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The orthogeriatric cycle and orthogeriatric taxonomy: definitions, classifications, and conceptual elements for a better clinical practice

Ciclo ortogeriátrico e taxonomia ortogeriátrica: definições, classificações e elementos conceituais para uma melhor prática da ortogeriatría

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Abstract

The incidence of fragility fractures is increasing. This group of diseases, mainly hip fractures, has enormous clinical, social, organizational, epidemiological, and economic impact. Orthogeriatrics emerged in the 1960s as a response to the impact of hip fractures on health systems. Since then, the cost-effectiveness of co-management models has been demonstrated, and the field of orthogeriatrics has expanded from acute care to prevention, rehabilitation, and follow-up, including involvement from clinical, academic, administrative, and political sectors. This has made associated indicators and standards increasingly complex. Moreover, orthogeriatrics initiatives are quite diverse throughout the world, since they arise due to varied local circumstances. Thus, it is necessary to review the foundations of the specialty to facilitate decision-making, comparison between models, and continuous improvement. In this article, we review current definitions and concepts in orthogeriatrics based on classic publications. We also reviewed the classifications of care models and carried out an evolutionary analysis of the field. Finally, we propose a taxonomic system that considers clinical, evolutionary, and functional aspects.

Keywords: geriatrics; hip fractures; orthogeriatric models of care.

Resumo

A incidência de fraturas por fragilidade está aumentando. Esse grupo de doenças, principalmente as fraturas de quadril, tem um enorme impacto clínico, social, organizacional, epidemiológico e econômico. A ortogeriatría surgiu na década de 1960 como resposta ao impacto das fraturas de quadril nos sistemas de saúde. Desde então, a relação custo-efetividade dos modelos de cogestão foi demonstrada, e a ortogeriatría ampliou seu campo de atuação de hospitais de cuidados agudos para prevenção, reabilitação e acompanhamento, incluindo atores clínicos, acadêmicos, administrativos e políticos. Isso tornou a rede de indicadores e padrões associados cada vez mais complexa. Junto a isso, as iniciativas em ortogeriatría são muito diversas no mundo, pois surgem em função de múltiplas circunstâncias locais. Por isso, é necessário rever as bases da especialidade para facilitar, entre outras coisas, a tomada de decisões, comparação entre modelos e melhoria contínua. Neste artigo, revisamos as definições e conceitos atuais em ortogeriatría, com base em publicações clássicas. Também revisamos as classificações dos modelos assistenciais e realizamos uma análise evolutiva da ortogeriatría. Por fim, propomos um sistema taxonômico que leva em consideração aspectos clínicos, evolutivos e funcionais.

Palavras-chave: geriatria; fratura de quadril; modelos de atenção em ortogeriatría.



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INTRODUCTION

The incidence of fragility fractures is increasing worldwide.¹ Hip fracture (HF), the most representative type, is considered a geriatric syndrome with enormous impact not only on the clinical picture (cognitive disorders, functionality loss, and lower quality of life),² but social (associated care, institutionalization, and lost years of healthy life), epidemiological (increased incidence, mortality between 25 and 30%),³ and economic spheres as well (eg, the UK spends GBP 2 000 000 each year on costs associated with direct clinical care alone).⁴ For these reasons, HF is referred to as the “queen” of fragility fractures in clinical circles.

With the aging of the population, the pressure that this common geriatric syndrome exerts on health systems is both enormous and growing. The impact of HFs has forced health systems to implement new organizational models, study new data, generate indicators and standards, and develop new care paradigms. Thus, this is the context in which orthogeriatrics has developed.

Although the term orthogeriatrics was coined in the 1960s and 1970s by Michael Devas, an orthopedic surgeon, and Robert Irvine, a geriatrician,⁵ clinical recommendations for orthogeriatric practice emerged during the Second World War through the work of Lionel Cosin, who is considered the founder of orthogeriatrics in the United Kingdom.⁶

Since then, orthogeriatrics has evolved. And although there are different models of attention and ways of understanding it, there are still difficulties in referring in a practical way to its various forms of expression worldwide.

