



NATIONAL REGISTRY OF FRAGILITY HIP FRACTURES

Annual Report 2017

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NATIONAL REGISTRY OF FRAGILITY HIP FRACTURES IN THE ELDERLY

Annual Report 2017

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It is a great privilege to be invited to contribute a foreword/preface to the 1st Annual Report of the RNFC.

Since the late 1980s I have been fortunate to observe, sometimes closely, many examples of large-scale hip fracture audits in Europe and elsewhere.

Of these, many have survived and made a permanent contribution to quality and cost-effectiveness in hip fracture care, some have simply survived, and quite a few have not.

From that perspective, the RNFC, in its progress so far is unique – and uniquely successful – in a number of ways.

Starting from one sheet of paper – on a wall somewhere at an international meeting held in Madrid in 2015 that brought a founding group of clinicians together – it is already well on the way to becoming the world's second-largest national hip fracture audit.

With much energy, little money, and a minimum of bureaucracy, it has recruited and energised roughly a quarter of Spain's trauma orthopaedics teams to participate and report data, and the use of data to improve care.

As I saw at its First Reunion in Madrid in February, it has generated widespread enthusiasm and vigorous discussion – observed rather than fully understood like me – but clearly passionately committed to better patient care.

And it has also engaged closely and productively with the relevant civic and national authorities: a good omen for its survival and further progress.

No other national audit I am aware of has moved so far and so fast from a good idea to a national achievement with international significance.

My congratulations to all concerned.

**Colin Currie,
Chair,
Hip Fracture Audit Working Group,
Fragility Fracture Network.**

SUPPORT FROM THE MINISTERIO DE SANIDAD [MINISTRY OF HEALTH] TO THE NATIONAL REGISTRY OF HIP FRACTURES



Madrid, 15 March 2017

The Subdirección General de Promoción de la Salud y Epidemiología [General Subdirectorate for the Promotion of Health and Epidemiology], of the Dirección General de Salud Pública, Calidad e Innovación [General Directorate of Public Health, Quality and Innovation] of the Ministerio de Sanidad, Servicios Sociales e Igualdad [Ministry of Health, Social Services and Equality], considers that the project of the National Registry of Hip Fractures (RNFC) may be of interest for the improvement of the quality of the provision of care and of the care given to elderly patient with a hip fracture in the Sistema Nacional de Salud [National Health System] and shows its support for that initiative.

BACKING FROM THE FRAGILITY FRACTURE NETWORK TO THE NATIONAL REGISTRY OF HIP FRACTURES



AES Evaluation Committee, Instituto de Salud Carlos III [Carlos III Health Institute] Ministerio de Economía, Industria y Competitividad [Ministry of Economy, Industry and Competitiveness]

12th of May 2017

The Fragility Fracture Network is an international non-profit organisation that brings together a broad international membership of clinician and scientist activists, and seeks to promote the dissemination globally of the best multidisciplinary practice in preventing and managing fragility fractures.

The FFN therefore strongly supports the pending application of the emerging national Spanish hip fracture audit (RNFC) for national-level funding support over three years for the development of work that has already shown results.

Beginning at the 4th FFN Global Congress in Madrid in September 2015 with an email inviting interest in the development of an RNFC, our Spanish colleagues have already made substantial progress. The resulting meetings of orthopaedic surgeons, geriatricians, statisticians and others rapidly agreed a strategy building upon their familiarity with established national audits, and incorporating the use of the FFN Minimum Common Dataset as an integral part of their work. (The FFN MCD facilitates international comparisons and collaborations – now widely agreed as central to the wider implementation of effective hip fracture audit around the world)

With expressions of support from relevant scientific societies – national and local, and from several specialities – the emergent RNFC launched a pilot phase earlier this year. 47 hospitals are now contributing and the number of cases documented so far (approximately 1,600 to date) will soon amount to several thousand. The FFN, with wide experience of supporting hip fracture audit development, regards such progress in less than two years as exemplary.

Also noteworthy is a recent RNFC publication (Saez-Lopez P, Branas F, Sanchez- Hernandez N, et al. Hip fracture registries: utility, description, and comparison. *Osteoporos Int.* 2017 Apr;28(4):1157–1166). This has proved to be a timely and strategic addition to the hip fracture literature, very much in keeping with the FFN's aims of promoting collaboration, including that of work on international audit-based clinical research.

Given the impressive and extremely rapid progress of the RNFC so far, and its potential for improving the quality, effectiveness and cost-effectiveness of hip fracture care in Spain – thus tackling the deficiencies identified by the 2015 OECD Report in such care – substantial national-level funding is not only a high priority, but will, I believe, prove to be an excellent investment in providing better and cheaper care of hip fracture throughout Spain.

Yours sincerely,

Henrik Palm, President, Fragility Fracture Network

Acknowledgements

The idea, formation and development of the group of parties concerned in preparing a National Registry of Hip Fractures has a still brief history that began in the year 2016. In spite of this, its implementation and coming into being has been quick and its first output, the 2017 Report that the reader has in front of them, has become a reality very soon, in the early months of 2018.

There are many people who make the existence of the Registry possible and who have contributed their efforts to get here. Many have been credited in the titles, if someone has been forgotten we do apologise. In these brief lines we would like to convey words of sincere gratitude to all of them.

Those responsible and the participants of each of the hospitals, professionals with a permanent urge to excel, collecting the data in each case, informing patients and relatives of the objectives of the Registry, responding to the requirements of each of the 44 Clinical Research Ethics Committees (CRECs), are the base of the pyramid of this great team, who by joining together give substance to this professional group and those that will apply the teachings and lessons that are obtained from this database to a better quality of care for their patients with a hip fracture, the final objective of this enormous task.

The research and advisory group has carried out tasks as diverse as the preparation of articles of incorporation, consultation of official documents, requests to agencies, preparation of proposals and consultancy services on petitions to the CRECs, visits to the authorities, liaising with international entities, translation of writings and forms, preparation of grant applications for public and private entities, drafting and publication of a scientific article on the method, ... and those that are still yet to be done.

The "staff" of the Registry, the data managers Rocio Queipo and Laura Navarro and the members of the Technical Secretariat, especially Jesús Martín, have always been willing and have tackled with the greatest cordiality and efficiency the enormous task involved in coordinating and informing so many participants and gathering and analysing the case studies of so many hospitals. The administrative and management staff of the IdiPAZ has not only welcomed the Project with open arms, but it also tries at all times to respond as quickly as possible to management issues.

The 22 scientific societies that have provided their backing to the project, practically immediately and generally with an almost greater enthusiasm than the one with which we asked for it, granted it thus providing it a recognition of rigour and quality and the pooling together of the interests of disparate professionals who have raised the objectives initially raised to a qualitatively higher level. The representatives of each of them have been an essential link for the liaising and coordination. We should also give special recognition to those responsible for the Fragility Fracture Network, as an international entity in whose steps we truly walk who has contributed to the Registry its constant support, its expert advice and the trust of the most qualified experts at the current time.

We would like to also thank the explicit support of the Subdirección de Planificación Sanitaria [Subdirectorate of Health Planning] of the Ministerio de Sanidad, Servicios Sociales e Igualdad, which raises the hope that one day the current Registry may be declared of Health Interest.

The grants received from the sponsors, AMGEN, UCB, ABBOTT and FAES have provided the necessary drive for this engine that was assembling its parts but needed fuel to be able to move. We are especially grateful that the presence and generosity of the sponsors has always been disinterested and at no time has it had conditions or premises attached.

All together, professionals, experts, managers, coordinators, scientific entities, official bodies and sponsors contributing the best each one had to offer have made it possible for this project to have crossed the starting line and taken the step from being a dream to becoming a reality. Our warmest gratitude to all.

And also our invitation to continue working on this great team. At this moment we already have a lot of data to study, to compare, to evaluate, we have to know the reality and, straight away, we must begin to decide in what, where and in what way we want to work to try to improve the care and care provision results for patients with a hip fracture. That is the objective. This is the path we propose to continue travelling together. And there is a lot of work ahead.

The invitation is also extended to new hospitals that intend to participate in the RNFC. All professionals who care for these patients who want to collaborate in this project will be welcome

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Objective: The objective of this project is, first of all, to know the current situation and the characteristics of the Hip Fracture (HF) care provision process in Spain through the use of a National Registry (RNFC) with a high number of case studies and territorially representative, and, subsequently, to compare the results at the national and international level and propose standards and criteria to improve the quality of care. This report includes the results of the first of the objectives during the first year of running.

Design: On-going registration of a representative sample of patients admitted for HF in Spanish hospitals using the Minimum Common Dataset – MCD, which includes the variables selected by the Fragility Fracture Network (FFN) adapted to Spanish. Data is collected in it during the hospital admission and one month after the fracture.

Scope and study subjects: it includes all patients aged ≥ 75 years hospitalised with the diagnosis of fragility HF in the participating hospitals spread throughout the Spanish territory. Initially, 54 hospitals have been included on a voluntary basis, which are expected to incorporate as many sites as possible (non-random sample).

Results: The data of 7,208 patients was presented. The average age was 86.66 (± 5.58) years (Range: 75-108) and they were women in a 75.4%. 23.71% originated from elderly people's homes. 51.9% were pertrochanteric fractures. The average time to surgery was 75.7 hours and the average hospital stay was 11 days. 97.5% of the patients were surgically treated and anaesthetised in 93% of the cases with neuraxial anaesthesia. The most frequent surgical intervention was the implantation of a cephalomedullary nail. In 58.5% of cases the patients could sit on the first postoperative day. Mortality during admission was 4.38% and one month after the HF it was 7.6%. 23.80% of patients were referred to functional recovery units upon discharge. The reintervention rate one month later was 2.1%. The percentage of patients with independent mobility within and/or outside their home prior to the HF was 82.7% and one month after the fracture it was 58.9%. The percentage of patients under antiosteoporotic treatment (anabolic or antiresorptive agents) is 5% prior to fracture, 36.7% upon discharge and 41% one month after the fracture. The rate of vitamin D administration was 16.8% prior to fracture, 70.6% upon discharge and 70.3% one month after the fracture.

Conclusions: The epidemiological, clinical and care provisions characteristics of the largest Spanish sample of patients with a hip fracture studied through an international data registry are presented. This data allows to know the current reality of the provision of care concerning this process in the participating hospitals and will make possible subsequent analyses, such as the establishment of indicators and standards and the analysis of the great variability detected.

1. DESCRIPTION OF THE RNFC AND WORKING METHOD

1.1. Introduction

Hip fracture (HF) is one of the main health problems associated with ageing and fragility, due to the serious impact on both morbidity and mortality as well as the functional deterioration (1-3). According to the statistical data of the Ministerio de Sanidad, the incidence in 2008 in Spain was 103.76 cases per 100,000 inhabitants. From the 75 years of age, the rate increases to reach 2,534 cases per 100,000 inhabitants for the age group between 90 and 94 years old (3). An incidence of about 40,000 to 45,000 hip fractures a year has been recently calculated in Spain, whose care entails an annual cost of €1,591 million and a loss of quality adjusted life years of 7,218 (4,5). It is expected that the incidence will continue to increase in the near future, especially among people over 80 years of age (5).

In recent years, numerous articles and Clinical Practice Guidelines (CPGs) have been published with recommendations that have allowed to reach a consensus and improve the care for this pathology (6-12).

But there has not been a follow-up of its implementation in Spanish hospitals and the figures of clinical variability in the provisions of care concerning this process that are beginning to be known are very wide, with large oscillations in relation to, for example, the time to surgery, days of the hospitalisation stay, number of rehabilitation sessions, possibility of referral to functional recovery units, number of revisions in consultations or treatment rates of osteoporosis among other aspects (4, 13-15).

In several countries, national registries of HF patients have been implemented. Among them the most relevant ones are those made in England, Scotland and Australia. The said experiences and others have been synthesised in recent publications observing that in the countries where an HF registry has been carried out, this has allowed auditing the healthcare provision process, checking the adjustment or deviation with respect to the quality standards and introducing corrective measures to improve the care provisions process and efficacy (16-18).

Therefore, the information provided by these registries is important for both clinicians and managers. Their establishment and study offers an opportunity to work together auditing the process, detecting possible weaknesses in the services, identifying areas for improvement and monitoring the impact of changes in clinical and management results.

1.2. RNFC working group

In the year 2016, a group of professionals related to the provision of care to the elderly with a hip fracture constituted a working group to improve the quality of care of those patients. To that end they decide to use, as in other countries, a registry of hip fractures as an audit or on-going quality control. After knowing the database of the FFN (Fragility Fracture Network), the working group adapted this tool for its use as a Spanish registry called the National Registry of Hip Fractures.

The preparation, drafting of the project and its implementation has been the initiative of the **National Fracture Registry** working group, currently formed by 190 professionals, mostly geriatricians, traumatologists, internists, rehabilitators and anaesthetists.

The National Coordinator is Pilar Sáez López.

The Coordinating Site is the Group 27 "Ageing and Fragility in the Elderly" of the Instituto de Investigación del Hospital La Paz (IdiPAZ) (<http://www.idipaz.es/PaginaDinamica.aspx?IdPag=219&Lang=ES>) (<http://www.idipaz.es>)

The group engages the services of Rocío Queipo Matas and Laura Navarro Castellanos as data managers who help out with the statistics.

The Technical Secretariat is in charge of BSJ-Marketing SA whose work consists of the coordination and secretarial work, as well as the transmission of information to all participants in the Group.

The registry has received external support from the international network Fragility Fracture Network (FFN), represented by Dr Colin Currie and the Ministerio de Sanidad, Servicios Sociales e Igualdad (Subdirección General de Promoción de la Salud and has the backing of nineteen national, and regional scientific societies and one international scientific society (FFN).

1.3. Objectives

The main objective of the RNFC is to know the demographic, clinical, surgical, functional and care provision characteristics of patients with hip fractures throughout the Spanish territory during hospitalisation and until the month of the hospital discharge, to analyse the presence and magnitude of the existing clinical variability and to establish measures to improve the quality of care.

The secondary or specific objectives are as follows:

- To know the care provision model of the HF process in Spain and the variability in clinical practice among the participating hospitals.
- To enable the evaluation of the results of each site in terms of health and recovery of functional capacity for their patients
- To audit the practice comparing it with the recommendations of the current Clinical Practice Guidelines.
- To compare the results between the different participating Spanish hospitals and with the foreign hospitals included in the database of the Fragility Fracture Network (FFN)
- To disseminate the results between the different participating hospitals and the health administrations.
- To establish explicit criteria of good practice in the process and results, to define the indicators for its measurement, and to propose specific standards to be reached that determine an excellent level of compliance with the indicators to improve the quality of care imitating best practice at the level of each hospital, and at the regional and national level.
- To audit periodically the results obtained in the improvement of the process after the implementation of the registry and the proposed measures seeking an on-going improvement of the quality of care.

1.4. Method

The registry consists of a multicentre observational descriptive study on the epidemiological, clinical and care provision characteristics and the results obtained during admission and in-hospital evolution and one month after suffering a fragility HF in a representative sample of, initially, 53 Spanish hospitals, most in the Servicio Nacional de Salud [National Health Service] network (Table 1).

The inclusion criteria are admission to one of the participating hospitals with the main diagnosis of fragility hip fracture (caused by a fall from the subject's own height), being over 74 years of age and understanding and signing an informed consent form (by of the patient or their relatives).

It is an exclusion criterion that the HF has resulted as a result of high-energy trauma.

The variables to be collected include basically those contained in the minimum common data set (Minimum Data set proposed by the FFN) and shown in the file included in the following pages, which are age, sex, hospital, autonomous community, the dates of admission, surgery and hospital discharge, the previous location, the discharge and the month, the mobility of the patient in his previous situation and one month after the fracture, the cognitive situation at the time of admission (Pfeiffer questionnaire), treatments with Calcium, Vitamin D and antiosteoporotic drugs (both antiresorptive and anabolic agents) prescribed to the patient previously, at the time of hospital discharge and one month later, the type of fracture, the type of surgical intervention, the anaesthetic risk (ASA Classification), the type of anaesthesia used during the intervention, the onset of pressure ulcers during admission, the vital state at the time of hospital discharge and one month later, the involvement of a clinical doctor in addition to the specialist in Orthopaedic Surgery and Traumatology, early postoperative mobilisation (in the first 24 h after the intervention), the duration of the hospital stay, time to surgery, the existence of readmission and surgical reintervention during the month after the fracture.

The FFN (Fragility Fracture Network) is an international organisation that aims to achieve maximum functional recovery and quality of life for people who have suffered an osteoporotic fracture, as well as the secondary prevention through global optimisation of the multidisciplinary management of this health problem. Its work tools include the creation of a network that includes as many countries as possible and are specified in Consensus Guidelines, establishment of quality standards and systematic measurement of its application. Within it, the members of an international working group made up mainly of representatives of other previously existing national registries proposed in 2013 a minimum data set (Minimum Common Dataset, FFN-MCD) that met three important conditions, being concise, covering the key elements of the case studies, care provision and results and being compatible with the previously existing databases (19).

1.5. Data collection

Minimum Common Dataset of the National Registry of Hip Fractures (01/2017)

1. Patient data

1.01 Informed consent	1.02 Registration No. / NHC (Número de Historia Clínica [Clinical history number])*	1.03 Gender	1.04 Age
<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Male <input type="checkbox"/> Female	(years)
Contact telephone (follow-up)	1.05a Autonomous community*	1.05b Postal Code*	1.06 Hospital*

2. Patient characteristics

2.01 Pre-fracture residence		2.02 Pre-fracture mobility	
<input type="checkbox"/> Home <input type="checkbox"/> Institution <input type="checkbox"/> Acute Care <input type="checkbox"/> Unknown		<input type="checkbox"/> Freely mobile inside and outside the home without aids <input type="checkbox"/> Freely mobile inside and outside the home with aids <input type="checkbox"/> Freely mobile inside and outside the home with two aids or a walking frame <input type="checkbox"/> Freely mobile only inside the home, without aids <input type="checkbox"/> Freely mobile only inside the home, with one aid <input type="checkbox"/> Freely mobile only inside the home, with two aids or a walking frame <input type="checkbox"/> Freely mobile only inside the home, supervised by a person <input type="checkbox"/> Mobile only inside the home, with a little help from a person <input type="checkbox"/> Mobile only inside the home, with a lot of help from a person <input type="checkbox"/> Mobile with 2 people, or no mobility <input type="checkbox"/> Unknown	
2.03 Pre-operative mental assessment		2.04 ASA grade	
Pfeiffer _ / 10 errors <input type="checkbox"/> Not carried out / patient refused		<input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/> V <input type="checkbox"/> Unknown	
2.05 Side of fracture		2.06 Pathological fracture	
<input type="checkbox"/> Left <input type="checkbox"/> Right		<input type="checkbox"/> No <input type="checkbox"/> Atypical <input type="checkbox"/> Malignancy <input type="checkbox"/> Unknown	
2.07 Fracture type		2.08 Pre-fracture Bone protection medication	
<input type="checkbox"/> Intracapsular undisplaced <input type="checkbox"/> Intracapsular displaced <input type="checkbox"/> Pertrochanteric <input type="checkbox"/> Subtrochanteric <input type="checkbox"/> Other		(Basicervical fractures will be classified as pertrochanteric) <input type="checkbox"/> No <input type="checkbox"/> (Include only if antiresorptive or anabolic agents are taken at the time of the fracture) Yes	
		2.08.a-e Pre-fracture bone protection medication (more than one may be marked)	
		<input type="checkbox"/> Antiresorptive agents <input type="checkbox"/> Calcium <input type="checkbox"/> Anabolic agents <input type="checkbox"/> Vitamin D <input type="checkbox"/> Other	


3. Data on acute management

3.01 Date / time of admission to A&E				
_ _ / _ _ / _ _ _ _ _ _ : _ _ (D D / M M / Y Y Y Y) (H H / M M) (24 hours)				
3.02 Life Status / Mortality			3.03 Operation Performed	
<input type="checkbox"/> Alive <input type="checkbox"/> Died pre-surgery <input type="checkbox"/> Died post-surgery			<input type="checkbox"/> Non-surgical management <input type="checkbox"/> Cannulated screws <input type="checkbox"/> Sliding hip screw <input type="checkbox"/> Intra-medullary nail <input type="checkbox"/> Hemi-arthoplasty <input type="checkbox"/> Total hip replacement <input type="checkbox"/> Other / unknown	
3.04 Date / time of primary surgery *			3.05 Time to surgery	
_ _ / _ _ / _ _ _ _ _ _ : _ _ (D D / M M / Y Y Y Y) (H H / M M) (24 hours)			_ , _ a.m./p.m. (It is not necessary to collect it, it is calculated in the database)	
3.06 Type of anaesthesia	3.06b Anaesthetic block	3.07 In-hospital pressure ulcers	3.08 Physician / Geriatrician involvement	3.09 Sitting on the first postoperative day
<input type="checkbox"/> General <input type="checkbox"/> Neuraxial <input type="checkbox"/> Other regional <input type="checkbox"/> Unknown	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	<input type="checkbox"/> Internist <input type="checkbox"/> Geriatrician <input type="checkbox"/> Other <input type="checkbox"/> Not seen <input type="checkbox"/> Unknown	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Non-surgical management

4. Data upon discharge – ignore if the patient died in 3.02

4.01 Discharge destination		4.02 Date / time of discharge from orthopaedic care (from the acute care hospitalisation where they were intervened)	
<input type="checkbox"/> Home <input type="checkbox"/> Institution <input type="checkbox"/> Acute care <input type="checkbox"/> Long-Term Hospitalisation	<input type="checkbox"/> Functional Recov. U. <input type="checkbox"/> Dead <input type="checkbox"/> Unknown	__/__/____ __:____ (D D / M M / Y Y Y Y) (H H / M M) (24 hours)	
4.03 Length of stay (days / decimal fraction)		4.04 Bone protection medication upon discharge	
__. __ days (It is not necessary to collect it, it is calculated in the database)		<input type="checkbox"/> No <input type="checkbox"/> Yes (Mark "yes" only if they are antiresorptive or anabolic agents)	
		4.04.a-e Osteoporosis treatment upon discharge (more than one can be marked)	
		<input type="checkbox"/> Antiresorptive agents <input type="checkbox"/> Calcium <input type="checkbox"/> Anabolic agents <input type="checkbox"/> Vitamin D <input type="checkbox"/> Other	

5. Follow-up at 30 days – ignore if the patient died in 3.02 or 4.01

5.01 Hip related readmission within 30 days of the hip fracture		5.02 Re-operation within 30 days of the operation (only the most significant IQ)	
<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Reduction of dislocated prosthesis <input type="checkbox"/> Washout or debridement <input type="checkbox"/> Implant removal <input type="checkbox"/> Revision of internal fixation <input type="checkbox"/> Conversion to hemiarthroplasty	
		<input type="checkbox"/> Conversion to total hip replacement <input type="checkbox"/> Girdlestone/excision arthroplasty <input type="checkbox"/> Periprosthetic fracture management <input type="checkbox"/> Other <input type="checkbox"/> Unknown	
5.03 Alive at 30 days			
<input type="checkbox"/> Yes <input type="checkbox"/> No		If you are alive at 30 days, fill in 5.04 - 5.06 	
5.04 Mobility at 30 days		5.05 Residence at 30 days	
<input type="checkbox"/> Freely mobile inside and outside the home without aids <input type="checkbox"/> Freely mobile inside and outside the home with aids <input type="checkbox"/> Freely mobile inside and outside the home with two aids or a walking frame <input type="checkbox"/> Freely mobile only inside the home, without aids <input type="checkbox"/> Freely mobile only inside the home, with one aid <input type="checkbox"/> Freely mobile only inside the home, with two aids or a walking frame <input type="checkbox"/> Freely mobile only inside the home, supervised by a person <input type="checkbox"/> Mobile only inside the home, with a little help from a person <input type="checkbox"/> Mobile only inside the home, with a lot of help from a person <input type="checkbox"/> Mobile with 2 people, or no mobility <input type="checkbox"/> Unknown		<input type="checkbox"/> Home <input type="checkbox"/> Institution <input type="checkbox"/> Acute care <input type="checkbox"/> Long-Term Hospitalisation <input type="checkbox"/> Functional Recovery Unit <input type="checkbox"/> Unknown	
5.06 Bone protection medication at 30 days		5.06.a-e Osteoporosis treatment at 30 days (more than one can be marked)	
<input type="checkbox"/> No <input type="checkbox"/> Yes (Mark "yes" only if they are antiresorptive or anabolic agents)		<input type="checkbox"/> Antiresorptive agents <input type="checkbox"/> Calcium <input type="checkbox"/> Anabolic agents <input type="checkbox"/> Vitamin D <input type="checkbox"/> Other	

NOTES

- Each investigator who sends the data must keep a list that lists each registration number with the patient's medical records number.
- The Autonomous Community, the Postal Code and the name of the hospital are automatically included on the Excel file
- Enter dates and times as follows: DAY: 1 – 31; MONTH: 01 / 02 / 03 / 04 etc; YEAR: 2017 / 2018 etc; TIME: 00:00 – 23:59
- The time to surgery and hospital stay are calculated automatically on the Excel file
- 2.03: The ideal is to perform the Pfeiffer at the moment closest to the baseline cognitive situation of the patient, ideally in the preoperative period; in case of doubt, take 2 measurements or use the best of the 2 scores.
- 2.07: Basicervical fractures will be classified as pertrochanteric.
- 3.01: The date and time of admission to A&E will be noted.
- 4.02: The approximate date and time of discharge from the acute unit in which they have been treated or treated in an acute manner will be noted down.

