

Chapter 2: The language of poly-pathology and assessment of complexity

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Pablo is a 23-year-old medical student. Nowadays, during his medical training, a good deal of importance is given to the study and proper management of an emergent population of patients with comorbidity and pluripathology. Predictions were correct, as currently more than 30% of the world's population is now over the age of 65. Obviously this has meant a parallel increase in the prevalence of every kind of chronic disease and, consequently, of people who live with two or more complex chronic diseases.

Thanks to a timely reaction and adaptation on the part of health and educational services, Pablo is able to study everything related to these patients as befits the topic (the terminology which applies to them, their main clinical and developmental characteristics and prognostic stratification, the measures which are most effective and benefit them most in terms of results, etc.) so that, when he finishes his medical training, he will know how to manage these patients, who will constitute approximately 50-60% of his workload, correctly. It is as a result of the foresight and efforts made by everyone involved in the last 40 years that all the terminology and language for defining comorbidity and pluripathology has been unified, so that when we refer to this type of patient we all know what we are talking about. In turn, health services have adapted appropriately to this profound socio-epidemiological change, prioritizing policies of ongoing healthcare, self-care and proper communication between primary and hospital care, supported by an integrated system that permits the systematic and continuous assessment of the complexity of every case. On the basis of these two key premises, various health interventions designed for this population and trials including these patients were introduced, generating a whole new body of evidence from which these patients have benefited, while improving their health prospects compared to the outlook a number of years ago.

Summary

Many efforts have tried to characterize patient populations with complex chronic diseases. Many of them focus on the term comorbidity, referring to the presence of primary disease that has caused a constellation of secondary conditions (for example, a person with diabetes that has caused visual impairment, renal problems and high blood pressure). More recently, the term pluripathology or poly-pathology has been introduced to describe people who live with multiple chronic diseases at the same time. This is a more horizontal concept because it focuses on the patient and not on a primary disease. An example of poly-pathology is a person who has heart failure, chronic bronchitis, Parkinson's disease and diabetes. Other terms closely related to comorbidity and poly-pathology are frailty and disability, and, to a lesser extent, hyperattendance, polymedication and readmission.

Given the impact that comorbidity and poly-pathology have on morbidity, mortality and resources, it is essential that patients be properly evaluated to guide healthcare objectives. To achieve this, the four most reliable indicators are the Charlson-Deyo, CIRS, ICED and Kaplan indexes. These tools, however, may have lost some of their discriminative power over the years.

At this point it is necessary to promote a unified vocabulary to facilitate communication amongst different groups, and the systematic evaluation of the complexity of comorbidity and pluripathology throughout the entire spectrum of the management of people living with multiple chronic diseases.

Why is the topic important?

The personal, family, medical and socio-economic burden of comorbidity and poly-pathology is growing rapidly throughout the world. However, the way in which political, social and, in particular, healthcare systems are adapting to this socio-epidemiological change is proving slow and dysfunctional. Healthcare systems continue to penalize people living with multiple chronic diseases, given its traditional emphasis on episodic events, the diagnosis and treatment of acute disease and one-off specific procedures rather as opposed to the provision of continuous and well-coordinated services over prolonged periods of time. The restructuring of the healthcare system that is needed to meet the needs of people living with multiple chronic diseases must commence with the standardization of the language and terminology used to refer to these cases, and the tools and processes used to evaluate comorbidity and poly-pathology.

What do we know about the topic?

The terms which have traditionally been used most when referring to patients with chronic disease are comorbidity and related terms such as frequent flyers, hyper-attenders, polymedicated, frailty and disability.

Comorbidity

Definition of Comorbidity

A simple and accessible definition of comorbidity is the situation in which two or more diseases coexist at the same time; this is the definition in the terminological dictionary of the US National Cancer Institute. MEDLINE, a bibliographic database produced by the US National Library of Medicine included the term *comorbidity* to index articles in 1990, defining it as The presence of coexistent diseases or diseases which have a compounding effect, dating from an initial diagnosis or referring to a primary condition which is the subject of study. This approach, which emphasizes the existence of a primary or core disease that triggers a constellation of secondary conditions makes comorbidity a vertical concept. Because of its verticality, patients can be labelled differently depending on the clinicians point of view. For instance, a patient with advanced diabetes, who presents with congestive heart failure, peripheral neuropathy and incipient nephropathy could be assigned different primary diseases depending on whether she is being managed by an endocrinologist, a cardiologist, a neurologist or a nephrologist. In Spanish the equivalent term, *comorbilidad*, was first mentioned in a presentation at a congress about patients with an exclusively psychiatric pathology.

The terms multimorbidity([1](#)-[2](#)-[3](#)) used in particular in the German language, and

polypathology ([4-5-6-7-8-9-10](#)), used more by French and Spanish authors, have similar connotations to comorbidity.

Other Terms related to Comorbidity

Patient readmission

The MeSH term *Patient Readmission* was introduced in 1978 and is defined as successive admissions of a patient in a hospital or another medical institution for treatment. The first instances of a link being identified between comorbidity and readmissions were two British articles published in 1995 and 1996, with numerous subsequent articles and studies investigating the associated characteristics and risk factors published in the United States, Asia, Australia and Spain ([11-12-13-14-15-16-17-18-19-20](#)). The factors most frequently associated with readmission in a range of studies are shown in Table 1.