In part, this is due to the fact that fragility fractures (mainly hip fractures) put pressure on healthcare systems in multiple ways, generating responses limited to local culture, resources and possibilities.

On the other hand, the number of publications on orthogeriatrics has increased significantly. If there were 50 articles on orthogeriatrics in high impact journals in 2009, today it is difficult to read everything that is published.⁷

Hence, we consider it opportune to review the concept of orthogeriatrics in light of current publications, proposing methods to facilitate standardized practice and comparison for research. Our intent is not to exhaust the subject, but rather to address its basic aspects, defining its concepts and orthogeriatric models of care (OMCs), in addition to proposed classification systems and health care strategies. At the end of the article, we propose new concepts and a taxonomy for orthogeriatrics.

Bearing in mind that orthogeriatrics has had a vertiginous development, hand in hand with even more vertiginous needs, we must understand it well and implement it effectively and

efficiently, so that one of its main virtues, the cost-benefit ratio, can be fully taken advantage of. Thus, our final objective is to increase understanding of orthogeriatrics as a dynamic and open system that is evolving from solid constructs.

Definitions and concepts

1. Comprehensive care model: Set of actions and principles for achieving optimal health outcomes through interdisciplinary actions implemented in an inclusive and coordinated manner at all levels of care.⁸
2. Health services organization models: the way that components of the health services system are organized to improve their collective functioning.⁹
3. Orthogeriatrics: a definition of orthogeriatrics will be provided in this article. For now, it is important to distinguish the terms “orthopedic geriatrics” and “geriatric orthopedics” from “orthogeriatrics”. The main difference is that “orthogeriatrics” summarizes in a single word the concept of co-responsibility that orthopedists and geriatricians have in the management of older trauma patients. The other two terms should not be used because they separate and condition the treatment to one specialty or the other.
4. Orthogeriatric Model of Care (OMC): sets of work systems based on comprehensiveness, interdisciplinarity, and co-management¹⁰ that are organized and interrelated through concepts (such as the orthogeriatric cycle). Their main goal is to facilitate implementation of comprehensive initiatives in orthogeriatrics, in addition to supervision and continuous improvement, to achieve the maximum health benefit for internal and external users.
5. Orthogeriatric initiatives or interventions: the implementation of any form of orthogeriatric work, without specifying a particular type.
6. Orthogeriatric units or services: administrative expression of the organization and operation of any orthogeriatric initiative or intervention. Units tend to mobilize fewer resources, have greater independence, and tend to focus on more specific issues, than a service. The terms orthogeriatric “unit” or “service” should reflect the formal structuring of an initiative with certain characteristics through official documentation issued by political-administrative authorities. However, this is not always the case, which is why the terms “unit”, “service”, “initiative” and “intervention” are often used interchangeably in orthogeriatrics.
7. Orthogeriatric cycle: Set of sequential stages through which an orthogeriatric patient can pass and in

which orthogeriatric interventions can be performed. Essentially, the cycle consists of 4 stages: promotion/prevention, acute care, rehabilitation/discharge, and follow-up.¹¹

- A. Promotion and prevention: the main goal of this stage is to carry out primary and secondary prevention by identifying and treating risk factors, in addition to public awareness about the importance of adequate health control.
- B. Acute care: the main goals of this stage are prompt therapeutic identification and resolution, management of undiagnosed conditions, preventing complications, and recovering functionality. This stage begins when an orthogeriatric disease is diagnosed (which normally implies hospitalization) and continues through its resolution by implementing the therapeutic decision (and hospital discharge). At this stage, at least four other points of the patient journey can be described: preoperative (diagnosis confirmed by the orthopedic surgeon/traumatologist, treatment in the emergency department, transfer to a hospital ward, orthogeriatric evaluation), intraoperative, postoperative, and hospital discharge.
- C. Subacute care: the main goals of this stage are the rehabilitation and social reintegration of the patient.
- D. Follow-up: the fourth stage (which merges with the first and, hence, the cycle) corresponds to the follow-up of patients in the medium and long term, seeking both to monitor epidemiologic aspects (mortality, readmissions, functionality) and to create home, community, outpatient and hospital conditions for optimal performance, better opportunity and complementary treatment for the fragile population, their social environment, and health teams.