To clarify any frequent doubts / queries, please consult the information file for the data collection of the National

Data collection takes place in two phases. In the hospital phase, the data corresponding to the baseline status and the one related to the process up to the time of discharge are collected by the doctor in charge of the patient. In the post-hospital phase, the data corresponding to that period are collected one month after the fracture over the phone or in the follow-up consultation, by the respective professional.

There is a representative in each participating hospital as locally responsible for the registry, in charge of sending and safekeeping the data. Those responsible at each site provide quarterly data on all patients treated for hip fracture cared for at their hospital, including the follow-up one month after discharge. The data is sent encrypted and entered into an online platform for analysis.

A data manager is responsible for assembling the data of all hospitals, assigning an identifier to each site that includes the autonomous community of origin, purging the data, carrying out the descriptive analyses and the relevant associations, preparing quarterly global reports (of all cases contributed by the set of hospitals) and global annual ones.

The reports are sent to those responsible at each hospital, to the representatives of the Registry in the Autonomous Community, to the scientific societies that endorse it and to the sponsors.

1.6. Annual Report 2017 (Third Report)

The results of the first year of the RNFC that include registrations of patients with a fracture date from January to October 2017 are reported below.

With respect to the data provided:

- In the tables with information of the global sample the percentages are represented taking into account the cases lost to follow-up.
- In the figures with information of the 53 hospitals, the percentages are represented excluding the cases lost to follow-up and the cases "Unknown", if any, that is, the % valid are represented. The top bar in each graph represents the information of the total cases analysed. In these graphs with multicentre data the information is presented with a unique code for each hospital that only each site knows.

2. SOCIODEMOGRAPHIC DATA

2.1. PARTICIPATING HOSPITALS

In the period from 1 January to 31 October, **54 hospitals** have participated and data from **7,208 patients** has been collected.

Aside of the 7,208, 142 records of individuals under 75 years of age have been excluded.

Table 1 - Participating hospitals

Complejo Asistencial de Ávila	Hospital de Barbastro. Huesca	Hospital Monte Naranco. Oviedo
Centre Fòrum (Consorti Mar Parc de Salut de Barcelona)	Complejo Asistencial Universitario de León	Hospital de la Cruz Roja. Gijón
Hospital Universitario Mútua de Terrassa. Barcelona	Hospital Universitario Arnau de Vilanova / Hospital Universitario Santa María. Lleida	Hospital Universitario de Cabueñes. Gijón
Hospital de la Santa Creu. Tortosa-Tarragona	Hospital General Universitario Gregorio Marañón. Madrid	Hospital Vital Álvarez-Buylla. Mieres
Hospital de Mataró (Consorti Sanitari del Maresme (CSdM)). Barcelona	Hospital Universitario Infanta Leonor. Madrid	Complejo Asistencial Universitario de Palencia
Hospital de la línea de la Concepción. Cádiz	Hospital Universitario Ramón y Cajal. Madrid	Hospital Doctor José Molina Orosa. Las Palmas
Hospital de Igualada (Consorti Sanitari de l'Anoia). Barcelona	Hospital Universitario Fundación Jiménez Díaz. Madrid	Hospital Álvaro Cunqueiro. Vigo
Hospital de Sant Joan Despí Moisès Broggi (Consorti Sanitari Integral). Barcelona	Hospital Clínico San Carlos. Madrid	Complejo Asistencial de Segovia
Hospital Universitari de Bellvitge (HUB). Barcelona	Hospital Universitario 12 de Octubre. Madrid	Hospital Virgen de la Salud. Toledo
Centre Sociosanitari El Carme. Badalona-Barcelona	Hospital Universitario La Paz. Madrid	Hospital Clínico Universitario de Valladolid
Hospital de Manises. Valencia	Hospital Central de la Defensa Gómez Ulla. Madrid	Hospital Nuestra Señora de Gracia. Zaragoza
Hospital Santos Reyes. Aranda de Duero-Burgos	Hospital Universitario Infanta Elena. Valdemoro-Madrid	Hospital Universitario Miguel Servet. Zaragoza
Hospital Virgen del Puerto. Plasencia-Cáceres	Hospital General de Villalba. Collado Villalba-Madrid	Hospital Obispo Polanco. Teruel
Hospital General Universitario de Ciudad Real	Hospital Universitario Infanta Sofía. San Sebastian de los Reyes-Madrid	Hospital San Juan de Dios. Bormujos
Hospital Clínico Universitario de Santiago	Hospital Universitario de Getafe. Madrid	Hospital Universitario Nuestra Señora de Candelaria. Santa Cruz de Tenerife
Hospital d'Olot i Comarcal de la Garrotxa [Olot and Garrotxa Regional Hospital]. Girona	Hospital Universitario Severo Ochoa. Leganés-Madrid	Hospital Sociosanitario Francolí. Tarragona
Hospital Universitario de Guadalajara	Hospital Universitario Rey Juan Carlos. Móstoles-Madrid	Complejo Hospitalario Universitario de Cartagena. Murcia
Hospital Provincial Sagrado Corazón de Jesús. Huesca	Hospital Universitario de Móstoles. Madrid	Consorti Sanitari Garraf. Barcelona

Total: 54 Hospitals (7,208 cases)

2.2. PARTICIPATING AUTONOMOUS COMMUNITIES

Table 2 - No. of cases by participating Autonomous Community

Autonomous Community	No. of Cases	%
Madrid	2,423	33.62%
Catalonia	1,308	18.15%
Castile and León	933	12.94%
Castilla-La Mancha	919	12.75%
Aragón	473	6.56%
Galicia	405	5.62%
Asturias	388	5.38%
Andalusia	102	1.42%
Extremadura	79	1.10%
Valencian Community	77	1.07%
Canary Islands	68	0.94%
Murcia	33	0.46%
Total	7,208	

The five Autonomous Communities that have contributed the most cases to the RNFC are by order of frequency Madrid, Catalonia, Castile and León, Castilla–La Mancha and Aragón.

2.3. DISTRIBUTION BY AGE AND GENDER

Table 3 - Age in 3 categories

Age 3 categories				
		Number of cases	%	Valid %
Age Groups	75-84	2,528	35.1	35.3
	85-94	4,071	56.5	56.8
	>94	567	7.9	7.9
	Total	7,166	99.4	100
Lost data		42	0.6	
Total		7,208	100	

Table 4 - Average age by autonomous community

	Average	SD	Q1	Median	Q3	Minimum	Maximum	No. of valid cases	No. of cases
Andalusia	85.7	4.7	83.0	86.0	89.0	75	98	102	102
Aragón	86.7	5.7	83.0	86.7	91.0	75	108	473	473
Asturias	87.5	5.7	84.0	88.0	92.0	75	104	387	388
Canary Islands	84.6	5.6	80.0	84.0	88.0	76	97	68	68
Castilla-La Mancha	86.9	5.3	83.0	87.0	91.0	75	105	918	919
Castile and León	86.9	5.8	83.0	87.0	91.0	75	104	933	933
Catalonia	86.6	5.4	83.0	87.0	90.0	75	104	1270	1308
Extremadura	86.3	4.9	83.0	86.0	90.0	76	97	79	79
Galicia	85.3	6.4	80.5	85.0	90.0	75	101	405	405
Madrid	86.7	5.5	83.0	87.0	91.0	75	106	2,421	2,423
Murcia	84.5	5.6	81.0	83.0	89.5	76	98	33	33
Valencian Community	86.3	5.1	83.0	86.0	90.0	75	97	77	77

The community that has contributed data with the oldest patients has been Asturias (mean age of 87.5).

Table 5 - Distribution of age by gender

			Gender		Total
			Male	Female	
Age Groups	75-84	No. of Cases	646	1,881	2,527
		% of the total	9.0%	26.3%	35.3%
	85-94	No. of Cases	986	3,083	4,069
		% of the total	13.8%	43.1%	56.8%
	>94	No. of Cases	130	435	565
		% of the total	1.8%	6.1%	7.9%
Total		No. of Cases	1,762	5,399	7,161
		% of the total	24.6%	75.4%	100%

The gender percentages have been calculated with respect to the total age group (the 7,161 cases that have presented data when studying these two variables jointly). The proportion of men and women remains constant in each of the 3 age groups, that is, there is an average of 24.3% of men and an average of 75.6% of women in each of the groups.

Table 6 - Average age

Age		
Number of cases	Valid	7,166
	Lost to follow-up	42
Average		86.66
Median		87
Standard Deviation		5.58
Minimum		75
Maximum		108
Quartiles	Q1	83
	Q2	87
	Q3	91

Figure 1 - Average age by hospitals

The average age of all the patients that have been registered is 86.7 years.

In this figure the average and standard deviation for each of the hospitals can also be seen.

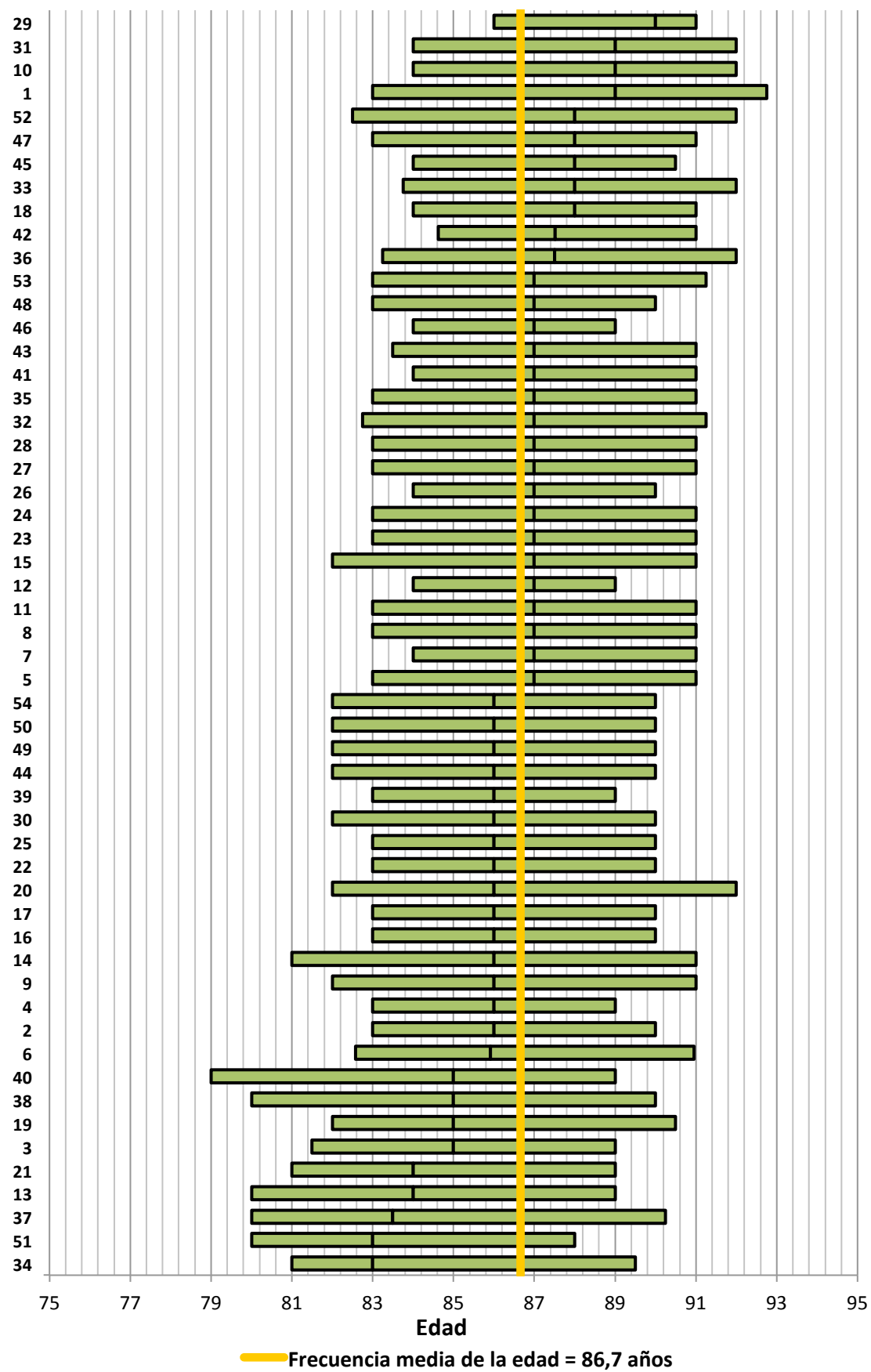
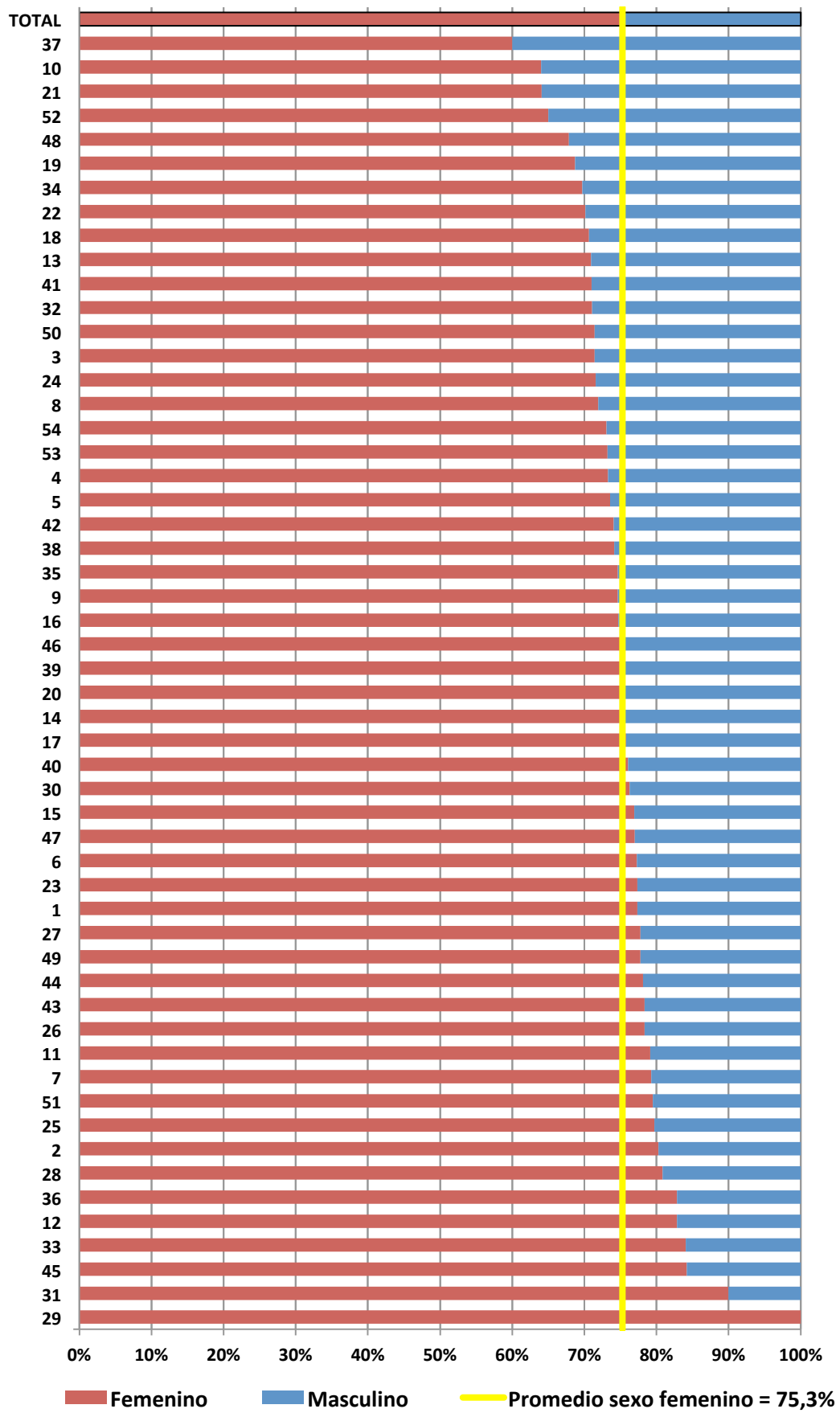


Table 7 - Distribution by gender

		Number of cases	%	Valid %
Gender	Male	1,772	24.58	24.66
	Female	5,414	75.11	75.34
	Total	7,186	99.69	100
Lost to follow-up		22	0.31	
Total		7,208	100	

Figure 2 - Distribution of gender by hospitals

In general, women comprise approximately 75% of patients with a hip fracture.



For the analysis of the rest of the variables that are presented below, the cases that have not signed the informed consent form (241) and 8 cases lost to follow-up are excluded, as well as a hospital in which none of their patients accepted the enrolment on the registry. Therefore, the analysis is performed on a total of 6,959 cases.

Table 8 - Informed Consent Form

		Frequency	%
Informed Consent Form	Yes	6,959	96.5
	No	241	3.3
	Total	7,200	99.9
Lost to follow-up		8	0.1
Total		7,208	100

The hospital codes that have contributed more than 100 and less than 100 cases to the RNFC are presented in the following table. This information facilitates comparison between sites that have contributed a similar number of cases.

Table 9 - Number of cases by hospitals

HOSPITALS WITH > 100 cases contributed to the RNFC	HOSPITALS WITH < 100 cases contributed to the RNFC
35	52
5	39
38	20
42	1
24	22
49	16
18	11
15	36
14	48
30	8
33	45
6	3
7	51
4	21
53	50
43	12
47	40
23	34
9	19
44	13
54	26
2	10
25	31
17	46
27	29
28	
32	
41	

2.4. LOCATION: BEFORE THE FRACTURE, AFTER THE DISCHARGE AND AFTER 30 DAYS

Table 10 - Location: before the fracture, after the discharge and after 30 days

	Pre-fracture		Upon discharge		At 30 days	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
Home	5,250	75.44%	2,573	36.97%	2,732	39.26%
Institution	1,650	23.71%	2,220	31.90%	2,062	29.63%
Acute Care	29	0.42%	70	1.01%	173	2.49%
Long-Term Hospital	„	„	98	1.41%	53	0.76%
Functional Recovery Unit	„	„	1,656	23.80%	825	11.86%
Deceased	„	„	305	4.38%	497	7.14%
Unknown	7	0.10%	5	0.07%	68	0.98%
Lost to follow-up	23	0.33%	32	0.46%	549	7.89%
Total	6,959	100%	6,959	100%	6,959	100%

It is represented by percentages including the unknown cases and cases lost to follow-up.