Table 1: Factors most Frequently Associated with Readmissions after Hospital Discharge

Factors	Reference
Comorbidity, advanced age, masculine sex, Heart failure, COPD*	21
Comorbidity, advanced age, previous readmissions, depression, educational level and poor self-care	11
Comorbidity, functional impairment, low economic status, Heart failure, COPD, cancer, renal failure	16
Persistence of unresolved medical problems, long average stay, functional deterioration, fragile family support	17

*COPD: Chronic obstructive pulmonary disease

Hyper-attenders or frequent flyers

These are the patients who use health services the most. Unfortunately, there is no agreed cut off numerical value to define when a patient becomes a hyper-attender. Nevertheless, there are numerous studies that characterize this population and analyze possible predictive factors ([22-23-24-25-26-27-28-29-30-31-32-33](#)). These are shown in Table 2.

Table 2: Characteristics and Factors associated with Hyper-attenders

Characteristics / Factors	Reference
Number of Diseases, Comorbidity, severity of symptoms, anxiety and depression, lower satisfaction	22 , 23
Comorbidity, advanced age, distant residential home, diabetes, failure to attend scheduled visits, Charlson index score	24-25
Comorbidity, health perceived to be worse by patient, anxiety, depression, low educational level, poor quality of life, older doctors, doctors with fewer scheduled visits	26-27-28
Age, comorbidity, less family support, polypharmacy, sick leave, patient perceives their health to be poor	29-30-31-32-33

Polymedicated Patients

This term ties in with the MeSH term Polypharmacy, which was introduced by the US National Library of Medicine in 1997. Polypharmacy is defined as The administration of several drugs to the same patient, a practice which is most commonly observed in elderly patients. It also includes the administration of too much medication. As it is the case in relation to hyper-attendance, there is no cut-off point or number for the number of drugs that a person must take to be declared polymedicated. In fact, each study makes its own assumptions about this value, in an arbitrary manner. There are several studies in which a link has been demonstrated between comorbidity and polymedication, and others which have investigated the main factors associated with polymedication (Table 3).

Table 3: Characteristics and Factors most Frequently Associated with Polymedicated Patients

Characteristics / Factors	Reference
Age, Number of diseases, Comorbidity, Heart failure, diabetes mellitus, chronic obstructive pulmonary disease, renal failure, depression	34-35-36
Comorbidity, advanced age, Charlson index score, inappropriate therapy	37-38-39-40-41-42
Comorbidity, dementia, disability, falls, interference with work and leisure, poor perception of health	43-44-45-46-47-48-49-50-51-52-53
Failure to stick to treatment or instruction guidelines, absence of priorities on the part of the doctor	54

Frailty

This is a term that relates to the MeSH entry Frail elderly (introduced in 1991), and refers to a reduction in general strength that makes a person unusually susceptible to disease or to other infirmity. This could be due to a decrease in physiological reserves and even to disruptions in the regulatory capacity of multiple systems. This reduction in reserves causes difficulties in maintaining homeostasis when patients are faced with different types of insults that, if excessive, can lead to a common final denouement of acute clinical multisystemic deterioration.

It goes without saying that when age increases, the likelihood of frailty and comorbidity also increases ([55,56](#)). There are a number of publications that have emphasized the close link between comorbidity and the frail elderly adult ([57-58-59-60-61-62-63](#)). There is also established evidence of greater mortality and poorer health results, both in the hospital and outpatient context, in patients who are frail and elderly compared with those who are not ([64-65-66-67](#)).

Disability

Disability is defined as difficulty to perform the activities that are considered essential to an independent life, as well as to be engaged in activities which are important to one's quality of life. It could be diagnosed qualitatively or through objective tests ([56, 57](#)).

Approximately half of the disability cases in elderly adults develop chronically and progressively, while the other half develops acutely or catastrophically and is related to acute clinical events, such as a hip fracture or stroke ([57](#)).

Pluripathology

Pluripathology or poly-pathology (PP) has recently been introduced as a concept that is complementary (but not antagonistic) to comorbidity. This concept has emerged from the need to address a population of patients with two or more chronic symptomatic diseases more holistically. In these patients it is difficult to establish a predominant disease, as all those that co-exist are similar in terms of their potential to destabilize the person and management challenges. Consequently, it is a more transversal concept, which focuses on the patient as a whole and not on a disease or the professional who cares for the patient.

As a result, patients are defined as pluripathological or poly-pathological (PP) when they have chronic diseases which belong to TWO or MORE of the 8 categories outlined in Table 5.

Table 5: Criteria which define the Pluripathological Patient (the patient must present chronic diseases defined in TWO or MORE of the following categories):

CATEGORY A
<ul style="list-style-type: none"> <input type="checkbox"/> Heart failure which, in a clinically stable situation, has been classified as grade II by the NYHA¹ (symptoms associated with everyday physical activity) <input type="checkbox"/> Ischemic heart disease
CATEGORY B
<ul style="list-style-type: none"> <input type="checkbox"/> Vasculitis and systemic autoimmune diseases <input type="checkbox"/> Chronic renal disease defined by raised creatinine levels (>1.4 mg/dl in men or >1.3 mg/dl in women) or proteinuria², which has lasted for at least 3 months.
CATEGORY C
<ul style="list-style-type: none"> <input type="checkbox"/> Chronic respiratory disease which, in a clinically stable situation, has been associated with: MRC grade 2 dyspnea³ (breathlessness at normal walking pace on level ground), or FEV1<65% or SaO2 ≤ 90%
CATEGORY D
<ul style="list-style-type: none"> <input type="checkbox"/> Chronic inflammatory intestinal disease <input type="checkbox"/> Chronic liver disease with portal hypertension⁴
CATEGORY E
<ul style="list-style-type: none"> <input type="checkbox"/> Cerebrovascular accident <input type="checkbox"/> Neurological disease with permanent motor deficits which cause limitations in basic everyday activities (Barthel Index below 60) <input type="checkbox"/> Neurological disease with permanent cognitive deterioration, which is at least moderate (Pfeiffer Scale with 5 or more errors).
CATEGORY F:
<ul style="list-style-type: none"> <input type="checkbox"/> Symptomatic peripheral arterial disease <input type="checkbox"/> Diabetes mellitus with proliferative retinopathy or symptomatic neuropathy
CATEGORY G:
<ul style="list-style-type: none"> <input type="checkbox"/> Chronic anemia as a result of digestive losses or non-secondary blood disease, acquired as a result of curative treatment, with Hgb levels < 10mg/dl in two separate assays performed over 3 months apart. <input type="checkbox"/> Active solid or hematological neoplasia which is not secondary to treatment intended to be curative.
CATEGORY H:
<ul style="list-style-type: none"> <input type="checkbox"/> Chronic osteoarticular disease which by itself causes impairment when performing basic everyday activities (Barthel Index below 60)