By allowing a panoramic vision of orthogeriatrics, the concept of orthogeriatric cycle allows a systemic understanding of the stages that unfold in a geographical territory at a given moment. This makes it easier to develop new initiatives and reassess those that are failing. On the other hand, as we will see later, this is also the basis for a dynamic classification of care models, making it a fundamental tool for comparing similar initiatives, replicating successful ones in similar environments and defining which initiatives should be implemented in different contexts. Finally, it allows the indicators and standards associated with each stage to be evaluated from an evolutionary point of view, ie, determining which should

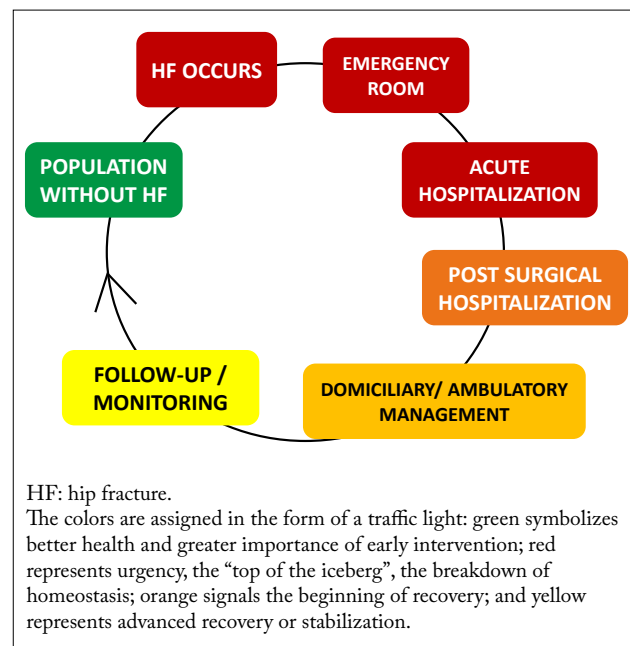


FIGURE 1. The orthogeriatric cycle.¹¹

be implemented first, allowing the correct measurement and performance of subsequent stages. Figure 1¹¹ summarizes the orthogeriatric cycle.

What do we have so far?

The functioning and results of orthogeriatrics

A number of authors have described orthogeriatrics practice throughout the world, focusing on HF as the main nosological entity and performing a descriptive and evolutionary analysis. Pioli et al.¹² describe the following types of functioning:

1. Traditional: admission to the orthopedics/traumatology department, where, depending on the situation or the orthopedic surgeon's decision, consultations are arranged with different medical specialties.
2. Modified traditional: admission to the orthopedics/traumatology department, including consultation with the geriatrics department. This strategy is known as “interconsultation teams”.
3. Integrated orthopedics-geriatrics: joint management between orthopedists/traumatologists and geriatricians.
4. Sequential: admission to the orthopedics/traumatology department, followed by consultation with geriatrics. The geriatrics department then consults with the orthopedics department.
5. Geriatrics as the responsible department: admission to the geriatrics department, which arranges consultations with the orthopedics department.

In 2010, Kammerlander et al.¹³ published a similar article, concluding that the sequential form was becoming more frequent, with good results in indicators such as mortality, waiting time for surgery, complications, and functional recovery. However, these authors refrained from recommending one system over another due to inconclusive evidence, which could be obtained through prospective randomized controlled multicenter studies comparing different care models.

