



UEMS PRM Section & Board

Clinical Affairs Committee

New accreditation procedure

Programme N011

PRM for elderly patients with increased fall risk

progn011_elderly_fall_risk_2012_1216_accruited.doc

Issue

Version: 2.0

Date of the first version: 27/09/2012

Date of the present version: 13/02/2013

Identification

Title	Doctor
Family name	Dinsenhacher
First name	Andreas
Position	PRM Physician Coordinator of the department of geriatric rehabilitation
Phone	(+352) 2888 - 4701
Email	andreas.dinsenhacher@zitha.lu
Year of Board Certification	2012
Name of unit	Service de rééducation gériatrique
Hospital (facility)	ZithaKlinik S.A.
Address	36, rue Ste Zithe
Post code	L-2763
City	Luxembourg
Country	Luxembourg

Short description of the ZithaKlinik

The ZithaKlinik is an institution of the Congregation of the Sisters of our Lady of Mount Carmel (Carmelite Sisters)



The “Clinique Sainte Thérèse” was founded in 1924 and has developed over the years into a modern and competitive hospital with an actual capacity of 256 beds. Besides being a medical infrastructure with a state-of-the-art technology, the ZithaKlinik is also a training centre for doctors, nursing staff and medical technicians. It can rely on the professional expertise of 791 employees and more than 110 specialists.

The goals, defined in our “Guiding Vision” along with our mission as a general hospital, form the setting for quality

centered services.

The objectives as well as the ethical principles are defined in the 10 chapters of our “Guiding vision”:

1. Within the bounds of our christian values, we combine tradition and future.
2. Our mission is to service man.
3. We respect the dignity of every person in any situation.
4. We take time for loving attention and care.
5. We want to understand each other and make ourselves understood.
6. Trustworthy behaviour generates trust.
7. Leadership means servicing the whole while respecting the individual.
8. We strive for quality and safety through competence.
9. Entrepreneurial and sustainable management will secure our future.
10. We act towards our partners with fairness, reliability and esteem.

The ZithaKlinik is graded a “general hospital” within the Luxembourgian Hospital Plan and, together with the “Hôpital Kirchberg” and the “Centre Hospitalier” ensures the emergency service of the centre of Luxembourg.

The medical activity is guaranteed through 9 nursing departments as well as an interdisciplinary intensive care unit with 12 beds. Next to a dialysis unit with 12 beds and diagnostic wards like radiology, nuclear medicine, endoscopy and department for cardio-pulmonary function tests, the outpatient care is carried out by an outpatient department and a day clinic with 30 places.

Historical development

- 1914 – 1918 Field hospital in a building of the Zitha Convent
- 1921 Extension of the field hospital into the “Clinique Sainte Thérèse”
(Patron Saint : St Teresa of Avila)
- 1924 Expansion to 40 beds
- 1925 New construction of the „Clinique Ste Thérèse“ (80 beds – the actual A-Building)
- 1939 Extension of the A-Building to a total of 120 beds
- 1952 Opening of the B-Building with a total of 230 beds in the clinic
- 1965 Construction of the nursing school
- 1978 Construction of the „Centre Médical“
- 1985 Completion of the C-Building with a total of 250 beds
- 1997 Opening of the D-Building with its nuclear medical ward, central kitchen, cafeteria,
central depot, technical facilities and offices
- 2001 Reduction of 24 beds in the context of the new Hospital Plan (18.04.2001) to a total
number of 226 beds
- 2005 Extension of the outpatient department and the radiology ward with the installation of
a magnetic resonance imaging (MRT) system
- 2007 Opening of the geriatric rehabilitation ward with 30 beds, increasing the total number
of beds to 256 (The total number of all Luxembourg geriatric rehabilitation beds is
105.)
- 2009 Opening of the geriatric day clinic (focus on 15 day care treatment places, 5
treatment places to begin with)
- 2009 Opening of the “ZithaGesondheetsZentrum” (ZGZ) within the refurbished building of
the former nursing school
Installation of the management’s and administration’s offices in the ZGZ

Content:

I. SUMMARY	7
II. GENERAL FOUNDATIONS OF THE PROGRAMME	8
A. PATHOLOGICAL AND IMPAIRMENT CONSIDERATIONS	8
1. <i>Aetiology</i>	8
2. <i>Diagnosis approach</i>	8
3. <i>Natural history and relationship to impairment</i>	8
4. <i>Prognosis</i>	8
5. <i>Impairment treatment principles</i>	9
B. ACTIVITY LIMITATIONS AND PARTICIPATION RESTRICTIONS	9
C. SOCIAL AND ECONOMIC CONSEQUENCES	9
1. <i>Epidemiological data</i>	9
2. <i>Social and economic data</i>	10
D. LEGAL FRAMEWORK.....	11
E. MAIN PRINCIPLES OF YOUR PROGRAMME	11
III. AIMS AND GOALS OF THE PROGRAMME	12
A. TARGET POPULATION.....	12
1. <i>Inclusion/exclusion criteria</i>	12
2. <i>Referral of patients</i>	13
3. <i>Stage of recovery</i>	13
B. GOALS OF THE PROGRAMME	13
1. <i>In terms of body structure and function</i>	14
2. <i>In terms of activity</i>	14
3. <i>In terms of participation</i>	14
IV. ENVIRONMENT OF THE PROGRAMME	16
A. CLINICAL SETTING	16
B. CLINICAL PROGRAMME.....	16
C. CLINICAL APPROACH.....	16
D. FACILITIES	17
V. SAFETY AND PATIENT RIGHTS	18
A. SAFETY.....	18
B. PATIENT RIGHTS.....	19
C. ADVOCACY.....	20
VI. PRM SPECIALISTS AND TEAM MANAGEMENT	21
A. PRM SPECIALISTS IN THE PROGRAMME	21
B. TEAM MANAGEMENT	21
VII. DESCRIPTION OF THE PROGRAMME	23
A. TIME FRAME OF THE PROGRAMME	23
1. <i>Phases of the programme</i>	23
B. ASSESSMENT	24
1. <i>Disease and impairment - diagnosis approach</i>	24
2. <i>Activity</i>	25
3. <i>Participation - environmental and personal factors</i>	25
C. INTERVENTION.....	26
1. <i>The following components are core elements of the programme:</i>	26
2. <i>PRM specialist intervention (other than follow up and complications management)</i>	27
3. <i>Complications management</i>	27
D. DISCHARGE PLANNING AND LONG TERM FOLLOW UP	27

VIII. INFORMATION MANAGEMENT	28
A. PATIENT RECORDS	28
B. MANAGEMENT INFORMATION	28
C. PROGRAMME MONITORING AND OUTCOMES	33
IX. QUALITY IMPROVEMENT	35
A. WHICH ARE THE MOST POSITIVE POINTS OF YOUR PROGRAMME?	35
B. WHICH ARE THE WEAKEST POINTS OF YOUR PROGRAMME?	35
C. WHICH ACTION PLAN DO YOU INTEND TO IMPLEMENT IN ORDER TO IMPROVE YOUR PROGRAMME? ..	35
1. <i>Extrinsic conditions</i>	35
2. <i>Intrinsic improvement</i>	36
X. REFERENCES	37
A. LIST OF REFERENCES	37
B. NATIONAL DOCUMENTS	38

I. Summary

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33

ZithaKlinik S.A. is regularly confronted with admissions of elderly people due to sudden falls that lead to an important number of detrimental health consequences.

By identifying those individuals demonstrating low gait stability and consequently a higher risk of falling, specific training programmes can be proposed to them and be implemented in everyday care and support activities.

Preventing falls, reducing risk factors and fall-related psychological and physical injuries, by maintaining the patient's autonomy is our priority in the Geriatric Rehabilitation Unit. We integrate fall risk assessment in a structured pathway.

Our programme addresses fall risk and fall prevention strategies for frail ageing people.

Patients are examined, evaluated and assessed with respect to target risk factors of falls. Based on assessment results, strategies to prevent falling hazard are proposed. They may participate in the programme for fall prevention in an ambulatory or in-patient unit.

Multidisciplinary intervention targeting multiple risk factors is effective in reducing the incidence of falls, whilst strength, balance, vision, body awareness and reaction time is individually assessed and trained in groups of patients by health professionals.

For patients' assessment, we use a series of tools and tests such as Tinetti, Timed Up and Go, Stratify, GAITRite, the functional independence measure (FIM) and other individually adapted programmes for training safe mobility.

The geriatric assessments are multidisciplinary and rely on a core team consisting of a coordinating PRM physician, a general practitioner, several nurses, a social worker, several physical and occupational therapists and a psychologist. Other professionals are included when needed. For example, a dietician may be needed to assess dietary intake and provide recommendations to optimize nutrition. A neurologist may be questioned on the causes which may affect the neurologic assessment of an old person.