¹ Slight limitation of physical activity. Usual physical activity produces breathlessness, angina, tiredness or palpitations.

² Albumin/Creatinine Index > 300 mg/g, microalbuminuria > 3mg/dl in urine sample or Albumin > 300 mg/day in 24-hour urine sample or > 200 microg/min

³ Inability to keep pace with another person of the same age, walking on level ground, owing to breathing difficulties or the need to stop and rest when walking on the flat at one's own pace.

⁴ Defined on the basis of clinical, analytical, echographical or endoscopic data.

The concept of PP covers a broad clinical spectrum, ranging from patients who, as a result of their disease, pose a high risk of disability, to patients who suffer from various chronic diseases with continual symptoms and frequent exacerbations that create a demand for care that, in many cases, do not fit traditional services within the healthcare system.

Consequently, the PP patient group is not defined solely by the presence of two or more diseases, but rather by a special clinical susceptibility and frailty which entails a frequent demand for care at different levels which is difficult to plan and coordinate, as a result of exacerbations and the appearance of subsequent conditions that set the patient along a path of progressive physical and emotional decline, with gradual loss of autonomy and functional capacity. They constitute a collective which is particularly predisposed to suffer the deleterious effects of the fragmentation and superspecialization of traditional health systems. Therefore, we can regard them as "sentinels" or gauges of the "general health" of the health system, as well as of its level of internal inter-level coherence.

PP, as a new "syndrome" may define a population of patients who are highly prevalent in society and demonstrate considerable clinical complexity, significant vulnerability-frailty and consumption of resources and high mortality both at the level of primary and hospital care, underscoring the need for integrated and coordinated inter-level care.

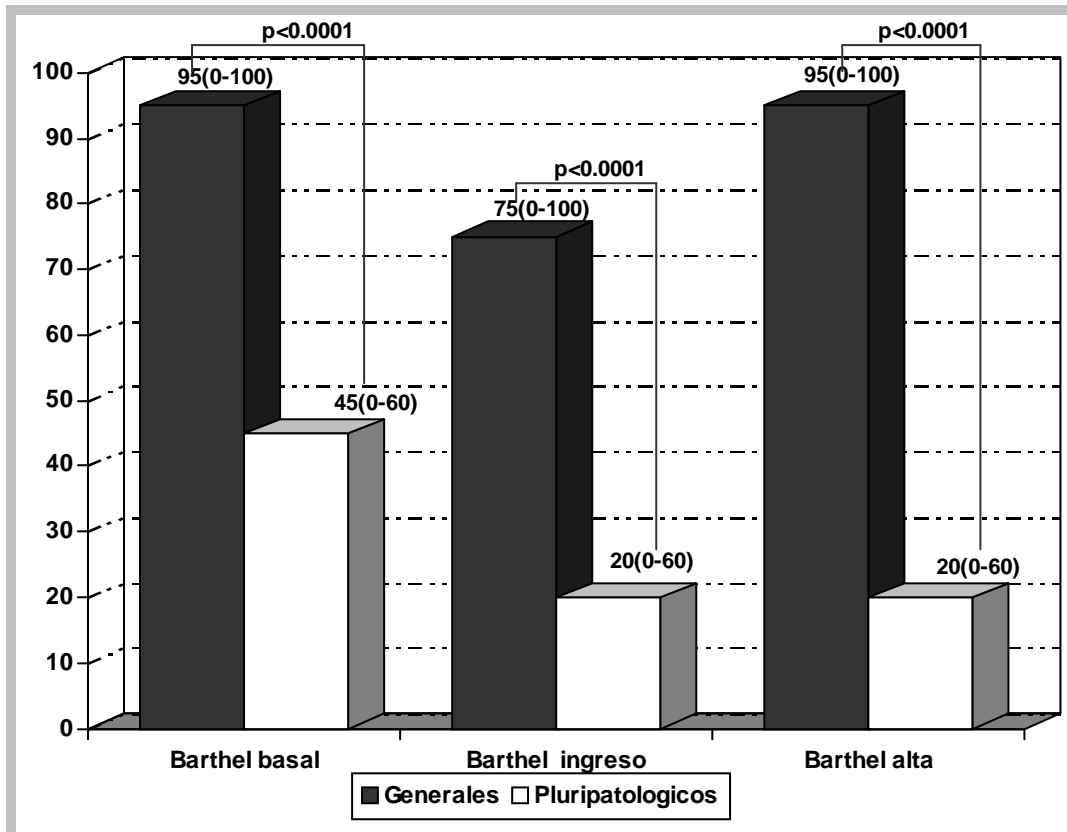
In accordance with its Quality and Efficiency Plan, the Andalusian Ministry of Health in Spain designed an organizational process to optimize the care of PP following strategies of 'total quality management'. Such process, which was developed by a team of internal medicine specialists, family physicians and nurses, focuses on roles, workflows and best clinical practices, all supported by an integrated information system, with the fundamental aim of achieving continuity of care (75,76).