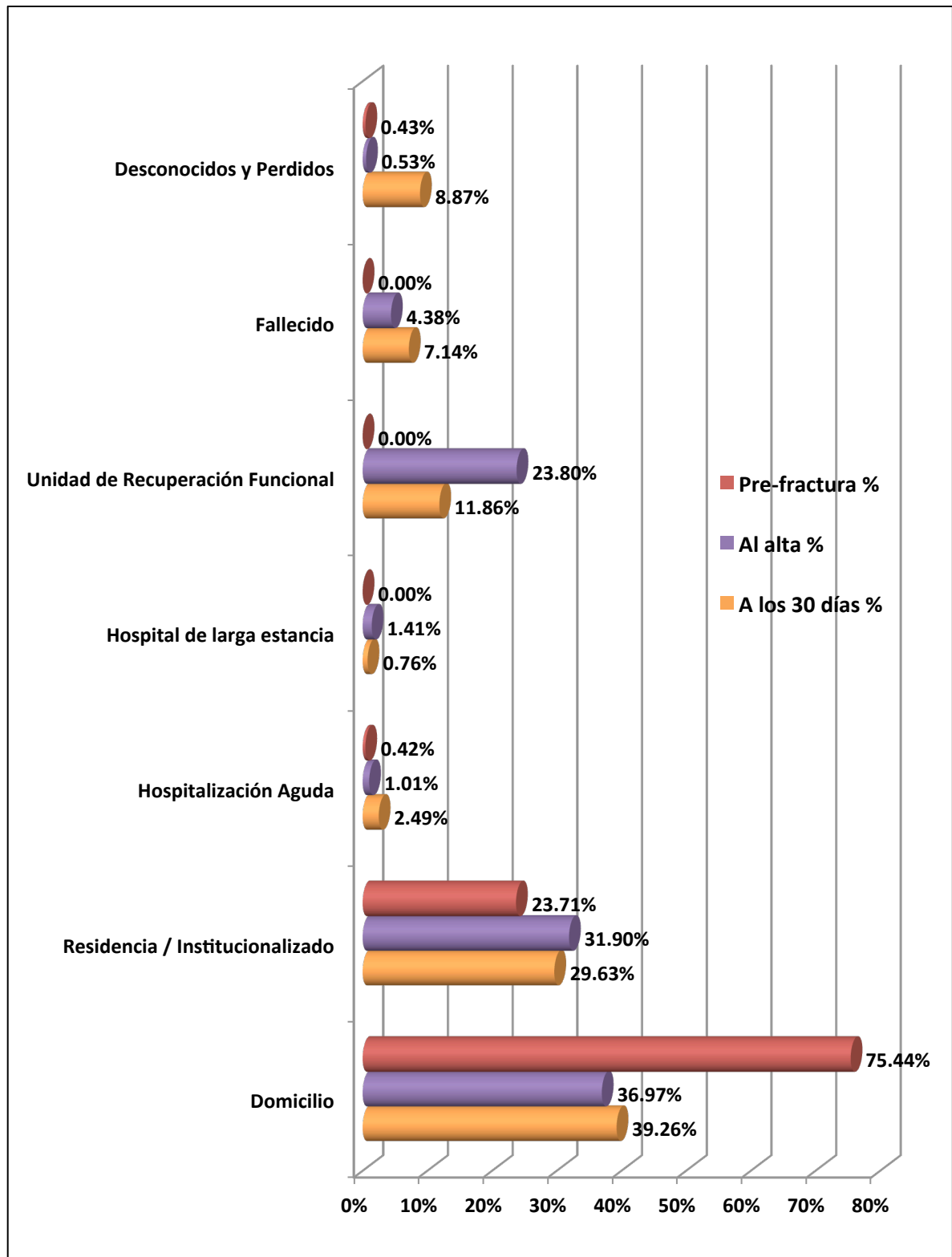


Figure 3 -Location: before the fracture, after the discharge and after 30 days

Table 11 - Location before the fracture

	Pre-fracture	
	No. of Cases	Valid %
Home	5,250	75.77%
Institution	1,650	23.81%
Acute Care	29	0.42%
Long-Term Hospital	„	0%
Functional Recovery Unit	„	0%
Deceased	„	0%
Total	6,929	100%

Figure 4 - Location before the fracture by hospital

Three quarters of the patients admitted due to a hip fracture lived at home and almost a quarter in an institution.

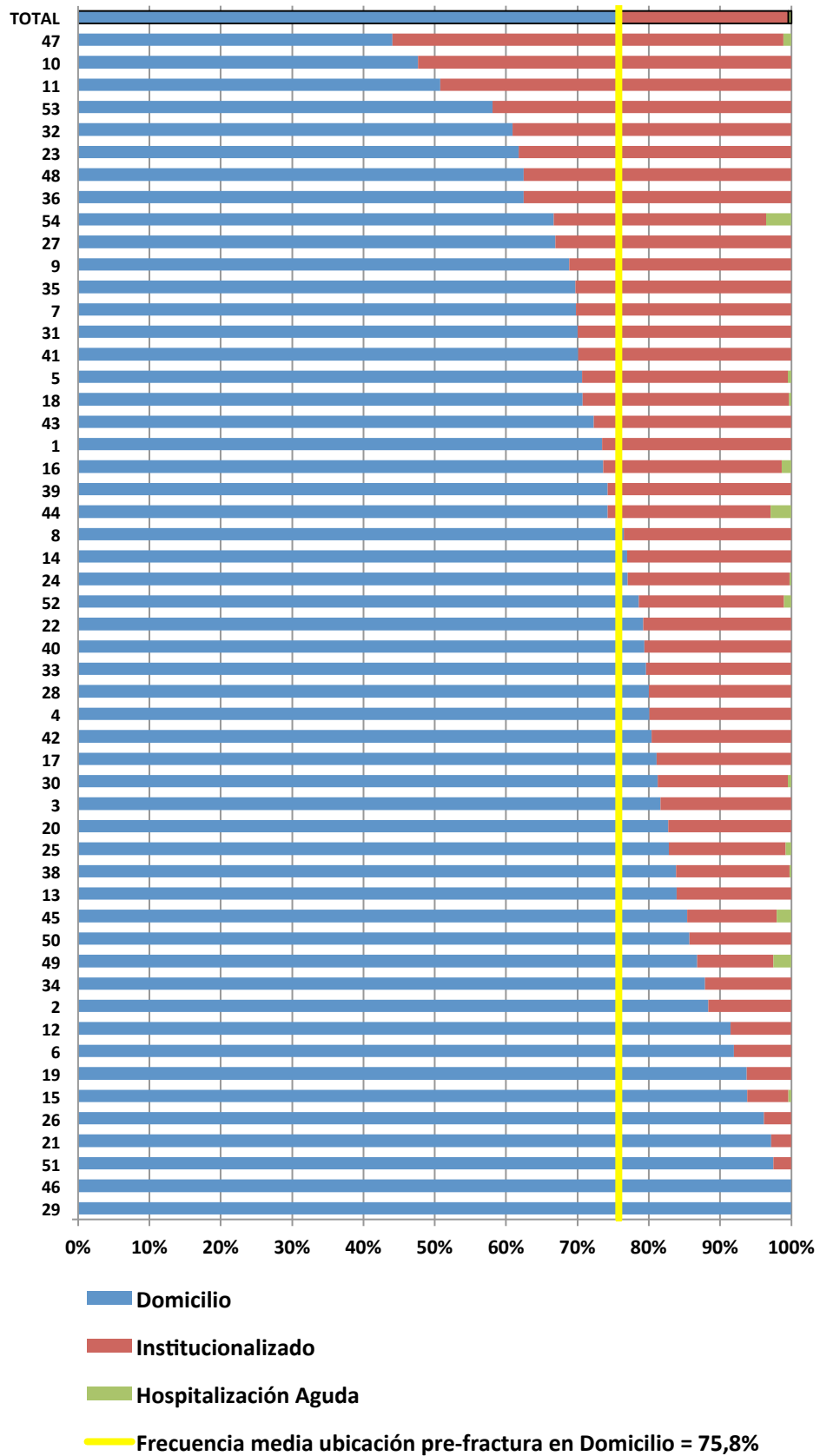


Table 12 - Location after discharge

	Upon discharge	
	No. of Cases	Valid %
Home	2,573	37.17%
Institution	2,220	32.07%
Acute Care	70	1.01%
Long-Term Hospital	98	1.42%
Functional Recovery Unit	1,656	23.92%
Deceased	305	4.41%
Total	6,922	100%

Figure 5 - Location after discharge by hospital

The destination of patients after discharge varies a lot in the different hospitals. Just over half of the patients who lived at home, return to it after discharge.

23% use functional recovery units, but the percentage of patients referred to this resource is very variable in the different centres (from 0 to 88%), as well as those derived from residence (varies from 0% to 64%).

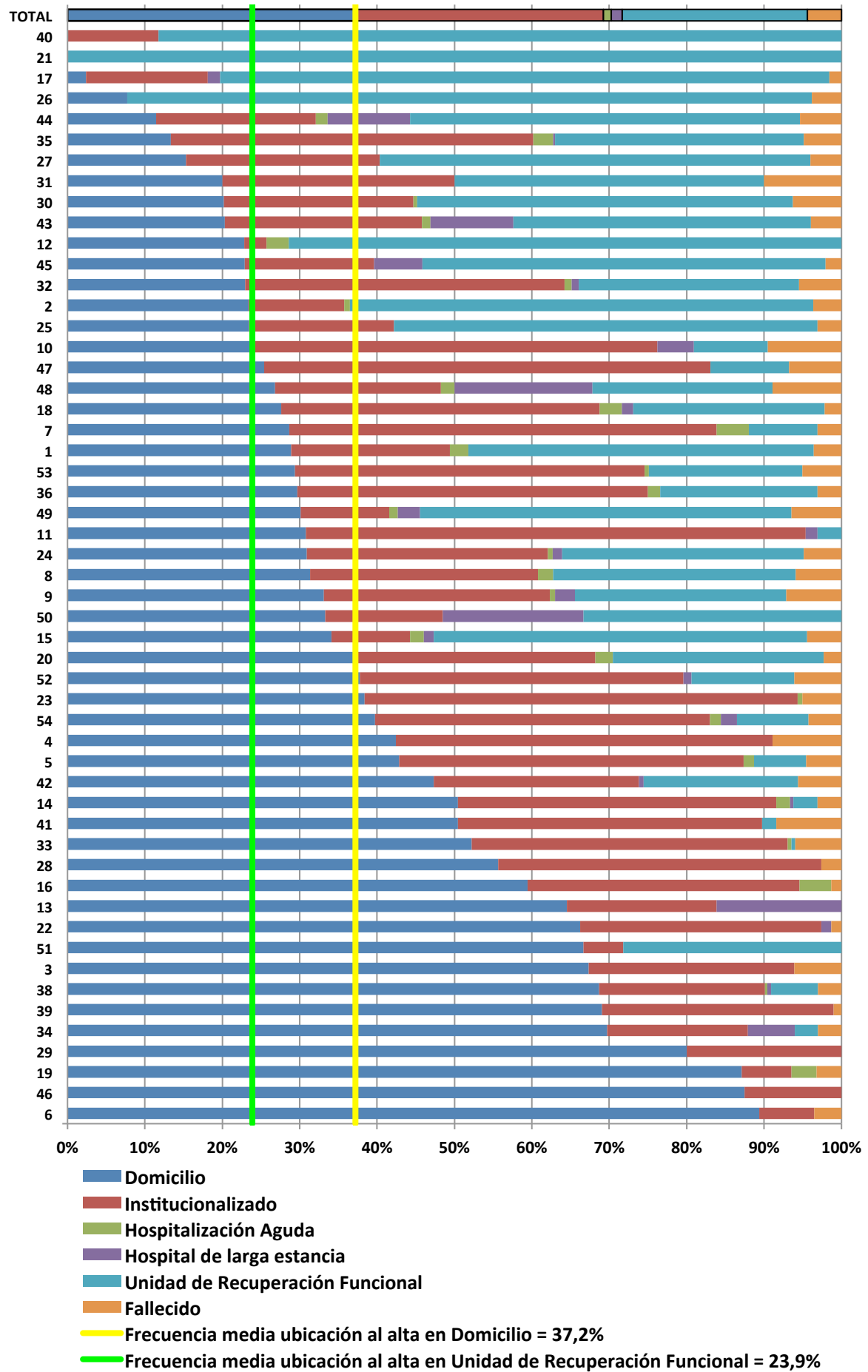


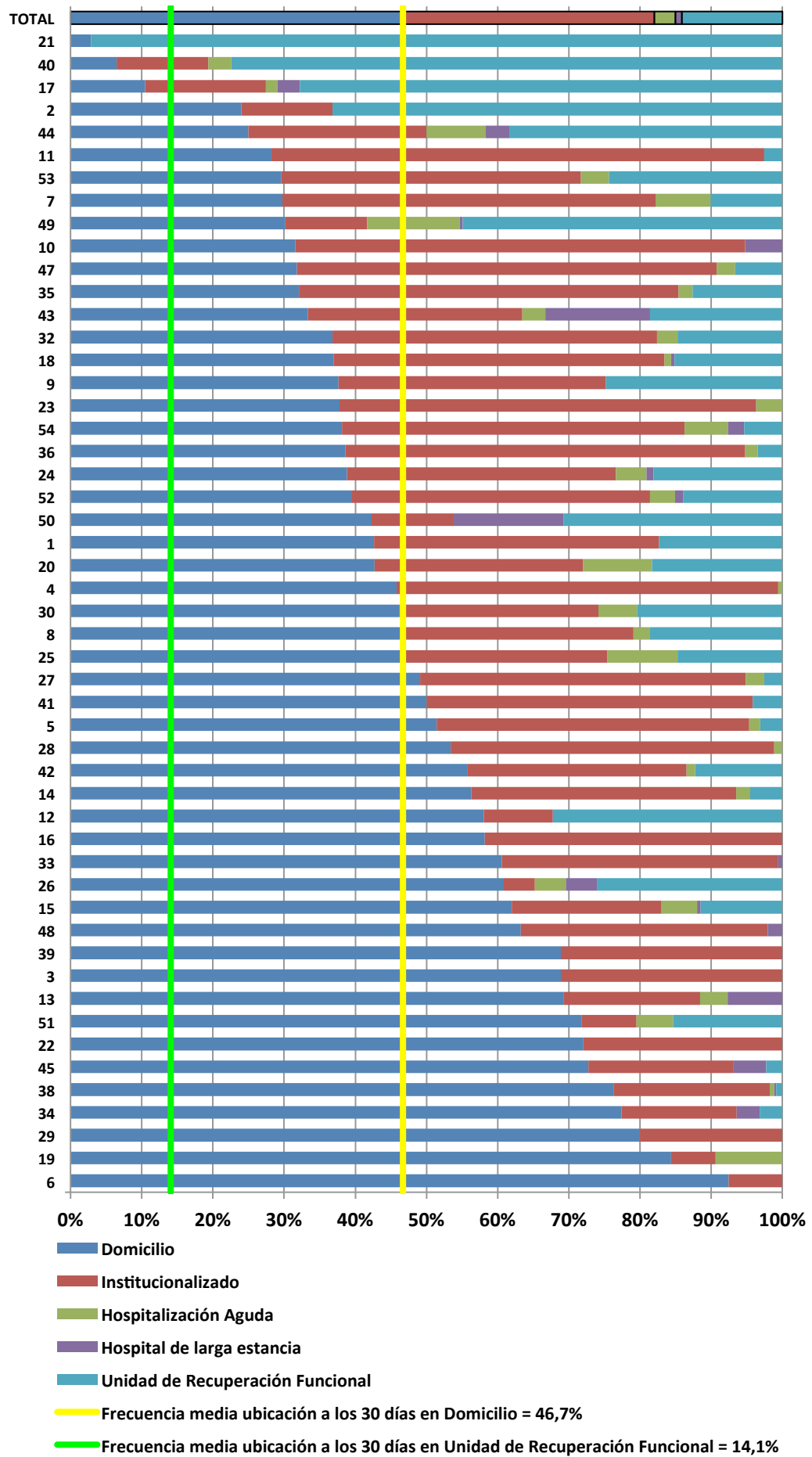
Table 13 - Location at 30 days

	At 30 days	
	No. of Cases	Valid %
Home	2,732	46.74%
Institution	2,062	35.28%
Acute Care	173	2.96%
Long-Term Hospital	53	0.91%
Functional Recovery Unit	825	14.11%
Total	5,845	100%
Deceased	497	8.50%

Figure 6 - Location at 30 days by hospital

A 14,11% of the patients continue in Functional Recovery Units one month after the fracture.

It should be noted that 2.9% of patients are in acute care at 30 days, a fact that suggests the fragility of these patients and the high risk of new complications and readmission after a hip fracture. And in an even higher percentage (7.1% including unknown cases and cases lost to follow-up) they have conditioned the exitus at that time (cumulative mortality at 30 days).



3. CLINICAL DATA

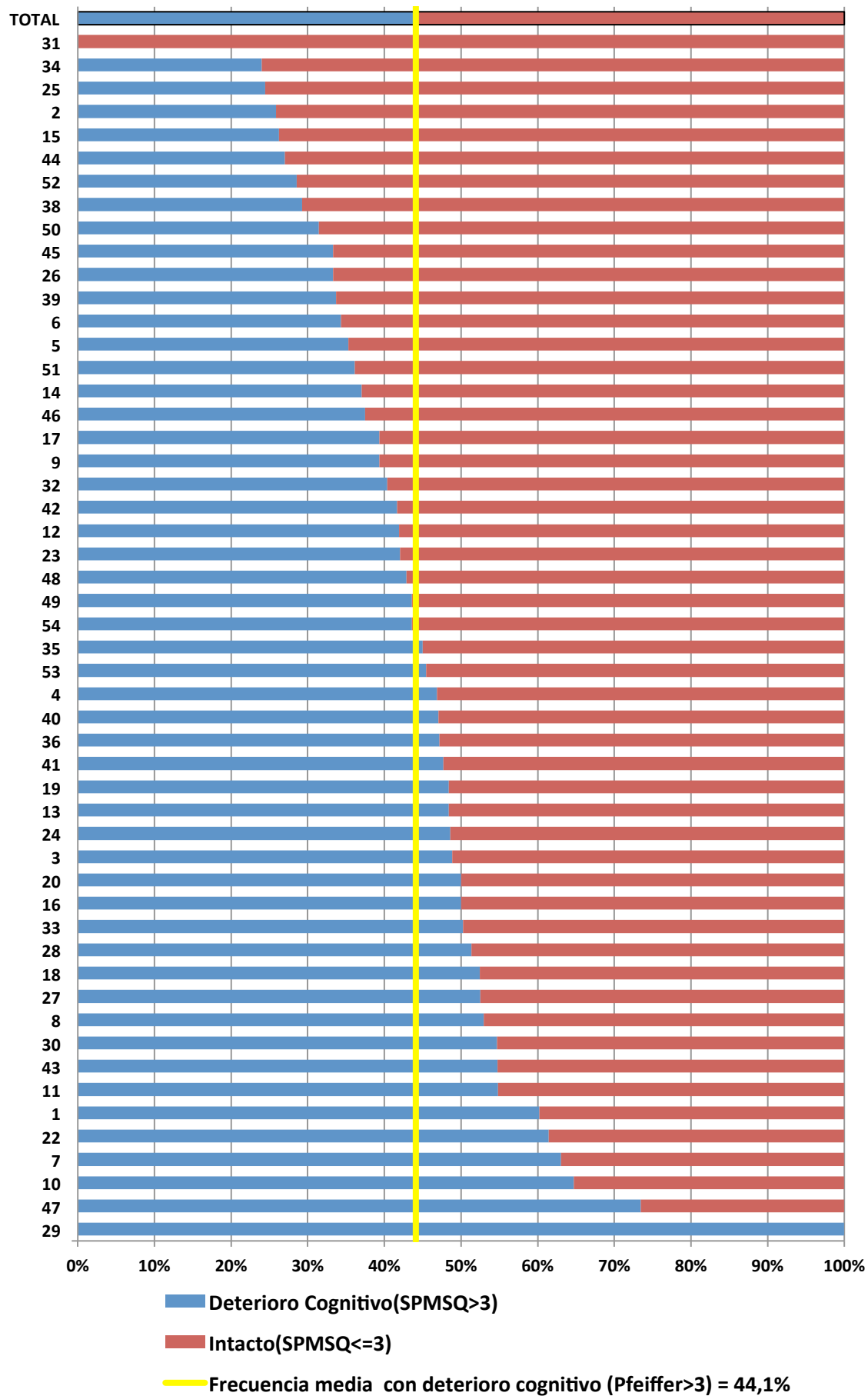
3.1. PFEIFFER

Table 14 - Cognitive impairment (Pfeiffer grouped)

		Number of cases	%	Valid %
Cognitive situation	Intact (SPMSQ≤3)	3,213	46.2	55.9
	Cognitive Impairment (SPMSQ>3)	2,534	36.4	44.1
	Total	5,747	82.6	100
Lost to follow-up	Lost or unrealised data	1,212	17.4	
Total		6,959	100	

Figure 7 - Cognitive impairment by hospital

Almost half of the patients whose cognitive status has been assessed by the Pfeiffer questionnaire have a score higher than 3, suggestive of cognitive impairment.



3.2. ASA

Table 15 - ASA Classification

		Number of cases	%	Valid %
ASA Classification grouped	I II	1,881	27.0	28.6
	III IV V	4,689	67.4	71.4
	Total	6,570	94.4	100
Lost to follow-up	Lost or unknown data	389	5.6	
Total		6,959	100	

To group this variable we rely on whether the individual is healthy or the disease is mild (Group I, II) and that the individual has a severe illness or is moribund (Group III, IV, V).

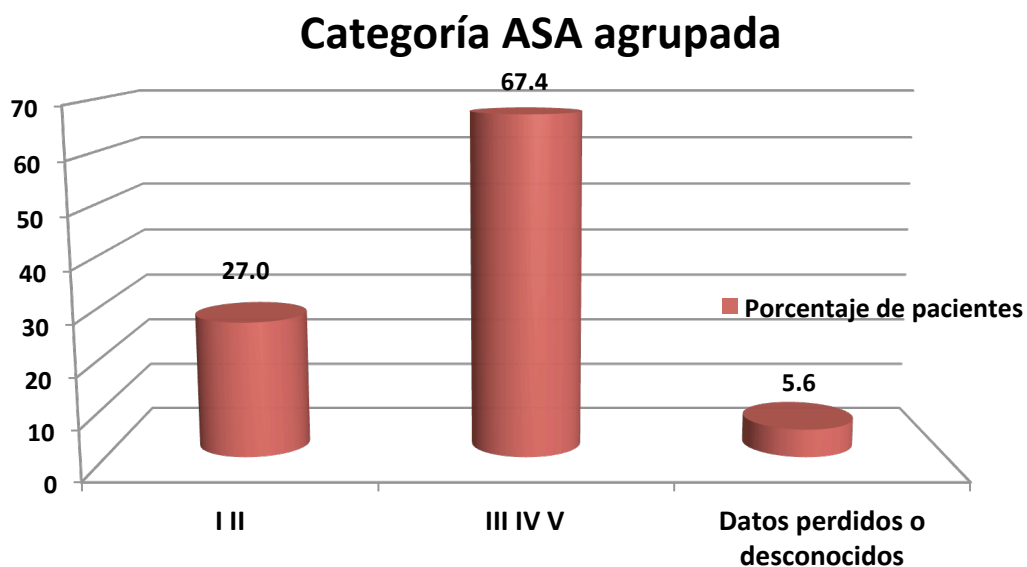
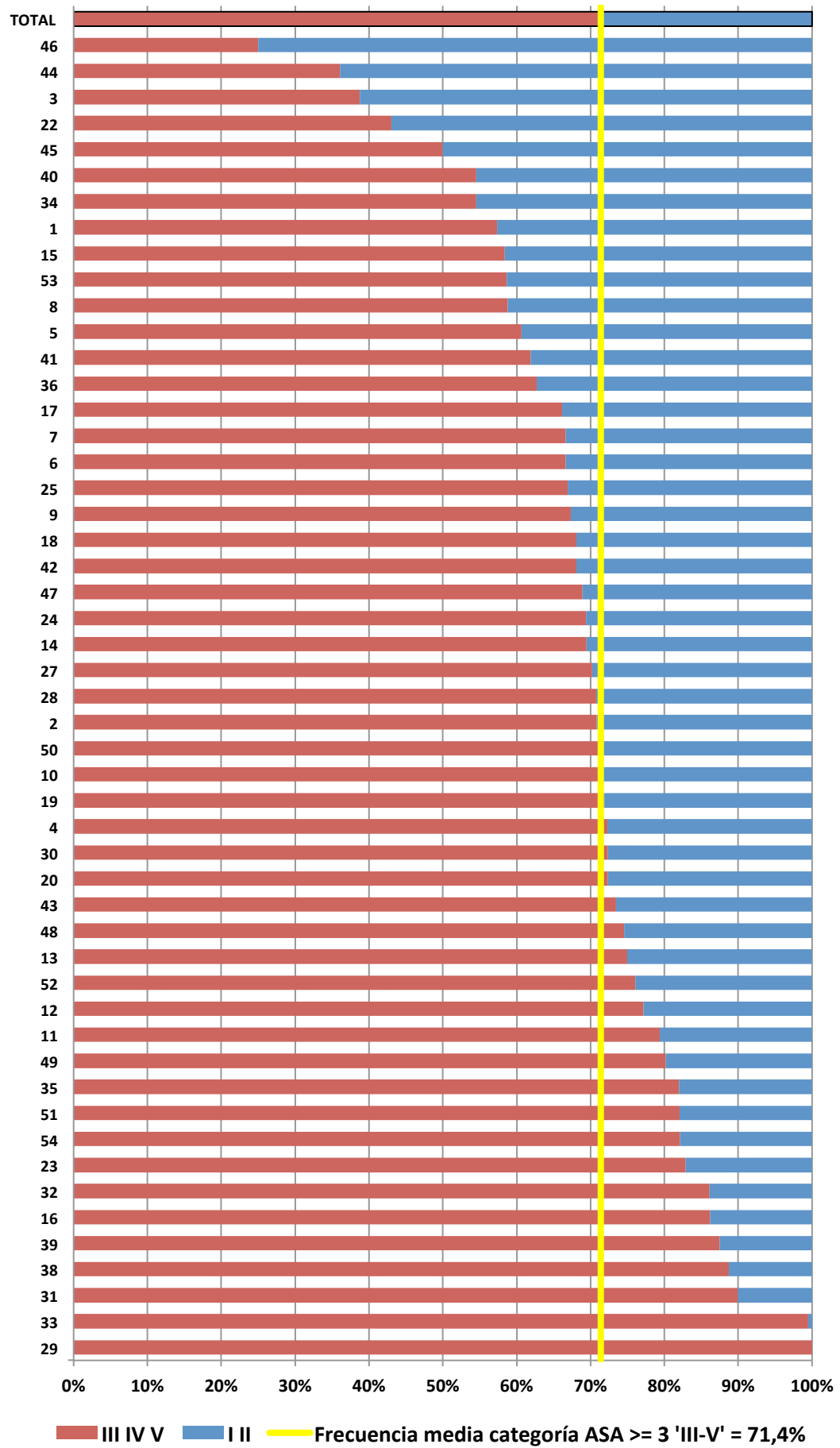


Figure 8 - ASA Classification grouped

Figure 9 - ASA Classification grouped by hospital

More than 70% of patients have a high anaesthetic risk according to the ASA classification Group III, IV, V.



