowed emerging clinical and social needs to inform implementation. Preliminary the complete-case assessment identified social, family and environmental vulnerabilities that supported the development of coordinated pathways with Social Work Service. Among 21 patients with complete social assessments, 61.9% met the Social Resources Inventory criterion for additional intervention, while environmental or mobility barriers were identified in all evaluated patients. These findings were not used to redefine the indicator retrospectively; rather, they provided empirical information for developing the prospective coordination and monitoring system. A Structured telephone follow-up has been used as a feasible strategy to extend the care of older people beyond face-to-face encounters [41,42]. However, the implementation may be affected by operational barriers, particularly the ability to systematically contact eligible patients. A systematic review found that a substantial proportion of eligible older people could not be included because they were unreachable or declined participation [42], while a large pragmatic trial reported that staff shortages prevented telephone contact attempts of eligible intervention patients [43]. Against this background, the increase in our programme from 0% in May to 100% (19/19) in June suggests that systematic organisation of the follow-up process can produce a rapid improvement in implementation. Nevertheless, this early achievement should not be interpreted as the evidence of sustained performance or clinical effectiveness. Previous evidence has not demonstrated consistent

reductions in healthcare utilisation following telephone follow-up in older populations [42,43]; therefore, continued monthly measurement is required to determine whether the observed level of implementation can be maintained over time.

Taken together, these findings show that the implementation of a performance measurement framework is itself a progressive process. Indicators at different stages—quantified, retrospectively reconstructed, prospectively implemented, under the methodological development, scheduled for later implementation, or not currently applicable because of structural constraints—can coexist during the initial phase. Explicitly distinguishing these states avoids equating the absence of a calculable percentage with poor performance and provides a more informative representation of programme maturity. From a quality-management perspective, the proposed framework establishes a feedback mechanism between institutional regulation, routine practice and local decision-making. Indicator results can identify structural gaps, documentation deficiencies, unmet assessment needs, referral problems and opportunities for a multidisciplinary intervention, while subsequent measurements can determine whether corrective actions produce improvement. The framework therefore extends beyond regulatory compliance and provides an operational basis for continuous quality improvement in comprehensive older adult care.

Limitations And Applications

Several limitations should be considered. First, this study represents the initial implementation of the framework in a single Gerontological Module within one primary healthcare facility; consequently, the observed performance values reflect local organisational characteristics and should not be interpreted as normative benchmarks for other units. External validation in Gerontological Modules with different staffing, patient volumes and organisational contexts will be required to assess transferability. Second, the observation period covers only the first months of implementation. Several indicators were intentionally scheduled for a later assessment according to the Annual Work Plan, and others required prospective registries or measurement procedures that were still under development at the study cut-off. Accordingly, the present results describe early implementation performance rather than definitive programme effectiveness.

Third, some initial measurements relied on retrospective reconstruction of routinely collected information. This was particularly relevant for internal referrals and telephone follow-up before the formal implementation of their specific monitoring procedures. Although only the documented information was included, the retrospective ascertainment remains dependent on the completeness and accuracy of existing records. Fourth, denominators vary according to the operational construct being measured. Some indicators are patient-based, others are consultation-, activity-, referral-, staff- or programme-based, and

several populations evolve throughout the year. Careful preservation of these units of analysis is essential to avoid duplicated patients, inflated numerators or inappropriate comparisons between indicators.

Finally, some indicators required locally defined operational criteria when an institutional guidance did not provide a quantitative standard. The 30-day benchmark used for internal referral timeliness is an example and should therefore be interpreted as an operational monitoring threshold rather than an institutionally mandated standard. A future implementation should evaluate the stability, feasibility and discriminatory capacity of these operational definitions and refine them when the additional institutional or empirical evidence becomes available. Despite these limitations, the framework has practical applications for local management, supervision, accreditation and continuous quality improvement. Its structured methodology may also be adapted to other Gerontological Modules or the comparable primary healthcare programmes, provided that local organisational characteristics and information systems are considered before implementation.

Conclusion

The operationalisation of institutional guidelines into measurable performance indicators is feasible within the routine gerontological primary care and provides information that cannot be obtained from normative compliance alone. The framework developed in this study translated the operational requirements of institutional guidance into 17 indicators covering complementary dimensions of programme structure, management, processes, and outcomes. The initial implementation demonstrated heterogeneous levels of maturity across indicators. Some processes could be measured immediately using existing information, whereas others required retrospective reconstruction, new registries, prospective measurement procedures or additional organisational development. Recognising these different implementation states is essential to distinguish true performance deficits from indicators that are not yet measurable or applicable. The framework provides a structured mechanism for transforming the clinical routine and the administrative information into actionable evidence for programme monitoring and continuous quality improvement. Continued prospective measurement throughout 2026 will allow assessment of temporal performance, consolidation of the measurement procedures and evaluation of whether the observed early improvements are sustained. Further implementation in other primary healthcare settings will be necessary to determine the reproducibility and transferability of the proposed methodological approach.

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Competing Interests

Authors have declared that no competing interests exist.

Authors' Contributions

All authors contributed to conceptualization (ideas, formulation, or development of research goals and objectives), formal analysis (application of statistical, mathematical, computational, or other formal techniques to analyse or synthesize study data), writing - original draft (preparation, creation, and/or presentation of the published work, specifically writing the initial draft), writing - review and editing (preparation, creation, and/or presentation of the published work by the research group, specifically critical review, commentary, or revisions, including pre- or post-publication stages), and visualization (preparation, creation, and/or presentation of the published work, specifically data visualization/presentation). López Hernández Daniel, in addition to the above, contributed to project administration (responsibility for managing and coordinating the planning and execution of the research activity), investigation (development of a research process, specifically experiments or data collection/testing), methodology (development or design of methodology, creation of models), supervision (responsibility for supervision and leadership in the planning and execution of the research activity, including external mentoring), and validation (verification, whether as part of the activity or separately, of the overall replicability/reproducibility of the results/experiments and other research outcomes).

Disclaimer

Authors hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

Consent

The study was conducted using medical records, and no informed consent was obtained. The handling of the information was approved by the ethics committee, ensuring compliance with the appropriate ethical standards.

Ethical Approval

The present study was conducted in compliance with the Good Clinical Practice Guidelines, national regulations, and the principles outlined in the Declaration of Helsinki for research involving human subjects. To guarantee confidentiality, only the principal investigators had access to the complete dataset, including identifiable patient information (e.g., names). The patient names were replaced with unique identification numbers. The assigned number allows the data to be linked to a specific individual without revealing the individual's identity. This approach ensured that all patient data were handled under ethical standards and maintained the highest level of confidentiality throughout the study. This anonymization was conducted before sharing the dataset for

statistical analysis with some researchers. After the statistical analysis, only the processed statistical data were made available to the rest of the research team.

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