Recently the incidence of PPs in internal medicine wards of a tertiary-level hospital was estimated at 39% admissions each month (77). Moreover, this study demonstrated prospectively that the criteria outlined above correctly patients with significant clinical complexity and frailty (35% complied with 3 or more inclusion categories and had a greater need for urgent care and hospital admissions); high mortality (19.3% during the index admission) and progressive disability (significant impairment and functional deterioration during the care process).

The importance of standardized definitions and processes for the management of PP patients has begun to be reflected in publications about comorbidity at the national level, when referring to both hospitalized patients (77-81) and the general population (82-84).

Recently it has been demonstrated that mortality rates amongst hospitalized PP patients are significantly higher during hospitalization than in patients who are not hospitalized, irrespective of the cause of hospitalization. The factors independently associated with a poorer vital prognosis were more advanced age and a poor functional situation (defined by a Barthel index <60 points). Moreover, these patients usually deteriorate more while in hospital than non-PP patients. Figure 1 shows the results of a recent comparative study on functional deterioration in PP and general patients during conventional hospitalization (77).

Figure 1. Baseline Functional Impairment (measured on the Barthel scale) at Admission and Discharge of General and Pluripathological Patient Cohorts



The Charlson Index

This is the most extensively used instrument for prognostic evaluation in patients with comorbidity. It was developed in 1987 and subsequently modified in 1994. The creation of the Charlson index (13) was initially based on a prospective study of 559 patients which correlated one-year mortality with comorbidity (Table 5). Depending on the cause of mortality, a score was given to each chronic disease present and, when these were added up, the result was an index, which correlated well with mortality.

The success of the Charlson index is largely due a the modification introduced by Deyo (14), who adapted to the diagnostic codes stored in administrative databases with information about 27,111 patients subjected to lumbar spine interventions in 1985. Deyos adaptation of the Charlson index has become the most widely used index of comorbidity. It is important to emphasize that the study was based on a hospital cohort and on one-year mortality. The mortality for each study patient quartile was: score 0: 12%; score 1-2: 26%; score 3-4: 52% and score ³ 5: 85%.

The index has subsequently been validated for different geographic areas and different groups of patients with specific pathologies, and it has also been correlated with many variables such as health-related quality of life, readmissions and health costs, among others.

Table 5. Modified Charlson Index

Pathology	Score
Coronary disease	1
Congestive heart failure	1
Peripheral vascular disease	1
Cerebrovascular disease	1
Dementia	1
Chronic pulmonary disease	1
Connective tissue disease	1
Peptic ulcer	1
Mild liver disease	1
Diabetes	1
Hemiplegia	2
Moderate-severe renal disease	2
Diabetes with damage to target organs	2
Any tumour, leukemia, lymphoma	2
Moderate-severe liver disease	3
Solid metastasic tumour	6
AIDS	6

In addition, for each decade > 50 years 1 extra point is added.

The CIRS Scale

It was initially developed in 1968 by Linn et al (48) and has since been validated in different regions of the world and patient population groups with different

pathologies. Its principal advantage is that its scoring scale defines the extent to which organs and systems are affected, without referring to specific diseases (Table 6). Despite its validity and reliability, however, there are few references to its use in research studies.

Table 6: Cumulative Illness Rating Score

ORGAN-SYSTEM	SEVERITY
1. Cardiac	0-1-2-3-4
2. Vascular	0-1-2-3-4
3. Hematological	0-1-2-3-4
4. Respiratory	0-1-2-3-4
5. Ophthalmological and ORL	0-1-2-3-4
6. Upper gastrointestinal	0-1-2-3-4
7. Lower gastrointestinal	0-1-2-3-4
8. Hepatic and pancreatic	0-1-2-3-4
9. Renal	0-1-2-3-4
10. Genito-urinary	0-1-2-3-4
11. Musculoskeletal and cutaneous	0-1-2-3-4
12. Neurological	0-1-2-3-4
13. Endocrine, metabolic, mammary	0-1-2-3-4
14. Psychiatric	0-1-2-3-4

Score, depending on the extent to which the organ/system is affected: 0 Absence of disease; 1 mild; 2 moderate; 3 severe; 4 very severe

The ICED

It was developed in 1987 by Greenfield et al ([69](#)) as a tool to assess the prognosis of cancer survivors. It has subsequently been validated for other patient populations with different comorbidities. The main advantage of this prognostic tool is that it combines two dimensions: the severity of the disease, and the level of disability or functional compromise as seen by the patient.

The first dimension (IDS or *individual disease severity*) includes a total of 19 possible comorbidities, each of which is scored on a scale that spans from 0 (absence of the disease in question) to 3 (severe disease).

The second dimension assesses the impact of comorbidities on the physical state of the patient (IPI or *individual physical impairment*). It evaluates 11 physical functions, grading them from 0 (normal function) to 2 (severe disability, dependence in order to perform a particular physical function).

This tool is rarely used, probably because it is complex to apply in busy clinical settings.

The Kaplan or Kaplan-Feinstein Index

It was developed in 1973 for the prognostic assessment of patients with diabetes in relation to their comorbidity ([78](#)). Subsequent attempts have been made to export this instrument to other patient populations, but the results have been highly

divergent so now its use is only recommended for health research in diabetic populations (Table 7).