Grigoryan et al.¹⁴ (2014) and Van Heghe et al.¹⁵ (2022) published articles in which different treatment systems are compared using the descriptive paradigm of Pioli et al.,¹² which proposes 3 basic forms:

1. Admission to the orthopedics department (consultation with geriatrics);
2. Admission to the geriatrics department (consultation with orthopedics);
3. Admission to both departments (in co-management).

Except for certain differences, both groups reported that conclusive evidence cannot be obtained, using similar arguments to Kammerlander et al.¹³ (2010).

It should be pointed out that, rather than producing taxonomic systems, these publications produced descriptive categorizations of the functioning of orthogeriatric initiatives, focusing on which achieved the best results.

Orthogeriatric ways of working can be described as either based or not based on consultations. Today, 15 years after the pioneering work of Pioli et al.,¹² it is clear that consultation-based systems, without an integrated framework between orthopedists and geriatricians, have no impact on the indicators. This is why consultation-based initiatives should not be categorized as “models”: evidence shows that the true “model” is orthogeriatric integration, which is called co-management.¹⁶⁻¹⁸

Strategies in orthogeriatrics

Although with different motivations and goals, several international organizations have initiated strategies to optimize the clinical and organizational aspects of the orthogeriatric cycle or OMC implementation, mainly those related to acute care, rehabilitation, and secondary prevention. They allocate resources for education/training in orthogeriatrics and fragility fractures. Without losing sight of other initiatives, we highlight 3 of the most active worldwide.

1. Capture the Fracture, of the International Osteoporosis Foundation:¹⁹

This program provides recognition, resources, training, and tools to support fracture liaison services around the world and

facilitate the implementation of coordinated, multidisciplinary models of care for secondary prevention of fractures.

2. The 4 pillars of the Fragility Fracture Network:²⁰

The Fragility Fracture Network is a global organization that proposes a strategy based on 4 pillars:

Pillar 1: Acute care. Specialized care for anyone who suffers a fragility fracture.

Pillar 2: Rehabilitation. Excellent rehabilitation, beginning immediately, to recover function, independence, and quality of life.

Pillar 3: Secondary prevention. Comprehensive secondary prevention after every fragility fracture, addressing fall risk and bone health.

Pillar 4: Policy. Formation of national multidisciplinary alliances to promote political change to facilitate and consolidate the previous 3 pillars.

3. The Education Task Force in Orthogeriatrics, of the AO Foundation:²¹

The orthogeriatrics curriculum seeks to teach how overall care for patients with fragility fractures can be improved through an approach that extends from admission until rehabilitation of the joint has been completed. The course consists of seven modules:

- Module 1: preoperative;
- Module 2: operative;
- Module 3: upper extremity;
- Module 4: lower extremity;
- Module 5: practical exercises;
- Module 6: postoperative and rehabilitation;
- Module 7: orthogeriatric co-management.

It is interesting to note that these initiatives focus on acute care and secondary prevention. Likewise, a 2014 systematic review²² found that most publications on orthogeriatric initiatives focused on acute care (65%). This reinforces the importance of working with a systemic perspective and completing the orthogeriatric cycle with coordinated initiatives.

Taxonomic systems in orthogeriatrics

The clinical chronological continuum classification or “3-C classification”²²

In 2017, we carried out a systematic review of orthogeriatrics initiatives, producing a classification based on the clinical chronological continuum (3-C classification) of HF. This classification includes 4 basic OMCs: promotion/prevention, acute care, rehabilitation, and follow-up. A fifth type includes models involving more than 1 stage, but not the full cycle,

while a sixth type involves the fully developed cycle. Due to the systemic character of this classification scheme, it is possible to speak clearly about different OMCs, depending on the point each initiative is implemented during the orthogeriatric cycle.