3.3. FRACTURE

Table 16 - Fracture type

		Number of cases	%	Valid %
Fracture type	Intracapsular undisplaced	759	10.9	11.0
	Intracapsular displaced	1,971	28.3	28.6
	Pertrochanteric	3,609	51.9	52.4
	Subtrochanteric	501	7.2	7.3
	Other	44	0.6	0.6
	Total	6,884	98.9	100
Lost to follow-up	Lost data	75	1.1	
Total		6,959	100	

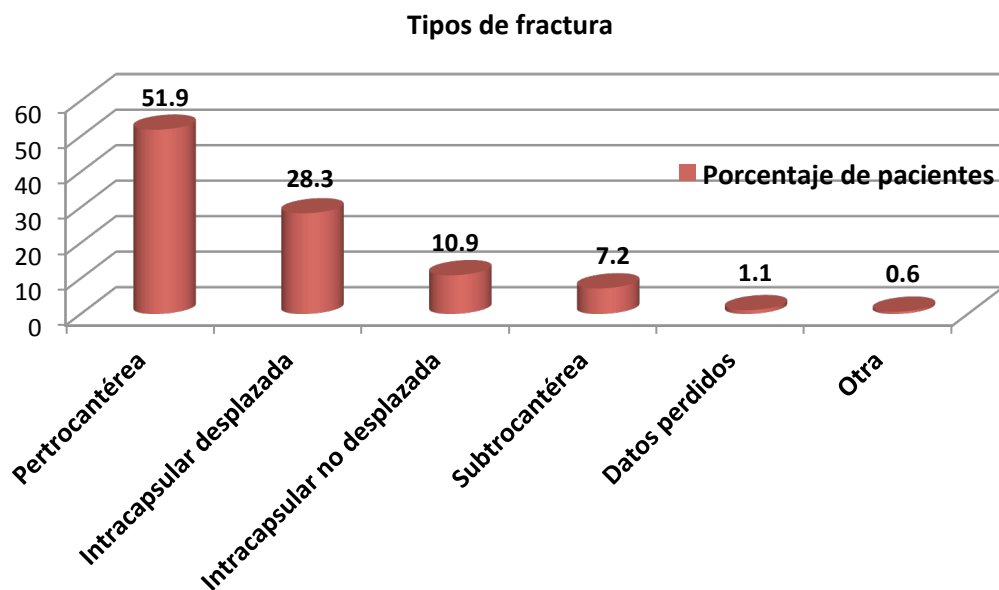
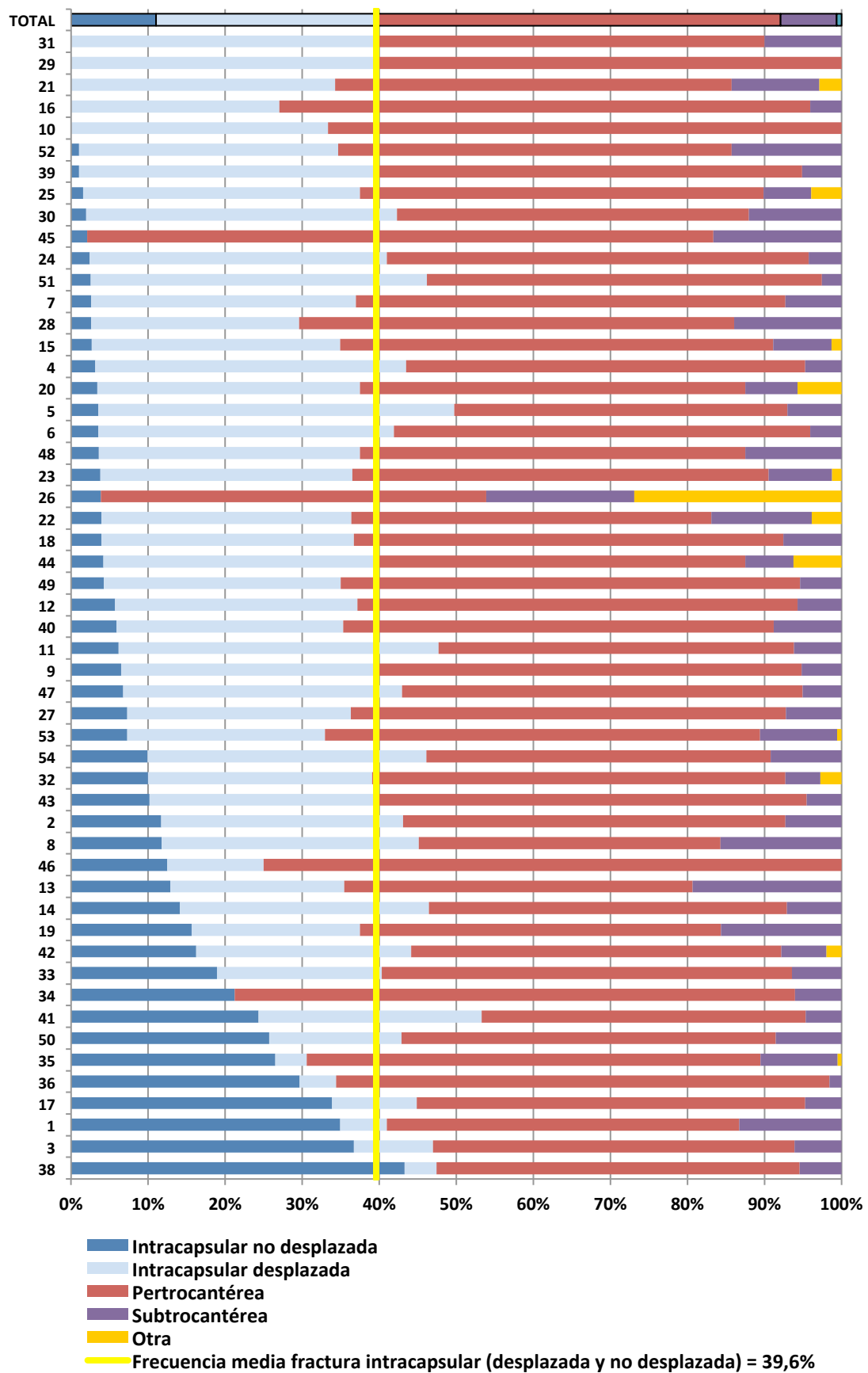


Figure 10 - Fracture types

Figure 11 - Fracture types by hospital

More than half of patients suffer a pertrochanteric fracture.



3.4. SURGERY PERFORMED AND ANAESTHESIA

Before studying these variables, it is important to know how many patients underwent surgery on and how many were not:

Table 17 - Patients who underwent surgery

		Frequency	%	Valid %
Underwent surgery	Non-surgical management	164	2.4	2.4
	Surgical management	6,641	95.4	97.6
	Total	6,805	97.8	100
Lost to follow-up	System	154	2.2	
Total		6,959	100	

6,641 patients underwent surgery. Excluding the cases lost to follow-up it entails a 97.6%.

Table 18 - Operation Performed

		Number of cases	%	Valid %
Operation performed	Cannulated screws	137	2.0%	2.1%
	Sliding hip screw	71	1.0%	1.1%
	Intra-medullary nail	3,953	56.8%	59.7%
	Hemi-arthoplasty	2,259	32.5%	34.1%
	Total hip replacement	205	2.9%	3.1%
	Total	6,625	95.2%	100%
Lost to follow-up	Non-surgical management	164	2.4%	
	Other / unknown	16	0.2%	
	Lost data	154	2.2%	
	Total	334	4.8%	
Total		6,959	100%	

The most frequent type of surgery was an intra-medullary nail (59.7%) followed by a hemiarthroplasty (34.1%).

Figure 12 - Operation performed by hospital

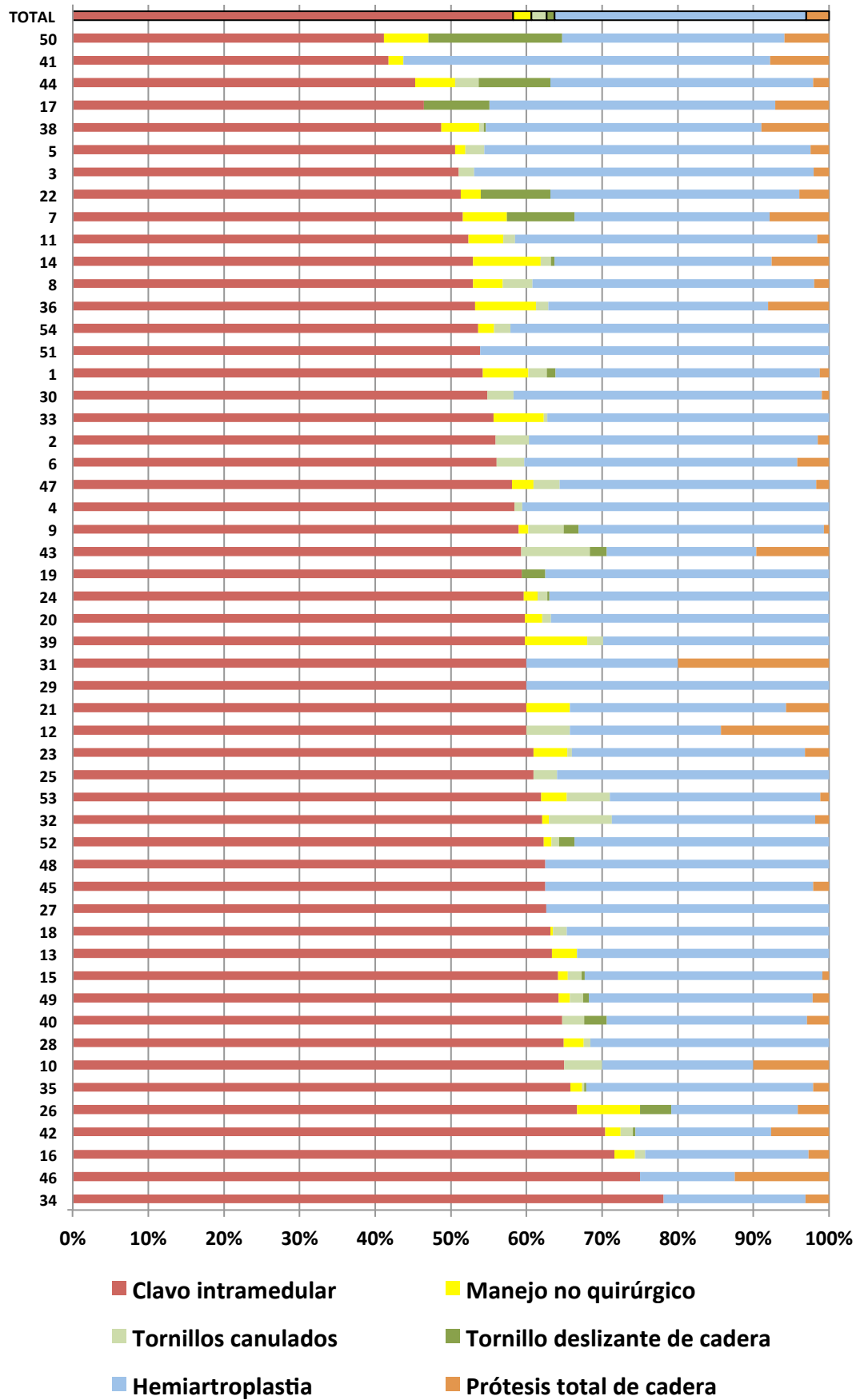
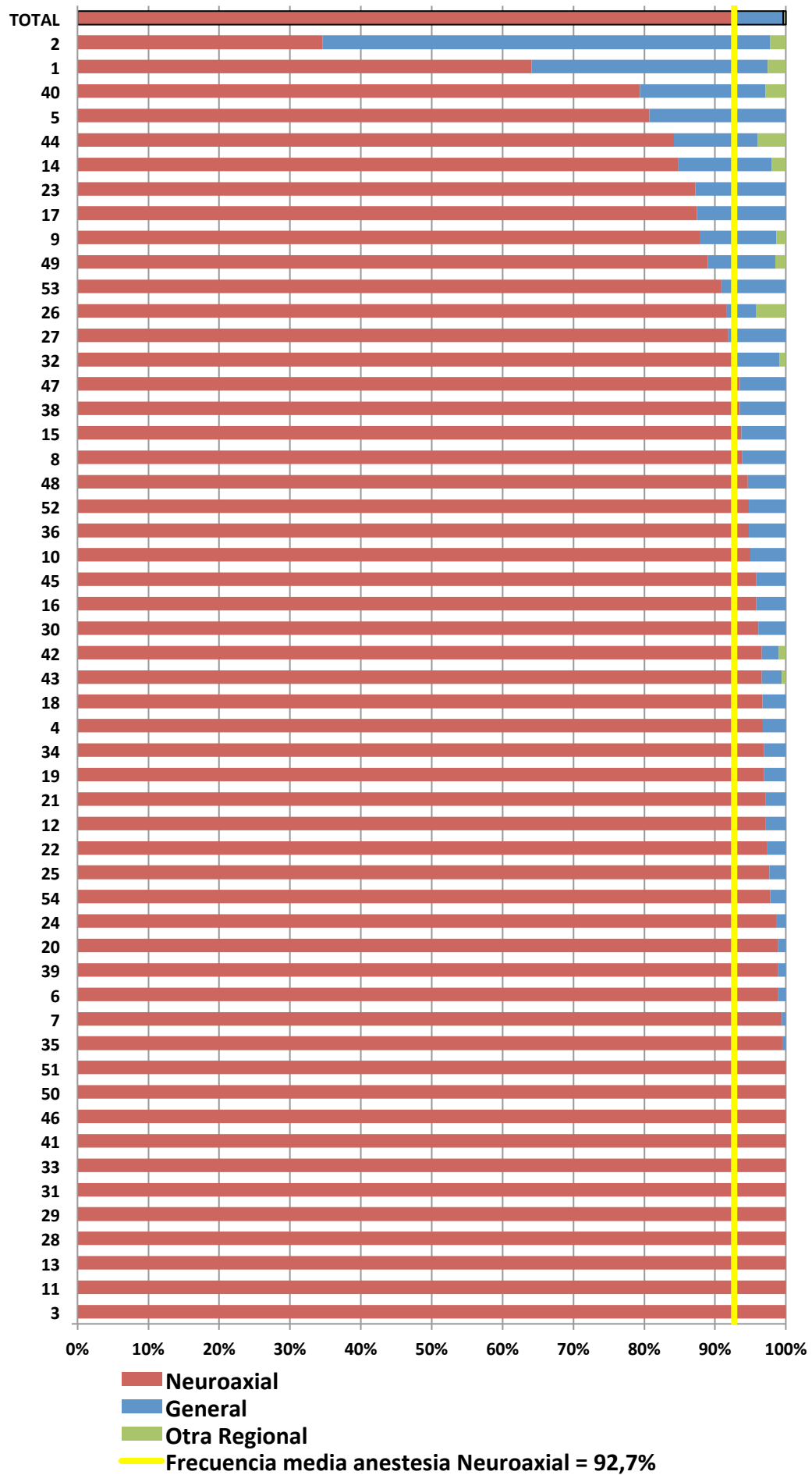


Table 19 - Type of anaesthesia

		Number of cases	%	Valid %
Type of anaesthesia	General	457	6.6	6.9
	Neuraxial	6,115	87.9	92.7
	Other regional	25	0.4	0.4
	Total	6,597	94.8	100
Lost to follow-up	Unknown	31	0.4	
	Lost data	331	4.8	
	Total	362	5.2	
Total		6,959	100	

Figure 13 - Type of anaesthesia by hospital

Neuraxial anaesthesia was used in more than 90% of the patients.



3.5. BONE PROTECTION MEDICATION (ANTIRESORPTIVE OR ANABOLIC AGENTS), CALCIUM AND VITAMIN D, UPON ADMISSION, UPON DISCHARGE AND AT 30 DAYS

Table 20 - Type of treatment upon admission, upon discharge and at 30 days

		Pre-fracture		Upon discharge		At 30 days	
		Number of cases	Valid %	Number of cases	Valid %	Number of cases	Valid %
Bone Protection Medication (Antiresorptive or Anabolic Agents)	Yes	348	5.0%	2,425	36.7%	2,473	41.0%
	No	6,575	95.0%	4,184	63.3%	3,556	59.0%
Calcium	Yes	827	12.4%	3,227	49.6%	2,955	49.9%
	No	5,857	87.6%	3,285	50.4%	2,963	50.1%
Vitamin D	Yes	1,124	16.8%	4,599	70.6%	4,157	70.3%
	No	5,557	83.2%	1,915	29.4%	1,756	29.7%

An increase in the prescription of vitamin D, calcium and bone protection medication upon discharge of the hip fracture can be observed, percentages that increase a little more a month later.

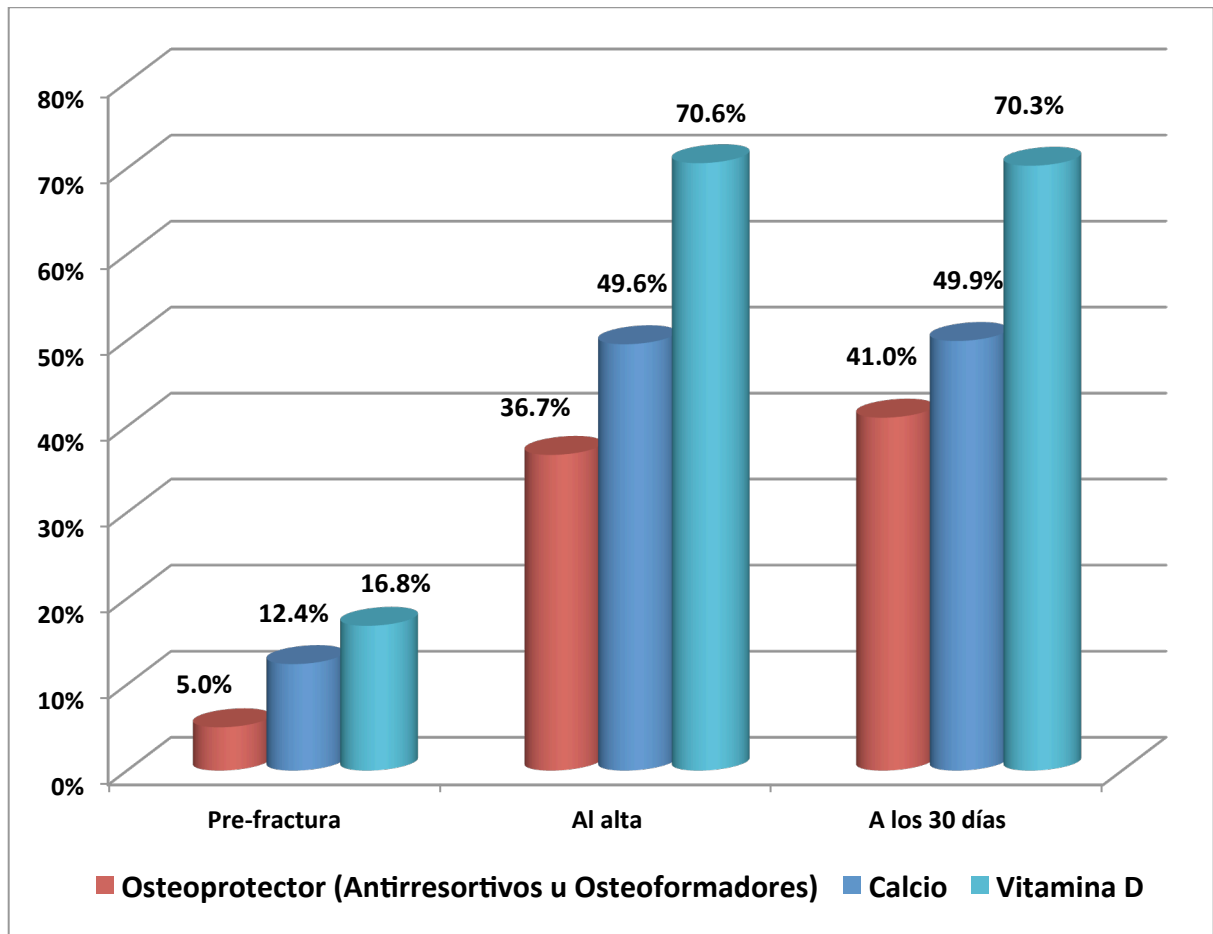


Figure 14 - Pre-treatment, upon admission, upon discharge and at 30 days

Table 21 - Bone protection medication upon admission (pre-fracture)

		Pre-fracture	
		Number of cases	Valid %
Bone Protection Medication (Antiresorptive or Anabolic Agents)	Yes	348	5%
	No	6,575	95%

Figure 15 - Pre-fracture bone protection medication by hospital

Only 5% of the patients had any bone protection medication (antiresorptive or anabolic agents) before the fracture.