Table 7: Kaplan-Feinstein Comorbidity Index

ORGAN, SYSTEM OR CONDITION	SEVERITY
1. Hypertension	0-1-2-3
2. Cardiac system	0-1-2-3
3. Brain or Nervous system	0-1-2-3
4. Respiratory system	0-1-2-3
5. Renal system	0-1-2-3
6. Hepatic system	0-1-2-3
7. Gastrointestinal system	0-1-2-3
8. Peripheral vascular system	0-1-2-3
9. Malignant tumour	0-1-2-3
10. Locomotor impairment	0-1-2-3
11. Alcoholism	0-1-2-3
12. Miscellaneous	0-1-2-3

Score, depending on the extent to which organs/systems are affected by disease: 0 = Absence of disease; 1 = mild; 2 = moderate; 3 = serious

Other Prognostic Instruments

There has been a flurry of activity since the beginning of the new century, with tools proposed by Walter et al (2001), Desay et al (2002), Carey et al (2004), Lee et al (2006) and Levine et al (2007).

Walters index is a compound measure developed in hospitalized patients over the age of 70, which seeks to predict their mortality twelve months after being discharged from hospital (79). It includes a total of 6 dimensions: a demographic dimension (masculine sex), two clinical dimensions (Heart failure and cancer), functional capacity (measured by the Katz index on discharge) and two biochemical dimensions (plasma albumin and creatinine). The two main disadvantages are the need to use the Katz scale, which has been largely replaced by the Barthel scale, and the need for blood tests.

The Desay index is a simple 10-item instrument based exclusively on clinical diagnoses (the total score can vary from 0 in patients with the least comorbidity to 27 in patients with the most comorbidity). It was also developed in hospitalized patients over the age of 70 to predict their mortality at twelve months (80).

The index created by Carey et al was developed in patients over the age of 70 living in the community and its aim was to establish mortality after 2 years of follow-up (81). Only demographic and functional variables were used to construct it, which makes it easier and more accessible to a wide range of professionals. It consists of 6 independent predictors of mortality: sex, age, dependence for taking baths/showers, shopping, walking several blocks and moving heavy objects.

The index developed by Lee et al was based on data from a cohort of patients over 50 years of age living in the community with the aim of predicting their 4-year mortality (82). It consists of 12 items: two demographic items (age and sex), six

items referring to medical comorbidities (diabetes, cancer, Heart failure, chronic respiratory disease, active smoking habit and BMI<25) and four items related to functional activities (taking a bath/shower, walking several blocks, handling money and moving heavy objects).

Levines index, the newest to date, is based on a very large cohort of hospitalized patients over the age of 70 with the aim of predicting mortality 12 months after hospital discharge. A special feature of its design is that only data available in hospital record system databases were used. The index consists of items related to age, duration of hospital stay, discharge to a nursing home, presence of metastatic cancer, heart failure, peripheral vascular disease, renal failure, non-metastatic cancer or dementia.

What do we need to know?

- If it is feasible to develop a large, international database with standardized information about patients with PP, which could support collaborative projects to optimize their management and prognosis.
- If it is possible to develop a common language for PP, accepted worldwide, to facilitate the codification and benchmarking of clinical activities, and the evaluation of interventions and policies.
- If it is possible to develop a valid tool to assess the level of complexity of PP, and the easy assessment of comorbidity and pluripathology in busy clinical settings.
- The degree with which effective and efficient care processes could be adapted and implemented across different regions of the world.

What innovative strategies are required to fill the gaps in our knowledge?

It is essential for us all to make a combined effort to adopt a common language when we are referring to patients with multiple complex chronic diseases. To achieve this, virtual platforms of professionals and patients, such as the current OPIMEC (<http://www.opimec.org>), may prove extremely useful.

In an effort to overcome the deficiencies of existing tools to assess complexity in patients with PP and evaluate their prognosis, the Spanish Society of Internal Medicine is supporting a multi-centre project, known as PROFUND, which is aimed at developing a new tool for the assessment of the prognosis of PP patients. More information on this project is available at http://www.fesemi.org/grupos/edad_avanzada/noticias/index.php

We welcome opportunities for collaboration with groups in other regions of the world.

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Comments to the whole document

- 4 Feb 2010 16:55 [Barbara Paterson](#) commented, on

One of the things that is not explored here is the influence of specialization on the issue of multiple morbidities. For example, if one is unfortunate enough to have hepatitis C and diabetes (resulting from chronic liver disease), the hepatologist who sees the person for hepatitis care is likely to refer him/her to a diabetes specialist, even though the diabetes is associated with the hepatitis.

Comments by section

Summary

15 Apr 2010 14:56 [Francisco Martos Pérez](#) commented, on

I cannot agree with the statement that comorbidity refers "to the presence of primary disease that has caused a constellation of secondary conditions": Comorbidity may indicate the simultaneous presence of one or more coexisting conditions associated to the main condition (the one which is under our attention by any reason), but that condition may not be related to the primary diagnosis as it is declared above. That definition has been modified.

12 Apr 2010 19:44 [Francisco Martos Pérez](#) commented, on

I have added in the Summary a mention to complexity: "Complexity is an emerging concept that underlines that morbidity burden is strongly influenced by socioeconomic, cultural, environmental, and patient behavior features."