The objective of the 3-C system is to facilitate decision-making about which type of OMC to implement, organically articulating models depending on the available resources, needs, indicators to be addressed, and capacity for continuance over time. Table 1 and Figure 2 present graphic summaries of this classification system.²²

Conceptual-evolutionary classification

The concept of orthogeriatrics has not always encompassed fragility fractures. At the end of the 1960s, some definitions characterized this neologism as a “geriatrics system to

prepare individuals for their last days of life”.²³ An initial definition of orthogeriatrics was “*the collaboration between orthopedists/traumatologists and geriatricians regarding older patients with traumatic illnesses, mainly fragility fractures*”.²⁴ This introductory definition focuses on 2 of the main areas of orthogeriatrics. Without these core components, discussion of orthogeriatrics is unfeasible. However, there are several details that this definition does not address, including the concepts of co-management, co-responsibility, and teamwork. It also does not consider the concepts of promotion or prevention, focusing exclusively on older patients who are already sick.

Today, we know that integrality and co-management are the ideal path, the standard of care for older trauma patients.¹⁶⁻¹⁸ These patients require continuous traumatological and geriatric management (evaluation, treatment and follow-up), which must be carried out systematically. Co-management implies shared

TABLE 1. The Clinical Chronological Continuum (3-C) Classification of OMCs.²²

Type	Stage of the orthogeriatric cycle	Place or form of operation
1	Preventive	A: Promotion and education B: Research and management of risk factors
2	Acute	A: Urgent and emergency services B: Hospital services (includes hospital rehabilitation)
3	Rehabilitation	A: Outpatient B: Home
4	Monitoring and maintenance	A: Outpatient B: Telehealth C: Home
5	Mixed	A: Incomplete cycle with coordinated initiatives B: Incomplete cycle with uncoordinated initiatives
6	Complete	A: Full cycle with coordinated initiatives. B: Full cycle with uncoordinated initiatives

OMCs: orthogeriatric models of care

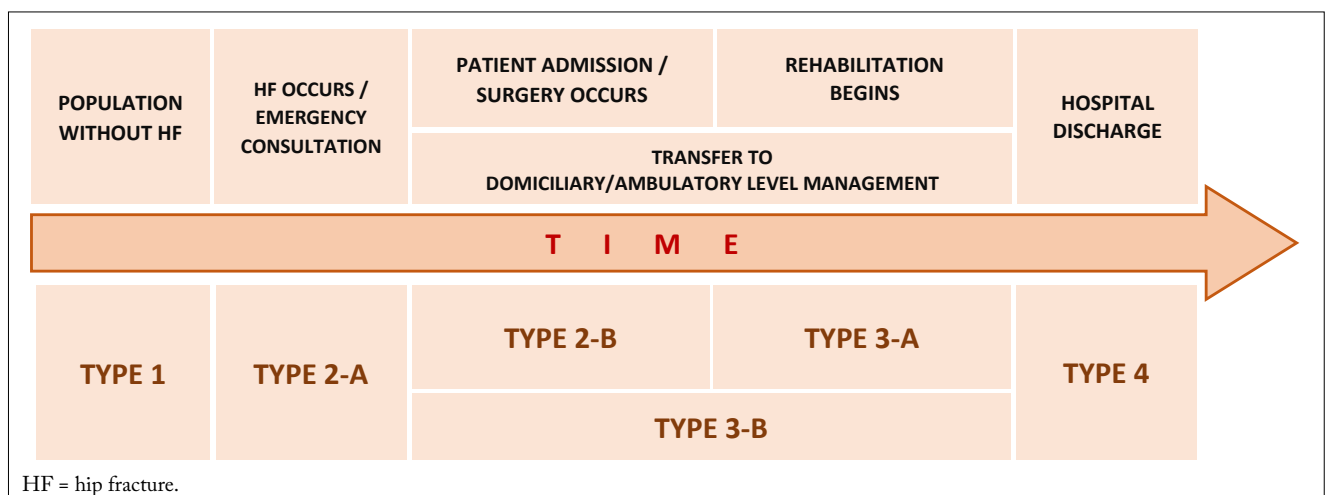


FIGURE 2. Relationship between the four basic orthogeriatric models of care with the clinical course of hip fractures.²²

responsibilities in a context of agreements and definitions of times and forms of intervention for both specialties. In the same way, it implies converging on previously defined results in form of indicators. In other words, the success of this alliance will be measured according to the fulfillment of certain indicators and/or standards.