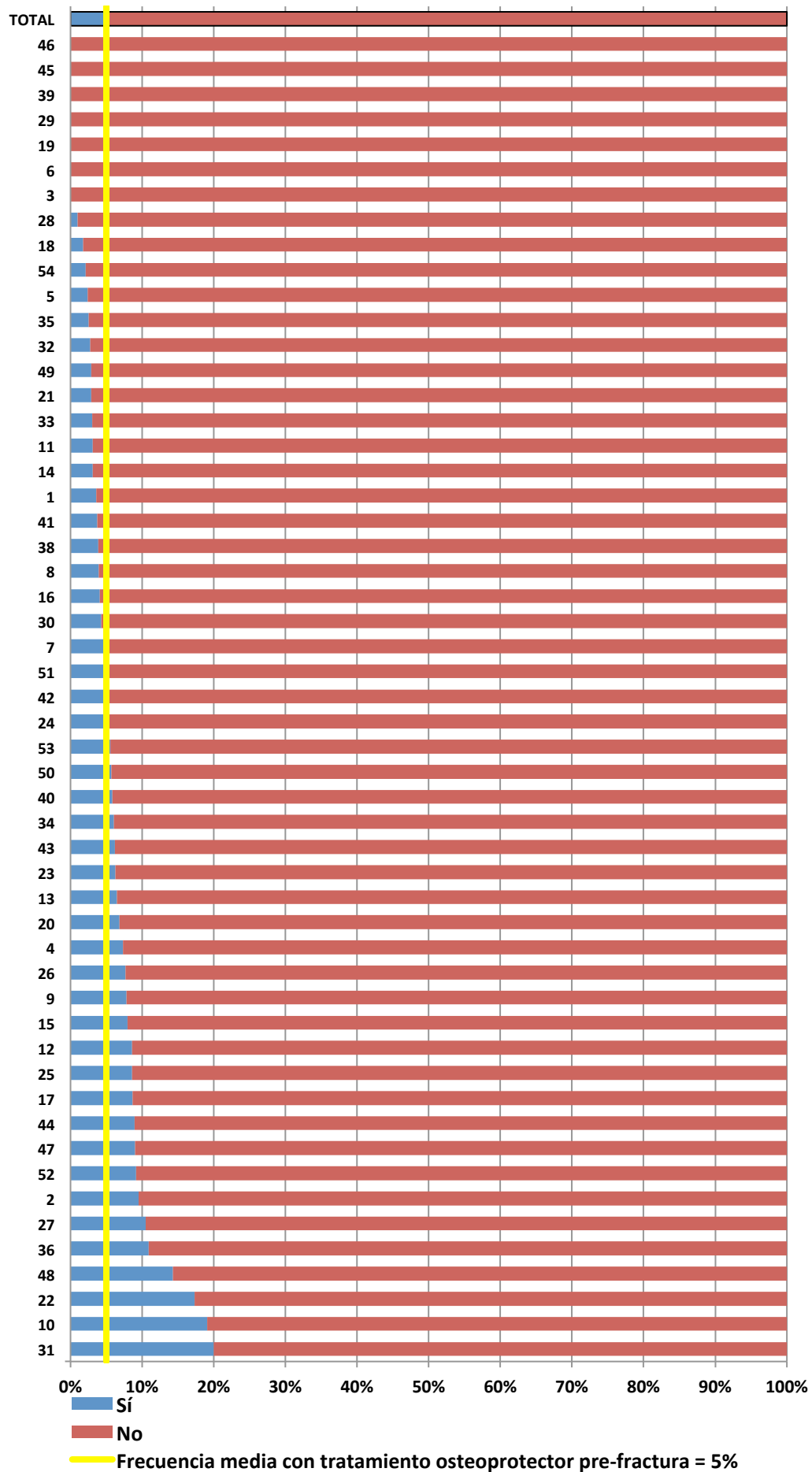


Table 22 - Bone protection medication upon discharge

		Upon discharge	
		Number of cases	Valid %
Bone Protection Medication (Antiresorptive or Anabolic Agents)	Yes	2,425	36.7%
	No	4,184	63.3%

Figure 16 - Bone protection medication upon discharge by hospital

Bone protection medication (Antiresorptive or anabolic agents) was prescribed to 36.7% of patients upon discharge, with a variability between hospitals from 0 to 93.9%.

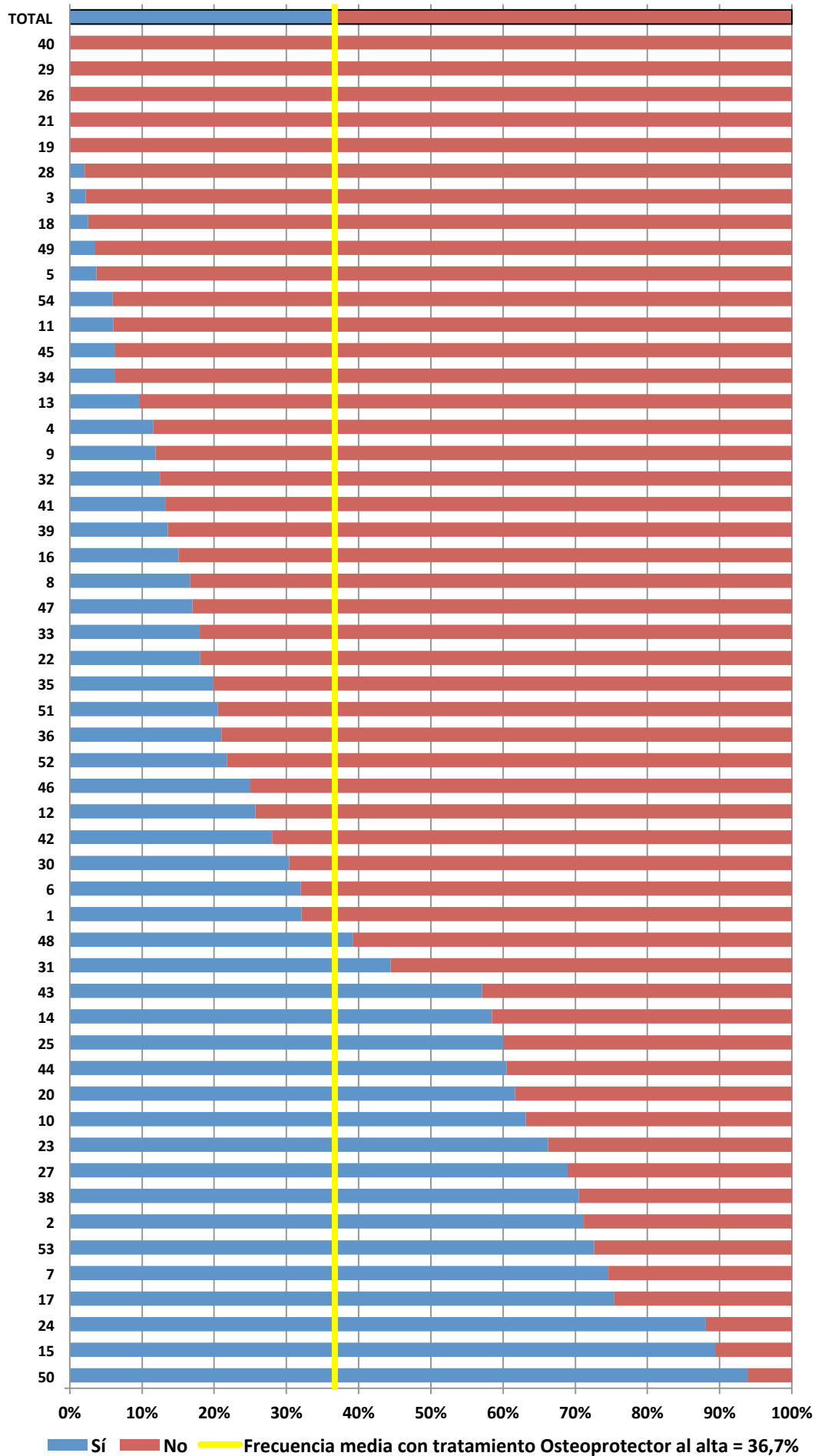


Table 23 - Bone protection medication at 30 days

		At 30 days	
		Number of cases	Valid %
Bone Protection Medication (Antiresorptive or Anabolic Agents)	Yes	2,473	41%
	No	3,556	59%

Figure 17 - Bone protection medication at 30 days by hospital

A 41% of the patients maintained a bone protection medication at 30 days after the fracture, with great variability in the different hospitals (from 0% to 86%).

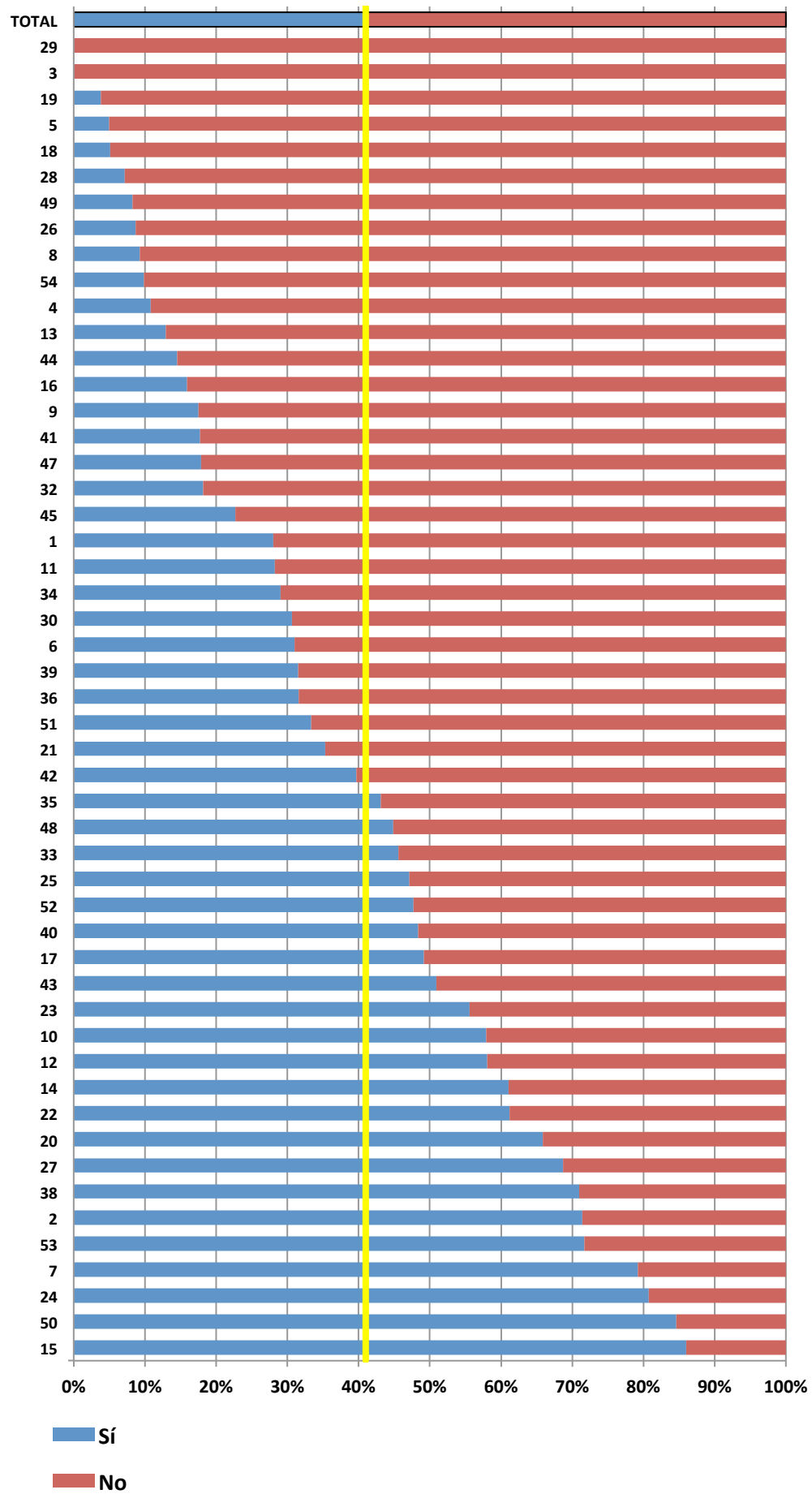


Table 24 - Calcium treatment upon admission (pre-fracture)

		Pre-fracture	
		Number of cases	Valid %
Calcium	Yes	827	12.4%
	No	5,857	87.6%

Figure 18 - Pre-fracture calcium treatment by hospital

A 12% of the patients had a calcium treatment before the fracture.

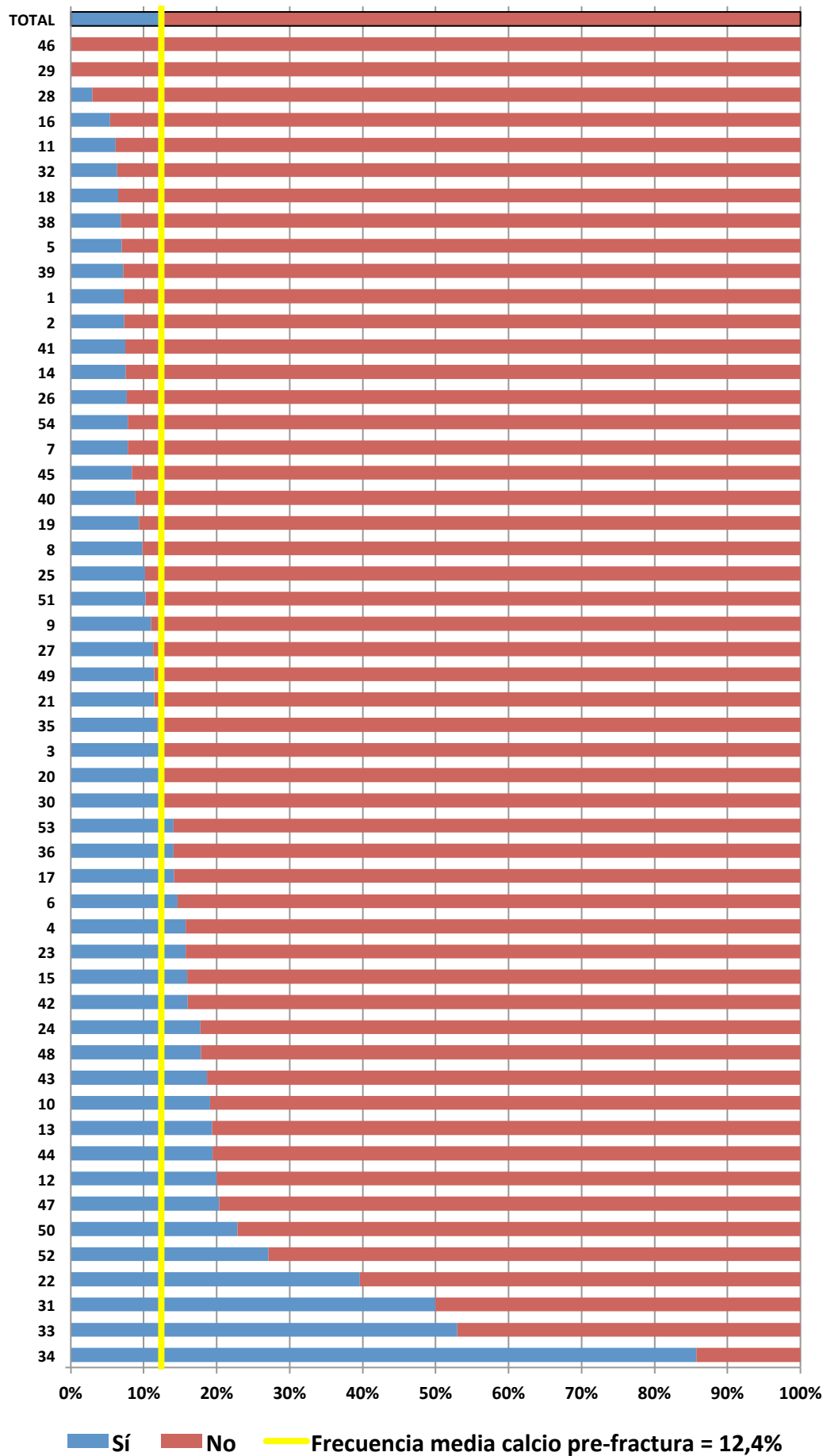


Table 25 - Calcium treatment upon discharge

		Upon discharge	
		Number of cases	Valid %
Calcium	Yes	3,227	49.6%
	No	3,285	50.4%

Figure 19 - Calcium treatment upon discharge by hospital

Treatment with calcium was prescribed to 49.6% of patients upon discharge.

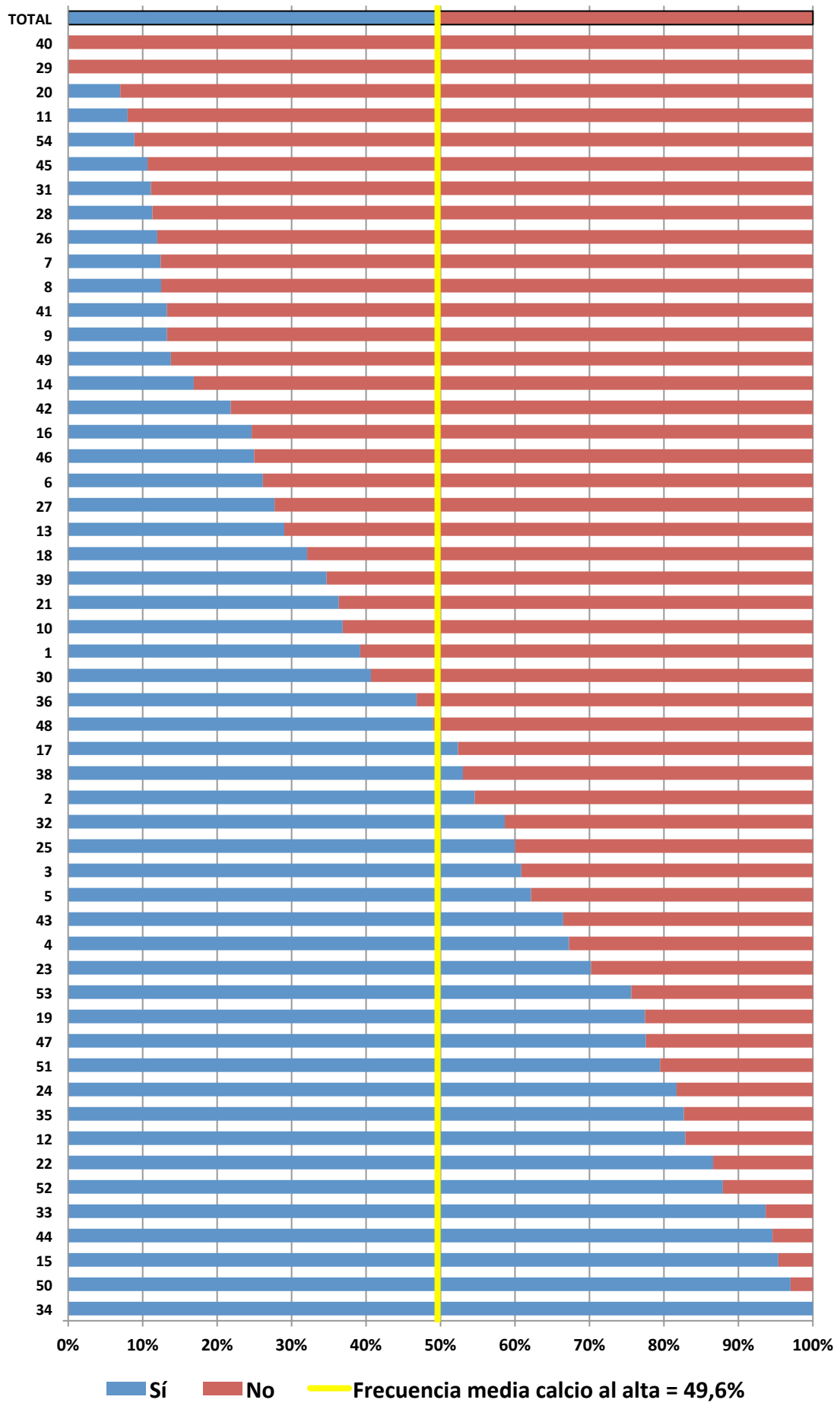


Table 26 - Calcium treatment at 30 days

		At 30 days	
		Number of cases	Valid %
Calcium	Yes	2,955	49.9%
	No	2,963	50.1%

At 30 days, a 49.9% continued on the calcium treatment.