What do we know?The terms that have traditionally

12 Apr 2010 14:22 [Francisco Martos Pérez](#) commented, on

I'd rather say in this section the following paragraph:

The terms which have traditionally been used most when referring to patients with chronic disease are comorbidity and related terms such as 'frequent flyers', 'hyper-attenders', 'polymedicated', 'frailty' and 'disability'. However, there is a lack of standardization in the terminology employed both by clinicians and investigators in this field. We lack a poly-pathologic disease thesaurus, with unambiguous definition of terms and synonyms, and a clear relationships between them. Although National Library of Medicine's Medical Subject Headings (MeSH) provides the broadest coverage of concepts for health, it lacks many terms related to complex diseases that should be defined. The classification of diseases promoted by the WHO, ICD (International Classification of Diseases) represents a unidimensional ordering of terms describing medical concepts which does not reflect the reality of chronic complex patients. La CIE es la clasificación central de la WHO Family of International Classifications (WHO-FIC).[1]. ICD is the international standard diagnostic

classification for all general epidemiological, many health management purposes and clinical use. In the area of medical documentation, there is a need for both approaches. SNOMED CT (Systematized Nomenclature of Medicine- Clinical Terms) is the most comprehensive clinical vocabulary available in any language, covering most aspects of clinical medicine with over 344,000 concepts. It projects medical concepts into semantic dimensions and list the terms for elementary concepts in a hierarchic structure. Although it maps to many terminologies (as ICD-9 and many others), it still lacks the specific terms for multiple chronic conditions and its related issues. Taxonomy

Another relevant question is how to classify interventions made over patients with chronic diseases. These interventions are necessarily multifaceted and multidisciplinary. Reproducibility of experiences require a clear specification of the implemented interventions, and the acting providers. It is essential to know "What (intervention) works (outcomes), for whom (target population), and why (treatment theory)?" (Cita: James Lenker. Measuring interventions in AT (Assistive Technology) Service Delivery Practice. Development of AT-ISI. Proceedings of the AAATE 2008 International Workshop (Milano, 25-26/09/2008). Disponible en http://portale.siva.it/files/AAATE_2008_James_Lenker.pdf)

The only serious attempt to classify disease management interventions was leaded by Krumholtz in 2006. (see in section "**La importancia de una Taxonomía común para las intervenciones**") (Cita: Krumholz HM, Currie PM, Riegel B, et al. A taxonomy for disease management: a scientific statement from the American Heart Association Disease Management Taxonomy Writing Group *Circulation* 2006;114:1432-1445.).

5 Mar 2010 13:47 [Alejandro \(Alex\) Jadad](#) commented, on

We must include a clear reference to the work done by Krumholz, ideally with a table of the taxonomy proposed in their 2006 *Circulation* article [<http://www.circ.ahajournals.org/cgi/content/abstract/114/13/1432>]. We should also mention other disease classification systems (e.g., SNOMED, ICD) and their limitations to capture the complexity associated multiple chronic diseases.

Comorbidity

16 Apr 2010 16:42 [Francisco Martos Pérez](#) commented, on

I have added the three modalities of comorbidities identified by Bob Berstein and co-workers.

12 Apr 2010 19:55 [Francisco Martos Pérez](#) commented, on

Again, it has to be clear than comorbidity does not imply that all conditions are secondary to the index disease. I have modified the text:

"This approach, which emphasizes the existence of a primary or core disease and a constellation of associated conditions (only sometimes secondary to the primary disease)"

12 Apr 2010 15:24 [Francisco Martos Pérez](#) commented, on

Is there any interest in the statement: "In Spanish the equivalent term, 'comorbilidad', was first mentioned in a presentation at a congress about patients with an exclusively psychiatric pathology." ? ¿Are we sure this is the very first use in Spain? ¿When did it occur?

I have delete it.

[Other Terms related to ComorbidityPatient readmiss](#)

- 23 Feb 2010 16:21 [Antonia Herraiz Mallebrera](#) commented, on

I agree with ros upshur. In my point of view the terms of morbidities do not help us to much in our proposal of managing these patients.

I think it would be more appropriate a new terminology for theses patients, it could be more open and multidisciplinary.

We have understandd that these patients will be treated preferably outside the hospital and now theses "multi-morbidity" patients represent the rule not the exception in the Primary Healht Services.

Family Practice 2010; 27:1-2

Co-morbidity: we need a guideline for each patient not a guideline for each disease

Martin Dawes. Department of Family Medicine, McGill University, 515 Pine Avenue West, Montreal, Que ?bec, Canada H2W 1S4.

- 31 Jan 2010 02:08 **ross upshur** commented, on

I have suggested the idea of confluent morbidity as a means of understanding these issues. From a clinical and patient perspective, notions of co, or multi morbidity connote the ability to isolate single causal strands. As we noted in an essay entitled Chronicity and Complexity: Is what is good for the disease always good for the patient? (Canadian Family Physician, 2008, 54 1655-1658) we argued that it is often difficult to sort out attributable symptoms in complex cases as they can be caused by multiple conditions and the treatments. We argue that traditional ways of diagnosing and approaches to clinical reasoning that are based on the search for and amelioration of singular causes may need to be replaced by a more functional approach that has equilibrium or best function as its goal.

So multi/pluri or co as a prefix to morbidity assumes the ability to isolatethe

relative contributions of each of a number of disease states as contributing to an illness experience, and in practice this may be irrelevant or possibly harmful.

Disability is defined as difficulty to p

- 22 Feb 2010 19:40 [Jose Murcia Zaragoza](#) commented, on

El concepto de fragilidad debe entenderse como algo dinámico y podemos establecer tres estadios diferentes de fragilidad: la fragilidad inicial que viene determinada por las características sindrómicas de la situación (debilidad, sarcopenia, pérdida de peso, escasa actividad, fatigabilidad, disminución de la velocidad de la marcha); una situación de fragilidad intermedia que se caracteriza por la aparición de consecuencias de la fragilidad, como son la aparición de síndromes geriátricos (caídas) y el inicio del deterioro funcional. Existe una última fase de fragilidad severa que se caracteriza por pérdida funcional y nutricional progresiva a pesar de una intervención adecuada, que sería de carácter irreversible y que finalizaría con la muerte del paciente. Probablemente la investigación en el campo de la fragilidad tiene que facilitar el reconocimiento de estas fases para enlentecer la progresión, o bien, en aquellos pacientes con fragilidad severa priorizar la administración de cuidados paliativos.