Co-management also implies interdisciplinarity and the inclusion of a geriatric team. Thus, it is not just the geriatrician who is responsible for these patients, but a team that generally includes nursing, rehabilitation, nutrition, and social service personnel. Certain medical specialties will also be included, especially anesthesiology, emergency medicine, and Psychiatry. Harmony and order among all these professionals will be achieved through protocols. These are documents produced through common agreement of all involved departments that describe the specific stages at which each part of the team will participate. The protocols will also cover quality standards, health indicators, and comparisons with more advanced centers by citing the best available evidence. This allows orthogeriatric initiatives to improve through review of protocol compliance and the scope of their indicators.

These concepts expand the definition we propose as “core” or introductory. In fact, the achievements of the first Hastings type models in orthogeriatrics^{5,25} were made possible by rehabilitation teams. Thus, a second stage in the evolution of orthogeriatrics necessarily involves the inclusion of interdisciplinary teams and the ways in which they are regulated.

Thus, a definition of orthogeriatrics at this point would be the following: *“Protocolized work between interdisciplinary teams of traumatology and geriatrics, regarding older trauma patients, mainly those with fragility fractures”*.²⁶ This seems reasonable and in line with reality, but we must not forget that it also requires further development: the orderly inclusion of all these teams cannot be achieved overnight.

Depending on the stage of epidemiological evolution in each country, it may seem unnecessary to begin building interdisciplinary orthogeriatric teams. This is especially true in countries that are undergoing the demographic transition. In these countries, the view is predominantly that each medical specialty is responsible for a specific system in the organism, without much interaction between departments or professions. One example of this is Latin America, where initiating complementary interaction between medical specialties and other collaborative professions can be quite difficult. When two people interested in improving treatment for these patients get together to talk, perhaps over a cup of coffee, the results are usually good and have the potential to progressively improve.

After a period of functioning according to their protocols, teams may determine it is time to review the protocols and apply corrective measures, since some indicators and compliance with some standards will be unsatisfactory. This implies two stages in the evolution of orthogeriatric teams: gathering local evidence and continuous improvement.

By including indicators, the protocols require the recording of certain variables. This, in turn, involves the generation of data. The analysis of these data allows the production of information and local evidence which, in the light of the environment of each place, allows to understand what is being done well and what is not, and why and how to improve.

The indicators show that traumatology needs geriatrics, geriatrics needed its teams, both need protocols, protocols generate data, and data generate evidence and lead to improvement.

Collecting data and reviewing evidence are generally not clinical tasks or, at least, exclusively clinical tasks. At this stage, technical, scientific, and academic personnel are usually integrated into the teams, which allows for constant data review, the production of local evidence, comparison with international evidence, and the development of education programs for a new generation of health systems with orthogeriatric content. At this point of its evolution, orthogeriatrics will transcend the clinical environment and begin to self-propagate.

This expands the concept of orthogeriatrics: *“Set of interdisciplinary actions (clinical, administrative, academic and scientific) regulated and protocolized that, in a context of quality and continuous improvement, and guided by evidence and standards, are implemented by geriatricians and traumatologists on older people with orthopedic diseases”*.²⁷ Although this could be considered a satisfactory definition, applying indicators and standards involves the concepts of quality and continuous improvement, which require orderly and careful description of the involved processes. Thus, the indicators become increasingly complex, both in number and in their calculation. There are now approximately 7000 orthogeriatrics indicators,²⁸⁻³¹ and some are prerequisites to achieving others. Some become so embedded in the structure of systems that they will disappear from view, becoming “obvious”. Then, they begin to take on organizational, not just clinical, importance.