Figure 20 - Calcium treatment at 30 days by hospital

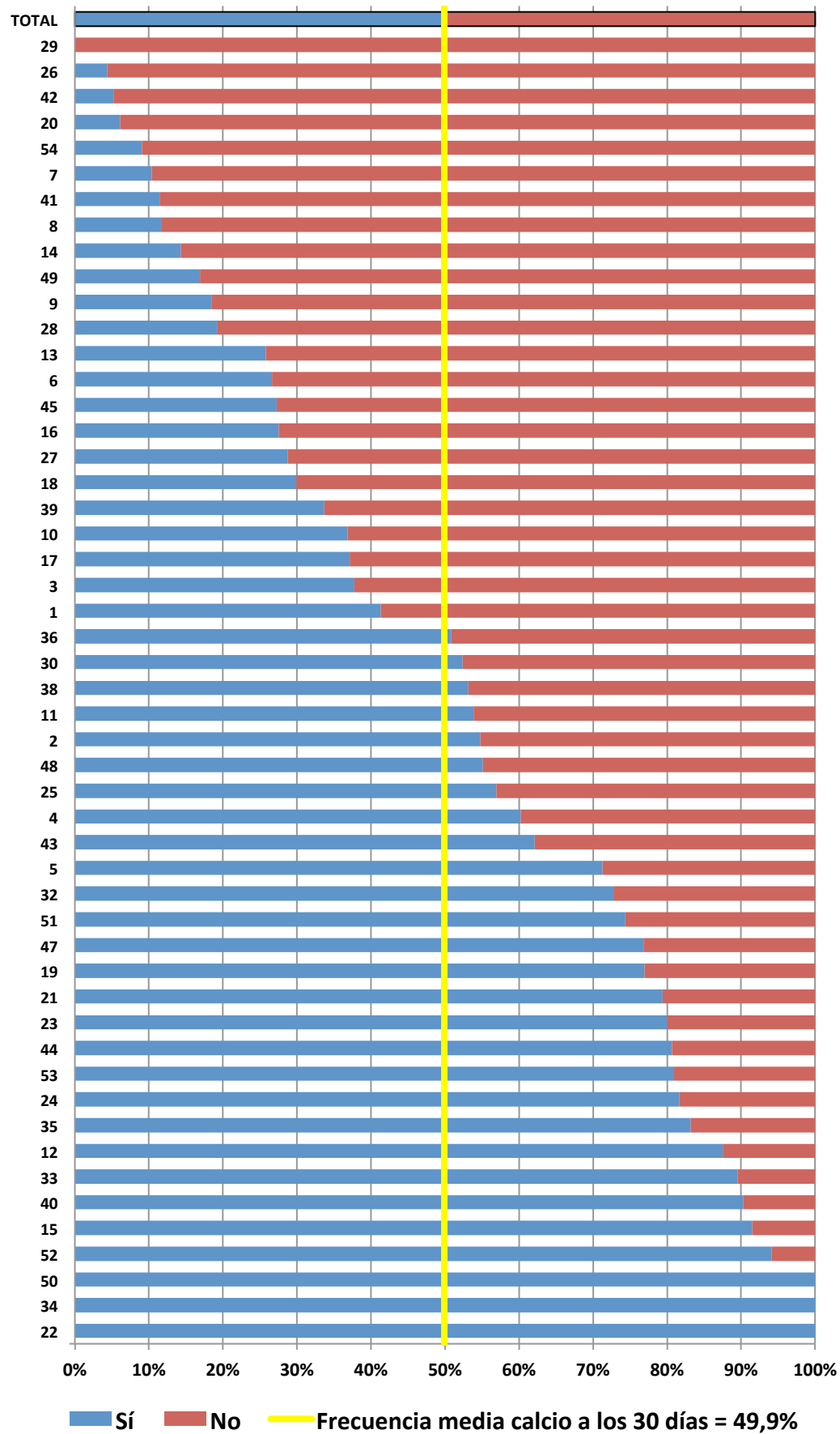


Table 27 - Vitamin D treatment upon admission (pre-fracture)

		Pre-fracture	
		Number of cases	Valid %
Vitamin D	Yes	1,124	16.8%
	No	5,557	83.2%

A 16.8% of the patients were on treatment with vitamin D before admission due to the fracture.

Figure 21 - Pre-fracture vitamin D by hospital

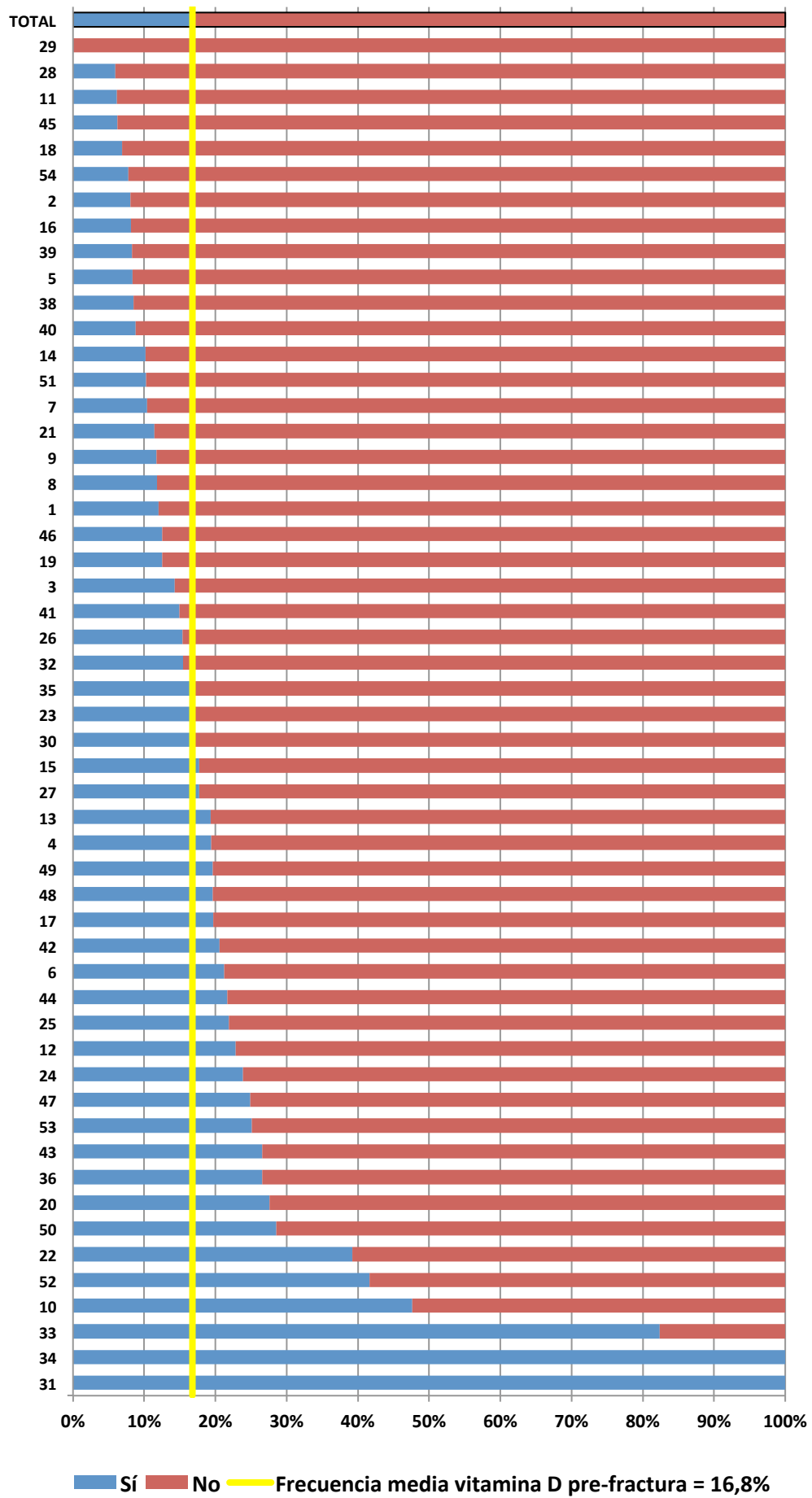


Table 28 - Vitamin D treatment upon discharge

		Upon discharge	
		Number of cases	Valid %
Vitamin D	Yes	4,599	70.6%
	No	1,915	29.4%

Figure 22 - Vitamin D treatment upon discharge by hospital

Vitamin D was prescribed to 70.6% of patients upon discharge.

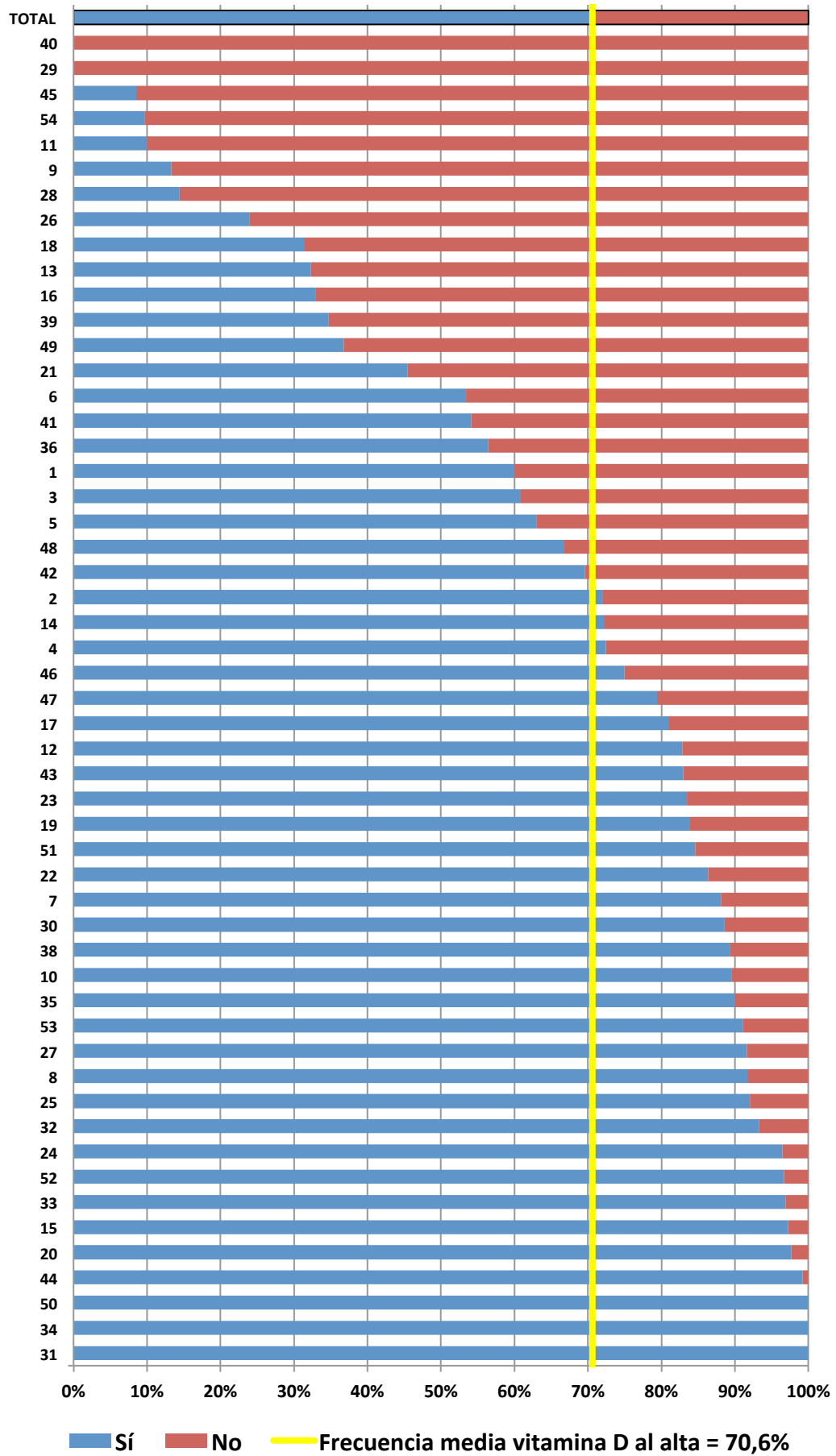
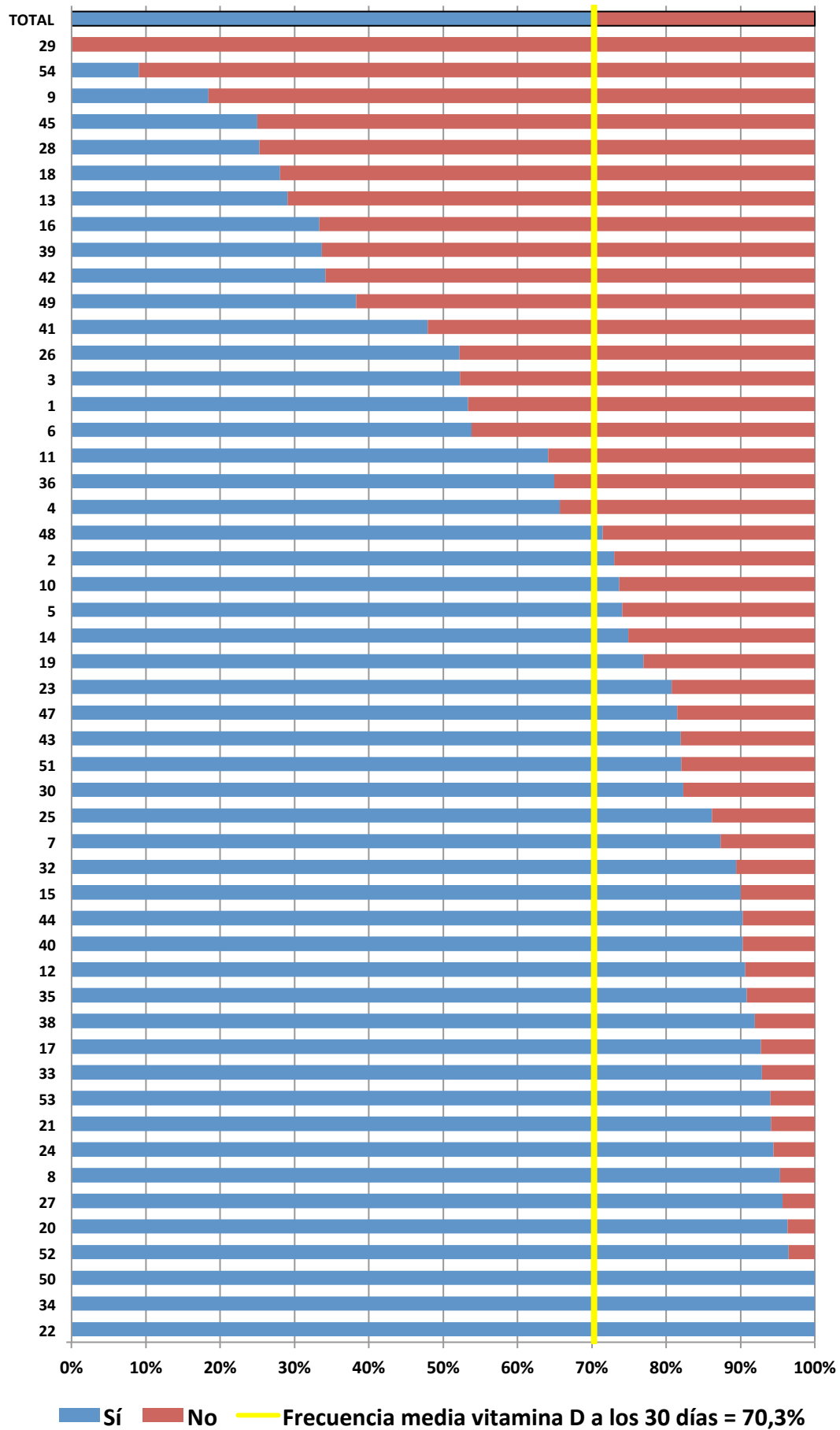


Table 29 - Vitamin D treatment at 30 days

		At 30 days	
		Number of cases	Valid %
Vitamin D	Yes	4,157	70.3%
	No	1,756	29.7%

At 30 days, vitamin D treatment was maintained in 70.3% of patients, a percentage very similar upon discharge.

Figure 23 - Vitamin D treatment at 30 days by hospital



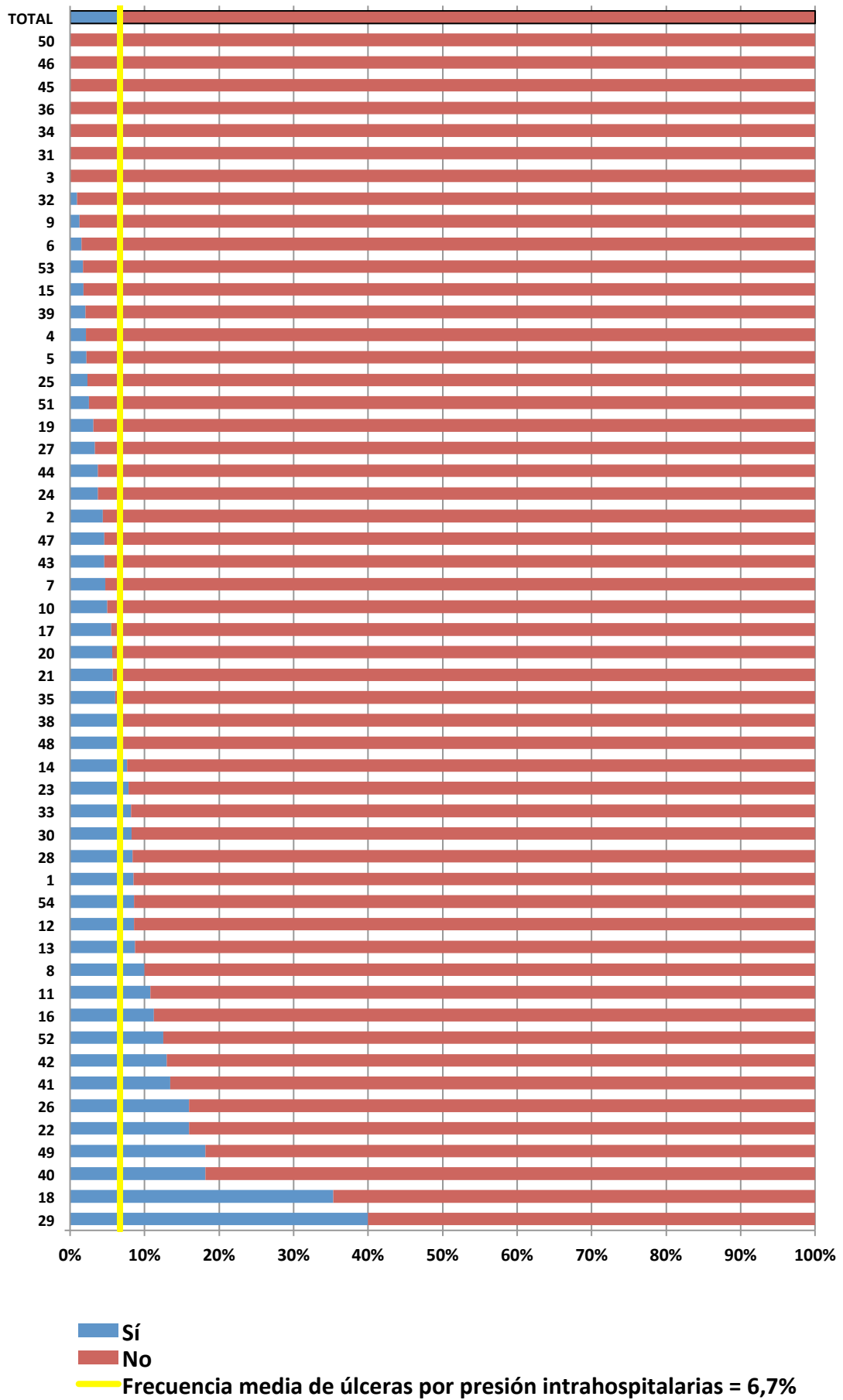
3.6. PRESSURE ULCERS

Table 30 - In-hospital pressure ulcers

		Number of cases	%	Valid %
Pressure ulcers	They effectively have got pressure ulcers	444	6.4	6.7
	They have not got pressure ulcers	6,208	89.2	93.3
	Total	6,652	95.6	100
Lost to follow-up	Unknown	208	3.0	
	Lost data	99	1.4	
	Total	307	4.4	
Total		6,959	100	

Figure 24 - Pressure ulcers by hospital

A 6.7% of patients develop pressure ulcers during admission due to a hip fracture (at least grade II).



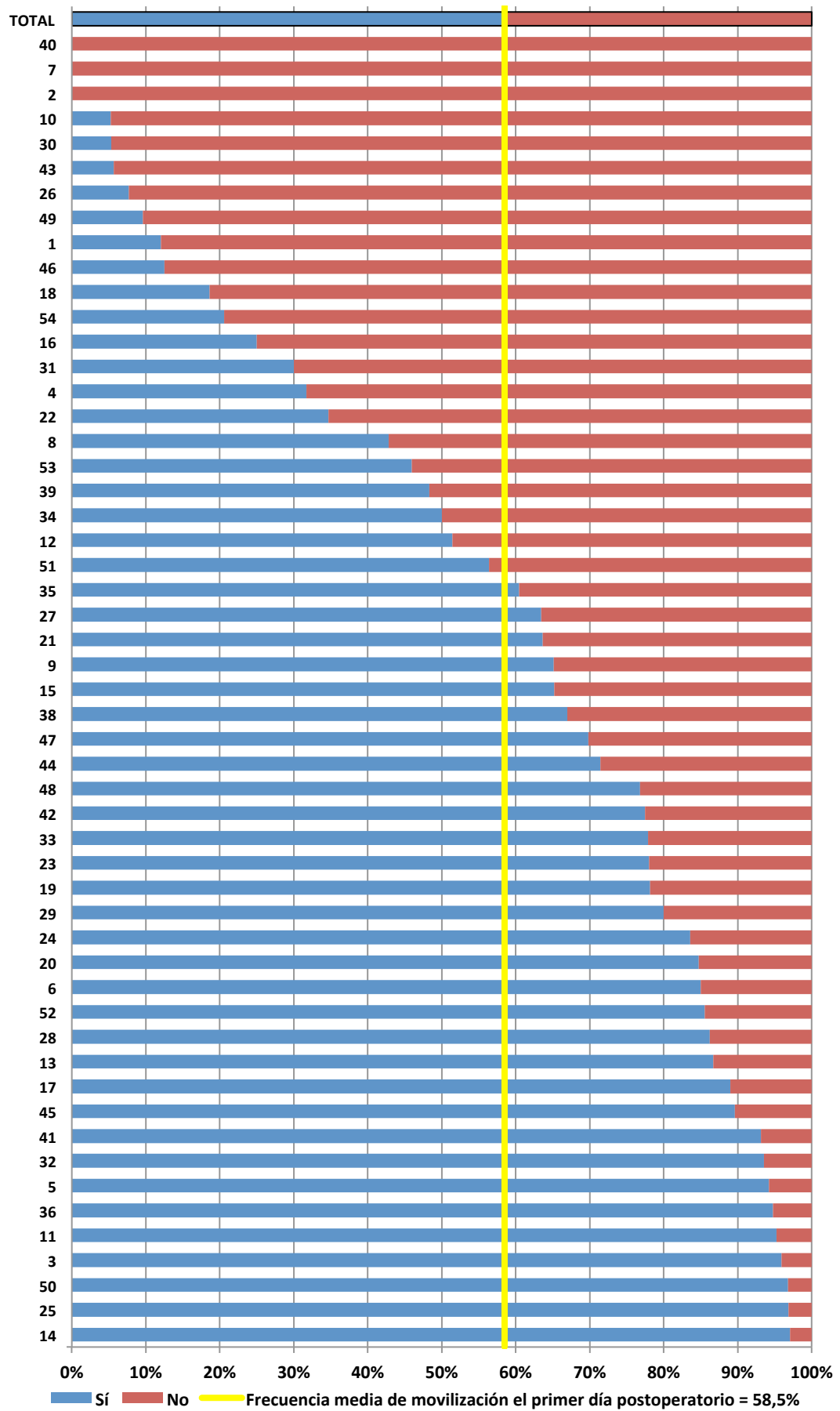
3.7. SITTING ON THE FIRST POST-OPERATIVE DAY

Table 31 - Sitting on the first post-operative day

		Number of cases	%	Valid %
Sitting on the first post-operative day	Effectively sitting on the first post-operative day	3,890	55.9	58.5
	Not sitting on the first post-operative day	2,758	39.6	41.5
	Total	6,648	95.5	100
Lost to follow-up	Non-surgical treatment	97	1.4	
	Lost data	214	3.1	
	Total	311	4.5	
Total		6,959	100	

Figure 25 - Mobility on the first day after surgery by hospital

A 41.5% of patients could not sit the day after the surgery. Variability is very important. There are hospitals that indicate mobility in 97% of their patients the following day and other hospitals that do not indicate it in any case.