Our geriatric rehabilitation unit provides objective data about the PRM strategy outcomes, on the basis of initial and final assessments, e.g. Functional Independence Measure or balance and gait measures.

Multiple indicators, such as aetiologies, rehabilitation programme types, functional outcomes, mortality rate and home returning rate are analysed on a quarterly basis. When leaving the Geriatric Rehabilitation Department, home visits by the occupational therapist and the social worker are proposed from case to case.

II. General foundations of the Programme

A. Pathological and impairment considerations

1. Aetiology

Scientific literature indicates that normal walking depends on several components including muscle strength, peripheral sensibility, free mobility of joints, neuromuscular and motor control as well as normal sensory input (Lord et al., 2007). Gait and balance disorders have many causes and numerous therapeutic approaches exist. Gait problems adversely affect up to approximately 40% of elderly people while half of the problems are severe (Rubenstein, 2006). Often, an injurious fall is the first symptom of a gait disorder (Sattin, 1992), see Y.J. Gschwind et al.: *Gait Disorders and Falls*, *GeroPsych*, 23 (1), 2010, 21–32.

Falls are often caused by environment-related accidents, gait and balance disorders, weakness and several forms of dizziness, drop attacks or syncope. Other specific causes include neurological disorders, cognitive deficits, poor vision, drug side effects, alcohol intake, anaemia, hyperthyroidism, unstable joints, foot problems, osteoporosis and chronic illness (American Geriatrics Society, British Geriatrics Society & American Academy of Orthopedic Surgeons Panel on Falls Prevention, 2001; Fuller, 2000; Todd & Skelton, 2004). Consequently, since most old adults have multiple identifiable risk factors, it is difficult to determine one specific cause for falling, see Y.J. Gschwind et al.: *Gait Disorders and Falls*, *GeroPsych*, 23 (1), 2010, 21–32.

Therefore, we may say that falls are a marker of frailty, immobility as well as acute and chronic health impairment in elderly people. Falls in turn diminish function by causing injury, activity limitations, fear of falling and loss of mobility. Most injuries in the elderly are the result of falls; fractures of the hip, forearm, humerus and pelvis usually result from the combined effect of falls and osteoporosis, see Berg, R. L., & Cassells, J. S. (1992). *The Second Fifty Years: Promoting Health and Preventing Disability*. National Academy Press.

2. Diagnosis approach

Literature shows that many impairments, disabilities, and conditions repeatedly have been found to be associated with the risk of falls in the elderly. This risk appears to increase with the number of risk factors which an old person has, so that this person is more likely to fall.

Approaches to prevent falls and their consequences should focus on the medical, psychological, and health care after-effects of the fall and attendant injuries. These after-effects affect the degree of damage and disability resulting from the fall.

3. Natural history and relationship to impairment

Falls are seldom the result of a single cause, but rather often represent a multi-factorial occurrence including intrinsic and extrinsic factors. Individuals with gait and muscle dysfunctions demonstrate a substantially increased risk of falls and fractures compared to healthy older adults (Rubenstein, 2006). Many falls are caused by accidents, environmental hazards, gait problems, and muscular weakness. The most common risk factors for falls are muscle weakness (OR = 4.4), history of falls (OR = 3.0) and gait and balance deficits (OR = 2.9) (AGS, 2001; Rubenstein & Josephson, 2002). see Y.J. Gschwind et al.: *Gait Disorders and Falls*, *GeroPsych*, 23 (1), 2010, 21–32.

4. Prognosis

Diagnosis and prognosis are based on a multidisciplinary geriatric assessment, including a gait analysis as a standard tool in the prevention of falls. The comprehensive geriatric assessment includes the evaluation of the patient in several domains, like physical, mental,

1 social, economic, functional and environmental aspects, with the goal of guiding the
2 selection of interventions to restore or preserve health.

3 Evidence on improving gait stability with an associated reduction of the risk of falling
4 remains relatively scarce. Importantly however, a recent paper by Segev-Jacobovski et al.
5 (2011) reviewing research literature on the interplay between gait, falls, and cognition
6 concludes that cognitive therapy is likely to improve motor function (and hence reduce falls
7 in old adults). Importantly, this conclusion has been confirmed by a recent study, where the
8 influence of specific multitasking exercises demonstrated improvements in balance and
9 various gait parameters under dual task conditions, with a reduced rate of falls (Trombetti
10 et al., 2011). This finding suggests that specific exercises addressing attention-specific
11 functions and the ability of multitasking have a positive effect on gait safety.

12 The pathway for adults with a high fall risk defines short-term, mid-range and long-term
13 goals, involving patient education and training.

14 **5. Impairment treatment principles**

15 There is a substantial heterogeneity in the health and functional status of elderly patients
16 and the diverse causes of falls reflect this heterogeneity. We believe that the success of
17 preventive efforts may depend on the ability to target interventions in such a way that the
18 most important risk factors are targeted in subgroups of the population.

19 The patients' treatment is first based on a multidisciplinary comprehensive geriatric
20 assessment to which every elderly patient identified with increased fall risk has access in
21 our hospital.

22 With this approach, physical performance and mobility are evaluated in the context of the
23 usual activities of daily living. By a detailed and systematic analysis of various gait
24 parameters (e.g. velocity, cadence, stride time variability, stance time variability, double
25 support time variability), medical staff and therapists become aware of the specific gait
26 disorder that has to be addressed in order to substantially reduce the risk of falling.

27 Gait training for individuals with gait abnormalities are standard in our treatment principles.
28 Specific rehabilitative training for falls and injury prevention address the following goals: 1)
29 strengthening muscles and increasing endurance; 2) maintaining and improving posture,
30 joint motion, and postural reflexes; 3) stimulating cardio-respiratory function and 4)
31 improving alertness.

32 ***B. Activity limitations and participation restrictions***

33
34 The main limitations and participation restrictions are mostly influenced by the impaired
35 body structures functions, like muscle weakness, pain, limitation of joint motion, gait and
36 balance deficits.

37 ***C. Social and economic consequences***

38 **1. Epidemiological data**

39 According to a recent review by Gschwind et al. (2010), approximately 30% of persons
40 aged 65 and above fall each year. Falls often have detrimental effects on the mobility of old
41 adults, leading to substantial reductions in activities of daily living and lead furthermore to
42 institutionalizations, polymorbidity and even mortality (Gschwind et al., 2010; Verghese et
43 al., 2006).

44 According to the 2011 national statistics of the Ministry of Health, patients aged over 65
45 represent 44% of hospitalized patients although they represent 14% of the population
46 ([http://www.sante.public.lu/fr/exposes/conference-nationale-sante/2012/7eme-conference-
47 nationale-sante/Lair-MLL.pdf](http://www.sante.public.lu/fr/exposes/conference-nationale-sante/2012/7eme-conference-nationale-sante/Lair-MLL.pdf)).

2. Social and economic data

Serious falls in hospitalized patients, correlates with resource utilization (Bates DW, Pruess K, Souney P, Platt R., American Journal of medicine, 1995), Injuries due to falls increase health care costs. Patients who fall and maintain injuries are reported to have more hospital charges than patients who do not fall.

According to the national statistics of 2009, patients aged over 65 who were hospitalized for fractures (according to ICD 10), had a hospital stay of 11'799 days (= sum of all hospitalization days for patients aged 65-99 hospitalized for fractures) of which patients aged > 85 stayed for 3'460 days. (*Definition of a hospital stay in LU: presence of the patient at midnight in a hospital bed.*)

	65-69	70-74	75-79	80-84	85-89	90-94	95-99
Remplac. Genou+ Hanche	3071	3989	4215	2647	705	176	0
Fractures	523	963	1654	2999	3460	1598	602
Cancers	3860	3847	4443	2183	1444	163	57
Mal Cardio + Cérébro vascul	3850	5445	7461	10161	6502	2040	687
Insuffisance Rénale	685	1048	841	935	689	149	
Démences Vascul + Alzheimer	/	/	1072	1757	2296	503	187
Cataracte	636	1168	1478	1260	/	/	/
Problèmes pulmonaires	/	1134	1820	1935	2015	609	148

Source IGSS 2009, JH+ESJM opposables, CHL+CHEM+CHK+CHdN+Zitha+CSM

In 2010, the governmental authorities from 22 countries signed up for having by 2015 one common hospital-based injury data collection system in all European Member States. Such a system should report on external causes of injuries due to accidents and violence and it should become an integrated part of the existing programme for exchange of Community Statistics on Public Health.

Since February 2012, our emergency department has participated in the injury data collection system.

The results obtained for the implementation phase as of February 2012 December 2012 are as follows:

75.9% of persons aged 65+ admitted to the emergency department presented a fall.

With advanced age, the proportion of falls increases from 64% (ages 65-74) to 85-86% (ages 80-89), 92% (90-94) and 100% for persons aged 95+.