That is, the functioning of teams begins to depend on a theoretical structure, which depends on the existence of these silent indicators. This produces a quantitative leap in the evolution of orthogeriatrics, since these silent indicators have an enormous impact on the optimization of economic, material, human, and energy resources. This leads us to propose a new definition of orthogeriatrics: *Set of cost-effective models of dynamic and interdisciplinary co-management, and administrative*

and clinical implementation, whose main objective is to optimize resources, processes and results associated with the health care of older people with traumatic problems, with emphasis on fragility fractures and, from them, especially hip fractures.

The conceptual elements in each of these 4 definitions contribute to an evolutionary process of OMC classification that can be summarized in 4 stages of maturation and consolidation: stage 1 (initial/core), 2 (interdisciplinary), 3 (protocol/evidence) and 4 (resource management), as shown in Table 2^{5,7,16,27,28,32-46} and Figure 3.

Proposal of a systematic taxonomy in orthogeriatrics

That being said, it seems appropriate to experiment with a new taxonomic system for orthogeriatrics based on the evolutionary, functional, and clinical aspects studied so far. Being 3-dimensional, this classification system will be called "3-D". It is described in Table 3. The X axis shows the stages of the orthogeriatric cycle, while the Y axis expresses the evolutionary stages of OMCs. To classify a given OMC, both axes must be used to locate the box at their intersection.

Thus, we propose naming OMCs according to their stage: first the 3-C stage and then the evolutionary classification. Thus, for example, a type 2 OMC (acute care), which is in quality phase 3, will be a type 2-3 OMC. It will also have the characteristics of the interdisciplinary and basic stages and may advance on the X axis to integration with other models of the orthogeriatric cycle (classification 3-C) and to the stage 4 of management on the Y axis (evolutionary classification). Each axis and indicator can be addressed independently to simplify their use, for example, to help determine an OMC for use in a given location, especially regarding the 3-C classification.

The 3-D classification system allows OMCs to be located on a bitemporal grid of 16 dynamic categories. These categories show the main characteristics of each stage and those that follow. The indicators in each stage are necessary to achieve those of subsequent stages. They can also help determine compliance with the objectives of a given OMC and allow comparison of OMCs from different locations in terms of indicators or implementation difficulties.

TABLE 2. Evolutionary classification of OMCs.

OMC	Conceptual framework/ definition of orthogeriatrics	Practical expression
Phase 1: core/initial	Joint work between complementary medical specialties.	Traumatologist/orthopedist + geriatrician Hastings-type therapeutic alliances. ^{5,25}
Phase 2: interdisciplinary	Interdisciplinary alliance for better management of older trauma patients.	Interdisciplinary health teams. Local protocols and records. ^{7,31-35}
Phase 3: quality	Dynamic co-management systems whose results in key care process indicators for older trauma patients are better than those of other methods.	Quality researchers and teams. Data analysis and the development of indicators and standards. Regional or national protocols and registries. ^{28,36-41}
Phase 4: management	Set of management models to optimize the use of resources associated with the health care of patients with fragility fractures.	Specialized managers. Determination of the specific weights of variables in the orthogeriatric cycle. Definition of structural indicators and their economic impact. Implementation of national policies on fragility fractures. ^{16,42-46}

OMCs: orthogeriatric models of care

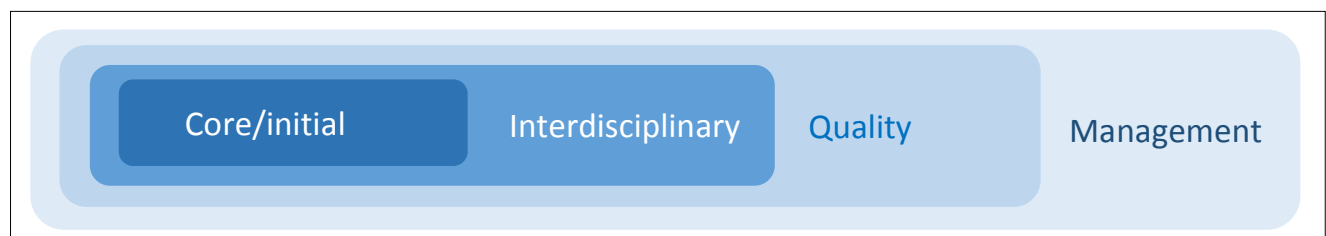


FIGURE 3. Summary of orthogeriatric care models according to their evolutionary characteristics.