Boockvar KS Meier DE. Palliative care for frail older adults. JAMA 2006;296:2245-2253

- 13 Apr 2010 19:59 [Francisco Martos Pérez](#) commented, on

I have added in the last lines a comment made by Bob Berstein in a section of Chapter 1 as follows:

"Multimorbidity is only one aspect of complexity. People living with multimorbidity may be complex, or not depending on many other related factors. It is unclear what makes a patient "complex". Multimorbidity is neither a necessary nor sufficient condition. Some patients are complex with a single "classical" morbidity, others with multiple medical conditions may be easy to manage and take few resources to be effective. Morbidity has to be understood therefore to include social and psychological issues. A person living on the street with just schizophrenia is complex, a stable well controlled diabetic with managed hypertension and hyperlipidemia is not."

- 13 Apr 2010 18:54 [Francisco Martos Pérez](#) commented, on

Quizás este apartado debería titularse Pluripathology and Complex Patients (este último término está cada vez más en uso, y es diferente a pluripatología). Sobre este último término añadiría un párrafo al final algo así:

Cada vez se reconoce más el concepto de paciente complejo entendido como aquel paciente cuya carga de enfermedad no sólo viene condicionada por los problemas de salud, sino también por sus circunstancias sociales, culturales, ambientales y de hábitos de vida. Es innegable que estas circunstancias son las que con frecuencia agravan o alivian la carga de enfermedad, y explican el diferente efecto que idénticas situaciones clínicas producen sobre diferentes personas. (Cita: Valderas

JM, Starfield B, Sibbald B, Salisbury C, Roland M. Defining Comorbidity: Implications for Understanding Health and Health Services. *Annals of Family Medicine* 2009; 7:357-363)

13 Apr 2010 17:30 [Francisco Martos Pérez](#) commented, on

Andalusian definition of polypathology within the Integrated Care Process "Polypathologic patient" is shown in this section. However we should clearly state that, although it has been strongly implemented in a regional and national axis, it is a proposal for definition of polypathology. It has been explained in a first paragraph.

Polipathology

- 22 Feb 2010 20:02 [Jose Murcia Zaragoza](#) commented, on

La presencia de deterioro funcional no solamente acompaña a la edad avanzada, la comorbilidad, el deterioro cognitivo y sociofamiliar, sino que además ensombrece el pronóstico de estos pacientes, así, un número creciente de publicaciones (1-6) pone de manifiesto la importancia de la valoración funcional como marcador pronóstico en pacientes ancianos tanto con enfermedad crónica como con enfermedad aguda muy por encima de otros variables como la edad o el grado de comorbilidad siendo un marcador predictor de mortalidad más importante incluso que la carga de enfermedad subyacente o grado de comorbilidad. Por tanto, la evaluación de la situación funcional de los pacientes, especialmente en aquellos de edad avanzada proporciona un marcador de evento negativo de un gran valor en la práctica clínica.

1. Davis RB, Lezzoni LI, Phillips RS, Reiley P, Coff-man GA, Safran C. Predicting in-hospital mortality: the importance of functional status. *Med Care*. 1995;33 :906-21.
2. Inouye SK, Peduzzi PN, Robison JT, Hughes JS, Horwitz RI, Concato j. Importance of functional measures in predicting mortality among older hospitalized patients. *JAMA*. 1998; 279:1187-93.
3. Torres OH, Muñoz J, Ruiz D, Ris J, Gich I, coma E, et al. Outcome predictors of pneumonia in elderly patients: importance of funcional assessment. *J Am Geriatr Soc* 2004;52:1603-9.
4. Marrie TJ, Wu L. Factors influencing in-hospital mortality in community-acquired pneumonia: a prospective study of patients not ainitially admitted to the ICU. *Chest*. 2005; 127 :1260-70.
5. Mody L, Sun R, Bradley SF. Assessment of pneumonia in older adults : effect of functional status. *J Am Geriatr Soc*. 2006;54:1062-7.
6. Cabré M, Serra-Prat M, Force LI, Palomera E, Pallarés R. Functional status as a risk factor for mortality in very elderly patients with pneumonia. *Med Clin (Barc)* 2008;131: 167-70.

- 22 Feb 2010 11:25 [Isabel Fernández](#) commented, on

Los términos discapacidad y dependencia a menudo se utilizan como sinónimos y en rigor no lo son.

Sería pertinente revisar estos conceptos a la luz de la *Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud* de la Organización Mundial de la Salud (Publicada por el IMSERSO en 2001).

Respecto al término dependencia la propia Ley de Ley de Promoción de la Autonomía Personal y Atención a las personas en situación de dependencia en su TÍTULO PRELIMINAR - Disposiciones generales, Artículo 2, la define.

Otra referencia interesante a utilizar para las publicaciones en Internet es la Guía de estilo sobre discapacidad para profesionales de los medios de comunicación de José Luis Fernández Iglesias, editada por el Real Patronato sobre Discapacidad en noviembre de 2006.