These falls cause 89.3% fractures, 84.3% contusions, 65.7% wounds, 75% distortions for the age class of 65+.

Injuries due to falls increase health care costs. Patients who fall and maintain injuries are reported to have more hospital charges than patients who do not fall.

Prevention of falls in the hospital setting and a PRM for elderly patients with increased fall risk is an important patient safety and public health issue.

1 **D. Legal framework**

2 This paragraph contains a listing of actually applicable legal frameworks for the Luxembourg public
3 health sector, especially for hospital settings.

- 4
- 5 • Loi du 28 août 1998 sur les établissements hospitaliers (Mémorial A – N° 78 du 18 septembre 1998, p. 1564; doc. parl. 3937)
 - 6 • Règlement grand-ducal du 13 mars 2009 établissant le plan hospitalier national et déterminant les missions et la composition minimales des structures d'évaluation et d'assurance qualité des prestations hospitalières et les modalités de coordination nationale de ces structures (Mémorial A - N° 54 du 23 mars 2009)
 - 7
 - 8
 - 9
 - 10 • Projet d'établissement de la ZithaKlinik S.A.
 - 11 • Loi du 17 décembre 2010 portant réforme du système de soins de santé et modifiant:
 - 12 1. le Code de la sécurité sociale; 2. la loi modifiée du 28 août 1998 sur les
 - 13 établissements hospitaliers. (Mémorial A - N° 242 du 27 décembre 2010)
 - 14 • Règlement grand-ducal du 7 octobre 2010 établissant le code de déontologie de
 - 15 certaines professions de santé

16 **E. Main principles of your programme**

17 Preventing falls, reducing risk factors and fall-related psychological and physical injuries,
18 by maintaining the patient's autonomy are the main goals of our PRM programme.

19 Multiple indicators like aetiologies, rehabilitation programme type, functional outcome,
20 decrease rate and home returning rate are analysed on a quarterly basis. Before leaving the
21 rehabilitation geriatric department, home visits by the occupational therapist and the social
22 worker are proposed.

23 The following major components are evaluated:

- 24 • Functional capacity
- 25 • Fall risk
- 26 • Cognition
- 27 • Mood
- 28 • Polypharmacy
- 29 • Nutrition/weight change
- 30 • Social support
- 31 • Gait speed measurement to identify older adults at high risk of functional decline.

32 The programme is defined as a multidisciplinary diagnosis and treatment pathway that
33 identifies medical, psychosocial, and functional capabilities of old frail adults in order to
34 develop a coordinated plan to improve overall autonomy.

III. Aims and goals of the Programme

A. Target population

1. Inclusion/exclusion criteria

In principle, we try to meet the demands of physicians in charge, who refer the patients to the Geriatric Rehabilitation Unit. A priority is given to in-patients from our hospital, but patients hospitalized in another hospital or referred by other specialists have direct access to the rehabilitation programme.

The existing specific criteria used to identify patients who will benefit from the programme, are:

- Frailty
- Specific geriatric conditions, such as functional disability (previous fall or fall risk)
- Patients admitted with fractures
- Cognitive decline

Our PRM programme focuses on every elderly person who suffers from a fall-related injury, who may suffer from a cognitive impairment or who may have a gait or balance impairment.

The “PRM programme for frail elderly with increased fall risk” has been developed to be performed in a geriatric care unit or in ambulatory care for patients presenting with the following problems:

- History of a fall
- Injury after a fall
- Gait disorders
- Fear of falling
- Increased vulnerability
- Cognitive decline
- Parkinson disease
- Cardio vascular disease
- Alteration of health status
- Syncope
- Osteoarthritis
- Cognitive impairment
- History of stroke

In practice, patients are rarely excluded, only when presenting serious or life threatening reasons which require an appropriate treatment in another specialized area, like an MRSA infection, which requires isolation or the intensive care unit or the psychiatry unit. Nevertheless, an individual treatment programme is performed in case a person infected with MRSA could not join a group intervention.

2. Referral of patients

Direct access to the PRM programme	Yes
Referral from general practitioners	Yes
Referral from other specialists	Yes
Referral from specialists in PRM	Yes

Since the geriatric rehabilitation unit is part of the hospital setting, most of our patients are referred by the physician in charge, e.g. orthopedist or neurologist. Nevertheless, patients can be referred from their general practitioner or other health care institutions or nursing homes.

3. Stage of recovery

Within two weeks of onset	No
2 weeks to 3 months after onset	Yes
3 months or longer after onset	Yes

The last three years show that a stage of recovery was not reached within 2 weeks of onset, but patients have a length of 3 weeks at least. A possible explanation might be the high age of our patients.

The road to recovery for hip fracture patients for instance, is long and most patients may not regain their pre-fracture functional status, see Hung WW et al. (2012).

Many younger, previously reasonably fit patients will recover quickly and can be discharged quickly with the remaining problems being addressed on an outpatient basis or by domiciliary therapy services. Others, largely because of co-morbidity or pre-existing impairments will be deemed unlikely to recover sufficient function to be sustained independently at home and will require continuing care, see Givens JL et al. (2008).

In our rehabilitation unit, Case Conferences take place at weekly intervals. Progress is evaluated there and new goals are set.

The different therapies are progressively adapted according to the patient's health status.

In the chapter III A I we describe further indications for which patients are admitted.

B. Goals of the programme

The overall goals are to avoid further or new falls and to improve the quality of life of the frail elderly.

Falls are one of the leading causes of co-morbidity in the elderly and in the disabled population. The goals of the Falls Prevention Programme are to identify individuals who are at risk for falling, to identify the specific risk factors that put each individual at risk, and to provide them with the services and education necessary to reduce their risk of falling.

Physical and occupational therapy will be directed at increasing both mobility and safety, by specifically targeting the deficits that place the individual at the greatest risk for falling:

Physical therapy will be recommended to address the needs of those patients with musculoskeletal or sensory motor impairments, vestibular impairments or functional mobility deficits. Physical therapy goals will be directed at reducing the individual fall risk, minimizing the effects of these impairments, and increasing the patient's capability for safe functional mobility.

Occupational therapy will be recommended to address the needs of those individuals with visual or cognitive impairments or deficits in activities of daily living or home management.

Occupational therapy goals will be directed at reducing the individual's fall risk by minimizing the effects of these impairments and maximizing the individual's safety with functional mobility and daily activities.

1. In terms of body structure and function

The programme contains a progressive strength and flexibility training, challenging balance, gait and motor coordination training and progressive endurance training.

Strength training includes progressive body weight-bearing exercises and functional power training. Balance training contains, for example, standing balance, dynamic weight transfers and stepping strategies.

Gait training involves specific correction of walking techniques (e.g. posture, length of stride and cadence) and changes of pace, level and direction. Balance training involves the efficient transfer of bodyweight from one part of the body to another or challenges specific aspects of the balance systems (e.g. vestibular system).

We refer to the following ICF codes:

ICF code	ICF label
b 114	Orientation functions
b710	Mobility of joint functions
b730	Muscle power functions
b735	Muscle tone functions
b750	Motor reflex functions
b755	Involuntary movement reaction functions
b760	Control of voluntary movement functions
b765	Involuntary movement functions
b770	Gait pattern functions

2. In terms of activity

Gait training includes walking on different floor coverings and walking in different locations. Gait exercises include also motor coordination under time pressure and sensory awareness. Balance retraining activities range from the rehabilitation of basic functional movement patterns to a wide variety of dynamic activities that target more sophisticated aspects of balance.

Strategies for getting up from the floor have been added to the intervention programme, in order to address not only physical but also psychological risk factors for falls.

We refer to the following ICF codes:

ICF code	ICF label
d410	Changing basic body position
d415	Maintaining a body position
d420	Transferring oneself
d430	Lifting and carrying objects
d445	Hand and arm use
d450	Walking
d455	Moving around
d460	Moving around in different locations
d465	Moving around using equipment

3. In terms of participation

1 The multi-modal intervention focuses on the improvement of motor control with several
2 components relevant for the prevention of falls: balance, gait, motor coordination in daily
3 routine activities and strength training.

4 This training uses functional activities as training stimulus and is based on the theoretical
5 concept of task specificity.

6 We refer to the following ICF codes:

7

ICF code	ICF label
d510	Washing oneself
d530	Toileting
d540	Dressing
d620	Acquisition of goods and services

IV. Environment of the programme

A. Clinical setting

Individual practice or part of a doctor's group practice	No
Individual practice in a private hospital	No
Part of a local (public) hospital	Yes
Part of a regional hospital (or rehabilitation centre)	No
Part of a university or national hospital	No

The PRM programme is performed in the Geriatric Rehabilitation Unit, which is part of the general hospital ZithaKlinik S.A.

Please refer to the general description of our clinic on pages 2-4.