TABLE 3. Three-dimensional (3-D) classification of orthogeriatric models of care (OMCs).

Clinical chronological continuum of older trauma patients				
	Stage 1. Promotion and prevention	Stage 2. Acute care	Stage 3. Rehabilitation and recovery	Stage 4. Monitoring and maintenance
Chronological evolution of OMCs	Phase 1. Core/initial (orthopedics and geriatrics) Orthopedists and geriatricians together with the communication teams. Goal: Public awareness. Indicator: early/immediate consultation before a fall.	Operation with or without inter-departmental consultation. Indicators: Administrative documentation officially beginning OMC, in-hospital mortality, immediate hospitalization, and length of stay.	Indicator: Presence or absence of hospital/institutional rehabilitation.	Mainly orthopedic follow-up of surgical patients after 1 or 3 months. Indicator: Recovery after surgery.
	Phase 2. Interdisciplinary teams Interdisciplinary health teams are added, developing plans, protocols and data records.	Integrated action between orthopedics, geriatrics and interdisciplinary health teams. Indicators: Protocols and documents that define responsibilities. "n" of patients who underwent surgery, "n" of patients in rehabilitation.	Focus on the continuity of care and the transition between different levels of health. Indicator: "n" of patients who received postoperative rehabilitation.	Mainly geriatric follow-up. Indicators: Functional recovery, quality of life, social integration.
	Phase 3. Evidence and quality Coordination of technical and academic teams Data analysis, evidence gathering, continuous improvement. Relevant information: HF incidence calculated.	Indicators: Surgery within 48 hours. 4-hour max. stay in the emergency department. Immediate postoperative rehabilitation. Beginning of secondary prevention.	Attempt to form home rehabilitation teams. Indicator: Functional recovery after discharge.	Attempt to gather follow-up records and define variables that impact functionality, quality of life and medium- and long-term survival.
	Phase 4. Resource management Administrative and political management is added, focused on improving processes and resource management. Indicators: Standardized local records. Lower HF incidence.	Central-level committees formed to coordinate OMC for fracture patients at the primary, secondary, and tertiary health care levels.	Work in the community to develop public rehabilitation policy. Indicators: Accessibility and sustainability of rehabilitation.	Definition of structural indicators with an economic impact. Development of comprehensive health policies that involve the other stages of the orthogeriatric cycle, systemically coordinating them with each other. Development of guidelines and protocols with regulatory force.

HF: hip fracture; "n": absolute number.

FINAL COMMENTS

The importance of orthogeriatrics is being consolidated in the clinical, organizational, scientific-academic, and economic spheres. This has made its internal organization and operation more complex, incorporating personnel from very different areas. As this cooperation progresses, the concepts and definitions of orthogeriatrics will mature in terms of complementation and scope.

From a functional point of view, the evidence indicates that a strong orthopedic-geriatric core is fundamental, reducing reliance on consultation-based systems.

An OMC must meet the criteria of integrality, interdisciplinarity, and co-management.

From a systemic point of view, OMCs can be progressively ordered according to the orthogeriatric cycle (3-C classification), the maturation of the teams (evolutionary classification), and

the indicators and results associated with each stage. The 3-D classification summarizes these aspects and includes them in a single taxonomic system.

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Conflicts of interest

The author declares no conflicts of interest. The author is an associate editor for Geriatrics, Gerontology and Aging journal.

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