[The Charlson Index](#)[This is the most extensively use](#)

- 22 Feb 2010 22:01 [Jose Murcia Zaragoza](#) commented, on

La identificación de paciente pluripatológico a través de una definición es complejo, más que un concepto se trata de una realidad asistencial que va más allá de la presencia de una suma de comorbilidades, en este sentido, la identificación de pacientes pluripatológicos mediante criterios clínicos, tal y como propone la definición utilizada, ha demostrado ser en los diferentes ámbitos donde ha sido estudiada, una estrategia útil para seleccionar a una población de pacientes con una elevada comorbilidad, con especial fragilidad clínica y riesgo de deterioro funcional y cognitivo y que origina un gran impacto tanto personal como familiar, sanitario y socioeconómico siendo por tanto capaz de identificar ese perfil del paciente al que nos referimos con el término de pluripatológico; y que por tanto puedan beneficiarse de una valoración integral que incluya las áreas clínicas, funcional, mental y social llevada a cabo por equipos multidisciplinares y con una estructura asistencial que asegure un cuidado continuado. Sin embargo, abarcan un amplio espectro clínico de pacientes que va desde aquellos autónomos que presentan un alto riesgo de caer en la cascada de la deficiencia y la discapacidad hacia la minusvalía, hasta a aquellos otros que ya presentan síntomas continuos y reagudizaciones frecuentes generando una demanda no programable de atención en los distintos niveles asistenciales. En este sentido creo que sería de interés incluir el concepto de "final de vida" y sus diferentes trayectorias. Este concepto hace referencia al período final de ciclo vital de las personas que se inicia en un determinado momento de la evolución de las enfermedades de la persona y finaliza con la muerte. Al tratarse de una definición de carácter amplio, la población diana dependerá de los criterios que utilicemos en cada caso. La elección de criterios de severidad y progresión parece la más acertada, especialmente en pacientes con enfermedades crónicas evolucionadas, el camino a la situación de final de vida viene definido por la idea de severidad y progresión de enfermedad. El criterio de severidad está en relación con una enfermedad (criterios de gravedad de insuficiencia cardíaca, enfermedad pulmonar obstructiva crónica, etc) y/o con marcadores de severidad global (grado de pluripatología, fragilidad severa, deterioro funcional y/o cognitivo, severidad de síntomas, etc), el de progresión implica evolución temporal de la situación del paciente. La utilización de la definición de final de vida a partir de los conceptos de severidad y progresión tiene la ventaja de basarse en datos objetivos en lugar de datos probabilísticos como cuando utilizamos el pronóstico como marcador de final de vida. Nos permite introducir los cuidados paliativos en pacientes en situación de final de vida que

pueden tener un pronóstico ambiguo y por tanto tratar a los pacientes en función de sus necesidades y no de su pronóstico. Desde el ámbito de la investigación la utilización de la definición de final de vida basada en la severidad nos permite definir grupos poblacionales y conocer el denominador de la población que estudiamos y por lo tanto la población en que son aplicables los resultados de nuestras investigaciones. En resumen la identificación de paciente pluripatológicos identifica a una amplio grupo de pacientes que presentan una serie de características comunes, sin embargo, las necesidades asistenciales y las herramientas dirigidas hacia ellos pueden ser diferentes en función del trayecto de final de vida en que se encuentran.

En la práctica clínica diaria nos encontramos con importantes problemas a la hora de diferenciar e identificar de forma categórica si nuestros pacientes con enfermedades médicas crónicas se encuentran en fase avanzadas de las misma: en cuyo caso en muchos de ellos se puede llegar a conseguir enlentecer e incluso revertir parcialmente la progresión así como prevenir secuelas discapacidad intensificando las intervenciones técnico-terapeúticas-asistenciales, o se encuentra en fase terminal: en cuyo caso lo más apropiado es orientar los objetivos asistenciales al confort global e integral y evitar obstinación y iatrogenia con procedimientos de dudoso-nulo beneficio.

- Lorenz KA, Lynn J, Dy sm, Shugarman LR, Wilkinson A, Mularski RA, et al. Evidence of improving palliative care at the and of life: a systematic review. *Annals of internal medicine* 2008;148:147-159.
- Murray SA, Kendall M, Boyd K, Sheikh A. Illness trajectories and palliative care. *BMJ* 2005;330:1007-11.
- Lunney JR, Lynn J, Foley DJ, Lipson S, Guralnik J. Patterns of functional decline at he and of life. *JAMA* 2003;289:2387-2392.

What do we need to know?

- 31 Jan 2010 02:17 **ross Upshur** commented, on

I think we need a much more patient oriented means of measuring the experience of CCD. I think something that integrates symptom burden, functional status, social support and self rated health which, unlike QOL scores, is normed to a patients best function and can capture changes over time would be very useful for clinicians and patients.

Something simple to administer and global in its application and meaning (I call it the pursuit of the geri-apgar)

What innovative strategies are required to fill th

- 22 Feb 2010 22:22 [Jose Murcia Zaragoza](#) commented, on

Muy complicado intentar dar respuestas a estas preguntas, tal vez:

-en primer lugar porque la problemática del paciente pluripatológico está muy influenciada por la situación socio-sanitaria, económica y cultura y esta puede variar de una forma significativa en función de las región o país en el que nos encontremos.

-En segundo lugar porque los resultados esperables con la mejoría de intervenciones y políticas que se deben llevar a cabo en esta población serán difíciles de medir o expresar al tratarse de objetivos muy etéreo: como mejoría en la calidad de vida, confort percibido, bienestar, grado de satisfacción, etc.

- Por último, muy probablemente la respuesta a todas estas interrogantes va a depender en primer lugar de la capacidad de respuesta local que sepamos darle a esta situación adaptada a nuestro entorno y con nuestros medios y por tanto difícilmente de extrapolar a otros entornos y en segundo lugar de la capacidad de superación que tengamos los profesionales implicados y superación en la atención a estos pacientes.

- 4 Feb 2010 16:45 [Barbara Paterson](#) commented, on

We also need to understand how having more than one disease/condition affects the management and self-management plan. For example, how do the practitioners and the patient make sense of contradicting protocols, such as when exercise is seen as beneficial in one disease but contradicted in another?