B. Clinical programme

Inpatients in beds under PRM responsibility	Yes
Inpatient beds belonging to other departments	No
Day programme (most of the day in outpatient setting, not home)	Yes
Outpatient clinic (assessment and/or treatment, for up to 3 hours/day)	Yes
Community based (in the patient's home or workplace or other relevant community location, e.g. sports centre)	No

C. Clinical approach

Uniprofessional	No
Multiprofessional	Yes

The main members of the multi-professional team are: PRM physicians, a general practitioner, a specialist in geriatrics, several physiotherapists, occupational therapists and nurses, a therapist of psychomotricity, a psychologist and a social worker.

On demand, it is possible to cooperate with other specialists from the ZithaKlinik Hospital, e.g. neurologist, orthopaedist, dietician and other health care specialists

1 **D. Facilities**

2

Does your programme have a designated space for:	
For assessments and consultations?	Yes
For an ambulatory or day care programme?	Yes
For inpatient beds?	Yes
For therapeutic exercises?	Yes
For therapeutic exercises?	Yes
For training in independence and daily living?	Yes
For vocational and/or recreational activities?	Yes

3 The Geriatric Rehabilitation Department is equipped with a wide range of facilities that include: 2
 4 consultation rooms for PRM physicians, 1 consultation room for the Memory Clinic, 1 room for multi-
 5 disciplinary team exchanges, 1 consultation and practice room for psychomotricity therapies, 2
 6 exercise rooms - one equipped for training in independence and daily living. Manual therapy
 7 procedures for physical modalities are offered in 6 separated boxes.

V. Safety and patient rights

A. Safety

The safety concerns of persons in the unit where the programme takes place, relate to:	
Emergencies (fire, assault, escape)	Yes
Medical emergencies	Yes
Equipment	Yes
Handling of materials	Yes
Transports	Yes
The safety of persons in the programmes of your unit is provided by:	
Written standards from National Safety Bodies	Yes
Written standards from National Medical Bodies	No
Unit-specific written rules	Yes
Periodic inspection	
Internal	Yes
External	Yes

4 Patient safety within the Geriatric Rehabilitation Department is controlled by hospital management
5 orders and by written standards. Periodic internal and external audits of the equipment, facilities and
6 documentation are performed.

7 Falls are associated with a range of adverse outcomes including injury, impaired confidence and
8 function, increased length of stay, institutionalisation anxiety and guilt for staff and relatives, complaint
9 and litigation. Therefore, those areas are major risk management priorities for our hospital.

10 Falls assessment

11 Nurses in the hospital setting report every fall of a patient in the patient's record, as well as in an
12 electronic data base for further evaluation including the causes, the circumstances of the fall, the
13 patient's condition at the time of fall, the adverse outcomes of the fall and further treatment required.

14 Analysis and treatment of critical incidents

15 In terms of risk management and according to systemic analysis of critical incidents, we use the model
16 of organizational accidents by James Reason. In this model, fallible decisions at the higher level of the
17 management structure are transmitted down through departmental pathways to the workplace,
18 creating the task and environmental conditions that can permit unsafe acts of various kinds, (see Sally
19 Taylor-Adams & Charles Vincent, Systems analysis of clinical incidents, London Protocol).

20 In the analysis of an incident, each of these elements is considered in detail, starting from the unsafe
21 acts up to the organisational processes. The first step in any analysis is to identify active failures,
22 unsafe acts or omissions committed by those at the "sharp end" of the system (for example surgeons,
23 nurses, etc) and whose actions can have immediate adverse consequences.

24 Many factors may contribute to problems that arise in the process of care:

- 1 • Team factors like poor communication between staff members
- 2 • Absence of protocols
- 3 • High workload and stress
- 4 • Patient unable to understand instructions
- 5 • Lack of knowledge or experience of staff members
- 6 • The team is influenced in turn by management actions and by decisions made at a higher
- 7 level in the organisation.

8 For each incident (reported on incident forms), our CIRS Investigation Team, consisting of 6 health
 9 care professionals from the medical, nursing and management staff, considers the conditions in which
 10 these errors occurred and the wider organisational context in order to improve clinical practice.

11 Once the analysis of an incident has been completed, an action plan for improvement is
 12 communicated in order to tackle system weaknesses that have been revealed.

13 In the last two years, since we have implemented the critical incident reporting system, 140 cases
 14 have been reported by hospital staff and analysed by the CIRS investigation team.

15 Recommendations for improvement have been made for the following main themes:

- 16 • Safe surgery, marking the operation site
- 17 • Strong team communication
- 18 • Policy and standards in verifying patient identification
- 19 • Design, availability and maintenance of equipment
- 20 • Seeking help in the team when uncertain of work to do

21 In order to reduce bed-related falls, the use of bedrails or bed heights are evaluated regularly.

22 Beds are regularly inspected by the department of technical security.

23 ***B. Patient rights***

24

Has your programme adopted a formal policy or statement of patients' rights?	Yes
Does this statement specify the influence that the patient should have in the formulation and implementation of the programme?	Yes
Is the statement known to all personnel involved in delivering the programme?	Yes
Is this checked periodically?	Yes
Is the statement made known to and is available to all persons visiting your unit?	Yes

25 On his/her arrival, every patient is informed of the content of the programme within the admission
 26 consultation, where patient centred objectives are set.

27

28 **Patient satisfaction**

29 All patients admitted to the geriatric rehabilitation unit are interviewed at discharge in order to evaluate
 30 their experiences and their satisfaction with the PRM programme. The used questionnaire evaluates
 31 the perception of patients' improvement compared to the goals set upon their admission. We ask the
 32 patients if a reasonable outcome has been achieved from their point of view and whether they would
 33 recommend our PRM programme.

34 **Patient education**

1 We provide appropriate information and education about the implementation of the goals in the
 2 programme in order to ensure the patients understanding of the treatment possibilities and
 3 interventions, including appropriate preventive measures and lifestyle changes.

4 ***C. Advocacy***

5

Give at least one example of how your organisation advocates for people your programme deals with:
Conferences
Brochures
Internet
Best practice exchange with partners
Special events dedicated to the public

6 The Geriatric Rehabilitation Department organizes conferences, where other medical specialists from
 7 our hospital are invited, in order to share information on rehabilitation issues and promote good health
 8 behaviour for old patients. Our Department has published an information brochure on geriatric
 9 rehabilitation in the ZithaKlinik, which is offered to our patients, staff and general practitioners.

VI. PRM Specialists and team management

A. PRM Specialists in the Programme

Does your PRM physician have overall responsibility and direction of the multi-professional team?	Yes
Does your PRM physician have overall responsibility and direction of the rehabilitation programme, not only medical responsibility?	Yes
Does he/she have a European Board Certification in PRM?	No
Does he/she meet National or European CME/CPD Requirements?	No*
Number of CME or EACCME points earned in the last 3 years:	No*
The two primary functions for the PRM specialist in your Programme are to:	
Treat co morbidity	No
Assess the rehabilitation potential of the patient	Yes
Analyse & treat impairments	No
Coordinate inter-professional teams	Yes

*European CME/CPD requirements are not applicable in Luxembourg

The PRM specialist has an overall leadership on the team and manages the patient's case. He is responsible for the patient's initial evaluation (clinical and functional), the set up of an appropriate PRM strategy and its implementation by the rehabilitation team.
Team coordination is ensured by regular weekly team meetings.

B. Team management

Which rehabilitation professionals work on a regular basis (minimum of once every week) in your programme? (give the number)	
Physiotherapists	4.26
PRM specialists and other physicians	1.75
Occupational therapists	4.17
Psychologists	0.50
Speech & Language therapists	0.25
Social workers	1
Vocational specialists	0.25
Nurses	19.91
Orthotists/prosthetists assistive technicians/engineers	On demand
Psychomotrician	0.75

- 1 The Geriatric Rehabilitation Unit offers a multidisciplinary team composed of: a PRM physician, a
 2 general practitioner, a physiotherapist, an occupational therapist, a psychologist, a social worker, an
 3 orthophonist, nurses, a therapist of psychomotricity and a dietician. Other experts may be of
 4 assistance on demand. Each member of the team evaluates the patient in the field of his/her
 5 competence.
- 6 The first team meeting is usually held within the first three days of arrival. During this meeting, the
 7 initial PRM strategy is adjusted and the rehabilitation plan is confirmed. Later on, the rehabilitation
 8 process is regularly reviewed by the PRM specialist in teamwork. The team work is supervised and
 9 coordinated during weekly meetings. In all cases team meetings include the social worker and the
 10 therapists in charge of the patient.
- 11

How often does your staff receive formal continuing education (mark as is)?	
In team rehabilitation:	Every year
In their own profession:	Every year
Do team activities in your rehabilitation programme include the following?	
Is the patient at the centre of a multiprofessional approach?	Yes
Do you always give informed choices of treatment?	Yes
Do you regularly promote family involvement?	Yes
Does your organisation of multi professional team working include:	
Holding regular team meetings with patient's records only (more than 2 members)	Yes
Holding regular team meetings (more than 2 members) with the presence of the patients	Yes
Joint assessment of the patient or joint intervention	Yes
Regular exchanges of information between team members	Yes

- 12 All staff receives formal continuing education each year.
- 13 At the beginning of 2012, an agreement was signed with the Basel Mobility Centre of the University
 14 Hospital in Basel (Switzerland). Members of the physiotherapy team have received an intensive
 15 training at this Mobility Centre in Basel including special procedures and protocols to conduct
 16 standardized gait analyses, data collection, data editing and management as well as interpretation of
 17 various gait parameters. The rehabilitation unit wishes to further maintain this collaboration.
- 18 Multidisciplinary team meetings are held on a weekly basis in order to assess the plans of care
 19 including input from all the expert health care professionals, the family and the patient himself. Thus
 20 the response to the treatment plans is monitored and if necessary adaptations are made.
- 21 Details are explained in the following chapter (VIII. A. 1 Time frame of the programme).