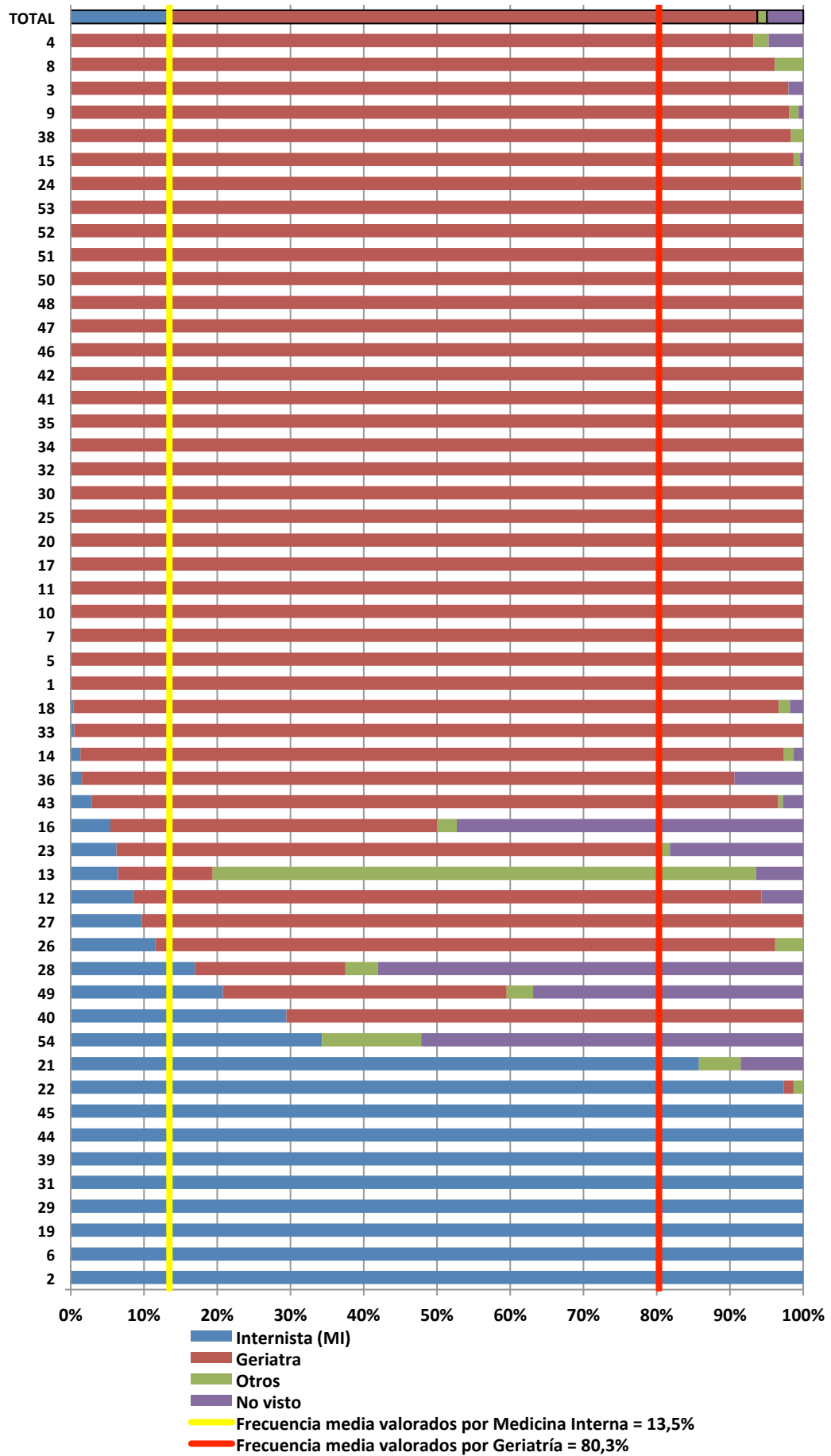
3.8. PHYSICIAN / GERIATRICIAN INVOLVEMENT

Table 32 - Physician / Geriatrician involvement

		Number of cases	%	Valid %
Physician / geriatrician involvement	Internist	928	13.3	13.5
	Geriatrician	5,536	79.6	80.3
	Other	90	1.3	1.3
	Not seen	343	4.9	5.0
	Total	6,897	99.1	100
Lost to follow-up	Unknown	4	0.1	
	Lost data	58	0.8	
	Total	62	0.9	
Total		6,959	100	

Figure 26 - Physician / Geriatrician involvement by hospital

Only 5% of patients are not assessed by a clinician in addition to the surgeon and in most cases (80.3%) they are geriatricians.



3.9. TIME TO SURGERY AND HOSPITAL STAY

Figure 27 - Time to surgery in hours by hospitals

The average time to surgery of the group of patients contributed to the registry is approximately 3 days (75.7 hours), although it varies between 1 and 6 according to the hospitals.

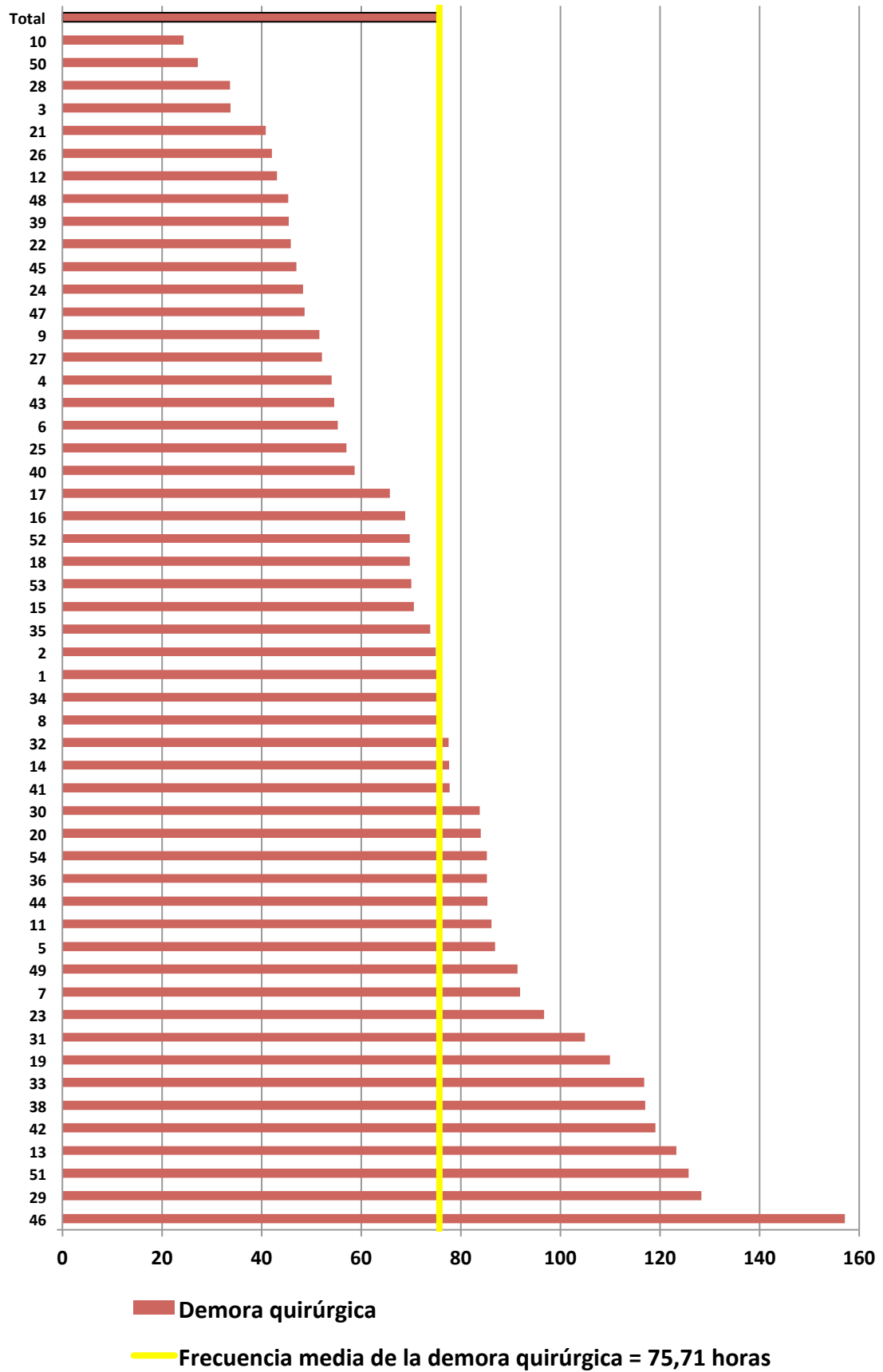
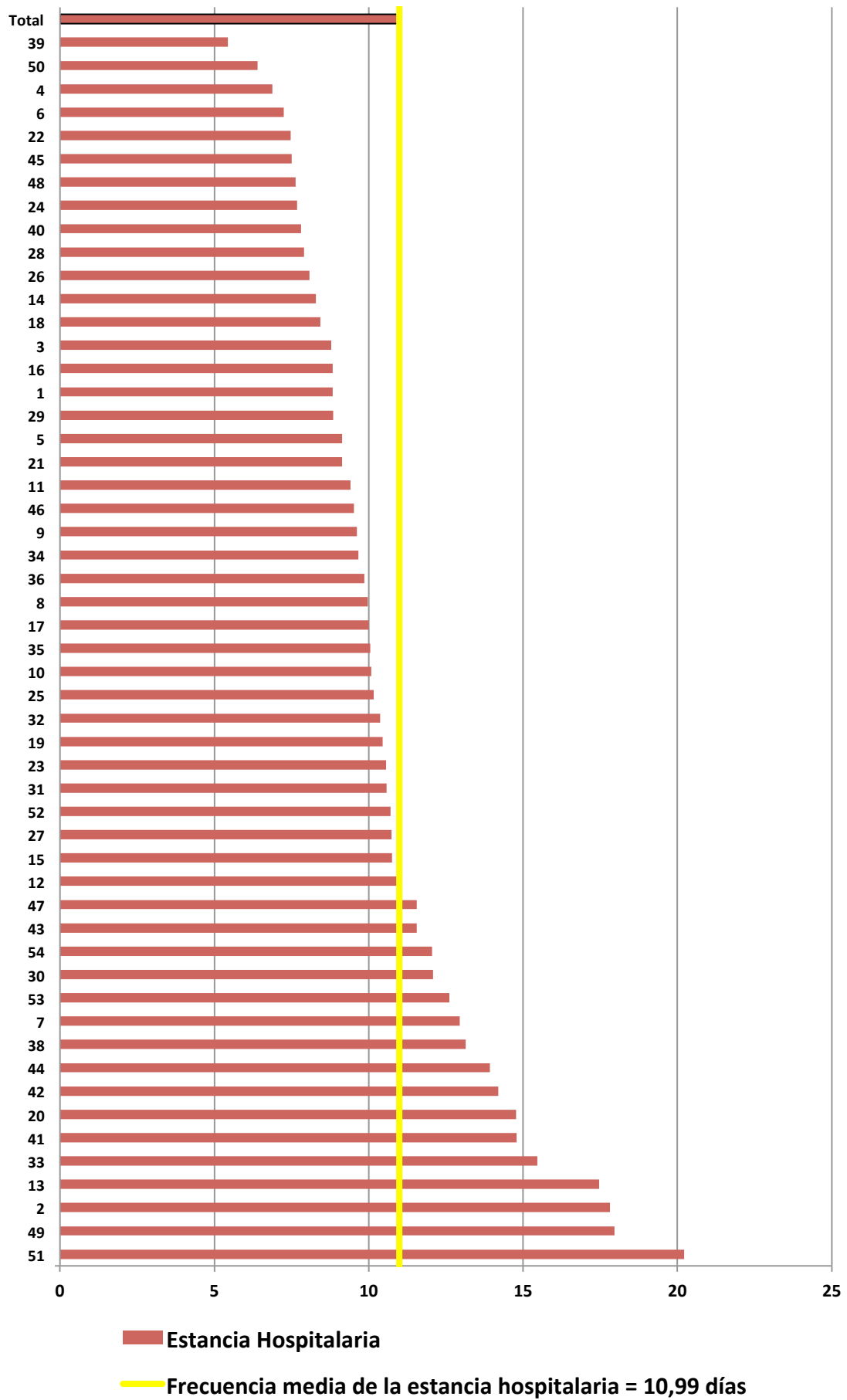


Table 33 - Hospital Stay

		Statistic
Average		10.9927
Standard deviation		6.74473
A 95% confidence interval for the mean	Lower limit	10.8325
	Upper limit	11.1528
Median		9.4451
Minimum		0.00
Maximum		115.61

Figure 28 - Hospital stay in days by hospital

The average hospital stay is 11 days, with a range between 6 – 20 days approximately.



3.10. PRE-FRACTURE MOBILITY AND AT 30 DAYS

- **PRE-FRACTURE MOBILITY**

Table 34 - Pre-fracture mobility

		Number of cases	%	Valid %
Pre-fracture mobility	1 Freely mobile inside and outside the home without aids	1,954	28.1	28.6
	2 Freely mobile inside and outside the home, with one aid	1,427	20.5	20.9
	3 Freely mobile inside and outside the home with two aids or a walking frame	414	5.9	6.1
	4 Freely mobile only inside the home, without aids	561	8.1	8.2
	5 Freely mobile only inside the home, with one aid	671	9.6	9.8
	6 Freely mobile only inside the home, with two aids or a walking frame	626	9.0	9.2
	7 Freely mobile only inside the home, supervised by a person	206	3.0	3.0
	8 Mobile only inside the home, with a little help from a person	303	4.4	4.4
	9 Mobile only inside the home, with a lot of help from a person	312	4.5	4.6
	10 Mobile with two people, or no mobility	360	5.2	5.3
	Total	6,834	98.2	100
Lost to follow-up	11 Unknown	53	0.8	
	Lost data	72	1.0	
	Total	125	1.8	
Total		6,959	100	

That variable has been coded in two categories, deciding the cut-off point in the autonomy of the patient with a walking frame inside the home.

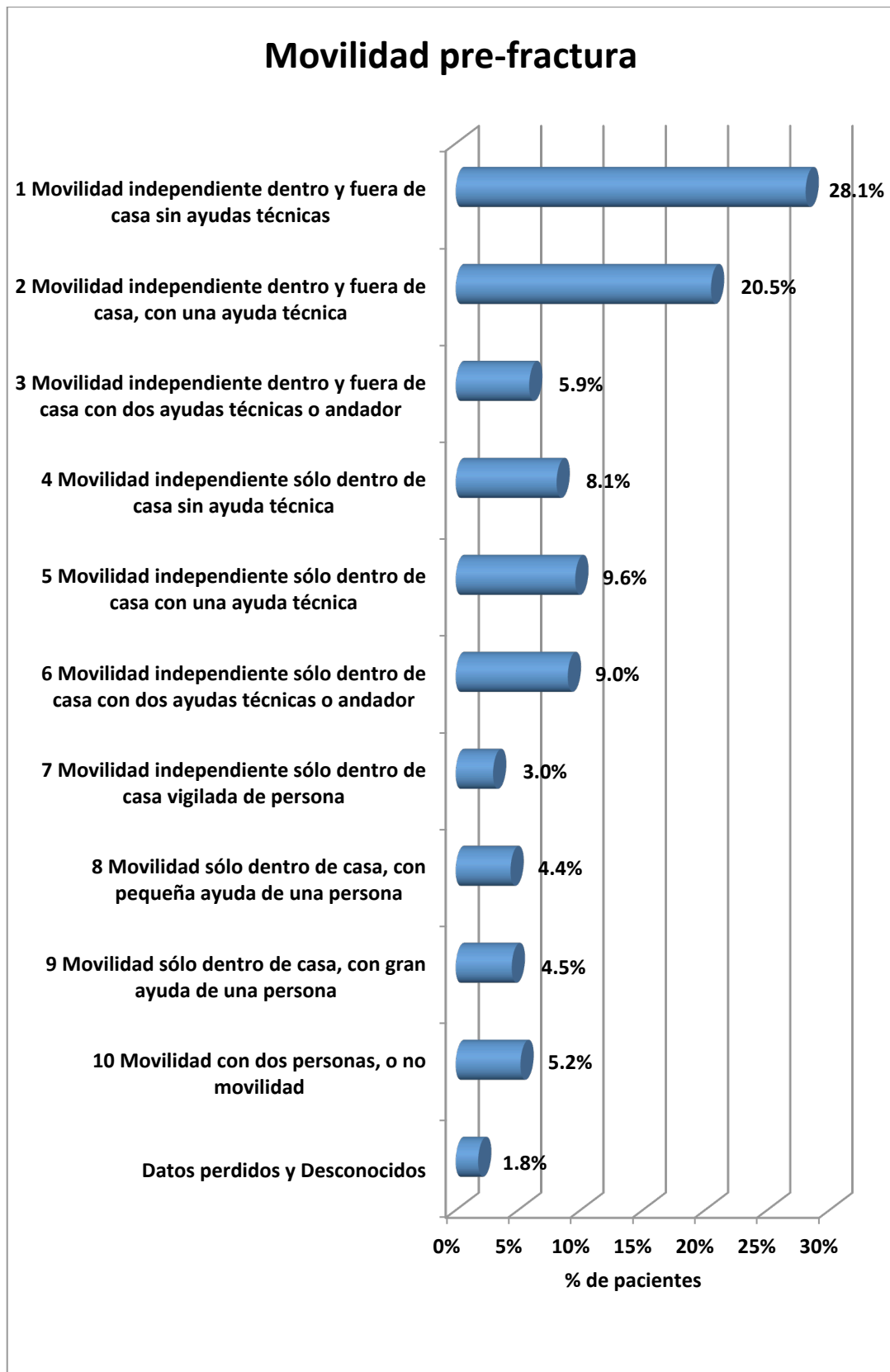


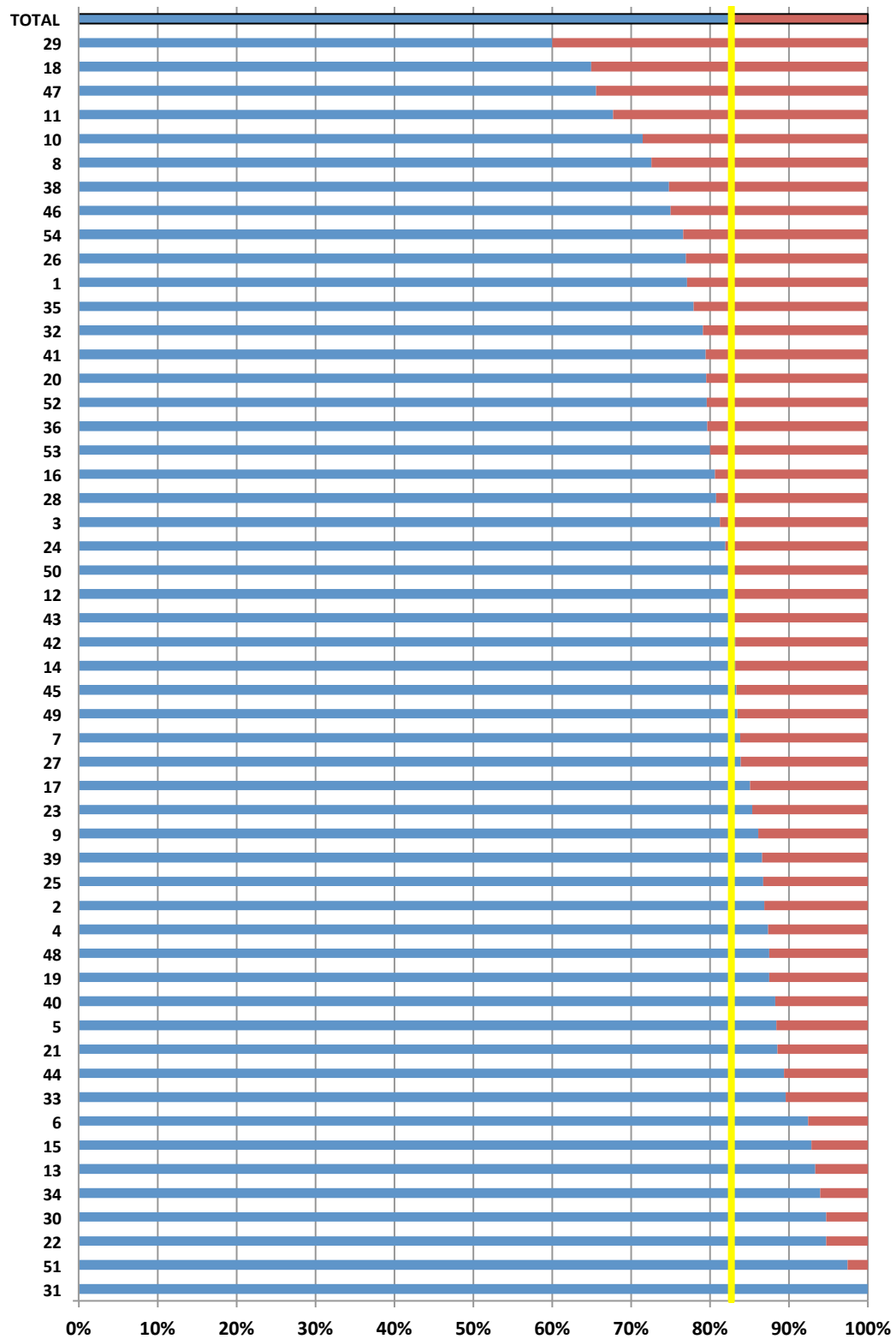
Figure 29 - Pre-fracture mobility

Table 35 - Pre-fracture mobility

		Number of cases	%	Valid %
Recoded pre-fracture mobility	Independent mobility within and/or outside the home (1,2,3,4,5 and 6)	5,653	81.2	82.7
	Mobility within the home with the help of people or not mobility (7,8,9 and 10)	1,181	17.0	17.3
	Total	6,834	98.2	100
Lost to follow-up	Lost data and Unknown	125	1.8	
Total		6,959	100	

Figure 30 - Pre-fracture mobility by hospital

More than 80% of the patients could walk on their own (inside or outside the home), before the fracture.



■ Movilidad independiente dentro y fuera de casa (1,2,3,4,5 y 6)

■ Movilidad dentro de casa con ayuda de personas o no movilidad (7,8,9 y 10)

■ Frecuencia media movilidad independiente dentro y/o fuera de casa pre-fractura = 82,7%

- **MOBILITY AT 30 DAYS**

Table 36 - Mobility at 30 days

		Number of cases	%	Valid %
Mobility at 30 days	1 Freely mobile inside and outside the home without aids	78	1.1	1.4
	2 Freely mobile inside and outside the home, with one aid	567	8.1	9.8
	3 Freely mobile inside and outside the home with two aids or a walking frame	734	10.5	12.7
	4 Freely mobile only inside the home, without aids	129	1.9	2.2
	5 Freely mobile only inside the home, with one aid	388	5.6	6.7
	6 Freely mobile only inside the home, with two aids or a walking frame	1,506	21.6	26.1
	7 Freely mobile only inside the home, supervised by a person	211	3.0	3.7
	8 Mobile only inside the home, with a little help from a person	306	4.4	5.3
	9 Mobile only inside the home, with a lot of help from a person	499	7.2	8.6
	10 Mobile with two people, or no mobility	1,358	19.5	23.5
	Total	5,776	83.0	100
Lost to follow-up	11 Unknown	115	1.7	
	Lost data	1,068	15.3	
	Total	1,183	17.0	
Total		6,959	100	

This variable is grouped as the previous one, in two categories, so that it can be represented by hospital.

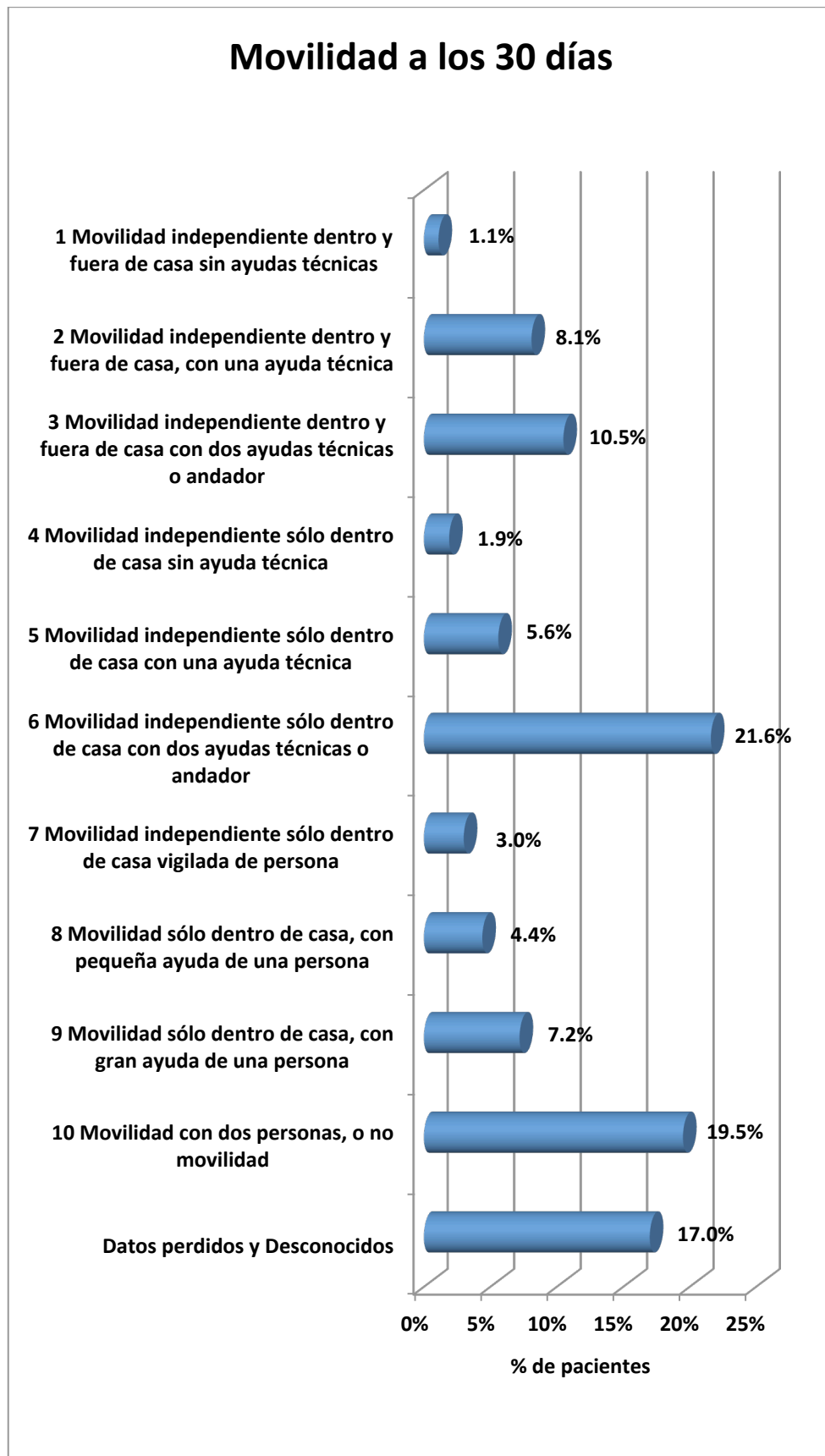


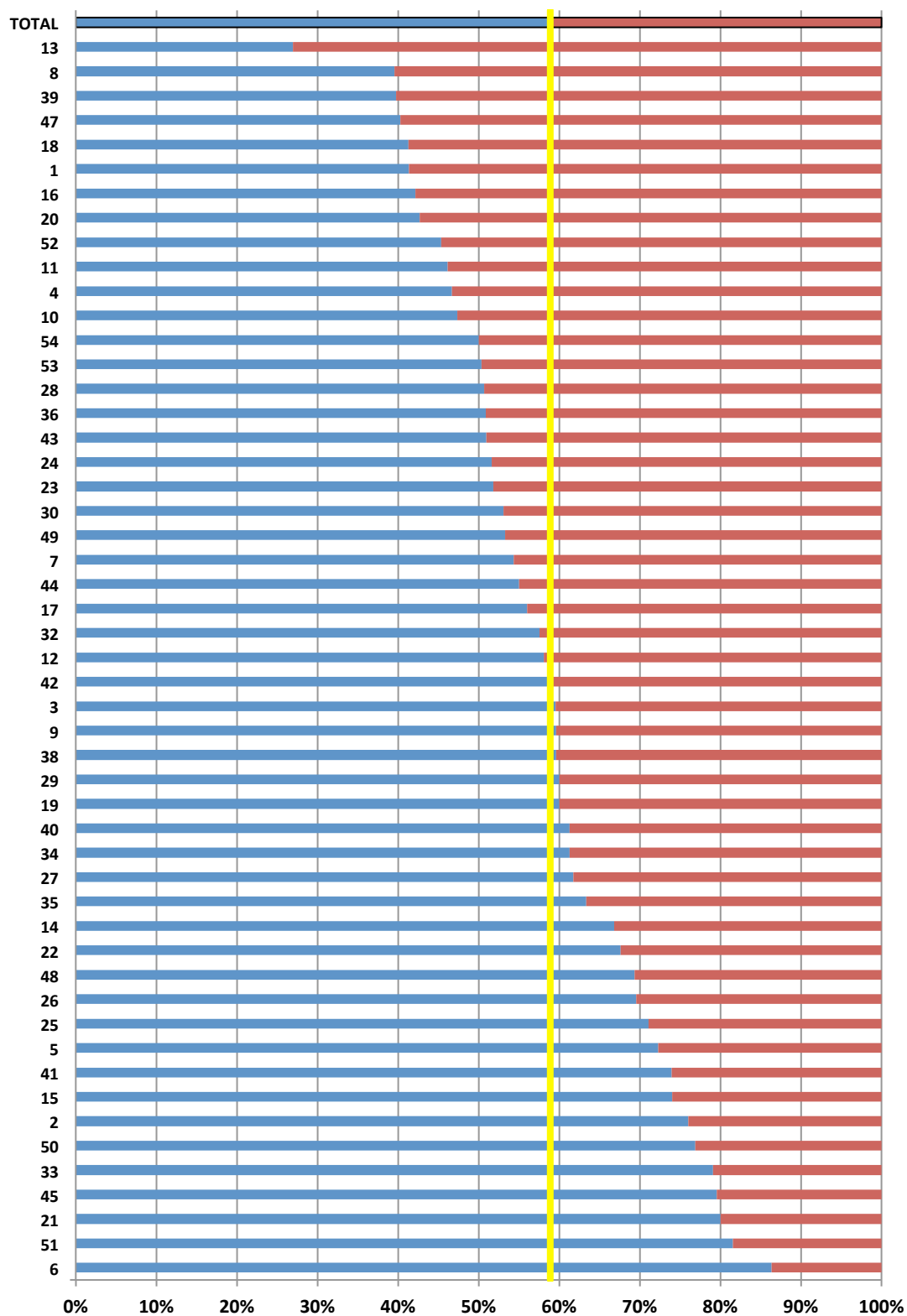
Figure 31 - Mobility at 30 days

Table 37 - Mobility at 30 days recoded

		Number of cases	%	Valid %
Mobility at 30 days recoded	Independent mobility within and/or outside the home (1,2,3,4,5 and 6)	3,402	48.9	58.9
	Mobility within the home with the help of people or not mobility (7,8,9 and 10)	2,374	34.1	41.1
	Total	5,776	83.0	100
Lost to follow-up	Lost data and Unknown	1,183	17.0	
Total		6,959	100	

Figure 32 - Mobility at 30 days recoded by hospital

Only 58% could walk on their own (inside or outside the home), one month after the fracture.



■ Movilidad independiente dentro y/o fuera de casa (1,2,3,4,5 y 6)

■ Movilidad dentro de casa con ayuda de personas o no movilidad (7,8,9 y 10)

■ Frecuencia media movilidad independiente dentro y/o fuera de casa a los 30 días= 58,9%

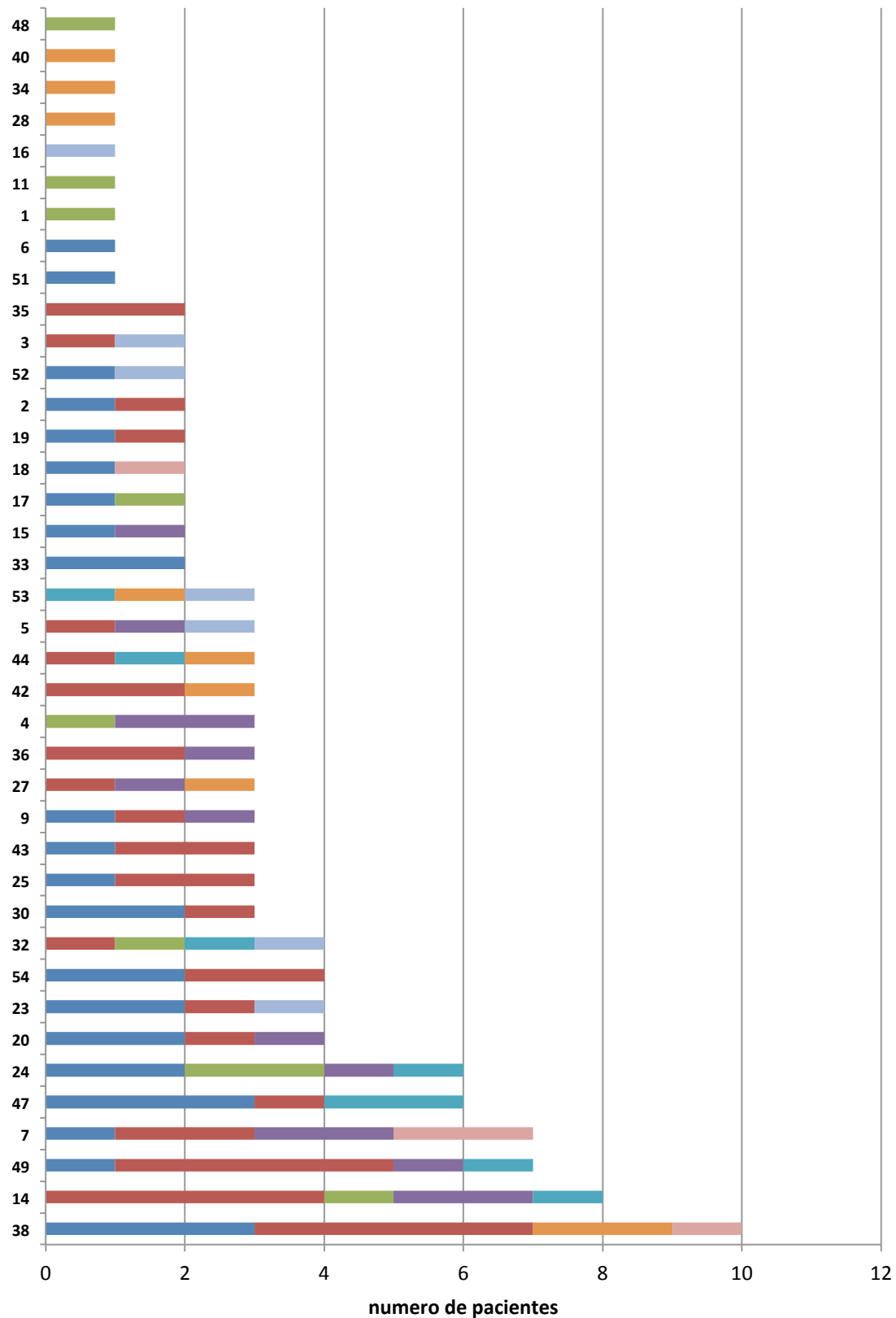
3.11. REOPERATION WITHIN THE FIRST 30 POST-OPERATIVE DAYS

Table 38 - Reoperation within the first 30 post-operative days

		Number of cases	%	Valid %
Reoperation within the first 30 post-operative days	Reduction of dislocated prosthesis	31	0.4	21.1
	Washout or debridement	38	0.5	25.9
	Implant removal	9	0.1	6.1
	Revision of internal fixation	14	0.2	9.5
	Conversion to hemiarthroplasty	8	0.1	5.4
	Conversion to total hip replacement	9	0.1	6.1
	Girdlestone/ excision arthroplasty	7	0.1	4.8
	Periprosthetic fracture management	4	0.1	2.7
	Other	21	0.3	14.3
	Unknown	6	0.1	4.1
	Total	147	2.1	100
Lost to follow-up and Not operated	Not reoperated	5,958	85.6	
	Lost data	854	12.3	
	Total	6,812	97.9	
Total		6,959	100	

The percentage of reoperated patients is 2.1%, including those with "Other" and "Unknown" values, and this represents a total of 147 patients out of 6,959.

Figure 33 - Type of reoperation within 30 post-operative days by hospital (n=120)



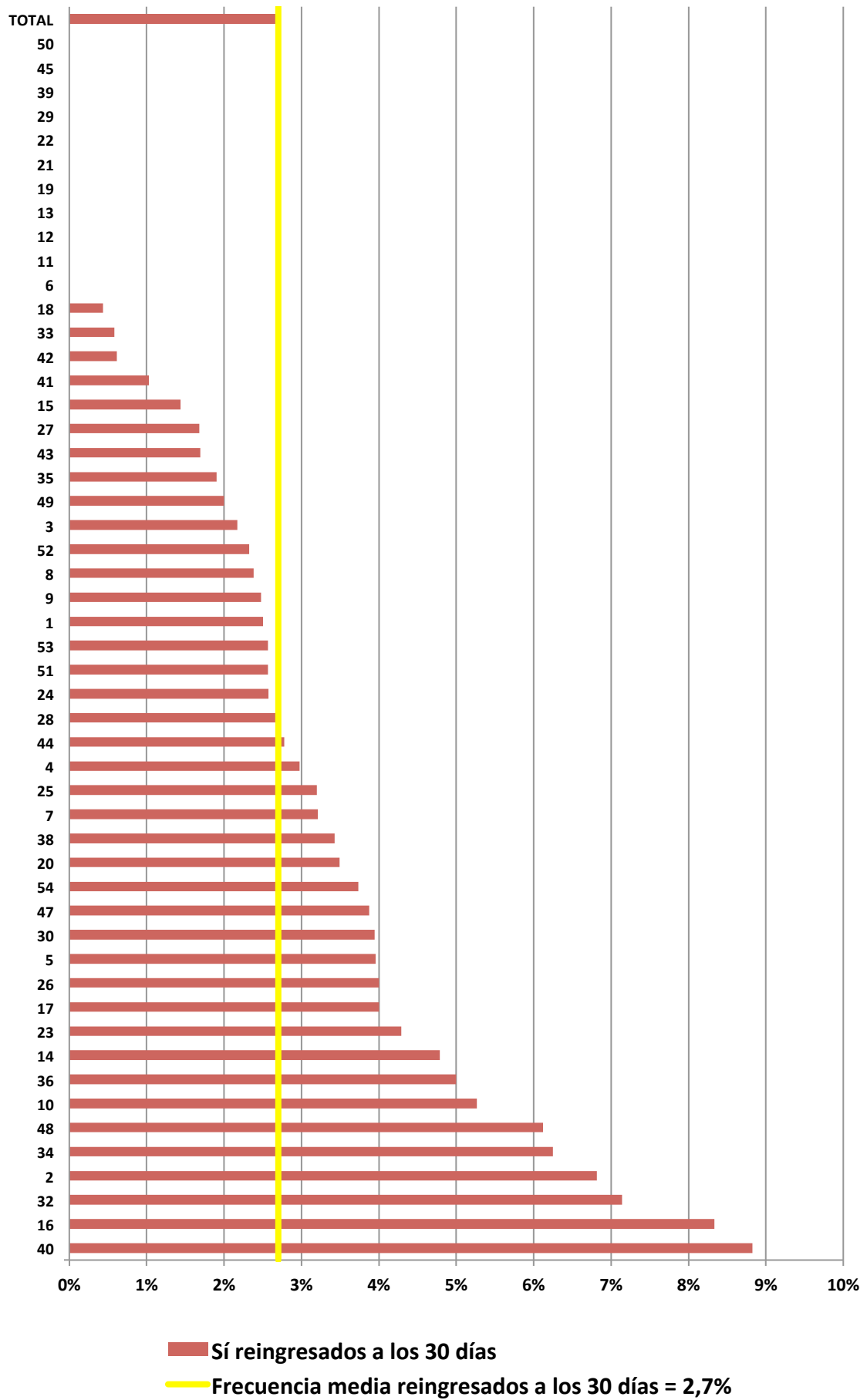
3.12. HIP RELATED READMISSION WITHIN 30 DAYS OF THE HIP FRACTURE

Table 39 - Hip related readmission within 30 days of the hip fracture

		Number of cases	%	Valid %
Readmission at 30 days	No	6,027	86.6	97.3
	Yes	166	2.4	2.7
	Total	6,193	89.0	100
Lost to follow-up	Lost data	766	11.0	
Total		6,959	100	

Figure 34 - Readmission at 30 days by hospital

A 2.7% of patients were readmitted due to complications related to the recent hip fracture.



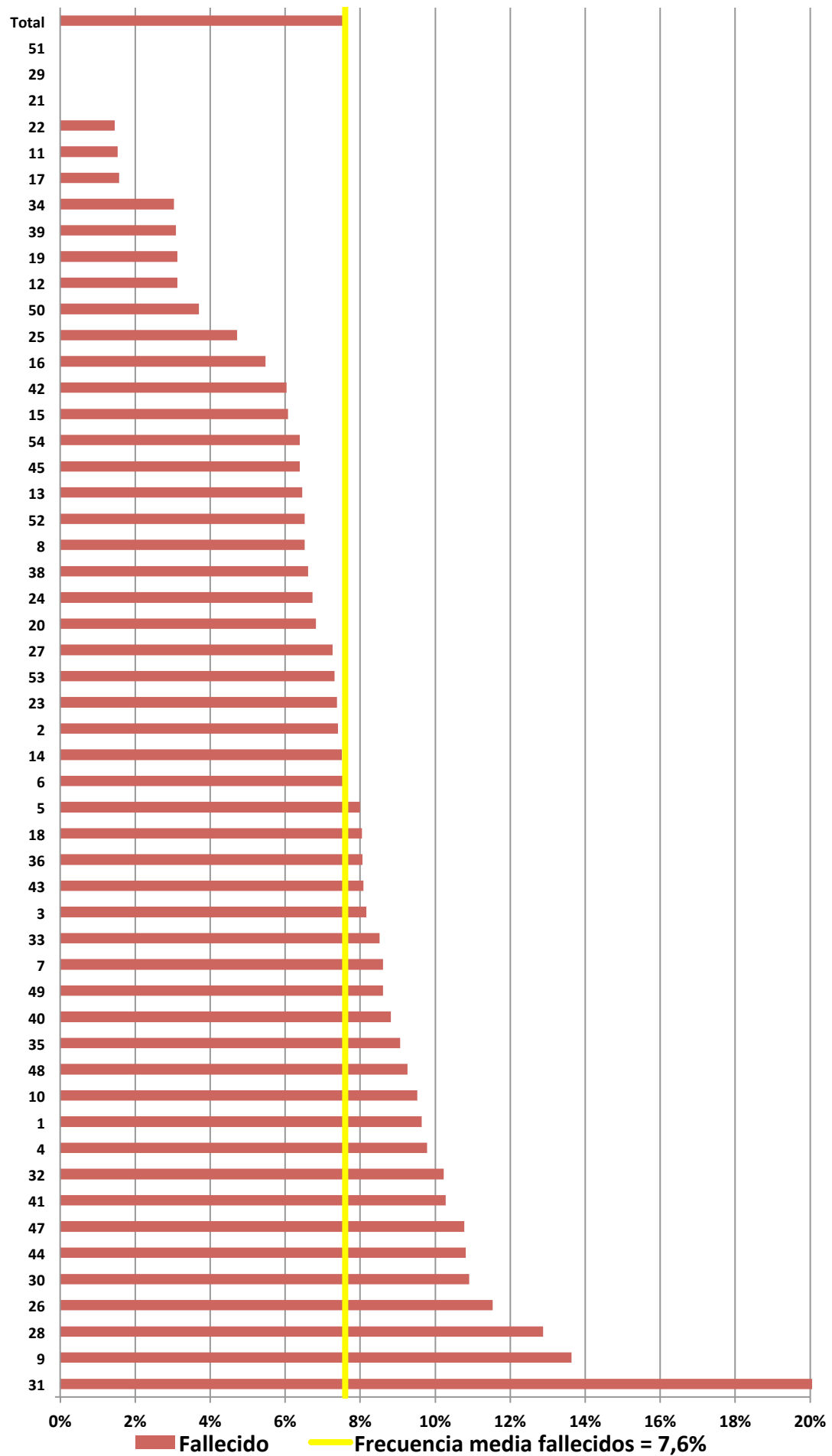
3.13. LIFE STATUS AT 30 DAYS

Table 40 - Accumulated life status at 30 days

		Number of cases	%	Valid %
Valid	Alive	6,061	87.1	92.4
	Deceased	497	7.1	7.6
	Total	6,558	94.2	100
Lost to follow-up	Lost data	401	5.8	
Total		6,959	100	

Figure 35 - Accumulated Mortality at 30 days by hospital

Mortality one month after fracture amounts to 7.6% of patients.



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