VII. Description of the programme

A. *Time frame of the programme*

1. Phases of the programme

Our PRM programme involves different processes of care, described as follows:

Upon admission of every patient, the Hendrich Risk Fall Model is used by nurses in the hospital setting in order to assess the fall risk. Thus specific actions can be prompted by staff, which might, in turn, reduce falls and risk of falls. This strategy prompts good comprehensive geriatric assessment, care-planning, and all sorts of therapy and medical interventions to prevent falls and fall-related injuries.

a) **Mobile Geriatric Unit (UMG – Unité mobile gériatrique)**

On demand of the physician in charge, frail elderly patients with a high fall risk are further evaluated by a geriatric assessment team UMG (“Unité mobile gériatrique”). This multidisciplinary hospital team (PRM, a psychologist, a social worker and an occupational therapist) strives to integrate all care providers into the daily assessment and plan of care for older patients. The role of the PRM in the UMG is to give his medical expertise for the geriatric assessment, as well as to evaluate the patient’s potential for rehabilitation. The PRM is then responsible of admitting the patient to the geriatric rehabilitation unit in order to benefit from an individually adapted rehabilitation programme, based on multi-professional assessments.

The main objectives of the UMG are:

- To perform a global comprehensive geriatric assessment of the patient’s condition
- To identify the profile and risks of a patient
- To determine the potential of rehabilitation of a patient
- To recommend an appropriate care setting, e.g. ambulatory rehabilitation or intervention programmes in the rehabilitation department in the clinical setting
- To prevent complications of falls

Different types of assessment tools are delivered to each patient by the UMG team, e.g.:

- Gait, balance, and mobility assessment (Get Up and Go, Stratify, Tinetti)
- Evaluation of the social environment
- Geriatric Nutritional Risk Index (G.N.R.I.)
- Medication review
- Osteoporosis Risk SCORE
- Neuropsychological examination including cognitive screening tests (MMS, clock test, evt. Sidam, etc)

The time spent with the patient by the UMG team is approximately 2 hours.

Twice a week, the UMG team organizes meetings in order to systematically evaluate the frail elderly patients.

For each patient seen by the UMG team, a detailed report is forwarded to the physician in charge and the general practitioner is informed about the recommendations.

Patients with a potential of rehabilitation (e.g. reasonable cognitive function, no progressive neurological conditions) are referred to the geriatric rehabilitation unit.

1
2
3 **b) Development and implementation of a treatment plan in the Geriatric**
4 **Rehabilitation Unit**

5 Goals of the PRM treatment plan

- 6 • To help patients regain or maintain their level of independence and a meaningful
7 quality of life
8 • To optimize gait and balance
9 • To achieve independent walking and orientation
10 • To assist the patient in developing a specific physical activity
11 • To educate the patient in using assistive devices for preventing fall injuries (written
12 material and oral information by nurses and therapists)

13 Multidisciplinary team meetings are held on a weekly basis in order to assess the plans of
14 care including input from all the expert health care professionals, the family and the patient.
15 Thus the response to the treatment plans is monitored and if necessary adaptations are
16 made.

17 Upon discharge, clinicians and others working with older patients at the time of discharge,
18 strongly partner with the patient's family or other social supports to assure a soft care
19 transition after discharge.

20 After the discharge from the hospital setting, some patients with treatable walking/gait
21 troubles are referred to the geriatric day hospital.

22 The social worker participates actively in the discharge plan of patients discharged to their
23 usual living environment or nursing homes in order to ensure a soft transition out of the
24 hospital.

25 In summary the PRM programme allows the geriatric rehabilitation unit to demonstrate
26 objectively the effectiveness and the benefits of their rehabilitative efforts to the public,
27 aiming at developing a market leading position in geriatric rehabilitation in Luxembourg.
28 Furthermore, specific training programs (e.g. motor training programs, cognitive training
29 programs) are proposed to the patient adhering him/her further to the ZithaKlinik for
30 ongoing ambulant fall prevention training sessions.

31 **B. Assessment**

32 **1. Disease and impairment - diagnosis approach**

33 In the acute care setting, the PRM as a member of the UMG team has a merely
34 consultative role. Patients are referred to the PRM by the physician in charge of the patient
35 in the hospital acute care unit. The PRM is then responsible of admitting the patient to the
36 geriatric rehabilitation unit in order to benefit from an individually adapted rehabilitation
37 programme, based on multi-professional assessments.

38 The medical diagnosis is already available in the patient's file at admission to the
39 rehabilitation unit.

40 The PRM may not be the only physician treating the patient. At admission of every patient,
41 a specialist in internal medicine is in charge of the patient concerning decisions on
42 pharmacologic therapies and medication. Besides the PRM is in charge of the patient for
43 the coordination and the implementation of the rehabilitation treatment plan. Both of them
44 collaborate as a team.

45 The PRM specialist prescribes screen tests and therapies, detects sequels and associates
46 health problems, when he makes his assessment for the patient.

1 In the rehabilitation team of the rehabilitation unit, the PRM coordinates multi-professional
2 assessments and analyses the patient's situation. He is responsible for ensuring the safety
3 and comfort of the patient during the rehabilitation programmes.

4 He must make sure that the advice given by professionals and the treatments prescribed
5 are carried out (and coordinates the work of the various therapists treating the medical
6 problems and any associated problems).

7 Their interventions include for example, prescribing special orthotic devices for use in the
8 patient's home and promoting contact between the various professionals attending to
9 patients at home.

10 The PRM intervenes with frail elderly persons and their families in consultations concerning
11 safe mobility advices.

12 On demand of the PRM, the multi-professional geriatric rehabilitation team and other
13 hospital specialists perform check-ups and assessments e.g. performing balance and
14 locomotor tests, assessing and treating the untoward effects of spasticity, screening and
15 treating osteoporosis, etc.

16 The PRM specialist informs the General Practitioner of the patient's evolution and the
17 different assessment results.

18 **2. Activity**

19 A general physical examination with the focus on fall risk factors is performed and includes
20 neurological, cardio vascular, orthopaedics and rheumatologic aspects. The PRM
21 physician decides upon admissions, performs a complete medication history, an
22 assessment of the visual acuity, takes the blood pressure and heart rate and measures
23 sitting and standing balance.

24 Physical therapists/exercise physiologists use exercise interventions like the Timed Up &
25 Go test, Tinetti or balance test) which focus on gait and balance training in order to reduce
26 the rate of falls. By using the computerized GAITRite system upon admission and
27 discharge of the patient, balance abilities on various spatiotemporal gait parameters are
28 measured.

29 The functional status is assessed weekly using the functional independence measure tool
30 (FIM). The functional status refers to the ability to perform activities necessary or desirable
31 in daily life (e.g. self care tasks like dressing or eating, the ability to maintain an
32 independent household, taking medication or using the telephone. For patients with
33 functional impairment, the team ascertains that the persons have safety equipment at their
34 disposal to perform activities of daily living, e.g. alarms given to the patients in order to
35 notify the nurses when they would need help. Beds can be positioned lower to the ground
36 or at floor-level, in order to lessen the potential height that a patient may fall when the
37 patient rises from bed.

38 The PRM specialist analyzes the limitations to patients' activity detected by the multi-
39 professional assessment team.

40 The physiotherapists evaluate transferring and gait quality, velocity and they perform walk
41 test as well as muscle testing.

42 Occupational therapists evaluate patients' daily functional independence.

43 **3. Participation - environmental and personal factors**

44 Occupational therapists evaluate the equipment needed by the patient (e.g. all kinds of
45 mobility aids, dressing aids, elevated toilet seat, toilet safety frames, bedside commode
46 chair, shower or bath seats) in collaboration with the social worker.

47
48 The social worker assesses the patient's care needs, the social situation, the environment
49 of family and friends, the financial assets. In collaboration with the occupational therapists,
50 she contacts the Department of technical aids and documents the assistive devices. She
51 actively participates in the discharge plan of the patient.

C. *Intervention*

1. The following components are core elements of the programme:

- Intervention of PRM in:
 - Decision making upon admissions
 - Consideration of individual patients expectations and needs
 - Physical examination focused on fall risk factors including neurological, cardio-vascular, orthopaedics and rheumatologic aspects
 - Complete medication history
 - Measurement of sitting and standing balance
 - Gait measures
 - Coordination of interdisciplinary assessments
 - Elaboration of rehabilitation programme therapies
 - Prescription of daily and weekly physical therapy programmes
 - Adaptation of plans based on individual results and health conditions
 - Prescription of assistive devices
 - Centralize data in patient record
 - Upon discharge evaluation of reached goals from the patients point of view
 - Final report forwarded to hospital physician in charge and general practitioner
- Interventions by physiotherapists:
 - Preventing falls by exercise interventions: group or individual training
 - Specific exercises like muscle strengthening,
 - Resistance training,
 - Balance training
 - Dual tasks exercises
 - Flexibility
 - Massage and relaxation techniques
 - Education for using assistive devices
 - Upon admission and discharge measuring of gait symmetry and velocity (GAITRite)
- Interventions by occupational therapists:
 - Neurocognitive training for adults with memory complaints (Stengel procedure)
 - Training for activities of daily life
- Interventions by the psychomotrician (Bachelor Education in Belgium, Switzerland and France, authorization to exercise this profession given by the Ministry of Health):
 - Reflexology therapies
 - Relaxation therapies
 - Neurocognitive training for adults with memory complaints (Stengel procedure www.thieme.de/ergoonline >"ergopraxis"> "Artikel">"Ergotherapie")
- Intervention of Social worker:

- 1 - Interviews with the family concerning the use of assistive devices and the efficacy
- 2 of home modification,
- 3 - Initiates legal procedures providing adequate protection of old adults
- 4 - Communicates with contact person in the home care setting
- 5 • Intervention of the psychologist:
- 6 - Interviews with patients to provide social and psychological support
- 7 - Provides encouragement for the family
- 8 Preventing falls by exercise interventions in the day clinic for patients with a certain
- 9 autonomy

10 **2. PRM specialist intervention (other than follow up and**

11 **complications management)**

12 Other interventions:

- 13 - Drawing up personal plans for patients' rehabilitations
- 14 - Coordinating the work of other hospital specialists and obtaining expert advice on
- 15 problems such as cognitive and behavioural disorders, etc.
- 16 - Ensuring financial support of the programme by the insurance companies
- 17 - Centralizing medical information and follow-up data
- 18 - Summarizing patients' medical data

19 What is actually done for the patient and who does what is described above in section VIII
20 A-C.

21 **3. Complications management**

22 Complications like further falls during the rehabilitation programme are also managed by
23 the multi-disciplinary team. In such cases the appropriate adaptations are made to improve
24 the patient's condition.

25 ***D. Discharge planning and long term follow up***

26 Decisions on discharging patients are the responsibility of the PRM specialist on the basis of the
27 weekly multi-disciplinary team meetings. The decision is based on achieved rehabilitation goals
28 according to the needs of the patient, gait and balance stability, independent and secure mobility and
29 daily living activities, as well as the aim to be free of pain.

30 The PRM specialist generates a comprehensive discharge report for the patient, the general
31 practitioner and the hospital doctor in charge, based on the assessment and the information provided
32 by each of the team members.
33

VIII.Information management

A. Patient records

Do the rehabilitation records have a designated space within the medical files?	Yes
Do you have written criteria for:	
• Admission	Yes
• Discharge	Yes
Do your rehabilitation plans include written information about aims and goals, time frames and identification of responsible team members?	Yes
Do you produce a formal discharge report (summary) about each patient?	Yes

Information about aims and goals of the patient and the team as well as time frames, is collected in a multidisciplinary care record which is regularly updated.

All patient data are recorded in a medical database "ORBIS". Information on the patient's diagnosis, disposition (including new medications), PRM programme, different reports and the follow-up plan are collected in the electronic patient record.

For all patients, an assessment report is completed by the mobile team (UMG), a Gait analysis report and a discharge report by the PRM specialist. A copy of these reports is sent to the patient's referent GP and the referent medical specialist.

B. Management information

Does your programme show evidence of sustainability?	
• Established part of public service:	Yes
• Has existed for more than 3 years:	Yes
• Has received national accreditation (where available):	Yes
How many new patients (registered for the first time) are treated in your programme each year:	In 2011: Rehabilitation unit: 237 patients admitted in the geriatric rehabilitation unit Mobile team "UMG": 302 patients assessed by the team of UMG
In your day care or inpatient programme:	
• What is the mean duration spent in therapy by patients on this programme	35 days (see following performance indicators)
• How many hours a day do the patients spend in therapy.	+/- 3 Hours

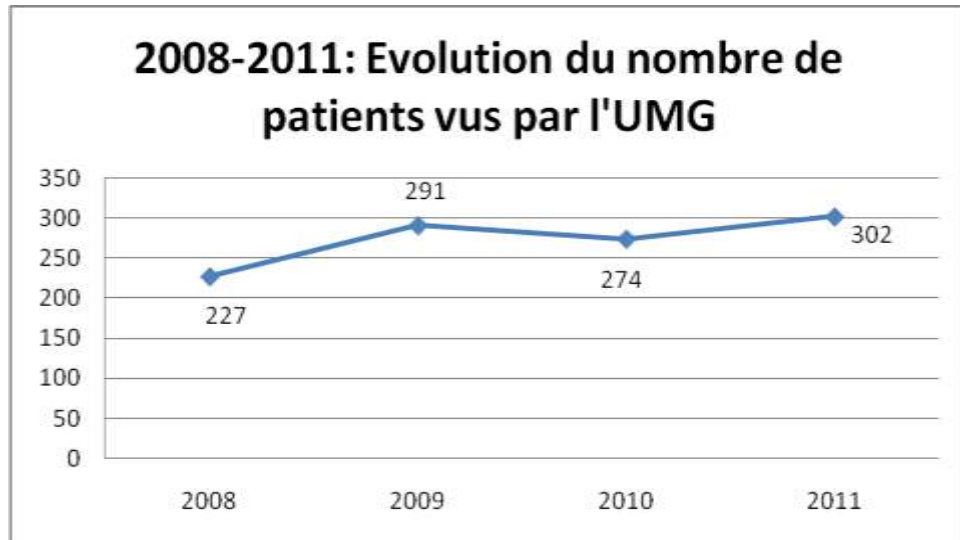
1 **Give the mean duration of stay spent in the programme:**

43 days (see enclosed indicators)

1
2
3
4
5
6
7

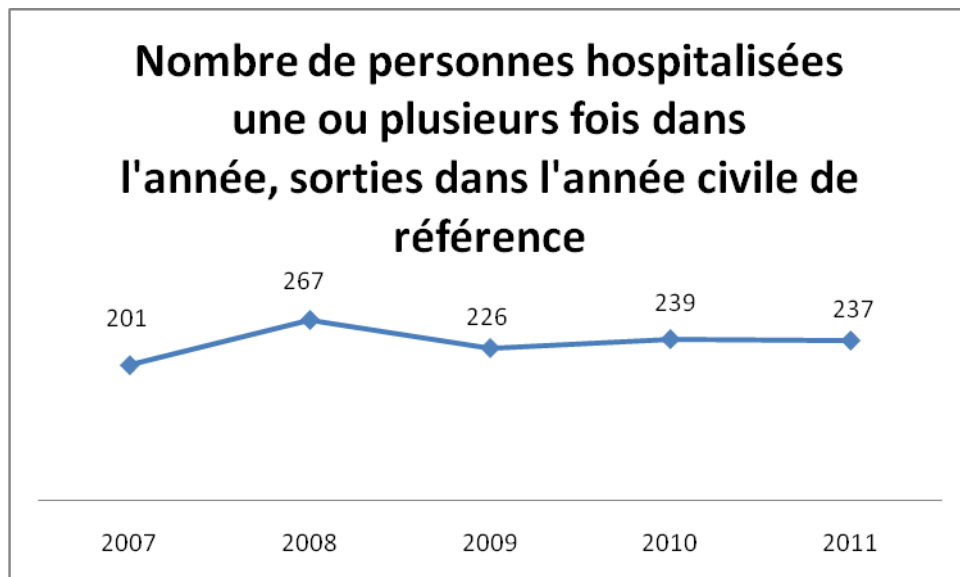
The following diagrams give some statistic information about the number of patients evaluated by our mobile assessment team UMG, the number of patients in our PRM unit and the length of stay per year. This data is regularly updated and implemented in the management plan.

Graph 1: 2008-2011: Number of patients evaluated by the UMG



8
9
10
11

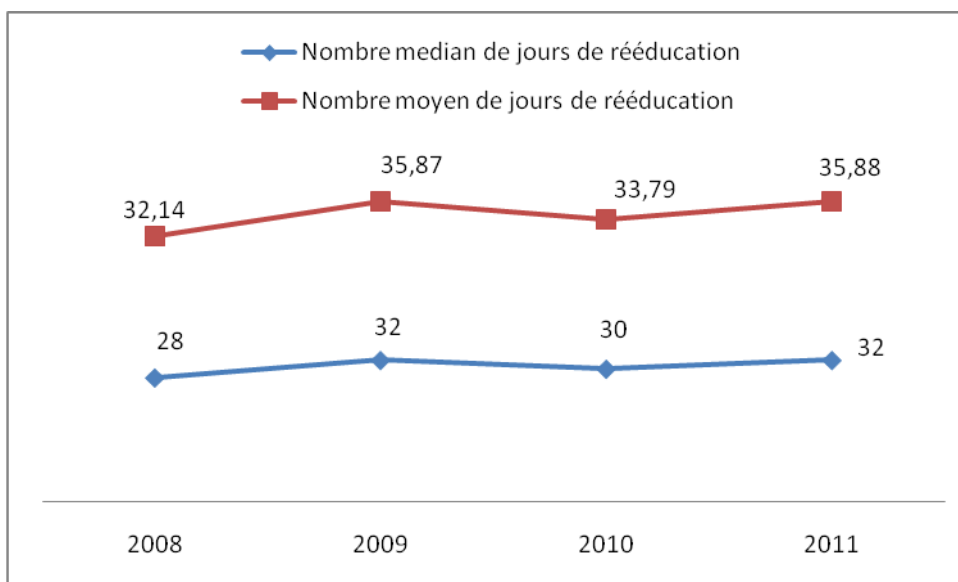
Graph 2: 2007-2011 Number of persons hospitalized once or more per year in the rehabilitation unit



12
13
14
15
16

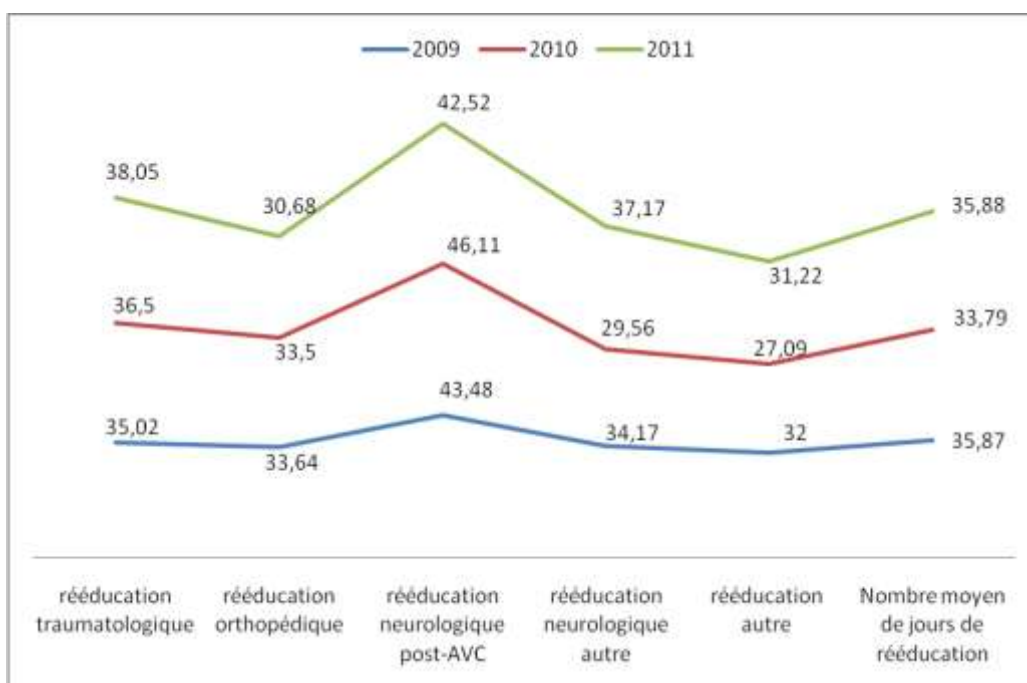
1

Graph 3 : 2008-2011 Median and Mean value of the rehabilitation days per year



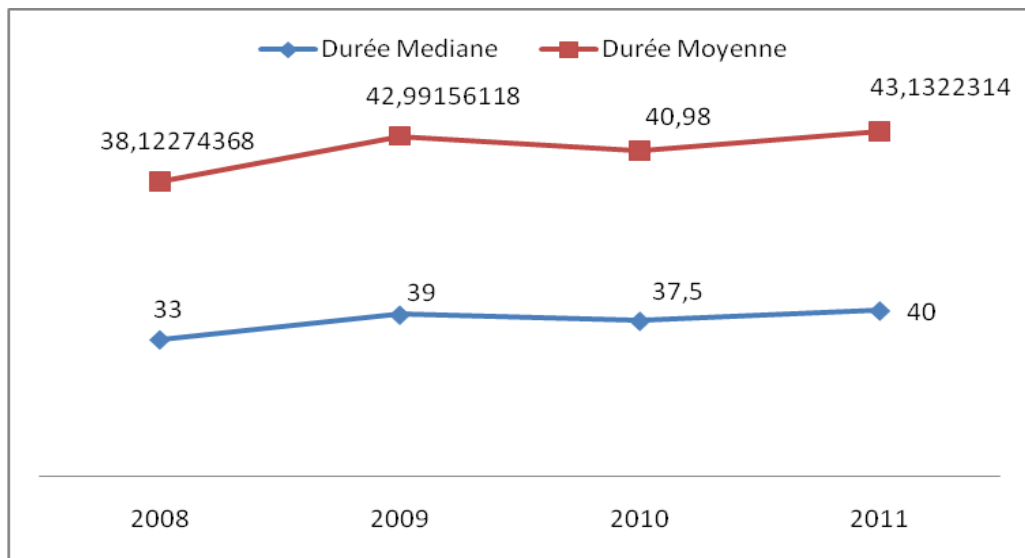
2
3
4
5

Graph 4: 2009-2011 Average length of stay per type of rehabilitation



6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

1

Graph 5 : 2008-2011 Mean and average duration days in the programme2
3

1

2 **C. Programme monitoring and outcomes**

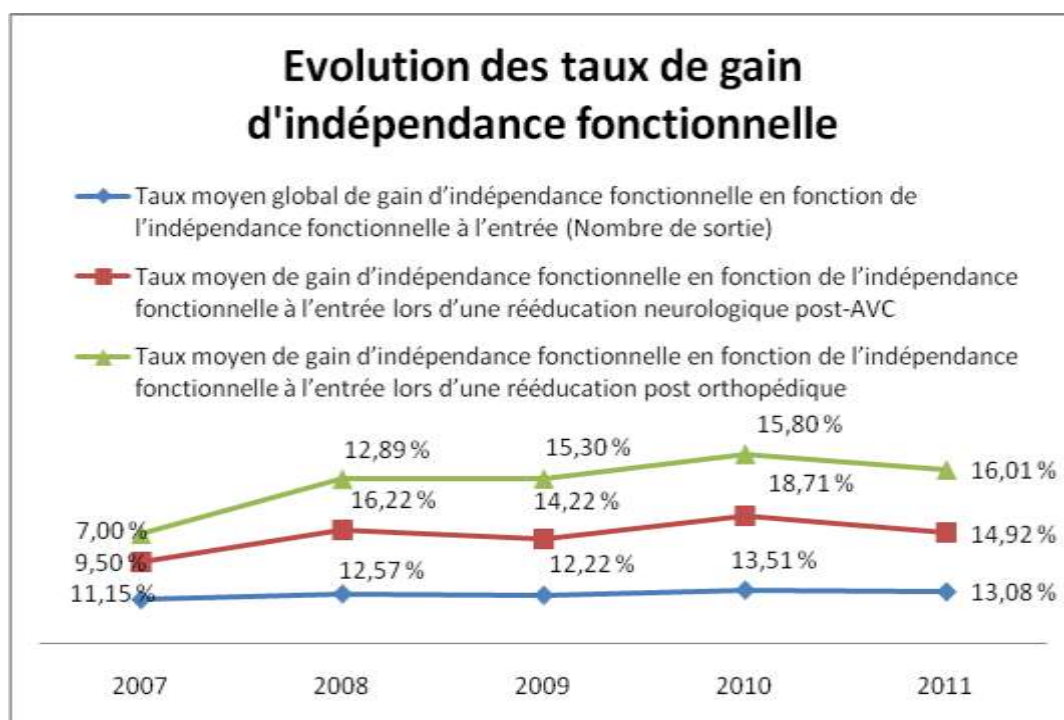
3

Does your programme have an overall monitoring system in addition to patient's records?	Yes
Are the long term outcomes of patients who have completed your programme regularly monitored?	
<ul style="list-style-type: none"> • Impairment (medical) outcomes: 	Yes
<ul style="list-style-type: none"> • Activity/Participation (ICF) outcomes: 	Yes
<ul style="list-style-type: none"> • Duration of follow up of the outcomes: 	3-6 months
Do you use your outcome data to bring about regular improvements in the quality of your programme's performance?	Yes
Do you make the long term overall outcomes of your programme available to your patients or to the public?	No

4 A continued monitoring of the programme is performed each two months by the management board.

5 This management board reviews and analyses a set of performance indicators and related
6 outcomes (e.g. functional independence measures) to determine the successful
7 implementation of the programme. The needs and expectations of the patients are also
8 discussed in these meetings.

9 **Graph 6: 2007-2011 Evolution of the global MIF rate (blue line) as well as post-stroke
10 (red line) and post-orthopedics (green line)**



11

12

The long term follow-up of the outcomes needs improvement.

1 The FIM (average value at admission and at discharge) for the year 2012 are presented as
 2 an example as follows:

3

Average FIM at admission in traumatology	70
Average FIM at discharge in traumatology	92

4

Average FIM at admission in orthopaedics	84
Average FIM at discharge in orthopaedics	101

5

Average FIM at admission for post-stroke patients	70
Average FIM at discharge for post-stroke patients	80

6

Average FIM at admission in other neurologic indications (eg. Parkinson)	61
Average FIM at discharge in other neurologic indications (eg. Parkinson)	78

7

Average FIM at admission in other rehabilitation indications (eg. Degradation of the health status)	76
Average FIM at discharge in other rehabilitation indications (eg. Degradation of the health status)	92

8

IX. Quality improvement

A. Which are the most positive points of your programme?

The programme provides a comprehensive geriatric assessment of elderly patients by a mobile team.

A multidisciplinary diagnosis and treatment process identifies medical, functional and psychosocial capabilities of frail older persons.

The patient is in the center of multi-professional teamwork

Clear leadership by the PRM

Informed choices of treatment and regular exchange between team members

Social support is provided and family involvement is guaranteed

The programme provides ambulatory care, if necessary after hospitalisation.

The programme includes memory training (Stengel procedure) in order to assist balance and gait stability.

A partnership agreement has been signed with the Basel Mobility Centre of the University Hospital in Basel, Switzerland. We implement standardized procedures and protocols in the conduction of gait analysis (GAITRite system).

By systematically conducting gait analysis and by actively promoting our approach of fall investigations and preventions on a national level, the geriatric institution of the Zitha strives to demonstrate best practice in Luxembourg in the investigation of fall predictors in old adults and thus, in fall prevention.

Gait analysis allows the geriatric rehabilitation unit to objectively demonstrate the effectiveness and the benefits of their rehabilitative efforts to the public.

B. Which are the weakest points of your programme?

A future improvement strategy for patients not benefiting from the day clinic will be to organize a reassessment after a defined period after discharge from hospital.

For all hospitalized old patients, the collaboration of a trained nurse to provide geriatric assessment in alliance with the mobile assessment team should be improved.

The long term follow-up of the outcomes needs also improvement.

C. Which action plan do you intend to implement in order to improve your programme?

1. Extrinsic conditions

The following actions are planned:

In the middle term and after having acquired substantial expert knowledge in the conduction of standardized gait analysis and the interpretation of various gait parameters, Zitha might be able to propose gait analyses to the public in the context of fall prevention programmes and could monitor those persons identified with a high risk of falls.

1 Enlarging the team by recruiting healthcare professionals, especially physiotherapists
2 specially trained for procedures and protocols to conduct standardized gait analysis, data
3 collection, data editing and management, interpretation of various gait parameters.

4 Developing new partnerships with healthcare professionals, e.g. general practitioners and
5 medical specialists.

6 Providing a greater separate room for the electronic gait analyses

7 **2. Intrinsic improvement**

8 The following actions are planned:

9 Improvement of the cooperation between trained nurses, in order to provide geriatric
10 assessment in support with the mobile assessment team.

11 Promotion of scientific activities and research work in the field of fall prevention and gait
12 analysis.

X. References

A. List of references

1. Segev-Jacobovski, O., Herman, T., Yogev-Seligmann, G., Mirelman, A., Giladi, N., & Hausdorff, J. M. (2011). The interplay between gait, falls and cognition: can cognitive therapy reduce fall risk? *Expert review of neurotherapeutics*, 11(7), 1057–1075. doi:10.1586/ern.11.69
2. Trombetti, A. (2011). Effect of Music-Based Multitask Training on Gait, Balance, and Fall Risk in Elderly People: A Randomized Controlled Trial Music-Based Training on Fall Risk in the Elderly. *Archives of Internal Medicine*, 171(6), 525. doi:10.1001/archinternmed.2010.446
3. Yves J. Gschwind, Stephanie A. Bridenbaugh, and Reto W. Kressig (2010). Gait Disorders and Falls, *GeroPsych*, 23 (1), 2010, 21–32.
4. Manckoundia, P., Mourey, F., & Pfitzenmeyer, P. (2008). Gait and dementias. *Annales de réadaptation et de médecine physique*, 51, 692-700.
5. Rubenstein L. Z. (2006) Falls in older people: epidemiology, risk factors and strategies for prevention, *Age and Ageing* 2006; **35-S2**: ii37–ii41 doi:10.1093/ageing/af1084
6. Verghese, J., LeValley, A., Hall, C. B., Katz, M. J., Ambrose, A. F., & Lipton, R. B. (2006). Epidemiology of Gait Disorders in Community-Residing Older Adults. *Journal of the American Geriatrics Society*, 54(2), 255–261. doi:10.1111/j.1532-5415.2005.00580.x
7. Bates DW, Pruess K, Souney P, Platt R (1995). Serious falls in hospitalized patients: correlates and resource utilization, *Am J Med* 1995 Aug; 99(2):137-43.
8. Berg, R. L., & Cassells, J. S. (1992). *The Second Fifty Years: Promoting Health and Preventing Disability*. National Academy Press.
9. Givens JL, Sanft TB & Marcantonio ER. (2008). Functional recovery after hip fracture: the combined effects of depressive symptoms, cognitive impairment, and delirium. *Journal of the American Geriatrics Society*, 56(6), 1075-9.
10. Hung W.W., Egol K.A., Zuckerman J.D. & Siu A.L. (2012). Hip fracture management: Tailoring care for the older patient. *Journal of the American Medical Association*; 307 (20):2185-94.
11. Ortiz-Alonso F.J., Vidán-Astiz M., Alonso-Armesto M., Toledano-Iglesias M., Alvarez-Nebreda L., Brañas-Baztan F. & Serra-Rexach J.A. (2012). The pattern of recovery of ambulation after hip fracture differs with age in elderly patients. *J Gerontol A Biol Sci Med Sci*. 2012 Jun;67(6):690-7. Epub 2012 Jan 4.
12. Centre for Nursing and Supportive Care. "Falls : The assessment and prevention of falls in older people." *Clinical Guideline 21 developed by the National Collaborating Centre for Nursing and Supportive Care (November 2004) available from <http://www.nice.org.uk/CG21>*
13. Haute Autorité de Santé. « Évaluation et prise en charge des personnes âgées faisant des chutes répétées » - *Recommandations pour la pratique clinique – Avril 2009. Ces recommandations et l'argumentaire scientifique sont consultables dans leur intégralité sur www.has-sante.fr*
14. Stiftung für Patientensicherheit, Identifikation von Risiken, Systemische Fehleranalyse: London Protocol „Sally Taylor-Adams & Charles Vincent, *Systems analysis of clinical incidents*“.

B. National documents

- 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
15. Lair, M.-L., Alkerwi, A., Sauvageot, N., Renard, L., Bocquet, V., Thomas, A. C., Cornez, J. P. Rott, C., Bejko, D. (2012, June 20). *Les personnes âgées à l'hôpital : Données épidémiologiques* [Old persons in the hospital : epidemiological data]. Paper presented at the 7th national health conference. Retrieved July 26, 2012, from <http://www.sante.public.lu/fr/exposes/conference-nationale-sante/2012/7eme-conference-nationale-sante/>
16. National leaflet "patient rights" edited by the National Ministry of Health http://www.patientevertriedung.lu/mmp/online/website/menuvert/services/28/index_FR.htm